

Appendix A
Notice of Preparation/Initial Study

Notice of Preparation



Los Angeles County Department of Regional Planning

Planning for the Challenges Ahead



Richard J. Bruckner
Director

NOTICE OF PREPARATION

DATE: November 21, 2011

PROJECT TITLE: CHIQUITA CANYON LANDFILL MASTER PLAN REVSION
PROJECT NO. R2004-00559-(5)
CONDITIONAL USE PERMIT NO. 200400042
ENVIRONMENTAL CASE NO. 200400039

PROJECT APPLICANT: Chiquita Canyon Landfill LLC.
29201 Henry Mayo Drive
Castaic, CA 91384
(661) 257-3655

The County of Los Angeles is the lead agency and will prepare an Environmental Impact Report (EIR) for the project identified below. In compliance with Section 15082 of the State of California Environmental Quality Act (CEQA) Guidelines, the County of Los Angeles is distributing the Notice of Preparation (NOP) to the Office of Planning and Research, each responsible agency, interested parties, and federal agencies, involved in approving the project and to trustee agencies responsible for natural resources affected by the project. Within 30 days after receiving the NOP, each agency shall provide the County of Los Angeles with specific written details about the scope and content of the environmental information related to the agency's area of statutory responsibility.

The purpose of this NOP is to solicit the views of your agency as to scope and content of the environmental information germane to your agency's statutory authority with respect to the proposed project. Your agency may need to use the EIR prepared by our agency when considering approval of applicable permits and other approvals for the project.

PROJECT LOCATION AND ENVIRONMENTAL SETTING: The Chiquita Canyon Landfill (CCL), located in the northwestern portion of unincorporated Los Angeles County, is approximately three miles west of the Interstate 5 and State Route 126 (SR-126) intersection (Figure 1). The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The site latitude and longitude are 34°25'N and 118°39'W, respectively.

Much of the area surrounding CCL consists of undeveloped open space as a result of steep topography. Surrounding land uses include mostly open lands to the north; rural residential development is located to the west and northwest along Chiquito Canyon Road and in the Val Verde area, respectively. Relatively new suburban residential areas are located to the northeast. The closest of these residential dwellings is located approximately 500 feet from the northwest site boundary corner and 1,200 feet from the current landfill footprint;

intervening topography prevents residential views of the operating landfill from these locations. Industrial/commercial uses are located to the northeast, east, and southeast. The United States Postal Service has a general mail facility adjacent to the eastern edge of the landfill property boundary. The property immediately west and south of the landfill is owned by the Newhall Land and Farming Company (NLF) and is currently either vacant or is used for agricultural activities. Oil extraction fields and associated storage areas are located less than one mile from the landfill to the west and south. Valencia Travel Village, a short- and long-term campground, is located approximately one mile east of the landfill on the south side of SR-126.

PROJECT SUMMARY: The CCL Master Plan Revision (Proposed Project) would allow the existing landfill to continue operations with a new grant term, as well as extend the waste footprint at CCL within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The Proposed Project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals.

ENTITLEMENT REQUIREMENTS AND DISCRETIONARY APPROVALS: The applicant, Chiquita Canyon LLC, is requesting a Conditional Use Permit (CUP) to authorize the continued operation, maintenance and expansion of an existing waste disposal facility located in the A-2 (Heavy Agricultural) zone. A CUP is required for the operation of a waste disposal facility in the A-2 zone pursuant to Section 22.24.150 of the Los County Code (Zoning Ordinance).

POTENTIAL PROJECT IMPACTS:

Based on the Initial Study, an EIR is necessary for the proposed Project. Based on a preliminary assessment of potential environmental impacts that may occur as a result of the proposed Project (Attachment 2, Draft Initial Study), the environmental issues to be addressed in the Chiquita Canyon Landfill Master Plan Revision would include at least the following:

Potential Hazards

Geology/Soils

Hazards/Hazardous Materials

Noise

Potential Impacts to Resources

Hydrology/Water Quality

Air Quality

Biological Resources

Cultural Resources

Greenhouse Gas Emissions

Potential Impact to Services

Transportation/Traffic

Utilities/Services

NOTICE OF PREPARATION REVIEW AND COMMENTS: The review period for the Notice of Preparation will be from November 28, 2011 to January 12, 2012. As a result of the time limits mandated by state law, your response must be sent at the earliest possible date, but not later than January 4, 2012. Please direct all written comments to the following address. In your response, please include the name of a contact person in your agency.

Rob Glaser
Zoning Permits North Section
Los Angeles County Department of Regional Planning
320 W. Temple Street, Room 1348
Los Angeles, CA 90012
Tel: (213) 974-6443
Fax: (213) 626-0434
E-mail: rqlaser@planning.lacounty.gov

SCOPING MEETING: To assist in local participation, a Scoping Meeting will be held to present the proposed Project and to solicit suggestions from the public and responsible agencies on the content of the Draft EIR. The Scoping Meeting will be held at the Val Verde Community Regional Park Facility, located at 30300 West Arlington Street, Val Verde, on **Tuesday December 6, 2011 from 7:00 p.m. – 8:30 p.m.**

Attachment:
Draft Initial Study

Environmental Checklist Form (Initial Study)

County of Los Angeles, Department of Regional Planning



Project title: Chiquita Canyon Landfill / Project No. R2004-00559-(5) / Case No(s) Conditional Use Permit No. 200400042, Environmental Case No. 200400039.

Project location: 29201 Henry Mayo Drive, Castaic, CA 91384 (Located between Chiquito Canyon Road and Wolcott Way)

APN: 3721-002-011, 013, 019 and 034 **Thomas Guide:** 4549 D-1, D-2, E-1, E-2 **USGS Quad:** Val Verde

Gross Acreage: 643 acres

Description of project: The Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) would continue the existing landfill use with a new grant term, as well as extend the waste footprint at CCL within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The Proposed Project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals.

General plan designation: R (Non Urban)

Community/Area wide Plan designation: HM (Hillside Management), I (Industrial), P (Public Facilities) (Santa Clarita Valley Areawide General Plan)

Zoning: A-2-2 (Heavy Agricultural - two acre minimum required lot area), A-2-5 (Heavy Agricultural – Five Acre Minimum Lot Area), M-1 1/2-DP (Restricted Heavy Manufacturing – Development Program).

Surrounding land uses and setting: Much of the area surrounding CCL consists of undeveloped vacant hillsides as a result of steep topography. Surrounding land uses include mostly open lands to the north; rural residential development is located to the west and northwest along Chiquito Canyon Road and in the Val Verde area, respectively. Relatively new suburban residential areas are located to the northeast. The closest of these residential dwellings is located approximately 500 feet from the northwest site boundary corner and 1,200 feet from the current landfill footprint; intervening topography prevents residential views of the operating landfill from these locations. Industrial/commercial uses are located to the northeast, east, and southeast. The United States Postal Service has a general mail facility adjacent to the eastern edge of the landfill property boundary. The property immediately west and south of the landfill is owned by the Newhall Land and Farming Company (NLF) and is currently either vacant or is used for agricultural activities. Oil extraction fields and associated storage areas are located less than 1 mile from the landfill to the west and south. Valencia Travel Village, a short- and long-term campground, is located approximately 1 mile east of the landfill on the south side of SR-126.

Major projects in the area:

Project/Case No.

00-196/TR53108

04-181/TR061105

Description and Status

The “River Village” project (part of Newhall Ranch SP, pending)

The “Mission Village” project (part of Newhall Ranch SP, pending)

<u>00-210/TR53295</u>	<u>The “Entrada” project (pending)</u>
<u>PM20685</u>	<u>21 industrial lots on 110 AC (approved)</u>
<u>TR069708</u>	<u>100 single family residential lots (pending)</u>
<u>TR52475</u>	<u>58 single family residential lots (pending)</u>
<u>PM066190</u>	<u>825 single family lots (pending)</u>
<u>TR060257</u>	<u>353 single and multi-family residential lots (pending)</u>
<u>PM060030</u>	<u>37 industrial lots and 5 public lots (pending)</u>
<u>TR060665</u>	<u>109 residential condo lots (pending)</u>
<u>TR52584</u>	<u>209 single family residential lots, one golf course lot, 2 open space lots and two street lots on 432 acres (approved)</u>
<u>TR45084</u>	<u>294 single family residential lots (recorded)</u>
<u>PM18108</u>	<u>1,740 commercial, industrial and public lots (pending)</u>
<u>TR061996</u>	<u>The “Legacy” project; 3,455 single and multi-family residential lots (pending)</u>
<u>TR060678</u>	<u>The “Homestead Newhall Ranch” project; 5,778 single and multi-family residential lots (pending)</u>

Reviewing Agencies:*Responsible Agencies*

- ☐ None
 Regional Water Quality Control Board:
☒ Los Angeles Region
☐ Lahontan Region
☐ Coastal Commission
☒ Army Corps of Engineers
☒ Caltrans
☒ CA DHS

Special Reviewing Agencies

- ☐ None
☐ Santa Monica Mountains Conservancy
☒ National Parks
☒ National Forest
☐ Edwards Air Force Base
☐ Resource Conservation District of Santa Monica Mountains Area
☒ DOCDOG, AQMD, CIWMB
☒ CA Food & Agriculture, Kern County, SCOPE, Save Open Space
☒ U.S. Postal Services, MTA
☒ City of Santa Clarita, SC Oak Conservancy, Sierra Club
☒ CA Dept of Water Resources, City of Los Angeles, Friends of the SC River, Communities for a Better Environment
☒ Castaic Water, Valencia Water
☒ Ventura County, Santa Clarita Civic Association, SCAG

Regional Significance

- ☐ None
☐ SCAG Criteria
☒ Air Quality
☒ Water Resources
☐ Santa Monica Mtns. Area
☐

Trustee Agencies

- ☐ None
☒ State Dept. of Fish and Game
☒ State Dept. of Parks and Recreation
☒ State Lands Commission
☐ University of California (Natural Land and Water Reserves System)

County Departments

- ☒ DPW:
 - Land Development Division (Grading & Drainage)
 - Geotechnical & Materials Engineering Division
 - Traffic and Lighting Division
 - Environmental Programs Division
 - Waterworks Division

- ☒ Fire Department
 - Forestry, Environmental Division
 - Planning Division
☒ Sanitation District
☒ Public Health: Environmental Hygiene (Noise)
☐ Sheriff Department
☒ Parks and Recreation
☐ Subdivision Committee
☐

Public agency approvals which may be required:*Public Agency*

Approval Required(E.g., permits, financing approval, or participation agreement.)**Lead agency name and address:**

County of Los Angeles
 Attn: Department of Regional Planning
 320 West Temple Street
 Los Angeles, CA 90012

Project sponsor's name and address:

Chiquita Canyon Landfill, LLC
 29201 Henry Mayo Drive
 Castaic, CA 91384

Contact person and phone number: Rob Glaser, Principal Planner (213) 974-6443


ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

IMPACT ANALYSIS SUMMARY MATRIX		No Impact				
		Less than Significant Impact				
		Less than Significant Impact w/ Project Mitigation				
		Potentially Significant Impact				
Environmental Factor	Pg.					Potential Concern
1. Aesthetics		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Recreational trail; landform alteration
2. Agriculture/Forest		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Air Quality		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Diesel, methane, odors
4. Biological Resources		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Undisturbed areas, blue line streams, coastal sage scrub
5. Cultural Resources		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Energy		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Geology/Soils		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Landslides, substantial grading
8. Greenhouse Gas Emissions		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Hazards/Hazardous Materials		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Hydrology/Water Quality		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Storm water runoff
11. Land Use/Planning		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Mineral Resources		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Noise		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Equipment noise, entrance relocation
14. Population/Housing		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Public Services		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Recreation		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Transportation/Traffic		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Entrance relocation, update traffic analysis
18. Utilities/Services		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
19. Mandatory Findings of Significance		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

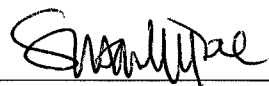
DETERMINATION: (To be completed by the Lead Department.)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.


Signature

11/22/11
Date


Signature

11/22/11
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources the Lead Department cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the Lead Department has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level. (Mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced.)
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA processes, an effect has been adequately analyzed in an earlier EIR or negative declaration. (State CEQA Guidelines § 15063(c)(3)(D).) In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of, and adequately analyzed in, an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 7) The explanation of each issue should identify: the significance threshold, if any, used to evaluate each question, and; mitigation measures identified, if any, to reduce the impact to less than significance. Sources of thresholds include the County General Plan, other County planning documents, and County ordinances. Some thresholds are unique to geographical locations.
- 8) Climate Change Impacts: When determining whether a project's impacts are significant, the analysis should consider, when relevant, the effects of future climate change on : 1) worsening hazardous conditions that pose risks to the project's inhabitants and structures (e.g., floods and wildfires), and 2) worsening the project's impacts on the environment (e.g., impacts on special status species and public health).

1. AESTHETICS

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Have a substantial adverse effect on a scenic vista, including County-designated scenic resources areas (scenic highways as shown on the Scenic Highway Element, scenic corridors, scenic hillsides, and scenic ridgelines)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Henry Mayo Drive is a first priority scenic highway.</i>				
b) Be visible from or obstruct views from a regional riding or hiking trail?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Santa Clara River Trail will be located south of the site.</i>				
c) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, historic buildings, or undeveloped or undisturbed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Currently undisturbed areas will be developed for solid waste disposal.</i>				
d) Substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Visual analysis/ simulations will be included in the EIR.</i>				
e) Create a new source of substantial shadows, light, or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Nighttime lighting will be addressed in the EIR.</i>				

2. AGRICULTURE / FOREST

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>No agricultural activities would be converted to non-agricultural use.</i>				
b) Conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Continued operation of CCL would be consistent with existing land uses at CCL since its inception, and is not within a designated Agricultural Opportunity Area or with a Williamson Act contract.</i>				
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code § 12220 (g)) or timberland zoned Timberland Production (as defined in Public Resources Code § 4526)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>CCL does not contain forest land or timberland.</i>				
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>CCL does not contain forest land.</i>				
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>CCL does not contain Farmland or forest land.</i>				

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
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Would the project:

a) Conflict with or obstruct implementation of applicable air quality plans of the South Coast AQMD (SCAQMD) or the Antelope Valley AQMD?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Potential air quality impacts will be evaluated in the EIR.

b) Violate any applicable federal or state air quality standard or contribute substantially to an existing or projected air quality violation (i.e. exceed the State's criteria for regional significance which is generally (a) 500 dwelling units for residential uses or (b) 40 gross acres, 650,000 square feet of floor area or 1,000 employees for nonresidential uses)?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Proposed Project is a 124-acre expansion of an existing landfill; potential air quality impacts will be evaluated in the EIR.

c) Exceed a South Coast AQMD or Antelope Valley AQMD CEQA significance threshold?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Potential air quality impacts will be evaluated in the EIR.

d) Otherwise result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Cumulatively considerable impacts will be evaluated in the EIR.

e) Expose sensitive receptors (e.g., schools, hospitals, parks) to substantial pollutant concentrations due to location near a freeway or heavy industrial use?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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CCL has an existing use landfill footprint which is currently permitted on approximately 257 acres and with proposed expansion the footprint will increase to approximately 400 acres; no sensitive receptors are within one mile and therefore, would not be impacted.

f) Create objectionable odors affecting a substantial number of people?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Odors possible from delivered trash, landfill gas, wastewater residues, and green waste used for alternative daily cover.

4. BIOLOGICAL RESOURCES

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (DFG) or U.S. Fish and Wildlife Service (USFWS)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>The Proposed Project would disturb drainage courses tributary to Castaic Creek and the Santa Clara River which are habitat to sensitive species.</i>				
b) Have a substantial adverse effect on sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, and regulations DFG or USFWS? These communities include Significant Ecological Areas (SEAs) identified in the General Plan, SEA Buffer Areas, and Sensitive Environmental Resource Areas (SERAs) identified in the Coastal Zone Plan.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Coastal sage scrub is found onsite.</i>				
c) Have a substantial adverse effect on federally protected wetlands (including marshes, vernal pools, and coastal wetlands) or waters of the United States, as defined by § 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Blue line streams traverse the expansion areas.</i>				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>The Proposed Project would result in a loss of undisturbed area prior to closure of the landfill, and will be further analyzed in the EIR.</i>				
e) Convert oak woodlands (as defined by the state, oak woodlands are oak stands with greater than 10%	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

canopy cover with oaks at least 5" inch in diameter measured at 4.5 feet above mean natural grade) or otherwise contain oak or other unique native trees (junipers, Joshuas, etc.)?

The Proposed Project would not impact oak woodlands.

f) Conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36) and the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.56, Part 16)?

☐☐☒☐

The Proposed Project would be consistent with Los Angeles County Oak Tree Ordinance and an Oak Tree Permit will be determined once the Oak Tree Report is provided.

g) Conflict with the provisions of an adopted state, regional, or local habitat conservation plan?

☒☐☐☐

The consistency of the Proposed Project with habitat conservation plans will be evaluated in the EIR.

5. CULTURAL RESOURCES

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Prehistoric site CA-LAN-36 is within the property boundary line, but outside of any grading activity. The closest listed historical resource to the site is the Rancho San Francisco Estancia Adobe, which is located 2.5 miles to the northeast of the project site.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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No impacts to known archaeological resources would occur.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or contain rock formations indicating potential paleontological resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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No impacts to known paleontological resources would occur.

d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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No impacts to known interred human remains would occur.

6. ENERGY

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Comply with Los Angeles County Green Building Standards? (L.A. County Code Title 22, Ch. 22.52, Part 20 and Title 21, § 21.24.440.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CCL expansion would comply with Los Angeles County Green Building Code Standards.

b) Involve the inefficient use of energy resources (see Appendix F of the CEQA Guidelines)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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CCL currently generates green energy via a landfill-gas-to-energy plant.

7. GEOLOGY AND SOILS

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Be located in an active or potentially active fault zone, Seismic Hazards Zone, or Alquist-Priolo Earthquake Fault Zone, and expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Holser (0.5 miles north), Oak Ridge (4.5 miles west), and Santa Susana (4.5 miles south) faults are located in the immediate vicinity.</i>				
ii) Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Potential seismic impacts will be addressed in the EIR.</i>				
iii) Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Areas of shallow groundwater per Safety Element Plate 3.</i>				
iv) Landslides?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Several 5-100 acre landslides located on the site per Safety Element Plate 5; Holocene landslide deposits occur in several locations scattered throughout the project site; an off-site landslide mobilized by 1994 Northridge earthquake is located just north of the landfill lease boundary.</i>				
b) Result in substantial soil erosion or the loss of topsoil?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>The potential for soil erosion will be addressed in the EIR.</i>				
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>The potential for unstable soils will be addressed in the EIR.</i>				
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Top soils on the project site are predominantly loamy in character and contain variable quality of clay. Some areas of moderate expansion potential occur onsite due to the water-holding capacity of clay minerals.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

☒☐☐☐

Soils at CCL will be addressed in the EIR.

f) Conflict with the Hillside Management Area Ordinance (L.A. County Code, Title 22, § 22.56.215) or hillside design standards in the County General Plan Conservation and Open Space Element?

☐☐☒☐

The Proposed Project would be consistent with the Hillside Management Area Ordinance and hillside design standards.

8. GREENHOUSE GAS EMISSIONS

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Generate greenhouse gas (GhGs) emissions, either directly or indirectly, that may have a significant impact on the environment (i.e., on global climate change)? Normally, the significance of the impacts of a project's GhG emissions should be evaluated as a cumulative impact rather than a project-specific impact.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Proposed Project would generate construction-related and operation-related GhG emissions from energy use, onsite equipment exhaust, landfill gas generation and flaring, and disposal vehicle/ transportation. The EIR will include a cumulative impact analysis of GhGs.

b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases including regulations implementing AB 32 of 2006, General Plan policies and implementing actions for GhG emission reduction, and the Los Angeles Regional Climate Action Plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project would result in the generation of construction-related and operation-related GhG emissions; however, these emissions are not expected to hinder or delay California's ability to meet the reduction targets contained in AB 32.

9. HAZARDS AND HAZARDOUS MATERIALS

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials or use of pressurized tanks on-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As a Class III Landfill, CCL does not accept hazardous wastes. The energy conversion facility located on the subject property may generate hazardous waste.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or waste into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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As a Class III Landfill, CCL does not accept hazardous wastes.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 500 feet of sensitive land uses (e.g., homes, schools, hospitals)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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CCL does not accept hazardous wastes; waste areas are not located within 500 feet of a sensitive land use.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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CCL is not located on a hazardous materials site compiled pursuant to Government Code § 65962.5.

e) For a project located within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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CCL is not located within an airport land use plan or within two miles of an airport.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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CCL is not within the vicinity of a private airstrip.

g) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

☐☐☒☐

Continued operation of CCL would not interfere with an adopted emergency response plan or emergency evacuation plan.

h) Expose people or structures to a significant risk of loss, injury or death involving fires, because the project is located:

i) in a Very High Fire Hazard Severity Zones (Zone 4)?

☒☐☐☐

Per Los Angeles County General Plan Safety Element Plate 7

ii) in a high fire hazard area with inadequate access?

☐☐☒☐

Access to the subject property is on paved road of adequate width. The new internal road network will be analyzed.

iii) in an area with inadequate water and pressure to meet fire flow hazards?

☐☐☒☐

Water trucks and bulldozers onsite 24-hours a day. Two 50,000-gallon and one 12,000-gallon water tanks onsite.

iv) in proximity to land uses that have the potential for dangerous fire hazard (such as refineries, flammables, and explosives manufacturing)?

☒☐☐☐

Oil wells are located in the vicinity of CCL.

10. HYDROLOGY AND WATER QUALITY

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Storm water runoff may increase due to compaction of soils in the proposed expansion area.</i>				
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>A Water Supply Assessment addressing groundwater supplies has been prepared for the Proposed Project.</i>				
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Landfill operations will alter natural drainage patterns and watershed, and potential impacts as well as proposed mitigation will be analyzed in the EIR.</i>				
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Onsite drainages may be modified to allow for safe and efficient landfilling operations.</i>				
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Storm water runoff may increase due to compaction of soils in the proposed expansion area but would be managed onsite by project design, including basins, grading design, etc.</i>				
f) Generate construction or post-construction runoff that would violate applicable stormwater NPDES permits or otherwise significantly affect surface water or groundwater quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Storm water runoff may increase due to compaction of soils in the proposed expansion area.

g) Conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84 and Title 22, Ch. 22.52)?

☐☐☒☐

The Proposed Project would not conflict with the Los Angeles County Low Impact Development Ordinance.

h) Result in point or nonpoint source pollutant discharges into State Water Resources Control Board-designated Areas of Special Biological Significance?

☐☐☒☐

The Proposed Project is not anticipated to result in point or nonpoint source pollutant discharges into SWRCB-designated Areas of Special Biological Significance.

i) Use septic tanks or other private sewage disposal system in areas with known septic tank limitations or in close proximity to a drainage course?

☐☐☒☐

The Proposed Project does not have a sewer connection to a public sewage collection or disposal system. Sanitary facilities at the landfill are connected to a septic system. Portable toilets are used for other areas of the landfill.

j) Otherwise substantially degrade water quality?

☒☐☐☐

Water quality will be addressed in the EIR.

k) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or within a floodway or floodplain?

☐☐☐☒

The Proposed Project does not include housing.

l) Place structures, which would impede or redirect flood flows, within a 100-year flood hazard area, floodway, or floodplain?

☐☐☐☒

The Proposed Project would not place structures within a 100-year flood hazard area.

m) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

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The Proposed Project would not expose people or structures to flooding hazards.

n) Place structures in areas subject to inundation by seiche, tsunami, or mudflow?

☐☐☐☒

CCL is not subject to inundation by seiche, tsunami, or mudflow.

11. LAND USE AND PLANNING

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CCL is an existing use with a currently permitted waste footprint of approximately 257 acres and is proposed to be expanded to approximately 400 acres. .

b) Be inconsistent with the plan designations of the subject property? Applicable plans include: the County General Plan, County specific plans, County local coastal plans, County area plans, County community/neighborhood plans, or Community Standards Districts.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project is consistent with current underlying plan designations.

c) Be inconsistent with the zoning designation of the subject property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project is consistent with current underlying zoning designations, and has filed a Conditional Use Permit to allow the landfill use as a solid fill project, to continue and expand within the underlying zones.

d) Conflict with Hillside Management Criteria, SEA Conformance Criteria, or other applicable land use criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project would not conflict with applicable land use criteria.

12. MINERAL RESOURCES

Would the project:	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

This factor was deemed insignificant and therefore not discussed in the 1996 certified EIR. Need to confirm with the State of California Department of Conservation, Division of Mines and Geology mineral resource zone maps.

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The subject property is not located within a mineral resource area as depicted on the November 25, 1980 Special Management Areas Map from the Countywide General Plan.

13. NOISE

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project result in:				
a) Exposure of persons to, or generation of, noise levels in excess of standards established in the County noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08)_or the General Plan Noise Element?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Construction and operation noise levels from the Proposed Project from all noise sensitive areas would remain below the statutory requirements of the County of Los Angeles.</i>				
b) Exposure of sensitive receptors (e.g., schools, hospitals, senior citizen facilities) to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>The closest sensitive receptors to the Proposed Project are residential dwellings located approximately 500 feet from the northwest site boundary corner and 1,200 feet from the landfill footprint. Construction and operation noise levels would be similar to the existing noise level.</i>				
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Construction and operation noise levels from the Proposed Project would remain essentially unchanged from the existing noise level.</i>				
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from amplified sound systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Construction and operation noise levels from the Proposed Project would remain essentially unchanged, below the statutory requirements of the County of Los Angeles.</i>				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>CCL is not located within the vicinity of a public airport or public use airport.</i>				
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CCL is not located within the vicinity of a private airstrip.

14. POPULATION AND HOUSING

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>The Proposed Project may accommodate future population growth indirectly.</i>				
b) Cumulatively exceed official regional or local population projections?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The Proposed Project would not result in population growth.</i>				
c) Displace existing housing, especially affordable housing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The Proposed Project would not displace existing housing.</i>				
d) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The Proposed Project would be located entirely within the existing CCL property boundary and would not displace housing.</i>				

15. PUBLIC SERVICES

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
<p>a) Would the project create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</p>				
<p>Fire protection?</p> <p><i>The Proposed Project may not require additional fire protection.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Sheriff protection?</p> <p><i>The Proposed Project may not require additional sheriff protection.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Schools?</p> <p><i>The Proposed Project may be growth inducing and may affect schools.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Parks?</p> <p><i>The Proposed Project may be growth inducing and may affect parks.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Libraries?</p> <p><i>The Proposed Project may be growth inducing and may affect libraries.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<p>Other public facilities?</p> <p><i>The Proposed Project would not require additional facilities or staffing of existing community facilities. Proposed Project implementation would not diminish the level of service for existing community facilities..</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

16. RECREATION

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project may be growth inducing indirectly and would affect parks or other recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project may be growth inducing indirectly and would affect recreational facilities. One the landfill has reached capacity and the end use may be a park.

c) Is the project consistent with the Department of Parks and Recreation Strategic Asset Management Plan for 2020 (SAMP) and the County General Plan standards for the provision of parkland?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project may not be growth inducing and should not affect parkland.

d) Would the project interfere with regional open space connectivity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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The Proposed Project located within the existing CCL property boundary and should not affect regional open space.

17. TRANSPORTATION/TRAFFIC

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Conflict with an applicable plan, ordinance, or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? Measures of performance effectiveness include those found in the most up-to-date Southern California Association of Governments (SCAG) Regional Transportation Plan, County Congestion Management Plan, and County General Plan Mobility Element.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Transportation and traffic impacts will be addressed in the EIR.</i>				
b) Exceed the County Congestion Management Plan (CMP) Transportation Impact Analysis thresholds?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Transportation and traffic impacts will be addressed in the EIR.</i>				
c) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the CMP, for designated roads or highways (50 peak hour vehicles added by project traffic to a CMP highway system intersection or 150 peak hour trips added by project traffic to a mainline freeway link)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Transportation and traffic impacts will be addressed in the EIR.</i>				
d) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>The Proposed Project will not affect air traffic patterns.</i>				
e) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project would not increase hazards as a result of design features or incompatible uses.

f) Result in inadequate emergency access?

☐☐☒☐

The Proposed Project is not anticipated to impede emergency access.

g) Conflict with the Bikeway Plan, Pedestrian Plan, Transit Oriented District development standards in the County General Plan Mobility Element, or other adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

☐☐☒☐

The Proposed Project should not affect alternative transportation plans.

h) Decrease the performance or safety of alternative transportation facilities?

☐☐☒☐

The Proposed Project should not affect alternative transportation facilities.

18. UTILITIES AND SERVICE SYSTEMS

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
Would the project:				
a) Exceed wastewater treatment requirements of the Los Angeles or Lahontan Regional Water Quality Control Boards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>The Proposed Project should not produce wastewater requiring treatment.</i>				
b) Create water or wastewater system capacity problems, or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>The Proposed Project should not produce wastewater requiring treatment.</i>				
c) Create drainage system capacity problems, or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Project design will address storm water drainage through designs approved by Los Angeles County Department of Public Works.</i>				
d) Have sufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>A Water Supply Assessment has been prepared for the Proposed Project and concludes....</i>				
e) Conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84 and Title 22, Ch. 22.52) or Drought Tolerant Landscaping Ordinance (L.A. County Code, Title 21, § 21.24.430 and Title 22, Ch. 21, Part 21)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>The Proposed Project will not conflict with Los Angeles County Ordinances.</i>				
f) Create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Proposed Project may not create energy utility systems capacity problems, or require construction of new energy facilities or expansion of existing facilities.

g) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

☐☐☒☐

The Proposed Project is continued operation of a Class III solid waste disposal landfill along with expansion.

h) Comply with federal, state, and local statutes and regulations related to solid waste?

☐☐☒☐

The Proposed Project will comply with federal, state, and local statutes and regulations related to solid waste.

19. MANDATORY FINDINGS OF SIGNIFICANCE

	<i>Potentially Significant Impact</i>	<i>Less Than Significant Impact with Mitigation Incorporated</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Biota

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Air quality, visual (landform alteration)

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Water quality, air quality

**Notice of Preparation –
Notice of Comment Period Extension
(December 27, 2011)**



Los Angeles County
Department of Regional Planning

Planning for the Challenges Ahead



Richard J. Bruckner
Director

December 27, 2011

**NOTICE OF A TIME EXTENSION
FOR PUBLIC COMMENT ON THE NOTICE OF PREPARATION
FOR THE CHIQUITA CANYON LANDFILL MASTER PLAN
REVISION CONDITIONAL USE PERMIT REQUEST**

PROJECT TITLE: CHIQUITA CANYON LANDFILL MASTER PLAN REVISION
PROJECT NO. R2004-00559-(5)
CONDITIONAL USE PERMIT NO. 200400042
ENVIRONMENTAL CASE NO. 200400039
SCH NO. 2005081071

PROJECT APPLICANT: Chiquita Canyon Landfill LLC.
29201 Henry Mayo Drive
Castaic, CA 91384

The applicant, Chiquita Canyon Landfill LLC., is requesting a Conditional Use Permit (CUP) to authorize the continued operation and maintenance of an existing Class III waste disposal facility with a new grant term. In addition the applicant is also requesting an expansion of the waste footprint within the existing site boundary, an increase to allowable daily tonnage of acceptable waste, an increase to the disposal capacity, and to allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste facility. The proposed project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals.

The Notice of Preparation (NOP) for this project request was prepared on November 21, 2011. The purpose of this NOP is to solicit your views as to the scope and content of the environmental information that will be considered to be analyzed the project's Environmental Impact Report (EIR). The previous comment period was from November 28, 2011 to January 12, 2012. **The comment period will now extend to February 13, 2012.** The scoping meeting for this project was held on December 6, 2011 at the Val Verde Community Regional Park Facility. There will not be another scoping meeting held regarding the NOP. The next steps are outlined below to facilitate the California Environmental Quality Act process:

- Receive all Public comments and Reviewing Agency comments on what will be analyzed in the EIR;
- Prepare the Draft EIR

- Internal Review of Draft EIR with County Agencies;
- Public Notice on Draft EIR availability for Public and Agency Review
- Circulate Draft EIR for a 45 day public review period;
- Hold a Hearing Examiner (**Public Hearing**) in the Val Verde Community to gather comments from the public and responsible agencies about the Draft EIR;
- Receive written and verbal comments;
- Prepare written Responses to Comments;
- Prepare Final EIR with Response to Comments;
- Make California Environmental Quality Act (CEQA) Findings;
- Set Regional Planning Commission Public Hearing.

The next opportunity for public participation in this process will be when the Draft EIR is available for circulation for a 45 day public review period. After this review period has ended, the Department of Regional Planning will conduct a Hearing Examiner Public Hearing in the Val Verde Community to gather testimony on the Draft EIR. Please direct all written comments to the following address. In your response, please include your name and address.

Rob Glaser, Principal Planner
 Zoning Permits North Section
 Los Angeles County Department of Regional Planning
 320 W. Temple Street, Room 1348
 Los Angeles, CA 90012
 Tel: (213) 974-6443
 Fax: (213) 626-0434
 Email: rglaser@planning.lacounty.gov

Si necesita más información o si desea este anuncio en español, llame al Departamento de Planificación al (213) 974-1522.

Attachment:
 Notice of Preparation

Notice of Preparation Comments

County Comments

Preparation of Chiquita Canyon Landfill Draft EIR

Department of Public Health

1. Detailed description of the permitted area.
2. Peak Daily Tonnage
3. Peak Vehicle Count
4. Days and hours of operation, including receipt of material/waste, site operation, public and commercial access, and maintenance of facility, vehicles, etc.
5. Design Capacity
6. Acceptable Wastes:
 - a. Types of material/waste to be accepted
 - b. Types of material/waste to be excluded
 - c. Discussion on load checking and screening procedures
 - d. Description of procedures for handling incoming incident al hazardous waste
 - e. Description of procedures for handling universal and e-waste
7. Tonnage: Description and analysis of maximum design tonnage of the facility
8. Buildings and on-site improvements
 - a. Description of the design characteristics of significant improvements to be made to the site.
 - b. Description of where commercial municipal solid waste, green waste, construction and demolition material will be handled.
 - c. Description of design features to attenuate for odors, dust, noise and vectors. Will the facility be fully enclosed? Will it be under negative pressure? Will it have a filtration system? Will it have a mister system to control odors and dust?
 - d. Description locations where salvaged/recyclable materials that are removed from the waste stream will be stored and indicate storage time.
9. Odor Management Plan (OMP): All new facilities shall comply with current requirements of the South Coast Air Quality Management District.
10. Revision of the Solid Waste Facility Permit (SWFP) by the Solid Waste Management Program and concurrence from Ca Recycle.
11. Potentially Significant Environmental Impacts

In the NOP, the Lead Agency has identified several resource topics that may be potentially significant. If there are significant impacts after design features or mitigation measures are implemented, it will be necessary to prepare and adopt a Statement of Overriding Consideration. If it is necessary to prepare a Statement of Overriding Consideration, a copy needs to be forwarded to the

Solid Waste Management Program and CalRecycle prior to review and adoption. In order for CalRecycle to concur on a SWFP with significant impacts after mitigation, it is necessary for CalRecycle to adopt your Statement of Overriding Consideration as their own to prepare a separate statement.

12. Land Use Compatibility: The DEIR should identify the proposed land use surrounding the facility and identify the distance to the nearest sensitive receptors (residential, commercial, etc.)
13. Traffic and vehicular impacts: Analyze peak volume and onsite traffic circulation impacts and describe mitigation measure, if necessary.
14. Air Quality Impacts: Air quality impacts should be analyzed in detail from vehicles, trucks, and equipment emissions from the operation of the facility.
15. Noise Impacts: Noise impacts should be analyzed in detail of the proposed facility operations, including noise from vehicles and equipment.
16. Risk of upset/human risk: An emergency response preparedness plan should be prepared and made available.
17. Mitigation Reporting and monitoring Program
18. Hazards and hazardous Materials: Although the existing facility does not accept hazardous material, there is a possibility that during the receipt of solid waste, hazardous material might be incidentally included in a load. Therefore, the facility needs to address employee training on handling of hazardous materials and the required temporary storage of hazardous materials.

In conclusion, the SWMP request that the DEIR be review by CalRecycle. The DEIR can be sent to CalRecycle's Waste Compliance and Mitigation Program, Permitting and LEA Support Division/Environmental Review, located at 1001 I Street, Sacramento, CA 95814. The SWMP also request advanced notification of any public hearing regarding the proposed project.

For questions regarding the above comments, please contact Gerry Villalobos at (626) 430-5543.

County Fire Department

General Comments:

1. Submit a minimum of four copies of the site plan indicating the new landfill entrance road, new entrance to the facilities area, and the new site entrance. Additional access requirements may need to be addressed. Indicate all existing fire hydrants.
2. The proposed expansion shall comply with the Fire Department's Regulation 10, Combustible Waste Site. The requirements are listed below.
3. Any future development on this property may require additional access and water system requirements.

4. The property is located within the area described by the Fire Department as "Very High Fire Hazard Severity Zone" (formerly Fire Zone 4). A "Fuel Modification Plan" shall be submitted and approved prior to final map clearance. (Contact Fuel Modification Unit, Fire Station #32, 605 North Angeleno Avenue, Azusa, CA 91702-2904, Phone (626) 969-5205, for details).

Water System Requirements:

1. A water supply shall be provided which meets the Fire Department standards as determined by the Land Development Unit of the Fire Prevention Division.
2. Adequate on-site fire hydrants shall be required per Fire Department standards. The future expansion of the facility should be considered when determining the size and placement of water mains and hydrants.
3. A Class II Standpipe System shall provide and located within 200 feet of dumping operations and shall have sufficient 1 1/2 -inch hose with a variable-fog nozzle to reach all portions of such operations.
4. In lieu of Class II standpipe system, the use of water tender trucks may be permitted, provided each truck is equipped with 2 1/2 - inch outlets for fire department use.

Access:

1. Approved access roads shall be provided and maintained at all times around the dumping area, and all existing and proposed buildings to access for firefighting equipment as addressed in the Fire Code Section 503.
2. Fire apparatus access roads shall have a unobstructed width not less than 20 feet and an unobstructed vertical clearance clear to sky.
3. Fire apparatus access road widths may be increased, in the opinion of the chief, when the widths are not adequate enough to provide fire apparatus access. The increase in the fire apparatus access road width may be applied for future buildings.
4. Entrance to roads, trails or other access ways that have been closed with gates and barrier shall not be obstructed by parked vehicles.
5. Weeds, grass and combustible vegetation shall be removed for a distance of 10 feet on both sides of all access roads by rubbish trucks or the public.

Additional Requirements:

1. A firebreak or clearance of all dry weeds and grass shall be provided around the dumping areas. Secondary firebreaks, as required by the Fire Department, shall be provided and maintained in order to prevent the spread of the fire beyond the dump facility. The secondary firebreaks shall be not less than 60 feet in width.
2. The property shall be adequately fenced to prevent entry of unauthorized persons, and gates shall be locked at all times when the facility is not supervised. An attendant shall be on duty when the site is open to the public.

3. **“NO SMOKING”** signs shall be posted on the facility and at all entrances to the facility . Smoking regulations, as required by the Fire Department, will be strictly enforced.
4. Dumping operations shall be carried on in such manner as to minimize the possibility of fires occurring in the waste material. The waste material which is dumped on the premises shall be immediately mixed with earth, and under no circumstances shall any exposed surface or face of combustible material be left uncovered at the close of daily operations.
5. Any fire which occurs on the premises shall be reported immediately to the Fire Department and it shall be the responsibility of the operator to immediately extinguish any such fire. A telephone shall be installed for purposes of notifying the Fire Department in case of fire.
6. Provisions shall be made to control or prevent the blowing of papers or other combustibles water materials into brush or outside the established dumping areas. The premises shall be kept free of any accumulations of waste combustible material, which might constitute a fire menace.
7. All Fire Protection Facilities, including access and water, must be provided prior to and during construction.

Please contact Fire Prevention Engineering Assistant, Wally Collins, at (323) 890-4243 if there are any questions regarding these requirements.

Forestry Division – Other Environmental Concerns:

1. The statutory responsibilities of County of Los Angeles Fire Department, Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and cultural resources, and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed in the DEIR.

Department of Parks and Recreation

The requested project will not affect any Departmental Facilities.

Department of Public Works

1. Environmental Programs

The EIR must include the following:

- a. Site plan showing locations of all proposed landfilling and ancillary facilities onsite;
- b. Discussion of all proposed ancillary activities and/or facilities, including environmental impacts associated with these activities/facilities and appropriate mitigation measures. This includes, but is not limited to, facilities such as sediment basins, landfill gas-to-energy facility, green

waste chipping and grinding, composting, materials recovery facility/operation, household hazardous/electronic waste facility/collection activities, residential recycling, bin rental and/or storage, etc., if any;

- c. If proposed, discussion of a timeline of when the materials recovery facility/operation and household hazardous/electronic waste facility/collection activities may become operational;
- d. Discussion of the source, proposed daily intake rates, potential environmental impacts, and mitigation measures associated with the management of all materials received at the landfill, including:
 - Municipal solid waste;
 - Green waste;
 - Construction and demolition debris;
 - Beneficial use materials, identifying each type and their use;
 - Soil and if contaminated, provide details of known source and constituents;
 - Composting operation;
 - Recyclables, including those recovered through the materials recovery operation; and
 - Household hazardous/electronic waste;
- e. Proposed project schedule indicating the sequence of fill, estimated capacity, and landfill life;
- f. Map showing the proposed final fill elevation, disposal footprint, grading limits, and property boundary;
- g. Analysis of the visual impacts of the project on the surrounding communities. Three-dimensional visualization of proposed final design of the landfill and discussion on proposed mitigation measures such as tree planting and maintenance for screening the site from the Val Verde community.
- h. Proposed operating hours of disposal activities, ancillary facilities, and maintenance of the site as well as their associated potential impacts on the Val Verde and other surrounding communities;
- i. Discussion of alternatives to the Project, including a No Project Alternative, and other alternatives that could reduce the scope of the project, including but not limited to:
 - A materials recovery facility;
 - A waste conversion technology facility (a facility utilizing non-combustion thermal, chemical or biological technology to convert residual solid waste into products and energy); or
 - An integrated “eco park” that maximizes recovery of materials, using a materials recovery facility, conversion technology, composting operation, reuse and/or drop off facility, and household hazardous/electronic waste collection facility, with residual waste disposed of at the landfill.

2. Geotechnical and Materials Engineering

An EIR is required for the Proposed Project. All or portions of the site have been found to be located within a potentially liquefiable area according to the State of California Seismic Hazard Zone Map – Val Verde Quadrangle. All geotechnical issues discussed in the Notice of Preparation and Initial Study must be addressed in the EIR. Geotechnical reports must be included in the EIR.

3. Traffic and Lighting

A Traffic Impact Analysis (TIA) is required for this Department's review and approval. The analysis will, at a minimum, address the following items:

- a. Level of service along all proposed haul roads;
- b. Traffic Index calculations along the haul roads; and
- c. Queuing analysis at the entrance and at all freeway ramps in the vicinity of the project.

4. Project Management

The Proposed Project entails relocation of the existing driveway into the site. Please be advised that grade-separated interchange improvements along State Route 126 in the vicinity of the landfill are currently scheduled to start in July 2012 and projected to take approximately 2 years. The EIR should consider the cumulative construction impacts from both projects if executed simultaneously. Coordination with Construction Division of this Department on construction activities may be required to minimize impacts to the surrounding communities.

5. Land Development

Hydrology and Water Quality Comments:

The applicant must prepare an EIR and indicate in the hydrology and water quality section that the Proposed Project will comply with the County Low Impact Development Ordinance. Accordingly, the EIR must discuss appropriate mitigation measures.

Road Comments:

Prior to our recommendation of approval, the applicant must address the following:

- a. As previously requested of the applicant, as part of the TIA, provide an updated analysis of the pavement section on Wolcott Way and Franklin Parkway along the project frontage and within any section of these roadways identified as part of the truck route to ensure that it is adequate to handle increased traffic loads.

- b. Provide conceptual striping plan for Wolcott Way, Franklin Parkway and any other offsite roadway based on the mitigations in the TIA as approved by this Department.

Preliminary Road Conditions:

Should the subject Conditional Use Permit be approved, the following road related conditions shall apply:

- a. Construct full street improvement on Wolcott Way and Franklin Parkway within the project frontage compatible with the ultimate improvements per TR 53108 to the satisfaction of this Department.
- b. The design and construction on Wolcott Way shall be compatible with vertical approaches to the future grade separations at California State Route 126 (SR-126) to the satisfaction of this Department and Caltrans.
- c. Dedicate right of way to the satisfaction of this Department and Caltrans a minimum of 70 feet from the latest approved centerline on SR-126. The typical section and the ultimate right of way are contingent on the TIA demonstrating that the project volumes do not exceed the road capacity. If so, provide additional right of way for additional lanes, exclusive right turn lanes and transition improvements to the satisfaction of this Department and Caltrans.
- d. Provide slope easement at the future SR-126/Wolcott Road Interchange to the satisfaction of this Department and Caltrans.
- e. Comply with mitigation measures, including offsite improvements, identified in the approved TIA to the satisfaction of this Department.
- f. Provide signing and striping plan for Wolcott Way, Franklin Parkway and any other offsite roadway based on the mitigations in the approved TIA.
- g. Pay the fees established by the Board of Supervisors for the Westside Bridge and Major Thoroughfare Construction Fee District. The fee is to be based upon the fee rate in effect at the time of the project effective date. The applicable fee will be determined by the Department of Public Works (as a Special Case) after the review and approval of the TIA.
- h. If any improvements constructed by the developer are included as District improvements in the Westside Bridge and Major Thoroughfare Construction Fee District, then the cost of such improvements may be credited against the project's District fee obligation if approved by this Department. If the amount to be credited exceeds the developer's fee

obligation, the developer may use the excess credits to satisfy the fee obligation of another project within the District, transfer the credit to another developer within the District, or be reimbursed by the District at the discretion of this Department if funds are available. If District improvements are constructed after the project effective date, the developer will receive credit equal to the cost of such improvements, which may be used to satisfy the fee obligation for another project within the District, transferred to another developer within the District, or reimbursed at the discretion of this Department.

If you have any questions in regard to the above requirements, please contact Martin Aiyetiwa at (626) 458-3553.



Edmund G. Brown Jr.
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Ken Alex
Director

Notice of Preparation

November 28, 2011

To: Reviewing Agencies

Re: Chiquita Canyon Landfill Master Plan Revision
SCH# 2005081071

Attached for your review and comment is the Notice of Preparation (NOP) for the Chiquita Canyon Landfill Master Plan Revision draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Rob Glaser
Los Angeles County Department of Regional Planning
320 W. Temple Street
Los Angeles, CA 90012

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

DEC - 1 2011

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2005081071
Project Title Chiquita Canyon Landfill Master Plan Revision
Lead Agency Los Angeles County

Type **NOP** Notice of Preparation
Description The Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) would continue the existing landfill use with a new grant term, as well as extend the waste footprint at CCL within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The Proposed Project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals.

Lead Agency Contact

Name Rob Glaser
Agency Los Angeles County Department of Regional Planning
Phone 213 974 6443 **Fax**
email
Address 320 W. Temple Street
City Los Angeles **State** CA **Zip** 90012

Project Location

County Los Angeles
City
Region
Cross Streets Located between Chiquita Canyon Road and Wolcott Way
Lat / Long 34° 25' N / 118° 39' W
Parcel No. 3271-002-013, 011, 034, 019
Township 4N **Range** 17W **Section** 15 **Base** SBB&M

Proximity to:

Highways SR-126
Airports
Railways
Waterways Santa Clara River, Castaic Creek
Schools
Land Use A-2-2 (Heavy Agricultural - two acre minimum required lot area), A-2-5 (Heavy Agricultural - Five Acre Minimum Lot Area), M-1

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Landuse; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Conservation; Cal Fire; Department of Parks and Recreation; Resources, Recycling and Recovery; Department of Water Resources; Department of Fish and Game, Region 5; CA Department of Public Health; Native American Heritage Commission; State Lands Commission; Caltrans, District 7; Air Resources Board, Major Industrial Projects; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 4

Date Received 11/28/2011 **Start of Review** 11/28/2011 **End of Review** 12/27/2011

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
 For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #2005081071

Project Title: CHIQUITA CANYON LANDFILL MASTER PLAN REVISION

Lead Agency: Los Angeles County Department of Regional Planning

Contact Person: Rob Glaser, Principal Planner

Mailing Address: 320 West Temple Street

Phone: (213) 974-6443

City: Los Angeles, CA

Zip: 90012

County: Los Angeles

Project Location: County: Los Angeles City/Nearest Community: Castaic

Cross Streets: Located between Chiquito Canyon Road and Wolcott Way Zip Code: 91384

Longitude/Latitude (degrees, minutes and seconds): 34 ° 25 ' " N / 118 ° 39 ' " W Total Acres: 643

Assessor's Parcel No.: 3721-002-011, 013, 019 and 034 Section: 15 Twp.: 4 North Range: 17 West Base: SB

Within 2 Miles: State Hwy #: SR-126 Waterways: Castaic Creek, Santa Clara River

Airports: Railways: Schools:

Document Type:CEQA: ☒ NOP☐ Draft EIRNEPA: ☐ NOIOther: ☐ Joint Document☐ Early Cons☐ Supplement/Subsequent EIR☐ EA☐ Final Document☐ Neg Dec

(Prior SCH No.)

☐ Draft EIS☐ Other:☐ Mit Neg Dec

Other:

RECEIVED

NOV 28 2011

STATE CLEARING HOUSE

Local Action Type:☐ General Plan Update☐ Specific Plan☐ Rezone☐ Annexation☐ General Plan Amendment☐ Master Plan☐ Prezone☐ Redevelopment☐ General Plan Element☐ Planned Unit Development☒ Use Permit☐ Coastal Permit☐ Community Plan☐ Site Plan☐ Land Division (Subdivision, etc.)☐ Other:**Development Type:**☐ Residential: Units _____ Acres _____☐ Office: Sq.ft. _____ Acres _____ Employees _____☐ Commercial: Sq.ft. _____ Acres _____ Employees _____☐ Industrial: Sq.ft. _____ Acres _____ Employees _____☐ Educational: _____☐ Recreational: _____☐ Water Facilities: Type _____ MGD _____☐ Transportation: Type _____☐ Mining: Mineral _____☐ Power: Type _____ MW _____☐ Waste Treatment: Type _____ MGD _____☐ Hazardous Waste: Type _____☒ Other: Class III solid waste disposal landfill**Project Issues Discussed in Document:**☒ Aesthetic/Visual☐ Fiscal☒ Recreation/Parks☒ Vegetation☒ Agricultural Land☐ Flood Plain/Flooding☐ Schools/Universities☒ Water Quality☒ Air Quality☐ Forest Land/Fire Hazard☐ Septic Systems☒ Water Supply/Groundwater☒ Archeological/Historical☒ Geologic/Seismic☐ Sewer Capacity☒ Wetland/Riparian☒ Biological Resources☒ Minerals☒ Soil Erosion/Compaction/Grading☐ Growth Inducement☐ Coastal Zone☒ Noise☒ Solid Waste☒ Land Use☐ Drainage/Absorption☒ Population/Housing Balance☒ Toxic/Hazardous☒ Cumulative Effects☐ Economic/Jobs☒ Public Services/Facilities☒ Traffic/Circulation☒ Other: GHG & Energy**Present Land Use/Zoning/General Plan Designation:**

A-2-2 (Heavy Agricultural - two acre minimum required lot area), A-2-5 (Heavy Agricultural - Five Acre Minimum Lot Area), M-1-1

Project Description: (please use a separate page if necessary)

The Chiquita Canyon Landfill (CCL) Master Plan Revision (Proposed Project) would continue the existing landfill use with a new grant term, as well as extend the waste footprint at CCL within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The Proposed Project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Glaser, Rob

From: Thomas Leeb [thomas@thomasleeb.com]
Sent: Thursday, January 05, 2012 9:11 AM
To: Glaser, Rob
Subject: R2004-00559-(5) / CUP 200400042

(re-send with address)

Thomas Leeb
31413 San Martinez Road
Val Verde, CA 91384

Mr. Glaser,

What's wonderful about the landfill in its current form is that it is basically invisible from Chiquito Canyon Road. Being a Val Verde resident of 12 years, I never appreciated how well this was done until I drove up to the Del Valle Fire station a few years ago and got a good view of the landfill from their higher elevation.

I would not like to be able to see the expanded landfill when driving in and out of town, otherwise I'm all for it! Maybe berms / trees could be used as a compromise for a few difficult angles?

All the Best,

Thomas Leeb

Glaser, Rob

From: Laura Hocking [Laura.Hocking@ventura.org]
Sent: Thursday, January 12, 2012 12:54 PM
To: Glaser, Rob
Subject: Comments on the NOP of the EIR for the Chiquita Canyon Landfill Master Plan Revision
Attachments: 11-036 County of LA Response Cover Letter.pdf; 11-036 (APCD).pdf; 11-036 (Trans-BE).pdf; 11-036 (WPD-TW).pdf

Mr. Glaser:

Please find attached a cover letter and comments from County of Ventura staff regarding the subject document.

Thank you for allowing us to be part of the review process for this project. If you have any questions, please contact me at (805) 654-2443.

*Please note for future reference: In the past our office has requested multiple copies of documents for our distribution. For projects distributed via CD-ROM and for "simple" documents (those without spiral binding/large, fold-out maps, etc.), a single copy of the document/CD is now usually sufficient. Please contact me with any questions regarding this request. Thank you.

Sincerely,

Laura Hocking, RMA Tech. III
Ventura County Planning Division
800 S. Victoria Avenue, Ventura, CA 93009
laura.hocking@ventura.org
(805) 654-2443

NATIVE AMERICAN HERITAGE COMMISSION

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net



November 29, 2011

DEC - 6 2011

Mr. Rob Glaser, Project Planner

Los Angeles County Department of Regional Planning

320 West Temple Street
Los Angeles, CA 90012

Re: SCH#2005081071 CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the "Chiquita Canyon Landfill Master Plan Revision Project"
located in the Castaic Area; Los Angeles County, California

Dear Mr. Glaser:

The Native American Heritage Commission (NAHC), the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources pursuant to California Public Resources Code §21070 and affirmed by the Third Appellate Court in the case of EPIC v. Johnson (1985: 170 Cal App. 3rd 604). The court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites. The NAHC wishes to comment on the proposed project.

This letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law. State law also addresses the freedom of Native American Religious Expression in Public Resources Code §5097.9.

The California Environmental Quality Act (CEQA – CA Public Resources Code 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ... objects of historic or aesthetic significance.' In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect.

The NAHC Sacred Lands File (SLF) search resulted as follows: **Native American cultural resources were not identified** within the project area identified (e.g. 'area of potential effect' or APE). Also, the absence of archaeological resources does not preclude their existence. . California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to California Government Code §6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction. The NAHC "Sacred Sites," as defined by the Native American Heritage Commission and the California Legislature in California Public Resources Code

§§5097.94(a) and 5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to California Government Code §6254 (r).

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We strongly urge that you make contact with the list of Native American Contacts on the list of Native American contacts, to see if your proposed project might impact Native American cultural resources and to obtain their recommendations concerning the proposed project. Special reference is made to the *Tribal Consultation* requirements of the California 2006 Senate Bill 1059: enabling legislation to the federal Energy Policy Act of 2005 (P.L. 109-58), mandates consultation with Native American tribes (both federally recognized and non federally recognized) where electrically transmission lines are proposed. This is codified in the California Public Resources Code, Chapter 4.3 and §25330 to Division 15.

Furthermore, pursuant to CA Public Resources Code § 5097.95, the NAHC requests that the Native American consulting parties be provided pertinent project information. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). Pursuant to CA Public Resources Code §5097.95, the NAHC requests that pertinent project information be provided consulting tribal parties. The NAHC recommends *avoidance* as defined by CEQA Guidelines §15370(a) to pursuing a project that would damage or destroy Native American cultural resources and Section 2183.2 that requires documentation, data recovery of cultural resources.

Consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq.*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

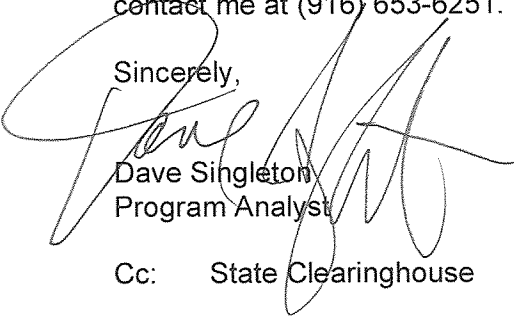
Confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code §6254(r) and may also be protected under Section 304 of the NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APEs and possibility threatened by proposed project activity.

Furthermore, Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery'.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,



Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

California Native American Contacts

Los Angeles County

November 29, 2011

Charles Cooke
32835 Santiago Road
Acton , CA 93510
suscol@intox.net

(661) 733-1812 - cell
suscol@intox.net

Beverly Salazar Folkes
1931 Shadybrook Drive
Thousand Oaks, CA 91362
folkes@msn.com
805 492-7255
(805) 558-1154 - cell
folkes9@msn.com

Fernandeno Tataviam Band of Mission Indians
Ronnie Salas, Cultural Preservation Department
601 South Brand Boulevard, Suite 102
San Fernando CA 91340
rsalas@tataviam-nsn.gov
(818) 837-0794 Office

(818) 837-0796 Fax

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th St, Rm. 403
Los Angeles , CA 90020
randrade@css.lacounty.gov
(213) 351-5324
(213) 386-3995 FAX

Chumash
Fernandeno
Tataviam
Kitanemuk

Chumash
Tataviam
Ferrnandeño

Fernandeno
Tataviam

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Private Address
Gabrielino Tongva
tattnlaw@gmail.com
310-570-6567

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
981 N. Virginia
Covina , CA 91722
deedominguez@juno.com
(626) 339-6785

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838
Newhall , CA 91322
tsen2u@hotmail.com
(661) 753-9833 Office
(760) 885-0955 Cell
(760) 949-1604 Fax

Randy Guzman - Folkes
6471 Cornell Circle
Moorpark , CA 93021
ndnRandy@yahoo.com
(805) 905-1675 - cell

Chumash
Fernandeño
Tataviam
Shoshone Paiute
Yaqui

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2005081071; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Chiquita Canyon Landfill Master Plan Revision; located in the Castaic Area; Los Angeles County, California.

California Native American Contacts
Los Angeles County
November 29, 2011

San Manuel Band of Mission Indians
Ann Brierty, Policy/Cultural Resources Department
26569 Community Center Drive Serrano
Highland, CA 92346
(909) 864-8933, Ext 3250
abrierty@sanmanuel-nsn.
gov
(909) 862-5152 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2005081071; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Chiquita Canyon Landfill Master Plan Revision; located in the Castaic Area; Los Angeles County, California.

January 12, 2012

County of Los Angeles
Dept. of Regional Planning
Attn.: Rob Glaser
320 W. Temple St., Rm 1348
Los Angeles, CA 90012

E-mail: rglaser@planning.lacounty.gov

Subject: Comments on the NOP of the EIR for the Chiquita Canyon Landfill Master Plan
Revision

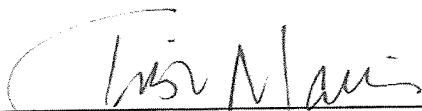
Dear Mr. Glaser:

Thank you for the opportunity to review and comment on the subject document. Attached are the comments that we have received resulting from intra-county review of the subject document. Additional comments may have been sent directly to you by other County agencies.

Your proposed responses to these comments should be sent directly to the commenter, with a copy to Laura Hocking, Ventura County Planning Division, L#1740, 800 S. Victoria Avenue, Ventura, CA 93009.

If you have any questions regarding any of the comments, please contact the appropriate respondent. Overall questions may be directed to Laura Hocking at (805) 654-2443.

Sincerely,



Tricia Maier, Manager
Planning Programs Section

Attachment

County RMA Reference Number 11-036





VENTURA COUNTY WATERSHED PROTECTION DISTRICT
PLANNING AND REGULATORY DIVISION
800 South Victoria Avenue, Ventura, California 93009
Tom Wolfington, Permit Manager – (805) 654-2061

M E M O R A N D U M

DATE: January 9, 2012
TO: Laura Hocking, RMA/Planning Technician
FROM: Tom Wolfington, P.E., Permit Manager *SW*
SUBJECT: RMA 11-036, Chiquita Canyon Landfill Master Plan Revision
Notice of Preparation of EIR & Initial Study
Los Angeles County

Pursuant to your request, this office has reviewed the Notice of Preparation of an Environmental Impact Report and Initial Study.

PROJECT LOCATION

The Chiquita Canyon Landfill (CCL), located in the northwestern portion of unincorporated Los Angeles County, is approximately three miles west of the Interstate 5 and State Route 126 (SR-126) intersection. The site is located in Section 15, Township 4 North, Range 17 West, San Bernardino Baseline and Meridian. The latitude and longitude are 34°25'N and 118°39'W, respectively.

PROJECT DESCRIPTION

The CCL Master Plan Revision (Proposed Project) would allow the existing landfill to continue operations with a new grant term, as well as extend the waste footprint at CCL within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The Proposed Project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals.

WATERSHED PROTECTION DISTRICT PROJECT COMMENTS:

The proposed landfill site is close to Santa Clara River, and is about 4 miles upstream of the County line between Los Angeles and Ventura Counties. The initial study checklist indicates that the project may have "Potentially Significant Impact" on water quality (surface water and ground water), hydrology, and soil erosion. These impacts will need to be quantified and on-site mitigation measures be analyzed in the EIR.

END OF TEXT



**PUBLIC WORKS AGENCY
TRANSPORTATION DEPARTMENT
Traffic, Advance Planning & Permits Division**

MEMORANDUM

DATE: December 16, 2011

TO: Resource Management Agency, Planning Division
Attention: Laura Hocking

FROM: Ben Emami, Engineering Manager II *Ben*

SUBJECT: **REVIEW OF DOCUMENT 11-036** (formerly 05-054) Notice of Preparation (NOP) of Environmental Impact Report / Initial Study (EIR/IS)
CHIKUITA CANYON LANDFILL MASTER PLAN REVISION
Continued operation of regional landfill in Los Angeles County (LAC).
Lead Agency: **County of Los Angeles Dept. of Regional Planning**

Pursuant to your request, the Public Works Agency -- Transportation Department has reviewed the Notice of Preparation (NOP) of an Environmental Impact Report / Initial Study (EIR/IS) for the Chiquita Canyon Landfill (CCL) Master Plan Revision (MPR).

The CCL MPR would allow the existing landfill to continue operations with a new grant term, extend the waste footprint within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The project also includes the diversion of such materials as green waste, asphalt/concrete, and metal through ongoing landfill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals. The applicant, Chiquita Canyon LLC, is requesting a Conditional Use Permit (CUP) to authorize the continued operation, maintenance, and expansion of the existing waste disposal facility located in the A-2 (Heavy Agricultural) zone. An EIR is necessary for the proposed Project. The landfill is located north of State Route 126 approximately three miles west of Interstate 5 in LAC.

We offer the following comment:

Although the project is located outside of the County of Ventura jurisdiction, the traffic from this project may have an impact on County of Ventura Regional Road Network and local roads. The Environmental Impact Report should analyze and mitigate the traffic impacts, if any, that this project may have on roads in Ventura County. Please send us the draft EIR when it becomes available for our review and comment.

Our review is limited to the impacts this project may have on Ventura County's Regional Road Network.

Please call me at 654-2087 if you have questions.

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Laura Hocking/Dawnyelle Addison, Planning DATE: January 10, 2012

FROM: Alicia Stratton

SUBJECT: Request for Review of Notice of Preparation for an Environmental Impact Report for the Chiquita Canyon Landfill Master Plan Revision, County of Los Angeles (Reference No. 11-036)

Air Pollution Control District staff has reviewed the subject notice of preparation (NOP), for an environmental impact report (EIR), which is a proposal to continue the existing landfill use with a new grant term, as well as extend the waste footprint at the landfill within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The project would also include the continued diversion of such materials as green waste, asphalt/concrete and metal through ongoing land fill waste diversion programs on which numerous jurisdictions depend to comply with state-mandated waste diversion goals. The project location is 29201 Henry Mayo Drive in the unincorporated Castaic area of Los Angeles County.

District staff recommends the EIR evaluate all potential air quality impacts resulting from the project that may affect Ventura County, which is directly west of the project area. Specifically, the air quality assessment should consider reactive organic compound and nitrogen oxide emissions from all project-related motor vehicles and construction equipment. Further, analysis of project consistency with the Ventura County Air Quality Management Plan should be evaluated.

If the project is determined to have a significant impact on regional and/or local air quality affecting Ventura County, the EIR should include all feasible mitigation measures applicable to Ventura County impacts. The Draft EIR should clearly state that all feasible air quality mitigation measures included in the document would be fully implemented if the project were approved.

Greenhouse gas emissions should be evaluated as well.

If you have any questions, please call me at (805) 645-1426.

Glaser, Rob

From: Stuart Abramson [hbprod@sbcglobal.net]
Sent: Monday, January 09, 2012 10:16 AM
To: Glaser, Rob
Subject: Landfill Expansion

The recent article in The Signal on Jan. 5, 2012, talks about the Chiquita landfill expansion. We, as homeowners in Val Verde, along with a number of our neighbors, are completely against such an expansion.

Val Verde is a great little community to live in, but it does have some faults. It could use some sprucing up, and some of the roads could use re-doing. The large amount of money that we hear Chiquita provides to Val Verde, should be divided to include these projects and to make it a safer place by turning it into a gated community.

The expansion will make it undesirable to buy or sell homes, because it will create more noise (you can hear them start up at 3 am) and they don't control the smell already (hang out on Lincoln St.) We would like to see these issues addressed.

Thank you,

Stuart Abramson

Glaser, Rob

From: Tae, Susan
Sent: Tuesday, January 03, 2012 7:56 AM
To: Glaser, Rob
Subject: Phone message/Chiquita Landfill comment

Stewart Abramson called, and some of his property addresses are 29147 Sheridan Road, and 28706 Lincoln Avenue, Val Verde. He doesn't want anything done. He doesn't want Chiquita to go forward without a proper meeting with every resident in Val Verde aware of the proposal. He smells methane, and the landfill should do more for the community, including clean-up and making Val Verde a beautiful community.

He also indicated that he'll be forwarding additional material, including petition with signatures, etc.

Thanks

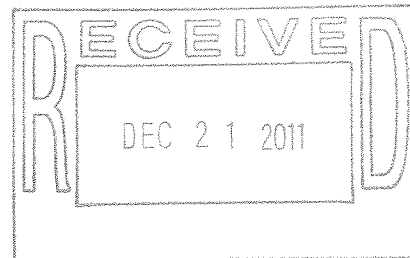
Susan Tae, AICP
Zoning Permits North Section
213-974-6443



Metro

December 16, 2011

Mr. Rob Glaser
Zoning Permits North Section
Los Angeles County Department of Regional Planning
320 W. Temple Street, Room 1348
Los Angeles, CA 90012



Dear Mr. Glaser:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the Chiquita Canyon Landfill Master Plan Revision project. This letter conveys recommendations from the Los Angeles County Metropolitan Transportation Authority (LACMTA) concerning issues that are germane to our agency's statutory responsibilities in relation to the proposed project.

A Traffic Impact Analysis (TIA), with roadway and transit components, is required under the State of California Congestion Management Program (CMP) statute. The CMP TIA Guidelines are published in the "2010 Congestion Management Program for Los Angeles County", Appendix D (attached). The geographic area examined in the TIA must include the following, at a minimum:

1. All CMP arterial monitoring intersections, including monitored freeway on/off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. weekday peak hour (of adjacent street traffic);
2. If CMP arterial segments are being analyzed rather than intersections, the study area must include all segments where the proposed project will add 50 or more peak hour trips (total of both directions). Within the study area, the TIA must analyze at least one segment between monitored CMP intersections;
3. Mainline freeway-monitoring locations where the project will add 150 or more trips, in either direction, during either the a.m. or p.m. weekday peak hour; and
4. Caltrans must also be consulted through the NOP process to identify other specific locations to be analyzed on the state highway system.

The CMP TIA requirement also contains two separate impact studies covering roadways and transit, as outlined in Sections D.8.1 – D.9.4. If the TIA identifies no facilities for study based on the criteria above, no further traffic analysis is required. However, projects must still consider transit impacts. For all CMP TIA requirements please see the attached guidelines.

MTA looks forward to reviewing the Draft EIR. If you have any questions regarding this response, please call Scott Hartwell at 213-922-2836 or by email at hartwells@metro.net. Please send the Draft EIR to the following address:

MTA CEQA Review Coordination
One Gateway Plaza MS 99-23-2
Los Angeles, CA 90012-2952
Attn: Scott Hartwell

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Hartwell", with a long horizontal flourish extending to the right.

Scott Hartwell
CEQA Review Coordinator, Long Range Planning

Attachment

APPENDIX

D

GUIDELINES FOR CMP TRANSPORTATION IMPACT ANALYSIS

Important Notice to User: This section provides detailed travel statistics for the Los Angeles area which will be updated on an ongoing basis. Updates will be distributed to all local jurisdictions when available. In order to ensure that impact analyses reflect the best available information, lead agencies may also contact MTA at the time of study initiation. Please contact MTA staff to request the most recent release of "Baseline Travel Data for CMP TIAs."

D.1 OBJECTIVE OF GUIDELINES

The following guidelines are intended to assist local agencies in evaluating impacts of land use decisions on the Congestion Management Program (CMP) system, through preparation of a regional transportation impact analysis (TIA). The following are the basic objectives of these guidelines:

- ☐ Promote consistency in the studies conducted by different jurisdictions, while maintaining flexibility for the variety of project types which could be affected by these guidelines.
- ☐ Establish procedures which can be implemented within existing project review processes and without ongoing review by MTA.
- ☐ Provide guidelines which can be implemented immediately, with the full intention of subsequent review and possible revision.

These guidelines are based on specific requirements of the Congestion Management Program, and travel data sources available specifically for Los Angeles County. References are listed in Section D.10 which provide additional information on possible methodologies and available resources for conducting TIAs.

D.2 GENERAL PROVISIONS

Exhibit D-7 provides the model resolution that local jurisdictions adopted containing CMP TIA procedures in 1993. TIA requirements should be fulfilled within the existing environmental review process, extending local traffic impact studies to include impacts to the regional system. In order to monitor activities affected by these requirements, Notices of Preparation (NOPs) must be submitted to MTA as a responsible agency. Formal MTA approval of individual TIAs is not required.

The following sections describe CMP TIA requirements in detail. In general, the competing objectives of consistency & flexibility have been addressed by specifying standard, or minimum, requirements and requiring documentation when a TIA varies from these standards.

D.3 PROJECTS SUBJECT TO ANALYSIS

In general a CMP TIA is required for all projects required to prepare an Environmental Impact Report (EIR) based on local determination. A TIA is not required if the lead agency for the EIR finds that traffic is not a significant issue, and does not require local or regional traffic impact analysis in the EIR. Please refer to Chapter 5 for more detailed information.

CMP TIA guidelines, particularly intersection analyses, are largely geared toward analysis of projects where land use types and design details are known. Where likely land uses are not defined (such as where project descriptions are limited to zoning designation and parcel size with no information on access location), the level of detail in the TIA may be adjusted accordingly. This may apply, for example, to some redevelopment areas and citywide general plans, or community level specific plans. In such cases, where project definition is insufficient for meaningful intersection level of service analysis, CMP arterial segment analysis may substitute for intersection analysis.

D.4 STUDY AREA

The geographic area examined in the TIA must include the following, at a minimum:

- ☐ All CMP arterial monitoring intersections, including monitored freeway on- or off-ramp intersections, where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours (of adjacent street traffic).
- ☐ If CMP arterial segments are being analyzed rather than intersections (see Section D.3), the study area must include all segments where the proposed project will add 50 or more peak hour trips (total of both directions). Within the study area, the TIA must analyze at least one segment between monitored CMP intersections.
- ☐ Mainline freeway monitoring locations where the project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.
- ☐ Caltrans must also be consulted through the Notice of Preparation (NOP) process to identify other specific locations to be analyzed on the state highway system.

If the TIA identifies no facilities for study based on these criteria, no further traffic analysis is required. However, projects must still consider transit impacts (Section D.8.4).

D.5 BACKGROUND TRAFFIC CONDITIONS

The following sections describe the procedures for documenting and estimating background, or non-project related traffic conditions. Note that for the purpose of a TIA, these background estimates must include traffic from all sources without regard to the exemptions specified in CMP statute (e.g., traffic generated by the provision of low and very low income housing, or trips originating outside Los Angeles County. Refer to Chapter 5, Section 5.2.3 for a complete list of exempted projects).

D.5.1 Existing Traffic Conditions. Existing traffic volumes and levels of service (LOS) on the CMP highway system within the study area must be documented. Traffic counts must

be less than one year old at the time the study is initiated, and collected in accordance with CMP highway monitoring requirements (see Appendix A). Section D.8.1 describes TIA LOS calculation requirements in greater detail. Freeway traffic volume and LOS data provided by Caltrans is also provided in Appendix A.

D.5.2 Selection of Horizon Year and Background Traffic Growth. Horizon year(s) selection is left to the lead agency, based on individual characteristics of the project being analyzed. In general, the horizon year should reflect a realistic estimate of the project completion date. For large developments phased over several years, review of intermediate milestones prior to buildout should also be considered.

At a minimum, horizon year background traffic growth estimates must use the generalized growth factors shown in Exhibit D-1. These growth factors are based on regional modeling efforts, and estimate the general effect of cumulative development and other socioeconomic changes on traffic throughout the region. Beyond this minimum, selection among the various methodologies available to estimate horizon year background traffic in greater detail is left to the lead agency. Suggested approaches include consultation with the jurisdiction in which the intersection under study is located, in order to obtain more detailed traffic estimates based on ongoing development in the vicinity.

D.6 PROPOSED PROJECT TRAFFIC GENERATION

Traffic generation estimates must conform to the procedures of the current edition of Trip Generation, by the Institute of Transportation Engineers (ITE). If an alternative methodology is used, the basis for this methodology must be fully documented.

Increases in site traffic generation may be reduced for existing land uses to be removed, if the existing use was operating during the year the traffic counts were collected. Current traffic generation should be substantiated by actual driveway counts; however, if infeasible, traffic may be estimated based on a methodology consistent with that used for the proposed use.

Regional transportation impact analysis also requires consideration of trip lengths. Total site traffic generation must therefore be divided into work and non-work-related trip purposes in order to reflect observed trip length differences. Exhibit D-2 provides factors which indicate trip purpose breakdowns for various land use types.

For lead agencies who also participate in CMP highway monitoring, it is recommended that any traffic counts on CMP facilities needed to prepare the TIA should be done in the manner outlined in Chapter 2 and Appendix A. If the TIA traffic counts are taken within one year of the deadline for submittal of CMP highway monitoring data, the local jurisdiction would save the cost of having to conduct the traffic counts twice.

D.7 TRIP DISTRIBUTION

For trip distribution by direct/manual assignment, generalized trip distribution factors are provided in Exhibit D-3, based on regional modeling efforts. These factors indicate Regional Statistical Area (RSA)-level tripmaking for work and non-work trip purposes.

(These RSAs are illustrated in Exhibit D-4.) For locations where it is difficult to determine the project site RSA, census tract/RSA correspondence tables are available from MTA.

Exhibit D-5 describes a general approach to applying the preceding factors. Project trip distribution must be consistent with these trip distribution and purpose factors; the basis for variation must be documented.

Local agency travel demand models disaggregated from the SCAG regional model are presumed to conform to this requirement, as long as the trip distribution functions are consistent with the regional distribution patterns. For retail commercial developments, alternative trip distribution factors may be appropriate based on the market area for the specific planned use. Such market area analysis must clearly identify the basis for the trip distribution pattern expected.

D.8 IMPACT ANALYSIS

CMP Transportation Impact Analyses contain two separate impact studies covering roadways and transit. Section Nos. D.8.1-D.8.3 cover required roadway analysis while Section No. D.8.4 covers the required transit impact analysis. Section Nos. D.9.1-D.9.4 define the requirement for discussion and evaluation of alternative mitigation measures.

D.8.1 Intersection Level of Service Analysis. The LA County CMP recognizes that individual jurisdictions have wide ranging experience with LOS analysis, reflecting the variety of community characteristics, traffic controls and street standards throughout the county. As a result, the CMP acknowledges the possibility that no single set of assumptions should be mandated for all TIAs within the county.

However, in order to promote consistency in the TIAs prepared by different jurisdictions, CMP TIAs must conduct intersection LOS calculations using either of the following methods:

- ☐ The Intersection Capacity Utilization (ICU) method as specified for CMP highway monitoring (see Appendix A); or
- ☐ The Critical Movement Analysis (CMA) / Circular 212 method.

Variation from the standard assumptions under either of these methods for circumstances at particular intersections must be fully documented.

TIAs using the 1985 or 1994 Highway Capacity Manual (HCM) operational analysis must provide converted volume-to-capacity based LOS values, as specified for CMP highway monitoring in Appendix A.

D.8.2 Arterial Segment Analysis. For TIAs involving arterial segment analysis, volume-to-capacity ratios must be calculated for each segment and LOS values assigned using the V/C-LOS equivalency specified for arterial intersections. A capacity of 800 vehicles per hour per through traffic lane must be used, unless localized conditions necessitate alternative values to approximate current intersection congestion levels.

D.8.3 Freeway Segment (Mainline) Analysis. For the purpose of CMP TIAs, a simplified analysis of freeway impacts is required. This analysis consists of a demand-to-capacity calculation for the affected segments, and is indicated in Exhibit D-6.

D.8.4 Transit Impact Review. CMP transit analysis requirements are met by completing and incorporating into an EIR the following transit impact analysis:

- ☐ Evidence that affected transit operators received the Notice of Preparation.
- ☐ A summary of existing transit services in the project area. Include local fixed-route services within a ¼ mile radius of the project; express bus routes within a 2 mile radius of the project, and; rail service within a 2 mile radius of the project.
- ☐ Information on trip generation and mode assignment for both AM and PM peak hour periods as well as for daily periods. Trips assigned to transit will also need to be calculated for the same peak hour and daily periods. Peak hours are defined as 7:30-8:30 AM and 4:30-5:30 PM. Both “peak hour” and “daily” refer to average weekdays, unless special seasonal variations are expected. If expected, seasonal variations should be described.
- ☐ Documentation of the assumption and analyses that were used to determine the number and percent of trips assigned to transit. Trips assigned to transit may be calculated along the following guidelines:
 - Multiply the total trips generated by 1.4 to convert vehicle trips to person trips;
 - For each time period, multiply the result by one of the following factors:
 - 3.5% of Total Person Trips Generated for most cases, except:
 - 10% primarily Residential within 1/4 mile of a CMP transit center
 - 15% primarily Commercial within 1/4 mile of a CMP transit center
 - 7% primarily Residential within 1/4 mile of a CMP multi-modal transportation center
 - 9% primarily Commercial within 1/4 mile of a CMP multi-modal transportation center
 - 5% primarily Residential within 1/4 mile of a CMP transit corridor
 - 7% primarily Commercial within 1/4 mile of a CMP transit corridor
 - 0% if no fixed route transit services operate within one mile of the project

To determine whether a project is primarily residential or commercial in nature, please refer to the CMP land use categories listed and defined in Appendix E, *Guidelines for New Development Activity Tracking and Self Certification*. For projects that are only partially within the above one-quarter mile radius, the base rate (3.5% of total trips generated) should be applied to all of the project buildings that touch the radius perimeter.

- ☐ Information on facilities and/or programs that will be incorporated in the development plan that will encourage public transit use. Include not only the jurisdiction's TDM Ordinance measures, but other project specific measures.

- ☐ Analysis of expected project impacts on current and future transit services and proposed project mitigation measures, and;
- ☐ Selection of final mitigation measures remains at the discretion of the local jurisdiction/lead agency. Once a mitigation program is selected, the jurisdiction self-monitors implementation through the existing mitigation monitoring requirements of CEQA.

D.9 IDENTIFICATION AND EVALUATION OF MITIGATION

D.9.1 Criteria for Determining a Significant Impact. For purposes of the CMP, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$), causing LOS F ($V/C > 1.00$); if the facility is already at LOS F, a significant impact occurs when the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$). The lead agency may apply a more stringent criteria if desired.

D.9.2 Identification of Mitigation. Once the project has been determined to cause a significant impact, the lead agency must investigate measures which will mitigate the impact of the project. Mitigation measures proposed must clearly indicate the following:

- ☐ Cost estimates, indicating the fair share costs to mitigate the impact of the proposed project. If the improvement from a proposed mitigation measure will exceed the impact of the project, the TIA must indicate the proportion of total mitigation costs which is attributable to the project. This fulfills the statutory requirement to exclude the costs of mitigating inter-regional trips.
- ☐ Implementation responsibilities. Where the agency responsible for implementing mitigation is not the lead agency, the TIA must document consultation with the implementing agency regarding project impacts, mitigation feasibility and responsibility.

Final selection of mitigation measures remains at the discretion of the lead agency. The TIA must, however, provide a summary of impacts and mitigation measures. Once a mitigation program is selected, the jurisdiction self-monitors implementation through the mitigation monitoring requirements contained in CEQA.

D.9.3 Project Contribution to Planned Regional Improvements. If the TIA concludes that project impacts will be mitigated by anticipated regional transportation improvements, such as rail transit or high occupancy vehicle facilities, the TIA must document:

- ☐ Any project contribution to the improvement, and
- ☐ The means by which trips generated at the site will access the regional facility.

D.9.4 Transportation Demand Management (TDM). If the TIA concludes or assumes that project impacts will be reduced through the implementation of TDM measures, the TIA must document specific actions to be implemented by the project which substantiate these conclusions.

D.10 REFERENCES

1. *Traffic Access and Impact Studies for Site Development: A Recommended Practice*, Institute of Transportation Engineers, 1991.
2. *Trip Generation*, 5th Edition, Institute of Transportation Engineers, 1991.
3. *Travel Forecast Summary: 1987 Base Model - Los Angeles Regional Transportation Study (LARTS)*, California State Department of Transportation (Caltrans), February 1990.
4. *Traffic Study Guidelines*, City of Los Angeles Department of Transportation (LADOT), July 1991.
5. *Traffic/Access Guidelines*, County of Los Angeles Department of Public Works.
6. *Building Better Communities*, Sourcebook, Coordinating Land Use and Transit Planning, American Public Transit Association.
7. *Design Guidelines for Bus Facilities*, Orange County Transit District, 2nd Edition, November 1987.
8. *Coordination of Transit and Project Development*, Orange County Transit District, 1988.
9. *Encouraging Public Transportation Through Effective Land Use Actions*, Municipality of Metropolitan Seattle, May 1987.

**DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY**

1001 I STREET, P.O. BOX 4025 SACRAMENTO, CALIFORNIA 95812 • (916) 341-4027 • WWW.CALRECYCLE.CA.GOV

December 27, 2011

Mr. Rob Glaser, Principal Planner
County of Los Angeles
Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Subject: SCH No. 2005081071 – Notice of Preparation of a Draft Master Plan
Revision/Environmental Impact Report for the Chiquita Canyon Landfill, Solid
Waste Information System No.19-AA-0052, Los Angeles County

Dear Mr. Glaser,

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments for this proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

CalRecycle staff has reviewed the environmental document cited above and offers the following project description, analysis and our recommendations for the proposed project based on our understanding of the project. If CalRecycle's project description varies substantially from the project as understood by the Lead Agency, CalRecycle staff requests incorporation of any significant differences in the Final Environmental Impact Report. Significant differences in the project description could qualify as "significant new information" about the project that would require recirculation of the document before certification pursuant to CEQA, Section 15088.5.

PROPOSED PROJECT DESCRIPTION

Chiquita Canyon Landfill, located at 29201 Henry Mayo Drive, in the City of Castaic, would continue the existing landfill use with a new grant term, as well as extend the waste footprint within the existing site boundary, better utilize the landfill's remaining and potential disposal capacity, and allow for the disposal of all non-hazardous wastes acceptable at a Class III solid waste disposal landfill. The proposed project would also include the continued diversion of such materials as green waste, asphalt, concrete and metal.

Entitlements for a Solid Waste Facilities Permit

	Current	Proposed
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Disposal Footprint	257 acres	400 acres
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Based on the preliminary assessment of the environmental effects potentially stemming from the proposed project, the Lead Agency has determined that an Environmental Impact Report (EIR) will need to be prepared. The following components have been identified as having a potentially significant effect on the environment:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Mandatory Findings of Significance

CALRECYCLE STAFF COMMENTS

As required by Title 14, California Code of Regulations (14 CCR), Sections 15126.2, 15126.4, and 15126.6, CalRecycle staff requests that the Draft EIR contain detailed considerations and discussions of the significant effects, mitigation measures, and alternatives for the proposed project including the alternative of “no project.”

The Draft EIR must detail all provisions in order to indicate the ability of the facility to meet State Minimum Standards for environmental protection (14 CCR, Section 17000 et seq.). The following internet link accesses checklists developed by CalRecycle staff as a guide to Lead Agencies in the preparation of EIRs for disposal facilities:

<http://www.calrecycle.ca.gov/SWFacilities/Permitting/CEQA/Documents/Guidance/Disposal.htm>

Proposed Entitlements

Will there be any changes to existing entitlements such as tonnages, days and hours of operation, acceptable material types, maximum elevation or depth, estimated closure date or any other changes to existing entitlements not mentioned above?

Environmental Justice

Environmental Justice is not a part of statute or regulations involving CEQA or the operation and evaluation of environmental documents relating to proposed projects that fall under the purview of CalRecycle. CalRecycle staff has taken a proactive stance towards environmental justice and recommends that it be included and considered in the project coming before them for concurrence.

Buildings and On-Site Improvements

Describe in detail the design characteristics of improvements to be made to the site.

Maps and Drawings

Provide accurate maps and drawings delineating the different areas of the solid waste landfill, with zoning and land use designations identified for the facility and for adjacent properties extending at least 1,000 feet from the boundaries of the proposed project.

Land Use Compatibility

The Draft EIR should identify the proposed project's surrounding land use with a description of the density of the occupancy for commercial and residential areas. The Draft EIR should be specific regarding to the nearest sensitive receptor(s).

The local government, in whose jurisdiction the facilities will be located, must make a finding that the facility is consistent with the General Plan and is identified in the most recent Countywide Integrated Waste Management Plan [Public Resources Code (PRC), Sections 50000 and 50001].

Traffic and Related Transportation System Impacts

If peak traffic volumes are expected to increase, then peak traffic volumes should be projected over a minimum of five years for the project at peak tonnage rates. Discuss the cumulative effect of traffic for the proposed project in the Draft EIR.

Air Quality

Impacts on air quality from potential dust and odor generation during operations should be analyzed.

The distance to the nearest residential and/or commercial receptors, as well as the direction of the prevailing wind should be identified. Mitigation measures, which will be employed to address impacts for the proposed project, should be incorporated into the Draft EIR.

Mitigation Reporting or Monitoring Program

As required by PRC, Section 21081.6, the Lead Agency should submit a Mitigation Reporting or Monitoring Program at the time of local certification of an EIR. This plan should identify the environmental impacts associated with the proposed project, identify mitigation measures to reduce impacts to a less than significant level, identify agencies responsible for ensuring the implementation of the proposed mitigations, and specifies a monitoring/tracking mechanism. PRC, Section 21080 (c)(2) requires that mitigation measures "...avoid the effects or mitigate the

effects to the point where clearly no significant effects on the environment would occur." The Mitigation Reporting or Monitoring Program is also required as a condition of project approval. PRC, Section 21081.6(b) also requires that "A public agency shall provide the measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures."

The Mitigation Reporting or Monitoring Program should also indicate that agencies designated to enforce mitigation measures in the EIR have reviewed the Mitigation Reporting or Monitoring Program and agreed that they have the authority and means to accomplish the designated enforcement responsibilities.

Permits

The proposed project will require concurrence by CalRecycle, in the issuance by the Local Enforcement Agency, of a Revised Solid Waste Facilities Permit for the operation of a Solid Waste Disposal Facility/Landfill; possibly other federal, state and local approvals, as well as being included in the Countywide Integrated Waste Management Plan and meet the requirements of PRC, Division 30, Part 2, Chapter 4.5, (Countywide Siting Element).

The Los Angeles County Department of Public Health's Solid Waste Management Program is the Local Enforcement Agency and can be reached at (626) 430-5540.

Potentially Significant Environmental Impacts

The Lead Agency in the Notice of Preparation has identified several resource topics that may be potentially significant. Most potentially significant project related impacts may be reduced to less than significant level by project or design features and/or mitigation measures. If there are significant impacts after design features or mitigation measures are implemented it will be necessary to prepare and adopt a Statement of Overriding Considerations. If it is necessary to prepare a Statement of Overriding Considerations, please forward a copy to CalRecycle prior to adoption for our review. In order for CalRecycle to concur on a Solid Waste Facility Permit with significant impacts after mitigation, it is necessary to either adopt your State of Overriding Considerations as our own or prepare a separate Statement of Overriding Considerations.

CONCLUSION

CalRecycle staff requests copies of any subsequent environmental documents including, the Final Environmental Impact Report, Statement of Overriding Considerations, copies of public notices and any Notices of Determination for this project.

Please refer to 14 CCR, § 15094(d) that states: "If the project requires discretionary approval from any state agency, the local lead agency shall also, within five working days of this approval, file a copy of the notice of determination with the Office of Planning and Research [State Clearinghouse]."

The CalRecycle staff requests that the Lead Agency provide a copy of its responses to comments at least ten days before certifying the Final Environmental Impact Report [PRC Section 21092.5(a)].

If the document is certified during a public hearing, CalRecycle staff requests ten days advance notice of this hearing. If the document is certified without a public hearing, CalRecycle staff requests ten days advance notification of the date of the certification and project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at 951.782.4194 or e-mail me at Martin.Perez@calrecycle.ca.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read 'M. Perez', with a stylized flourish at the end.

Martin Perez
Permitting and Assistance Branch - South Unit
Permits and Certification Division
CalRecycle

cc: Virginia Rosales, Supervisor
Permitting and Assistance Branch - South Unit

Gerardo Villalobos, REHS IV
Department of Public Health
County of Los Angeles
5050 Commerce Drive,
Baldwin Park, CA 91706



State of California - The Resources Agency

EDMUND G. BROWN JR., Governor

DEPARTMENT OF FISH AND GAME

Charlton H. Bonham, Director

<http://www.dfg.ca.gov>

3883 Ruffin Road
San Diego, CA 92123
Telephone: (858) 467-4201
Fax: (858) 495-3614

FAX TRANSMITTAL SHEET

Date: 12-27-2011

No. of Pages 7 including Cover
Sheet

To: **Mr. Bob Glaser**
Los Angeles County Department of Regional Planning
Fax: **(213) 217-5108**

From: **Leslie MacNair -Environmental Program Manager**
South Coast Region-San Diego
Tel: 949-458-1754
Fax: **858- 495-3614**

Subject: Notice of Preparation of a Draft Environmental Impact Report
for Chiquita Canyon Landfill Master Plan Revision Project SCH# 2005081071,
Los Angeles County

____ Urgent ____ Please Reply ____ For Review X Orig Mailed

If you do not receive all of the pages indicated, please call the sender as soon as possible. Thank you.



State of California - The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
<http://www.dfg.ca.gov>

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



December 27, 2011

Mr. Bob Glaser
Los Angeles County Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

**Subject: Notice of Preparation for Draft Environmental Impact Report for
Chiquita Canyon Landfill Master Plan Revision Project
SCH # 2005081071, Los Angeles County**

Dear Mr. Glaser:

The Department of Fish and Game (Department) has reviewed the Notice of Preparation (NOP) for the proposed Chiquita Canyon Landfill Master Plan Revision (Project). The Project would continue the existing landfill use with a new grant term as well as extending the waste footprint of the land fill within the existing site boundary. The Project is located between Chiquita Canyon Road and Wolcott Way within the Santa Clara River and Castaic Creek Watershed in unincorporated Los Angeles County. The Project will result in impacts to undisturbed areas prior to closure of the landfill including coastal sage scrub and streambeds that may be within Department jurisdiction.

The California Wildlife Action Plan, a recent Department guidance document, identified the following stressors affecting wildlife and habitats within the Project area: 1) growth and development; 2) water management conflicts and degradation of aquatic ecosystems; 3) invasive species; 4) altered fire regimes; and 5) recreational pressures. With these stressors in mind, the Department has previously worked with the City in recommending conservation and protective measures for biological and botanical resources and looks forward to continuing this effort. Please let Department staff know if you would like a copy of the California Wildlife Action Plan to review.

The Department is California's Trustee Agency for fish and wildlife resources, holding these resources in trust for the People of the State pursuant to various provisions of the California Fish and Game Code. (Fish & G. Code, §§ 711.7, subd. (a), 1802.) The Department submits these comments in that capacity under the California Environmental Quality Act (CEQA). (See generally Pub. Resources Code, §§ 21070; 21080.4.) Given its related permitting authority under the California Endangered Species Act (CESA) and Fish and Game Code section 1600 *et seq.*, the Department also submits these comments likely as a Responsible Agency for the Project under CEQA. (*Id.*, § 21069.)

To enable Department staff to adequately review and comment on the proposed Project we recommend the following information, where applicable, be included in the DEIR:

1. A complete, recent assessment of flora and fauna within and adjacent to the Project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats including:

Conserving California's Wildlife Since 1870

Mr. Bob Glaser
December 27, 2011
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- a. A thorough recent assessment of rare plants and rare natural communities, following the Department's Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities. (See Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities at: <http://www.dfg.ca.gov/habcon/plant/>).
 - b. A complete, recent assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use within the Project area should also be addressed. Recent, focused, species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required.
 - c. Endangered, rare, and threatened species to address should include all those species which meet the related definition under the CEQA Guidelines. (See Cal. Code Regs., tit. 14, § 15380.)
 - d. The Department's Biogeographic Data Branch in Sacramento should be contacted at (916) 322-2493 (www.dfg.ca.gov/biogeodata) to obtain current information on any previously reported sensitive species and habitats, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code. Also, any Significant Ecological Areas or Environmentally Sensitive Habitats or any areas that are considered sensitive by the local jurisdiction that are located in or adjacent to the Project area must be addressed.
2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts. This discussion should focus on maximizing avoidance, and minimizing impacts.
- a. CEQA Guidelines, Section 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.
 - b. Project impacts including deposition of debris should also be analyzed relative to their effects on off-site habitats and populations. Specifically, this should include nearby public lands, open space, natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas are of concern to the Department and should be fully evaluated and provided. The analysis should also include a discussion of the potential for impacts resulting from such effects as increased vehicle traffic, outdoor artificial lighting, noise and vibration and pest management.
 - c. A cumulative effects analysis should be developed as described under CEQA Guidelines, Section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.
 - d. Impacts to migratory wildlife affected by the Project should be fully evaluated including proposals to remove/disturb native and ornamental landscaping and other nesting habitat for native birds. Impact evaluation may also include such elements as migratory butterfly roost sites and neo-tropical bird and waterfowl stop-over and staging sites. All migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R. Section 10.13). Sections

Mr. Bob Glaser
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- 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of birds and their active nests, including raptors and other migratory nongame birds as listed under the MBTA.
- e. Impacts from Project activities (including but not limited to, staging and disturbances to native and non native vegetation, structures, and substrates) should occur outside of the avian breeding season which generally runs from March 1-August 31 (as early as January 1 for some raptors) to avoid take of birds or their eggs. If Project activities cannot avoid the avian breeding season, nest surveys should be conducted and active nests should be avoided and provided with a minimum buffer as determined by a biological monitor (the Department generally recommends a minimum 300 foot nest avoidance buffer (or 500 feet for all active raptor nests).
 - f. Proposed impacts to all habitats from City or County required Fuel Modification Zones (FMZ). Areas slated as mitigation for loss of habitat shall not occur within the FMZ.
3. A range of alternatives should be analyzed to ensure that alternatives to the proposed Project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources including wetlands/riparian habitats, alluvial scrub, coastal sage scrub, should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.
- a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize Project impacts. Compensation for unavoidable impacts through acquisition and protection of high quality habitat elsewhere should be addressed with off-site mitigation locations clearly identified.
 - b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from Project-related impacts (Attachment).
 - c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.
4. An Incidental Take Permit from the Department may be required if the Project, Project construction, or any Project-related activity during the life of the Project will result in "take" as defined by the Fish and Game Code of any species protected by CESA. (Fish & G. Code, §§86, 2080, 2081, subd. (b), (c).) Early consultation with Department regarding potential permitting obligations under CESA with respect to the Project is encouraged. (Cal. Code Regs., tit. 14, § 783.2, subd. (b).) It is imperative with these potential permitting obligations that the draft environmental document prepared by the Lead Agency includes a thorough and robust analysis of the potentially significant impacts to endangered, rare, and threatened species, and their habitat, that may occur as a result of the proposed Project. For any such potentially significant impacts the Lead Agency should also analyze and describe specific, potentially feasible mitigation measures to avoid or substantially lessen any such impacts as required by CEQA and, if an ITP is necessary, as required by the relevant permitting criteria prescribed by Fish and Game Code section 2081, subdivisions (b) and (c). The failure to include this analysis in an environmental document could

Mr. Bob Glaser
December 27, 2011
Page 4 of 5

preclude the Department from relying on the Lead Agency's analysis to issue an ITP without the Department first conducting its own, separate Lead Agency subsequent or supplemental analysis for the Project. (See, e.g., Cal. Code Regs., tit. 14, § 15096, subd. (f).) For these reasons, the following information is requested:

- a. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.
 - b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.
5. The Department opposes the elimination of watercourses (including concrete channels, blue line streams and other watercourses not designated as blue line streams on USGS maps) and/or the channelization of natural and manmade drainages or conversion to subsurface drains. All wetlands and watercourses, whether intermittent, ephemeral, or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic habitat values and maintain their value to on-site and off-site wildlife populations. The Department recommends a minimum natural buffer of 100 feet from the outside edge of the riparian zone on each side of drainage.
- a. The Department also has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource. For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) or a river or stream or use material from a streambed, the Project applicant (or "entity") must provide written notification to the Department pursuant to Section 1602 of the Fish and Game Code. Based on this notification and other information, the Department then determines whether a Lake and Streambed Alteration (LSA) Agreement is required. The Department's issuance of an LSA is a project subject to CEQA. To facilitate issuance of an Agreement, if necessary, the environmental document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the Agreement. Early consultation is recommended, since modification of the proposed Project may be required to avoid or reduce impacts to fish and wildlife resources. Again, the failure to include this analysis in the Project environmental impact report could preclude the Department from relying on the Lead Agency's analysis to issue an Agreement without the Department first conducting its own, separate Lead Agency subsequent or supplemental analysis for the Project.

Thank you for this opportunity to provide comments. Please contact Mr. Scott Harris, Environmental Scientist, at (626) 797-3170 if you should have any questions and for further coordination on the proposed Project.

Sincerely,



Leslie S. MacNair
Environmental Program Manager
South Coast Region

Mr. Bob Glaser
December 27, 2011
Page 5 of 5

Attachment

cc: Ms. Leslie MacNair, Laguna Hills
Ms. Terri Dickerson, Laguna Niguel
Ms. Kelly Schmoker, Pasadena
Mr. Scott Harris, Pasadena
Mr. Dan Blankenship, Newhall

HabCon-Chron
Department of Fish and Game

State Clearinghouse
Sacramento

- S1.2 Southern Foredunes
Mono Pumice Flat
Southern Interior Basalt Flow Vernal Pool
- S2.1 Venturan Coastal Sage Scrub
Diegan Coastal Sage Scrub
Riversidean Upland Coastal Sage Scrub
Riversidean Desert Sage Scrub
Sagebrush Steppe
Desert Sink Scrub
Mafic Southern Mixed Chaparral
San Diego Mesa Hardpan Vernal Pool
San Diego Mesa Claypan Vernal Pool
Alkali Meadow
Southern Coastal Salt Marsh
Coastal Brackish Marsh
Transmontane Alkali Marsh
Coastal and Valley Freshwater Marsh
Southern Arroyo Willow Riparian Forest
Southern Willow Scrub
Modoc-Great Basin Cottonwood Willow Riparian
Modoc-Great Basin Riparian Scrub
Mojave Desert Wash Scrub
Engelmann Oak Woodland
Open Engelmann Oak Woodland
Closed Engelmann Oak Woodland
Island Oak Woodland
California Walnut Woodland
Island Ironwood Forest
Island Cherry Forest
Southern Interior Cypress Forest
Bigcone Spruce-Canyon Oak Forest
- S2.2 Active Coastal Dunes
Active Desert Dunes
Stabilized and Partially Stabilized Desert Dunes
Stabilized and Partially Stabilized Desert Sandfield
Mojave Mixed Steppe
Transmontane Freshwater Marsh
Coulter Pine Forest
Southern California Fellfield
White Mountains Fellfield
- S2.3 Bristlecone Pine Forest
Lumber Pine Forest
- S3.2 Joshua tree woodland
Mojave mixed woody scrub

2

Sensitivity of Top Priority Rare Natural Communities in Southern California

Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

- S1.# Fewer than 6 known locations and/or on fewer than 2,000 acres of habitat remaining.
- S2.# Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining.
- S3.# Occurs in 21-100-known locations and/or 10,000-50,000 acres of habitat remaining.

The number to the right of the decimal point after the ranking refers to the degree of threat posed to that natural community regardless of the ranking. For example:

- S1.1 = very threatened
- S2.2 = threatened
- S3.3 = no current threats known

Sensitivity Rankings (February 1992)

<u>Rank</u>	<u>Community Name</u>
S1.1	Mojave Riparian Forest Sonoran Cottonwood Willow Riparian Mesquite Bosque Elephant Tree Woodland Crucifixion Thorn Woodland Allthorn Woodland Arizona Woodland Southern California Walnut Forest Mainland Cherry Forest Southern Bishop Pine Forest Torrey Pine Forest Desert Mountain White Fir Forest Southern Dune Scrub Southern Coastal Bluff Scrub Maritime Succulent Scrub Riversidean Alluvial Fan Sage Scrub Southern Maritime Chaparral Valley Needlegrass Grassland Great Basin Grassland Mojave-Desert Grassland Pebble Plains Southern Sedge Bog Cismontane Alkali Marsh

**DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY**1001 I STREET, P.O. BOX 4025 SACRAMENTO, CALIFORNIA 95812 • (916) 341-4027 • WWW.CALRECYCLE.CA.GOV

December 27, 2011

Mr. Rob Glaser, Principal Planner
County of Los Angeles
Department of Regional Planning
320 West Temple Street
Los Angeles, CA 90012

Subject: **SCH No. 2005081071** – Notice of Preparation of a Draft Master Plan
Revision/Environmental Impact Report for the Chiquita Canyon Landfill, Solid
Waste Information System No.19-AA-0052, Los Angeles County

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CALRECYCLE STAFF COMMENTS

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<http://www.calrecycle.ca.gov/SWFacilities/Permitting/CEQA/Documents/Guidance/Disposal.htm>

Proposed Entitlements

Will there be any changes to existing entitlements such as tonnages, days and hours of operation, acceptable material types, maximum elevation or depth, estimated closure date or any other changes to existing entitlements not mentioned above?

Environmental Justice

Environmental Justice is not a part of statute or regulations involving CEQA or the operation and evaluation of environmental documents relating to proposed projects that fall under the purview of CalRecycle. CalRecycle staff has taken a proactive stance towards environmental justice and recommends that it be included and considered in the project coming before them for concurrence.

Buildings and On-Site Improvements

Describe in detail the design characteristics of improvements to be made to the site.

Maps and Drawings

Provide accurate maps and drawings delineating the different areas of the solid waste landfill, with zoning and land use designations identified for the facility and for adjacent properties extending at least 1,000 feet from the boundaries of the proposed project.

Land Use Compatibility

The Draft EIR should identify the proposed project's surrounding land use with a description of the density of the occupancy for commercial and residential areas. The Draft EIR should be specific regarding to the nearest sensitive receptor(s).

The local government, in whose jurisdiction the facilities will be located, must make a finding that the facility is consistent with the General Plan and is identified in the most recent Countywide Integrated Waste Management Plan [Public Resources Code (PRC), Sections 50000 and 50001].

Traffic and Related Transportation System Impacts

If peak traffic volumes are expected to increase, then peak traffic volumes should be projected over a minimum of five years for the project at peak tonnage rates. Discuss the cumulative effect of traffic for the proposed project in the Draft EIR.

Air Quality

Impacts on air quality from potential dust and odor generation during operations should be analyzed.

The distance to the nearest residential and/or commercial receptors, as well as the direction of the prevailing wind should be identified. Mitigation measures, which will be employed to address impacts for the proposed project, should be incorporated into the Draft EIR.

Mitigation Reporting or Monitoring Program

As required by PRC, Section 21081.6, the Lead Agency should submit a Mitigation Reporting or Monitoring Program at the time of local certification of an EIR. This plan should identify the environmental impacts associated with the proposed project, identify mitigation measures to reduce impacts to a less than significant level, identify agencies responsible for ensuring the implementation of the proposed mitigations, and specifies a monitoring/tracking mechanism. PRC, Section 21080 (c)(2) requires that mitigation measures "...avoid the effects or mitigate the

effects to the point where clearly no significant effects on the environment would occur." The Mitigation Reporting or Monitoring Program is also required as a condition of project approval. PRC, Section 21081.6(b) also requires that "A public agency shall provide the measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures."

The Mitigation Reporting or Monitoring Program should also indicate that agencies designated to enforce mitigation measures in the EIR have reviewed the Mitigation Reporting or Monitoring Program and agreed that they have the authority and means to accomplish the designated enforcement responsibilities.

Permits

The proposed project will require concurrence by CalRecycle, in the issuance by the Local Enforcement Agency, of a Revised Solid Waste Facilities Permit for the operation of a Solid Waste Disposal Facility/Landfill; possibly other federal, state and local approvals, as well as being included in the Countywide Integrated Waste Management Plan and meet the requirements of PRC, Division 30, Part 2, Chapter 4.5, (Countywide Siting Element).

The Los Angeles County Department of Public Health's Solid Waste Management Program is the Local Enforcement Agency and can be reached at (626) 430-5540.

Potentially Significant Environmental Impacts

The Lead Agency in the Notice of Preparation has identified several resource topics that may be potentially significant. Most potentially significant project related impacts may be reduced to less than significant level by project or design features and/or mitigation measures. If there are significant impacts after design features or mitigation measures are implemented it will be necessary to prepare and adopt a Statement of Overriding Considerations. If it is necessary to prepare a Statement of Overriding Considerations, please forward a copy to CalRecycle prior to adoption for our review. In order for CalRecycle to concur on a Solid Waste Facility Permit with significant impacts after mitigation, it is necessary to either adopt your State of Overriding Considerations as our own or prepare a separate Statement of Overriding Considerations.

CONCLUSION

CalRecycle staff requests copies of any subsequent environmental documents including, the Final Environmental Impact Report, Statement of Overriding Considerations, copies of public notices and any Notices of Determination for this project.

Please refer to 14 CCR, § 15094(d) that states: "If the project requires discretionary approval from any state agency, the local lead agency shall also, within five working days of this approval, file a copy of the notice of determination with the Office of Planning and Research [State Clearinghouse]."

The CalRecycle staff requests that the Lead Agency provide a copy of its responses to comments at least ten days before certifying the Final Environmental Impact Report [PRC Section 21092.5(a)].

If the document is certified during a public hearing, CalRecycle staff requests ten days advance notice of this hearing. If the document is certified without a public hearing, CalRecycle staff requests ten days advance notification of the date of the certification and project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at 951.782.4194 or e-mail me at Martin.Perez@calrecycle.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'Martin Perez', with a stylized flourish at the end.

Martin Perez
Permitting and Assistance Branch - South Unit
Permits and Certification Division
CalRecycle

cc: Virginia Rosales, Supervisor
Permitting and Assistance Branch - South Unit

Gerardo Villalobos, REHS IV
Department of Public Health
County of Los Angeles
5050 Commerce Drive,
Baldwin Park, CA 91706

To: Rob Glaser, Principal Planner
Zoning Permits North Section
Los Angeles Co Dept. of Regional Planning
320 W Temple St, room 1348
Los Angeles CA 90012

CC: Michael Antonovich
LA County Supervisor 5th District
500 West Temple Street, Room 869
Los Angeles, CA 90012

Scott Wardle (President)
Castaic Area Town Council
Castaic, CA 91384

RE: Chiquita Canyon Landfill/ project No. R2004-00559-(5) Conditional Use Permit No. 200400042, Environmental Case 200400039

Location 29201 Henry Mayo Drive (Highway 126) Castaic CA 91384 Located between Regions 1 and 2 of the Castaic Area Town Council.

As a past member of the Castaic Town Council I am aware that the council has abrogated its duties to comment and guide the EIR process for the proposed landfill expansion. The Council by-laws prevent swift action without warning, due to the fact that actions must be presented to the public as an agenda item prior to official actions by the Council can be taken. This process takes two months minimum to process, so longer notice is required by the Council. During my term on the council, many times we were required to comment at the earliest steps for such a large project with such serious ramifications to the community. First notifications were received, and extensions for comment periods were requested to conform to council bylaws.

Due to the council's unavoidable delayed response past the comment extension date, I would hope that Supervisor Antonovich's Staff and the LA County Regional Planning will receive these comments for action and expand the notification process to the other affected areas outlined below to prevent future problems.

1. Val Verde, and North river "Project" (Region 2 of the Castaic Town Council)
2. Hasley Canyon Area (Region 3 of the Castaic Town Council)
3. Live Oak Community, River Village "Project", and the Castaic Valencia Industrial Park (Region 1 of the Castaic Town Council)

*Notification of Expansion was sent only to the Val Verde area residents all other communities directly affected were **NOT** included and must be added for all future notices.*

Areas to be included should include the above listed and any other areas that fall within a 50% increased sphere of impact notification. Using the 1997 documented sphere of impact of 1.2 miles, and projecting a 50% increase the new proposed impacted areas would fall within a 1.8 mile radius of the landfill boundaries'.

- While all of the Castaic community should have input into the Chiquita Landfill Expansion the residents of the three (3) regions of the Castaic Area Town Council should be notified of all meetings and deadlines for comments by post. Public meetings for these regions should be held at the Live Oak School Site auditorium of Castaic Middle School to allow best attendance.

The request for the permit extension should allow all rules and laws to be applied and implemented immediately. The implementation of AB939 recycling requirements should go into effect 2012 and all municipalities utilizing this facility be required to follow these requirements.

After reviewing the Initial Study Checklist, there were some items of question and items not on the list that must be added or will be questioned during the EIR.

1. Aesthetics: states less than significant impact

- a. The 126 Hwy is a first Priority Scenic Highway and the proposed landfill height and visibility would make this road way forfeit the scenic designation having a **"Potentially Significant Impact"**.
- b. The Castaic Community Standards District (CSD) is not listed as a requirement.
- c. The SCV SEA (vistas section is not listed as a requirement.
- d. Property Value impacts

Vistas and CSD considerations:

The Castaic Community Standards District (CSD) is not listed as a regulation to be followed along with the SCV SEA vista regulations. The Castaic CSDs ridgeline protection sections clearly outline how scenic vistas must be protected and maintained. The proposed 140/ft increase in the approved height would be making the landfill the tallest figure in the hillside range violating the approved CSD. All height projections must be shown utilizing photos from all visually affected roadways, community ingress and egress pathways and the neighborhoods of Live Oak, the Valencia Industrial Park, Mission Village, North River and Val Verde.

Other Scenic jurisdictions along the 126 corridor must be considered. County comment on scenic routes and roadways must be reviewed along with CSD considerations. As the picture below shows the present Landfill is becoming a significant visual impact already, adding 140ft would make it the largest hill within the hillside range. Impact Significant.



Picture from 126 ½ mile west from I5

Ascetic impacts shall contain affects to areas of ingress and egress such as entrance roads to Hasley Canyon, Val Verde, Live Oak, and Castaic Industrial Park Also to include impact on Landmark Village, Mission Village and Homestead Village.

(3) Air Quality

- a. Exposure to Sensitive Receptors do not list impacts to:
- i. Schools
 - ii. Planned schools
 - iii. AQMD-CARB

After reviewing the Initial Study Checklist, there were some items of question and items not on the list that must be added or will be questioned during the EIR. There are a significant many established and plan/approved residential, business and school areas not listed.

Areas not list that are within the affected boundaries are as follows:

- Val Verde, and North river "Project" (Region 2 of the Castaic Town Council)
- Hasley Canyon Area (Region 3 of the Castaic Town Council)
- Live Oak Community, Mission Village "Project", and the Castaic Valencia Industrial Park (Region 1 of the Castaic Town Council)

The Initial study List does not recognized areas that are approved by the Castaic Town Council and are in process and with approved maps submitted to Regional Planning. Areas to be included should include the above listed and any other areas that fall within a 50% increased sphere of impact notification. Using the 1997 documented sphere of impact of 1.2 miles, and projecting a 50% increase the new proposed impacted areas would fall within a 1.8 mile radius of the landfill boundaries'.

Projects in Process:

Landmark Village eventually will be home to about 4,500 residents along the Santa Clara River between the 126 just south, of the 2012 landfill entrance. The 300-acre neighborhood will also have an elementary school, community park and business development within the 1.2 mile affected zone.

Mission Village, located West of Magic Mountain and South of Hwy 126 was approved by the Los Angeles County Regional Planning Commission in May 2011. Mission Village is a 1261-acre neighborhood of 621 lots that include single family homes, condominiums, community park, and business development within the 1 mile affected zone.

Homestead Village is in process of approval and includes both a middle school and High school. The middle school will be within one (1) mile of boundary the High school 1.2-1.8.

Air Quality:

While other areas of Sothern California have reduced the number of first stage smog alerts, the Santa Clarita Valley has seen an increase in the number of first stage days. An emissions reduction plan must be presented to AQMD and CARB outlining emission reduction for garbage trucks entering the facility, on site vehicles such as tractors, haulers and landfill gases.

With the new stated CARB regulations all landfill operations should follow the set guide lines put forth by CARB. CARB must be added to the approving of the air quality plan showing the use of CNG, battery electric, hydrogen fuel cell and plug-in hybrid vehicles, by 2018.

A study of all hauling and grading aspects must include particulate, CO2 emissions, carbon monoxide, Vinyl Chloride, Methane, and all other regulated emissions associated with landfill, and grading type of operations.

Sensitive Receptors:

Air Quality Impact to schools within one mile of the landfill are of significant Impact. There are two approved projects that have school components within the 1 mile stated boundary. These schools will be operated by the Castaic School District. The district must be added to the list of notifications and approving bodies.

Landmark Village eventually will be home to an elementary school, community park within the 1.2 mile affected zone.

Homestead Village is in process of approval and includes both a middle school and High school. The middle school will be within one (1) mile of boundary the High school 1.2-1.8.

These sites would be considered Air Quality Sensitive Receptors. Comments from both Castaic School district and the Hart School district will be required.

2. (4) Biological Resources

- a. Wildlife impacts are not listed as a requirement.
- b. Applicable ordinances not listed
 - iv. Castaic CSD
 - v. SCV SEA

Wildlife Impacts:

We need to assess that all sensitive species are adequately surveyed during the preparation of EIR outlined below but not limited to this list that specifically applies to the taxa that would be scavenge or hunt along the landfill cover, cap and boundaries where contaminated rodents would be hunted, become carrion or wander off site. Birds most affected by contaminated or poisoned food sources would be the raptors and nocturnal species that hunt wild game. The actual status of each, including nesting sites as applicable, impact analysis, must be addressed in an amended EIR.

Specifically, these species include:

1. California Condor (overlooked)
2. Golden Eagle (nesting raptor)
3. Cooper's Hawk (nesting raptor)
4. White-tailed Kite (nesting raptor)
5. Prairie Falcon (nesting raptor)
6. Horned Owl (nocturnal)
7. Long-eared Owl (nocturnal)
8. California Spotted Owl (Nocturnal)

3. (5) Cultural Resources

- a. Bowers Cave.
- b. Archaeological findings

Archaeological and Historical Impacts and Protection

Expected impacts and protection plans must be outlined for the **Bowers Cave**, Tataviam Indian sites and petroglyphs located on or near the landfill site area. Also plans for escorting guests to view and study the sites must be proposed. Due to the fact that the last Tataviam of this tribe died in early 1900s the closest tribe with legal jurisdiction would be the Fernandeano Tataviam Band of Mission Indian's and the Chumash Tribe. The Chumash Tribal Council and Fernandeano Tataviam Band of Mission Indian's must be notified and approve any and all protection and impact proposals that would affect these sites located on or near the Landfill site.

About 50,000 years ago this area was an inlet with much of the landfill area under water. Many artifacts have been found in this area during grading. The EIR must show how any and all archaeological artifacts will be preserved and submitted to Los Angeles County for storage until a Castaic/SCV Museum is built to house them.

4. (8) Greenhouse Emissions

- a. Emissions
- b. Cap and Trade requirements

A study of all hauling and grading aspects must include particulate, CO2 emissions, carbon monoxide, Vinyl Chloride, Methane, and all other regulated emissions associated with landfill, and grading type of operations. This study must also include Vehicle operations including Haulers and site equipment, cogeneration units and water treatment operations.

The emission impacts will have some cap and trade impacts for emissions of haulers and landfill operations. We would like to see the numbers as projected b current CARB regulations.

5. (10) Hydrology and Water Quality

- a. Ground water
- b. Water treatment
- c. Monitoring

Presently the landfill operates without any leachate treatment facilities, runoff water treatment or ground water monitoring. Water contamination considerations must include continual monitoring of run off, area ground water monitoring wells, and river bed aquifer monitoring. The landfill location sits on the western region of the Saugus Aquifer that supplies water to all of the Santa Clarita Valley and is required for continued development of the Newhall Ranch development. The lower water table known as the Pico Aquifer is considered non-potable and will not be required in this assessment.

A new third party ground water survey and evaluation must be included and submitted to District 36 Water (LA County), Newhall Water District along with the Castaic Water Agency for comment. District 36 has a well within 1.2 miles that supplies water to Val Verde and Hasley Canyon. Both Hasley Canyon and Val Verde have private wells that will require some type of ground and surface water runoff monitoring.

*Implementation plans must be presented for leachate and surface water runoff monitoring of compounds listed by Federal and Calif. State landfill regulations, with the addition of **heavy metals** found in automotive manufacturing, **Lithium**, and **Mercury** from batteries, CFLs & electronic waste.*

Recognizing that the new CFL law will increase the number of mercury containing light bulbs being incorrectly disposed along with illegal disposal of cell phones, and other electronic devices, mercury must be added to the heavy metal list. One household product that is causing a problem these days is throwaway batteries. Each year, Americans throw away 84,000 tons of alkaline batteries. These AA, C and D cells that power electronic toys and games, portable audio equipment and a wide range of other gadgets comprise 20% of the household hazardous materials present around the country in America's landfills. With the new Lithium cells we must add the monitoring of these potential contaminants also.

A landfill cover or cap is an umbrella over the landfill to keep water out (to help prevent leachate formation). It will generally consists of several sloped layers: clay or membrane liner (to prevent rain from intruding), overlain by a very permeable layer of sandy or gravelly soil (to promote rain runoff), overlain by topsoil in which vegetation can root (to stabilize the underlying layers of the cover). If the cover (cap) is not maintained, rain will enter the landfill resulting in buildup of leachate to the point where the bathtub overflows its sides and wastes enter the environment.

The present use of Auto Shredder waste and compost outlined in the landfill proposal as daily cover is very permeable to rainwater, contain contamination elements of their own and will be factors in the discussion of the required water treatment facilities.

6. (14) Population and Housing

- d. Areas of impact incomplete.
- e. Projects in approval process not listed
 - vi. Mission Village
 - vii.
 - viii. SCV SEA

After reviewing the Initial Study Checklist, there were some items of question and items not on the list that must be added or will be questioned during the EIR. There are a significant many established and plan/approved residential, business and school areas not listed or considered.

Areas not list that are within the affected boundaries are as follows:

- Val Verde, and North river "Project" (Region 2 of the Castaic Town Council)
- Hasley Canyon Area (Region 3 of the Castaic Town Council)
- Live Oak Community, Mission Village "Project", and the Castaic Valencia Industrial Park (Region 1 of the Castaic Town Council)

The Initial study list does not recognized areas that are approved by the Castaic Town Council and are in process with approved maps submitted to Regional Planning. Areas to be included should include the above listed and any other areas that fall within a 50% increased sphere of impact notification. Using the 1997 documented sphere of impact of 1.2 miles, and projecting a 50% increase the new proposed impacted areas would fall within a 1.8 mile radius of the landfill boundaries'.

Property Values

Proximity to landfills and hazardous waste sites can severely affect property values. Any property close to an active landfill will probably be devalued as a matter of course. Depending on how close the property lies to the site, whether the site is still active, and (if not active) if the waste has been properly encapsulated or removed, the value of a tract of land or home could be affected in many different ways. For example, if an active landfill is declared "closed" and proper measures are taken to ensure that there is no risk of contamination from the waste therein, the value of a nearby property may rise from the low value it had from being located near an active waste site.

I recommend that the L.A County assessor report on the property value effects on all properties within 1 mile-1.5 miles and 1.8 miles from the outer boundaries of the landfill site. The report should contain projected values if the extension is approved, along with the values if closed as presently contracted.

Short term profits from the landfill operations must be weighed against the loss of continued property tax incomes from high end businesses and residential locations in the landfill area.

Projects in Process such as Landmark Village will be home to about 4,500 residents along the Santa Clara River between the 126 just south, of the 2012 landfill entrance and within the 1.2 mile affected zone.

Mission Village, located West of Magic Mountain and South of Hwy 126 was approved by the Los Angeles County Regional Planning Commission in May 2011 within the 1 mile affected zone.

Homestead Village is in process of approval and includes both a middle school and High school. The middle school will be within one (1) mile of boundary the High school 1.2-1.8.

7. (17) Transportation and Traffic

- a. Truck traffic on 126
- b. Trash along road sides
- c. Hauler emissions.

Hauler traffic will be a significant traffic impact and will be very dependent on the amount of intake allowed per day. Presently at 6:00Am one complete lane is blocked by trucks waiting to get on site for about 1 mile.

8. (19) Mandatory Findings of Significance

- 1) Environmental Racism

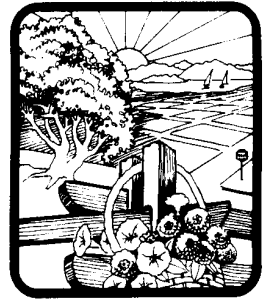
Environmental discrimination has historically occurred with respect to several different kinds of sites, including waste disposal. The justification that has been used is to pay off the affected community as was done under the original 1997 contract. The money received by Val Verde never will resolve the health effects that those in the community have suffered. "Environmental justice advocates make the argument that minority populations often undertake environmentally hazardous activities because they have few economic alternatives and/or are not fully aware of the risks involved." The EIR should be reviewed by both Calif. EPA and the State Attorney General before the approval process moves forward in the county as an Environmental Justice issue. No community should be asked to trade health for money.

Reviewing agencies and groups:

The following agencies must be added to the review list:

1. Water District 36- LA Co. Water district 36
2. Newhall Water District
3. Castaic School District
4. Hart School District
5. Chumash Tribal Council
6. Fernandeño Tataviam Tribal Council
7. Calif. State Attorney General (environmental Justice considerations)
8. Los Angeles County Assessor's Office
9. Castaic Chamber of Commerce
10. CARB
11. SAQMD

SCOPE
Santa Clarita Organization for Planning and the Environment
TO PROMOTE, PROTECT AND PRESERVE THE ENVIRONMENT, ECOLOGY
AND QUALITY OF LIFE IN THE SANTA CLARITA VALLEY
POST OFFICE BOX 1182, SANTA CLARITA, CA 91386



2-10-12

Rob Glaser
LA County Dept. of Regional Planning
320 W. Temple St.
Los Angeles, CA 90012

Via email to rglaser@planning.lacounty.gov

Re: Notice of Preparation for Chiquita Canyon Landfill Expansion RCEP2004-00559

Dear Mr. Glaser:

First we note that, on your list of parties to be notified, the Friends of the Santa Clara River (660 Randy Dr., Newbury Park, 91320) is not listed. We urge you to ensure that they are notified of this project, since they were involved in the previous EIR process for the 1997 expansion CUP.

Background

A CUP for this landfill was granted in 1997 and is not due to expire until 2019 or until 23 million tons of trash has been deposited in the landfill. It is our understanding that the permit banned sewage sludge from the landfill, allowed green waste composting and eliminated the proposed Materials Recovery Facility.

At that time, the County of Los Angeles claimed insufficient capacity for solid waste throughout the County and that garbage would be overflowing into the streets if permits for expansion of several landfills were not granted. They proposed a mega-dump in Elsmere Canyon, and huge expansions for Sunshine Landfill and Puente Hills Landfill in the San Fernando San Gabriel Valleys and rail haul to distant sites. Sunshine, Puente Hills and Chiquita were all granted expansion permits and one rail haul site has since begun operations.

In 1998, AB939 was passed by the legislature, requiring a reduction in waste generation by cities and counties of 50%. Most entities now have well functioning waste reduction programs. In addition, waste generation in the County of Los Angeles has been experiencing a downward trend, either from the economy or growing public awareness of waste issues.

We therefore request that the EIR carefully analyze the real need for an expansion of this landfill at this time due to the fact that the current permit still grants seven years of operation and the declining trend of waste generation from entities dumping in this landfill.

Setting

The NOP describes the location of the landfill as surrounded by vacant land with some nearby residents in Val Verde. It completely fails to mention the proposed Newhall Ranch project whose first two phases totally some 6000 units are likely to be approved by the County in the next few months.

These phases include several County facilities and local agencies such as school that will be deemed “sensitive receptors” for air quality purposes. It is therefore essential that the EIR accurately describe these future uses in the environmental document.

Air Quality

While the NOP accurately notes that air quality will be significantly impacted and require analysis due to the release of various landfill gases, the EIR should additionally analysis these impacts as stated above for their detrimental health effects on “sensitive receptors”, especially children attending the various schools proposed for the Newhall Ranch development. The EIR should include a map of the landfill that includes the Newhall Ranch project and all public facilities within the project.

Mitigation for Air Quality Impacts

If the County proceeds with this approval with over-riding conditions, they must require all feasible mitigation to reduce air quality impacts. We therefore believe they should, in addition to other air quality reduction measures, require:

- that entities disposing to this facility must meet AB939 standards,
- avail themselves of all means of waste reduction such as plastic bag bans
- require natural gas trash trucks be used by all haulers
- Provide a Materials Recovery Facility at the site

The Santa Clarita Valley is in a non-attainment zone for ozone and particulate matter. Special attention must be paid to these areas in order to identify methods to reduce their negative affects.

The County should require implementation on an anaerobic trash digester as used in the Simi Landfill. Such an alternative would reduce the amount of acreage that would be destroyed with garbage as well as reducing air pollution in addition to extending the life of the landfill.

Water Quality

During the previous CUP process, several water quality violations came to light. To address that problem, a water quality monitoring system was implemented that required place of several wells and routine testing. Testing results should be provided in the EIR and any tests that did not met required standards should be disclosed. The monitoring system should be reviewed for efficiency and enhanced as needed to address the new proposal.

We do not support the destruction of additional blue line streams in this area. Loss of ground water recharge is a major impact which must be analyzed in the EIR. Again, the EIR should consider an anaerobic trash digester as an alternative that might reduce this impact.

Other Areas of Concern Listed in the NOP

We believe the NOP accurately reflects the other areas of concern including visual impacts, biological, impacts, increased greenhouse gases, traffic, etc. We especially request that surveys for threatened and endangered species present in the area be conducted along the blue line streams. Again, avoidance of any impacts to blue line streams is the preferable alternative.

Existing Agreements and Requirements

The EIR should fully disclose all existing mitigation requirements and whether they have been followed. For example, the height limitation was violated several years ago. How was this violation corrected? What safeguard will the new permit employ o avoid such future violations?

All settlement agreements with the community should be disclosed. Will these agreements be continued under the new CUP?

Thanks you for considering our comments.

Sincerely,

A handwritten signature in black ink, reading "Lynne Plambeck". The signature is written in a cursive style with a large initial "L" and a stylized "P".

Lynne Plambeck
President



Planning, Policy and Design

School of Social Ecology
202 Social Ecology I
Irvine, CA 92697-7075
(949) 824-0563
Fax (949) 824-8566

May 14, 2012

Mr. Rob Glaser
Principal Regional Planner
Los Angeles County Department of Regional Planning

Dear Mr. Glaser:

I just recently became aware of the proposal to expand the Chiquita Landfill (Val Verde, California) and the Notice of Preparation of CEQA documentation. I would like to request that I be added to the mailing list as an interested party for all CEQA documentation and notices for these. I do this as an interested party by virtue of: first, my previous experience studying environmental impacts of the landfill on local environmental quality, which is part of my academic research; but secondly and more directly, as a member of the community group, URPAVV (Union de los Residentes Para Proteccion Ambiental de Val Verde). My contact information is:

Prof. Raul Lejano
Department of Planning, Policy, and Design
Social Ecology I Building, Room 218G
University of California
Irvine, CA 92697-7075
Email: rplejano@yahoo.com, Phone: (949) 8128150, Fax: (949) 8248566

I would also point out to you, and other persons preparing the environmental documentation, that our previous analysis of air quality and other environmental impacts of the landfill suggest significant impacts to air quality. In particular, we examined emissions of air toxics not just from the landfill itself but also from trucks coming to and from it. Other serious environmental effects include odor compounds, dust and litter, and noise from the landfill and its operation. There is also a possibility of leachate from the landfill percolating into the ground. Lastly, there is the significant potential for cumulative impacts to regional air and water quality. I hope that all of these, and other, environmental impacts be evaluated as part of the CEQA process and taken into careful consideration. If the process leads to preparation of a Draft EIR, then I and colleagues would be keen to submit our analysis of some of these impacts.

Sincerely,

A handwritten signature in black ink, appearing to be "R. Lejano".

Raul Lejano, Ph.D.
Associate Professor
Co-Director, Social Ecology Research Center

Rob Glaser,

I have been a resident of Val Verde for almost 30 years. I raised all of my children here, both sets of my parents have lived and passed away here in Val Verde and now my sons have bought homes and I have grandchildren that live here. I plan to live my life out here and watch my family grow in Val Verde. I also own and operate a small business as well as own several properties in Val Verde. I have a vested interest in what happens to our community. We have a statement and understanding between Newhall Land and Farm, Laidlaw Waste Systems aka: Chiquito Canyon Landfill and Val Verde Civic Assoc. dated February 21st, 1997 to close and cover the landfill in 2017 or a maximum of 23 million tons. Any other conditions will not be acceptable in order to insure the health and welfare of residents in Val Verde.

There are many dangers associated in living near a land fill such as high risk of cancer, low infant body weight (as noted in a study dated 09-23-98) quoting "A study of people living near the BKK landfill in LA County in 1997 reported significantly reduced birth weight among children born during the period of heaviest dumping at the site." "Increase of bladder cancer and leukemia" "EPA study notes cancers of cancer of lung, stomach and rectum." I won't take the time to site additional information but as you know there are many studies linking poor health or health risks to living near landfills.

Some of the problems that I have encountered to date are as follows:

- excessive trash smells, early am with still air or a northerly breeze
- unsightly debris blowing on hillsides and tree's near the landfill
- bright lights observed from the west side of the landfill reducing night sky visibility
- the work site can be seen and observed from Chiquito Canyon Road
- tipplers can be seen daily
- fixed fence within full view
- turbine wind mills an eyesore

They are not good neighbors now and are not conforming as agreed; see Attachment C in the Chiquita Canyon Landfill Expansions and Related Facilities; Project CUP #89-081 page 3, condition 9 modified as follows; 9b

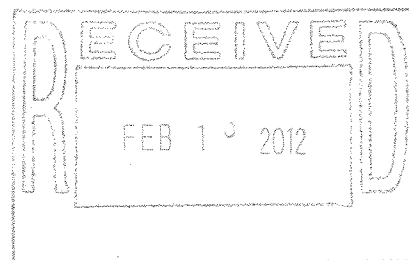
They are talking about going up 130 feet more. That is 13 stories and we don't even have a 13 story building in all of Santa Clarita. This is not even reasonable.

In conclusion; they need to close the landfill as originally agreed in 2017 or when the agreed upon maximum of 23 million tons is reached. Cover the landfill for a minimum of 10 years and conduct environmental impact studies so that an informed decision can be made with regard to any expansion. As well as monitor the health of the individuals that reside in the community. Thank you for your time and attention to this matter.

Sincerely,



Marc Salzarulo
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February 10, 2012

Mr. Rob Glaser
Principal Planner
Zoning Permits North Section
Los Angeles County Department of Regional Planning
320 West Temple Street, Room 1348
Los Angeles, CA 90012

NOTICE OF PREPARATION REVIEW AND COMMENT

Chiquita Canyon Landfill Master Plan Revision
Project No. R2004-00559-(5)
Conditional Use Permit No. 200400042
Environmental Case No. 200400039

Dear Mr. Glaser,

I am a member of the community and have the following comments on the Initial Study Checklist:

1. AESTHETICS

a) Highway 126 has "eligible" status for scenic highway designation. The purpose of the scenic highway designation is to ensure the protection of highway corridors that reflect the state's natural scenic beauty. In accordance with the Caltrans Scenic Highway Program, should the proposed additional expansion of the landfill be approved, Los Angeles County could lose their county scenic highway designation for highway 126. The landfill expansion would create more than a "less significant impact".

b) If the expansion is approved, there will be substantial alteration of the view of the prominent ridgelines surrounding the landfill. Nothing can be done to mitigate this.

If additional undisturbed areas are developed, is there a local area where habitat/scenic area can be restored in exchange?

d) The landfill is already visible from Newhall Ranch Road/SR 126 and I-5 as it appears behind the U.S. Postal Facility. If the landfill height grows 143 feet from the maximum capacity under current permit, there will be significant visual blight in the appearance of the landfill that will have a degrading effect on property values and the community. What

actions will be taken to mitigate the detrimental effect that the landfill expansion will have on property values in the Val Verde, Live Oak, and Hasley Canyon neighborhoods?

If the expansion is approved, what will be the final elevation of the landfill at closure?

2. AGRICULTURAL / FOREST

e) Surface water run-off from the landfill carrying pollutants such as elevated heavy metals and polychlorinated biphenyls (PCBs) from Auto Shredder Residue (ASR) used as daily cover, as well as salts and other contaminants will impact the quality of agricultural soils downstream.

3. AIR QUALITY

a-d) An increase in the daily capacity at the landfill will increase the daily number of dump trucks delivering waste to the landfill. This will have a negative impact on air quality. Air quality impacts such as particulate, methane, carbon monoxide, hydrogen sulfide, and vinyl chloride should be assessed and included in a continuous monitoring program. Can there be a requirement for vehicles on the landfill to be powered by compressed natural gas?

e) With the approved build-out of the Newhall Ranch Project, more sensitive receptors will be located within one mile of the landfill expansion. Children and elderly from Val Verde and Newhall Ranch will have increased asthma and be at risk for lung disease. How will the detrimental effects on the health of these receptors be prevented? Giving these communities money, in exchange for the landfill expansion and their health, is bad policy and a flagrant environmental justice issue. This happened with the approval of the previous expansion at this landfill. For the landfill operator to give Los Angeles County money to increase the community programs in Val Verde and potentially other communities in exchange for the county approving the landfill is a conflict of interest, and not in the best interest of the citizens. The landfill operator is buying the county's approval by paying the county for programs that the county would otherwise provide for the community anyway.

ASR should not be used as daily cover at this landfill, because residents living nearby can be exposed to particulate lead in dust from activities on the landfill during high wind events.

f) Odors from the Sunshine Canyon landfill are noticeable every day while driving Interstate 5 through the Newhall Pass. The Val Verde and Castaic Communities are close enough to suffer the impacts of odors and poor air quality every day, if the landfill is expanded. What is proposed to mitigate this? Maybe approving a smaller expansion,

or not increasing the maximum daily tonnage, from what it is now, would help mitigate odor/air quality impacts.

4. BIOLOGICAL RESOURCES

a) The Santa Clara Riverbed, adjacent to the landfill, is habitat to threatened and endangered species. The impact of these species must be evaluated. The Chiquita Canyon Landfill is also in the habitat for the endangered California Condor, a scavenger, who has access to and can ingest ASR, with its elevated levels of lead and other metals, from the daily cover of the landfill. ASR accepted by the landfill can contain up to 50 mg/L of lead (see March 27, 2008 report attachment 13). Ingestion of lead is the leading cause of mortality in the California Condor.

b) Storm water run-off carrying elevated levels of lead, copper, zinc and other metals, as well as PCBs, from the ASR is toxic to riparian ecosystems. This must be evaluated in an ecological risk assessment.

e) If an oak woodland is destroyed during expansion, is there another area where an oak woodland can be created or restored?

5. CULTURAL RESOURCES

a) The integrity of, and access to Bowers Cave must be maintained for future generations.

7. GEOLOGY AND SOILS

b) The Chiquita Landfill uses ASR as alternative daily cover. The ASR contains elevated levels of leachable heavy metals, some potentially above California hazardous waste levels, as well as PCBs. During rain events, erosion can transport and dispose of PCBs and elevated and hazardous waste levels of metals into the Santa Clara riverbed.

9. HAZARDS AND HAZARDOUS MATERIALS

a) What is the rated efficiency of the burner at the cogeneration facility? Is it efficient enough to prevent the formation of dioxins and furans?

Elevated heavy metals and PCBs from the ASR are subject to uncontrolled release by high winds, surface water run-off, and everyday landfill activities.

b) Indoor air monitoring for methane, hydrogen sulfide, and vinyl chloride should be conducted at the US Postal Service facility adjacent to the landfill.

h) Oil wells are within close proximity to the landfill. With the proposed new expansion, will additional gas wells be installed and maintained to prevent the build-up of landfill gas, and to prevent the possibility of underground fires that could spread to the oilfield?

10. HYDROLOGY AND WATER QUALITY

a) Surface water run-off must be sampled and analyzed to make sure the discharge complies with all standards set forth by the Los Angeles Regional Quality Control Board (LARWQCB), and the State Water Resources Control Board (SWRCB). Auto shredder residue contains California hazardous waste levels of zinc, and elevated levels of other heavy metals and PCBs. Surface water run-off and silt can potentially contain elevated levels of these contaminants.

The landfill accepts approximately 1,000 - 20 ton loads of auto shredders residue per month that it uses as alternative daily cover. ASR is classified as a "Special Waste" under Title 22, California Code of Regulations section 66261.126. The landfill expansion must comply with this section of the regulations that specify that the ASR may be disposed of at a landfill with no hazardous waste facility permit or Interim Status provided that: The facility is operating in compliance with WDRs set forth by the LARWQCB (see March 27, 2008 report, attachment 3); and the owner has been granted a variance (non-hazardous waste classification letter) (see March 27, 2008 report, attachment 13).

Sample analyses taken at the landfill, by the Department of Toxic Substances Control (DTSC), on both March 27, 2008 and April 9, 2008 show that the ASR contained California hazardous waste levels of soluble zinc, and therefore was not in compliance with the non-hazardous waste classification letter (see attached sampling reports).

The December 19, 1988 non-hazardous classification letter from the Department of Health Services gives ASR nonhazardous classification with a set of conditions that if not met, must be managed as hazardous waste. The letter specifies that, with the exception of inorganic lead, the soluble concentrations for metals must be below hazardous waste levels. The limit for soluble lead for ASR is 50 mg/L. Greater than 5 mg/L soluble lead is considered a hazardous waste in California. The above mentioned waste was disposed of at the Chiquita Canyon Landfill which is not a hazardous waste landfill. Furthermore it was used as daily cover.

There is a land disposal restriction (LDR) in California for waste containing levels of zinc exceeding 250 mg/L of zinc (see March 27, 2008 report, attachment 4). This requires waste with greater than 250 mg/L of soluble zinc to be pretreated before allowing it to be disposed of in a hazardous waste landfill, yet was disposed of as daily cover at Chiquita

Canyon Landfill which a municipal landfill, is unlined, and in close proximity to the Santa Clara Riverbed and the agricultural soils downstream.

f) Grading during the during the construction phase of the landfill expansion will release silt and contaminants into the riverbed.

h) With the landfill expansion and increased daily tonnage, including the use of ASR as daily cover, heavy metal pollutants and PCBs will be carried off-site during rain events into designated Areas of Special Biological Significance.

Surface water as well as wastewater should be captured and treated before release.

j) The current landfill is unlined, and its threat to ground water is very significant. Will the new area proposed by the expansion have a liner to help prevent leachate containing heavy metals and other pollutants from further impacting groundwater? Is there a leachate collection system in place or proposed?

Monitoring wells must be put in place to measure water quality in the Santa Clara Riverbed, Val Verde, and Hasley Canyon to protect public and private wells.

l) If the landfill is expanded into the entrance area, a catastrophic 100 year flood in the Santa Clara Riverbed could wash a portion of the landfill away. This would cause uncontrolled disposal to the riverbed, loss of soil, and major instability to the structure of the landfill. This scenario happened in 2005 in a severe rain event at the old Piru Burn Dump, in Piru. It took years and government funding before that landfill was repaired.

11. LAND USE AND PLANNING

b & d) The proposed expansion would alter and change the appearance of the natural ridgeline, which does not comply with the community standards district.

New development, approved and proposed, will put sensitive receptors within one mile of the landfill.

13. NOISE

a) Shielding should be put in place to reduce noise from the cogeneration facility.

c) An increase in daily capacity will increase the number dump trucks on the highway, and the number of vehicles operating on the landfill that will create more noise. As the landfill gets taller, there will no longer be ridgelines to block the noise coming from activities on the landfill.

17. TRANSPORTATION/TRAFFIC

There will be a significant increase in the number of dump trucks on the highway with the increased daily tonnage capacity. This will result in more traffic and accidents on Interstate 5 and highway 126, and it will create more blowing trash coming from the dump trucks onto highway 126. Add the additional traffic from the Newhall Ranch Project and there will be significant problems. What is going to be done to mitigate this?

18. UTILITIES AND SERVICE SYSTEMS

- f) The burner for the cogeneration facility must be efficient enough to prevent the formation of dioxins and furans.
- h) The landfill has already violated the December 19, 1988, non-hazardous waste classification letter, from the Department of Health Services, that allows the ASR to be disposed of at a non-hazardous waste landfill by accepting ASR containing California hazardous waste levels of soluble zinc.

Attachments:

November 24, 2008 investigation report, SA Recycling, LLC, conducted at Chiquita Canyon Landfill on March 27, 2008 (March 27, 2008 sampling report).

November 24, 2008 investigation report, SA Recycling, LLC, conducted at Chiquita Canyon Landfill on April 10-11, 2008 (April 10, 2008 sampling report).

Attachments to this NOP comment letter are on file with LADRP.

Appendix B

CalRecycle Final Program EIR MMRP

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
5. Air Quality and Greenhouse Gas				
Impact 5.1: Construction and operations of AD facilities within California would result in emissions of criteria air pollutants at levels that could substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	Measure 5.1a: Applicants shall prepare and submit an Air Quality Technical Report as part of the environmental assessments for the development of future AD facilities on a specific project-by-project basis. The technical report shall include an analysis of potential air quality impacts for all steps of the project (including a screening level analysis to determine if construction and operation [for all on-site processes, including any end-use and disposal methods] related criteria air pollutant emissions would exceed applicable air district thresholds, as well as greenhouse gas (GHG) emissions and any health risk associated with toxic air contaminants (TACs) from all AD facility sources) and reduction measures. Preparation of the technical report should be coordinated with the appropriate air district and shall identify compliance with all applicable New Source Review and Best Available Control Technology (BACT) requirements. The technical report shall identify all project emissions from permitted (stationary) and non-permitted (mobile and area) sources and mitigation measures (as appropriate) designed to reduce significant emissions to below the applicable air district thresholds of significance, and if these thresholds cannot be met with mitigation, then the individual AD facility project could require additional CEQA review or additional mitigation measures.	Project Applicant	Submit Air Quality Technical Report.	Local CEQA Review
		Local Lead Agency	Review and acceptance of Air Quality Technical Report.	Local CEQA Review
	Measure 5.1b: Applicants shall require construction contractors and system operators to implement the following Best Management Practices (BMPs) as applicable during construction and operations: <ul style="list-style-type: none"> Facilities shall be required to comply with the rules and regulations from the applicable Air Quality Management District (AQMD) or Air Pollution Control District (APCD). Facilities shall require substrate unloading and pre-processing activities to occur indoors within enclosed, negative pressure buildings. Collected foul air (including volatile organic compounds (VOCs) off-gassed from undigested substrates) should be treated via biofilter or air scrubbing system. Use equipment meeting, at a minimum, Tier II emission standards. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, §2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site. Maintain all equipment in proper working condition according to manufacturer's specifications. Use electric equipment when possible. 	Project Applicant/ Operator Construction Contractor Local Air District	Implement BMPs during construction and operations. Enforce construction and operation air quality rules and regulations and compliance.	Construction and Operations Construction and Operations

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	For projects that are unable to use internal combustion engines due to air district regulations (i.e., NOx emission limits), other options for generating renewable energy from biogas should be considered. Other options that should be evaluated for using biogas or biomethane as an energy source include: use as a transportation fuel (compressed biomethane), use in fuel cells to generate clean electricity, use for on-site heating, or injection of biomethane into the utility gas pipeline system. If there are other lower NOx alternative technologies available at the time of AD facility development, these should be considered as well during the facility design process.			
Impact 5.2: Operation of AD facilities in California could create objectionable odors affecting a substantial number of people.	Measure 5.2a: Applicants for the development of AD facilities shall comply with appropriate local land use plans, policies, and regulations, including applicable setbacks and buffer areas from sensitive land uses for potentially odoriferous processes.	Project Applicant	Comply with local land use plans, policies and regulations related to odor and sensitive receptors.	Local CEQA Review
	Measure 5.2b: If an AD facility handles compostable material and is classified as a compostable material handling facility, the facility must develop an Odor Impact Minimization Plan (OIMP) pursuant to 14 CCR 17863.4. Otherwise, applicants shall develop and implement an Odor Management Plan (OMP) that incorporates equivalent odor reduction controls for digester operations and is consistent with local air district odor management requirements. These plans shall identify and describe potential odor sources, as well as identify the potential, intensity, and frequency of odor from these likely sources. In addition, the plans will specify odor control technologies and management practices that if implemented, would mitigate odors associated with the majority of facilities to less than significant. However, less or more control measures may be required for individual projects. Odor control strategies and management practices that can be incorporated into these plans include, but are not limited to, the following: <ul style="list-style-type: none"> - Require substrate haulage to the AD facility within covered, liquid leak-proof containers. - Establish time limit for on-site retention of undigested substrates (i.e., feedstocks should be processed and placed into the portion of the system where liquid discharge and air emissions can be controlled within 24 or 48 hours of receipt). - Provide enclosed, negative pressure buildings for indoor receiving and pre-processing. Treat collected foul air in a biofilter or air scrubbing system. - Establish contingency plans for operating downtime (e.g., equipment malfunction, power outage). 	Project Applicant/Operator	Develop and implement an OIMP or Odor Management Plan.	Operations
		LEA (composting permit) and/or Local Air District (other facilities)	Enforce OIMP or Odor Management Plan.	Operations

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	<ul style="list-style-type: none"> - Manage delivery schedule to facilitate prompt handling of odorous substrates. - Handle fresh unstable digestate within enclosed building, or mix with green waste and incorporate into a composting operation within the same business day, and/or directly pump to covered, liquid leak-proof containers for transportation. - Protocol for monitoring and recording odor events. - Protocol for reporting and responding to odor events. 			
Impact 5.3: Construction and operation of AD facilities in California could lead to increases in chronic exposure of sensitive receptors in the vicinity to certain toxic air contaminants from stationary and mobile sources.	<p>Measure 5.3a: Implement Mitigation Measures 5.1a and 5.1b.</p> <p>Measure 5.3b: Based on the Air Quality Technical Report (specified in Measure 5.1a), if the health risk is determined to be significant on a project-by-project basis with diesel particulate matter (DPM) as a major contributor, then the applicants shall implement control measures such that the AD facility health risk would be below the applicable air district threshold, which may include implementation of one or more of the following requirements, where feasible and appropriate:</p> <ul style="list-style-type: none"> • Use either new diesel engines that are designed to minimize DPM emissions (usually through the use of catalyzed particulate filters in the exhaust) or retrofit older engines with catalyzed particulate filters (which will reduce DPM emissions by 85%); • Use electric equipment to be powered from the grid, which would eliminate local combustion emissions; <p>Use alternative fuels, such as compressed natural gas (CNG) or liquefied natural gas (LNG).</p> <p>Measure 5.3c: Hydrogen sulfide (H₂S) contained in the biogas shall be scrubbed (i.e., via iron sponge or other technology) before emission to air can occur.</p>	See Mitigation Measures 5.1a and 5.1b		
		Project Applicant/ Operator	Implement measures to reduce DPM.	Local CEQA Review/during Operations
		Operator	Scrub H ₂ S as required.	Operations
Impact 5.4: Development of AD facilities in California could increase GHG emissions.	Measure 5.4: Implement Mitigation Measure 5.1a.	See Mitigation Measure 5.1a		
Impact 5.5: Development of AD facilities in California, together with anticipated cumulative development in the area, would contribute to regional criteria pollutants.	Measure 5.5: Implement Mitigation Measures 5.1a and 5.1b.	See Mitigation Measures 5.1a and 5.1b		

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
6. Hydrology and Water Quality				
Impact 6.2: The operation of AD facilities could adversely affect surface and groundwater quality.	Measure 6.2a: During pre-processing, all water that contacts digester feedstock, including stormwater from feedstock handling and storage facilities and water from equipment washdown and feedstock wetting, shall be contained until appropriately disposed or utilized. Best Management Practices (BMPs) may be used to reduce loading of sediment, nutrients, trash, organic matter, and other pollutants. These BMPs may include, but are not limited to, trash grates and filters, oil-water separators, mechanical filters such as sand filters, vegetated swales, engineered wastewater treatment wetlands, settling ponds, and other facilities to reduce the potential loading of pollutants into surface waters or groundwater. All discharges of stormwater are prohibited unless covered under the General Industrial Stormwater Permit, other National Pollutant Discharge Elimination System (NPDES) permit, or are exempted from NPDES permitting requirements. The NPDES permits will generally require implementation of management measures to achieve a performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT), as appropriate. The General Industrial Stormwater Permit also requires the development of a storm water pollution prevention plan (SWPPP) and a monitoring plan, in compliance with permit requirements. ¹ Other liquid and solid wastes may only be discharged pursuant to an NPDES permit or waste discharge requirement (WDR) order.	Operator	Contain water during pre-processing activities.	Operations
		Regional Water Quality Control Board	Enforce water quality regulations.	Operations
		Project Applicant/ Operator	Implement measures to minimize fugitive trash/feedstock release to surface waters.	Operations
		Regional Water Quality Control Board	Enforce water quality regulations.	Operations
	Measure 6.2b: In order to minimize the amount of fugitive trash or feedstock released to surface waters, the following measures shall be implemented. When feasible, the project proponent shall preferentially select feedstocks that contain minimal amounts of trash that could become entrained in surface water, either via direct contact with stormwater flows or via other accidental release, such as due to wind. Processing of such feedstocks may, however, be unavoidable, such as in support of an AD facility that processes MSW. Therefore, the project applicant shall ensure that (1) drainage from all feedstock loading, unloading, and storage areas is contained onsite or treated to remove trash and stray feedstock, and sediment prior to release as permitted; (2) in all feedstock loading and unloading areas, and all areas where feedstock is moved by front loaders or other uncovered or uncontained transport machinery, the applicant shall ensure that mechanical sweeping and/or equivalent trash control operational procedures are performed at least daily, during operations; and (3) the facility operator shall train all employees involved in feedstock handling so as to discourage, avoid, and minimize the release of feedstock or trash during operations.			

¹ For more information, please refer to: http://www.swrcb.ca.gov/water_issues/programs/stormwater/industrial.shtml

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	Measure 6.2c: In order to minimize water quality degradation associated with accidental spills at AD facilities, the applicant for individual projects that would be implemented under the Program EIR shall require project proponents to complete and adhere to the requirements of a Spill Prevention, Control, and Countermeasure (SPCC) Plan, which is based on the federal SPCC rule. Notification of the SPCC Plan shall be provided to the local Certified Unified Program Agency (CUPA). The SPCC Plan shall contain measures to prevent, contain, and otherwise minimize potential spills of pollutants during facility operation, in accordance with U.S. EPA requirements. For individual projects that would utilize wet digestion systems, in which processing and holding tanks would contain the (aqueous) digestion reaction and liquid digestate containing fats and oils, the SPCC Plan shall provide for installation and monitoring of secondary containment and/or leak detection systems to ensure that AD liquids are not accidentally discharged to navigable waters or adjoining shorelines. Monitoring of these systems shall be in accordance with SPCC Plan requirements.	Project Applicant/ Operator	Complete and adhere to SPCC Plan.	Operations
		Local Lead Agency	Review and accept SPCC Plan.	Local CEQA Review
		CUPA	Review implementation of SPCC Plan.	Prior to/during Operations
	Measure 6.2d: Any proposed discharge to a pond for an individual project would require the project applicant to acquire WDRs from the appropriate regional board. The project applicant shall ensure that all ponds and discharges to such ponds adhere to all requirements under applicable WDRs. The need for pond liners in order to protect groundwater quality would be assessed during the regional board's review of the project, and requirements for pond liners would be included in the WDRs, as warranted. If appropriate, the WDRs would impose requirements for Class II surface impoundments as presented in Title 27 of the California Code of Regulations. Requirements include, but are not limited to, groundwater monitoring, double liner systems with leachate collection, water balance, a preliminary closure plan for clean closure, seismic analysis, and financial assurances. Compliance with WDRs may require the installation of facilities such as tanks and containers to store and process the digestate, the use of filter presses, and implementation of other water quality protection practices.	Project Applicant/ Operator	Adhere to applicable WDRs for ponds or discharges to ponds.	Prior to/during Operations
		Regional Water Quality Control Board	Enforce WDRs for ponds or discharges to ponds.	Prior to/during Operations
	Measure 6.2e: This measure would reduce potential for the movement of nutrients and other pollutants to groundwater and surface water for individual projects that would employ land application for liquid digestate or residual solids. The operators of individual projects implemented under this Program EIR shall ensure that land application of liquid digestate and/or residual solids adheres to all requirements of applicable WDRs. WDR requirements include but are not limited to, groundwater monitoring, completion of an anti-degradation analysis, and in some cases best practicable treatment and control to achieve salinity reduction in materials prior to discharge to land. WDRs would be issued by the appropriate regional board, and would consider site-specific conditions and waste characteristics, in order to determine applicable control measures and procedures that	Project Applicant/ Operator	Adhere to requirements of WDRs for land application of liquid digestate and/or residual solids.	Operations
		Regional Water Quality Control Board	Issue and enforce WDRs for land application of liquid digestate and/or residual solids.	Prior to/during Operations

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	protect water quality.			
	Measure 6.2f: This measure would reduce the potential for water quality degradation from projects that include discharge of liquid digestate to surface waters. The applicant for individual projects implemented under this Program EIR shall ensure that the discharge of liquid digestate to surface waters adheres to all NPDES permitting recommendations and requirements, as established by the appropriate regional board. Specific measures may include, but are not limited to, limitations on discharge volumes, seasonal discharge restrictions, limitations on loading rates and/or concentrations of specific constituents, and other facility-specific water quality control measures designed to protect receiving water quality and preserve beneficial uses identified in Basin Plans.	Project Applicant/ Operator	Adhere to NPDES permitting recommendations and requirements for discharge of liquid digestate to surface waters.	Operations
		Regional Water Quality Control Board	Approve and enforce NPDES permits	Prior to/during Operations
Impact 6.3: AD facilities could be exposed to flooding hazards.	Measure 6.3: Individual applicants seeking coverage under this Program EIR shall ensure that, for their proposed AD facilities including pre-processing areas, feedstock storage areas, and digestate handling facilities, are protected from FEMA-defined 100-year flood events. Design measures may include, but are not limited to: facility siting, access placement, grading, elevated foundations, and site protection such as installation of levees or other protective features.	Project applicant	Ensure facilities are protected from FEMA-defined 100-year flood events.	Local CEQA Review
Impact 6.4: Construction of AD facilities could change drainage and flooding patterns	Measure 6.4: In order to ensure that the AD facilities would not result in detrimental increases in stormwater flow or flooding on site or downstream, the Applicant for each AD facility project shall prepare a comprehensive drainage plan (prior to construction) and implement the plan during construction. The comprehensive drainage plan shall include engineered stormwater retention facility designs, such as retention basins, flood control channels, storm drainage facilities, and other features as needed to ensure that, at a minimum, no net increase in stormwater discharge would occur during a 10-year, 24-hour storm event, as a result of project implementation. Project related increases in stormwater flows shall be assessed based on proposed changes in impervious surface coverage on site, as well as proposed grading and related changes in site topography.	Project Applicant	Prepare and implement a comprehensive drainage plan.	Local CEQA Review/during Construction
		Local Lead Agency	Review and acceptance of comprehensive drainage plan.	Local CEQA Review
Impact 6.6: AD facilities could become inundated as a result of seiche, tsunami, or mudflow.	Measure 6.6: To ensure that proposed AD facilities would not incur impacts associated with seiche, tsunami, or mudflow, the applicant for each individual project shall ensure that all facilities are located outside of potential risk areas for seiche, tsunami, and mudflow. In the event that a proposed facility would be sited within a potential risk area for one of these hazards, the facility shall be raised above projected maximum base inundation elevations, or shall be protected from inundation by the installation of berms, levees, or other protective facilities.	Project Applicant	Ensure facilities are located outside of potential risk areas for seiche, tsunami and mudflow.	Local CEQA Review
		Local Lead Agency	Approve siting of facilities with respect to risk areas for seiche, tsunami and mudflow.	Local CEQA Review
Impact 6.7: AD facilities could contribute to	Measure 6.7: Implement Mitigation Measures 6.2 (a-f) and 6.3.	See Mitigation Measures 6.2 (a-f) and 6.3		

LEA – Local Enforcement Agency

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
cumulative impacts to water quality.				
7. Noise				
Impact 7.1: Construction of AD facilities could temporarily increase noise levels at nearby sensitive receptor locations or result in noise levels in excess of standards in local general plans, noise ordinances, or other applicable standards.	Measure 7.1a: Construction activities shall be limited to the hours between 7 a.m. and 7 p.m., Monday through Saturday, or an alternative schedule established by the local jurisdiction, or other limits to construction hours normally enforced by the local jurisdiction (see Measure 7.1d below).	Construction Contractor	Limit construction hours as indicated by local jurisdiction.	Construction
		Local Lead Agency	Enforce construction hour limits.	Construction
	Measure 7.1b: Construction equipment noise shall be minimized by muffling and shielding intakes and exhaust on construction equipment to a level no less effective than the manufacture's specifications, and by shrouding or shielding impact tools.	Construction Contractor / Local Lead Agency	Minimize construction equipment noise.	Construction
	Measure 7.1c: Construction contractors within 750 feet of sensitive receptors shall locate fixed construction equipment, such as compressors and generators, and construction staging areas as far as possible from nearby sensitive receptors.	Construction Contractor / Local Lead Agency	Locate applicable construction equipment away from sensitive receptors.	Construction
	Measure 7.1d: Construction contractors shall comply with all local noise ordinances and regulations and other measures deemed necessary by the Lead Agency.	Construction Contractor	Comply with local noise ordinances and regulations.	Construction
Local Lead Agency		Enforce local noise ordinances and regulations.	Construction	
Impact 7.2: Noise from operation of AD facilities could substantially increase ambient noise levels at nearby land uses or result in noise levels in excess of standards in local general plans, local noise ordinances, or other applicable standards.	Measure 7.2: AD facilities located within 2,000 feet of a sensitive receptor shall conduct a site specific noise study. If operational sound levels would exceed local regulations, or 45 dBA at a sensitive receptor (if no regulations are available), additional sound-proofing such as enclosures, muffling, shielding, or other attenuation measures shall be installed to meet the required sound level.	Project Applicant/ Operator	Conduct site specific noise study and implement recommendations.	Prior to /during Operation
Impact 7.4: Development of AD facilities could result in a cumulative increase in noise levels.	Measure 7.4: Implement Mitigation Measures 7.1a through 7.1d and Measure 7.2.	See Mitigation Measures 7.1a through 7.1d and Measure 7.2.		
8. Public Services and Utilities				
Impact 8.1: The project could substantially increase demands on fire protection services	Mitigation Measure 8.1: Implement Mitigation Measures 10.1b, 10.3c, and 11.4a.	See Mitigation Measures 10.1b, 10.3c, and 11.4a.		
Impact 8.2: The project could potentially exceed wastewater treatment requirements of the Regional Water Quality Control Board (RWQCB).	Measure 8.2a: Implement Mitigation Measure 8.3b if the operator does not have an existing agreement, such as for co-located facilities.	See Mitigation Measure 8.3b		
	Measure 8.2b: In addition to an agreement for service, coordination with the wastewater treatment provider would be needed to determine if pre-treatment would be required to meet the RWQCB requirements for the	Project Applicant/ Operator	Coordinate with wastewater treatment provider.	Prior to Operation

LEA – Local Enforcement Agency

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	existing wastewater treatment facility.			
Impact 8.3: The project could result in significant environmental effects from the construction and operation of new water and wastewater treatment facilities or expansion of existing facilities.	Measure 8.3a: If the project proposes to obtain water from a water supplier (municipal system or other public water entity), the developer would enter into an agreement for service with the supplier.	Project Applicant/Operator	Enter into service agreement with water supplier.	Prior to Operation
	Measure 8.3b: If the project proposes to obtain wastewater service from a wastewater treatment provider (municipal or other public entity), the developer would enter into an agreement for service with the provider.	Project Applicant/Operator	Enter into service agreement with wastewater supplier.	Prior to Operation
	Measure 8.3c: Alternate water sources, such as non-potable and recycled water, shall be used during the pre-processing and AD process phases where needed and as available.	Project Applicant/Operator	Development and use of non-potable and recycled water sources during AD pre-processing and process phases.	Prior to/during Operation
Impact 8.6: The project could result in exceeding the capacity of a wastewater treatment provider.	Measure 8.6: If the project proposes to obtain wastewater service from a wastewater treatment provider (municipal or other public entity), implement Mitigation Measure 8.3b.	See Mitigation Measure 8.3b		
Impact 8.7: The project could result in the construction of new energy supplies and could require additional energy infrastructure.	Measure 8.7: Projects requiring off-site energy infrastructure must complete CEQA review for the proposed energy improvements as a separate project. Infrastructure improvements may qualify as a categorical exemption pursuant to CEQA.	Project Applicant/Lead Agency	Complete CEQA for off-site energy improvements if applicable.	Local CEQA Review
9. Transportation				
Impact 9.1: Construction of AD facilities would intermittently and temporarily increase traffic congestion due to vehicle trips generated by construction workers and construction vehicles on area roadways.	Measure 9.1: The contractor(s) will obtain any necessary road encroachment permits prior to installation of pipelines within the existing roadway right-of-way. As part of the road encroachment permit process, the contractor(s) will submit a traffic safety / traffic management plan (for work in the public right-of-way) to the agencies having jurisdiction over the affected roads. Elements of the plan will likely include, but are not necessarily limited to, the following: <ul style="list-style-type: none"> Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone. To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours. Limit lane closures during peak traffic hours to the extent possible. Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress. Limit, where possible, the pipeline construction work zone to a width that, at a minimum, maintains alternate one-way traffic 	Construction Contractor	Submit application for roadway encroachment permits. Prepare and submit traffic safety/traffic management plan.	Prior to construction
		Local Lead Agency(s)	Review and approval of roadway encroachment permits and traffic safety/traffic management plan.	Prior to construction

LEA – Local Enforcement Agency

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	<p>flow past the construction zone.</p> <ul style="list-style-type: none"> Install traffic control devices as specified in Caltrans' Manual of Traffic Controls for Construction and Maintenance Work Zones where needed to maintain safe driving conditions. Use flaggers and/or signage to safely direct traffic through construction work zones. Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities. Coordinate with the local public transit providers so that bus routes or bus stops in work zones can be temporarily relocated as the service provider deems necessary. 			
Impact 9.2: AD facility operations would not substantially increase on-going (operational) traffic volumes on roadways serving the facilities.	Measure 9.2: Measures will be imposed by applicable local agencies, as needed, to address site-specific significant traffic impacts identified during subsequent facility-specific analyses, implementation of which would reduce those impacts to a less-than-significant level.	Project Applicant	Implement traffic mitigation measures.	Ongoing
		Local Lead Agency	Enforce traffic mitigation measures.	Ongoing
Impact 9.3: AD facilities could potentially cause traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways, and could increase traffic hazards due to possible road wear or to accidental spills of digestate (liquids and solids).	Measure 9.3a: Implement Measure 9.1, which stipulates actions required of the contractor(s) to reduce potential traffic safety impacts to a less-than-significant level.	See Mitigation Measure 9.1		
	Measure 9.3b: Prior to construction, the contractor(s), in cooperation with the agencies having jurisdiction over the affected roadways, will survey and describe the pre-construction roadway conditions on rural roadways and residential streets. Within 30 days after construction is completed, the affected agencies will survey these same roadways and residential streets in order to identify any damage that has occurred. Roads damaged by construction will be repaired to a structural condition equal to the condition that existed prior to construction activity.	Construction Contractor	Survey and document pre-construction roadway condition.	Prior to Construction
		Construction Contractor	Identify any damage to roadway from construction.	Following Construction
		Local Lead Agency	Review and approve pre-construction and post-construction roadway damage analysis.	Prior to and during Construction
	Measure 9.3c: Prior to initiation of project operations, the project sponsor(s) will submit a Spill Prevention Plan to the appropriate local agency. The Spill Prevention Plan will include, among other provisions, a requirement that each truck driver know how to carry out the emergency measures described in the Spill Prevention Plan (therefore reducing roadway hazards if an accidental spill were to occur).	Project Applicant/ Operator	Prepare and submit a Spill Prevention Plan.	Prior to Operations
		Local Lead Agency	Review and approve Spill Prevention Plan.	Prior to Operations
Impact 9.4: AD facilities could intermittently and temporarily impede access to local streets or adjacent uses (including access for emergency vehicles),	Measure 9.4: Implement Measure 9.1, which stipulates actions required of the contractor(s) to reduce potential access impacts to a less-than-significant level.	See Mitigation Measure 9.1		

LEA – Local Enforcement Agency

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
as well as disruption to bicycle/pedestrian access and circulation.				
Impact 9.5: The project could contribute to cumulative impacts to traffic and transportation (traffic congestion, traffic safety, and emergency vehicle access).	Measure 9.5a: Prior to construction, the project sponsor will coordinate with the appropriate local government departments, Caltrans, and utility districts and agencies regarding the timing of construction projects that would occur near AD project sites. Specific measures to mitigate potential significant impacts will be determined as part of the interagency coordination, and could include measures such as employing flaggers during key construction periods, designating alternate haul routes, and providing more outreach and community noticing.	Project Applicant/ Construction Contractor	Coordinate with local agencies, State agencies and utility districts regarding construction.	Prior to construction
	Measure 9.5b: Implement Mitigation Measure 9.2.	See Mitigation Measure 9.2		
	Measure 9.5c: Implement Mitigation Measures 9.1, 9.3b and 9.3c.	See Mitigation Measure 9.1, 9.3b and 9.3c		
10. Aesthetics				
Impact 10.1: AD facilities could have adverse effects on a scenic vista and/or scenic resources.	Measure 10.1a: Avoid siting AD facilities near scenic vistas and corridors designated within an applicable land use plan and the State Scenic Highway Program.	Project Applicant	Avoid siting project near scenic vistas or corridors.	Local CEQA Review
	Measure 10.1b: Landscaping and/or vegetated berms should be used to minimize views of facilities from sensitive views.	Project Applicant/ Operator	Plan, develop and maintain landscaping/vegetated berms for sensitive views.	Ongoing
Impact 10.2: AD facilities could degrade the existing visual character/quality of the site and its surroundings.	Measure 10.2a: Implement Mitigation Measures 10.1a and 10.1b.	See Mitigation Measures 10.1a and 10.1b		
	Measure 10.2b: Facilities using truck tippers or other un-enclosed unloading should consider using litter fences to manage blowing litter. Facilities should educate haulers delivering materials to the AD facility through literature, web links, or provide training on the acceptance of waste at the facilities to minimize litter. Facility operators should develop a protocol to identify feedstocks that are severely contaminated with potential litter and reject unacceptable loads.	Operator	Implement measures to reduce litter.	Operations
		LEA	Enforce litter reduction measures.	Operations
	Measure 10.2c: Clean-up crews can be used as necessary to control litter.	Operator	Implement measures to reduce litter.	Operations
		LEA	Enforce litter reduction measures.	Operations
	Measure 10.2d: Feedstocks and digestate byproducts should be stored in enclosed facilities or processed in a timely manner to prevent visibly deteriorated site conditions.	Operator	Store of feedstocks and digestate byproducts in enclosed facilities or process in a timely manner.	Operations
		LEA	Enforce storage measures.	Operations
Measure 10.2e: Project operators should consider enclosure of pre-processing operations if it provides an aesthetic and/or noise attenuating benefit.	Operator	Consider additional pre-processing measures.	Ongoing	

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MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance		Method for Compliance	Timing of Compliance
Impact 10.3: AD facilities could create a new source of light or glare with adverse affects to daytime and/or nighttime views.	Measure 10.3a: Implement 10.1b.	See Mitigation Measure 10.1b			
	Measure 10.3b: Any lighting (portable or permanent) should be hooded and directed onto the project site. This would reduce effects to nighttime skies from uplighting, reduce glare, and prevent light from spilling onto adjoining properties and roads.	Operator		Use hooded and directed lighting on site.	Operations
	Measure 10.3c: Flares may be enclosed to reduce the visibility of flames during operation.	Operator		Consider use of enclosed flares.	Operations
Impact 10.4: The project could result in cumulative impacts to visual resources.	Measure 10.4: Implement Mitigation Measures 10.1a, 10.1b, 10.2a, 10.2b, 10.2c, 10.2d, 10.2e, 10.3a, 10.3b, and 10.3c.	See Mitigation Measures 10.1a, 10.1b, 10.2a, 10.2b, 10.2c, 10.2d, 10.2e, 10.3a, 10.3b, and 10.3c.			
11. Hazards and Hazardous Materials					
Impact 11.1: Construction of AD facilities could result in the potential exposure of construction workers, the public and the environment to preexisting soil and/or groundwater contamination.	Mitigation Measure 11.1: Prior to final project design and any earth disturbing activities, the applicant or agency(ies) responsible shall conduct a Phase I Environmental Site Assessment (ESA). The Phase I ESA shall be prepared by a Registered Environmental Assessor (REA) or other qualified professional to assess the potential for contaminated soil or groundwater conditions at the project site; specifically in the area proposed for construction of AD facilities. The Phase I ESA shall include a review of appropriate federal, State and local hazardous materials databases to identify hazardous waste sites at on-site and off-site locations within a one quarter mile radius of the project location. This Phase I ESA shall also include a review of existing and past land uses through aerial photographs, historical records, interviews of owners and/or operators of the property, observations during a reconnaissance site visit, and review of other relevant existing information that could identify the potential existence of contaminated soil or groundwater. If no contaminated soil or groundwater is identified or if the Phase I ESA does not recommend any further investigation then the project applicant or agency(ies) responsible shall proceed with final project design and construction. OR If existing soil or groundwater contamination is identified, and if the Phase I ESA recommends further review, the applicant or agency(ies) responsible shall retain a REA to conduct follow-up sampling to characterize the contamination and to identify any required remediation that shall be conducted consistent with applicable regulations prior to any earth disturbing activities. The environmental professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations at the proposed construction site, and recommendations	Project Applicant	Conduct Phase I ESA.		Local CEQA review
		Project Applicant	If applicable, conduct sampling and prepare report with summary and recommendations for contaminants. Integrate recommendations into project mitigation.		Local CEQA review
		Local Lead Agency	Review Phase I and follow-up report (if applicable).		Local CEQA review

LEA – Local Enforcement Agency

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	for appropriate handling of any contaminated materials during construction.			
Impact 11.3: Transportation, use, disposal or accidental spill of hazardous materials during the operation and maintenance of AD facilities would not result in potential harmful exposures of the public or the environment to hazardous materials.	Mitigation Measure 11.3: Implement Mitigation Measures 5.1a and 6.2a-f.			
Impact 11.4: Operation of AD facilities could increase the risk of fire hazards due to the potential release of biogas.	Mitigation Measure 11.4a: Prior to project approval, AD facility operators shall prepare and implement a Fire Safety Plan that outlines fire hazards, describes facility operations procedures to prevent ignition of fires, requires regular inspection of fire suppression systems, and provides for worker training in safety procedures as well as protocols for responding to fire incidents. The Fire Safety Plan shall be reviewed and approved by the local fire enforcement agency.	Project Applicant	Prepare a Fire Safety Plan.	Local CEQA Review
		Local Fire Agency/LEA	Review and approve Fire Safety Plan.	Local CEQA Review
		Operator	Implement Fire Safety Plan.	Operations
	Mitigation Measure 11.4b: Implement Mitigation Measure 11.5.	See Mitigation Measure 11.5		
Impact 11.5: AD facilities could be located within one quarter mile of a school resulting in potential hazards associated with accidental release of hazardous materials, including biogas.	Mitigation Measure 11.5: AD facilities shall be sited at least one quarter mile from existing or proposed schools, daycare facilities, hospitals and other sensitive land uses.	Project applicant	Site facilities at least one quarter mile from existing or proposed schools, daycare facilities, hospitals and other sensitive land uses.	Local CEQA Review
Impact 11.7: AD facilities could be located within five miles of a public airport or private airstrip and create an aviation hazard.	Mitigation Measure 11.7: For any AD facility proposed within 5 statute miles of an airport's air operations area, the operator will notify the Federal Aviation Administration (FAA) Regional Airports Division office and the airport operator of the proposed facility as early in the process as possible. AD facilities with any open air (outdoor) activities must receive an FAA Determination of No Hazard prior to project approval.	Project applicant/ Operator	Notify FAA if applicable.	Local CEQA Review
		FAA	Review project and issue an FAA Determination of No Hazard.	Prior to Project Approval
Impact 11.8: Development of AD facilities could contribute to cumulative impacts related to hazardous materials.	Mitigation Measure 11.8: Implement Mitigation Measures 11.1, 11.4, 11.5, and 11.7.	See Mitigation Measures 11.1, 11.4, 11.5, and 11.7		

HYDROGEOLOGIC REPORT
CHIQUITA CANYON LANDFILL
CASTAIC, CALIFORNIA
FOR
CHIQUITA CANYON LANDFILL

JANUARY 20, 2012

JOB NO. 2002-036-005(R)



January 20, 2012

Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, California 91384

Job No. 2002-036-005

Attention: Mr. Michael Dean, District Manager

Dear Mr. Dean:

We are pleased to submit the Hydrogeologic Report, Chiquita Canyon Landfill. This report summarizes the site hydrogeologic conditions and provides recommendations for groundwater monitoring and perimeter landfill gas monitoring systems for the proposed Master Plan Revision. This report references the November 2011 Excavation Plan from Golder Associates and supersedes our Hydrogeologic Reports dated January 12, 2011, and August 11, 2011. If you should have any questions regarding this report please feel free to contact us.

Respectfully,

R. T. FRANKIAN & ASSOCIATES



TMC/eaw

by: Theodore M. Clark, C.H.G.
Principal Geologist

Distribution: (2) Chiquita Canyon Landfill
Attn: Mr. Michael Dean (plus CD containing PDF file)
(1) Law Offices of Scott Gordon
Attn: Mr. Scott Gordon (plus CD containing PDF file)
(2) CH2M Hill
Attn: Mr. Jim Hunter (plus CD containing PDF file)
(1) Golder Associates
Attn: Mr. Rich Haughey (plus CD containing PDF file)

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HYDROGEOLOGIC REPORT
CHIQUITA CANYON LANDFILL
CASTAIC, CALIFORNIA
FOR
CHIQUITA CANYON LANDFILL
JANUARY 20, 2012
JOB NO. 2002-036-005

INTRODUCTION

On behalf of Chiquita Canyon Landfill, R. T. Frankian and Associates (RTF&A) prepared this report of our site hydrogeologic investigation of the Chiquita Canyon Landfill (CCL) property in Castaic, California. The purpose of this report is to describe the site hydrogeologic conditions and provide recommendations for groundwater monitoring and perimeter landfill gas monitoring systems for the proposed Master Plan Revision (MPR), which includes changes to the currently approved landfill footprint. The proposed landfill footprint for the MPR is shown on the November 2011 Excavation Plan provided to us by Golder Associates (Appendix A). With respect to the monitoring programs, the most significant modification to the landfill footprint is the addition of the North Canyon and East Canyon area, which will be contiguous with the northeast side of the existing, active Main Canyon landfill and the north side of the closed Canyon B landfill. The MPR also moves the southern perimeter of the Main Canyon landfill into the South Main Canyon area near the current entrance area.

The North Canyon and East Canyon area has been the subject of several phases of geologic and hydrogeologic characterization, including a geologic fault study (RTF&A, 2006b), geotechnical investigations (RTF&A, 2006a, 2010b, 2011a, and 2012b), groundwater monitoring well installations and aquifer testing (RTF&A, 2004, 2005, and 2006c), and installation of perimeter landfill gas wells (RTF&A, 2009a). The South



Main Canyon area has also been the subject of multiple phases of geologic and hydrogeologic characterization, including geotechnical investigations (RTF&A, 2009b, 2012a and 2012b) and installation of groundwater wells and perimeter landfill gas wells (RTF&A, 2003 and 2009a).

The following findings, conclusions, and recommendations are based on our characterization work for the North Canyon and East Canyon area, the South Main Canyon, as well as our review of site data, field explorations, and geologic/hydrogeologic analyses. This report provides an overview of site geologic conditions for understanding the hydrogeology, but the geology is detailed separately in the geologic fault study and geotechnical investigation reports (RTF&A, 2006b and 2012b, respectively).

SCOPE OF WORK

The scope of work for the site hydrogeologic investigation consisted of the following:

- planning an exploratory drilling program to characterize hydrogeologic conditions in the Pico Formation and lowermost Saugus Formation in the vicinity of the North Canyon;
- preparing a work plan for exploratory well installations (RTF&A, 2010a) and submittal to the California Regional Water Quality Control Board—Los Angeles Region (RWQCB);
- drilling exploratory borings and installing wells DW-27 and DW-28, piezometer PZ-8, temporary piezometers HS-1 and HS-2, and gas probe GP-26;
- preparing a gas probe installation report (RTF&A, 2010c) for CCL;
- preparing a groundwater well installation report (RTF&A, 2010d) and submittal to RWQCB;
- identifying and correlating geologic contacts and stratigraphic marker beds across the site using available surface geologic maps,

test pit logs, dozer cut logs, and exploratory boring logs, and updating the site geologic map;

- preparing a comprehensive, detailed set of geologic sections through the groundwater monitoring wells and piezometers to illustrate geologic and hydrogeologic conditions at the existing and proposed waste management units;
- evaluating groundwater elevation data and preparing groundwater elevation and flow maps;
- analyzing the MPR excavation plan with respect to siting and design requirements for maintaining greater than five feet of separation between refuse and the highest anticipated groundwater underlying the proposed waste management units;
- evaluating the MPR with respect to groundwater monitoring system requirements, and designing a monitoring system based on the geologic and hydrogeologic conditions beneath the landfill and along the point of compliance (POC); and
- evaluating perimeter landfill gas system monitoring requirements for the MPR, and designing a proposed monitoring system based on the site geologic and hydrogeologic conditions.

SITE SETTING

TOPOGRAPHY

The regional topography is influenced by the steep, rugged terrain of the Piru and Santa Susana mountains, which exhibit prominent and variably oriented ridges and canyons. The Santa Clara River provides regional drainage, flowing west-southwest along State Route 126 to the south of CCL. The Santa Clara River Valley bisects the local terrain with a level and relatively extensive floodplain winding through otherwise rugged topography.

The landfill site is primarily located in the hills along the north edge of the Santa Clara River Valley, and the southeast property corner is within the floodplain (Figure 1). Within the site, steep-sided canyons with slopes approaching 1:1 (horizontal: vertical) are generally north-south trending. The natural ridgelines rise 300 to 600 feet above the canyon floors. The landfill development operations have reduced the lengths of some slopes and provided more gentle terrain in some areas. These landfill activities have largely retained the perimeter ridgelines and produced an amphitheater-like topography that opens to the south. On-site elevations range from approximately 1,600 feet above mean sea level (ft-msl) in the northwestern corner to approximately 950 ft-msl along the south property line.

Topography to the north, west, and east of the site is characterized by east-west-oriented, steep-sided canyons with slopes that approach 1:1 and in some cases are nearly vertical. The relatively flat terrain immediately south and southeast of the site defines the limits of the Santa Clara River floodplain.

GEOLOGY

CCL is located at the eastern end of the Ventura Basin within the Transverse Ranges geomorphic province. Sedimentary rock units at and near the site are the Pliocene age Pico Formation and the Plio-Pleistocene age Saugus Formation. The marine sediments of the Pico Formation outcrop in the Hasley Canyon-Val Verde area and in the northwest portion of the site. The Saugus Formation overlies the Pico Formation at CCL, and Saugus Formation units extend south and east to the Castaic-Newhall area. The Saugus Formation is composed of interbedded shallow-water marine, brackish water, and nonmarine units (Kew, 1924; Winterer and Durham, 1962). Other geologic materials exposed nearby include terrace deposits of Pleistocene age and Holocene alluvium mantling the valley floor.

The Pico Formation generally consists of siltstone and fine-grained silty sandstone, with lesser amounts of mudstone and conglomerate, approximately 5,000 feet thick in the vicinity of the site. Locally, the Pico Formation represents near shore- to offshore-marine depositional settings. Near the contact with the overlying Saugus Formation, some Pico Formation beds also represent nonmarine fluvial environments of deposition. The Pico Formation rests conformably above the late Miocene to early Pliocene age Towsley Formation.

The Saugus Formation consists of lenticular, loosely consolidated conglomerate; conglomeratic sandstone; and sandstone interbedded with siltstone, mudstone, and claystone approximately 7,000 feet thick in the vicinity of the site. These rock types characterize principally fluvial sequences of deposition. The Saugus Formation rests conformably above and is locally gradational with the Pico Formation.

Strata of the Saugus and Pico formations form east-west to southeast-trending open to close folds, which plunge gently to the east. These folds are related to the north-south compressional forces associated with the Holser Fault system, approximately 1,000 feet north of the site. Major faults trending approximately east-west to northwest in the vicinity of the project site also include the San Gabriel fault, approximately three miles northeast of the site; the Del Valle fault, approximately 1.4 miles west; and the Oak Ridge fault, approximately four miles west.

Geologic Units: The site geology was characterized by data gathered from this and previous site investigations that included geologic mapping of natural exposures and cell excavations; geologic mapping and logging of dozer cut and trench exposures; soil and rock samples taken from on-site test pits; and geologic borings drilled for various geologic/geotechnical explorations, gas probes, piezometers and groundwater monitoring wells. These various geologic data have been previously reported in the Solid Waste Assessment Test (SWAT) Report (Harding Lawson and Associates, 1987), Geologic/Hydrogeologic Report (EMCON, 1990a), CCL Joint Technical Document

(Shaw EMCON/OWT, Inc., 2003; Appendices E, F, and I), slope stability report (RTF&A, 2006a) and geologic fault study (RTF&A, 2006b) for East Canyon, fault and subgrade geologic mapping reports for the Main Canyon (EMCON; 1990b, 1997a, and 1997b), well/probe installation reports (RTF&A; 2003, 2004, 2005, 2009a, 2010c, and 2010d), and geotechnical investigations for the South Main Canyon (RTF&A, 2009b), Main Canyon (GeoLogic Associates; 2005a, 2005b, and 2005c), and North Canyon (RTF&A, 2010b, and 2011a). The known exploratory excavations (borings, test pits, and trenches) are shown on a location map (Figure C-1, Appendix C) that also indicates (by color) the consulting firm that reported on the exploration. The exploratory boring logs, as-built well construction details, and trench and test pit logs are provided in digital (PDF) format (compact disc (CD), Appendix C). The CD files are grouped by consultant, further subdivided (bookmarked in Adobe™) by type of excavation (groundwater wells, piezometers, gas probes, borings, or test pits and trenches), then listed in ascending alphabetical and numeric order.

The soil and bedrock materials encountered within the site consist of man-made deposits, alluvium, landslide debris, terrace deposits, and bedrock units of the Saugus and Pico formations. The 1" = 200 feet Geologic Map (Figure 2) and Geologic Sections (Figure 3) depict the surface and subsurface distribution of these units. A description of each unit is presented as follows:

Man-made Deposits (af, afr, afs and cef): Man-made deposits consist of uncompacted artificial fill (map unit "af") and compacted (or certified) engineered fill (map unit "cef") associated with past grading activities on-site, and artificial fill materials related to landfill refuse disposal activities, including stockpile fill (map unit "afs") and refuse fill (map unit "afr"). The fill materials are composed primarily of reworked Pico and Saugus Formation units and, in the case of the refuse fill, compacted municipal solid waste and associated cover materials primarily derived from reworked Pico and Saugus Formation materials.

Alluvium (Qal): Holocene age alluvium (“Qal”) is present in the canyons and major drainage courses within the site and as Santa Clara River floodplain deposits adjacent to State Highway 126. As observed, the alluvium generally consists of sand and silty sand with scattered gravel and cobbles, derived from local bedrock exposures. The alluvium is generally loose to moderately dense and uncemented.

Older Alluvium (Qoa): Pleistocene age (older) alluvium (“Qoa”) is limited to the southerly-draining tributary in the East Canyon area, immediately west of landslide Qols A. The older alluvium is composed of unconsolidated to poorly consolidated mixtures of sand, gravel, silt, and clay.

Terrace Deposits (Qt): Pleistocene age terrace deposits occur on-site along State Highway 126 southeast of the existing landfill entrance and as isolated and limited remnant stream channel deposits. The terrace deposits are typically composed of poorly consolidated deposits of coarse sand, gravel and silt with cobbles and, to a lesser extent, boulders.

Landslide Debris (Qd, Qls, Qols): Three types of deposits attributable to slope failure have been identified at the site, and these consist of debris flow deposits (Qd), Holocene landslides (Qls), and a Pleistocene landslide (Qols). The debris flow deposits are derived from weathered bedrock and slope wash materials and consist of unconsolidated sand, silt, and clay. These deposits typically occur within ravines and on slopes steeper than approximately 2:1.

Materials designated as Holocene landslide debris range from poorly consolidated, highly weathered rock materials to relatively coherent, moderately hard to hard sandstone, siltstone, and claystone units derived from the underlying Saugus or Pico formations. Depending on the amount of movement, the entire landslide or the upper portions of the landslide debris are disturbed.

The central portion of the East Canyon is mantled by an older landslide deposit (Qols) that appears to be comprised of older alluvium as well as Pico and Saugus

Formation materials.

Saugus Formation (QTs): Plio-Pleistocene age non-marine sedimentary rock units of the Saugus Formation (“map unit “QTs”) outcrop in the eastern and southern portions of the site. Saugus Formation units typically consist of poorly to moderately well-bedded, light yellowish brown to pinkish gray, fine- to coarse-grained, pebble- to cobble-bearing sandstone and silty sandstone with moderate brown siltstone to clayey siltstone. This formation is poorly to moderately well-bedded and ranges from friable to moderately hard. The fine-grained clayey beds, typical of the lower Saugus Formation, represent some of the weakest material within the formation.

Pico Formation (Tp): Marine sedimentary rock units of the Pliocene age Pico Formation (map unit “Tp”) are exposed in the northern and western portions of the site. These units are comprised of grayish orange to light gray sandstone, yellowish gray to yellowish brown siltstone, and limited brownish gray fossiliferous siltstone and sandstone. These units range from soft near the surface to moderately hard at depth. The fossiliferous beds tend to be more resistant than surrounding units, as indicated by the prominent, ridge-forming fossiliferous siltstone (“Ridge-Forming Coquina”) near the mouth of North Canyon.

The Pico formational contact with the overlying Saugus Formation is interfingering, gradational, and not always readily discernible, particularly in exploratory borings. Within the site and for the purposes of this study, RTF&A has defined the top of the Pico Formation as the first appearance of fossiliferous beds. Where fossiliferous beds are missing from the stratigraphic section, we have defined the contact using color as an indicator. In particular, the presence of Munsell hues “5Y” is more common within the Pico Formation and may indicate the approximate contact with the Saugus Formation.

HYDROGEOLOGY

Groundwater is found beneath the site in the sedimentary bedrock of the Saugus and Pico formations and not in the relatively thin alluvial deposits that are restricted to canyon floors. In the Santa Clara River Valley along the southeast property corner, groundwater is also encountered in the higher-permeability, unconsolidated valley alluvium, which overlies the bedrock materials. In this river valley, the bedrock and alluvial groundwater systems are interconnected where the base of the saturated valley alluvium rests on the underlying sedimentary bedrock. The two groundwater systems are also connected along the edge of the Santa Clara River Valley where valley alluvium is in lateral contact with the saturated bedrock of the hills that border the valley.

ALLUVIAL AQUIFER – SANTA CLARA RIVER VALLEY

The alluvial aquifer system is present in the lower portion of the Santa Clara River channel alluvium. This lower Santa Clara River channel alluvium aquifer is the main source of agricultural and domestic groundwater for the Santa Clara River Valley. The regional alluvial aquifer consists of relatively high-permeability alluvium about 100 to 200 feet thick (Harding Lawson and Associates, 1987). The upper 20 percent of the alluvial aquifer contains higher-permeability material than the lower portions (Robson, 1972). The hydraulic conductivities for the lower Santa Clara River alluvial aquifer were estimated from pump efficiency tests and drillers' logs for regional wells, and range from 1.4×10^{-2} to 1.3×10^{-1} centimeters per second (cm/sec) (Table 1).

Because the alluvial aquifer is only present beneath the southeast corner of the site, no wells monitor this aquifer. A single exploratory boring (B-5-11) encountered groundwater in the alluvial aquifer at a depth of 49 feet.

UNSATURATED ALLUVIAL DEPOSITS

The uppermost portion of the Santa Clara River channel alluvium is unsaturated, and this alluvium extends from the river valley onto the site along the floor of three canyons: the Main Canyon that extends from the site entrance to its terminus in the North Canyon, a small canyon north of Wolcott Way, and the East Canyon, which flows into Castaic Creek before reaching the Santa Clara River. The limited extent of these alluvial deposits (Qal) is shown on the site Geologic Map (Figure 2). The site alluvial deposits are relatively thin and are typically less than about 41 feet in thickness, as illustrated by the Geologic Sections (Figure 3). Laboratory permeameter tests of these alluvial deposits show hydraulic conductivities from 1.9×10^{-3} to 2.0×10^{-5} cm/sec (Table 1).

Along the Main Canyon, the depth of alluvium encountered in 10 exploratory borings ranges from 17 to 41 feet below ground surface (Table 2). Groundwater was not observed in the alluvium during the drilling of these borings. Two of these borings were converted to vadose wells: SW-1 near Primary Canyon monitors alluvium and the uppermost Saugus Formation, and RD-1 near Canyon C monitored alluvium prior to destruction of RD-1 in October 2002. The vadose wells were monitored quarterly starting January 1986 (SW-1) and September 1989 (RD-1), and groundwater was not observed in either well during the period ending October 2011 for SW-1 and July 2002 for RD-1 (Appendix B).

In the East Canyon, exploratory boring E-7 (drilled 3/10/89) encountered 37 feet of unsaturated alluvium above the Saugus Formation, with groundwater found in the Saugus Formation at a depth of 52.5 feet (EMCON, 1990a). Nearby geotechnical borings HS-3-10 (31 feet of alluvium) and HS-4-10 (34 feet of alluvium) also encountered unsaturated alluvium over the Saugus Formation when drilled in summer 2010 (RTF&A, 2012b). Borings for well DW-3 (18 feet of alluvium) and gas probe GP-9 (25 feet of alluvium) encountered unsaturated alluvium. Groundwater is present in well

DW-3 at a depth of approximately 90 feet in the underlying Saugus Formation, and was absent during the September 1995 drilling of boring GP-9 to a total depth of 85.5 feet.

In the small canyon near Wolcott Way, exploratory boring E-9 (drilled 3/13/89) encountered 54.5 feet of unsaturated alluvium overlying the Saugus Formation (EMCON, 1990a). Groundwater was encountered beneath the alluvium at a depth of 77 feet in the Saugus Formation.

Near the south property line at the edge of the Santa Clara River Valley, well DW-7 (drilled 3/14/1988) penetrated 28 feet of unsaturated alluvium and was completed as a Saugus Formation monitoring well. Groundwater depths at well DW-7 are greater than 32 feet (Appendix B). To the south and east in the Santa Clara River Valley, exploratory borings B-2-11 through B-5-11 (drilled November 2011) encountered unsaturated alluvium at depths of 24.5 to 49 feet. Groundwater was encountered in the underlying alluvial aquifer at a depth of 49 feet in B-5-11.

The site groundwater monitoring wells and piezometers monitor the Saugus and Pico formations, with well screens installed across the uppermost water-bearing zone as best determined during drilling operations at each location. Ten of these monitoring points penetrated unsaturated alluvium and were completed with screen intervals in the underlying Saugus Formation. The highest recorded static groundwater elevations at all of these points have remained below the base of the alluvial deposits for the monitoring period ending October 2011 (Table 2). At the eight groundwater monitoring points in the Main Canyon, the minimum separation between the base of the unsaturated alluvial deposits and static groundwater elevations in the Saugus Formation has been greater than approximately 14 feet. In the East Canyon at well DW-3, the minimum separation between base alluvium and groundwater has been greater than about 61 feet. South of the property along the edge of the Santa Clara River Valley, the minimum alluvium-groundwater separation has been more than approximately four feet at well DW-7. Given the observed elevation separation between groundwater and the base alluvium,

base flow from groundwater in the Saugus Formation to the overlying alluvial deposits does not appear likely within the Main Canyon or the East Canyon. South of the site at well DW-7, the small separation between groundwater and base alluvium elevations indicates that base flow is likely in this vicinity where saturated Saugus Formation is buried beneath the widespread alluvial deposits along the north flank of the Santa Clara River Valley.

SAUGUS AND PICO FORMATIONS

Groundwater occurs in both the Saugus and Pico formations in the Chiquita Canyon area. In these sedimentary rocks, groundwater is present primarily in the intergranular porosity, with the more permeable, coarser-grained sandstone and conglomeratic units yielding more water than the siltstone and finer-grained sedimentary rocks. Regionally, the Saugus Formation contains many thin zones of low permeability material that could act as confining layers (Robson, 1972). Near CCL, few production wells produce primarily from the Saugus Formation because the regional alluvial aquifer is the major source for groundwater (EMCON, 1990a). The Pico Formation lies stratigraphically beneath the Saugus Formation, where Pico Formation groundwater is under confined conditions due to the low permeability of the mudstone and siltstone sequences (Robson, 1972). Well surveys show no production wells in the vicinity of the site are completed in the Pico Formation (EMCON, 1990a).

Bedrock hydrogeology may be influenced by the presence of interbedded aquitards, which are the less permeable lithologies in the sedimentary sequence. In the Saugus and Pico formations at CCL, these less permeable beds include siltstone, mudstone, and claystone. The Pico Formation also contains less permeable interbeds of well-cemented, fossiliferous sandstone and siltstone.

The geologic structure may also influence groundwater flow in layered sedimentary rocks, particularly in areas of steeply-dipping beds, folds, or faults. At CCL,

the bedrock is folded by two major anticline/syncline pairs that generally trend east and plunge to the east, and locally produce steeply-dipping beds (Figures 2 and 3). Geologic Sections A-A' and B-B' are transverse to the site geologic structure and illustrate the overall shape and location of these anticline/syncline pairs, as well as areas of more steeply dipping beds. Geologic Sections C-C' and D-D' each parallel the axis of a syncline and show the gentle east plunge of these structures.

The Geologic Map and detailed Geologic Sections were prepared to illustrate geologic and hydrogeologic conditions across the site (Figures 2 and 3). Geologic contacts, stratigraphic marker beds, mappable lithologic units, and geologic structure were identified by evaluating surface geologic maps, test pit logs, dozer cut logs, and exploratory boring logs, and by conducting additional field mapping where needed. The lithologic units identified as mappable were generally greater than approximately ten feet thick (drilled thickness), with coarse-grained silty sandstone, sandstone, and conglomeratic sandstone grouped together, and the fine-grained siltstone, mudstone, claystone, and cemented, fossiliferous sandstone grouped separately as potential confining layers, or aquitards. The geologic contacts, marker beds, and lithologic units were correlated across the site using both subsurface and surface lithologic and structural data.

A thick section of predominately fine-grained Saugus Formation units was identified in the central portion of the site, as illustrated (in green) on Geologic Sections B-B' and D-D' (Figure 3). The overall stratigraphic thickness of this interval is approximately 300 feet and includes the "DW-6 Siltstone," with a drilled (vertical) thickness of more than 164 feet and an estimated stratigraphic thickness of greater than 129 feet at well DW-6. This fine-grained unit underlies much of Canyon B, the southeast corner of the Main Canyon, and the northeast portion of Primary Canyon.

Within the Pico Formation, a thick section of siltstone more than 194 feet in vertical thickness (with a calculated stratigraphic thickness of greater than 173 feet at

well DW-27) was identified as an aquitard beneath the northwest portion of the site and is illustrated (in purple) on Geologic Sections A-A' and C-C' (Figure 3). The deepest stratigraphic penetration of this siltstone is at well DW-27, which was drilled through 452 feet of Pico Formation. The boring encountered primarily siltstone below a depth of 197.5 feet, including the "DW-19 Siltstone" unit (the top of which was initially penetrated during drilling of well DW-19 in 1999). The siltstone beds appear to have very low hydraulic conductivity, based on the slight amounts of groundwater yielded from overnight water checks during the well DW-27 drilling program, the slow well recharge during well development (RTF&A, 2010d), and the continued rise in monthly groundwater elevations eight months after well development was completed in early August 2010 (Appendix B). Groundwater in the "DW-19 Siltstone" unit is considered to be under confined conditions, with this low permeability unit acting as an aquitard for potentially deeper water-bearing zones. Within the western portion of the North Canyon, including the vicinity of well DW-27, the uppermost groundwater is found within this aquitard.

Depth to Groundwater: Beneath most of the site, the uppermost water-bearing unit is the Saugus Formation, except in the northwest area. The majority of the groundwater monitoring wells and piezometers are completed in the Saugus Formation, where the depth to groundwater ranges from approximately 33 feet at well DW-7 to 345 feet at well DW-23 (Appendix B). Groundwater elevations in Saugus Formation wells vary from near 920 ft-msl near the south property line (wells DW-7 and DW-12) to 1,080 ft-msl in East Canyon (wells DW-26 and PZ-7) (Figure 4). Seasonal groundwater elevation variations are less than a few feet at most hillside locations, with greater fluctuations (nearly 20 feet) in wells along canyon bottoms (Appendix B). In spring 2005, groundwater levels in the canyon wells rose almost ten feet at well DW-1 following the 2004-2005 winter rains. At the CCL rain gauge, annual precipitation of 48.15 inches for 2004-2005 was more than triple the local average annual precipitation for the

period from 1970 to 2011 (Table 3). The groundwater elevations at most Saugus wells reached historical highs in spring 2005 or spring 2006.

Several exploratory bucket auger borings drilled as part of RTF&A's slope stability/geotechnical investigations (RTF&A, 2006a, 2009b, and 2012b) and downhole-logged by a geologist encountered perched groundwater conditions. These perched zones typically consisted of several feet of saturated materials at the base of sandstone beds, underlain by fine-grained impermeable claystone and siltstone beds or fault gouge. The more permeable sandstones directly below these perched zones were moist, but not saturated.

Groundwater is also present in the Pico Formation, which crops out in the northwestern part of the site. In this area, the uppermost groundwater occurs in the Pico Formation. Eight monitoring points (DW-8, DW-19, DW-25, DW-27, DW-28, PZ-5, PZ-6, and PZ-8) have been completed in the Pico Formation (Figure 4). Groundwater depths range from approximately 72 feet at PZ-6 in the East Canyon to 335 feet at well DW-28 on the slope of the northwest ridgeline (Appendix B). Pico Formation groundwater elevations vary from about 1,105 ft-msl in the East Canyon (PZ-6) to 1,219 ft-msl in the North Canyon (PZ-8) (Figure 4). The seasonal groundwater elevation variations are less than a few feet at wells DW-8, DW-19, DW-25, and PZ-5. Piezometer PZ-6, located in the bottom of the East Canyon along the east-plunging axis of the anticline, showed a greater seasonal groundwater elevation fluctuation of over 10 feet.

Hydraulic Properties: The hydraulic properties of the bedrock formations were obtained from in situ pumping tests, rising and falling head (slug) tests, and laboratory testing from various sources (Table 1). Hydraulic conductivity, gradient, porosity, and groundwater flow velocity in the Saugus Formation were obtained from various site data.

Both regional and site hydraulic conductivity data are available for the Saugus Formation (Table 1). The regional permeability of the Saugus Formation, determined

from soils, electric log correlations, and pumping tests, ranges between 2.4×10^{-4} and 4.7×10^{-7} cm/sec (Robson, 1972). The hydraulic conductivity of the Saugus Formation at CCL was determined from laboratory permeameter testing of samples from shallow depths in borings B-1, B-2, and C-1, and from slug tests at wells DW-3, DW-9, DW-14, DW-24, DW-26, PZ-3, and PZ-4 (Table 1). The best estimate for in situ hydraulic conductivity values within the saturated zone ranges from 1.1×10^{-3} to 1.1×10^{-5} cm/sec and is based on the slug test results of on-site wells.

The hydraulic conductivity of the Pico Formation at CCL was determined from slug tests at wells DW-8, DW-19, PZ-5, and PZ-6 (Table 1). Values for hydraulic conductivity range from 6.4×10^{-5} to 2.4×10^{-6} cm/sec at these points and are generally less than the Saugus Formation values. Based on the very slow recharge at well DW-27, it appears to have lower permeability than well DW-19 (2.4×10^{-6} to 2.5×10^{-6} cm/sec), which was completed in the upper portion of the "DW-19 Siltstone."

Groundwater Flow Directions and Point of Compliance: The October 2011 static groundwater elevations and associated groundwater contours across the site are presented on Figure 5, with approximate groundwater flow directions indicated by arrows. The proposed landfill limits for the MPR are also shown. The MPR footprint encompasses South Main Canyon, Main Canyon Landfill, and North Canyon with surface drainage to the south, and East Canyon with drainage southeast to Castaic Creek. The closed landfill footprints (Primary Canyon and Canyon B) remain the same. The groundwater flow directions and POC are described below for each of the existing and proposed (MPR) landfill areas. The POC for each landfill area is a vertical surface located in the hydraulically downgradient limit of the waste management unit that extends through the uppermost water-bearing zone underlying the unit, as defined by the California Code of Regulations (Title 27, s 20164).

Most Saugus Formation water level measurements are in wells or piezometers with relatively short screens (40 feet or less) and standing water columns of about

40 feet. These groundwater elevations probably represent hydraulic head at the water table where the monitoring point is completed in the uppermost water-bearing zone. However, many of the Pico Formation water level measurement points (wells DW-8, DW-19, DW-27, and PZ-5) have standing water columns near or greater than 100 feet and may be indicative of the hydraulic head measured at depths greater than the water table. Therefore, the groundwater elevation contours in the northern area are more approximate relative to water table flow conditions. The groundwater elevation at well DW-27 is considered to represent confined conditions at depth and is not part of the contoured data. No groundwater elevations are shown in the west portion of the North Canyon where the uppermost water-bearing unit is the "DW-19 Siltstone" aquitard penetrated by well DW-27.

In the west half of the site beneath South Main Canyon, Main Canyon, and Primary Canyon, the general groundwater flow direction is south toward the Santa Clara River Valley. Along Main Canyon from near the site entrance (well DW-1), north about 2,500 feet, the natural topography appears to direct groundwater flow from the ridges (wells DW-8 and DW-9 on the west, and wells DW-15, DW-16, and DW-17 to the east) to the canyon bottom, where groundwater elevation contours "V" or point up Main Canyon. Based on these groundwater contours, the interpreted point of POC for South Main Canyon and Main Canyon extends from approximately 850 feet southeast of well DW-9 to 700 feet north of well DW-1, following the south edge of the proposed landfill perimeter (Figure 5). The POC for Primary Canyon remains unchanged from previous monitoring reports, and follows the south and west landfill perimeter (RTF&A, 2011b). POC monitoring in both areas is within the Saugus Formation.

Beneath the closed Canyon B landfill, groundwater within the Saugus Formation appears to flow east down the canyon towards monitoring points DW-3 and PZ-4, with well DW-14 in a hydraulically upgradient position. The local topography and stratigraphy appear to influence the groundwater flow at Canyon B, with a high ridge

(about 1,450 ft-msl) south of the canyon, and a thick, fine-grained “DW-6 Siltstone” unit along the south side of Canyon B, as shown on Geologic Section B-B’ (Figure 3). The POC for Canyon B is at the northeast perimeter of the unit and is unchanged from previous monitoring reports (RTF&A, 2011b).

In East Canyon, south of the anticlinal fold axis, the apparent groundwater flow direction is south (Figures 2 and 5). Along the fold axis, the groundwater flows down-plunge to the east through successively higher (younger) lithologic units, starting with Pico Formation siltstone at well DW-19 and ending with Saugus Formation sandstone at well DW-26. In North Canyon and the northern portion of East Canyon, the groundwater appears to flow east and northeast, generally down and away from the axis of a broad synclinal fold. Based on these groundwater contours, the POC for North Canyon and East Canyon extends east from near well DW-27 to the northeast corner of Canyon B, following the proposed landfill perimeter (Figure 5).

Groundwater Flow Velocity: Estimates of the rate of groundwater flow in the Saugus Formation can be calculated from Darcy's Law, expressed as:

$$V = Ki/n$$

where

V	=	linear groundwater velocity
K	=	hydraulic conductivity
i	=	hydraulic gradient
n	=	effective porosity

As discussed above, the range for in situ hydraulic conductivity values in the Saugus Formation is 1.1×10^{-3} to 1.1×10^{-5} cm/sec. The hydraulic gradient measures the change of hydraulic head (feet) per unit length (feet), measured parallel to flow. Based on the groundwater elevations in October 2011, the gradient beneath the Main Canyon

and Primary Canyon areas was approximately 0.03 to 0.04, and the estimated hydraulic gradient in the East Canyon near boring E-7 was 0.11 (Figure 5).

Effective porosity refers to the amount of interconnected pore space available for fluid transmission and is different than the porosity of a material, which is the volume of voids expressed as a percentage of the total volume of material. The available porosity values from laboratory tests in the Saugus Formation are 0.25 to 0.38, and assuming that only 75 percent of the pore spaces are connected, the estimated effective porosity is 0.19 to 0.28 (EMCON, 1990a).

Because the Saugus Formation underlies most of the landfill areas, including all of the POC areas, and the Pico Formation is less permeable than the Saugus Formation, the rate of groundwater flow through the Saugus Formation should be considered a maximum. For the Main Canyon and Primary Canyon areas, the calculated Saugus Formation flow velocity is approximately one to 210 feet per year using the stated range of porosity, permeability, and hydraulic gradient values. At the proposed toe of the East Canyon landfill area, the calculated Saugus Formation flow velocity is approximately four to 659 feet per year using the range of porosity, permeability, and hydraulic gradient values noted above.

SEPARATION BETWEEN GROUNDWATER AND WASTE

The MPR changes the currently permitted landfill footprint in two areas: 1) the North Canyon and East Canyon excavation area northeast of, and contiguous with, the Main Canyon landfill; and 2) the South Main Canyon excavation area, which is south of and adjoining the Main Canyon landfill. The cell excavation plan illustrates the proposed grading (with red elevation contour lines) in these areas (Figure 4).

The waste management unit siting and design criteria (CCR, Title 27, s 20240 (c)) state, "All new landfills waste piles, and surface impoundments shall be sited, designed, constructed, and operated to ensure that wastes will be a minimum of five feet

(5 ft.) above the highest anticipated elevation of underlying ground water. Existing landfills, waste piles, and surface impoundments shall be operated to ensure that wastes will be a minimum of five feet (5 ft.) above the highest anticipated elevation of underlying ground water.” A maximum groundwater elevation map was prepared for comparison to the proposed project excavation plan, so that a minimum of five feet separation would be maintained between groundwater and refuse. The maximum groundwater elevations (blue contour lines) and excavation elevations (red contour lines) are shown on Figure 4. The excavation plan appears to meet the above Title 27 requirement based on the following analysis.

Since January 1986, the groundwater elevations in the canyon bottoms have been monitored at wells DW-1 (Main Canyon) and DW-3 (East Canyon) and provide 25 years of historical data at points near the downgradient edge of each of the proposed landfills (Appendix B). Local annual precipitation data show the greatest rainfall (48.15 inches at the site) during the winter 2004-2005, with an average of about 14.66 inches (Table 3). The most recent 2010-2011 season had an above average rainfall total of 19.75 inches. For the purpose of establishing the highest anticipated groundwater elevations beneath the proposed North/East Canyons and South Main Canyon landfill areas, we assume that the record rainfall of 2004-2005 will result in the maximum (highest) groundwater elevations. At a particular groundwater monitoring point, if the record of groundwater elevations at a monitoring point extends through the 2004-2005 rainfall season, the highest recorded elevation was used on the maximum groundwater elevation map (Figure 4). If the record does not extend through the 2004-2005 rainfall season, but a nearby monitoring point does have the extended record, the highest elevation is adjusted based on the groundwater level difference in the nearby monitoring point. These adjusted groundwater elevations are noted on Figure 4, and the groundwater elevation adjustments and site historical groundwater elevation measurements for all monitoring points are summarized in Appendix B.

The majority of the current monitoring wells, including all of the Saugus Formation wells located in or near the canyon bottoms, recorded the highest historical groundwater elevations during either the spring of 2005 or 2006. In wells near the bottom of the Main Canyon, the highest groundwater elevations were in spring 2005. Compared to the Main Canyon, the East Canyon wells responded more slowly to the rainfall in 2004-2005, with some wells (DW-3 and DW-17) showing the highest groundwater elevations in spring 2008. In piezometer PZ-4 at the eastern edge of the drainage, the most recent October 2011 measurement was the highest groundwater level recorded. In the central portion of the North/East Canyons at piezometers PZ-5 and PZ-6, the highest groundwater elevations were reached August 2011 and March 2006, respectively. In the North Canyon, only 2010 and 2011 groundwater levels were available, with the exception of well DW-19, which showed the highest groundwater level in August 2011.

Maximum groundwater elevations determined either from historical measurements or from adjustments are provided on Figure 4. These maximum groundwater elevations, along with water levels determined from soil borings, where appropriate, were used to produce the maximum groundwater elevation (blue) contours. Because the water levels determined from soil borings are from a single measurement, no adjustments were possible with these data, and less emphasis was placed on these for contouring.

The excavation plan (red elevation contours) is also presented on Figure 4 to illustrate the waste-groundwater separation in both the North/East Canyons and South Main Canyon landfill areas, where the elevation difference between the red and blue contour lines represents the approximate minimum waste-groundwater separation. Because the bottom of refuse will be slightly higher than the excavation elevations depending on the approved liner system design, the waste-groundwater separation calculated from these contour lines represents a minimum.

In the North/East Canyons, the waste-groundwater separation is smallest near the northwest corner of the excavation floor along a zone of higher groundwater associated with the anticlinal fold axis. The minimum separation of five feet occurs above the toe of the sideslope, between piezometers PZ-5 and PZ-8, where proposed grades range from 1,165 ft-msl to 1,205 ft-msl and associated groundwater elevations range from 1,160 ft-msl to 1,200 ft-msl. The waste-groundwater separation increases to 25 feet southeasterly along the fold trend, where the "1100" groundwater contour intercepts the excavation contour "1125" between wells PZ-6 and DW-26 at the east side of the landfill floor. The waste-groundwater separation within the excavation floor increases to 50 to 60 feet along the north side and to 110 feet in the southwest corner.

In South Main Canyon, the waste-groundwater separation is least at the west side of the excavation floor near the toe of the east-facing cut slope. Here, the approximate waste-groundwater separation is 14 feet near the center (proposed grade estimated at 1,014 ft-msl, "1000" groundwater elevation contour) and increases to about 25 to 30 feet at the north and south ends of the cut slope. Across the excavation floor, the waste-groundwater separation ranges from 25 to 50 feet. Therefore, the proposed cell excavation plans for the North/East Canyons and South Main Canyon areas appear to meet the California Code of Regulations (Title 27, s 20240 (c)) requirement for siting and design to ensure that wastes will be a minimum of five feet above the highest anticipated elevation of underlying groundwater.

PROPOSED GROUNDWATER MONITORING SYSTEM

The proposed groundwater monitoring system for the MPR is shown on Figure 6 and listed in Table 4. The POC for each landfill area is a vertical surface located in the hydraulically downgradient limit of the waste management unit that extends through the uppermost water-bearing zone underlying the unit. The proposed downgradient monitoring points are located as close as possible to the POC, given the operational and

physical constraints of positioning monitoring wells where they will remain accessible. These proposed Saugus and Pico Formation wells will be completed in the uppermost water-bearing zone as determined during exploratory drilling operations.

The proposed monitoring system consists of 19 groundwater points (DW-1, DW-7, DW-8, DW-14 to DW-18, DW-23, DW-26, DW-28 to DW-35, and PZ-4), three vadose zone points (SW-1, VP-2[GP-29], and VP-3[DW-30]), and an additional three groundwater points to be monitored for groundwater levels only (DW-9, DW-21, and DW-27) (Table 4). Thirteen existing monitoring points will be destroyed (LP-1, GP-9, VP-1[GP-10], DW-3, DW-6, DW-12, DW-20, DW-24, DW-25, PZ-3, PZ-5, PZ-6, and PZ-7), either because they are within the proposed landfill development area or because they no longer provide useful monitoring data (vadose zone lysimeter LP-1).

The proposed extension of the Main Canyon footprint into South Main Canyon requires one new downgradient groundwater monitoring well, DW-29. Well DW-29 is centrally located in the Main Canyon drainage to monitor downgradient from the lowest elevations in the landfill floor, and is also downgradient from the POC on the west slope. Additional groundwater monitoring near the Main Canyon POC is provided by wells DW-15 and DW-16, and monitoring downgradient from the POC is provided at wells DW-1 and DW-18. Upgradient groundwater monitoring will be conducted at Pico Formation wells DW-8 and DW-28 and at Saugus Formation well DW-17. On the west ridge, Saugus Formation well DW-9 is not in the proposed monitoring system, but should be retained for groundwater level measurements only. Proposed vadose points consist of downgradient well SW-1 and upgradient well VP-2 (GP-29).

The POC for the proposed North Canyon and East Canyon footprint will require downgradient monitoring in the Pico Formation along the north (well DW-34), and in the Saugus Formation along the northeast (wells DW-23 and DW-33), east (wells DW-26 and DW-32), and southeast (wells DW-30 and DW-31). Upgradient monitoring will be provided by Pico Formation well DW-28. Monitoring point DW-27 should be

used for groundwater level measurements only and is not part of the proposed groundwater monitoring program. Wells DW-24 and DW-25 and piezometers PZ-3, PZ-5, PZ-6, and PZ-7 will be destroyed as landfill development proceeds, but water levels should be monitored until their destruction. Vadose points consist of downgradient well VP-3 (DW-30) and upgradient point VP-2 (GP-29).

The Primary Canyon POC is unchanged, and the proposed points include existing monitoring points DW-1, DW-7, and DW-16 through DW-18. Because well DW-12 will be destroyed by the entrance road development, a replacement well DW-35 will be installed. Well DW-21 will be retained for groundwater level measurements only, but could be used for future monitoring in the event that a new landfill release impacts nearby wells. Well DW-21 is a deep pair to well DW-18, and their historical water quality results have been similar since installation of DW-21 in 1999. The vadose zone point will be well SW-1.

The Canyon B POC is also unchanged, and the proposed groundwater monitoring system includes existing groundwater monitoring points DW-14 and PZ-4. Because well DW-3 and vadose zone point GP-9 will be destroyed by the landfill development, replacement downgradient points DW-30/VP-3 and DW-31 will be installed. The shallow vadose point VP-3 in the boring for well DW-30 replaces vadose zone point GP-9. Inactive well DW-6 will be within the landfill development area and should be destroyed.

The well depth and design for each of the additional monitoring points will meet CCR Title 27 regulatory requirements and be determined based on geologic and groundwater conditions encountered during drilling. In general, the groundwater wells will target the uppermost water-bearing zone and be completed with a relatively short screen intended to sample approximately 20 feet of saturated rock. As required by CCR Title 27, a detailed Well Installation Work Plan will be submitted for RWQCB review and approval prior to installation of the proposed monitoring points.

PROPOSED PERIMETER LANDFILL GAS MONITORING SYSTEM

To meet the perimeter landfill gas monitoring requirements of the South Coast Air Quality Management District (SCAQMD) Rule 1150.1 and the CCR Title 27, the proposed perimeter landfill gas monitoring program will consist of a total of 27 multi-level gas monitoring probes (Figure 7 and Table 5). The proposed probes are spaced less than 1,000 feet apart around the proposed landfill limits. The expanded landfill footprint will require installation of nine additional landfill gas monitoring probes (GP-27 through GP-35) on the north and east side of the property. Nine existing monitoring probes (GP-A, GP-B, GP-9, GP-10, GP-11, GP-12, GP-24, GP-25, and W-2) will be destroyed as the expansion progresses.

The number and depth of gas probes at each of the additional monitoring points will meet SCAQMD Rule 1150.1 and CCR Title 27 regulatory requirements and be determined based on geologic conditions encountered during drilling, maximum depth of refuse, and local groundwater elevations. As required by CCR Title 27, a Landfill Gas Monitoring Plan that provides justification for the monitoring point locations, depths, and construction methods will be submitted for agency review and approval prior to installation of these points.

Chiquita Canyon Landfill
January 20, 2012
2002-036-005

-26-

LIMITATIONS

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable engineering geologists or geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for Chiquita Canyon Landfill and their design consultants, to be used solely for planning and design. The report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or other uses.

-oOo-



TMC/eaw

Respectfully submitted,
R. T. FRANKIAN & ASSOCIATES

by: Theodore M. Clark, C.H.G.
Principal Geologist

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Frankian, R. T., & Associates, 2010b "Geotechnical Investigation, North Canyon Stockpile, Chiquita Canyon Landfill, Castaic, California," for Chiquita Canyon Landfill, dated August 20, 2010, Job No. 2002-036-004.

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Table 1
Hydraulic Conductivity
Chiquita Canyon Landfill, Castaic, California

Well	Lithology	Hydraulic Conductivity (cm/sec)	Source	Method
Alluvial Deposits				
Regional Wells (about 200)	alluvium	1.42E-02 to 0.13	Robson, 1972	Pumping test & drillers logs
A-1 (6 feet)	silty sand (SM)	2.0E-04	HLA, 1987	Lab permeameter
A-2 (16 feet)	silty sand (SM)	2.0E-05	HLA, 1987	Lab permeameter
B-2 (6 feet)	silty sand (SM)	5.4E-05	HLA, 1987	Lab permeameter
C-2 (16 feet)	silt (ML)	1.9E-03	HLA, 1987	Lab permeameter
D-1 (6 feet)	silty sand (SM)	1.0E-04	HLA, 1987	Lab permeameter
D-2 (16 feet)	silty sand (SM)	3.5E-05	HLA, 1987	Lab permeameter
Saugus Formation				
Regional Wells (about 100)	sandstone (ss)	2.4E-04 to 4.7E-07	Robson, 1972	Pumping test & E-log approximation
B-1 (16 feet)	ss	3.2E-03	HLA, 1987	Lab permeameter
B-2 (16 feet)	silty ss	3.4E-05	HLA, 1987	Lab permeameter
C-1 (36 feet)	silty ss	8.5E-05	HLA, 1987	Lab permeameter
DW-3	silty ss w/gravel	3.0E-04	RTF&A, 2005b	Falling Head
		2.9E-04	RTF&A, 2005b	Rising Head
DW-9	silty ss	9.2E-04	EMCON, 1990	Falling Head
		1.1E-03	EMCON, 1990	Rising Head
DW-14	ss	1.1E-05	RTF&A, 2005b	Falling Head
		1.1E-05	RTF&A, 2005b	Rising Head
DW-24	ss, gravelly ss, w/silty ss	6.5E-05	RTF&A, 2005b	Falling Head
		8.1E-05	RTF&A, 2005b	Rising Head
DW-26	intbd silty ss/sandy siltstone (sltst)	3.2E-05	RTF&A, 2005b	Falling Head
		3.6E-05	RTF&A, 2005b	Rising Head
PZ-3	ss & pebbly ss	3.2E-05	RTF&A, 2005b	Rising Head
PZ-4	ss	2.1E-05	RTF&A, 2005b	Rising Head
Pico Formation				
DW-8	mudstone w/3' to 6' ss intbds	6.4E-05	EMCON, 1990	Falling Head
DW-19	sandy sltst to sandy claystone	2.4E-06	RTF&A, 2005b	Falling Head
		2.5E-06	RTF&A, 2005b	Rising Head
PZ-5	silty ss w/7' clayey ss intbd	5.4E-06	RTF&A, 2005b	Falling Head
		5.0E-06	RTF&A, 2005b	Rising Head
PZ-6	silty ss w/6' sandy sltst	2.5E-06	RTF&A, 2005b	Falling Head
		2.8E-06	RTF&A, 2005b	Rising Head

Notes: cm/sec = centimeters per second
Permeameter = Laboratory permeameter testing
Rising and falling head = "slug" testing
Electric logs were correlated with known hydraulic values from pumping test and then electric log values from oil wells were used to estimate hydraulic conductivities



Table 2
Base Alluvium vs. Highest Groundwater Depths
Chiquita Canyon Landfill, Castaic, California

Location	Well ID	Base Alluvium Depth (ft)	Highest Groundwater Depth (ft)	Approximate Base Alluvium - Groundwater Separation (ft)	Date of Highest Groundwater
Main Canyon	DW-1	21	48.91	27.9	4/1/2005
	DW-2	22	50.91	28.9	4/16/2001 ¹
	DW-13	20	38.13	18.1	7/22/1998 ¹
	DW-18	17	57.11	40.1	4/16/2001
	DW-20	41	54.75	13.8	6/10/2005
	DW-21	22	62.85	40.9	4/15/2005
	PZ-1	18.5	34.30	15.8	1/19/1993 ¹
	PZ-2	17	56.05	39.1	4/22/1998 ¹
	SW-1	26	dry	--	--
	RD-1	30	dry	--	-- ¹
East Canyon	DW-3	17	78.12	61.1	4/24/2006
Santa Clara River Valley	DW-7	28	32.64	4.6	3/4/2005

Notes:

Base alluvium depths in feet below ground surface

Highest groundwater depth in feet below top of well casing; based on highest groundwater elevations
(relative to surveys), not shallowest measured depth to water

Highest groundwater dates for period ending October 2010

SW-1 and RD-1 = Vadose zone monitoring points

¹ = Monitoring points destroyed prior to 2005

DW-2 (destroyed 12/04)

DW-13 (destroyed 10/02)

PZ-1 (destroyed 10/02)

PZ-2 (destroyed 11/99)

R.T. Frankian and Associates



Table 3
Local Annual Precipitation (1970 to 2011)
Chiquita Canyon Landfill, Castaic, California

Date From	Date To	Rainfall Season	
		Total (inches)	Location
Oct-70	Sep-71	12.5	Castaic Junction, Station No. 1021
Oct-71	Sep-72	8.04	Castaic Junction, Station No. 1021
Oct-72	Sep-73	14.77	Castaic Junction, Station No. 1021
Oct-73	Sep-74	12.23	Castaic Junction, Station No. 1021
Oct-74	Sep-75	11.18	Castaic Junction, Station No. 1021
Oct-75	Sep-76	9.08	Castaic Junction, Station No. 1021
Oct-76	Sep-77	11.74	Castaic Junction, Station No. 1021
Oct-77	Sep-78	31.98	Castaic Junction, Station No. 1021
Oct-78	Sep-79	18.16	Castaic Junction, Station No. 1021
Oct-79	Sep-80	23.6	Castaic Junction, Station No. 1021
Oct-80	Sep-81	9.91	Castaic Junction, Station No. 1021
Oct-81	Sep-82	13.68	Castaic Junction, Station No. 1021
Oct-82	Sep-83	29.51	Castaic Junction, Station No. 1021
Oct-83	Sep-84	8.61	Castaic Junction, Station No. 1021
Oct-84	Sep-85	9.51	Castaic Junction, Station No. 1021
Oct-85	Sep-86	18.24	Castaic Junction, Station No. 1021
Oct-86	Sep-87	5.98	Magic Mtn. Parkway, Station No. 200
Oct-87	Sep-88	17.95	Magic Mtn. Parkway, Station No. 200
Oct-88	Sep-89	10.37	Castaic Junction, Station No. 1021
Oct-89	Sep-90	4.71	Castaic Junction, Station No. 1021
Oct-90	Sep-91	12.94	Castaic Junction, Station No. 1021
Oct-91	Sep-92	22.72	Castaic Junction, Station No. 1021
Oct-92	Sep-93	26.76	Castaic Junction, Station No. 1021
Oct-93	Sep-94	8.2	Castaic Junction, Station No. 1021
Oct-94	Sep-95	23	Castaic Junction, Station No. 1021
Oct-95	Sep-96	10.24	Castaic Junction, Station No. 1021
Oct-96	Jan-98	-	data gap
Feb-98	Jun-98	12.25	Chiquita Canyon Landfill Office Rain Gauge
Sep-98	Jun-99	6.80	Chiquita Canyon Landfill Office Rain Gauge
Nov-99	May-00	10.60	Chiquita Canyon Landfill Office Rain Gauge
Oct-00	Apr-01	16.65	Chiquita Canyon Landfill Office Rain Gauge, with March/April from Newhall Station
Nov-01	May-02	5.27	Chiquita Canyon Landfill Office Rain Gauge
Nov-02	May-03	17.55	Chiquita Canyon Landfill Office Rain Gauge
Oct-03	Mar-04	8.35	Chiquita Canyon Landfill Office Rain Gauge
Oct-04	May-05	48.15	Chiquita Canyon Landfill Office Rain Gauge
Sep-05	May-06	16.15	Chiquita Canyon Landfill Office Rain Gauge
Dec-06	Apr-07	2.81	Chiquita Canyon Landfill Office Rain Gauge
Sep-07	Feb-08	14.10	Chiquita Canyon Landfill Office Rain Gauge
Oct-08	Mar-09	10.57	Chiquita Canyon Landfill Office Rain Gauge
Oct-09	May-10	11.75	Chiquita Canyon Landfill Office Rain Gauge
Oct-10	May-11	19.75	Chiquita Canyon Landfill Office Rain Gauge
Average		14.66	

Note: Castaic Junction and Magic Mountain Parkway records from Los Angeles County Department of Public Works,
Hydrologic Records Division



Table 4
MPR Groundwater Monitoring System
Chiquita Canyon Landfill, Castaic, California

Monitored Medium	Downgradient Monitoring Points	Upgradient Monitoring Points
Main Canyon		
Vadose Zone	SW-1	VP-2 (GP-29)
Groundwater	DW-1	DW-8
	DW-15	DW-9 ^{GWE}
	DW-16	DW-17
	DW-18	DW-28
	DW-21 ^{GWE}	
	DW-29	
North & East Canyons		
Vadose Zone	VP-3 (DW-30)	VP-2 (GP-29)
Groundwater	DW-23	DW-27 ^{GWE}
	DW-26	DW-28
	DW-30	
	DW-31	
	DW-32	
	DW-33	
	DW-34	
Primary Canyon		
Vadose Zone	SW-1	
Groundwater	DW-1	DW-16
	DW-7	DW-17
	DW-18	
	DW-21 ^{GWE}	
	DW-35	
Canyon B		
Vadose Zone	VP-3 (DW-30)	
Groundwater	DW-30	DW-14
	DW-31	
	PZ-4	

^{GWE} = measured for groundwater elevations only

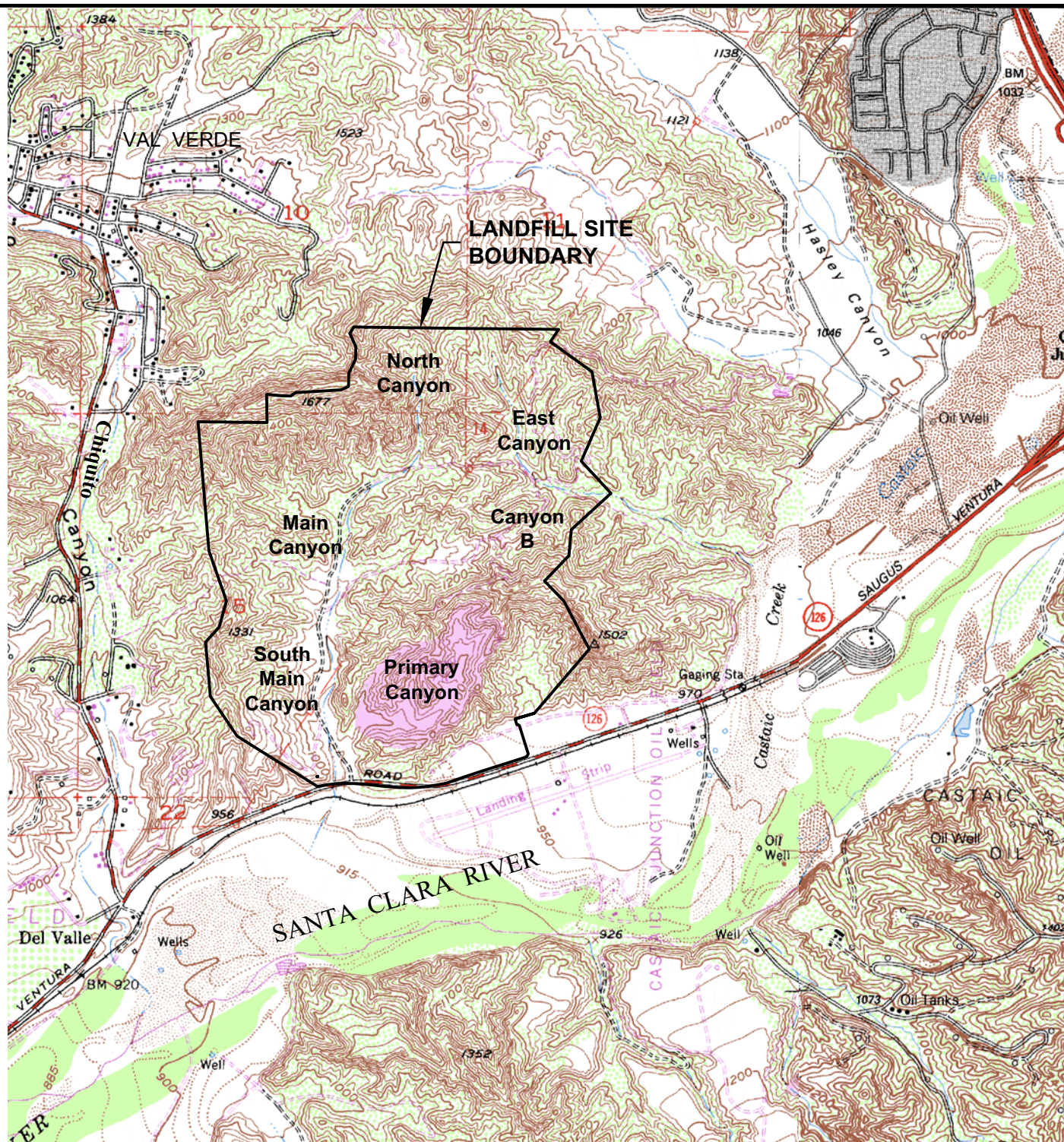


Table 5
MPR Landfill Gas Monitoring System
Chiquita Canyon Landfill, Castaic, California

Existing Wells	Monitoring Programs		Future Wells	Monitoring Programs	
	Title 27	Rule 1150.1		Title 27	Rule 1150.1
GP-1R	no	yes	GP-27	yes	yes
GP-2	yes	yes	GP-28	yes	yes
GP-5	no	yes	GP-29	yes	yes
GP-6	no	yes	GP-30	yes	yes
GP-7	no	yes	GP-31	yes	yes
GP-8	yes	yes	GP-32	yes	yes
GP-13	yes	yes	GP-33	yes	yes
GP-14	yes	yes	GP-34	yes	yes
GP-15	yes	no	GP-35	yes	yes
GP-16	yes	no			
GP-17	yes	no			
GP-18	yes	no			
GP-19	yes	no			
GP-20	yes	no			
GP-21	yes	no			
GP-22	yes	no			
GP-23	yes	no			
GP-26	yes	yes			

Note: The following existing wells will be destroyed: GP-A, GP-B, GP-9, GP-10, GP-11, GP-12, GP-24, GP-25, & W-2



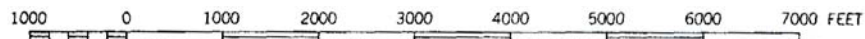
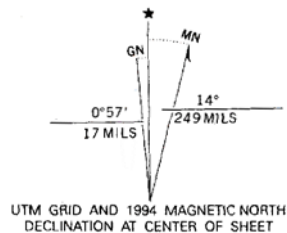


LOCATION MAP

PREPARED FOR
Chiquita Canyon Landfill
VALENCIA, CALIFORNIA

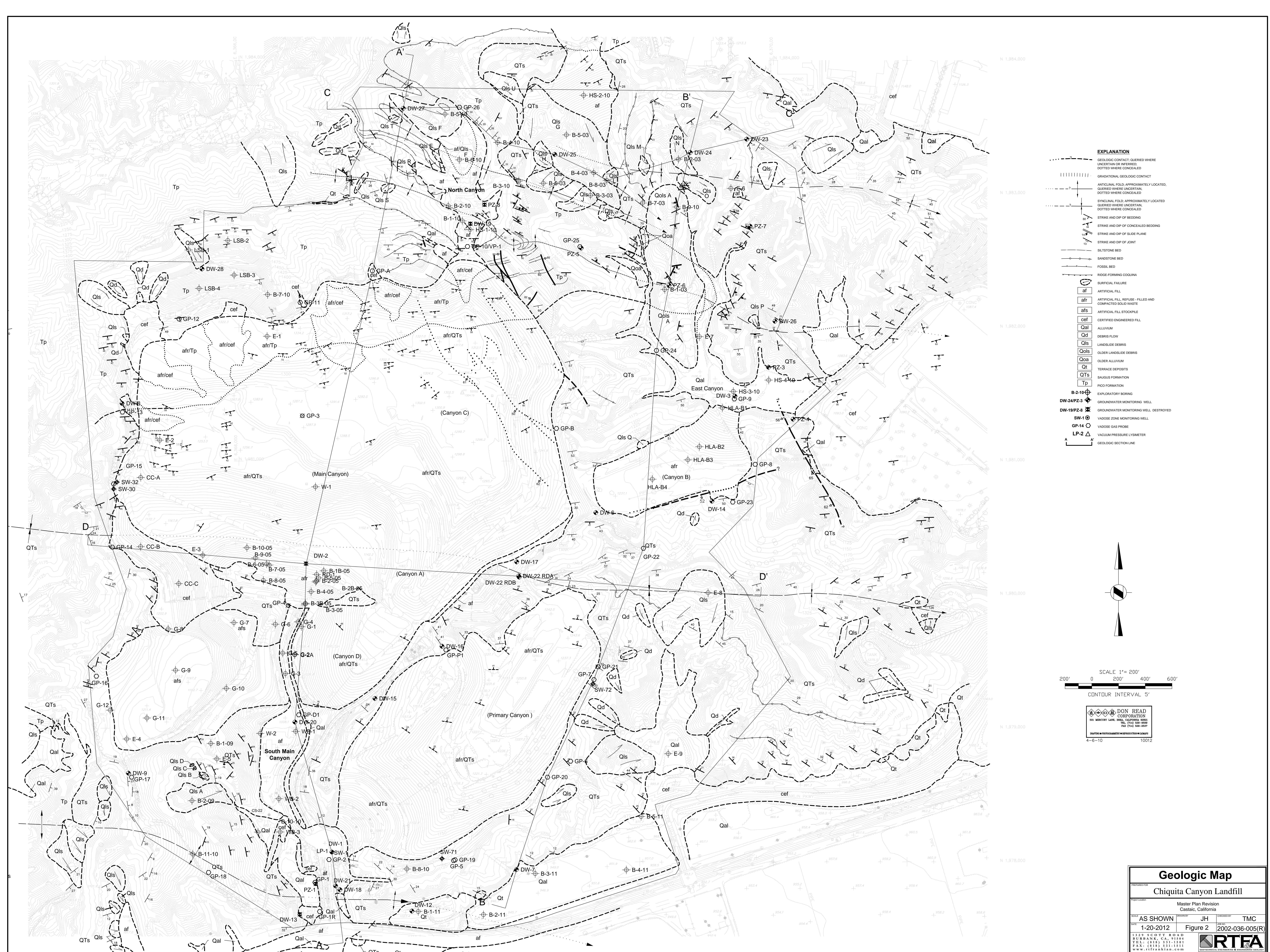
U.S.G.S 7.5 MINUTE
VAL VERDE, CA
34118-D6-TF-024
1991

NEWHALL, CA
1995
NIMA 2252 I NE - SERIES V895



JOB NO. 2002-036-005(R)
1/20/2012

R.T. FRANKIAN & ASSOCIATES
FIGURE 1



EXPLANATION

--- GEOLGIC CONTACT: QUERIED WHERE UNCERTAIN OR INFERRED, DOTTED WHERE CONCEALED

----- GRADATIONAL GEOLGIC CONTACT

--- ANTICLINAL FOLD, APPROXIMATELY LOCATED, QUERIED WHERE UNCERTAIN, DOTTED WHERE CONCEALED

--- SYNCLINAL FOLD, APPROXIMATELY LOCATED, QUERIED WHERE UNCERTAIN, DOTTED WHERE CONCEALED

--- STRIKE AND DIP OF BEDDING

--- STRIKE AND DIP OF CONCEALED BEDDING

--- STRIKE AND DIP OF SLIDE PLANE

--- STRIKE AND DIP OF JOINT

--- SILTSTONE BED

--- SANDSTONE BED

--- FOSSIL BED

--- RIDGE-FORMING COGUNA

--- SURFICIAL FAILURE

af ARTIFICIAL FILL

afr ARTIFICIAL FILL, REFUSE - FILLED AND COMPACTED SOLID WASTE

afs ARTIFICIAL FILL STOCKPILE

cef CERTIFIED ENGINEERED FILL

Qal ALLUVIUM

Qd DEBRIS FLOW

Qls LANDSLIDE DEBRIS

Qoa OLDER LANDSLIDE DEBRIS

Qts TERRACE DEPOSITS

Qts SAUGUS FORMATION

TP PICO FORMATION

B-2-10 EXPLORATORY BORING

DW-34/PZ-3 GROUNDWATER MONITORING WELL

DW-19/PZ-8 GROUNDWATER MONITORING WELL DESTROYED

SW-1 VADOSE ZONE MONITORING WELL

GP-14 VADOSE GAS PROBE

LP-2 VACUUM PRESSURE LYDGMETER

--- GEOLGIC SECTION LINE

200' 0 200' 400' 600'

SCALE 1"= 200'

CONTOUR INTERVAL 5'

DON READ CORPORATION
 500 MONTEREY LANE, SUITE 200, CASTAIC, CALIFORNIA 91304
 TEL: (714) 258-5555 FAX: (714) 258-5557
 4-6-10 10012

Geologic Map

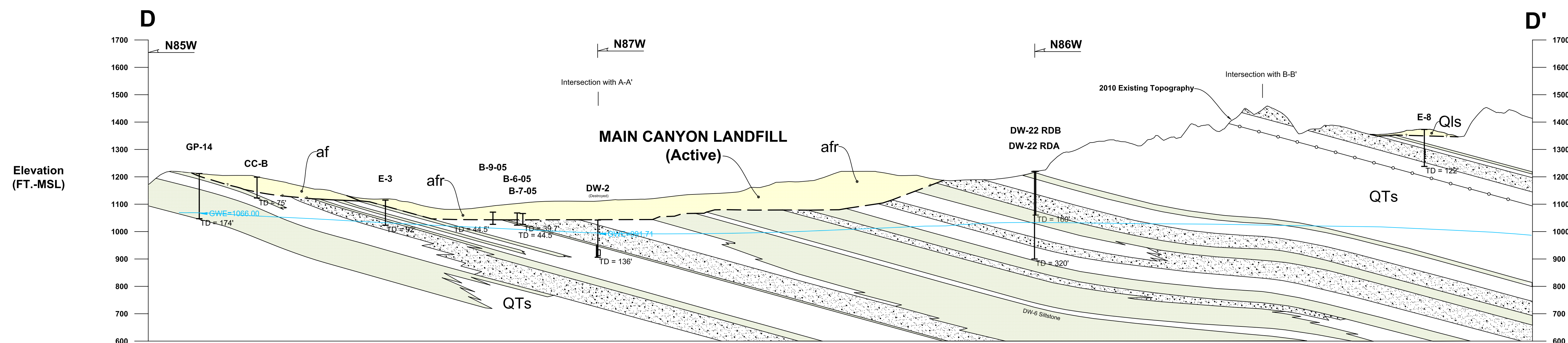
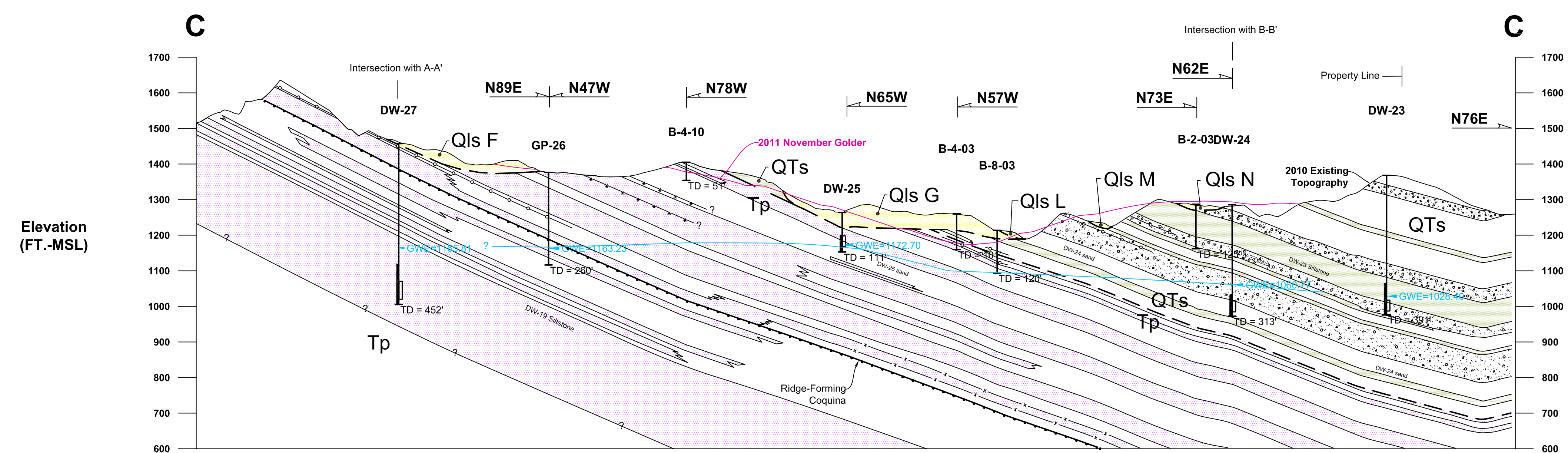
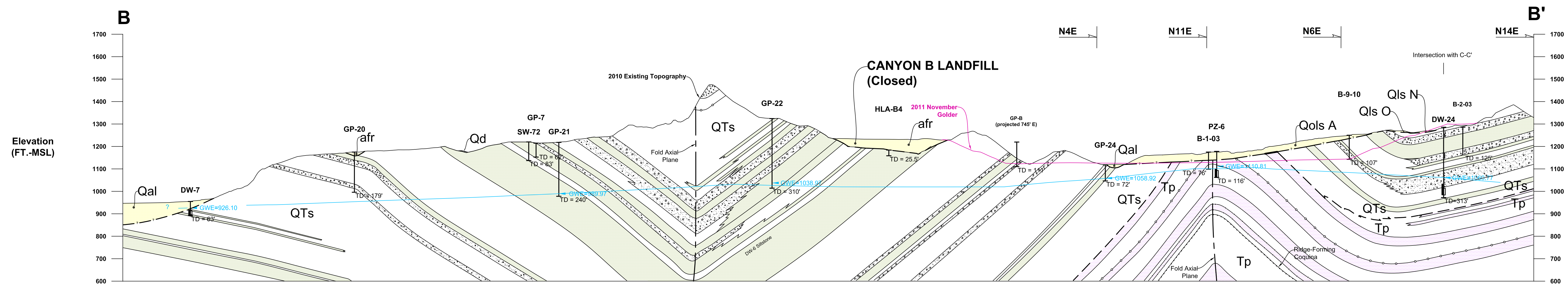
Chiquita Canyon Landfill

Master Plan Revision
Castaic, California

SCALE	AS SHOWN	DESIGNED BY	JH	CHECKED BY	TMC
DATE	1-20-2012	FIGURE	Figure 2	FIGURE	2002-036-005(R)

1329 SCOTT ROAD
 RUIRANK, CA, 91304
 TEL: (818) 531-1501
 FAX: (818) 531-1511
 WWW.RTEA.COM

RTEA
 REGIONAL TECHNICAL ENGINEERING & ENVIRONMENTAL CONSULTING



	Artificial Fill
	Artificial Fill Refuse
	Quaternary Alluvium
	Saugus Formation Coarse-grained: sandstone with gravel
	Saugus Formation Coarse-grained: primary sandstone
	Saugus Formation Fine-grained: primary siltstone, mudstone or claystone
	Pico Formation Coarse-grained: primary sandstone
	Pico Formation Fine-grained: primary siltstone, mudstone or claystone
	Fossilal rock: Primarily Sandstone
	Siltstone Bed
	Sandstone Bed
	Fossil Bed

DW-15 — Monitoring Well or Piezometer

Estimated Potentiometric Surface

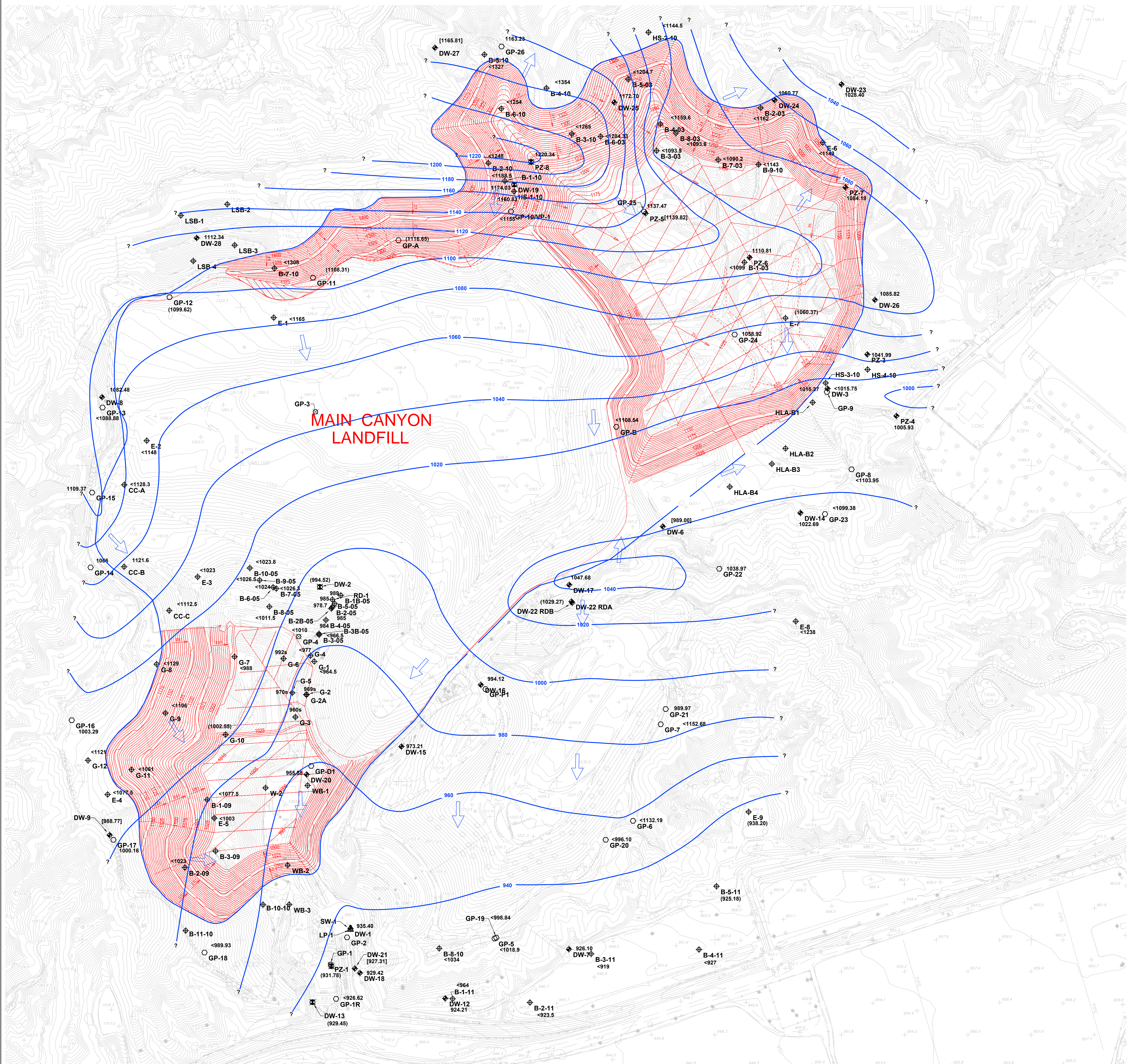
Maximum groundwater elevation

Filter pack interval

Screen interval

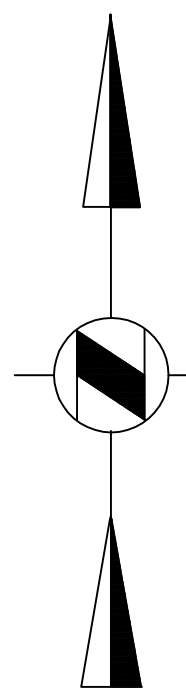
TD=116'

Total Depth Boring
(Most boring is 116 feet deep)



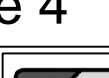
- EXPLANATION**
- Maximum Groundwater Elevation contour (FL-MSL)
 - Groundwater Monitoring Points (continuous groundwater measurements)
 - Groundwater Monitoring Points Destroyed
 - Exploratory Borings (limited groundwater measurements)
 - Gas Probe Monitoring Points (continuous groundwater measurements)
 - Vadose Zone Monitoring Points (continuous groundwater measurements)
 - Groundwater Elevation (FL-MSL); Historical Maximum
 - Adjusted Historical Maximum Groundwater Elevation (FL-MSL)
 - Groundwater Elevation (FL-MSL) based on dry exploratory borings (unadjusted)
 - Groundwater Elevation (FL-MSL) omitted from contouring
 - Groundwater Elevation (FL-MSL); based on seepage in exploratory borings
 - Groundwater Flow Direction (from October 2010)

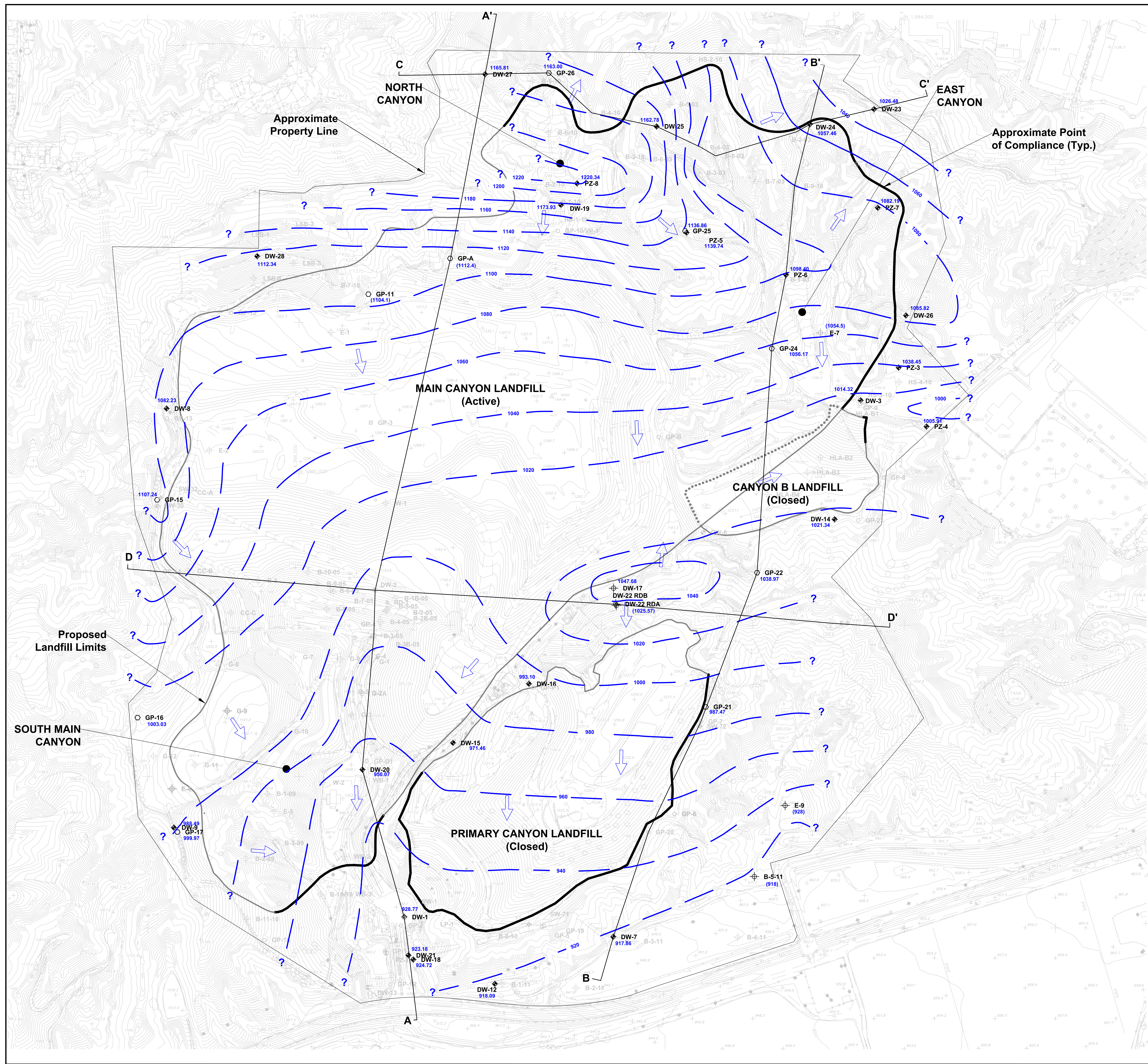
Proposed Project Excavation Within Landfill Footprint
From Golder, November, 2011, Excavation Plan



SCALE 1"= 200'
0 200' 400' 600'
CONTOUR INTERVAL 5'

DON READ CORPORATION
401 WESTCOTE LANE, BUREAU, CALIFORNIA 94002
TEL: (714) 531-1501
FAX: (714) 531-1511
WWW.DONREAD.COM

Maximum Groundwater Elevations and Cell Excavation Plan			
PREPARED FOR			
Chiquita Canyon Landfill			
Project Location			
Chiquita Canyon Landfill Castaic, California			
SCALE	DRAWN BY	CHECKED BY	
AS SHOWN	JH	TMC	
DATE	FIGURE 4		JOB NO.
1-20-2012			2002-036-005(R)
1329 SCOTT ROAD BURBANK, CA, 91504 TEL: (818) 531-1501 FAX: (818) 531-1511 WWW.DONREAD.COM			
www.ttrfranklin.com			
			
GEOTECHNICAL ENGINEERING & ENVIRONMENTAL GEOLOGY			



EXPLANATION

1040
1083.36

Groundwater Elevation Contour

October 17, 2011 Groundwater Elevation Measurement (FL-MSL)

Approximate Point of Compliance

Groundwater Flow Direction

Geologic Section Line

Groundwater Monitoring Well or Piezometer

Gas Probe

Exploratory Boring

- NOTES:**
1. Groundwater encountered during July 2002 drilling of borings GP-11 (1104.1 ft - msl) and GP-A (1112.4 ft - msl)
 2. Groundwater encountered during October 2002 drilling of boring DW-22RDA (1025.57 ft - msl)
 3. Groundwater encountered during March 1989 drilling of borings E-7 (1054.5 ft - msl) and E-9 (928 ft - msl)
 4. Groundwater encountered during December 2005 drilling of boring GP-12 (1097.8 ft - msl) and GP-14 (1089 ft - msl)
 5. Groundwater encountered during November 21, 2011 drilling of boring B-5-11 (918 ft-msl)
 6. N.M. = Not measured

SCALE 1"= 200'

200' 0 200' 400' 600'

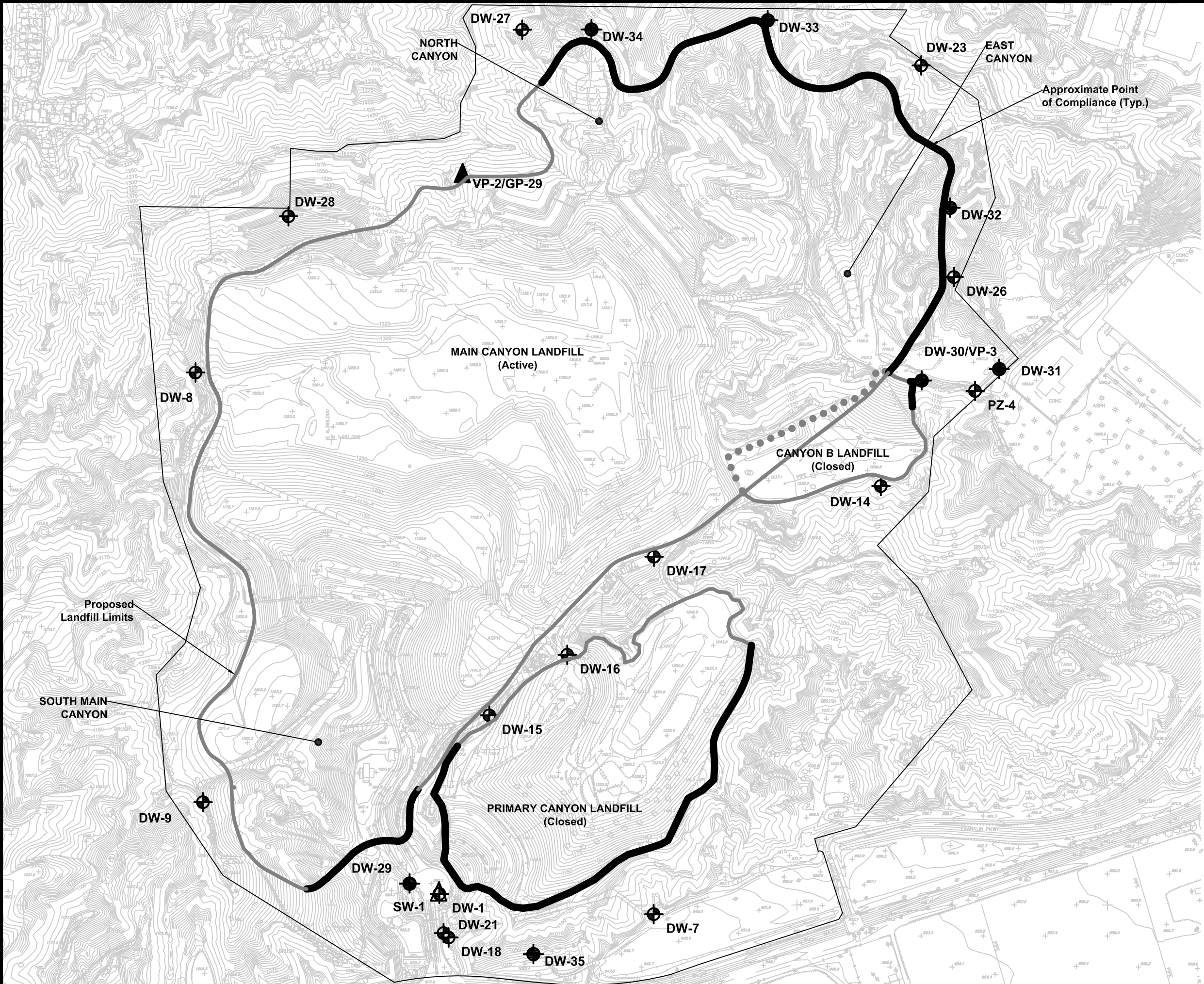
CONTOUR INTERVAL 5'

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RUBEN, CA 91504
TEL: (918) 531-1501
FAX: (918) 531-1511
www.rtfkian.com





4-6-10 10012

Note: Proposed Landfill Limits Based on Golder Associates November, 2011 Excavation Plan

Groundwater Elevation Contour Map			
October 2011			
Chiquita Canyon Landfill			
Chiquita Canyon Landfill Castaic, California			
SCALE AS SHOWN	DRAWN BY JH	CHECKED BY TMC	
DATE 1-20-2012	FIGURE Figure 5		PROJECT NO. 2002-036-005(R)
1329 SCOTT ROAD RUBEN, CA 91504 TEL: (918) 531-1501 FAX: (918) 531-1511 www.rtfkian.com			RTFA GEOCHEMICAL ENGINEERING & ENVIRONMENTAL CONSULTING

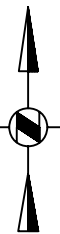


EXPLANATION

-  Vadose Zone Monitoring Point (existing)
-  Vadose Zone Monitoring Point (future)
-  Groundwater Monitoring Point (existing)
-  Groundwater Monitoring Point (future)

Note:

Proposed Landfill Limits from
Golder Associates
November, 2011
Excavation Plan




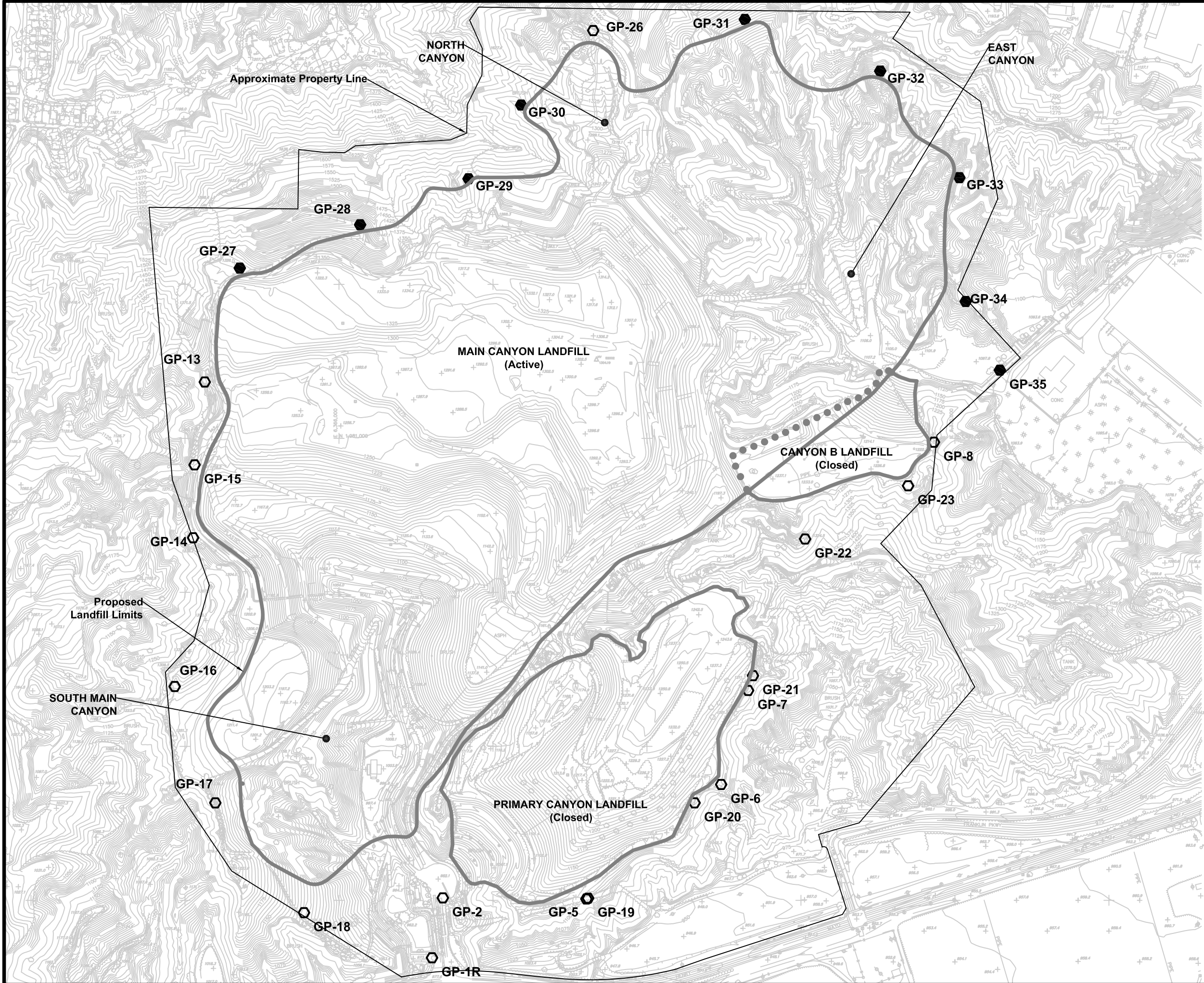
SCALE 1" = 600'



CONTOUR INTERVAL 5'



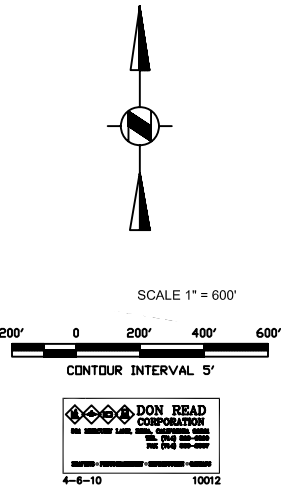
Groundwater Monitoring System		
PREPARED FOR		
Chiquita Canyon Landfill		
Project Location		
Chiquita Canyon Landfill Castaia, California		
SCALE	1" = 600'	DRAWN BY
DATE	1-20-2012	CHECKED BY
		TMC
	Figure 6	JOB NO.
		2002-036-005(R)
1329 SCOTT ROAD BURBANK, CA, 91504 TEL: (818) 531-1501 FAX: (818) 531-1511 www.rtfrankian.com		
		



EXPLANATION

- Landfill Gas Monitoring Probe (existing)
- Landfill Gas Monitoring Probe (future)

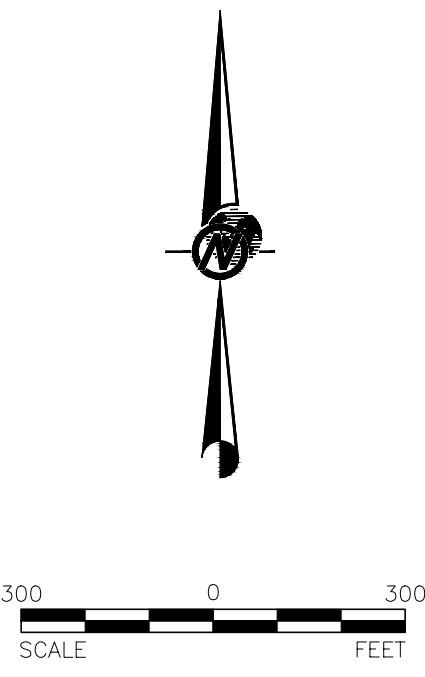
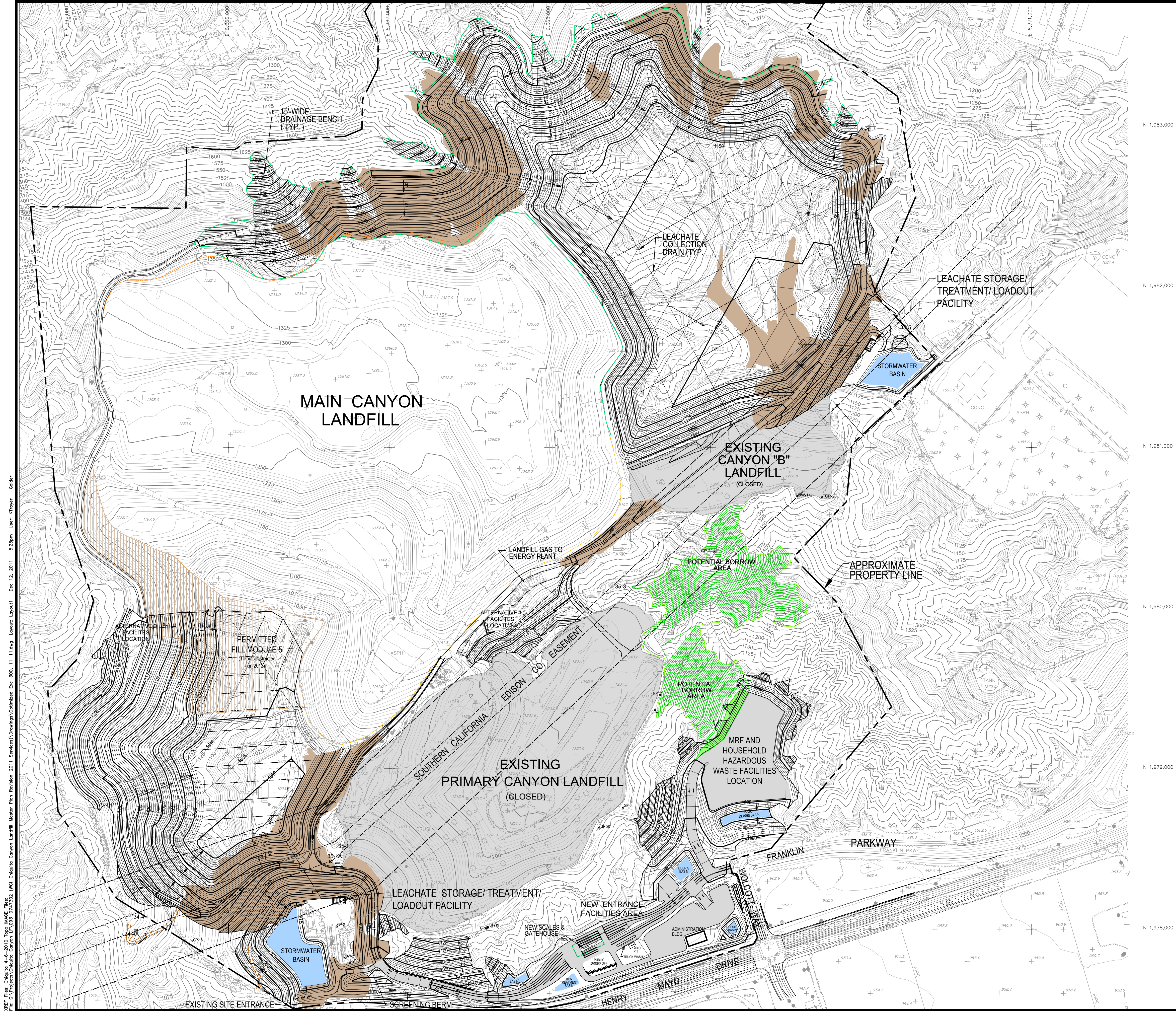
Note:
Proposed Landfill Limits from
Golder Associates
November 2011
Excavation Plan



Perimeter Landfill Gas Monitoring System		
PREPARED FOR Chiquita Canyon Landfill		
Project Location Chiquita Canyon Landfill Castaic, California		
SCALE 1" = 600'	DRAWN BY JH	CHECKED BY TMC
DATE 1-20-2012	Figure 7	JOB NO. 2002-036-005(R)
1329 SCOTT ROAD BURBANK, CA, 91504 TEL: (818) 531-1501 FAX: (818) 531-1511 www.rtf Frankian.com		RTFA GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY


Chiquita Canyon Landfill
January 20, 2012
2002-036-005

APPENDIX A
EXCAVATION PLAN
(GOLDER ASSOCIATES, NOVEMBER 2011)



NOTE: Areas contoured with green contours represent borrow areas and are not mandatory for the construction of the landfill, but are designed to help the project soil balance. The space that is gained around the MRF due to the borrow areas is the area shaded green and equals 0.6 additional acreage.

Base compiled by photogrammetric methods
by Don Read Corporation, Brea, CA
Date of photography: April 6, 2010

PROJECT		WASTE CONNECTIONS, INC. CHIQUITA CANYON LANDFILL LOS ANGELES COUNTY, CALIFORNIA			
TITLE		EXCAVATION PLAN			
	PROJECT No.	093-9747302	FILE No.		
	DESIGN	SER	NOV 2011	SCALE	AS NOTED
	CADD	KLT	DEC 2011	REV.	0
	CHECK				
REVIEW					
				2	

Chiquita Canyon Landfill
January 20, 2012
2002-036-005

APPENDIX B
GROUNDWATER ELEVATIONS

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
1/28/1986	920.10	987.40	1007.90	977.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/2/1986	921.20	987.50	1008.70	977.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/16/1986	921.40	988.00	1008.80	977.60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/10/1986	921.70	985.80	1008.50	978.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/17/1986	922.10	987.60	1008.60	978.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/24/1987	919.60	987.30	1008.70	978.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/16/1987	919.30	987.00	1008.60	978.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/17/1987	919.70	986.70	1008.60	979.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1987	918.40	986.60	1008.40	979.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/18/1988	918.11	986.24	1008.30	979.74	926.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/17/1988	917.83	986.24	1008.47	979.97	926.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/15/1988	917.28	--	1008.09	--	924.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/4/1988	917.35	--	1008.40	--	925.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/5/1988	--	986.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/6/1988	917.80	--	1008.11	--	925.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/7/1988	--	--	--	978.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/14/1989	918.70	987.10	1009.50	981.30	922.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/8/1989	918.48	986.97	1009.38	--	--	--	976.94	--	--	--	--	--	--	--	--	--	--	--	--
6/9/1989	--	--	--	981.10	921.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/1/1989	--	--	--	--	--	1078.49	977.00	--	--	--	--	--	--	--	--	--	--	--	--
8/2/1989	--	986.99	--	--	920.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/3/1989	--	--	1009.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/4/1989	918.36	--	--	981.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/28/1989	--	--	--	980.95	--	1078.42	977.50	--	--	--	--	--	--	--	--	--	--	--	--
10/3/1989	--	--	--	--	921.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/4/1989	--	986.25	1009.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/6/1989	918.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
1/29/1990	--	--	--	--	921.90	1078.64	977.40	--	--	--	--	--	--	--	--	--	--	--	--
1/30/1990	--	986.82	1008.97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/31/1990	917.92	--	--	980.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/27/1990	919.09	986.96	1009.14	980.99	922.32	1078.91	977.53	--	--	--	--	--	--	--	--	--	--	--	--
3/14/1990	918.00	986.91	1009.12	980.91	922.39	1078.84	977.54	--	--	--	--	--	--	--	--	--	--	--	--
4/11/1990	--	--	--	--	--	1078.68	977.33	--	--	--	--	--	--	--	--	--	--	--	--
4/12/1990	--	--	1008.85	980.71	921.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/13/1990	--	986.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/16/1990	919.12	984.84	1009.04	981.00	921.59	1078.96	977.68	--	--	--	--	--	--	--	--	--	--	--	--
6/19/1990	918.98	986.83	1009.07	981.10	921.36	1078.98	977.77	--	--	--	--	--	--	--	--	--	--	--	--
7/11/1990	918.56	986.54	1009.20	980.61	920.78	1078.64	977.41	--	--	--	--	--	--	--	--	--	--	--	--
8/17/1990	919.18	984.64	1008.88	981.06	--	1078.91	977.61	--	--	--	--	--	--	--	--	--	--	--	--
9/17/1990	--	--	--	--	920.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/16/1990	--	986.38	1008.64	--	--	1078.68	977.48	--	--	--	--	--	--	--	--	--	--	--	--
10/17/1990	--	--	--	980.95	920.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/18/1990	918.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/15/1990	917.30	986.45	1008.70	981.58	--	1078.87	977.66	--	--	--	--	--	--	--	--	--	--	--	--
1/21/1991	--	--	--	--	--	1078.64	977.39	--	--	--	--	--	--	--	--	--	--	--	--
1/22/1991	--	--	--	981.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/23/1991	917.00	986.22	1008.38	--	921.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/6/1991	--	--	--	--	--	--	--	919.18	--	--	--	--	--	--	--	--	--	--	--
2/19/1991	918.21	986.13	1008.45	981.42	921.24	1078.76	977.50	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1991	918.33	986.07	--	981.99	922.60	1078.89	977.71	919.03	922.36	--	--	--	--	--	--	--	--	--	--
4/23/1991	918.87	986.06	1011.65	981.76	922.71	1078.65	977.33	918.98	922.32	--	--	--	--	--	--	--	--	--	--
5/18/1991	919.12	986.08	1009.25	982.04	922.27	1078.87	977.57	918.96	922.41	--	--	--	--	--	--	--	--	--	--
6/20/1991	918.89	986.04	1009.05	982.23	921.95	1078.82	977.52	919.00	922.44	--	--	--	--	--	--	--	--	--	--
7/22/1991	918.79	984.02	1008.89	982.42	921.69	1078.78	977.55	916.99	922.42	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
8/1/1991	918.55	--	--	--	921.50	1078.53	977.23	918.74	922.32	--	--	--	--	--	--	--	--	--	--
8/2/1991	--	985.85	1008.71	981.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/17/1991	918.56	985.95	1008.59	982.85	921.38	1078.89	977.73	918.95	922.30	--	--	--	--	--	--	--	--	--	--
10/21/1991	--	985.80	1008.40	982.89	921.17	1078.73	977.46	918.68	922.21	--	--	--	--	--	--	--	--	--	--
10/22/1991	918.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	918.11	985.69	1009.07	983.69	921.95	1078.47	977.38	918.72	922.18	--	--	--	--	--	--	--	--	--	--
3/3/1992	--	--	--	984.63	923.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/16/1992	920.48	985.01	--	--	--	1078.84	977.20	919.16	922.51	--	--	--	--	--	--	--	--	--	--
4/20/1992	921.50	985.71	--	984.70	922.96	1078.64	977.50	918.90	922.41	--	--	--	--	--	--	--	--	--	--
6/16/1992	920.23	985.91	1013.56	985.82	921.64	1078.82	977.80	918.99	922.68	--	--	--	--	--	--	--	--	--	--
7/20/1992	921.33	985.67	1012.53	985.78	921.85	1078.63	977.78	918.93	922.55	--	--	--	--	--	--	--	--	--	--
8/14/1992	920.01	985.77	--	985.68	922.17	1078.76	977.82	919.19	922.47	--	--	--	--	--	--	--	--	--	--
9/23/1992	921.79	983.97	1007.93	986.53	921.69	1078.82	978.00	918.92	922.61	--	--	--	--	--	--	--	--	--	--
10/19/1992	921.18	985.93	1007.88	986.57	921.46	1078.51	977.64	918.80	922.55	--	--	--	--	--	--	--	--	--	--
11/16/1992	921.33	986.04	1007.98	986.75	921.69	1078.84	977.82	918.89	921.56	--	--	--	--	--	--	--	--	--	--
12/16/1992	921.38	986.02	1007.93	986.73	921.99	1078.74	977.80	918.79	921.61	--	--	--	--	--	--	--	--	--	--
1/19/1993	921.63	985.92	1007.61	986.45	922.67	1078.60	977.63	918.61	922.79	--	--	--	--	--	--	--	--	--	--
3/16/1993	922.03	986.62	1007.91	987.04	922.69	1078.94	977.95	919.12	922.11	--	--	--	--	--	--	--	--	--	--
3/24/1993	--	--	--	986.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/19/1993	927.18	989.32	1007.95	986.90	924.05	1078.52	977.85	919.39	923.31	--	--	--	--	--	--	--	--	--	--
5/18/1993	922.36	986.90	1007.88	987.18	922.99	1078.74	978.00	918.99	922.33	--	--	--	--	--	--	--	--	--	--
6/15/1993	922.28	987.22	1008.13	986.83	923.24	1078.84	978.10	918.74	922.66	--	--	--	--	--	--	--	--	--	--
7/19/1993	927.01	990.12	1008.33	987.28	922.61	1078.49	977.77	919.24	924.09	--	--	--	--	--	--	--	--	--	--
8/17/1993	922.78	987.30	1008.10	986.78	923.24	1078.84	978.00	918.79	922.73	--	--	--	--	--	--	--	--	--	--
9/16/1993	922.83	987.32	1008.08	986.83	923.24	1078.79	978.00	918.74	922.71	--	--	--	--	--	--	--	--	--	--
10/18/1993	926.56	990.00	1008.43	987.73	922.64	1078.64	977.93	919.21	924.00	--	--	--	--	--	--	--	--	--	--
11/16/1993	923.00	987.67	1008.43	986.28	922.69	1078.84	978.20	918.56	922.86	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
12/16/1993	923.03	987.62	1008.48	986.53	922.59	1078.84	978.15	918.54	923.01	--	--	--	--	--	--	--	--	--	--
1/31/1994	925.43	989.51	1007.43	987.08	922.54	1075.13	974.82	918.69	921.64	--	--	--	--	--	--	--	--	--	--
2/16/1994	923.18	987.37	1008.63	986.28	922.69	1078.64	978.00	918.69	923.01	--	--	--	--	--	--	--	--	--	--
3/16/1994	925.33	990.32	1007.72	987.93	923.26	1077.22	975.62	919.42	922.00	--	--	--	--	--	--	--	--	--	--
4/18/1994	925.05	989.82	1007.74	988.04	--	1077.30	976.65	919.35	921.99	--	--	--	--	--	--	--	--	--	--
4/19/1994	--	--	--	--	923.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/18/1994	925.33	990.32	1007.70	987.83	923.24	1077.24	975.67	919.41	922.06	--	--	--	--	--	--	--	--	--	--
7/18/1994	924.33	989.60	1007.62	988.06	922.13	1077.28	976.91	919.21	922.14	--	--	--	--	--	--	--	--	--	--
10/10/1994	923.60	989.50	1007.70	988.34	922.14	1077.40	977.33	919.20	922.19	--	--	--	--	--	--	--	--	--	--
12/7/1994	--	--	--	988.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/5/1995	922.98	989.37	1007.58	988.03	922.04	--	977.45	919.14	922.41	--	--	--	--	--	--	--	--	--	--
2/3/1995	924.69	989.18	1007.63	988.11	923.48	1077.37	--	919.25	922.44	--	--	--	--	--	--	--	--	--	--
2/10/1995	--	--	1007.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/17/1995	925.99	989.46	1007.59	988.37	923.88	1077.57	977.80	919.48	922.72	--	--	--	--	--	--	--	--	--	--
7/12/1995	925.82	989.57	1007.55	987.95	923.46	1077.47	978.00	919.72	922.82	--	--	--	--	--	--	--	--	--	--
10/11/1995	--	--	--	987.71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/12/1995	925.41	989.71	1007.73	--	922.09	1077.55	978.12	919.89	923.11	--	--	--	--	--	--	--	--	--	--
1/9/1996	924.44	989.52	1007.66	987.16	923.07	1077.45	978.20	919.66	923.06	--	--	--	--	--	--	--	--	--	--
2/13/1996	923.65	989.43	1007.29	986.82	922.40	--	977.88	919.26	923.21	--	--	--	--	--	--	--	--	--	--
2/14/1996	--	--	--	--	--	1077.39	--	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1996	924.51	989.45	1007.66	986.75	923.00	1077.54	978.26	919.56	923.31	--	--	--	--	--	--	--	--	--	--
5/24/1996	--	--	--	--	--	--	--	--	--	1020.39	--	--	--	--	--	--	--	--	--
7/8/1996	924.03	989.44	1007.37	986.76	921.75	1077.63	978.23	919.46	923.25	1020.79	--	--	--	--	--	--	--	--	--
10/9/1996	923.24	989.29	1007.24	985.90	921.55	1077.52	978.37	919.21	923.07	1021.05	--	--	--	--	--	--	--	--	--
1/29/1997	924.07	989.21	1007.26	985.46	922.65	1077.50	978.47	919.23	923.22	1020.87	--	--	--	--	--	--	--	--	--
4/8/1997	925.37	989.34	1007.22	985.32	922.34	1077.59	978.72	919.26	923.37	1021.01	--	--	--	--	--	--	--	--	--
4/11/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
7/7/1997	924.66	989.27	1007.25	985.47	920.22	1077.67	978.91	918.80	--	1021.07	--	--	--	--	--	--	--	--	--
10/7/1997	923.79	989.37	1007.12	985.37	920.08	1077.49	978.86	918.58	923.14	1020.97	--	--	--	--	--	--	--	--	--
1/19/1998	923.90	989.16	1007.23	989.00	921.70	1073.51	975.04	918.69	923.32	--	--	--	--	--	--	--	--	--	--
4/22/1998	931.00	990.32	1006.98	986.32	922.25	1077.48	979.04	918.81	924.64	1020.79	--	--	--	--	--	--	--	--	--
7/22/1998	931.41	990.86	1007.62	986.60	921.25	1077.84	979.61	918.86	925.46	1020.88	--	--	--	--	--	--	--	--	--
10/19/1998	930.34	990.71	1007.94	986.15	921.25	1077.87	979.18	918.86	925.00	1020.72	--	--	--	--	--	--	--	--	--
1/22/1999	929.54	990.17	1008.17	986.02	921.03	1077.96	978.51	918.66	924.74	1020.82	--	--	--	--	--	--	--	--	--
4/16/1999	928.79	990.07	1008.17	985.52	921.75	1077.84	979.46	918.91	924.64	1020.67	--	--	--	--	--	--	--	--	--
7/26/1999	927.84	989.52	1008.62	--	919.69	1078.19	978.81	918.41	924.47	1020.92	--	--	--	--	--	--	--	--	--
7/29/1999	--	989.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/19/1999	927.91	989.12	1008.97	984.82	921.45	1077.94	978.81	918.06	924.44	1020.52	--	--	--	--	--	--	--	--	--
1/24/2000	925.62	989.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/25/2000	--	--	--	985.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/2/2000	--	--	1008.67	--	920.48	--	--	--	--	--	--	--	--	922.28	1170.56	--	919.53	--	--
2/3/2000	--	--	--	--	--	1077.74	978.61	918.11	923.99	1020.72	--	--	--	--	--	--	--	--	--
5/1/2000	926.10	989.16	1009.07	984.85	920.60	1078.22	980.44	918.31	923.98	1020.93	--	--	--	927.22	1170.09	--	920.83	--	--
7/21/2000	926.01	989.10	1010.13	984.78	919.58	1078.06	979.78	918.05	923.80	1020.73	--	--	--	924.84	1169.91	--	920.25	--	--
10/19/2000	924.86	988.87	1009.08	982.07	919.14	1077.98	980.27	917.83	923.68	1020.58	--	--	--	922.80	1169.95	--	919.46	--	--
1/22/2001	923.92	988.71	1009.05	983.71	919.76	1078.06	980.35	917.82	923.66	1020.50	--	--	--	921.59	1169.85	--	918.81	--	--
4/16/2001	930.88	991.71	1008.64	983.46	921.27	1078.12	980.46	918.14	924.04	1020.45	--	--	--	929.42	1169.99	--	921.97	--	--
7/13/2001	926.92	991.71	1009.04	983.31	919.80	1078.16	980.62	918.51	924.05	1020.44	--	--	--	925.68	1169.98	--	921.19	--	--
10/5/2001	926.17	989.91	1008.97	983.04	919.32	1078.19	980.68	918.52	924.05	1020.36	--	--	--	923.88	1170.01	--	920.72	--	--
1/18/2002	925.18	988.88	1009.02	983.10	919.55	1078.47	981.01	918.61	924.02	1020.52	--	--	--	923.18	1170.15	--	919.91	--	--
4/5/2002	924.40	984.62	1009.01	982.94	919.15	1078.57	981.17	918.51	923.95	1020.49	--	--	--	922.51	1170.21	--	919.41	--	--
7/8/2002	923.07	989.46	1011.45	985.87	924.19	--	983.84	921.10	923.68	1022.39	--	--	--	924.37	1170.28	--	921.55	--	--
10/7/2002	923.11	988.94	1011.57	985.39	921.30	1080.88	984.28	920.95	--	1022.69	--	--	--	923.83	1170.30	--	921.51	--	--
1/13/2003	--	988.66	1011.62	984.76	922.62	1080.88	984.04	920.86	--	1022.10	973.21	993.70	1043.76	924.15	1170.22	949.89	921.44	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
4/7/2003	929.32	988.24	1011.17	--	923.03	1080.75	983.16	920.80	--	1022.50	972.80	993.45	1043.95	924.97	1170.13	952.53	924.14	--	--
7/15/2003	929.34	988.15	1011.19	--	923.27	--	985.94	920.99	--	1022.63	972.96	993.80	1044.63	925.46	1170.26	951.38	923.83	1025.43	1060.77
7/23/2003	--	--	--	--	--	1079.42	--	--	--	--	--	--	--	--	--	--	--	--	--
9/11/2003	--	--	--	--	--	--	--	--	--	1022.39	--	--	--	--	--	--	--	--	--
10/13/2003	928.35	987.85	1011.06	--	922.05	1079.80	985.47	920.66	--	1022.40	972.68	993.67	1044.67	924.75	--	950.38	922.83	1025.22	1060.38
1/12/2004	929.11	987.51	1010.97	--	922.24	1079.92	985.10	920.57	--	1022.23	972.52	993.57	1044.75	924.86	1173.57	948.96	924.75	--	1060.11
1/15/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1025.32	--
4/19/2004	928.81	987.28	1010.99	--	922.31	1079.90	984.92	920.56	--	1022.06	972.29	993.44	1044.70	925.15	1172.92	949.28	923.70	1025.02	1059.07
7/9/2004	927.42	987.23	1010.93	--	921.95	1080.26	985.32	920.58	--	1022.21	972.44	993.71	1044.95	924.28	1172.83	948.74	922.48	1025.11	1059.10
10/6/2004	925.97	987.02	1010.84	--	922.16	1080.21	985.23	920.49	--	1022.21	972.32	993.77	1044.99	923.44	1172.72	948.02	921.44	1025.05	1059.11
11/10/2004	926.37	986.98	1010.77	--	923.14	1080.14	985.14	920.63	--	1022.01	972.24	993.68	1044.92	923.45	1172.67	948.03	921.99	1025.03	1058.88
12/3/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/7/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/9/2004	926.18	986.87	1010.62	--	922.97	1080.17	985.19	920.53	--	1021.89	972.13	993.55	1044.76	923.33	1172.70	948.23	921.67	1024.87	1058.76
12/15/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/16/2004	926.06	--	--	--	922.97	--	--	920.42	--	--	972.02	993.47	--	923.18	--	--	921.60	--	--
12/23/2004	926.16	--	--	--	923.00	--	--	920.48	--	--	972.10	993.56	--	923.27	--	--	921.85	--	--
12/30/2004	926.35	--	--	--	923.27	--	--	920.51	--	--	972.11	993.55	--	923.30	--	--	922.05	--	--
1/6/2005	927.25	--	--	--	923.99	--	--	920.79	--	--	972.27	993.73	--	923.59	--	--	922.45	--	--
1/14/2005	929.59	--	1010.70	--	925.04	1080.18	985.29	920.89	--	1022.01	972.16	993.61	1044.88	923.79	1173.18	949.21	923.26	1024.99	1058.81
1/21/2005	933.15	--	--	--	925.37	--	--	921.01	--	--	972.31	993.75	--	924.20	--	952.53	924.17	--	--
1/28/2005	931.89	--	--	--	925.23	--	--	920.98	--	--	972.22	993.63	--	924.59	--	951.38	924.78	--	--
2/4/2005	933.88	--	--	--	924.96	--	--	921.05	--	--	972.26	993.67	--	924.98	--	952.15	925.14	--	--
2/10/2005	932.64	--	1010.76	--	924.81	1080.33	985.49	921.24	--	1022.23	972.44	993.82	1045.14	925.39	1172.97	952.91	925.41	1024.99	1058.82
2/18/2005	932.99	--	--	--	924.78	--	--	921.39	--	--	972.51	993.85	--	925.66	--	--	925.62	--	--
2/25/2005	933.62	--	--	--	925.52	--	--	921.49	--	--	972.35	993.71	--	925.91	--	--	925.76	--	--
3/4/2005	934.46	--	--	--	926.10	--	--	921.81	--	--	972.45	993.77	--	926.11	--	--	926.11	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
3/11/2005	934.90	--	1010.81	--	926.07	1080.46	985.54	922.01	--	1022.14	972.50	993.81	1045.15	926.38	1173.00	954.98	926.46	1025.00	1058.85
3/18/2005	935.12	--	--	--	925.82	--	--	922.29	--	--	972.52	993.83	--	926.70	--	--	926.80	--	--
3/25/2005	935.22	--	--	--	925.45	--	--	922.41	--	--	972.39	993.70	--	926.87	--	--	926.97	--	--
4/1/2005	935.40	--	--	--	925.27	--	--	922.71	--	--	972.50	993.82	--	927.20	--	--	927.13	--	--
4/8/2005	935.39	--	--	--	924.99	--	--	922.66	--	--	972.56	993.86	--	927.36	--	--	927.27	--	--
4/15/2005	935.35	--	--	--	924.86	--	--	922.81	--	--	972.56	993.87	--	927.58	--	--	927.31	--	--
4/20/2005	935.23	--	1011.89	--	924.66	1080.46	985.45	923.05	--	1022.02	972.48	993.78	1045.14	927.63	1172.87	955.67	927.26	1025.20	1058.72
4/28/2005	935.06	--	--	--	924.46	--	--	923.30	--	--	972.59	993.86	--	927.83	--	--	927.25	--	--
5/6/2005	935.10	--	--	--	924.40	--	--	923.42	--	--	972.60	993.86	--	927.90	--	--	927.23	--	--
5/17/2005	934.96	--	1012.42	--	924.42	1080.55	985.66	923.66	--	1022.19	972.67	993.93	1045.39	928.05	1172.96	955.82	927.21	1025.64	1058.84
5/20/2005	934.90	--	--	--	924.38	--	--	923.70	--	--	972.69	993.92	--	928.06	--	--	927.15	--	--
5/27/2005	934.76	--	--	--	924.27	--	--	923.76	--	--	972.69	993.96	--	928.10	--	--	927.12	--	--
6/3/2005	934.61	--	--	--	924.19	--	--	923.79	--	--	972.70	993.93	--	928.12	--	--	927.04	--	--
6/10/2005	934.45	--	1012.72	--	924.03	1080.55	985.60	923.90	--	1022.13	972.76	993.99	1045.56	928.14	1172.97	955.88	926.98	1025.85	1058.80
7/8/2005	933.85	--	1012.94	--	923.42	1080.30	985.51	924.02	--	1022.02	972.73	993.93	1045.69	928.00	1172.84	955.81	926.66	1026.04	1058.77
7/15/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/9/2005	933.36	--	1013.11	--	922.80	1080.84	985.54	924.14	--	1022.02	972.80	993.94	1045.93	927.80	1172.78	955.69	926.41	1026.47	1058.75
9/9/2005	932.81	--	1013.29	--	922.40	1080.71	985.56	924.19	--	1022.03	972.80	993.87	1046.15	927.56	1172.76	955.52	926.07	--	1058.73
10/14/2005	932.30	--	1013.55	--	922.34	1080.54	985.59	924.12	--	1022.02	972.90	993.94	1046.35	927.36	1172.73	955.30	925.81	1027.02	1058.64
11/21/2005	932.10	--	1013.64	--	922.46	1080.48	985.41	924.12	--	1021.87	972.79	993.72	1046.39	927.29	1172.65	954.95	926.01	1027.38	1058.75
12/9/2005	931.85	--	1013.77	--	922.60	1080.45	985.51	924.09	--	1021.92	972.74	993.85	1046.49	927.16	1172.66	954.83	925.85	1027.28	1058.66
1/13/2006	931.83	--	1014.00	--	922.57	1080.69	985.77	924.04	--	1022.11	972.95	993.96	1046.75	927.25	1172.79	954.86	926.03	1027.36	1058.69
2/10/2006	931.44	--	1013.91	--	922.76	1080.67	985.64	923.89	--	1021.99	972.80	993.75	1046.63	926.97	1172.78	954.59	925.60	1027.19	1058.59
3/9/2006	931.61	--	1014.27	--	923.59	1080.83	985.91	924.21	--	1022.29	973.11	994.12	1047.04	927.14	1172.94	954.68	925.85	1027.56	1058.88
4/24/2006	932.11	--	1014.31	--	923.81	1080.87	985.76	923.85	--	1022.02	972.71	993.73	1046.78	927.17	1172.93	954.79	926.02	1027.30	1058.57
5/10/2006	932.21	--	1014.37	--	923.68	1080.95	985.94	923.89	--	1022.15	972.90	993.85	1046.97	927.37	1172.98	955.09	926.12	1027.30	1058.57
6/13/2006	931.87	--	1014.41	--	923.62	1080.82	985.92	923.74	--	1022.01	972.71	993.72	1046.89	927.05	1172.97	954.73	925.72	1027.21	1058.51

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
7/6/2006	931.57	--	1014.56	--	922.76	1080.86	985.90	923.72	--	1022.07	972.76	993.81	1047.02	926.95	1172.98	954.52	925.49	1027.30	1058.60
8/9/2006	931.13	--	1014.65	--	--	1080.91	986.00	--	--	1022.10	972.83	993.87	1047.14	926.78	1173.01	954.23	925.10	1027.35	1058.56
9/8/2006	--	--	--	--	--	--	--	--	--	1022.12	--	993.87	1047.14	--	--	--	--	1027.28	1058.56
10/9/2006	930.23	--	1014.76	--	921.32	1080.81	985.87	923.30	--	1022.02	972.77	993.74	1047.20	926.23	1173.19	953.49	923.38	1027.31	1058.45
11/14/2006	929.69	--	1014.88	--	921.57	1080.97	986.04	923.05	--	1022.10	972.76	993.91	1047.22	925.90	1173.03	953.11	923.93	1027.30	1058.51
12/7/2006	929.26	--	1014.86	--	921.66	1080.93	985.88	922.99	--	1021.92	972.71	993.90	1047.21	925.54	1172.92	952.63	923.61	1027.30	1058.50
1/15/2007	928.80	--	1014.80	--	921.64	1080.91	985.82	922.49	--	1021.77	972.41	993.63	1046.93	925.14	1172.92	951.88	923.41	1027.10	1058.22
2/21/2007	928.83	--	1014.96	--	921.83	1081.12	986.09	922.66	--	1022.02	972.48	993.70	1047.13	925.32	1173.06	951.51	923.89	1027.33	1058.41
3/14/2007	929.16	--	1014.98	--	921.37	1081.13	986.14	922.68	--	1022.06	972.49	993.71	1047.16	925.47	1173.06	951.25	924.44	1027.35	1058.42
4/17/2007	928.61	--	1014.98	--	920.90	1081.02	986.12	922.22	--	1021.94	972.33	993.58	1047.08	925.18	1173.04	950.72	923.63	1027.24	1058.25
5/11/2007	928.32	--	1015.12	--	920.90	1081.14	986.33	922.19	--	1022.07	972.51	993.75	1047.26	925.05	1173.08	950.59	923.37	1027.37	1058.37
6/8/2007	927.97	--	1015.19	--	920.88	1081.24	986.48	922.13	--	1022.20	972.53	993.79	1047.33	924.84	1173.14	950.38	922.97	1027.48	1058.47
7/7/2007	927.56	--	1015.18	--	920.61	1081.34	986.49	922.00	--	1022.14	972.49	993.77	1047.35	924.57	1173.11	950.02	922.73	1027.52	1058.39
8/10/2007	927.17	--	1015.20	--	920.17	1081.22	986.49	921.78	--	1022.09	972.46	993.70	1047.27	924.34	1173.11	949.68	922.51	1027.58	1058.35
9/10/2007	926.84	--	1015.17	--	920.62	1081.40	986.47	921.66	--	1022.03	972.29	993.61	1047.20	924.07	1173.13	949.28	922.27	1027.55	1058.27
10/12/2007	926.50	--	1015.27	--	920.89	1081.58	986.63	921.72	--	1022.17	972.43	993.76	1047.37	923.91	1173.15	949.17	921.90	1027.75	1058.42
11/8/2007	926.20	--	1015.21	--	920.98	1081.42	986.53	921.47	--	1022.06	972.32	993.68	1047.24	923.63	1173.08	948.93	921.60	1026.66	1058.27
12/14/2007	925.73	--	1015.26	--	921.48	1081.32	986.37	921.48	--	1022.05	972.13	993.53	1047.32	923.22	1173.06	948.55	921.42	1026.98	1058.22
1/15/2008	927.12	--	1015.31	--	922.08	1081.63	986.75	921.58	--	1021.98	972.42	993.84	1047.39	924.05	1173.17	948.70	923.05	1027.96	1058.31
2/26/2008	928.60	--	1015.20	--	921.92	1081.54	986.66	921.28	--	1021.85	972.11	993.58	1047.23	924.65	1173.20	949.58	923.79	1027.90	1058.17
3/18/2008	928.69	--	1015.25	--	921.89	1081.70	986.65	921.19	--	1021.89	971.98	993.46	1047.13	924.69	1173.20	949.97	923.77	1027.90	1058.13
4/8/2008	928.44	--	1015.37	--	921.50	1081.82	986.91	921.32	--	1022.12	972.25	993.73	1047.46	924.77	1173.38	950.49	923.29	1028.15	1058.32
5/9/2008	927.76	--	1015.37	--	920.33	1081.48	986.96	921.10	--	1022.14	972.19	993.63	1047.40	924.32	1173.30	950.48	922.56	1026.66	1058.29
6/17/2008	926.98	--	1015.27	--	920.26	1081.68	986.94	920.86	--	1022.03	972.07	993.55	1047.29	923.78	1173.31	950.25	921.78	1028.18	1058.15
7/9/2008	926.62	--	1015.32	--	920.44	1081.93	987.17	920.80	--	1022.17	972.16	993.63	1047.43	923.57	1173.33	950.26	921.46	1028.40	1058.26
8/13/2008	925.94	--	1015.33	--	920.02	1081.87	987.14	920.71	--	1022.12	972.11	993.63	1047.44	923.19	1173.37	949.89	921.02	1028.40	1058.26
9/10/2008	925.58	--	1015.30	--	919.75	1081.91	987.15	920.56	--	1022.06	972.02	993.52	1047.37	922.91	1173.45	949.53	920.68	1028.28	1058.14

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
10/13/2008	925.20	--	1015.09	--	919.93	1081.56	986.76	920.25	--	1021.67	971.67	993.26	1047.06	922.55	1173.27	948.93	920.48	1028.08	1058.00
11/14/2008	924.98	--	1015.23	--	920.35	1081.81	987.08	920.45	--	1021.93	971.97	993.49	1047.32	922.47	1173.35	948.86	920.30	1028.32	1058.11
12/19/2008	924.70	--	1015.13	--	920.36	1081.64	987.10	920.19	--	1021.71	971.73	993.21	1047.07	922.15	1173.40	948.37	920.19	1028.09	1057.86
1/9/2009	924.88	--	1015.14	--	920.52	1081.75	987.12	920.19	--	1021.76	971.79	993.33	1047.18	922.20	1173.38	948.19	920.48	1028.12	1057.98
2/12/2009	924.79	--	1015.17	--	920.34	1081.58	987.19	920.16	--	1021.72	971.83	993.44	1047.26	922.15	1173.49	948.07	920.40	1027.98	1057.84
3/10/2009	926.15	--	1015.21	--	921.30	1081.86	987.34	920.16	--	1021.93	971.91	993.55	1047.42	922.73	1173.49	948.17	921.55	1028.03	1058.02
4/13/2009	926.07	--	1015.24	--	920.74	1081.85	987.45	920.25	--	1021.90	971.89	993.54	1047.39	922.81	1173.48	948.52	921.16	1027.98	1058.01
5/12/2009	925.62	--	1015.23	--	919.89	1081.98	987.63	920.05	--	1022.03	971.86	993.54	1047.43	922.57	1173.55	948.57	920.68	1027.91	1058.03
6/15/2009	925.03	--	1015.18	--	919.16	1081.97	987.55	919.85	--	1021.90	971.77	993.46	1047.38	922.15	1173.50	948.30	920.13	1027.75	1057.96
7/10/2009	924.70	--	1015.13	--	918.89	1081.95	987.47	919.71	--	1021.80	971.67	993.27	1047.37	922.00	1173.54	948.15	919.90	1027.68	1057.91
8/14/2009	924.43	--	1015.10	--	918.12	1081.93	987.56	919.53	--	1021.83	971.69	993.38	1047.31	921.77	1173.50	947.89	919.58	1027.51	1057.88
9/16/2009	924.24	--	1015.19	--	918.06	1081.89	987.76	919.54	--	1021.89	971.79	993.50	1047.37	921.71	1173.55	947.82	919.53	1027.43	1057.94
10/19/2009	925.06	--	1015.07	--	918.66	1081.96	987.69	919.33	--	1021.78	971.60	993.35	1047.24	921.70	1173.60	947.52	922.13	1027.27	1057.88
11/13/2009	926.52	--	1015.08	--	919.17	1082.09	987.90	919.34	--	1021.94	971.73	993.46	1047.38	922.87	1173.60	947.56	922.07	1027.29	1057.97
12/15/2009	927.29	--	1014.84	--	919.34	1081.79	987.52	919.13	--	1021.54	971.43	993.19	1047.04	922.96	1173.58	947.12	923.40	1026.89	1057.60
1/9/2010	928.93	--	1014.98	--	--	1081.90	987.70	--	--	1021.65	971.55	993.33	1047.16	924.47	1173.51	947.20	924.97	1027.07	1057.80
1/11/2010	--	--	--	--	919.65	--	--	919.06	--	--	--	--	--	--	--	--	--	--	--
2/17/2010	929.62	--	1014.96	--	920.97	1081.96	987.89	919.30	--	1021.72	971.63	993.41	1047.23	925.15	1173.62	947.89	924.69	1026.97	1057.81
3/16/2010	929.49	--	1014.80	--	921.15	1081.78	987.63	919.19	--	1021.46	971.35	993.15	1046.96	925.00	1173.51	948.33	924.35	1026.72	1057.59
4/13/2010	929.42	--	1014.88	--	921.55	1082.04	987.98	919.33	--	1021.76	971.51	993.32	1047.22	925.17	1173.68	948.86	924.32	1026.76	1057.76
5/13/2010	929.33	--	1014.96	--	920.88	1082.11	987.93	919.44	--	1021.75	971.62	993.42	1047.35	925.27	1173.64	949.12	924.16	1026.85	1057.86
6/9/2010	928.69	--	1014.81	--	919.18	1082.03	988.01	919.14	--	1021.65	971.42	993.26	1047.20	924.84	1173.66	948.96	923.45	1026.65	1057.68
7/6/2010	928.68	--	1014.87	--	919.36	1082.17	987.96	919.09	--	1021.60	971.59	993.44	1047.37	924.87	1173.70	948.96	923.49	1026.68	1057.63
8/12/2010	927.70	--	1014.82	--	917.84	1082.21	988.37	918.91	--	1021.81	971.54	993.44	1047.42	924.27	1173.72	948.76	922.41	1026.94	1057.85
9/16/2010	926.89	--	1014.75	--	917.46	1082.27	988.36	918.80	--	1021.76	971.52	993.44	1047.41	923.66	1173.69	948.46	921.57	1026.84	1057.76
10/15/2010	926.19	--	1014.60	--	917.58	1082.18	988.01	919.51	--	1021.52	971.29	993.20	1047.16	923.14	1173.55	948.04	921.06	1026.69	1057.52
11/12/2010	926.48	--	1014.44	--	918.25	1081.97	987.83	918.39	--	1021.22	971.09	992.99	1046.98	923.07	1173.58	947.67	922.12	1026.48	1057.28

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-1	DW-2	DW-3	DW-6	DW-7	DW-8	DW-9	DW-12	DW-13	DW-14	DW-15	DW-16	DW-17	DW-18	DW-19	DW-20	DW-21	DW-23	DW-24
12/8/2010	926.46	--	1014.56	--	918.20	1082.09	988.06	918.49	--	1021.43	971.37	992.26	1047.25	923.27	1173.64	948.60	921.85	1026.71	1057.49
1/11/2011	928.67	--	1014.44	--	919.75	1082.09	988.06	918.44	--	1021.34	971.15	993.05	1047.10	924.17	1173.73	947.29	924.11	1026.59	1057.53
2/15/2011	928.84	--	1014.55	--	919.37	1082.31	988.36	918.53	--	1021.59	971.39	993.31	1047.35	924.70	1173.70	947.84	923.82	1026.67	1057.63
3/15/2011	930.00	--	1014.53	--	920.56	1082.32	988.47	918.57	--	1021.62	971.39	993.31	1047.41	925.32	1173.78	948.02	925.47	1026.67	1057.67
4/15/2011	932.42	--	1014.46	--	922.13	1082.24	988.55	918.85	--	1021.51	971.44	993.36	1047.47	926.77	1173.86	950.09	927.12	1026.62	1057.58
5/12/2011	931.85	--	1014.40	--	921.06	1082.32	988.54	919.23	--	1021.58	971.25	993.14	1047.35	926.67	1173.93	950.96	926.11	1026.55	1057.63
6/16/2011	931.09	--	1014.29	--	919.93	1082.48	988.77	918.69	--	1021.75	971.38	993.30	1047.57	926.40	1174.01	951.17	925.13	1026.63	1057.76
7/11/2011	930.43	--	1014.26	--	919.36	1082.40	988.71	918.53	--	1021.40	971.39	993.20	1047.50	925.97	1174.01	950.99	924.45	1026.47	1057.62
8/17/2011	929.50	--	1014.28	--	918.08	1082.43	988.70	918.34	--	1021.53	971.28	993.22	1047.66	925.41	1174.03	950.72	921.59	1026.47	1057.64
9/16/2011	928.68	--	1014.31	--	917.15	1082.27	988.52	918.12	--	1021.82	971.22	993.13	1047.64	924.87	1173.95	950.41	922.86	1026.55	1057.53
10/17/2011	928.77	--	1014.32	--	917.86	1082.23	988.49	918.09	--	1021.34	971.46	993.10	1047.68	924.72	1173.93	950.07	923.18	1026.48	1057.46
Most Recent Elevation Calculation:																			
10/17/2011																			
TOCE	984.31		1104.17		958.97	1265.13	1224.34	1027.57		1237.49	1106.91	1176.08	1197.59	989.38	1253.82	1010.63	990.16	1372.5	1289.92
DTW	55.54		89.85		41.11	182.9	235.85	109.48		216.15	135.45	182.98	149.91	64.66	79.89	60.56	66.98	346.02	232.46
GWE	928.77		1014.32		917.86	1082.23	988.49	918.09		1021.34	971.46	993.10	1047.68	924.72	1173.93	950.07	923.18	1026.48	1057.46

Notes:

-- = Not Measured
TOCE = Top of Casing Elevation
DTW = Depth to Water
GWE = Groundwater Elevation

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
1/28/1986	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/2/1986	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/16/1986	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/10/1986	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/17/1986	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/24/1987	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/16/1987	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/17/1987	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/4/1987	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/18/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/17/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/15/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/4/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/5/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/6/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/7/1988	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/14/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/8/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/9/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/1/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/2/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/3/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/4/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/28/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/3/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/4/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/6/1989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
1/29/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/30/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/31/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/27/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/14/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/11/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/12/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/13/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/16/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/19/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/11/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/17/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/17/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/16/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/17/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/18/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/15/1990	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/21/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/22/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/23/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/6/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/19/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/23/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/18/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/20/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/22/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
8/1/1991	--	--	--	--	922.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/2/1991	--	--	--	--	--	916.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/17/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/21/1991	--	--	--	--	920.50	916.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/22/1991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/28/1992	--	--	--	--	921.42	916.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/3/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/16/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/20/1992	--	--	--	--	928.13	917.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/16/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/20/1992	--	--	--	--	924.73	917.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/14/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/23/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/19/1992	--	--	--	--	922.62	917.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/16/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/16/1992	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/19/1993	--	--	--	--	934.28	917.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/16/1993	--	--	--	--	932.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/24/1993	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/19/1993	--	--	--	--	930.20	921.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/18/1993	--	--	--	--	930.53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/15/1993	--	--	--	--	928.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/19/1993	--	--	--	--	927.04	921.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/17/1993	--	--	--	--	928.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/16/1993	--	--	--	--	928.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/18/1993	--	--	--	--	925.47	921.61	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11/16/1993	--	--	--	--	928.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
12/16/1993	--	--	--	--	928.58	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/31/1994	--	--	--	--	920.88	920.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/16/1994	--	--	--	--	928.53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/16/1994	--	--	--	--	924.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/18/1994	--	--	--	--	925.36	920.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/19/1994	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/18/1994	--	--	--	--	924.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/18/1994	--	--	--	--	924.06	920.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/10/1994	--	--	--	--	922.86	919.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/7/1994	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/5/1995	--	--	--	--	921.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/3/1995	--	--	--	--	932.89	919.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/10/1995	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/17/1995	--	--	--	--	929.70	920.83	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/12/1995	--	--	--	--	926.62	921.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/11/1995	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/12/1995	--	--	--	--	924.91	921.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/9/1996	--	--	--	--	923.48	920.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/13/1996	--	--	--	--	922.87	920.34	1036.77	1000.31	--	--	--	--	--	--	--	--	--	--	--	--
2/14/1996	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1996	--	--	--	--	928.32	924.59	1036.72	1000.31	--	--	--	--	--	--	--	--	--	--	--	--
5/24/1996	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7/8/1996	--	--	--	--	925.02	922.14	1036.60	1000.21	--	--	--	--	--	--	--	--	--	--	--	--
10/9/1996	--	--	--	--	923.47	920.95	1036.31	1000.06	--	--	--	--	--	--	--	--	--	--	--	--
1/29/1997	--	--	--	--	933.98	925.71	1036.15	1000.07	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1997	--	--	--	--	926.97	925.62	1036.05	999.96	--	--	--	--	--	--	--	--	--	--	--	--
4/11/1997	--	--	--	--	--	925.61	--	999.97	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
7/7/1997	--	--	--	--	925.05	922.77	1035.97	999.91	--	--	--	--	--	--	--	--	--	--	--	--
10/7/1997	--	--	--	--	923.60	921.64	1035.62	999.83	--	--	--	--	--	--	--	--	--	--	--	--
1/19/1998	--	--	--	--	929.08	927.13	1035.45	999.76	--	--	--	--	--	--	--	--	--	--	--	--
4/22/1998	--	--	--	--	932.00	932.04	1035.81	999.43	--	--	--	--	--	--	--	--	--	--	--	--
7/22/1998	--	--	--	--	929.45	928.83	1036.57	999.58	--	--	--	--	--	--	--	--	--	--	--	--
10/19/1998	--	--	--	--	928.10	926.65	1041.28	999.58	--	--	--	--	--	--	--	--	--	--	--	--
1/22/1999	--	--	--	--	927.10	925.36	1041.09	999.10	--	--	--	--	--	--	--	--	--	--	--	--
4/16/1999	--	--	--	--	927.20	925.84	1037.72	999.61	--	--	--	--	--	--	--	--	--	--	--	--
7/26/1999	--	--	--	--	926.40	924.69	1036.77	999.51	--	--	--	--	--	--	--	--	--	--	--	--
7/29/1999	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/19/1999	--	--	--	--	926.95	925.74	1037.62	998.91	--	--	--	--	--	--	--	--	--	--	--	--
1/24/2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/25/2000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/2/2000	--	--	--	--	--	--	1037.62	--	--	--	--	--	--	--	--	--	--	--	--	--
2/3/2000	--	--	--	--	926.73	--	--	999.31	--	--	--	--	--	--	--	--	--	--	--	--
5/1/2000	--	--	--	--	929.62	--	1037.82	999.60	--	--	--	--	--	--	--	--	--	--	--	--
7/21/2000	--	--	--	--	926.08	--	1037.61	999.45	--	--	--	--	--	--	--	--	--	--	--	--
10/19/2000	--	--	--	--	924.36	--	1037.44	999.44	--	--	--	--	--	--	--	--	--	--	--	--
1/22/2001	--	--	--	--	924.85	--	1037.27	999.44	--	--	--	--	--	--	--	--	--	--	--	--
4/16/2001	--	--	--	--	929.02	--	1037.12	999.64	--	--	--	--	--	--	--	--	--	--	--	--
7/13/2001	--	--	--	--	926.79	--	1036.90	999.58	--	--	--	--	--	--	--	--	--	--	--	--
10/5/2001	--	--	--	--	925.50	--	1036.65	996.63	--	--	--	--	--	--	--	--	--	--	--	--
1/18/2002	--	--	--	--	924.50	--	1036.49	999.82	--	--	--	--	--	--	--	--	--	--	--	--
4/5/2002	--	--	--	--	924.49	--	1036.30	999.87	--	--	--	--	--	--	--	--	--	--	--	--
7/8/2002	--	--	--	--	923.18	--	1039.72	1002.48	--	--	--	--	--	--	--	--	--	--	--	--
10/7/2002	--	--	--	--	--	--	1038.44	1002.54	--	--	--	--	--	--	--	--	--	--	--	--
1/13/2003	--	--	--	--	--	--	1038.25	1002.51	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
4/7/2003	--	--	--	--	--	--	1037.88	1002.38	--	--	--	--	--	--	--	--	--	--	--	--
7/15/2003	--	--	--	--	--	--	1037.73	1002.47	--	--	--	--	--	--	--	--	--	--	--	--
7/23/2003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
9/11/2003	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10/13/2003	--	--	--	--	--	--	1037.52	1002.50	--	--	--	--	--	--	--	--	--	--	--	--
1/12/2004	--	--	--	--	--	--	1037.34	1002.44	--	--	--	--	--	--	--	--	--	--	--	--
1/15/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/19/2004	--	--	--	--	--	--	1037.13	1002.47	--	--	--	--	--	--	--	--	--	--	--	--
7/9/2004	--	--	--	--	--	--	1037.04	1002.57	--	--	--	--	--	--	--	--	--	--	--	--
10/6/2004	--	--	--	--	--	--	1036.86	1002.57	--	--	--	--	--	--	--	--	--	--	--	--
11/10/2004	--	--	--	--	--	--	1036.75	1002.59	--	--	--	--	--	--	--	--	--	--	--	--
12/3/2004	--	--	--	--	--	--	--	--	1137.00	1099.60	--	--	--	--	--	--	--	--	--	--
12/7/2004	1172.70	--	--	--	--	--	--	--	1135.67	1094.85	--	--	--	--	--	--	--	--	--	--
12/9/2004	1167.47	--	--	--	--	--	1036.62	1002.52	1134.30	1096.65	--	--	--	--	--	--	--	--	--	--
12/15/2004	--	1078.71	--	--	--	--	--	--	--	--	1072.29	--	--	--	--	--	--	--	--	--
12/16/2004	1166.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/23/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
12/30/2004	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/6/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/14/2005	1167.32	1079.68	--	--	--	--	1036.72	1002.71	1139.01	1097.90	1071.87	--	--	--	--	--	--	--	--	--
1/21/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1/28/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/4/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/10/2005	1167.19	1079.93	--	--	--	--	1037.04	1002.74	1138.72	1098.02	1075.22	--	--	--	--	--	--	--	--	--
2/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/25/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
3/11/2005	1167.36	1080.26	--	--	--	--	1037.43	1002.69	1138.92	1098.40	1076.84	--	--	--	--	--	--	--	--	--
3/18/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3/25/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/1/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/8/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/15/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4/20/2005	1166.30	1080.66	--	--	--	--	1041.98	1002.67	1138.77	1100.01	1077.57	--	--	--	--	--	--	--	--	--
4/28/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/6/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/17/2005	1165.97	1080.92	--	--	--	--	1038.37	1002.74	1138.48	1102.14	1078.13	--	--	--	--	--	--	--	--	--
5/20/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5/27/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/3/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6/10/2005	1166.53	1081.30	--	--	--	--	1038.68	1002.82	1138.76	1104.04	1078.59	--	--	--	--	--	--	--	--	--
7/8/2005	--	1081.43	--	--	--	--	1039.01	1002.82	1138.67	1105.99	1079.07	--	--	--	--	--	--	--	--	--
7/15/2005	1165.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8/9/2005	1165.90	1081.67	--	--	--	--	1039.37	1002.87	1138.62	1107.84	1079.57	--	--	--	--	--	--	--	--	--
9/9/2005	1166.03	1081.91	--	--	--	--	1039.70	1002.91	1138.62	1109.00	1079.99	--	--	--	--	--	--	--	--	--
10/14/2005	1166.00	1082.18	--	--	--	--	1040.10	1003.06	1138.62	1109.72	1080.39	--	--	--	--	--	--	--	--	--
11/21/2005	1166.25	1082.35	--	--	--	--	1040.37	1003.04	1138.52	1110.20	1080.66	--	--	--	--	--	--	--	--	--
12/9/2005	1166.31	1082.45	--	--	--	--	1040.54	1003.09	1138.57	1110.27	1080.80	--	--	--	--	--	--	--	--	--
1/13/2006	1166.64	1082.86	--	--	--	--	1040.86	1003.23	1138.71	1110.50	1081.17	--	--	--	--	--	--	--	--	--
2/10/2006	1166.51	1082.87	--	--	--	--	1040.93	1003.09	1138.67	1110.41	1081.32	--	--	--	--	--	--	--	--	--
3/9/2006	1167.21	1083.35	--	--	--	--	1041.26	1003.36	1138.69	1110.81	1081.65	--	--	--	--	--	--	--	--	--
4/24/2006	--	1083.39	--	--	--	--	1041.44	1003.32	1138.90	1110.40	1082.02	--	--	--	--	--	--	--	--	--
5/10/2006	1165.96	1083.53	--	--	--	--	1041.52	1003.34	1138.79	1110.27	1082.04	--	--	--	--	--	--	--	--	--
6/13/2006	1166.44	1083.58	--	--	--	--	1041.63	1003.36	1138.80	1109.93	1082.14	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
7/6/2006	1166.55	1083.73	--	--	--	--	1041.76	1003.48	1138.74	1109.74	1082.13	--	--	--	--	--	--	--	--	--
8/9/2006	1166.90	1083.78	--	--	--	--	1041.84	1003.51	1138.70	1109.45	1082.26	--	--	--	--	--	--	--	--	--
9/8/2006	--	--	--	--	--	--	--	1003.48	1138.81	1109.19	1082.38	--	--	--	--	--	--	--	--	--
10/9/2006	1166.79	1083.91	--	--	--	--	1041.95	1003.52	1138.73	1108.84	1082.55	--	--	--	--	--	--	--	--	--
11/14/2006	1166.58	1084.03	--	--	--	--	1041.98	1003.65	1138.77	1108.49	1082.68	--	--	--	--	--	--	--	--	--
12/7/2006	1166.34	1084.05	--	--	--	--	1041.97	1003.66	1138.72	1108.27	1082.72	--	--	--	--	--	--	--	--	--
1/15/2007	1165.79	1084.01	--	--	--	--	1041.88	1003.64	1138.73	1107.89	1082.87	--	--	--	--	--	--	--	--	--
2/21/2007	1166.36	1084.35	--	--	--	--	1041.60	1003.79	1138.88	1107.83	1083.07	--	--	--	--	--	--	--	--	--
3/14/2007	1166.32	1084.44	--	--	--	--	1041.99	1003.78	1138.86	1107.69	1083.13	--	--	--	--	--	--	--	--	--
4/17/2007	1165.85	1084.38	--	--	--	--	1041.91	1003.78	1138.93	1107.38	1083.25	--	--	--	--	--	--	--	--	--
5/11/2007	1165.96	1084.56	--	--	--	--	1041.96	1003.91	1138.95	1107.25	1083.34	--	--	--	--	--	--	--	--	--
6/8/2007	1166.29	1084.86	--	--	--	--	1041.99	1003.96	1139.01	1107.14	1083.41	--	--	--	--	--	--	--	--	--
7/7/2007	1166.08	1084.71	--	--	--	--	1041.91	1003.98	1139.02	1106.88	1083.44	--	--	--	--	--	--	--	--	--
8/10/2007	1165.89	1084.72	--	--	--	--	1041.85	1004.00	1138.99	1106.55	1083.46	--	--	--	--	--	--	--	--	--
9/10/2007	1165.70	1084.72	--	--	--	--	1041.76	1004.01	1139.05	1106.29	1083.62	--	--	--	--	--	--	--	--	--
10/12/2007	1165.55	1084.91	--	--	--	--	1041.76	1004.11	1139.03	1106.13	1083.66	--	--	--	--	--	--	--	--	--
11/8/2007	1165.59	1084.84	--	--	--	--	1041.65	1004.08	1138.95	1105.77	1083.69	--	--	--	--	--	--	--	--	--
12/14/2007	1165.38	1085.01	--	--	--	--	1041.52	1004.15	1139.06	1105.64	1083.82	--	--	--	--	--	--	--	--	--
1/15/2008	1161.46	1085.10	--	--	--	--	1040.62	1004.29	1139.19	1105.49	1083.99	--	--	--	--	--	--	--	--	--
2/26/2008	1165.12	1085.15	--	--	--	--	1041.48	1004.21	1139.27	1105.30	1084.19	--	--	--	--	--	--	--	--	--
3/18/2008	1165.29	1085.18	--	--	--	--	1041.47	1004.23	1139.17	1105.10	1084.10	--	--	--	--	--	--	--	--	--
4/8/2008	1165.85	1085.41	--	--	--	--	1041.53	1004.35	1139.16	1105.03	1084.02	--	--	--	--	--	--	--	--	--
5/9/2008	1165.59	1085.41	--	--	--	--	1041.43	1004.35	1139.16	1104.73	1084.00	--	--	--	--	--	--	--	--	--
6/17/2008	1165.10	1085.38	--	--	--	--	1041.33	1004.36	1139.21	1104.42	1084.04	--	--	--	--	--	--	--	--	--
7/9/2008	1165.08	1085.50	--	--	--	--	1041.32	1004.37	1139.25	1104.35	1084.03	--	--	--	--	--	--	--	--	--
8/13/2008	1165.44	1085.53	--	--	--	--	1041.28	1004.47	1139.22	1104.09	1084.10	--	--	--	--	--	--	--	--	--
9/10/2008	1165.11	1085.49	--	--	--	--	1041.17	1004.48	1139.26	1103.87	1084.18	--	--	--	--	--	--	--	--	--

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
10/13/2008	1164.08	1085.21	--	--	--	--	1040.97	1004.41	1139.17	1103.41	1084.11	--	--	--	--	--	--	--	--	--
11/14/2008	1164.68	1085.48	--	--	--	--	1041.02	1004.60	1139.17	1103.32	1084.02	--	--	--	--	--	--	--	--	--
12/19/2008	1164.55	1085.33	--	--	--	--	1040.86	1004.57	1139.26	1103.09	1084.15	--	--	--	--	--	--	--	--	--
1/9/2009	1164.47	1085.45	--	--	--	--	1040.87	1004.60	1139.24	1103.02	1083.91	--	--	--	--	--	--	--	--	--
2/12/2009	1164.39	1085.50	--	--	--	--	1040.81	1004.69	1139.36	1102.90	1084.10	--	--	--	--	--	--	--	--	--
3/10/2009	1164.70	1085.65	--	--	--	--	1040.78	1004.75	1139.36	1102.85	1084.17	--	--	--	--	--	--	--	--	--
4/13/2009	1164.31	1085.66	--	--	--	--	1040.75	1004.85	1139.37	1102.65	1084.14	--	--	--	--	--	--	--	--	--
5/12/2009	1164.53	1085.70	--	--	--	--	1040.66	1004.85	1139.36	1102.48	1083.92	--	--	--	--	--	--	--	--	--
6/15/2009	1164.26	1085.59	--	--	--	--	1040.54	1004.86	1139.37	1102.20	1083.89	--	--	--	--	--	--	--	--	--
7/10/2009	1164.24	1085.60	--	--	--	--	1040.47	1004.88	1139.44	1102.06	1083.87	--	--	--	--	--	--	--	--	--
8/14/2009	1164.29	1085.56	--	--	--	--	1040.38	1004.90	1139.35	1101.81	1083.73	--	--	--	--	--	--	--	--	--
9/16/2009	1164.01	1085.62	--	--	--	--	1040.36	1005.04	1139.41	1101.69	1083.77	--	1105.97	1002.74	999.90	989.97	1037.56	1058.92	1136.23	--
10/19/2009	1164.12	1085.59	--	--	--	--	1040.22	1005.04	1139.51	1101.54	1083.68	--	1105.80	1002.90	999.91	989.78	1036.39	1058.69	1136.45	--
11/13/2009	1164.45	1085.67	--	--	--	--	1040.19	1005.06	1139.41	1101.45	1083.53	--	1105.82	1003.00	999.96	989.78	1036.30	1058.68	1136.64	--
12/15/2009	1163.79	1085.40	--	--	--	--	1039.96	1005.05	1139.53	1101.14	1083.62	--	1105.37	1002.88	999.88	989.27	1036.50	1058.26	1136.42	--
1/9/2010	1163.77	1085.57	--	--	--	--	1040.02	1005.20	1139.42	1101.11	1083.49	--	1105.32	1002.94	999.91	989.35	1036.50	1058.26	1136.55	--
1/11/2010	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2/17/2010	1163.67	1085.71	--	--	--	--	1039.92	1005.27	1139.66	1101.13	1083.60	--	1105.29	1002.97	999.95	989.21	1036.77	1058.15	1136.74	--
3/16/2010	1163.57	1085.54	--	--	--	--	1039.75	1005.24	1139.54	1100.88	1083.51	--	1105.14	1002.93	999.91	988.97	1036.87	1057.99	1136.59	--
4/13/2010	1163.70	1085.69	--	--	--	--	1039.77	1005.31	1139.55	1100.86	1084.02	--	1105.85	1002.99	999.97	989.05	1037.00	1058.10	1136.91	--
5/13/2010	1163.54	1085.76	--	--	--	--	1039.76	1005.45	1139.52	1100.72	1083.95	--	1107.47	1003.04	1000.02	988.97	1037.10	1058.04	1137.00	--
6/9/2010	1163.64	1085.56	--	--	--	--	1039.60	1005.41	1139.54	1100.46	1083.83	--	1108.58	1003.00	999.96	988.77	1037.24	1057.87	1136.96	--
7/6/2010	1163.74	1085.63	--	--	--	--	1039.59	1005.55	1139.61	1100.38	1083.88	--	1109.07	1002.90	999.94	988.61	1037.28	1057.81	1137.09	--
8/12/2010	1163.53	1085.53	1085.77	1111.29	--	--	1039.49	1005.58	1139.60	1100.17	1083.76	1219.82	1109.37	1003.23	1000.16	988.71	1037.70	1057.68	1135.09	1163.06
9/16/2010	1163.64	1085.43	1131.77	1111.50	--	--	1039.38	1005.63	1139.55	1099.92	1083.59	1219.82	1109.23	1003.24	1000.16	988.57	1037.78	1057.52	1137.09	1162.97
10/15/2010	1163.38	1085.26	1143.66	1111.57	--	--	1039.21	1005.53	1139.47	1099.68	1083.36	1219.68	1108.80	1002.97	999.95	988.28	1037.59	1057.31	1136.97	1162.85
11/12/2010	1162.73	1085.05	1150.03	1111.52	--	--	1039.05	1005.45	1139.40	1100.33	1083.33	1219.55	1108.43	1002.95	999.89	988.07	1037.85	1057.05	1136.84	1162.64

APPENDIX B
GROUNDWATER ELEVATIONS
Chiquita Canyon Landfill

All elevations are in feet, relative to mean sea level.

Sample Date	DW-25	DW-26	DW-27	DW-28	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6	PZ-7	PZ-8	GP-15	GP-16	GP-17	GP-21	GP-22	GP-24	GP-25	GP-26
12/8/2010	1163.77	1085.24	1153.80	1111.74	--	--	1039.06	1005.61	1139.47	1099.40	1083.20	1219.72	1108.35	1003.03	999.95	988.10	1037.63	1057.08	1136.95	1162.83
1/11/2011	1163.64	1085.34	1157.66	1111.74	--	--	1038.99	1005.57	1139.73	1099.48	1083.43	1219.62	1108.11	1002.98	999.91	988.01	1037.84	1056.88	1137.00	1162.85
2/15/2011	1163.57	1085.42	1159.94	1111.93	--	--	1038.99	1005.78	1139.62	1099.37	1083.18	1219.72	1108.04	1003.24	1000.11	988.08	1037.82	1056.85	1137.14	1162.93
3/15/2011	1163.72	1085.52	1161.39	1112.04	--	--	1038.92	1005.83	1139.70	1099.34	1083.13	1219.79	1107.91	1003.25	1000.14	988.05	1038.20	1056.73	1137.22	1163.03
4/15/2011	1163.41	1085.59	1162.80	1112.04	--	--	1038.89	1005.87	1139.80	1099.29	1083.13	1219.82	1107.71	1003.25	1000.14	987.95	1038.35	1056.63	1137.20	1163.09
5/12/2011	1163.52	1085.63	1163.42	1112.17	--	--	1038.80	1005.83	1139.74	1099.16	1082.93	1219.84	1108.51	1003.27	1000.10	987.93	1038.47	1056.61	1137.33	1163.17
6/16/2011	1163.96	1085.79	1164.04	1112.19	--	--	1038.76	1005.93	1139.80	1099.09	1082.72	1220.11	1107.47	1003.29	1000.14	987.91	1038.60	1056.63	1137.47	1163.23
7/11/2011	1163.26	1085.66	1164.53	1112.26	--	--	1038.66	1005.76	1139.81	1098.89	1082.68	1220.10	1107.27	1003.25	1000.14	987.81	1038.75	1056.48	1137.44	1163.20
8/17/2011	1163.16	1085.64	1165.34	1112.25	--	--	1038.61	1005.91	1139.82	1098.70	1082.49	1220.25	1107.21	1003.27	1000.15	987.77	1038.82	1056.36	1137.41	1162.92
9/16/2011	1163.21	1085.58	1165.80	1112.26	--	--	1038.53	1005.85	1139.73	1098.53	1082.23	1220.33	1107.39	1003.17	1000.07	987.53	1038.91	1056.34	1137.44	1163.07
10/17/2011	1162.78	1085.82	1165.81	1112.34	--	--	1038.45	1005.91	1139.74	1098.40	1082.19	1220.34	1107.24	1003.03	999.97	987.47	1038.97	1056.17	1136.86	1163.00
Most Recent Elevation Calculation:																				
10/17/2011																				
TOCE	1265.5	1177.31	1459.48	1447.15			1106.23	1107.29	1214.58	1182.6	1195.64	1283.86	1218.51	1257.11	1216.32	1220.39	1326.41	1120.83	1213.36	1378.51
DTW	102.72	91.49	293.67	334.81			67.78	101.38	74.84	84.2	113.45	63.52	111.27	254.08	216.35	232.92	287.44	64.66	76.5	215.51
GWE	1162.78	1085.82	1165.81	1112.34			1038.45	1005.91	1139.74	1098.40	1082.19	1220.34	1107.24	1003.03	999.97	987.47	1038.97	1056.17	1136.86	1163.00

Notes:

-- = Not Measured
TOCE = Top of Casing Elevation
DTW = Depth to Water
GWE = Groundwater Elevation

APPENDIX B
GROUNDWATER ELEVATIONS - VADOSE
Chiquita Canyon Landfill

Well Number	Date Measured	Reference Point Elevation (feet)(1)	Depth to Water (feet)(2)	Groundwater Elevation (feet)
Vadose Monitoring Wells				
RD-1	9/28/1989 to 7/8/02		DRY ----- Well Abandoned 10/02 -----	NA
SW-1	1/24/1986 to 9/10/86	976.20	DRY	NA
	12/17/1986 to 9/15/88	980.90	DRY	NA
	10/4/1988 to 4/23/91	976.20	DRY	NA
	8/1/1991		51.56 (4)	NA
	10/21/1991		51.60 (4)	NA
	1/28/1992		51.53 (4)	NA
	4/20/1992		51.55 (4)	NA
	7/20/1992		51.36 (4)	NA
	10/19/1992		51.13 (4)	NA
	1/19/1993		51.23 (4)	NA
	4/19/1993		51.18 (4)	NA
	7/19/1993		51.20 (4)	NA
	10/18/1993		50.30 (4)	NA
	1/31/1994 to 2/3/95		DRY	NA
	4/17/1995		51.21 (4)	NA
	7/12/1995		51.21 (4)	NA
	10/12/1995 to 10/7/02	984.15	DRY	NA
	1/13/2003 4/7/2003		Well inaccessible - buried. DRY	NA
SW-1	to 10/17/11			
GP-9	1/22/1999 to 10/17/11	1105.11	DRY	NA
LDS	1/22/1999 to 2/3/00		DRY	NA
	4/7/2003 to 7/15/03		DRY	NA
		Inaccessible due to cell construction; replaced with aboveground tank.		
VP-1	2/7/2000 to 10/7/02	1238.85	DRY	NA
	1/13/2003		DRY	NA
	4/7/2003 to 7/15/03		Not measurable DRY	NA
	10/13/2003 1/12/2004 to 10/17/11	1250.66	Inaccessible due to soil stockpiling. DRY	NA
Lysimeters				
DL-1	10/18/1990 to 10/19/98		NA ----- Well Abandoned 10/02 -----	NA
DL-2	10/18/1990		NA	NA

APPENDIX B
GROUNDWATER ELEVATIONS - VADOSE
Chiquita Canyon Landfill

Well Number	Date Measured	Reference Point Elevation (feet)(1)	Depth to Water (feet)(2)	Groundwater Elevation (feet)
	to 10/19/98		---- Well Abandoned 10/02 ----	
DL-3	1/29/1990 to 10/19/98		NA ---- Well Abandoned 10/02 ----	NA
LP-1	1/22/1991 to 10/17/11		NA	NA

Definitions:

NA = Not Applicable

Measurements prior to 10/4/88 performed by Harding Lawson Associates (HLA);

Measurements following 10/4/88 performed by EMCON.

Measurements following 1/13/03 performed by EnviroSolve and R. T. Frankian & Associates.

Footnotes:

(1) Mean Sea Level Datum, measured at top of PVC well casing.

(2) Depth to water measured from top of PVC well casing.

(3) Well inaccessible for measurement.

(4) Detected water is condensation in well, and not groundwater.

APPENDIX B
Maximum Groundwater Elevation Adjustments for Figure 4

Well ID	Maximum Groundwater Elevation (Adjusted)	Maximum Groundwater Elevation (Date Measured)	Amount of Adjustment	Basis for Adjustment
DW-2	994.52	986.87 (12/9/04)	7.65	DW-20: Max = 955.88 Measured 12/9/04 = 948.23 Difference = 7.65
DW-13	929.45	925.46 (7/22/98)	3.99	DW-1: Max = 935.40 Measured 7/22/98 = 931.41 Difference = 3.99
DW-22 RDA	1029.27	1025.57 (10/7/02)	3.70	DW-17: Max = 1047.46 Measured 1/13/03 = 1043.76 Difference = 3.70
B-5-11	925.18	918 (11/__/11)	7.18	DW-7: Max = 926.10 Measured 10/17/11 = 917.86 Difference = 8.24 DW-12: Max = 924.21 Measured 10/17/11 = 918.09 Difference = 6.12 Average difference = 7.18
E-7	1060.37	1054.5 (3/10/89)	5.87	DW-3: Max = 1015.37 Measured 3/14/89 = 1009.50 Difference = 5.87
E-9	938.20	929 (3/13/89)	10.2	DW-1: Max = 935.40 Measured 3/14/89 = 918.70 Difference = 16.70 DW-7: Max = 926.10 Measured 3/14/89 = 922.40 Difference = 3.70 Average difference = 10.2
G-10	1002.55	1000 (1/25/07)	2.55	DW-9: Max = 988.37 Measured 1/15/07 = 985.82 Difference = 2.55
GP-11	1108.31	1104.1 (7/27/2000)	4.21	DW-8: Max = 1082.27 Measured 7/21/2000 = 1078.06 Difference = 4.21
GP-12	1099.62	1097.8 (12/5/2005)	1.82	DW-8: Max = 1082.27 Measured 12/9/05 = 1080.45 Difference = 1.82
GP-21	n/a	989.97 (9/16/09)	n/a	DW-16: Max = 994.12 Measured 9/16/09 = 993.50 Difference = 0.62 <1' difference; no adjustment

Maximum Groundwater Elevation Adjustments for Figure 4

Well ID	Maximum Groundwater Elevation (Adjusted)	Maximum Groundwater Elevation (Date Measured)	Amount of Adjustment	Basis for Adjustment
GP-22	n/a	1037.78 (9/16/10)	n/a	DW-14: Max = 1022.69 Measured 9/16/10 = 1021.76 Difference = 0.93 <1' difference; no adjustment
GP-A	1116.65	1112.44 (7/29/2000)	4.21	DW-8: Max = 1082.27 Measured 7/21/2000 = 1078.06 Difference = 4.21
PZ-1	931.78	915.5 (5/16/91)	16.28	DW-1: Max = 935.40 Measured 5/18/91 = 919.12 Difference = 16.28

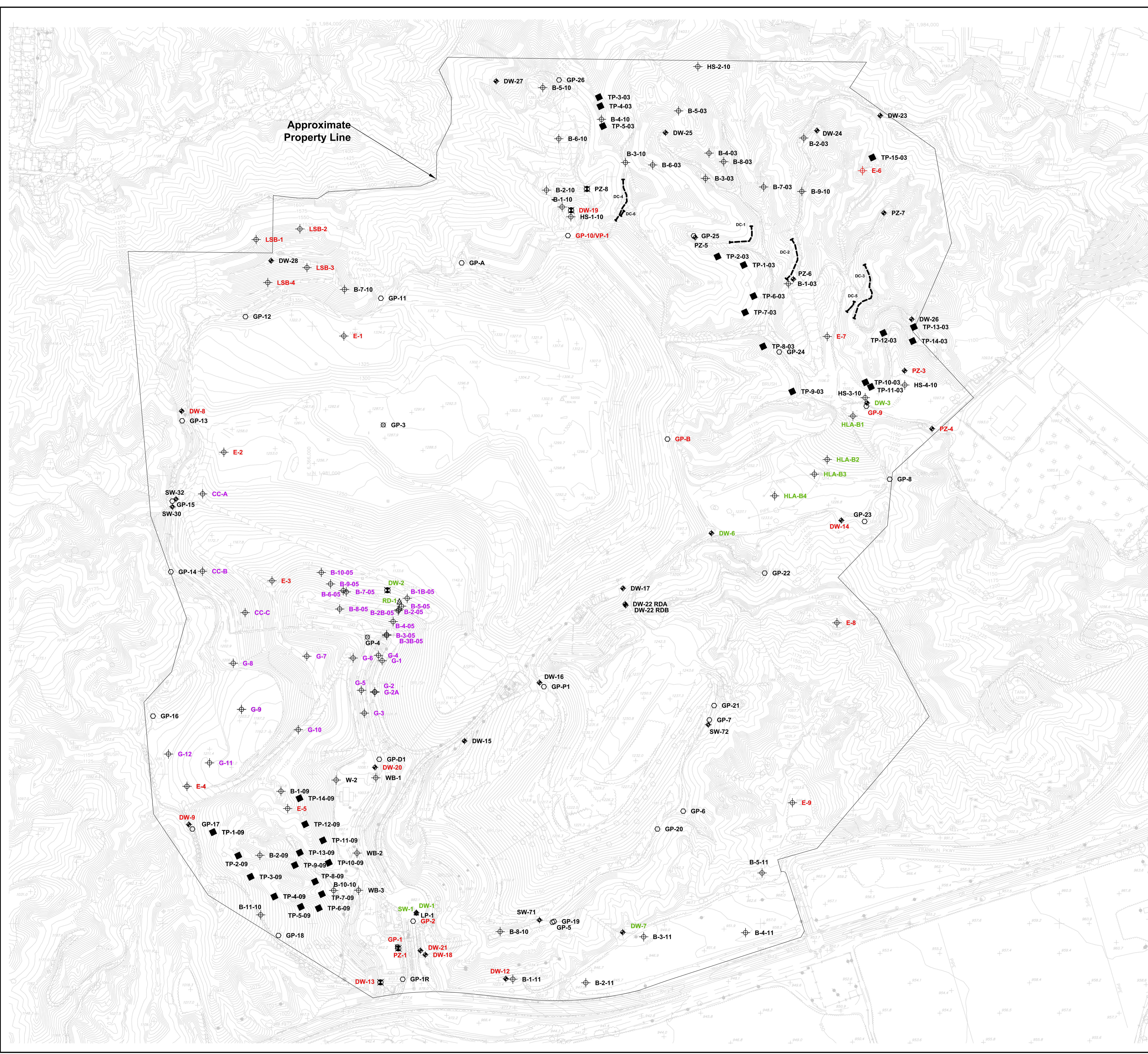
All elevations measured in feet relative to Mean Sea Level.

n/a = not applicable

Chiquita Canyon Landfill
January 20, 2012
2002-036-005

APPENDIX C

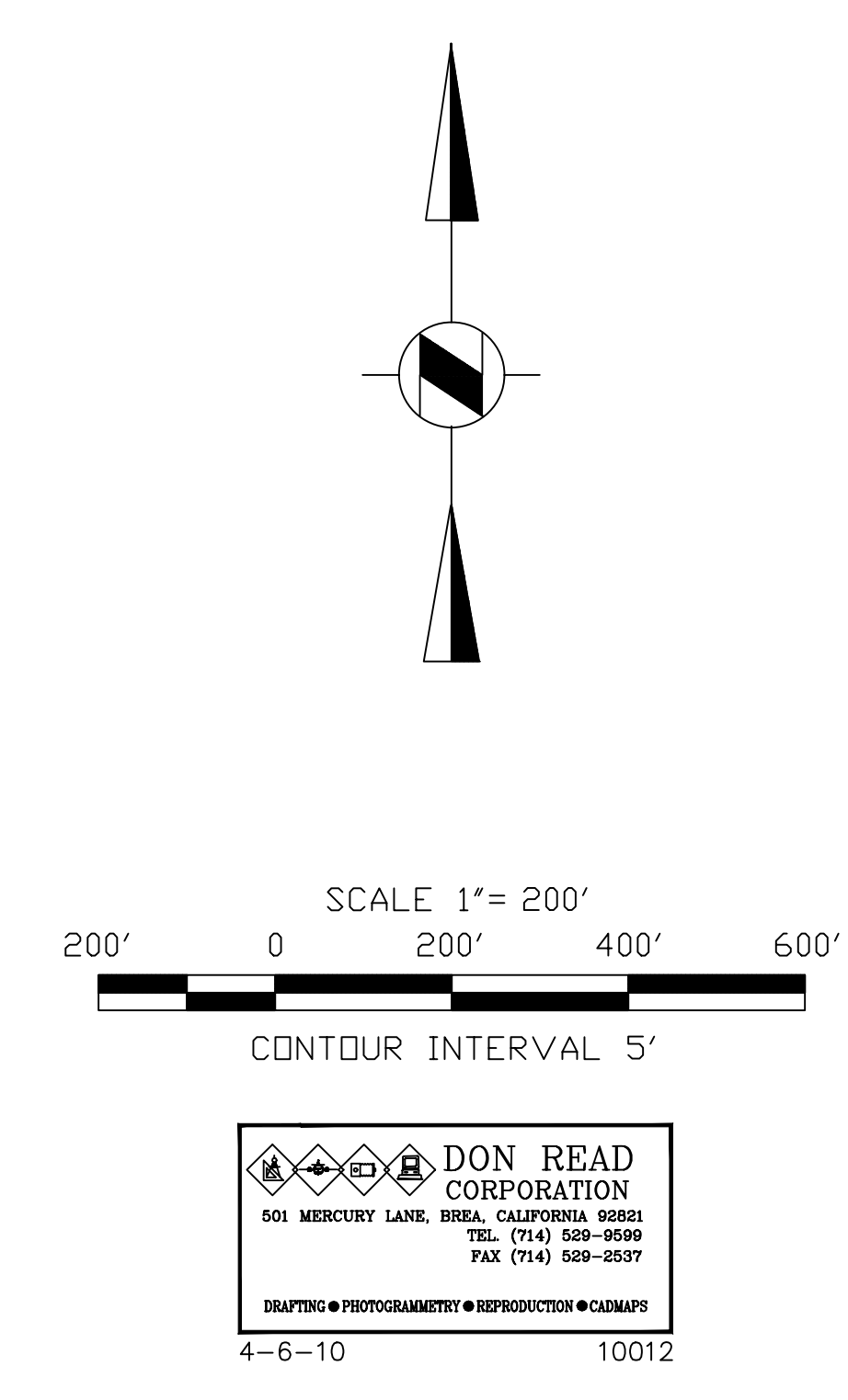
EXPLORATORY EXCAVATIONS MAP AND LOGS (CD ONLY)




N 1,984,000
N 1,983,000
N 1,982,000
N 1,981,000
N 1,980,000
N 1,979,000
N 1,978,000

EXPLANATION

- Groundwater Monitoring Well or Piezometer
 - Gas Probe
 - Exploratory Boring
 - Test Pit
 - Trench
 - LFG Extraction Wells
- DW=26** Black Denotes R. T. Franklan & Associates
Exploratory Excavations
- PZ-3** Red Denotes EMCOR Exploratory Excavations
- G-7** Purple Denotes Geologic Associates
Exploratory Excavations
- DW-3** Green Denotes Harding Lawson Associates
Exploratory Excavations



Exploratory Excavations			
Chiquita Canyon Landfill			
Chiquita Canyon Landfill Castaic, California			
SCALE AS SHOWN	DRAWN BY JH	CHECKED BY TMC	DATE 1-20-2012
Figure C-1		2002-036-005(R)	
1339 SCOTT ROAD BURBANK, CA, 91504 TEL: (818) 531-1501 FAX: (818) 531-1511 www.rfranklan.com		 GEOTECHNICAL ENGINEERING & ENVIRONMENTAL CONSULTING	

WELL DETAILS



PROJECT NUMBER 976-01.02

BORING / WELL NO. DW-8

PROJECT NAME Chiquita Canyon Landfill

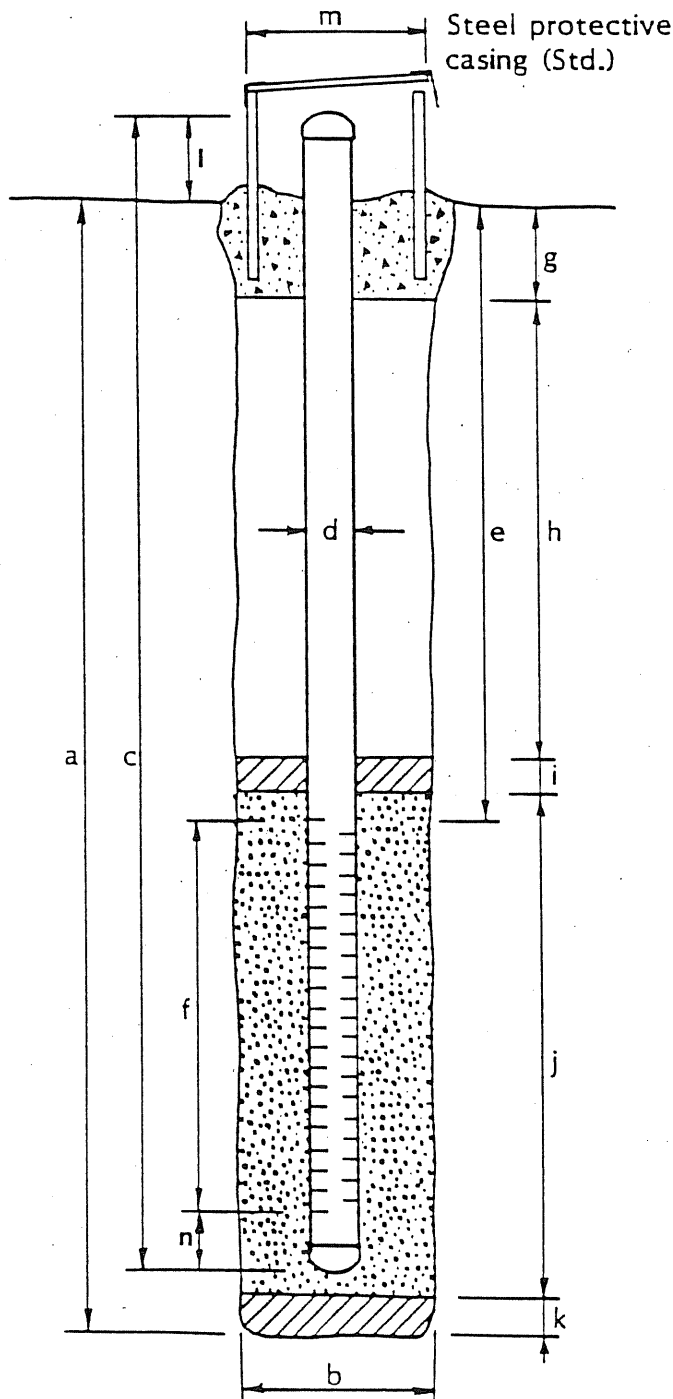
TOP OF CASING ELEV. T.B.D.

COUNTY Los Angeles

GROUND SURFACE ELEV. 1263 ft.

WELL PERMIT NO. _____

DATUM Mean Sea Level



EXPLORATORY BORING

- a. Total depth 290 ft.
 b. Diameter 10 in.
 Drilling method Reverse Air Rotary

WELL CONSTRUCTION

- c. Casing length 290 ft.
 Material Schedule 80 PVC
 d. Diameter 5 in.
 e. Depth to top perforations 259 ft.
 f. Perforated length 28.7 ft.
 Perforated interval from 259 to 287.7 ft.
 Perforation type Machine Slotted
 Perforation size 0.02 inch
 g. Surface seal 2.5 ft.
 Seal material Cement/Bentonite
 h. Backfill 246 ft.
 Backfill material Cement/Bentonite
 i. Seal 5 ft.
 Seal material Bentonite
 j. Gravel pack 35 ft.
 Pack material #3 Monterey Sand
 k. Bottom seal 1.5 ft.
 Seal material Natural Materials
 l. Casing height 1.5 ft.
 m. Protective casing diameter 10 in.
 N. Blank casting and end cap 0.8 ft.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 76-23.04

BORING NO. DW-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 3

BY E.A.M. DATE March 28, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5	SLT.		SILTSTONE, yellowish gray (5Y 7/2); 5 to 10% fine sand.
				10			@ 12': grayish yellow green (5GY 7/2).
				15	MST.		MUDSTONE, grayish yellow green (5GY 7/2); trace fine sand; micaceous.
				20			@ 20 to 20.5': 15 to 20% fine sand.
				25			@ 28': dark greenish yellow (10Y 6/6).
				30			
				35	SLT.		SILTSTONE, greenish gray (5GY 6/1); 10 to 15% fine sand; micaceous.
				40	MST.		MUDSTONE, dusky yellow (5Y 6/4); trace to 5% fine sand; micaceous.

REMARKS

Drilled a 5 1/4" diameter borehole with dual-tube reverse-air-rotary drilling equipment to 290 feet; borehole was subsequently reamed to 10" diameter. Borehole was converted to a ground-water monitoring well as shown on Well Details.



Bag samples were collected which were generally representative of each major lithologic unit. PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. DW-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 8

BY E.A.M. DATE March 28, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				40		MST.	MUDSTONE (continued).
				45			
				50			@ 50': light olive gray (5Y 5/2).
							@ 52': dark greenish gray (5GY 4/1); 15 to 20% fine gravel; calcite veinlets;
				55			
				60			@ 60 to 64': black (N 1/0) mudstone interbeds.
				65			
				70		SILT.	SILTSTONE, dusky yellow (5Y 6/4); 5 to 10% fine sand; micaceous.
				75			@ 74': greenish black (5GY 2/1); bivalve fragments common.
				80			

REMARKS



PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 476-03.04

BORING NO. OW-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 8

BY E.A.M. DATE March 23, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				80	SLT.		SILTSTONE (CONTINUED). @ 81': medium gray (N 5/0). @ 83': light olive gray (5Y 5/2).
				85			
				90	MST.		MUDSTONE, grayish olive (10Y 4/2) to medium gray (N 5/0); trace to 5% fine sand; micaceous. @ 40': yellowish gray (5Y 7/2).
				95			@ 45': 10 to 15% fine to medium sand.
				100			
				105	SLT.		SILTSTONE, greenish gray (5GY 6/1); 10 to 15% fine sand; 5 to 10% fine gravel (up to 1/2" - maximum diameter).
				110			@ 110': grayish yellow green (5GY 7/2).
				115	MST.		MUDSTONE, medium gray (N 5/0); trace fine sand; fresh calcite fragments; damp.
				120			

REMARKS



PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 176-03.07

BORING NO. DW-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 8

BY E.A.M. DATE March 28, 1984

SURFACE ELEV. 261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				120	AST.		MUDSTONE (continued).
				125			from 123' to 150': dark greenish gray (SG 4/1).
				130			
				135			
				140			
				145			
				150			@ 150': trace bivalve fragments.
							@ 152': greenish black (SG 2/1); massive.
				155	SLT.		SILTSTONE, dusky yellow (SG 6/4); 5 to 10% fine sand; trace bivalve fragments; trace fine gravel; damp.
				160			

REMARKS



PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 476-03.34

BORING NO. DW-8

PROJECT NAME Guiquita Canyon Land Fill

PAGE 5 OF 8

BY E. A. M. DATE March 28, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				160	SLT.		SILTSTONE (continued). @ 161' to 200': 25 to 30% fine sand.
				165			
				170			
				175			
				180			@ 180': 10 to 15% fine gravel; local calcite cementation.
				185			
				190			
				195			
				200			

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. DW-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 8

BY E.A.M. DATE March 28, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				200	SS.		SILTY SANDSTONE, yellowish gray (5Y 8/1); 30 to 40% fines; fine to coarse grained; 5 to 10% fine gravel (up to 3/8" maximum diameter); damp to dry.
				205			
				210	SLT.		SILTSTONE, yellowish gray (5Y 8/1); 15 to 20% fine sand; micaceous; damp.
				215			
				220	SS.		SILTY SANDSTONE, light greenish gray (5GY 8/1); 40 to 45% fines; fine grained; damp to dry.
				225	SLT.		SILTSTONE, pale olive (10Y 6/2); 5 to 10% fine sand; damp to dry.
				230			@ 229': yellowish gray (5Y 8/1); 25 to 30% fine sand.
				235			@ 235': 5 to 10% fine sand.
							@ 237': 20 to 25% fine to coarse sand.
				240	MST.		MUDSTONE, light gray (N 7/0); trace fine sand; damp.

REMARKS



EMCON
ASSOCIATES

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. DW-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 8

BY E. A. M. DATE March 28, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				240	MST.		MUDSTONE (Continued).
				245			@ 246': pale olive (10Y 6/2); 5 to 10% fine to coarse sand; damp.
				250			
				255			@ 255 to 277': olive gray (5Y 3/2); massive; damp.
				260			@ 260': 50% drilling pressure increase (inferred hard zone).
				265			
				270			
				275			@ 277': 10 to 15% fine sand; moist to very moist.
				280			

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976 - 03.04

BORING NO. DW-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 8 OF 8

BY E.A.M. DATE March 28, 1989

SURFACE ELEV. 1261.3' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				280			MUDSTONE (continued). @ 280': thin lenses of fine- to medium-grained sandstone (3 to 6" thick).
				285			@ 285': medium gray (N 5/0); 10 to 15% fine sand; damp to slightly damp.
				290			BOTTOM OF BORING: 290 FEET. TERMINATED HOLE.
				295			

REMARKS



emcon
ASSOCIATES

WELL DETAILS



PROJECT NUMBER 976-01.02

BORING / WELL NO. DW-9

PROJECT NAME Chiquita Canyon Landfill

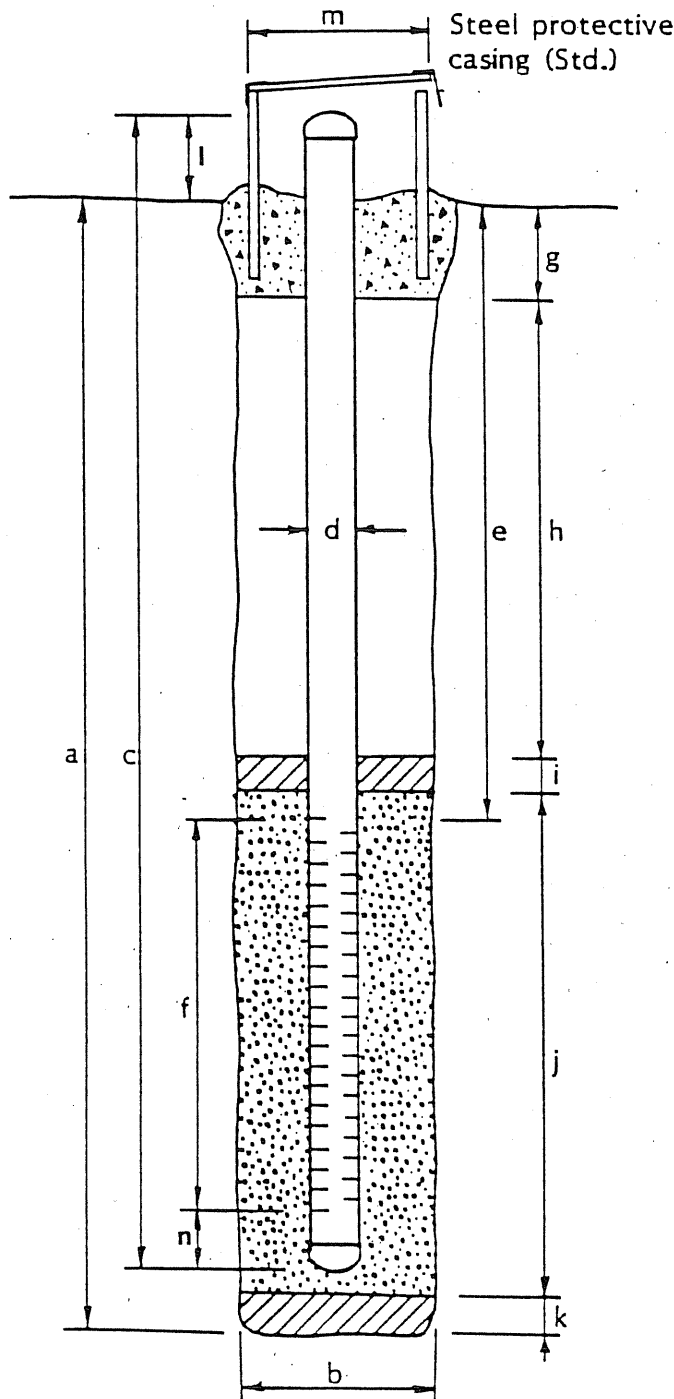
TOP OF CASING ELEV. T.B.D.

COUNTY Los Angeles

GROUND SURFACE ELEV. 1223 ft.

WELL PERMIT NO. _____

DATUM Mean Sea Level



EXPLORATORY BORING

- a. Total depth 280 ft.
 b. Diameter 10 in.
 Drilling method Reverse Air Rotary

WELL CONSTRUCTION

- c. Casing length 280.5 ft.
 Material Schedule 80 PVC
 d. Diameter 5 in.
 e. Depth to top perforations 239.8 ft.
 f. Perforated length 28.7 ft.
 Perforated interval from 239.8 to 268.5 ft.
 Perforation type Machine Slotted
 Perforation size 0.02 inch
 g. Surface seal 2 ft.
 Seal material Cement/Bentonite
 h. Backfill 220 ft.
 Backfill material Cement/Bentonite
 i. Seal 5 ft.
 Seal material Bentonite
 j. Gravel pack 52 ft.
 Pack material #3 Monterey Sand
 k. Bottom seal 1 ft.
 Seal material Natural Materials
 l. Casing height 1.5 ft.
 m. Protective casing diameter 10 in.
 N. Blank casting and end cap 10.5 ft.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04
 PROJECT NAME Chiquita Canyon Landfill
 BY E.A.M. DATE March 30, 1984

BORING NO. DW-9
 PAGE 1 OF 7
 SURFACE ELEV. 1220.90' NS

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		SS.	SILTY SANDSTONE, light olive gray (SY 6/1); 15 to 20% fines; fine to medium grained; 5 to 10% gravel (up to 1" maximum diameter); damp.
				10			
				15		MST. SLT.	MUDSTONE, olive gray (SY 4/1); massive. SILTSTONE, pale olive (10Y 6/2); trace to 5% fine sand; damp.
				20		SLT./ MST.	SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: light olive gray (SY 6/1); 5 to 10% fine sand; damp. MUDSTONE: olive gray (SY 4/1); indistinct fine laminations.
				35			
				30			
				35		SS.	SILTY SANDSTONE, pale olive (10Y 6/2); 20 to 25% fines; fine to medium grained; 10 to 15% gravel (up to 2" maximum diameter); damp. @ 36': 5 to 10% fines; 30 to 35% gravel.
				40			

REMARKS

Drilled a 5 1/2" - diameter borehole with dual-tube reverse-air-rotary drilling equipment to 280 feet. borehole was subsequently reamed to 10" diameter. Bag samples were collected which were generally representative of each major lithologic unit. Borehole was converted to a ground-water monitoring well as shown on Well Details.



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. DW-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY E.A.M. DATE March 30, 1989

SURFACE ELEV. 1220.90' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				40		SS.	SILTY SANDSTONE (continued), SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: light olive brown (5Y 5/6); trace to 5% fine sand. MUDSTONE: light olive brown (5Y 5/6); massive; hard.
				45			
				50		SLT.	SILTSTONE, pale olive (10Y 6/2); 5 to 10% fine sand; damp.
				55			@ 54' to 54 1/2': conglomerate.
				60			
				65			
				70		MST.	MUDSTONE, grayish olive (10Y 4/2); fine laminations; locally hard and brittle; damp.
				75			
				80			

REMARKS



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ASSOCIATES

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04
 PROJECT NAME Chiquita Canyon Landfill
 BY E. A. M. DATE March 30, 1984

BORING NO. DW-9
 PAGE 3 OF 7
 SURFACE ELEV. 1220.90' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				80	MST.		MUDSTONE (Continued).
				85	SS./ SLT.		SANDSTONE and SILTSTONE - Interbedded. SANDSTONE: grayish yellow green (5GY 7/2); 15 to 25% fines; fine to medium grained; 10 to 15% fine gravel; damp. SILTSTONE: light olive brown (5Y 5/6); 5 to 10% fine sand; damp.
				90			
				95			
				100			
				105	SLT./ MST.		SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: dusky yellow (5Y 6/4); trace fine sand; damp. MUDSTONE: grayish olive (10Y 4/2); indistinct fine laminations; damp to moist.
				110			
				115			@ 112': medium dark gray (N 4/0).
				120			

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. DW-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY E.A.M. DATE March 30, 1989

SURFACE ELEV. 1220.90' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				120	SLT/ MST.		SILTSTONE and MUDSTONE - Interbedded (continued).
				125			
				130			
				135			@ 135 to 138': dark yellowish orange (10YR 6/6).
				140			
				145	SS.		SILTY SANDSTONE, grayish yellow green (5GY 7/2); 30 to 35% fines; fine to coarse grained; 5 to 10% fine gravel; damp to moist.
					SLT.		SILTSTONE, light olive brown (5Y 5/6); trace fine sand; damp to moist.
				150			
				155			
				160			

REMARKS



PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04
 PROJECT NAME Chiquita Canyon Land fill
 BY E.A.M. DATE March 30, 1989

BORING NO. DW-9
 PAGE 5 OF 7
 SURFACE ELEV. 1220.90' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				160	SLT./ MST.		SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: dusk yellow (5Y 6/4); trace fine sand; damp. MUDSTONE: grayish olive (10Y 4/2); indistinct fine laminations; damp to moist.
				165			
				170	SS.		CONGLOMERATIC SANDSTONE, light greenish gray (5GY 8/1); 15 to 20% fines; fine to coarse grained; 30 to 35% gravel (up to 1" maximum diameter); damp.
				175	SLT.		SILTSTONE, pale olive (10Y 6/2); trace fine sand; trace fine gravel; damp to moist.
				180	SLT./ MST.		SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: light olive gray (5Y 5/2); trace fine sand; damp to moist. MUDSTONE: olive gray (5Y 3/2); massive; damp to moist.
				185			
				190			
				195	SS./ SLT.		SANDSTONE and SILTSTONE - Interbedded. SANDSTONE: light greenish gray (5GY 8/1); 15 to 20% fines; fine to coarse grained; 10 to 15% fine gravel; damp. SILTSTONE: greenish gray (5GY 6/1); 10 to 15% fine sand; moist.
				200			

REMARKS



PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. DW-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY E.A.M. DATE March 30, 1989

SURFACE ELEV. 1220.90' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				200	SS. /SCL.		SANDSTONE and SILTSTONE - Interbedded (Continued).
				205			
				210			
				215			
				220	MST.		MUDSTONE, greenish gray (SGY 6/1) to olive black (SY 2/1); trace fine sand; massive; moderate hardness; damp. @ 223': very hard; brittle.
				225			
				230			
				235			
				240			

REMARKS:



PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04
 PROJECT NAME Chiquita Canyon Landfill
 BY E. A. M. DATE March 30, 1989

BORING NO. DW-9
 PAGE 7 OF 7
 SURFACE ELEV. 1220.90' MSL

TORVANE (TSF)	POCKET PENETRO- METER (TSF)	PENETRA- TION (Blows/ Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				240	MST.		MUDSTONE (continued).
				245			
				250			
				255			@ 255': light olive gray (SY 6/1); trace to 5% fine sand; trace fine gravel (up to 3/8" maximum diameter).
				260	SS.		SILTY SANDSTONE, light olive gray (SY 6/1); 10 to 20% fines; fine grained; trace to 5% fine gravel; moist.
				265			
				270			@ 270': 5 to 10% fines; fine to medium grained; 5 to 10% fine gravel.
				275			@ 275': 20 to 25% fines; fine grained.
				280			BOTTOM OF BORING: 280 FEET. Terminated Hole.

REMARKS

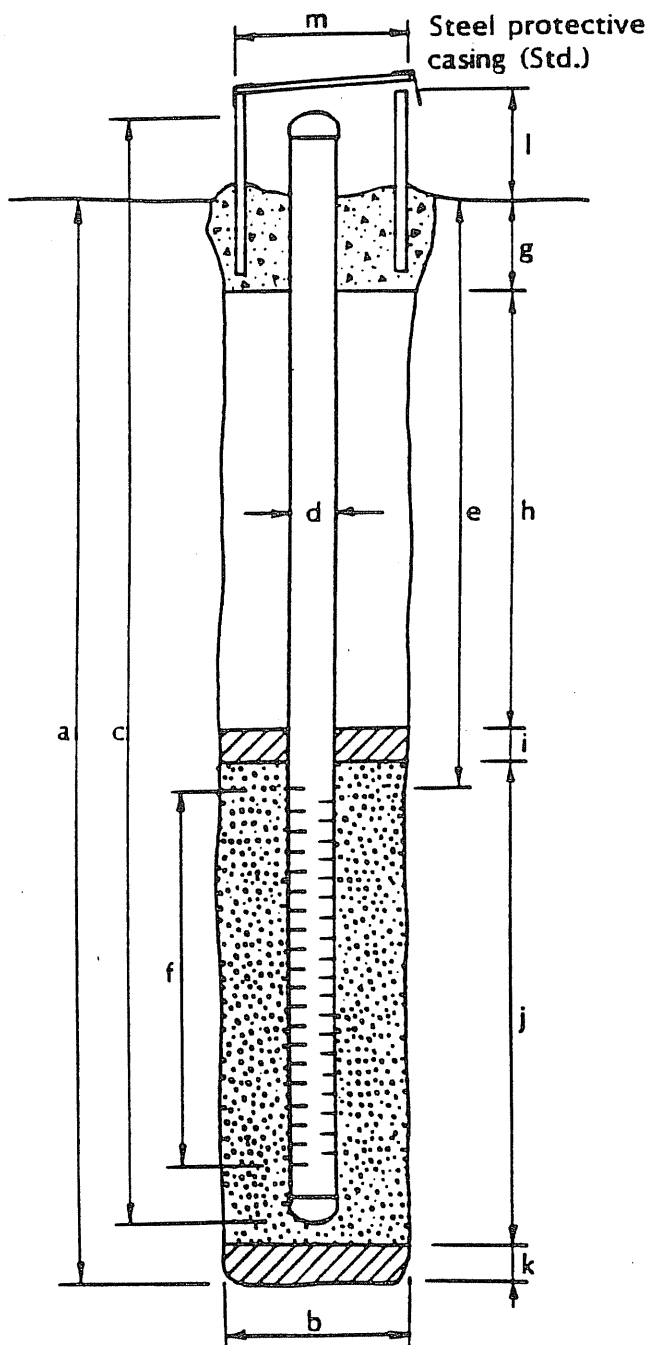


WELL DETAILS



PROJECT NUMBER 976-04.02
 PROJECT NAME Chiquita Canyon
 COUNTY Los Angeles
 WELL PERMIT NO. 185858

BORING / WELL NO. DW-12
 TOP OF CASING ELEV. 1025
 GROUND SURFACE ELEV. 1022
 DATUM Mean Sea Level



EXPLORATORY BORING

a. Total depth 135.4 ft.
 b. Diameter 7 in.
 Drilling method Air Rotary

WELL CONSTRUCTION

c. Casing length 136 ft.
 Material Schedule 40 PVC
 d. Diameter 4 in.
 e. Depth to top perforations 95 ft.
 f. Perforated length 30 ft.
 Perforated interval from 95 to 125 ft.
 Perforation type machine-slot
 Perforation size 0.020 inch
 g. Surface seal 2 ft.
 Seal material concrete
 h. Backfill 78 ft.
 Backfill material cement/bentonite grout
 i. Seal 8.5 ft.
 Seal material bentonite
 j. Gravel pack 46.5 ft.
 Pack material #3 Lonestar sand
 k. Bottom seal 0.4 ft.
 Seal material Native material
 l. Casing height 3 ft.
 m. Protective casing diameter 12 in.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. DW-12

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 7

BY Scott Sankey DATE 2/6/91

SURFACE ELEV. ~1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION	WEI DET.
1.6		5			SILTY SAND (SM), dark grayish brown (10YR.4/2); 30% non-plastic fines; 30% fine sand, 20% medium sand, 10% coarse sand; 10% fine gravel; no odor.	
1.1		10			@ 10 feet: brown (10YR.5/3); 35% non-plastic fines; 30% fine sand, 20% medium sand, 5% coarse sand; 10% fine gravel.	
1.3		15			@ 15 feet: same as above.	
		20				

REMARKS

Borehole drilled to 135.4 feet using air-rotary drilling equipment. A 135-foot ground-water monitoring well, perforated from 95.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

QA/QC: *56 Regan*



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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. DW-12

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY Scott Sankey DATE 2/6/91

SURFACE ELEV. -1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITRO- GRAPHIC COLORS	DESCRIPTION	WEL DATA
1.2					@ 20 feet: 40% non-plastic fines; 40% fine sand, 10% medium sand, 5% coarse sand; 5% fine gravel.	
1.5		25			@ 25 feet: 35% non-plastic fines; 30% fine sand, 15% medium sand, 5% coarse sand; 15% fine gravel.	
1.1		30			@ 30 feet: 45% non-plastic fines; 40% fine sand, 10% medium sand, 5% coarse sand.	
1.0		35			SANDY SILT (ML), brown (10YR.5/3); 55% non-plastic fines; 25% fine sand, 5% medium sand, 5% coarse sand; 10% fine gravel, no odor.	
		40				

REMARKS

Borehole drilled to 135.4 feet using air-rigged drilling equipment. A 135-foot ground-water monitoring well, perforated from 93.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

QA/QC: *BB Siegen*



EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02 BORING NO. DW-12
 PROJECT NAME Chiquita Canyon Landfill PAGE 3 OF 7
 BY Scott Sankey DATE 2/6/91 SURFACE ELEV. -1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION	WE DET.
1.2					@ 40 feet: 55% non-plastic fines; 25% fine sand, 10% medium sand, 5% coarse sand; 5% fine gravel.	
					@ 40 to 45 feet: driller notes decrease in drilling rate.	
1.5		45			SANDSTONE (SSP), dark yellowish brown (10YR, 4/2); 40% non-plastic fines; 45% fine sand, 10% medium sand, 5% coarse sand; no odor.	
1.6		50			@ 50 feet: trace fine gravel.	
1.3		55			MUDSTONE (MDST), light olive gray (5Y, 5/2); 60% non-plastic fines; 25% fine sand, 10% medium sand, 5% coarse sand; no odor.	
		60				

REMARKS

Borehole drilled to 135.4 feet using air-rotary drilling equipment. A 135-foot ground-water monitoring well, perforated from 95.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

QA/QC: *LB*



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02 BORING NO. DW-12
 PROJECT NAME Chiquita Canyon Landfill PAGE 4 OF 7
 BY Scott Sankey DATE 2/6/91 SURFACE ELEV. ~1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLOR	DESCRIPTION	WE DET.
1.6					SANDSTONE (SSF), light olive gray (5Y, 5/2); 40% non-plastic fines; 45% fine sand, 10% medium sand, 5% coarse sand; no odor. @ 61 feet: driller notes gravel-sized cuttings begin to appear.	
1.4		65			@ 65 feet: 30% non-plastic fines; 25% fine sand, 15% medium sand, 20% coarse sand; 10% fine gravel; subangular to subrounded; no odor. @ 66 to 68 feet: rig chatter.	
1.2		70			@ 70 feet: 30% non-plastic fines; 25% fine sand, 20% medium sand; 20% coarse sand; 5% fine gravel.	
2.0		75			@ 75 feet: 20% non-plastic fines, 10% grayish brown (2.5Y 5/2), medium-plasticity fines; 30% fine sand, 20% medium sand, 20% coarse sand	
		80				

REMARKS

Borehole drilled to 135.4 feet using air-rotary drilling equipment. A 135-foot ground-water monitoring well, perforated from 95.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

QADC: *BB Kier*



EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. DW-12

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 7

BY Scott Sankey DATE 2/6/91

SURFACE ELEV. ~1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION	WEI DET?
2.0					@ 80 feet: 40% non-plastic fines; 30% fine sand, 20% medium sand, 10% coarse sand.	
2.9		85			MUDSTONE (MDST), light olive gray (5Y, 5/2); 60% non-plastic fines; 25% fine sand, 10% medium sand, 5% coarse sand, no odor.	
0.9		90			@ 90 feet: same as above.	
1.8		95			@ 95 feet: same as above.	
					@ 98 to 105 feet: driller stops adding water to hole.	
		100				

REMARKS

Borehole drilled to 135.4 feet using air-rotary drilling equipment. A 135-foot ground-water monitoring well, perforated from 95.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

QA/QC: *W. A. Regan*



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. DW-12

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY Scott Sankey DATE 2/6/91

SURFACE ELEV. ~1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	LITHO- GRAPHIC COLUMN	DESCRIPTION	WE: DET:
2.9				@ 102 feet: 65% non-plastic fines; 25% fine sand, 10% medium sand.	
1.2		105		@ 103.9 feet: static ground-water level, measured on 2/4/91. @ 105 feet: 60% non-plastic fines; 30% fine sand, 10% medium sand; cannot lift cuttings with air, driller adds water.	
1.1		110		SANDSTONE (SSF), light olive gray (5Y, 5/2); 35% non-plastic fines; 55% fine sand, 10% medium sand, no odor.	
4.8		115		MUDSTONE (MDST), light olive gray (5Y, 5/2); 65% non-plastic fines; 30% fine sand, 5% medium sand, no odor.	
		120			

REMARKS

Borehole drilled to 135.4 feet using air-rotary drilling equipment. A 135-foot ground-water monitoring well, perforated from 95.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

QA/QC: *[Signature]*



EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. DW-12

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY Scott Sankey DATE 2/6/91

SURFACE ELEV. ~1023 ft.

PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLORS	DESCRIPTION	WEL DET?
3.5					@ 120 feet: 55% non-plastic fines; 20% fine sand, 10% medium sand, 5% coarse sand; 10% fine gravel. driller says air stream is cooler: first encountered water during drilling.	
3.6		125			@ 125 feet: 60% non-plastic fines; 25% fine sand, 10% medium sand, 5% coarse sand.	
4.8		130			@ 130 feet: same as above.	
1.3		135			@ 135 feet: 60% non-plastic fines; 25% fine sand, 10% medium sand, trace coarse sand, 5% fine gravel.	
					BOTTOM OF BORING: 135.5 FEET. BOREHOLE TERMINATED.	
		140				



REMARKS

Borehole drilled to 135.4 feet using air-rotary drilling equipment. A 135-foot ground-water monitoring well, perforated from 95.03 to 124.64 feet, was subsequently installed. PID calibrated daily to 100 ppm isobutylene.

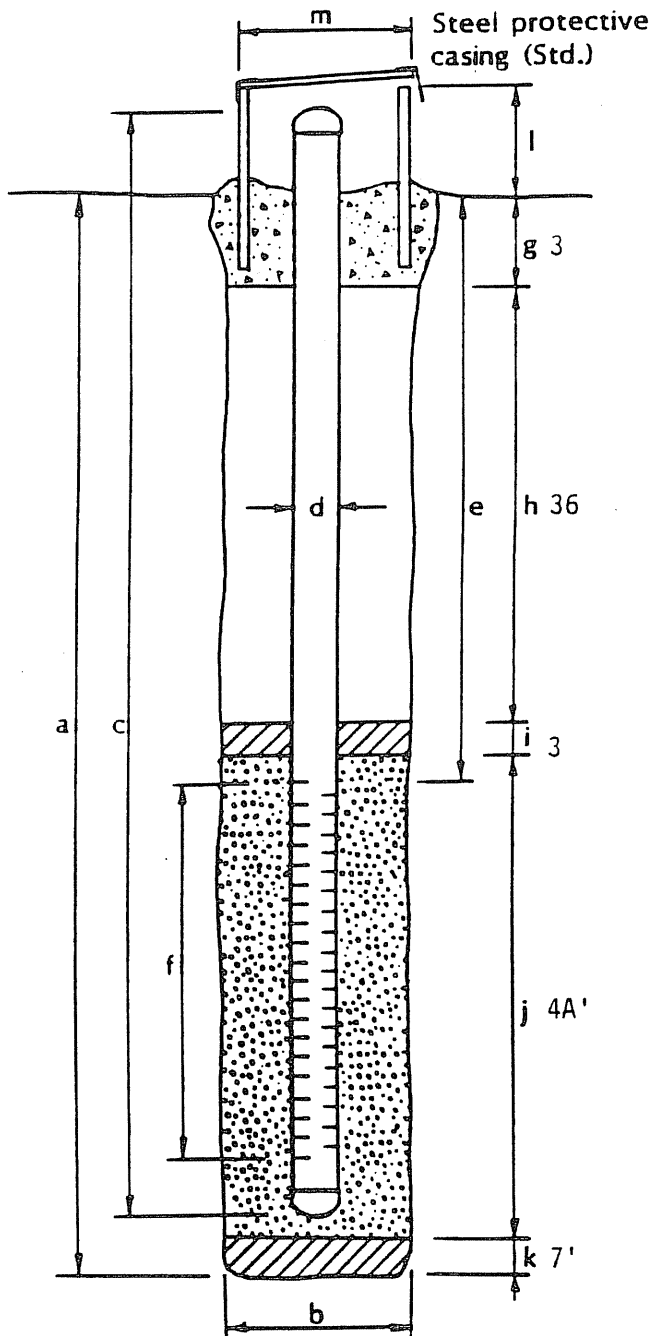
QA/QC: *Bill S. [signature]*

WELL DETAILS



PROJECT NUMBER 976-04.02
 PROJECT NAME Laidlaw
 COUNTY Chiquita Canyon
 WELL PERMIT NO. Y/A

BORING / WELL NO. DW-13
 TOP OF CASING ELEV. 963.51
 GROUND SURFACE ELEV. 960.31
 DATUM mean sea level
 INSTALLATION DATE: 11-29-01



EXPLORATORY BORING

a. Total depth 93 ft.
 b. Diameter 10 in.
 Drilling method Direct Air Rotary

WELL CONSTRUCTION

c. Casing length 91 ft.
 Material Sch 40 PVC
 d. Diameter 4 in.
 e. Depth to top perforations 54 ft.
 f. Perforated length 30 ft.
 Perforated interval from 54 to 84 ft.
 Perforation type Machine Slot
 Perforation size 0.020 in.
 g. Surface seal 3 ft.
 Seal material Concrete
 h. Backfill 36 ft.
 Backfill material Enviro Plug
 i. Seal 3 ft.
 Seal material Bentonite Pellets
 j. Gravel pack 44 ft.
 Pack material #3 Monterey Sand
 k. Bottom seal 7 ft.
 Seal material Native
 l. Casing height 3.2 ft.
 m. Protective casing diameter 12 in.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976.04.02

BORING NO. DW-13

PROJECT NAME LAIDLAW WASTE SYSTEMS

PAGE 1 OF 5

BY JOHN PAVLIK DATE 11/29/90

SURFACE ELEV. -963.00 ft.

			GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	METHOD- GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				5			<p>SAND (SW), light yellow brown (10YR 6/4); 20% fine sand, 60% medium sand, 10-15% coarse sand (subangular to subrounded grains); 5% gravel (rounded quartz and rock fragments); 40% quartz; 50% light minerals; 10% dark minerals; dry.</p> <p>@ 5 feet: 10% fine sand, 75% medium sand, 10% coarse sand; < 5% gravel.</p>	
				10			<p>@ 10 feet: trace of silt; 60% fine sand, 15% medium sand, 15% coarse sand; 10% gravel.</p> <p>(RIG CHATTERS BETWEEN 10 FEET AND 12 FEET).</p>	
				15				
				20				



REMARKS

Well DW-13 drilled by Datum Exploration of Long Beach, CA, using a direct air rotary method and an AMCA Speedstar 30K rig. Well materials were supplied by Sinclair Well Products, Ventura, CA. Well casing: 4"-outside diameter, 40 PVC pipe, 0.02"-slotted was used.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976.04.02

BORING NO. DW-13

PROJECT NAME LAIDLAW WASTE SYSTEMS

PAGE 2 OF 5

BY JOHN PAVLIK DATE 11/29/90

SURFACE ELEV. ~963.00 ft.

		GROUND WATER LEVELS	DEPTH IN FT.	LITHO- GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
			25		SANDSTONE (SS): yellowish gray (5Y 7/2); cuttings are fine-grained with trace amounts of silt-sized grains. well cemented, dry. (AT 20 FEET: DRILLING SLOWER. ROCK IS APPARENTLY WELL CEMENTED.)	
			30		(BETWEEN 20 FEET AND 45 FEET, MISTING IS USED TO COUNTERACT SLOUGHING).	
			35		@ 30 feet: dark yellowish brown (10YR 4/2); 20% fine sand, 70% medium sand; 10% gravel (rounded quartz).	
			40		(BETWEEN 30 FEET AND 40 FEET, DRILLING MUCH EASIER THAN INTERVAL 20 FEET TO 22 FEET).	



REMARKS

Well DW-13 drilled by Datum Exploration of Long Beach, CA. using a direct air rotary method and an AMCA Speedstar 30K rig. Well materials were supplied by Sinclair Well Products, Ventura, CA. Well casing: 4"-outside diameter, 40 PVC pipe, 0.02"-slotted was used.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976.04.02

BORING NO. DW-13

PROJECT NAME LAIDLAW WASTE SYSTEMS

PAGE 3 OF 5

BY JOHN PAVLIK DATE 11/29/90

SURFACE ELEV. ~963.00 ft.

		GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
						@ 40 feet; 90% medium-grained; 10% matrics and biotite.	
			45			MUDSTONE (MDST), dark yellowish brown (10YR 4/2); cuttings are sandy with 50% fines (clay/silt).	
		11/30/90 ▽				(AT 45 FEET TO 50 FEET: STOPPED MISTING: USING ONLY DIRECT AIR).	
			50			SANDSTONE (SS), dark yellowish brown (10YR 4/2); very fine-grained; poorly cemented.	
			55				
			60				

REMARKS

Well DW-13 drilled by Datum Exploration of Long Beach, CA. using a direct air rotary method and an AMCA Speedstar 30K rig. Well materials were supplied by Sinclair Well Products, Ventura, CA. Well casing: 4"-outside diameter, 40 PVC pipe, 0.02"-slotted was used.



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976.04.02

BORING NO. DW-13

PROJECT NAME LAIDLAW WASTE SYSTEMS

PAGE 4 OF 5

BY JOHN PAVLIK DATE 11/29/90

SURFACE ELEV. ~963.00 ft.

			GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION	WELL DETAILS
				65			MUDSTONE (MDST), dusky yellowish brown (10YR 2/2); cuttings are coarse-grained to gravel-sized, plastic.	
				70				
				11/29/90				
							@ 72 feet: moist.	
				75				
				80				



REMARKS

Well DW-13 drilled by Datum Exploration of Long Beach, CA. using a direct air rotary method and an AMCA Speedstar 30K rig. Well materials were supplied by Sinclair Well Products, Ventura, CA. Well casing: 4"-outside diameter, 40 PVC pipe, 0.02"-slotted was used.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976.04.02

BORING NO. DW-13

PROJECT NAME LAIDLAW WASTE SYSTEMS

PAGE 5 OF 5

BY JOHN PAVLIK DATE 11/29/90

SURFACE ELEV. ~963.00 ft.

		GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
			85			@ 80 feet: Interbedded SANDSTONE/MUDSTONE, dusky yellowish brown (10YR 2/2). Deeply weathered-iron staining on surfaces of rock fragments.	
						@ 85 feet: dark yellowish brown (10YR 4/2).	
			90			MUDSTONE (MDST), dark yellowish brown (10YR 4/2); cuttings mainly clay/silt material.	
						BOTTOM OF BORING: 93 FEET. BOREHOLE TERMINATED.	
			95				
			100				



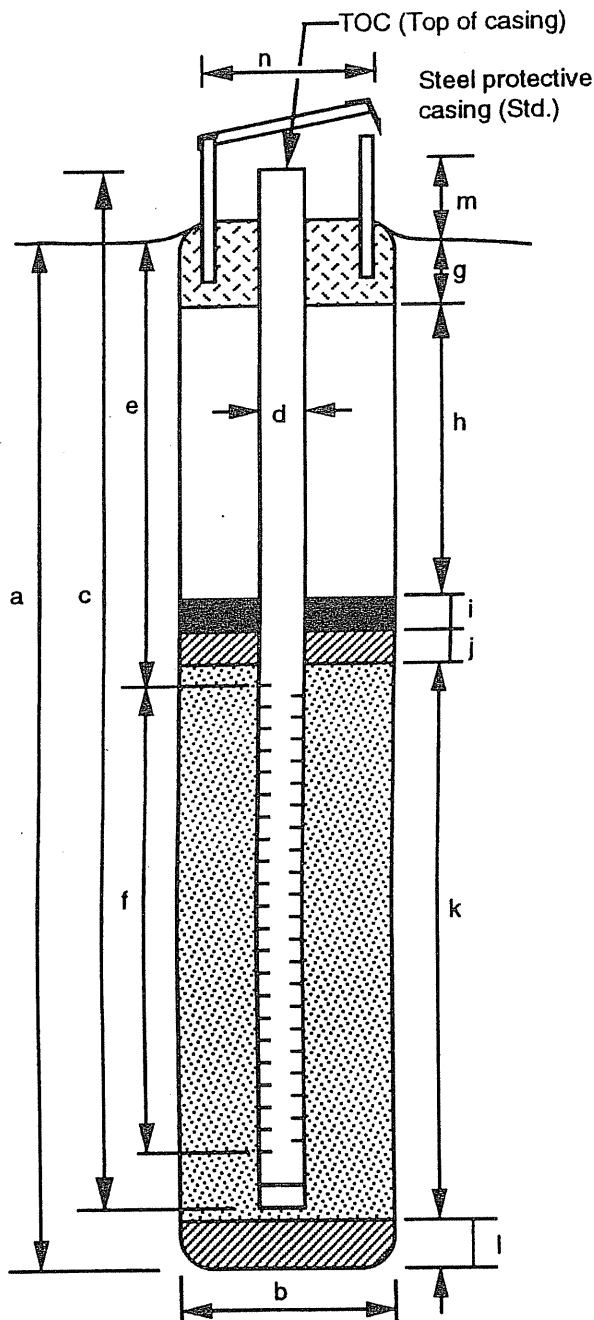
REMARKS

Well DW-13 drilled by Datum Exploration of Long Beach, CA. using a direct air rotary method and an AMCA Speedstar 30K rig. Well materials were supplied by Sinclair Well Products, Ventura, CA. Well casing: 4"-outside diameter, 40 PVC pipe, 0.02"-slotted was used.



WELL CONSTRUCTION DETAIL

PROJECT NUMBER 20976-001.041 BORING / WELL NO. DW-14
 PROJECT NAME: Chiquita Canyon Landfill TOP OF CASING ELEV. -1233
 LOCATION: Los Angeles County, CA GROUND SURFACE ELEV. -1230
 WELL PERMIT NO. pending DATUM: Mean Sea Level
 DRILLER: Water Development Corp. INSTALLATION DATE N/A



EXPLORATORY BORING

a. Total depth 302 ft.
 b. Diameter 10 in.
 Drilling method Air rotary

WELL CONSTRUCTION

c. Total casing length 281.5 ft.
 Material Schedule 80 PVC
 d. Diameter ID 3.8 in. OD 4.5 in.
 e. Depth to top perforations 235 ft.
 f. Perforated length 40 ft.
 Perforated interval from 235 to 275 ft.
 Perforation type machine-slotted
 Perforation size 0.02 inch
 g. Surface seal 1.5 ft.
 Seal interval from 0 to 1.5 ft.
 Material Concrete
 h. Backfill/Annular Seal 198.5 ft.
 Backfill interval from 1.5 to 200 ft.
 Material Bentonite grout
 i. Seal 8 ft.
 Seal interval from 200 to 208 ft.
 Material Bentonite chips
 j. Transition backfill 25 ft.
 Backfill interval from 208 to 233 ft.
 Material Native slough
 k. Filter pack 54 ft.
 Filter pack interval from 233 to 287 ft.
 Material Lonestar #2/12 sand
 l. Bottom seal/fill 15 ft.
 Seal/fill interval from 287 to 302 ft.
 Material Bentonite chips/native slough
 m. Casing stickup 1.5 ft.
 n. Protective casing diameter 8 in.

QA/QC:
 Well Installed by: D. Koning/M. Kuncir
 Checked By: _____ Date: _____

\\MISC-WELL DETAILS\CCL-DW-14.pdc Rev. 5/10/96

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 1 of 8

BY: Don Koning

DATE: 4/23/98

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ARTIFICIAL FILL (Af): 0 TO 3 FEET - SILTY SAND TO SAND (SM-SP): pale yellow (5Y 7/4); 12% low plasticity fines; 30% fine sand; 25% medium sand; 25% coarse sand; 10% fine gravel; subangular; moderately weathered; dry.	
							SAUGUS FORMATION (Qs): 3 TO 302 FEET MUDSTONE: light olive brown (5Y 5/6); 60% medium plasticity fines; 40% fine sand; 20 to 25% of cuttings return as gravel-sized mudstone clasts.	
				10			SANDSTONE	
							SILTSTONE: light olive (10Y 5/4); 85 to 90% non-plastic fines; 10 to 15% fine sand; damp to moist.	
0.0				20			3 to 20 ft.: 80% non-plastic fines; 10% fine sand.	
							@ 25 ft.: SILTSTONE: moderate olive brown (5Y 4/4); 20% indurated fragments.	
0.5				30			MUDSTONE: pale olive (10Y 6/2); 100% medium-plasticity fines; trace fine sand; moderately indurated; dry.	
							CLAYEY SANDSTONE: dusky yellow (5Y 6/4); 15% non-plastic fines; 35% clay balls; 45% fine sand; 5% medium sand.	
0.0				40			MUDSTONE.	

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20976-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 2 of 8

BY: Don Koning

DATE: 4/23/98

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				50			MUDSTONE: dusky yellow (5Y 6/4); 15% fine sand; indurated; damp.	
							SILTSTONE: moderate olive brown (5Y 4/4); 100% non-plastic fines	
							CLAYSTONE: light olive gray (5Y 5/2); 100% non-plastic fines; indurated.	
							SANDY MUDSTONE: dusky yellow (5Y 6/4); 75 to 80% medium- plasticity fines; 20 to 25% fine sand; weakly indurated; dry.	
				60			CLAYEY SANDSTONE: dusky yellow (5Y 6/4); 20% clay which returns as hard "mud balls"; 5% silt; 25% fine sand; 50% medium sand; dry.	
							SANDY SILTSTONE: dusky yellow (5Y 6/4); 75% non-plastic fines; 25% fine sand; damp.	
							MUDSTONE: moderate yellowish brown (10Y 5/4); 35 to 30% medium-plasticity fines; 10 to 15% fine sand.	
				70			SANDY CLAYSTONE: moderate yellowish brown (10YR 5/4); 75 to 80% medium- to high-plasticity fines; 20 to 25% fine sand; indurated; damp.	
							SILTSTONE: medium gray (N5).	
							SANDSTONE: yellowish gray (5Y 7/2); 10% non-plastic fines; 90% fine sand; subangular; damp.	
				80				

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 3 of 8

BY: Don Koning

DATE: 4/23/98

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				90			SANDSTONE	
							SILTSTONE: dusky yellow (5Y 6/4); 90% low- to medium-plasticity fines; 10% fine sand; damp.	
							CLAYSTONE: moderate yellowish brown (10YR 5/4); 100% medium- to high-plasticity fines; trace fine sand; damp.	
							CLAYSTONE TO SILTSTONE: dusky yellow (5Y 6/4); 35% low- to medium-plasticity fines; fines; 5% fine sand; indurated; hard mudstone balls to 0.5 inches diameter common. common.	
				100			SANDSTONE: yellowish gray (5Y 7/2); 5% non-plastic fines; 45% fine sand; 45% medium sand; 5% coarse sand; trace gravel; sand is subangular to subrounded; arkosic; moderately weathered.	
							GRAVELLY SANDSTONE: yellowish gray (5Y 7/2); 5% non-plastic fines; 20% fine sand; 25% medium sand; 50% coarse sand; 15% fine gravel to 0.5 inches diameter; dry to damp.	
				110			SANDSTONE: 90% fine to medium sand; 5% coarse sand; 5% fine gravel; damp.	
							GRAVELLY SANDSTONE: 75% fine to medium sand; 10% coarse sand; 15% gravel to 1 inch diameter; dry.	
				120				

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 4 of 8

BY: Don Koning

DATE: 4/23/98

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							<p>at 122 ft: Decreasing gravel.</p> <p>at 125 ft: light olive gray (5Y 5/2); 35% fine sand; 10 to 35% medium sand; 15% coarse sand; 15% fine gravel to 0.5 inches diameter; damp.</p> <p>SANDSTONE: yellowish gray (5Y 7/2); trace non-plastic fines; 95% fine sand; 5% medium sand; dry.</p> <p>SILTY SANDSTONE: moderate olive brown (5Y 4/4); 40% non-plastic fines; 40 to 45% fine sand; 10 to 20% medium sand; damp.</p> <p>MUDSTONE: light olive gray (5Y 5/2); 85 to 90% medium-plasticity fines; 10 to 15% fine sand; damp.</p> <p>SILTY SANDSTONE: 15 to 20% non-plastic fines; 80 to 85% fine sand</p> <p>SANDY CLAYSTONE: olive, yellow (5Y 6/4); 80% medium- to high-plasticity fines; 20% fine to medium sand; damp.</p> <p>SILTY SANDSTONE: 15% non-plastic fines; 80% fine sand; 5% medium sand; damp.</p> <p>SANDSTONE: yellowish gray (5Y 7/2); 5% non-plastic fines; 25% fine sand; 25% medium sand; 20% coarse sand; 25% nodules of sandstone and sandy mudstone; hard; indurated; damp.</p>	

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 5 of 8

BY: Don Koning

DATE: 4/23/88

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SANDSTONE	
							SILTY SANDSTONE	
							SANDY MUDSTONE: light olive brown (5Y 5/6); 70% medium-plasticity fines; 30% fine sand; damp.	
				170			SILTY SANDSTONE: dusky yellow (5Y 6/4); 65% low-plasticity fines; 65% fine sand; damp.	
				180			SANDSTONE: 5% non-plastic fines; 45% fine sand; 20% medium sand; 15% coarse sand; 10 to 15% fine gravel; damp. @ 183 to 184 ft.: cemented; indurated sandstone.	
							SILTY SANDSTONE: 25% non-plastic fines; 50% fine sand; 25% medium sand; damp.	
				190			SANDY SILTSTONE: dusky yellow (5Y 6/4); 65 to 70% non- to low-plasticity fines; 30 to 35% fine sand; damp to moist.	
							SILTSTONE: moderate olive brown (5Y 4/4); 30 to 85% low- to medium-plasticity fines; 15 to 20% fine to medium sand; moist.	
				200				

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 8 of 8

BY: Don Koning

DATE: 4/23/98

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SILTSTONE:	
							SILTSTONE: dusky yellow (5Y 6/4); 10% fine sand; moist.	
				210			CLAYSTONE: medium yellowish brown (5Y 5/6); 100% medium-plasticity fines; damp.	
							SILTSTONE: light olive brown (5Y 5/6); 100% low-plasticity fines; damp.	
				220			SILTY SANDSTONE: 20% non-plastic fines; 80% fine sand; damp.	
							@ 228 ft.: 40 to 45% non-plasticity fines; 60 to 65% fine sand; damp.	
				230			SANDY MUDSTONE: light olive brown (5Y 5/6); 75% medium-plasticity fines; 25% fine sand; damp.	
							MUDSTONE: 100% low- to medium-plasticity fines; damp.	
							SILTY SANDSTONE: dusky yellow (5Y 6/4); 20% non-plasticity fines; 70% fine sand; 5 to 10% medium sand; damp to moist.	
				240				

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 7 of 8

BY: Don Koning

DATE: 4/23/88

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.5				250			<p>SANDSTONE: 5% non-plastic fines; 65% fine sand; 15% medium sand; 5% coarse sand; moist.</p> <p>@ 250 ft.: 15% fine sand; 30% medium sand; 30% coarse sand; 5% fine gravel; 10% hard gravel-size mudballs; moist.</p> <p>@ 255 ft.: moderate olive brown (5Y 4/4); 50% fine sand; 45% medium sand; 5% coarse sand; moist.</p> <p>SANDSTONE: 100% fine to medium sand; moist.</p> <p>@ 265 ft.: moderate olive brown (5Y 4/4); 5 to 10% non-plastic fines; 70 to 75% fine sand; 20% medium sand; moist.</p> <p>@ 274 ft.: trace to 5% non-plastic fines; 40% fine sand; 45% medium sand; 10% coarse sand; subangular to subrounded; moist.</p> <p>@ 275 ft.: light olive gray (5Y 5/2); 35% fine sand; 45% medium sand; 20% coarse sand; moist.</p>	

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: DW-14

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 8 of 8

BY: Don Koning

DATE: 4/23/98

SURFACE ELEVATION: 1233± MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				290			3.022 ft. SANDSTONE: 5 to 10% non-plastic fines; 45% fine sand; 45% medium sand; med.	
				300			SILTY SANDSTONE: 15 to 20% low-plasticity fines; 80 to 85% fine to coarse sand; wet.	
				310			BOTTOM OF BORING: 302 FEET TARGET DEPTH REACHED	
				320				

REMARKS

Boring drilled using air rotary methods with a Dresser T70W drilling rig. Boring diameter 10.75 inches to 38.7 feet bgs and 10.5 inches from 38 feet bgs to 302 feet bgs. Drill cuttings were collected at approximately 10-foot depth intervals except where shown otherwise. A Munsell soil color chart was used to describe soil colors and a GSA rock color chart was utilized for bedrock color descriptions. The boring was converted to a 4.0-inch diameter, Schedule 80 PVC monitoring well. Refer to Well Details for construction information.

EMCON

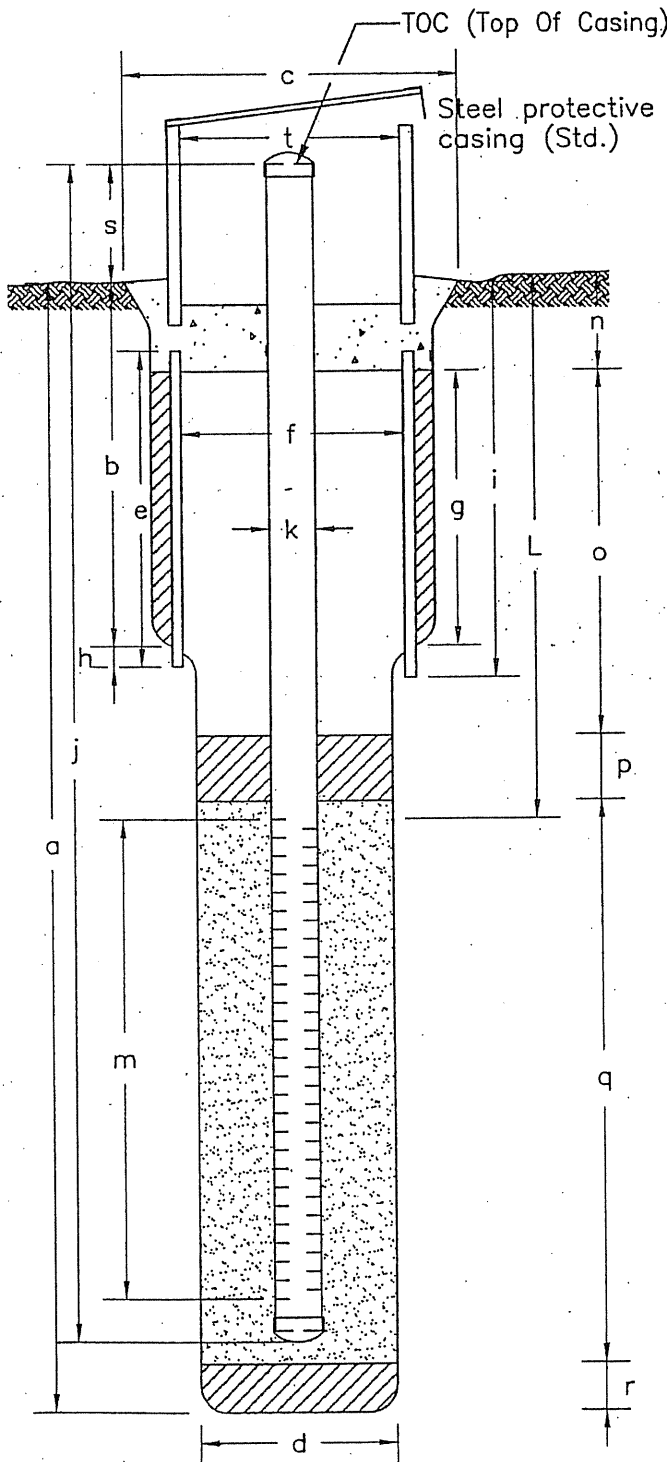
WELL DETAILS



EMCON

JOB NUMBER 792038
 PROJECT NAME CHIKUITA CANYON LANDFILL
 LOCATION LOS ANGELES COUNTY
 WELL PERMIT NO. _____

BORING/WELL NO. DW-18
 TOP OF CASING ELEV. 986.53
 GROUND SURFACE ELEV. 985.43
 DATUM MEAN SEA LEVEL
 INSTALLATION DATE 11/02/99



EXPLORATORY BORING

- a. Total depth 79.5 ft.
 b. Upper boring depth - ft.
 c. Upper boring diameter - in.
 d. Lower boring diameter 11.25 in.
 Drilling method AIR ROTARY

CONDUCTOR CASING

- e. Total casing length 79.5 ft.
 Material STEEL
 f. Diameter (O.D.) 11.25 in.
 g. Upper (outer) seal - ft.
 Material -
 h. Penetration - in.
 i. Depth 79.5 ft.

WELL CONSTRUCTION

- j. Casing length 80.5 ft.
 Material SCH 40 PVC
 k. Diameter 4.0 in.
 L. Depth to top of perforations 57.89 ft.
 m. Perforated length 19.6 ft.
 Perforated interval from 57.89 to 77.49
 Perforation type MACHINE SLOTTED
 Perforation size 0.020"
 n. Surface seal 6.5 ft.
 Seal material CONCRETE
 o. Backfill 40.8 ft.
 Backfill material BENTONITE CHIPS
 p. Transition Seal 5 ft.
 Seal material BENTONITE CHIPS
 q. Sand Filter Pack 27.2 ft.
 Pack material #2/12 SAND
 r. Bottom seal - ft.
 Material -
 s. Casing height 2.5 ft.
 t. Protective casing diameter 12 in.



EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOGSITE NAME AND LOCATION
Chiquita Canyon Landfill
Valencia, CaliforniaDRILLING METHOD:
ARCHDRILLING CONTRACTOR:
Water Development Corp.BORING NO.
DW-18

RIG: Dresser T70W

OPERATOR:

SHEET
1 OF 1

▽ = Static Water Levels ▽ = First Encountered Water

SAMPLING METHOD:

PROJECT NO. 792038

SURFACE CONDITIONS:

BOREHOLE DIAMETER: 11 1/4"

BOREHOLE DEPTH: DRILLED DEPTH: 79.5'

LOCATION:

WATER LEVEL

61.4

61.24

EAST 6366755.9871

NORTH 1977790.2706

DATE

10:00

10:08

DATE
11/02/99DATE
11/02/99

DATUM MSL ELEVATION (FT. MSL) 985.43

TIME

11/2/99

11/22/99

TIME	Type of Sampler	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
					0-40			PZ-2 well material; fine sand with cement fragments (no PVC @25')
					42			
					44			
					46			@45'; well material absent; returns mostly fine to medium sands with gravel and rock fragments.
					48			
					50			
					52			
					54			
					56			
					58			@58'; GRAVELLY SANDSTONE (SW), moderate greenish yellow (10YR 7/4); mostly fine to medium sand; minor silt; gravel size clasts; moist.
					60	▽		
					62			
					64			
					66			
					68			
					70			@70'; begin injecting water to bring up cuttings; returns are moist.
					72			@73'; 40% fine to coarse gravel.
					74			
					76			
					78			
					80			Bottom of Boring; 79.5'

COMMENTS:

QA/QC
LOGGED BY Paul Chang

CHECKED BY _____ DATE _____

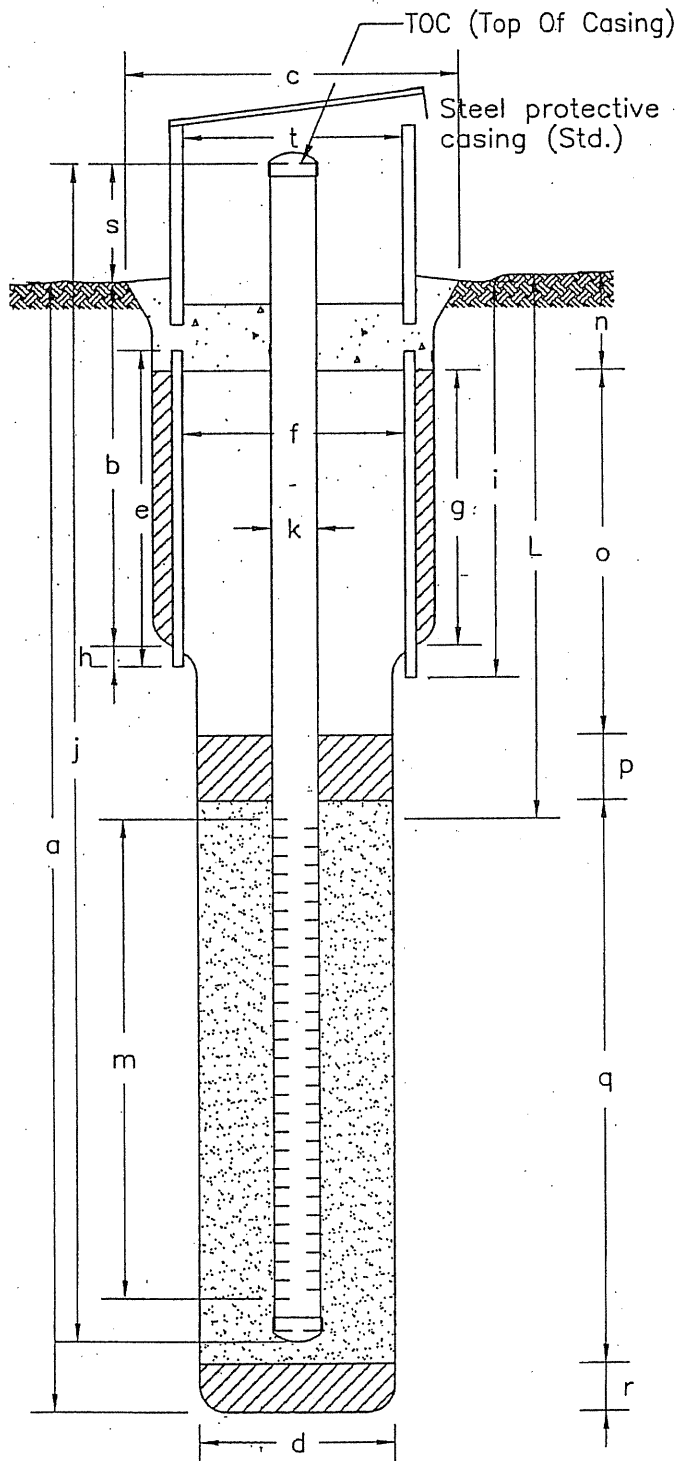
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WELL DETAILS



emcon

JOB NUMBER 792038 BORING/WELL NO. DW-19
 PROJECT NAME CHIKUITA CANYON LANDFILL TOP OF CASING ELEV. 1241.66
 LOCATION LOS ANGELES COUNTY GROUND SURFACE ELEV. 1239.35
 WELL PERMIT NO. _____ DATUM MEAN SEA LEVEL
 INSTALLATION DATE 11/10/99



EXPLORATORY BORING

a. Total depth 282 ft.
 b. Upper boring depth 137 ft.
 c. Upper boring diameter 11.25 in.
 d. Lower boring diameter 10.75 in.
 Drilling method AIR ROTARY

CONDUCTOR CASING

e. Total casing length 140 ft.
 Material STEEL
 f. Diameter (O.D.) 11.25 in.
 g. Upper (outer) seal - ft.
 Material -
 h. Penetration - in.
 i. Depth 137 ft.

WELL CONSTRUCTION

j. Casing length 202.7 ft.
 Material SCH 40 PVC
 k. Diameter 4 in.
 L. Depth to top of perforations 160.3 ft.
 m. Perforated length 39.4 ft.
 Perforated interval from 160.3 to 199.7
 Perforation type MACHINE SLOTTED
 Perforation size 0.020"
 n. Surface seal 4 ft.
 Seal material CONCRETE
 o. Backfill 136 ft.
 Backfill material BENTONITE GROUT
 p. Transition Seal 4 ft.
 Seal material BENTONITE CHIPS & GROUT
 q. Sand Filter Pack 76 ft.
 Pack material #2/12 SAND
 r. Bottom seal 60 ft.
 Material BENTONITE GROUT
 s. Casing height 2.5 ft.
 t. Protective casing diameter 12 in.

DETAIL A



EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California				DRILLING METHOD: ARCH		DRILLING CONTRACTOR: Water Development Corp.		BORING NO. DW-19			
				RIG: Dresser T70W		OPERATOR:		SHEET 1 OF 8			
PROJECT NO. 792038				SAMPLING METHOD: Grab						DRILLING	
SURFACE CONDITIONS:				BOREHOLE DIAMETER: 11 1/4" / 10 3/4"		START TIME 14:05		FINISH TIME 14:54			
				BOREHOLE DEPTH: DRILLED DEPTH: 282'		DATE 11/08/99		DATE 11/10/99			
LOCATION:				WATER LEVEL		121		65.14			
EAST 6367731.746 NORTH 1982776.2224				DATE		11/9/99		11/23/99			
DATUM MSL ELEVATION (FT. MSL) 1239.35				TIME		9:07		7:58			
TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION			
14:05	Grab				2			Artificial Fill: SILTY SAND (SM), light olive brown (5Y 5/6); some fines; mostly fine to medium sand; minor coarse sand and gravels; dry to moist; moderately dense			
					4						
					6						
					8						
14:40	Grab				10			@20'; light olive (10Y 5/4); more gravels.			
					12						
					14						
					16						
14:55	Grab				18			@36'; dusky yellow (5Y 6/4)			
					20						
					22						
					24						
15:09	Grab				26						
					28						
					30						
					32						
15.22	Grab				34						
					36						
					38						
					40						
COMMENTS:								QA/QC LOGGED BY Paul Chang			
								CHECKED BY _____ DATE _____			

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EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California		DRILLING METHOD: ARCH		DRILLING CONTRACTOR: Water Development Corp.		BORING NO. DW-19		
		RIG: Dresser T70W		OPERATOR:		SHEET 2 OF 8		
PROJECT NO. 792038		SURFACE CONDITIONS:		BOREHOLE DIAMETER: 11 1/4" / 10 3/4"		START TIME 14:05		
				BOREHOLE DEPTH: DRILLED DEPTH: 282'		FINISH TIME 14:54		
LOCATION:		WATER LEVEL		121		65.14		
EAST 6367731.746 NORTH 1982776.2224		DATE		11/9/99		11/23/99		
DATUM MSL ELEVATION (FT. MSL) 1239.35		TIME		9:07		7:58		
TIME	TYPE OF SAMPLER	RECOVERY FT./FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
15:48	Grab				40			@43'; dark yellowish orange (10YR 6/6); less silty; more fines to medium sands.
					42			
					44			
					46			
					48			
					50			
					52			
					54			
15:54	Grab				56			
					58			
16:15	Grab				60			@60'; slightly more gravels.
					62			
					64			
16:21	Grab				66			
					68			@68'; dusky yellow (5Y 6/4); mostly fine to medium sand with some gravels.
					70			
16:56	Grab				72			
					74			
17:05	Grab				76			
					78			
17:13	Grab				80			
COMMENTS:								QA/QC LOGGED BY Paul Chang CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOGSITE NAME AND LOCATION
Chiquita Canyon Landfill
Valencia, CaliforniaDRILLING METHOD:
ARCHDRILLING CONTRACTOR:
Water Development Corp.BORING NO.
DW-19

RIG: Dresser T70W

OPERATOR:

SHEET
3 OF 8

▼ = Static Water Levels ▽ = First Encountered Water

SAMPLING METHOD:

Grab

PROJECT NO. 792038

SURFACE CONDITIONS:

BOREHOLE DIAMETER: 11 1/4" / 10 3/4"

BOREHOLE DEPTH: DRILLED DEPTH: 282'

START
TIME
14:05FINISH
TIME
14:54

LOCATION:

WATER LEVEL

121

65.14

EAST 6367731.746 NORTH 1982776.2224

DATE

11/9/99

11/23/99

DATE
11/08/99DATE
11/10/99

DATUM MSL ELEVATION (FT. MSL) 1239.35

TIME

9:07

7:58

TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
	Grab				80			@80'; mostly gravels.
7:30	Grab				82			Pico Formation: SANDSTONE (SW); grayish yellow green (5GY 7/2); minor fines; mostly fine to medium sands; hard; moist; (injecting water).
7:37	Grab				84			
					86			
					88			
7:40	Grab				90			@94'; muddy sandstone; some fines; mostly fine sand; moist (injecting water); hard.
					92			
					94			
7:43	Grab				96			
					98			
					100			@100'; Slightly less fines.
					102			
8:34	Grab				104			SANDY SILTSTONE (ML), pale yellowish green (10GY 7/2); 60% fines; 40% fine sand; occasional medium to coarse sand; some silty nodules; moist to wet (injecting water); moderately hard.
					106			
					108			
8:39	Grab				110			SILTY SANDSTONE (SM), grayish yellow green (5GY 7/2); some fines; mostly fine sand; minor medium to coarse sand; moderately hard.
					112			
					114			
	Grab				116			
					118			
8:52	Grab				120			

COMMENTS:

QA/QC

LOGGED BY Paul Chang

CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

**EXPLORATORY
BORING LOG**

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: ARCH	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. DW-19
	RIG: Dresser T70W	OPERATOR:	SHEET 4 OF 8
PROJECT NO. 792038	SAMPLING METHOD: Grab		DRILLING
SURFACE CONDITIONS:	11 1/4" / 10 3/4"		START TIME 14:05
	BOREHOLE DEPTH: DRILLED DEPTH: 282'		FINISH TIME 14:54
LOCATION:	WATER LEVEL	121	65.14
EAST 6367731.746 NORTH 1982776.2224	DATE	11/9/99	11/23/99
DATUM MSL ELEVATION (FT. MSL) 1239.35	TIME	9:07	7:58

TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
9:10	Grab				120	✓		SANDY SILTSTONE (ML); Grayish yellow green (5GY 7/2); mostly fine silt; some fine sand; hard. @121'; driller notes possible water production. @125'; more coarse sand and minor gravels
					122			
					124			
					126			
					128			
9:18	Grab				130			
					132			
					134			
9:21	Grab				136			
					138			
9:25	Grab				140			@135'; mostly fines & fine sand; minor medium to coarse sand.
					142			
					144			
10:37	Grab				146			
					148			
10:43	Grab				150			@145'; grayish green (10GY 5/2); hard. @150'; more fines.
					152			
					154			
11:16	Grab				156			
					158			
11:27	Grab				160			

COMMENTS:

QA/QC

LOGGED BY Paul Chang

CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: ARCH	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. DW-19
	RIG: Dresser T70W	OPERATOR:	SHEET 5 OF 8
PROJECT NO. 792038	SAMPLING METHOD: Grab		DRILLING
SURFACE CONDITIONS:	BOREHOLE DIAMETER: 11 1/4" / 10 3/4"		START TIME 14:05
	BOREHOLE DEPTH: DRILLED DEPTH: 282'		FINISH TIME 14:54
LOCATION:	WATER LEVEL	121	65.14
EAST 6367731.746 NORTH 1982776.2224	DATE	11/9/99	11/23/99
DATUM MSL ELEVATION (FT. MSL) 1239.35	TIME	9:07	7:58
			DATE 11/08/99 11/10/99

TIME	TYPE OF SAMPLER	RECOVERY FT./FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
13:16	Grab				160			
					162			
					164			
	Grab				166			@165; more fines.
					168			
13:23	Grab				170			
					172			
					174			
13:30	Grab				176			SANDY SILTSTONE TO SANDY CLAYSTONE (ML), pale olive (10Y 6/2); moderate plasticity fines; 35% fine sand; minor medium to coarse sand; moist to wet (injecting water); hard.
					178			
13:37	Grab				180			
					182			
					184			
13:50	Grab				186			
					188			
13:54	Grab				190			
					192			
					194			
14:00	Grab				196			
					198			
14:05	Grab				200			

COMMENTS:

QA/QC

LOGGED BY Paul Chang

CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOGSITE NAME AND LOCATION
Chiquita Canyon Landfill
Valencia, CaliforniaDRILLING METHOD:
ARCHDRILLING CONTRACTOR:
Water Development Corp.BORING NO.
DW-19

RIG: Dresser T70W

OPERATOR:

SHEET
6 OF 8

▽ = Static Water Levels ▽ = First Encountered Water

SAMPLING METHOD:

Grab

DRILLING

PROJECT NO. 792038

SURFACE CONDITIONS:

BOREHOLE DIAMETER: 11 1/4" / 10 3/4"

START
TIMEFINISH
TIME

BOREHOLE DEPTH: DRILLED DEPTH: 282'

14:05

14:54

LOCATION:

WATER LEVEL

121

65.14

DATE

DATE

EAST 6367731.746 NORTH 1982776.2224

DATE

11/9/99

11/23/99

11/08/99

11/10/99

DATUM MSL ELEVATION (FT. MSL) 1239.35

TIME

9:07

7:58

TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
14:20	Grab				200			
					202			
					204			
					206			
					208			
14:32	Grab				210			@210'; slightly less clayey.
					212			
					214			
14:37	Grab				216			@215'; minor medium to coarse sands.
					218			
14:49	Grab				220			
					222			
					224			
8:37					226			@225'; drilling and injecting water, but no returns.
8:43	Grab				228			
8:49	Grab				230			
					232			
					234			
9:02	Grab				236			
					238			
9:11	Grab				240			

COMMENTS:

QA/QC
LOGGED BY Paul Chang

CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California				DRILLING METHOD: ARCH		DRILLING CONTRACTOR: Water Development Corp.		BORING NO. DW-19	
				RIG: Dresser T70W		OPERATOR:		SHEET 7 OF 8	
PROJECT NO. 792038				SAMPLING METHOD: Grab					
SURFACE CONDITIONS:				BOREHOLE DIAMETER: 11 1/4" / 10 3/4"		START TIME 14:05		FINISH TIME 14:54	
				BOREHOLE DEPTH: DRILLED DEPTH: 282'		DATE 11/08/99		DATE 11/10/99	
LOCATION:				WATER LEVEL		121		65.14	
EAST 6367731.746 NORTH 1982776.2224				DATE		11/9/99		11/23/99	
DATUM MSL ELEVATION (FT. MSL) 1239.35				TIME		9:07		7:58	
TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION	
9:40	Grab				240			(as above)	
					242				
					244				
					246				
					248				
9:47	Grab				250				
					252				
					254				
9:52	Grab				256				
					258				
10:17	Grab				260				
					262				
10:21	Grab				264				
					266				
					268				
10:25	Grab				270				
					272				
					274				
11:40	Grab				276			@275'; minor fine gravel	
					278				
14:54	Grab				280			@280'; fine to coarse gravel ~5%; coarse gravel is angular-rounded, granitoid and sandy siltstone.	
COMMENTS:								QA/QC LOGGED BY Paul Chang CHECKED BY _____ DATE _____	

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EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: ARCH	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. DW-19	
	RIG: Dresser T70W	OPERATOR:	SHEET 8 OF 8	
∇ = Static Water Levels ∇ = First Encountered Water	SAMPLING METHOD: Grab		DRILLING	
PROJECT NO. 792038			START TIME 14:05	FINISH TIME 14:54
SURFACE CONDITIONS:	BOREHOLE DIAMETER: 11 1/4" / 10 3/4"		DATE 11/08/99	DATE 11/10/99
	BOREHOLE DEPTH: DRILLED DEPTH: 282'			
LOCATION:	WATER LEVEL	121	65.14	
EAST 6367731.746 NORTH 1982776.2224	DATE	11/9/99	11/23/99	
DATUM MSL ELEVATION (FT. MSL) 1239.35	TIME	9:07	7:58	

TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
					280			
					282			TOTAL DEPTH OF BORING: 282'
					284			TERMINATED HOLE
					286			
					288			
					290			
					292			
					294			
					296			
					298			
					300			
					302			
					304			
					306			
					308			
					310			
					312			
					314			
					316			
					318			
					320			

COMMENTS:

QA/QC

LOGGED BY Paul Chang

CHECKED BY

DATE

BUR:WAPUBLICC...ONCHICUITADW-19.ai

WELL DETAILS



emcon

JOB NUMBER 792038

PROJECT NAME CHIKUITA CANYON LANDFILL

LOCATION LOS ANGELES COUNTY

WELL PERMIT NO. _____

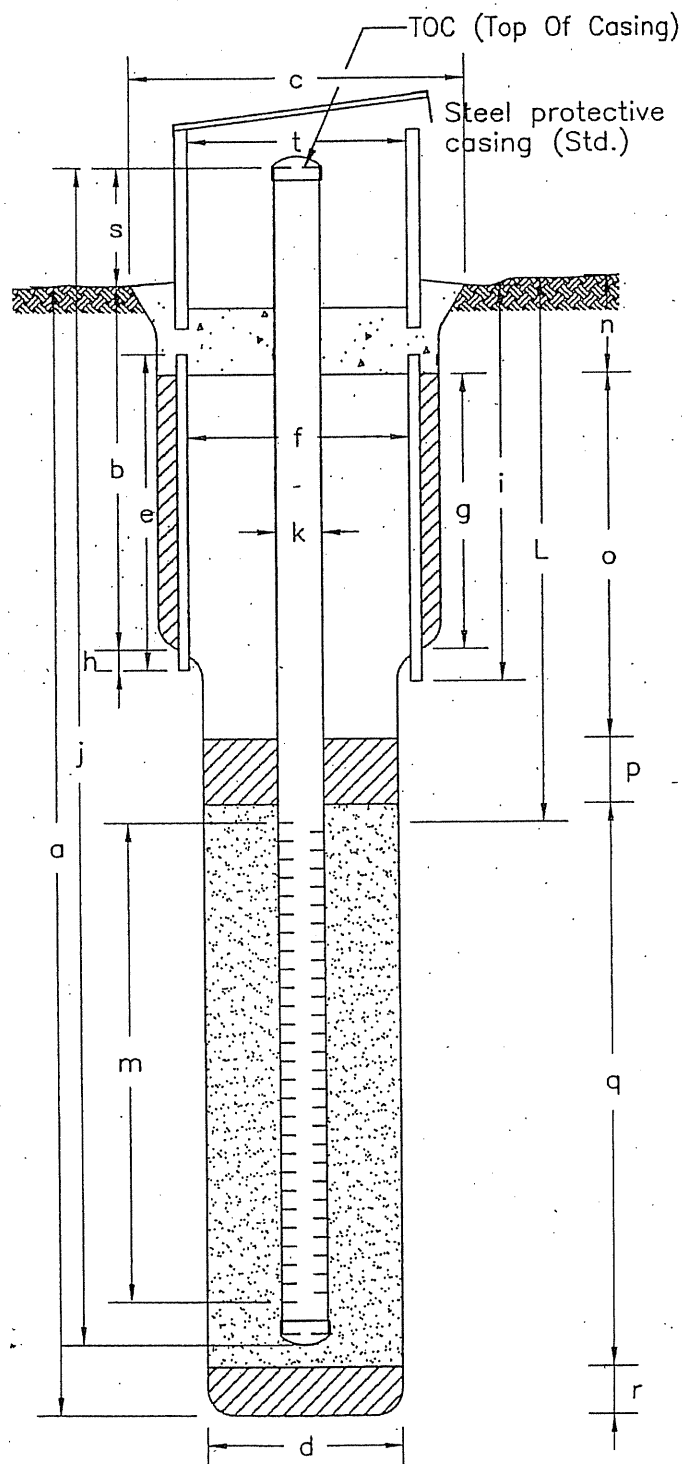
BORING/WELL NO. DW-21

TOP OF CASING ELEV. 987.23

GROUND SURFACE ELEV. 985.70

DATUM MEAN SEA LEVEL

INSTALLATION DATE 11/05/99



EXPLORATORY BORING

- a. Total depth 182.5 ft.
- b. Upper boring depth 96 ft.
- c. Upper boring diameter 11.25 in.
- d. Lower boring diameter 10.75 in.
- Drilling method AIR ROTARY

CONDUCTOR CASING

- e. Total casing length 100 ft.
- Material STEEL
- f. Diameter (O.D.) 11.25 in.
- g. Upper (outer) seal - ft.
- Material _____
- h. Penetration - in.
- i. Depth 96 ft.

WELL CONSTRUCTION

- j. Casing length 110.5 ft.
- Material SCH 40 PVC
- k. Diameter 4 in.
- L. Depth to top of perforations 97.74 ft.
- m. Perforated length 9.56 ft.
- Perforated interval from 97.74 to 107.30
- Perforation type MACHINE SLOTTED
- Perforation size 0.020"
- n. Surface seal 7 ft.
- Seal material CONCRETE
- o. Backfill 46.6 ft.
- Backfill material BENTONITE CHIPS & GROUT
- p. Transition Seal 42.25 ft.
- Seal material BENTONITE CHIPS
- q. Sand Filter Pack 14.25 ft.
- Pack material #2/12 SAND
- r. Bottom seal 72.4 ft.
- Material #2/12 SAND, BENTONITE CHIPS
- s. Casing height 2.5 ft.
- t. Protective casing diameter 12 in.

DETAIL A/F



EMCON/OWT Solid Waste Services

EXPLORATORY
BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California				DRILLING METHOD: ARCH/Direct Air		DRILLING CONTRACTOR: Water Development Corp.		BORING NO. DW-21	
				RIG: Dresser T70W		OPERATOR:		SHEET 1 OF 5	
PROJECT NO. 792038				SAMPLING METHOD: Grab/94mm Core					
SURFACE CONDITIONS:				BOREHOLE DIAMETER: 11 2/4" / 10 3/4					
				BOREHOLE DEPTH: DRILLED DEPTH: 182.5'					
LOCATION:				WATER LEVEL		66.4		START TIME 07:30	
EAST 6366722.9128 NORTH 1977818.9277				DATE		13:00		FINISH TIME 13:45	
DATUM MSL ELEVATION (FT. MSL) - 985.70				TIME		11/4/99		DATE 11/03/99 11/05/99	
TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION	
07:30	Grab				2			SILTY SAND (SM), yellowish gray (5Y 7/2); some silt; mostly fine sand; dry (artificial fill). @5': dusky yellow (5Y 6/4)	
					4				
					6				
					8				
	Grab				10			@11': more gravelly	
					12				
	Grab				14			ALLUVIUM (Qal): moderate yellowish brown (10YR 5/4); minor fines; mostly fine to medium sand; occasional gravel, subangular to rounded; minor caliche fragments; moist.	
					16				
8:20	Grab				18			@22': harder drilling SANDSTONE (SW) (Saugus Fm): moderate olive brown (5Y 4/4); mostly fine to medium sand; trace fines; minor caliche fragments in returns.	
					20				
	Grab				22			@30': mostly fine sand; occasional medium sand to fine gravel; no caliche fragments.	
					24				
	Grab				26			@36': Harder driving	
					28				
	Grab				30				
					32				
	Grab				34				
					36				
9:15	Grab				38				
					40				
COMMENTS:								QA/QC LOGGED BY Paul Chang CHECKED BY _____ DATE _____	

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EMCON/OWT Solid Waste Services

EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: ARCH/Direct Air	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. DW-21
	RIG: Dresser T70W	OPERATOR:	SHEET 2 OF 5
PROJECT NO. 792038	SAMPLING METHOD: Grab/94mm Core		DRILLING
SURFACE CONDITIONS:	BOREHOLE DIAMETER: 11 2/4" / 10 3/4	START TIME 07:30	FINISH TIME 13:45
	BOREHOLE DEPTH: DRILLED DEPTH: 182.5'	DATE 11/03/99	DATE 11/05/99
LOCATION:	WATER LEVEL 66.4		
EAST 6366722.9128 NORTH 1977818.9277	DATE 13:00		
DATUM MSL ELEVATION (FT. MSL) 985.70	TIM 11/4/99		

TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
10:30			Grab		40			<p>@42'; GRAVELLY SANDSTONE (SW): light olive gray (5Y 5/2); minor fines; mostly fine to medium sand; some subrounded gravels; medium dense; moist.</p> <p>@47.5'; slightly more gravels in cuttings; minor caliche.</p> <p>@53-56'; abundant gravels (subangular to subrounded.)</p> <p>@59'; abundant gravels</p> <p>@61'; less gravels; more silty</p> <p>SANDY MUDSTONE (ML); yellowish gray (5Y 7/2); 65% fines; 30% fine sand; 5% medium sand; dry; dense. (hard driving)</p> <p>@63'; dry to moist</p> <p>@66'; more sands; less fines.</p> <p>@66.4'; First encountered water; sandstone with some gravel; moist to wet.</p> <p>SILTY SANDSTONE (SM); dusky yellow (5Y 6/9); 30% fines; 70% fine to medium sand; moist; moderately dense.</p> <p>@71-74.5; no returns; (injecting water)</p> <p>@78'; GRAVELLY SANDSTONE (SW)</p>
				42				
			Grab		44			
				46				
			Grab		48			
				50				
			Grab		52			
				54				
			Grab		56			
				58				
11:40		Grab		60				
			62					
		Grab		64				
			66					
13:10		Grab		68				
			70					
		Grab		72				
			74					
		Grab		76				
			78					

COMMENTS:

QA/QC
LOGGED BY Paul Chang

CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: ARCH/Direct Air	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. DW-21
	RIG: Dresser T70W	OPERATOR:	SHEET 3 OF 5
PROJECT NO. 792038	SAMPLING METHOD: Grab/94mm Core		DRILLING
SURFACE CONDITIONS:	BOREHOLE DIAMETER: 11 2/4" / 10 3/4		START TIME 07:30
	BOREHOLE DEPTH: 182.5'		FINISH TIME 13:45
LOCATION:	WATER LEVEL 66.4		DATE 11/03/99
EAST 6366722.9128 NORTH 1977818.9277	DATE 13:00		DATE 11/05/99
DATUM MSL ELEVATION (FT. MSL) 985.70	TIME 11/4/99		

TIME	TYPE OF SAMPLER	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
14:35	Grab				80			SANDY MUDSTONE (ML), 70% fines; fine to coarse sand; wet (injecting water).
					82			
					84			GRAVELLY SANDSTONE (SW), light olive brown (5Y 5/6); 20% fines; mostly fine to medium sand; occasional gravel.
					86			SANDY, GRAVELLY MUDSTONE (SW), pale olive (10Y 7/4); some sand & gravel; mostly fines; wet (injecting water).
					88			
	Grab				90			GRAVELLY SANDSTONE (SW), as above.
					92			
					94			
	Grab				96			SANDY MUDSTONE (ML), pale olive (10Y 7/4); 60% fines; 40% fine sand; wet (injecting water).
					98			
	Grab				100			SILTY SANDSTONE (SM), light olive gray (5Y 5/2); 25% fines; mostly fine sand; minor medium to course sand.
					102			@102'; abundant gravels.
					104			@105'; silty, clayey sandstone; some fines with clay nodules; mostly fine to medium sand.
	Grab				106			@106'; occasional gravels
					108			
15:30	Grab				110			@109'; sandy claystone (or clayey sandstone) @110'; switch to 94 mm core.
	94mm	18"/18"	(1)		112			SANDY CLAYSTONE (CL), light olive brown (5Y 4/4); mostly fines; ~30% fine sand; minor medium to course sand; friable; finely laminated 112'-112.5' and 113.5'-114.5'; moist to wet.
	94mm	15"/18"	(2)		114			
7:05	94mm	5'/5'	(3)		116			SANDY SILTSTONE (ML), grayish olive (10Y 4/2); 60% fines; 40% fine sand; dense; moist to wet.
					118			SILTY SANDSTONE (SM), pale olive (10Y 4/2); 25% fines.
7:30					120			

COMMENTS:

QA/QC
LOGGED BY **Paul Chang**

CHECKED BY _____ DATE _____

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EMCON/OWT Solid Waste Services

EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California		DRILLING METHOD: ARCH/Direct Air	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. DW-21
		RIG: Dresser T70W	OPERATOR:	SHEET 4 OF 5
PROJECT NO. 792038		SAMPLING METHOD: Grab/94mm Core		DRILLING
SURFACE CONDITIONS:		BOREHOLE DIAMETER: 11 2/4" / 10 3/4	BOREHOLE DEPTH: 182.5'	START TIME 07:30
LOCATION:		WATER LEVEL 66.4	DATE 11/03/99	FINISH TIME 13:45
EAST 6366722.9128 NORTH 1977818.9277		DATE 11/4/99	DATE 11/05/99	
DATUM	MSL	ELEVATION (FT. MSL) 985.70	TIME	

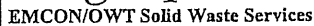
TIME	Type of Sampler	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
7:45	94mm	4.3'/5'	(4)		120			80% fine sand; friable; wet.
					122			@117 - 118.8'; slightly coarser with some medium sand.
					124			@120.6'; SANDSTONE (SW), pale olive (10Y 6/2); minor fines; mostly fine sand; some medium sand; moist to wet.
8:00	94mm	4'/4'	(5)		126			SILTSTONE (ML), grayish olive (10Y 4/2); mostly silt; minor fine sands; hard; finely laminated; moist to wet.
8:12					128			SILTY SANDSTONE (SM), dusky yellowish green (5GY 5/2); 35% fines; 65% fine sand; dense to friable; moist to wet.
8:37	94mm	4.4'/5'	(6)		130			SILTSTONE (ML), grayish olive (10Y 4/2); mostly silt; trace fine sands; hard; laminated; moist.
8:50					132			@131-133.2', more fine sands; pale greenish yellow (10Y 8/2); with light olive brown (5Y 5/6) streaks.
9:15	94mm	5'/5'	(7)		134			SILTY SANDSTONE (SM), pale olive (10Y 6/2); minor fines; mostly fine sand; hard to friable; moist to wet.
9:25					136			@134'; grayish green (5G 5/2); friable; wet.
9:54	94mm	3'/5'	(8)		138			SILTSTONE (ML), grayish green (10GY 5/2); mostly silt; minor fine sand; very hard; moist; not laminated
10:02					140			@137-137.4; slightly more fine sands.
10:22	94mm	5'/5'	(9)		142			SILTY SANDSTONE (SM), grayish green (10GY 5/2); minor silt; mostly fine sand; friable; moist to wet.
10:30					144			@142'; minor gravels.
	94mm	2.3'/5'	(10)		146			@147.8'; SANDSTONE (SW); trace fines; mostly fine sand; some medium to coarse sand; wet; friable.
10:39					148			@151.5'; possible gravels and cobbles; no recovery in core barrel.
10:55	Grab				150			@152'; gravels in return
					152			SANDY SILTSTONE (ML); with minor gravels.
	Grab				154			SANDSTONE (SW); grayish green; as above; trace gravels.
					156			
					158			
					160			

COMMENTS:

QA/QC
LOGGED BY: Paul Chang

CHECKED BY: _____ DATE: _____

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SITE NAME AND LOCATION
Chiquita Canyon Landfill
Valencia, California

DRILLING CONTRACTOR:
Water Development Corp.

RIG: Dresser T70W

OPERATOR:

SHEET
5 OF 5

∇ = Static Water Levels ∇ = First Encountered Water

SAMPLING METHOD:

Grab/94mm Core

PROJECT NO. 792038

DRILLING

SURFACE CONDITIONS:

BOREHOLE DIAMETER: 11 2/4" / 10 3/4

START
TIME

FINISH
TIME
10:15

BOREHOLE DEPTH: DRILLED DEPTH: 182.5'

07:30

13:45

LOCATION:

WATER LEVEL

66.4

EAST	6366722.9128	NORTH	1977818.9277
------	--------------	-------	--------------

DATE _____

13:00

DATE
11/03/9

DATE
1/05/9

DATUM	MSL	ELEVATION (FT. MSL)	985.70
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TIME

11/4/99

COMMENTS:

QA/QC
LOGGED BY Paul Chang

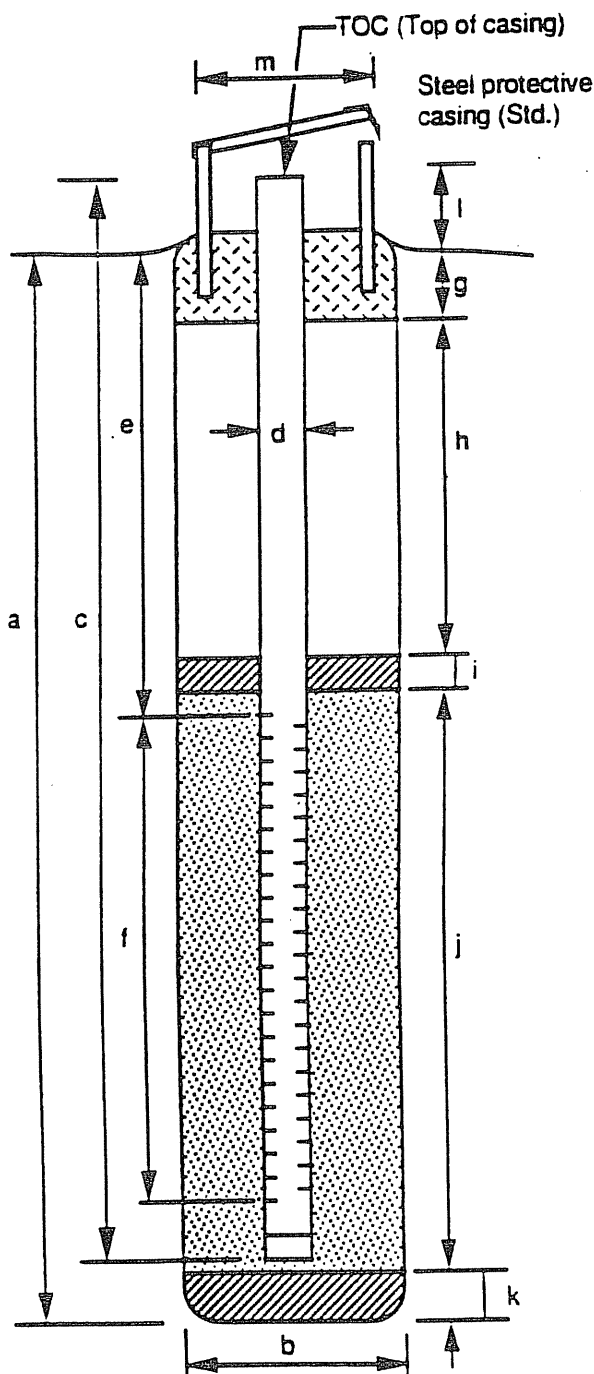
CHECKED BY _____ DATE _____



PIEZOMETER DETAILS

PROJECT NUMBER 976-04.02
 PROJECT NAME Chiquita Canyon Landfill - VMP
 LOCATION Los Angeles County
 WELL PERMIT NO. LA County DHS. 5/22/91
 INSTALLED BY L. Rainey

PIEZOMETER NO. PZ-1
 TOP OF CASING ELEV. 968.58 ft.
 GROUND SURFACE ELEV. 966 ft.
 DATUM MSL
 INSTALLATION DATE 5/16/91



EXPLORATORY BORING

a. Total depth 57.2 ft.
 b. Diameter 10 in.
 Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 59.6 ft.
 Material Schedule 40 PVC
 d. Diameter 2 in.
 e. Depth to top perforations 36.9 ft.
 f. Perforated length 19.8 ft.
 Perforated interval from 36.9 to 56.7 ft.
 Perforation type Machine Slotted
 Perforation size 0.020 inch
 g. Surface seal 3.0 ft.
 Material Concrete
 h. Backfill 29.5 ft.
 Material Cement/Bentonite
 i. Seal 2.4 ft.
 Material Bentonite Chips
 j. Gravel pack 22.3 ft.
 Gravel pack interval from 34.9 to 57.2 ft.
 Material Lonestar #3 Sand
 k. Bottom seal/fill N/A ft.
 Material _____
 l. Casing stickup 2.4 ft.
 m. Protective casing diameter 12 in.

Drilling Contractor: West Hazmat Drilling Corp.
 Driller: Mark
 Date:
 Checked By:
 Installed by:

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02 BORING NO. PZ-1
 PROJECT NAME Chiquita Canyon Landfill PAGE 1 OF 7
 BY K Johnson/L Rainey DATE 5/16/91 SURFACE ELEV. ~966 ft.

Core Box	Core Recovery (ft/ft)	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1 at top		1 at top						
		1					FILL: sand (SP-SM), dark grayish brown (10YR 4/2); 10% nonplastic fines; 75% fine sand; 15% medium sand; trace gravel; rootlets common; dry.	
	2.6/2.6	2		5			@ 4.5': same.	
							@ 5.5': light yellowish brown (10YR 6/4); 10 to 15% nonplastic fines; 85 to 90% fine sand; trace medium sand; trace fine gravel; subrounded; styrofoam debris.	
	1.5/2.3	3					@ 7': light gray (2.5Y 7/2); 100% fine sand; trace mica; very well sorted; damp.	
							@ 8': light yellowish brown (10YR 6/4); 90% fine sand; 10% medium sand; trace coarse sand; loose; dry.	
	0.7/2.0	4					@ 8.5': pale yellow (5Y 7/4). @ 9': sand (SW), pale yellow (5Y 7/4); 20% fine sand; 50% medium sand; 20% coarse sand; 10% gravel; damp.	
				10				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (LD.) 5-foot long split spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.
 QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~966 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top	(ft/ft)	at top						
	2.0/2.5	5					SAND (SP), light yellowish brown (2.5Y 6/4); 85% fine sand; 15% medium sand; trace mica; medium grains are quartzose.	
							@ 12': 100% fine sand; very well sorted.	
							@ 12.5': trace nonplastic fines; 85% fine sand; 15% medium sand.	
							SILTY SAND (SM), light olive brown (2.5Y 5/4); 20% nonplastic fines; 80% fine sand; damp.	
	1.7/2.5	6		15			SAND (SP), light olive brown (2.5Y 5/4); 60% fine sand; 40% medium sand; damp.	
							SAND (SW), light yellowish brown (2.5Y 6/4); 5% nonplastic fines; 50% fine sand; 25% medium sand; 20% coarse sand; angular to subrounded; damp.	
	2.0/2.5	7					@ 17': gravelly lens containing 60% gravel; gravel is subrounded whitish quartzite, grayish brown granite, and black schist.	
							@ 17.7': light olive brown (2.5Y 5/4); 30% fine sand; 40% medium sand; 30% coarse sand; loose.	
							@ 17.8': biotite granite gravel encountered.	
							SANDSTONE (SAUGUS FORMATION), light brownish gray (2.5Y 6/2); 90% fine sand; 10% medium sand; micaceous; low to moderate hardness.	
	1.7/3.0	8		20			@ 18.5': light olive brown (2.5Y 5/4); 15% fine	

REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split spoon sampler advanced ahead of the augers as drilling progressed.

Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~966 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
† at top	(ft/ft)	† at top					
	1.5/2.5	9				sand; 70% medium sand; 15% coarse sand; loose. @ 18.75': gravelly lens encountered. @ 20.5': 55% fine sand; 20% medium sand; 10% coarse sand; 15% gravel; gravel and coarse sand is subangular to subrounded granite and metamorphic rock; low hardness; damp. @ 21.5': 45% fine sand; 25% medium sand; 25% coarse sand; 5% gravel.	
	2.0/3.0	10		25		@ 23': light yellowish brown (2.5Y 6/4); 90% fine sand; 10% medium sand. @ 23.5': light olive brown (2.5Y 5/4); 10% nonplastic fines; 90% fine sand; micaceous; rounded grains; low hardness; dry. @ 24': light yellowish brown (2.5Y 6/4); 10% nonplastic fines; 85% fine sand; 5% medium sand; well cemented.	
	1.6/2.0	11				@ 25.5': SILTY SANDSTONE, light olive brown (2.5Y 5/4); 30 to 35% nonplastic to low-plasticity fines; 65 to 70% fine sand; trace medium sand; medium grains are rounded quartz; damp. @ 26': SANDSTONE, light brownish gray (2.5Y 6/2); 30% fine sand; 35% medium sand; 15% coarse sand; 20% fine gravel; gravel is subangular to subrounded; sand consists of quartz, feldspar, and mafic grains; friable. @ 26.5': SILTY SANDSTONE, light olive brown (2.5Y 6/4); 25% low-plasticity fines; 65% fine sand; 10% medium sand; trace coarse sand and gravel; mineralogy as above. @ 27.9': SANDSTONE, light olive brown (2.5Y 5/4); 20% fine sand; 70% medium sand; 10% coarse sand; angular to subrounded siliceous and felsic clasts; loose; dry.	
	1.8/2.5	12		30			

REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split spoon sampler advanced ahead of the auger as drilling progressed.

Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *Johnson*



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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. -966 ft.

Core Box	Core Recovery (ft/ft)	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top		at top						
	2.0/2.5	13					<p>@ 30.2': SILTY SANDSTONE, brownish gray (2.5Y 5/2); 25% low-plasticity fines; 75% fine sand; slight iron oxide stain; massive; damp.</p> <p>@ 30.5': trace fine gravel.</p> <p>@ 31.5': 30 to 35% low-plasticity fines; 65 to 70% fine sand; trace coarse sand and fine gravel; 0.75"-wide iron oxide stain bands; low hardness.</p> <p>@ 32': white (2.5Y 8/2); 15 to 20% nonplastic to low-plasticity fines; 80 to 85% fine sand; black specks in sand.</p> <p>@ 32.5': SANDSTONE, light yellowish brown (2.5Y 6/4); 10% nonplastic fines; 90% fine sand; micaceous; loose; damp.</p> <p>@ 33.6': SILTY SANDSTONE, grayish brown (2.5Y 5/2); 20% low-plasticity fines; 80% fine sand; moderate hardness; dry.</p>	
	2.2/2.6	14		35			<p>SILTSTONE (SAUGUS FORMATION), light yellowish brown (2.5Y 6/4); 80% nonplastic to low-plasticity fines; 20% fine sand; moderate hardness; dry.</p> <p>SANDSTONE (SAUGUS FORMATION), grayish brown (2.5Y 5/2); 100% fine sand; micaceous; massive; friable; damp.</p>	
	2.0/2.5	15					<p>@ 37.5': SILTY SANDSTONE, light brownish gray (2.5Y 6/2); 25% nonplastic fines; 75% fine sand; loose to friable; damp.</p> <p>@ 38': SANDSTONE, light brownish gray (2.5Y 6/2); 100% fine sand; friable; damp.</p> <p>@ 38.5': gravelly lens encountered.</p> <p>@ 38.7': SILTY SANDSTONE, olive brown (2.5Y 4/4); 20% low-plasticity fines; 80% fine sand; trace medium sand; finely laminated with layers of dark mineral grains.</p>	
	2.3/2.5	16		40				

REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~966 ft.

Core Box	Core Recovery (ft/ft)	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
¢ at top		¢ at top						
	2.2/2.5	17					<p>@ 39.8': quartzite gravel clast encountered.</p> <p>@ 40': massive; low hardness.</p> <p>CLAYSTONE (SAUGUS FORMATION), brown (10YR 5/3); 100% medium plasticity fines; trace mica; finely laminated just below upper contact; damp.</p> <p>@ 41.5': low hardness.</p> <p>CLAYEY SANDSTONE (SAUGUS FORMATION), dark grayish brown (2.5Y 4/2); 20% low-plasticity fines; 80% fine sand; micaceous; moderate hardness; trace limonitic staining; damp.</p> <p>@ 42.75': trace medium sand.</p> <p>CLAYSTONE (SAUGUS FORMATION), brown (10YR 5/3); 100% low-plasticity fines; friable; dry.</p> <p>CLAYEY SANDSTONE (SAUGUS FORMATION), dark grayish brown (2.5Y 4/2); 30% low-plasticity fines; 70% fine sand; moderate hardness; damp.</p> <p>@ 44': SILTY SANDSTONE, yellowish brown (10YR 5/4); 20% nonplastic fines; 80% fine sand; trace mica; minor iron oxide staining; friable to low hardness; damp.</p> <p>SANDY SILTSTONE (SAUGUS FORMATION), yellowish brown (10YR 5/4) to pale brown (10YR 6/3); 65 to 70% nonplastic to low-plasticity fines; 30 to 35% fine sand; massive; low hardness; damp.</p> <p>SANDSTONE (SAUGUS FORMATION), light olive brown (2.5Y 5/4); trace fines; 100% fine sand; massive; minor iron oxide staining; friable to low hardness; damp.</p>	
	2.5/2.5	18		45				
	3.0/2.5	19						
	2.5/2.5	20		50				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~966 ft.

Core Box	Core Recovery (ft/ft)	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top		at top						
	3.0/2.0	21					<p>SILTSTONE and SANDSTONE, INTERBEDDED (SAUGUS FORMATION), thinly interbedded; micaceous; low hardness; damp to moist: SILTSTONE: olive (5Y 5/3); 100% nonplastic fines. SANDSTONE: olive gray (5Y 5/2); 5% nonplastic fines; 95% fine sand.</p>	
	3.6/2.5	22					<p>CLAYEY SANDSTONE (SAUGUS FORMATION), olive (5Y 5/3); 40% low-plasticity fines; 60% fine sand; micaceous; caliche; low hardness; moist. @ 49.5': SANDSTONE, gray to light gray (5Y 6/1); 100% fine sand; very well sorted; trace mica; damp. @ 50.5': static ground-water level measured 5/15/91. @ 51': trace iron oxide staining. @ 52': olive (5Y 5/4); 10% nonplastic fines; 90% fine sand; micaceous. @ 52.5': olive gray (5Y 5/2); 100% fine sand; bedding inclined 30 degrees from horizontal. <i>down plunge?</i> @ 53': ground-water level first measured on 5/15/91. @ 53.3': SILTY SANDSTONE, olive (5Y 5/3); 20% non-plastic fines; 80% fine sand. @ 54.5': SANDSTONE, light olive gray (5Y 6/2); 5% nonplastic fines; 95% fine sand; trace iron oxide staining; friable; damp. @ 55.2': strong iron oxide staining. @ 55.8': SILTY SANDSTONE, light gray (5Y 7/1); 25 to 30% nonplastic to low-plasticity fines; 70 to 75% fine sand; low hardness; dark gray streaks on core; damp.</p>	
							<p>CLAYSTONE (SAUGUS FORMATION), olive brown (2.5Y 4/4); 100% low- to medium-plasticity fines; trace fine sand; friable; dry. @ 56.5': SANDY CLAYSTONE, 70 to 75% low- to</p>	

REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~966 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	LITHO- GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top	(ft/ft)	at top					
						<p>medium-plasticity fines; 25 to 30% fine sand; micaceous; low hardness; damp.</p> <p>BOTTOM OF BORING: 57.2 FEET. TARGET DEPTH ATTAINED.</p>	
				65			
				70			



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

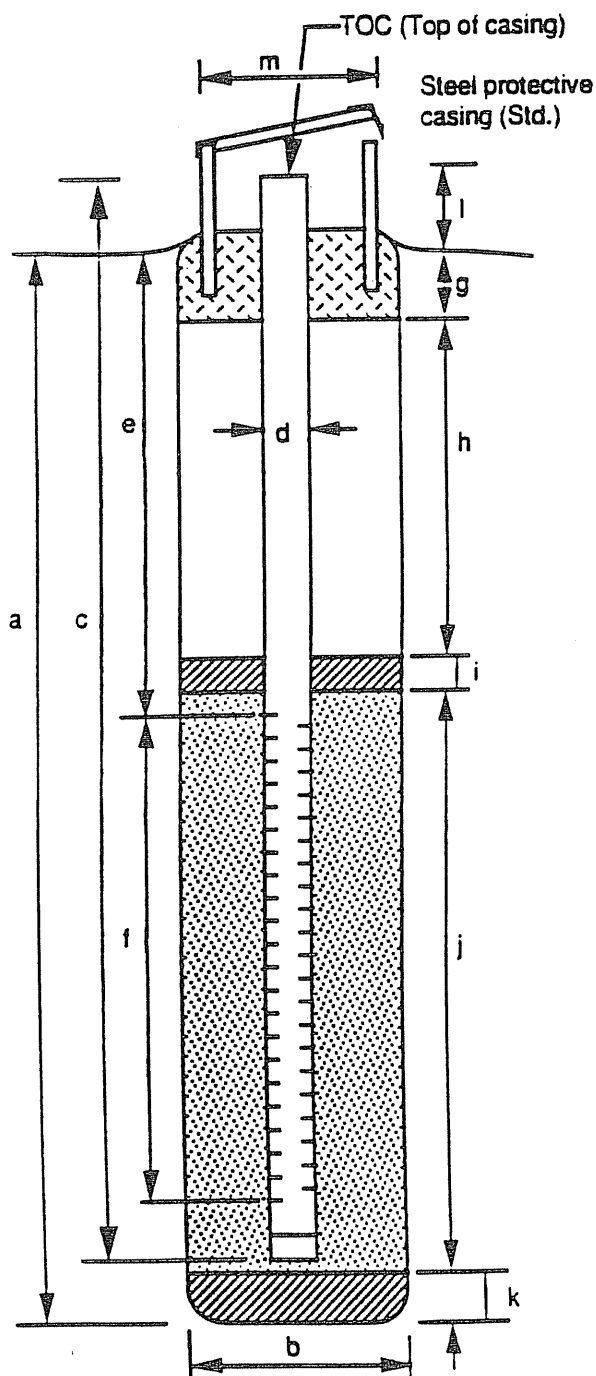
QA/QC: *[Signature]*

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PIEZOMETER DETAILS

PROJECT NUMBER 976-04.02 PIEZOMETER NO. PZ-2
 PROJECT NAME Chiquita Canyon Landfill - VMP TOP OF CASING ELEV. 976.02 ft.
 LOCATION Los Angeles County GROUND SURFACE ELEV. 973 ft.
 WELL PERMIT NO. LA County DHS, 5/22/91 DATUM MSL
 INSTALLED BY L. Rainey INSTALLATION DATE 5/16/91



EXPLORATORY BORING

a. Total depth 67.9 ft.
 b. Diameter 10 in.
 Drilling method Hollow Stem Auger

WELL CONSTRUCTION

c. Total casing length 67.5 ft.
 Material Schedule 40 PVC
 d. Diameter 2 in.
 e. Depth to top perforations 47.2 ft.
 f. Perforated length 19.4 ft.
 Perforated interval from 47.2 to 66.7 ft.
 Perforation type Machine Slotted
 Perforation size 0.020 inch
 g. Surface seal 4.8 ft.
 Material Concrete
 h. Backfill 31.7 ft.
 Material Cement/Bentonite
 i. Seal 9.1 ft.
 Material Bentonite Chips
 j. Gravel pack 22.3 ft.
 Gravel pack interval from 45.6 to 67.9 ft.
 Material Lonestar #3 Sand
 k. Bottom seal/fill N/A ft.
 Material
 l. Casing stickup 2.6 ft.
 m. Protective casing diameter 12 in.

Drilling Contractor: West Hazmat Drilling Corp.

Driller: Mark

Date:

Checked By:

Installed By:

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. -973 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top	(ft/ft)	at top						
		1					FILL sand (SP), olive (5Y 5/3); 75% fine sand; 20% medium sand; 5% coarse sand; trace fine gravel; abundant rootlets; loose; dry.	
							@ 3': damp.	
	1.5/2.0	2		5			SILTY SAND (SM), light yellowish brown (2.5Y 6/4); 20 to 25% low-plasticity fines; 75 to 80% fine sand; trace medium sand; rare fine gravel; gravel is subangular to rounded; mica flakes; damp.	
	1.7/2.5	3					@ 7.5': pale olive (5Y 6/4); 20% nonplastic fines; 80% fine sand.	
	1.6/2.5	4		10				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~973 ft.

Core Box	Core Recovery (ft/ft)	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
φ at top		φ at top						
	1.5/2.5	5					@ 11': light olive brown (2.5Y 5/4); 15 to 20% low-plasticity fines; 80 to 85% fine sand; trace medium sand to fine gravel; rare white calcareous nodules (0.2"-diameter); coarse sand and gravel are subangular and granitic; mica flakes; damp.	
	2.0/2.5	6		15			@ 15.25': 15% nonplastic fines; 75% fine sand; 10% medium sand.	
	2.0/2.5	7					@ 16.75': dark brown clayey chips observed.	
	2.4/2.5	8		20			SILTY SANDSTONE (SAUGUS FORMATION), light olive brown (2.5Y 5/4); 15% nonplastic fines; 85% fine sand; abundant caliche; low to moderate hardness; damp. @ 17.75': SANDSTONE, light gray (5Y 7/2); 100% fine sand; loose; damp. @ 19': light brownish gray (2.5Y 6/2); 90% fine sand; 5% medium sand; 5% coarse sand.	



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~973 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top	(ft/ft)	at top						
	2.3/2.5	9					<p>@ 21': thin (0.1"-thick) black horizontal laminae observed.</p> <p>CLAYSTONE (SAUGUS FORMATION), brown (10YR 5/3); 100% medium-plasticity fines; trace fine sand; trace mica; mottled with dark grayish brown blotches; friable.</p> <p>@ 22.2': SANDY CLAYSTONE, dark yellowish brown (10YR 4/4); 80% low-plasticity fines; 20% fine sand; low hardness; damp.</p> <p>@ 23.5': CLAYSTONE, dark brown (7.5Y 4/4); 100% low- to medium-plasticity fines; caliche present on undulating bedding surfaces; damp.</p> <p>@ 24.5': SANDY CLAYSTONE, dark yellowish brown (10YR 4/4); 70% low- to medium-plasticity fines; 30% fine sand; trace medium sand; minor iron oxide staining; mica flakes; friable; damp.</p>	
	1.9/2.5	11		25				
	2.2/2.5	12		30			<p>SANDSTONE (SAUGUS FORMATION), olive gray (5Y 5/2); 100% fine sand; low hardness; damp.</p> <p>@ 28.2': SILTY SANDSTONE, yellowish brown (10YR 5/4); 15% nonplastic fines; 85% fine sand.</p> <p>@ 28.9': pale olive (5Y 6/3) sandstone lens; 100% fine sand.</p> <p>@ 29.5': pale olive (5Y 6/3); 10% nonplastic fines; 85% fine sand; 5% medium sand; friable.</p>	



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (LD.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed.

Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~973 ft.

Core Box # at top	Core Recovery (ft/ft)	Core Run # at top	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLORS	DESCRIPTION	WELL DETAIL
	1.5/2.5	13					@ 29.7': 0.25"-thick weakly cemented tablets observed.	
							@ 31.5': 100% fine sand lens.	
							@ 32': moderately weathered granite cobble lodged in sampler.	
	2.4/2.5	14					CLAYSTONE (SAUGUS FORMATION), dark brown (7.5Y 3/2); 90% medium-plasticity fines; 10% fine sand; trace fine gravel; mottled; low to moderate hardness; damp.	
							@ 33.8': bedding observed inclined at 20 degrees from horizontal.	
	1.9/2.5	15		35			SANDSTONE (SAUGUS FORMATION), light gray (2.5Y N7); 100% fine sand; moderate hardness; damp.	
							@ 34.1': CLAYEY SANDSTONE, olive gray (5Y 5/2); 30% low-plasticity fines; 70% fine sand; damp.	
							@ 34.2': SANDSTONE, olive (5Y 5/4); 100% fine sand; low hardness; damp.	
							@ 34.5': SILTY SANDSTONE, light olive brown (2.5Y 5/4); 20 to 25% low-plasticity fines; 75 to 80% fine sand; trace mica; friable to low hardness, with low hardness portions more micaceous; iron oxide staining; damp.	
							@ 34.9': pale olive 1"-thick beds observed.	
							@ 36': moderate yellowish staining; friable.	
							@ 36.3': SANDSTONE, olive gray (5Y 5/2); 5% low-plasticity fines; 95% fine sand; damp.	
	2.9/2.5	16					@ 36.5': SILTY SANDSTONE, light olive brown (2.5Y 5/4); 30% low-plasticity fines; 70% fine sand; trace fine gravel; massive; damp.	
				40			@ 37.5': SANDSTONE, gray (5Y 5/1); trace fines;	



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed.

Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~973 ft.

Core Box # at top	Core Recovery (ft/ft)	Core Run # at top	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLOR	DESCRIPTION	WELL DETAIL
	2.6/2.5	17					100% fine sand; friable; iron oxide staining; damp. @ 38': 5% fines. @ 38.5': light olive brown (2.5Y 5/6); 10% low-plasticity fines; micaceous; strong iron oxide staining.	
	2.4/2.5	18		45			SANDY CLAYSTONE (SAUGUS FORMATION), light olive brown (2.5Y 5/4); 85 to 90% medium-plasticity fines; 10 to 15% fine sand; mica flakes; friable; damp. @ 39.8': CLAYSTONE, grayish brown (2.5Y 5/2); 95% medium-plasticity fines; 5% fine sand; massive; low hardness; damp.	
	2.8/2.5	19					SANDSTONE (SAUGUS FORMATION), olive (5Y 5/3); 10% low-plasticity fines; 90% fine sand; trace medium sand; low hardness. @ 42': SILTY SANDSTONE, light brownish gray (2.5Y 6/2); 35% nonplastic to low-plasticity fines; 65% fine sand; micaceous; low to moderate hardness; damp.	
							SILTSTONE (SAUGUS FORMATION), light olive brown (2.5Y 5/4); 100% nonplastic fines; low to moderate hardness; damp. @ 43.1': olive gray (5Y 4/2).	
	2.5/2.5	20					SANDSTONE (SAUGUS FORMATION), olive gray (5Y 5/2); 100% fine sand; low to moderate hardness; damp. @ 44.4': SILTY SANDSTONE, olive brown (2.5Y 4/4); 20% nonplastic fines; 80% fine sand; micaceous; caliche veins; low hardness; damp. @ 44.5': SANDSTONE, light yellowish brown (2.5Y 6/4); 100% fine sand; low hardness; caliche; damp. from 46.1' to 46.5': non-indurated zone. @ 46.5': whitish color; calcareous. @ 47': CLAYEY SANDSTONE, olive gray (5Y	



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed.

Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. -973 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top	(ft/ft)	at top					
	2.6/2.5	21				4/2); 20% medium-plasticity fines; 80% fine sand; moderate hardness; damp; mottled. @ 47.6': SANDSTONE, brown (10YR 5/3); 100% fine sand; mottled with limonitic staining; moderate hardness; moist. @ 48.9': SILTY SANDSTONE, brown (10YR 5/3); 25% nonplastic to low-plasticity fines; 75% fine sand; trace medium sand; low to moderate hardness; damp.	
	2.3/2.5	22		55		SANDY MUDSTONE (SAUGUS FORMATION), olive brown (2.5Y 4/4); 75 to 80% low- to medium-plasticity fines; 20 to 25% fine sand; trace mica; slight iron oxide staining; friable; damp. SANDSTONE (SAUGUS FORMATION), light olive brown (2.5Y 5/6) and gray (10YR 5/1) mottled; 100% fine sand; trace rounded quartzose medium to coarse sand; trace mica; iron oxide staining; damp. @ 51.5': intense iron oxide staining. @ 52': low hardness; moist. @ 52.9': yellowish brown (10YR 5/8). @ 53.3': 90% fine sand; 10% medium sand. @ 53.9': SILTY SANDSTONE, light olive brown (2.5Y 5/4); 30% nonplastic fines; 70% fine sand; micaceous; minor caliche; low to moderate hardness; damp. @ 54.5': SANDSTONE, olive gray (5Y 5/2); 80% fine sand; 20% medium sand; trace coarse sand; low to moderate hardness; wet due to water added to borehole by drillers.	
	1.8/2.5	23					
	1.8/2.5	24				@ 59.6': ground-water level measured on 5/15/91.	



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed.

Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. PZ-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY K Johnson/L Rainey DATE 5/16/91

SURFACE ELEV. ~973 ft.

Core Box	Core Recovery	Core Run	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
ft at top	(ft/ft)	ft at top						
	1.7/2.5	25		7			<p>@ 61': 75% fine sand; 20% medium sand; 5% coarse sand; subrounded felsic clasts; moist.</p> <p>@ 62': first encountered ground water during drilling; 60% fine sand; 30% medium sand; 10% coarse sand.</p> <p>@ 63': grayish brown (2.5Y 5/2) to olive (5Y 5/3); 45% fine sand; 45% medium sand; 10% coarse sand; trace fine gravel; rare small cobbles; subangular to subrounded quartz, felsic, and mafic grains; friable; wet;</p> <p>@ 64.2': coarse gravelly lens encountered; no recovery to total depth of boring.</p>	
				65				
							<p>BOTTOM OF BORING: 67.9 FEET. TARGET DEPTH ATTAINED.</p>	
				70				



REMARKS

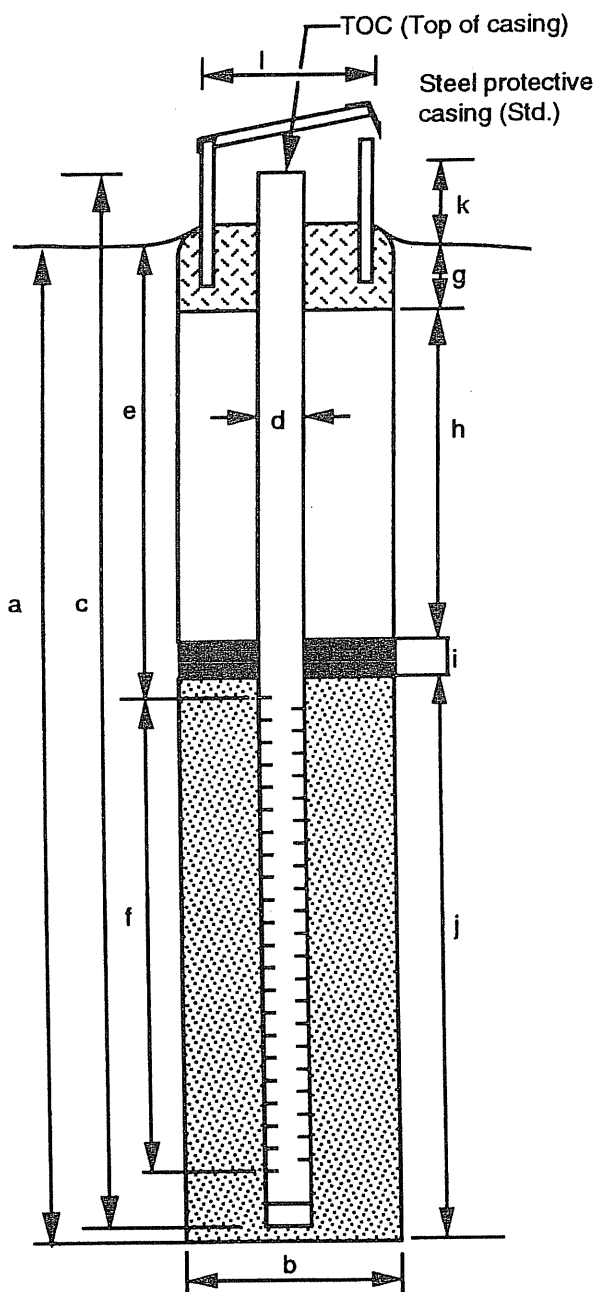
Boring drilled using hollow-stem auger equipment to the total depth explored. Continuous coring performed to total depth using a 2.5" (I.D.) 5-foot long split-spoon sampler advanced ahead of the augers as drilling progressed. Subsequently, a 2" (O.D.) piezometer was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]*



PIEZOMETER CONSTRUCTION DETAIL

PROJECT NUMBER 20976-001.041 BORING / WELL NO. PZ - 3
 PROJECT NAME: Chiquita Canyon Landfill TOP OF CASING ELEV. 1103.62
 LOCATION: Los Angeles County, CA GROUND SURFACE ELEV. 1100.63
 WELL PERMIT NO. Approved 2-9-96 DATUM: Mean Sea Level
 DRILLER: Valley Well Drilling INSTALLATION DATE 1-31-96



EXPLORATORY BORING

- a. Total depth 100.0 ft.
- b. Diameter 8 in.
- Drilling method Air Rotary

WELL CONSTRUCTION

- c. Total casing length 103.3 ft.
Material Schedule 40 PVC
- d. Diameter ID 2.07 in. OD 2.38 in.
- e. Depth to top perforations 59.6 ft.
- f. Perforated length 40.4 ft.
Perforated interval from 59.6 to 100.0 ft.
Perforation type Machine-slotted
Perforation size 0.02-inch
- g. Surface seal -1.5 ft.
Seal interval from 0 to -1.5 ft.
Material Concrete
- h. Backfill/Annular Seal 38.5 ft.
Backfill interval from -1.5 to 40.0 ft.
Material Bentonite Grout
- i. Seal 17 ft.
Seal interval from 40 to 57 ft.
Material Medium Bentonite Chips
- j. Filter pack 43 ft.
Filter pack interval from 57 to 100 ft.
Material Lonestar #3 Sand
- k. Casing stickup 3.3 ft.
- l. Protective casing diameter 8 in.

QA/QC:

Well Installed by: M. Kuncir

Checked By: _____ Date: _____

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20976-001.041

WELL NO.: PZ-3

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 1 of 3

BY: Mark T. Kuncir

DATE: 01/30/98

SURFACE ELEVATION: 1100.83 MSL

PID READING (ppm)	PENETRA- TION (blows/8")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SAUGUS FORMATION (Qs): 0 TO 100 FEET	
							SANDSTONE: pale olive (5Y 6/3); 95% fine sand; 5% medium sand; trace coarse sand; trace fine gravel up to 0.5 inch in diameter; sand is subangular; gravel is subangular to subrounded; damp.	
<1				10			@ 12 ft.: gravel and cobble-size clasts.	
<1				20			@ 20 ft.: sand is subangular to subrounded.	
6.1				30			@ 30 ft.: 85% fine sand; 10% medium sand; 5% coarse sand; trace fine gravel up to 0.25 inch in diameter; sand and gravel are angular to subrounded; damp.	
				40			@ 36 ft.: gravel and cobble-size clasts.	

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 100 feet.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: PZ-3

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 2 of 3

BY: Mark T. Kuncir

DATE: 01/30/88

SURFACE ELEVATION: 1100.83 MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
<1							SANDSTONE: pale olive (5Y 6/1); 10% fine sand; 10% medium sand; 10% coarse sand; trace fine gravel up to 0.25 inch in diameter; sand is subangular to subrounded; gravel is angular to subrounded; damp.	
<1				50			@ 50 ft.: 100% fine sand; damp.	
<1				60			@ 60 ft.: 90% fine sand; 10% medium sand and coarse sand; trace fine gravel up to 0.5 inch in diameter; subangular; damp.	
			02/02/88				@ 64 ft.: Increase in soil moisture.	
			01/30/88				@ 69 ft.: first groundwater encountered.	
<1				70			@ 70 ft.: 10% non to low-plasticity fines; 10% fine sand; trace medium and coarse sand; subangular.	
							PEBBLY SANDSTONE: olive (5Y 5/4); trace fines; 20% fine sand; 40% medium sand; 20% coarse sand; 20% fine gravel up to 0.5 inch in diameter; sand is angular to subangular; gravel is angular to subrounded; wet.	
				80				

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter. PVC piezometer set at a total depth of 100 feet.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: PZ-3

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 3 of 3

BY: Mark T. Kuncir

DATE: 01/30/96

SURFACE ELEVATION: 1100.83 MSL

PID READING (ppm)	PENETRA- TION (blows/8")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				90	X		PEBBLY SANDSTONE.	
				100	X		SANDSTONE: olive (5Y 5/4); trace fines: 90% fine sand; 10% medium sand to coarse sand; angular to subrounded; wet.	
							BOTTOM OF BORING: 100 FEET TARGET DEPTH REACHED	
				110				
				120				

REMARKS

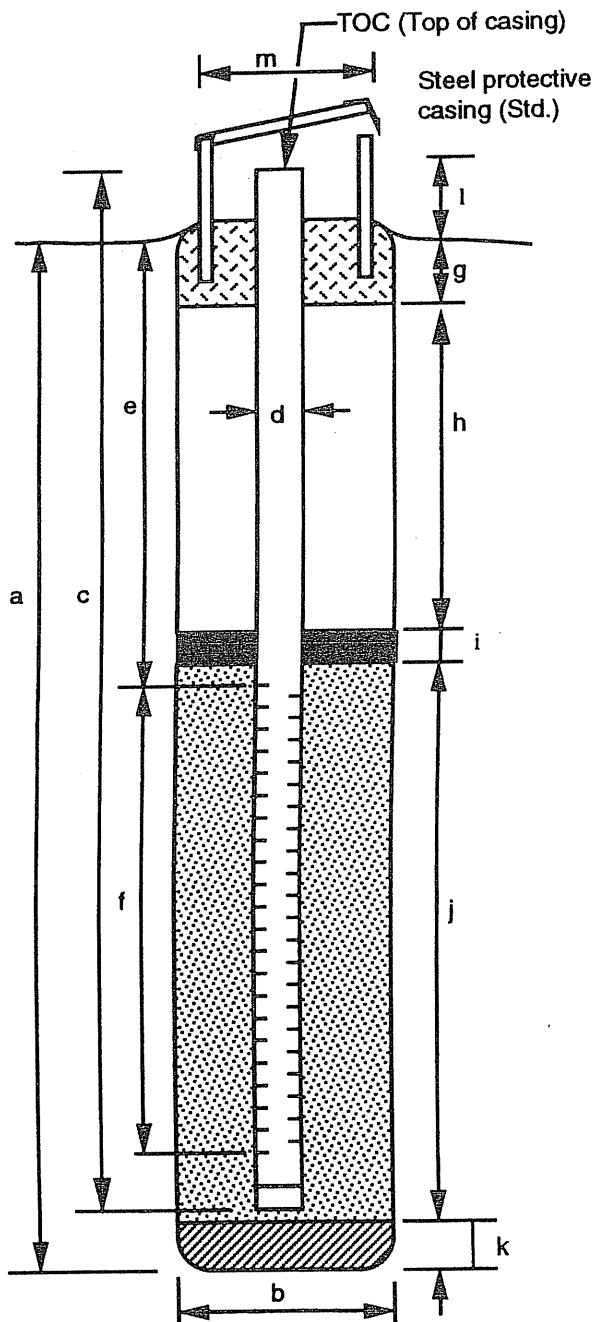
Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 100 feet.

EMCON

PIEZOMETER CONSTRUCTION DETAIL



PROJECT NUMBER 20976-001.041 BORING / WELL NO. PZ-4
 PROJECT NAME: Chiquita Canyon Landfill TOP OF CASING ELEV. 1104.71
 LOCATION: Los Angeles County, CA GROUND SURFACE ELEV. 1101.71
 WELL PERMIT NO. Approved 2-9-96 DATUM: Mean Sea Level
 DRILLER: Valley Well Drilling INSTALLATION DATE 1-29-96



EXPLORATORY BORING

a. Total depth 160.0 ft.
 b. Diameter 8 in.
 Drilling method Air Rotary

WELL CONSTRUCTION

c. Total casing length 137.22 ft.
 Material Schedule 40 PVC
 d. Diameter ID 2.07 in. OD 2.38 in.
 e. Depth to top perforations 93.8 ft.
 f. Perforated length 40.4 ft.
 Perforated interval from 96.8 to 137.2 ft.
 Perforation type Machine-slotted
 Perforation size 0.02-inch
 g. Surface seal -1.5 ft.
 Seal interval from 0 to -1.5 ft.
 Material Concrete
 h. Backfill/Annular Seal 78 ft.
 Backfill interval from -1.5 to 79.5 ft.
 Material Bentonite Grout
 i. Seal 10.5 ft.
 Seal interval from 79.5 to 90 ft.
 Material Medium Bentonite Chips
 j. Filter pack 50 ft.
 Filter pack interval from 90 to 140 ft.
 Material Lonestar #3 Sand
 k. Bottom seal/fill 20 ft.
 Seal/fill interval from 140/145 to 145/160 ft.
 Material Medium Bentonite Chips/
Lonestar #3 Sand
 l. Casing stickup 3.0 ft.
 m. Protective casing diameter 8 in.

QA/QC:

Well Installed by: M. Kuncir

Checked By: _____ Date: _____

PMISC-WELL DETAILS/CCL-DW-14.pdc Rev. 5/10/96

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: PZ-4

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 1 of 5

BY: Mark T. Kuncir

DATE: 01/29/98

SURFACE ELEVATION: 1101.71 MSL

PID READING (ppm)	PENETRA- TION (blows/8")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SAUGUS FORMATION (Qs): 0 TO 160 FEET	
							SILTY SANDSTONE: very pale brown (10YR 8/4); 10% non-plastic fines; 70% fine sand; 10% medium to coarse sand; subangular; damp.	
							SANDSTONE: pale yellow (5Y 2/3); 5% non-plastic fines; 95% fine sand; trace medium sand; damp.	
<1				10	☒			
3.1				20	☒		3-20 ft.: light olive gray (5Y 6/2); trace fines; 100% fine sand; trace medium and coarse sand; trace fine gravel up to 0.25 inch in diameter; sand is angular to subrounded; gravel is subangular; damp.	
							@ 30 ft.: light gray (5Y 7/2).	
2.9				30	☒			
							SANDY CLAYSTONE: olive gray (5Y 5/2); 35% low to medium-plasticity fines; 15% fine sand; damp.	
<1					☒		CLAYEY SANDSTONE: pale olive (5Y 6/3); 15% low plasticity fines; 70% fine sand; 10% medium sand; 5% coarse sand; trace fine gravel up to 0.5 inch in diameter; subangular; damp.	
				40				

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 133 feet.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20976-001.041

WELL NO.: PZ-4

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 2 of 5

BY: Mark T. Kuncir

DATE: 01/29/98

SURFACE ELEVATION: 1101.71 MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							CLAYEY SANDSTONE.	
				50			SILTY SANDSTONE: pale olive (5Y 6/3); 30% low to medium-plasticity fines; 50% fine sand; 10% medium sand; 5% coarse sand; 5% fine gravel up to 0.25 inch in diameter; subangular; damp.	
				60			SANDSTONE: light olive gray (5Y 6/3); trace fines; 95% fine sand; trace medium and coarse sand; trace fine gravel up to 0.25 inch in diameter; sand is subangular to subrounded; gravel is subangular; damp.	
				70			3-72 ft.: light olive gray (5Y 6/2); 10% low-plasticity fines; 90% fine sand; damp.	
				80				

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 133 feet.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: PZ-4

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 3 of 5

BY: Mark T. Kuncir

DATE: 01/29/98

SURFACE ELEVATION: 1101.71 MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
<1							SANDSTONE.	
							SILTY SANDSTONE: light olive brown (5Y 5/3); 10% non to low-plasticity fines; 80% fine sand; trace medium and coarse sand; subangular to subrounded; damp.	
<1				90				
							SANDSTONE: light olive gray (5Y 6/2); 10% non to low-plasticity fines; 90% fine sand; trace medium and coarse sand; subangular to subrounded; moist.	
							- @ 97 ft.: Increase in soil moisture.	
<1				100				
			01/30/09					
<1				110				
							110 ft.: olive gray (5Y 5/2); 100% fine sand; trace medium sand; moist.	
				120				

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 133 feet.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20978-001.041

WELL NO.: PZ-4

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 4 of 5

BY: Mark T. Kuncir

DATE: 01/29/98

SURFACE ELEVATION: 1101.71 MSL

PID READING (ppm)	PENETRA- TION (blows/6")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
<1					☒		SANDSTONE: light olive gray (5Y 6/2); 5% non to low-plasticity fines; 35% fine sand; trace medium and coarse sand; trace fine gravel; subangular; moist.	
<1				130	☒		@ 130 ft.: olive gray (5Y 5/2); 100% fine sand; trace medium and coarse sand; trace fine gravel up to 0.25 inch in diameter; sand is subangular to subrounded; gravel is subrounded; moist.	
			▽ 01/29/98					
<1				140	☒		@ 140 ft.: trace fines; 50% fine sand; 40% medium sand; 10% coarse sand; angular to subrounded; wet.	
<1				150	☒		@ 150 ft.: 60% fine sand; 30% medium sand; 10% coarse sand; subangular; wet.	
				160				

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 133 feet.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 20878-001.041

WELL NO.: PZ-4

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 5 of 5

BY: Mark T. Kuncir

DATE: 01/29/88

SURFACE ELEVATION: 1101.71 MSL

PID READING (ppm)	PENETRA- TION (blows/8")	RECOVERY (ft/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							BOTTOM OF BORING: 160 FEET TARGET DEPTH REACHED	
				170				
				180				
				190				
				200				

REMARKS

Drilled by Valley Well Drilling using a Failing 1500 rig and air rotary drilling method. Hole diameter is 8 inches. Grab samples were collected for logging purposes at 10-foot intervals. The boring was completed as a 2-inch diameter, PVC piezometer set at a total depth of 133 feet.

EMCON

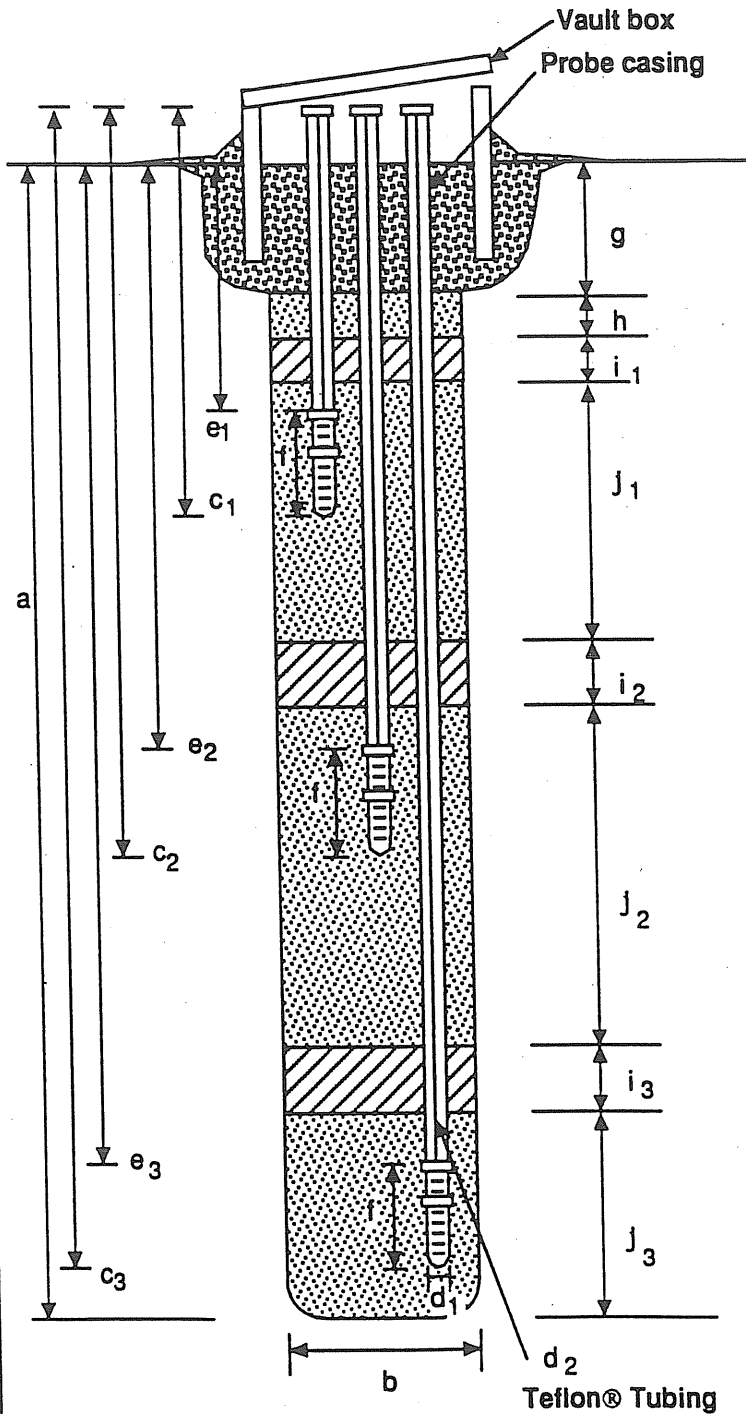
Author's address:



GAS PROBE DETAILS

PROJECT NUMBER 976-04.02
PROJECT NAME Chiquita Canyon Landfill-VMP
LOCATION Los Angeles County
DRILLING CONTRACTOR West Hazmat Drilling, Inc.
INSTALLED BY Laura Rainey

GAS PROBE NO. GP-2
TOP OF VAULT ELEV. 985.18 ft.
GROUND SURFACE ELEV. 982 ft.
DATUM MSL
INSTALLATION DATE 5/22/91



EXPLORATORY BORING

- a. Total depth 56.6 ft.
b. Diameter 10 in.
Drilling method: Hollow Stem Auger

GAS PROBE CONSTRUCTION

- c. Total Casing Length:
c₁ 19.5 ft.
c₂ 48.5 ft.
c₃ 57.0 ft.
Material: Schedule 40 PVC
- d. Probe Casing and Tubing Diameter:
d₁ Probe Casing 1/2 in.
Material: Schedule 40 PVC
d₂ Teflon® Tube Diameter 1/8 in. (ID)
1/4 in. (OD)
- e. Depth From Ground Surface to Probe Tip:
e₁ 15.5 ft.
e₂ 44.5 ft.
e₃ 53.0 ft.
- f. Probe Tip Length: 1.5 ft.
- g. Surface Seal: 5.0 ft.
Material: Concrete
- h. Soil Backfill: 4.5 ft.
- i. Seal:
i₁ 2.0 ft. total, from 9.5 ft. to 11.5 ft.
i₂ 2.0 ft. total, from 19.0 ft. to 21.0 ft.
i₃ 2.0 ft. total, from 48.0 ft. to 50.0 ft.
Material: Bentonite
- j. Gravel Pack:
j₁ 7.5 ft. total, from 11.5 ft. to 19.0 ft.
j₂ 27.0 ft. total, from 21.0 ft. to 48.0 ft.
j₃ 6.6 ft. total, from 50.0 ft. to 56.6 ft.
Material: Pea Gravel

QA/QC

Logged by: LDK

Checked by/date: CL 11-12-91

Note: Drawing not to scale

Printed on Recycled Paper

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. GP-2

PROJECT NAME CHIQUITA CANYON LANDFILL

PAGE 1 OF 6

BY Laura Rainey DATE 5/22/91

SURFACE ELEV. ~981 ft.

Core Run	Core Recovery	Penetration	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
at top	(ft/ft)	blows/6"						
1	1.7/2.5						<p>FILL, sand, olive (5Y 5/3); 45% fine sand; 30% medium sand; 10% coarse sand; 15% fine gravel; loose; dry.</p> <p>@2.5': 90% fine sand; 10% medium sand.</p>	
2	1.7/2.5			5			<p>SILTY SAND (SM), olive (5Y 5/3); 20% nonplastic fines; 80% fine sand; trace fine gravel; angular to subrounded clasts; loose; damp.</p> <p>@4': 20% nonplastic fines; 70% fine sand; 10% medium sand; trace fine gravel; loose; damp; micaceous.</p>	
3	1.5/2.5						<p>SAND (SP), gray (5Y 6/1); 100% fine sand; damp.</p> <p>@ 6.8': olive (5Y 4/3).</p> <p>@ 7': dark gray (5Y 4/1); contains lenses of black clayey organic material.</p>	
4	1.2/2.5						<p>SILTY SAND (SM), olive (5Y 5/3); 85% fine sand; 15% medium sand; trace fine gravel; plastic refuse.</p> <p>SAND (SP), olive (5Y 5/3); 75% fine sand; 15% medium sand; 10% coarse sand; damp</p>	
				10				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Core samples were collected in approximately 2.5-foot long steps continuously to the total depth explored. Subsequently, a cluster of three soil-vapor probes was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *FCM* 11/14/91

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. GP-2

PROJECT NAME CHIQUITA CANYON LANDFILL

PAGE 2 OF 6

BY Laura Rainey DATE 5/22/91

SURFACE ELEV. ~981 ft.

Core Run	Core Recovery	Penetration	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
# at top	(ft/ft)	blows/6"						
5	1.0/1.5						<p>SILTY SAND (SM), olive (5Y 5/4); 20% nonplastic fines; 80% fine sand; micaceous; damp.</p> <p>SAND (SP), olive (5Y 5/3); 85% fine sand; 15% medium sand @ 11.9': olive (5Y 5/4); 80% fine sand; 20% medium sand. @ 12.5': trace fine gravel.</p> <p>SAND (SW), brown (10YR 5/3); 35% fine sand; 50% medium sand; 15% coarse sand; trace fine to coarse gravel up to 1.5" diameter; damp.</p> <p>SAND (SP), olive (5Y 5/3); 85% fine sand; 15% medium sand; trace fine gravel; damp. @ 15.8': thin caliche-filled veins; moderately cemented; trace fine gravel, rounded, up to 1" diameter; damp. @ 16.5': 95% fine sand; 5% medium sand. @ 17.5': 85% fine sand; 15% medium sand; trace coarse sand; damp.</p> <p>SANDSTONE (SAUGUS FORMATION), light olive brown (2.5Y 5/4); 20% fine sand; 65% medium sand; 15% coarse sand; damp; soft.</p>	
6	2.1/2.5			15				
7	1.4/2.5							
				20				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Core samples were collected in approximately 2.5-foot long steps continuously to the total depth explored. Subsequently, a cluster of three soil-vapor probes was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *K. Rainey* 11/14/91

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. GP-2

PROJECT NAME CHIQUITA CANYON LANDFILL

PAGE 3 OF 6

BY Laura Rainey DATE 5/22/91

SURFACE ELEV. ~981 ft.

Core Run # at top	Core Recovery (ft/ft)	Penetration blows/6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
8	1.6/2.5						@ 19.5': SILTY SANDSTONE, light olive brown (2.5Y 5/4); 15% nonplastic fines; 15% fine sand; 40% medium sand; 30% coarse sand; moderate hardness.	
9	1.3/2.5						@ 20.7': SANDSTONE, light brownish gray (2.5Y 6/2); 50% fine sand; 35% medium sand; 10% coarse sand; 5% medium gravel; soft; damp. @ 20.9': light gray (5Y 7/1); 85% fine sand; 15% medium sand; moderate hardness. @ 21.5': olive (5Y 5/4); 95% fine sand; 5% medium sand; low hardness; damp. @ 22.5': 75% fine sand; 25% medium sand; low hardness.	
10	1.5/2.5			25			@ 23.7': olive (5Y 5/4); 100% fine sand; trace medium sand; moderate hardness; damp. @ 24': 15% fine sand; 40% medium sand; 25% coarse sand; 20% fine gravel; rounded to subrounded clasts up to 1.5" diameter; low hardness.	
11	1.0/2.5						@ 26': 100% fine sand; micaceous; low hardness. @ 26.6': moderate hardness. @ 26.8': 85% fine sand; 15% medium sand; damp; hard. @ 27.5': 75% fine sand; 25% medium sand.	
				30			@ 29': SILTY SANDSTONE, olive (5Y 5/3); 20% nonplastic fines; 65% fine sand; 15% medium sand; damp; moderate hardness. @ 29.1': SANDSTONE, light olive brown (2.5Y	

REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Core samples were collected in approximately 2.5-foot long steps continuously to the total depth explored. Subsequently, a cluster of three soil-vapor probes was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *Kad* 11/14/91



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. GP-2

PROJECT NAME CHIQUITA CANYON LANDFILL

PAGE 4 OF 6

BY Laura Rainey DATE 5/22/91

SURFACE ELEV. ~981 ft.

Core Run	Core Recovery	Penetration	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
# at top	(ft/ft)	blows/6"						
12	2.1/2.5						5/4); 10% nonplastic fines; 50% fine sand; 20% medium sand; 10% coarse sand; 10% fine gravel, angular to subrounded; low hardness; damp. @ 30.4': 15% fine sand; 65% medium sand; 15% coarse sand; 5% fine gravel; low hardness. @ 31.2': white (10YR 8/1); 100% fine-grained (crushed cobble). @ 31.3': (light olive brown (2.5Y 5/4); 15% fine sand; 65% medium sand; 15% coarse sand; 5% fine gravel; low hardness.	
13	1.4/2.5						@ 33.6': light olive brown (2.5Y 5/4); 40% fine sand; 25% medium sand; 25% coarse sand; 10% fine gravel; angular to subrounded. @ 34.3': cobbles up to 1.5" diameter. @ 34.7': 60% fine sand; 40% medium sand; trace fine gravel.	
14	1.4/2.5			35			@ 36.1': 50% fine sand; 25% medium sand; 25% coarse sand. @ 36.7': olive (5Y 5/4); 100% fine sand; trace medium sand; micaceous; moderate hardness. @ 36.8': SILTY SANDSTONE, dark grayish brown (2.5Y 4/2); 30% nonplastic fines; 70% fine sand; moderate hardness; damp. @ 37': olive (5Y 5/3); 20% nonplastic fines; 60% fine sand; 20% medium sand.	
15	1.3/2.5			40			@ 38.7': SANDSTONE, olive (5Y 5/3); 100% fine sand; micaceous; soft; moist. @ 38.9': SILTY SANDSTONE, brown (10YR 5/3); 20% nonplastic fines; 15% fine sand; 45% medium sand; 20% coarse sand; moderate hardness; damp.	

REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Core samples were collected in approximately 2.5-foot long steps continuously to the total depth explored. Subsequently, a cluster of three soil-vapor probes was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *Rainey* 11/14/91



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. GP-2

PROJECT NAME CHIQUITA CANYON LANDFILL

PAGE 5 OF 6

BY Laura Rainey DATE 5/22/91

SURFACE ELEV. ~981 ft.

Core Run # at top	Core Recovery (ft/ft)	Penetration blows/6"	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
16	1.3/2.5						@ 39.9': SANDSTONE, olive (5Y 5/3); 90% fine sand; 10% medium sand; micaceous; moderate hardness; damp.	
17	1.0/2.5						@ 41.2': olive (5Y 5/3); 30% fine sand; 40% medium sand; 25% coarse sand; 5% fine gravel; soft. @ 41.7': SILTY SANDSTONE, olive (5Y 5/3); 20% nonplastic fines; 80% fine sand; micaceous; moderate hardness; damp. @ 42': SANDSTONE, olive (5Y 5/3); 85% fine sand; 15% medium sand; soft; damp. from 42.5 to 44': no recovery.	
18	1.3/2.5			45			@ 44': SILTY SANDSTONE, olive (5Y 5/3); 15% nonplastic fines; 30% fine sand; 40% medium sand; 10% coarse sand; 5% fine gravel; trace medium gravel; low hardness; damp. @ 44.5': SANDSTONE, olive (5Y 5/3); 5% nonplastic fines; 45% fine sand; 35% medium sand; 10% coarse sand; 5% fine gravel; trace medium gravel; soft; damp. @ 46.2': olive (5Y 5/3); 5% nonplastic fines; 50% fine sand; 30% medium sand; 10% coarse sand; 5% fine gravel; trace coarse gravel; moderate hardness.	
19	1.2/2.5						@ 46.5': 40% fine sand; 20% medium sand; 15% coarse sand; 25% fine gravel; clasts up to 1.5" diameter. @ 46.8': light gray (5Y 7/1); 100% fine sand. @ 46.9': olive (5Y 5/3); 40% fine sand; 20% medium sand; 15% coarse sand; 25% fine gravel. @ 47': SILTY SANDSTONE, olive (5Y 5/3); 20% nonplastic fines; 60% fine sand; 15% medium sand; 5% fine gravel; moderate hardness; damp. @ 48.8': 15% nonplastic fines; 45% fine sand; 20% medium sand; 15% coarse sand; 5% medium gravel.	
				50				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Core samples were collected in approximately 2.5-foot long steps continuously to the total depth explored. Subsequently, a cluster of three soil-vapor probes was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *racg 11/14/91*

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-04.02

BORING NO. GP-2

PROJECT NAME CHIQUITA CANYON LANDFILL

PAGE 6 OF 6

BY Laura Rainey DATE 5/22/91

SURFACE ELEV. ~981 ft.

Core Run	Core Recovery	Penetration	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
# at top	(ft/ft)	blows/6"						
20	1.1/2.5						@ 49.3': 25% nonplastic fines; 25% fine sand; 20% medium sand; 15% coarse sand; 15% fine gravel. from 50 to 51.4': no recovery.	
21	1.7/2.5						@ 51.4': SANDSTONE, olive (5Y 5/3); 10% nonplastic fines; 70% fine sand; 15% medium sand; 5% coarse sand; low hardness; moist. @ 51.8': SILTY SANDSTONE, light olive brown (2.5Y 5/4); 25% nonplastic fines; 75% fine sand; micaceous; moderate hardness; moist. @ 52': olive (5Y 5/3); 15% nonplastic fines; 50% fine sand; 20% medium sand; 15% fine gravel. @ 53.3': SANDSTONE, olive (5Y 5/3); 30% fine sand; 50% medium sand; 15% coarse sand; 5% fine gravel; moderate hardness; moist.	
				55			from 55 to 56.6': no recovery.	
							BOTTOM OF BORING: 56.6 FEET TARGET DEPTH ATTAINED.	
				60				



REMARKS

Boring drilled using hollow-stem auger equipment to the total depth explored. Core samples were collected in approximately 2.5-foot long steps continuously to the total depth explored. Subsequently, a cluster of three soil-vapor probes was installed. Soil and rock colors based on the Munsell Soil Color Chart.

QA/QC: *[Signature]* 11/14/91

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0976-00L038

WELL NO.: GP-9

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 1 of 5

BY: Dan Koning

DATE: September 14, 1995

SURFACE ELEVATION: 1090± MSL

PID Reading (ppm)	PENETRATION (blows/6")	SAMPLES SELECTED FOR ANALYSES	GROUNDWATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0	28						ALLUVIUM: 0 TO 25 FEET	
	37						SILTY SAND WITH GRAVEL (SM): Very pale brown (10YR 8/4); 20% low plasticity fines; 50% fine sand; 20% medium to coarse sand; 10% gravel up to 1 inch in diameter; sand is subangular and arkosic; dense; dry.	
	20							
	29							
	24							
	34						CLAYEY SAND (SC): Dark yellowish brown (10YR 4/6); 20-40% medium plasticity fines; 50-70% fine sand; 10% medium sand; dense; moist; this may represent an argillic horizon of a soil.	
	26							
	40							
	38						SILTY SAND (SM): Olive (5Y 5/4); 20% low plasticity fines; 70% fine sand; 10% medium sand; subangular to subrounded; very dense; moist.	
	22			5				
	18						@ 4.25 ft.: 15% low plasticity fines; minor coarse sand and gravel; clay-rich stringers about 0.5 inch thick; moist.	
	19							
	11							
	7							
	8						SAND WITH SILT (SP-SM): Olive (5Y 5/4); 10% low plasticity fines; 80% fine sand; 5% medium sand; 5% coarse sand; subangular to subrounded; medium dense; moist.	
	14							
1.9	11						@ 7 ft.: 10% low plasticity fines; 80% fine sand; 10% medium to coarse sand; subangular to subrounded; slightly moist.	
	9							
	11							
	9							
	12			10			SILTY SAND (SM): 35% low plasticity fines; 65% fine sand.	
	3							
	8						SILT WITH SAND (ML): Olive (5Y 4/4); approx. 25% fine sand; very moist.	
	10	Moisture: 11.5-12'					SAND (SW): Olive (5Y 4/4); 50% fine sand; 50% medium sand; subangular; medium dense; moist.	
	13						@ 11.5 ft.: Some silty sand beds present which are 3-4 inches thick; the silty sand beds are moist; the intervening sand is dry.	
	30	VOCs: 13-13.5'					SAND (SP): Olive (5Y 4/4); 30% fine sand; 50% medium sand; 20% coarse sand; subangular; slightly moist.	
	32						SILTY SAND (SM): Dense; moist.	
		Moisture: 14.5-15'		15			@ 15 ft.: Moist.	
	3							
	19							
	25						@ 17 ft.: Olive (5Y 4/4); 25% low plasticity fines; 40% fine sand; 35% medium sand; subangular; moist.	
	14							
	14						SAND WITH SILT (SP-SM): 10% low plasticity fines; 45% fine sand; 30% medium sand; 15% coarse sand.	
	15							
	18						@ 19 ft.: Olive (5Y 5/4); 10-15% low plasticity fines; 50% fine sand; 25-30% medium sand; 10% coarse sand; subangular; dense; moist.	
	19							
	20							
	8			20				



REMARKS

Drilled using 11-inch-diameter continuous-flight hollow-stem augers to 29 feet, and 8-inch-diameter air-rotary to 85.5 feet. Soil samples collected with a modified California split-spoon sampler equipped with brass liners and driven into undisturbed soil beyond the augers with a down-hole hammer. Grab samples were collected for logging purposes. The boring was converted into a triple-completion gas probe using three 3/4-inch-diameter schedule 80 PVC pipes. The PID was calibrated to 100 ppm isobutylene.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0978-001038

WELL NO.: GP-9

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 2 of 5

BY: Dan Koning

DATE: September 14, 1985

SURFACE ELEVATION: 1090± MSL

PID Reading (ppm)	PENETRATION (blows/6")	SAMPLES SELECTED FOR ANALYSES	GROUNDWATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
	15						SAND (SP): 5% low plasticity fines; 90% fine sand; 5% medium sand; medium dense; moist.	
	23						SAND WITH SILT (SP-SM): Olive (5Y 4/4); 10% low plasticity fines; 40% fine sand; 35% medium sand; 15% coarse sand and gravel up to 0.5 inch in diameter; dense; moist.	
	14							
	19							
	20						@ 22.5 ft.: 10% low plasticity fines; 50% fine sand; 30% medium sand; 10% coarse sand with minor gravel; subangular; moist.	
	15							
	25	Moisture:					@ 24 ft.: Light olive brown (2.5Y 5/4); 5% low plasticity fines; 40% fine sand; 35% medium sand; 10% coarse sand; 10% gravel up to 0.75 inch in diameter; subangular; arkosic; dense; moist.	
	30	23-23.5						
	20	VOCs:		25				
	30	24.5-25						
	35	Moisture:						
	40	25-25.5						
	38						<u>SAUGUS FORMATION: 25 TO 85.5 FEET</u>	
	39						SAND WITH GRAVEL (SP): Gravels are up to 1 inch in diameter; very dense; moist.	
	27						@ 27 ft.: Sandstone cobble, up to 2.5-3 inches diameter, is wedged in sampler.	
	30							
	30						GRAVELLY SAND (SP): 50% fine sand; 30% medium to coarse sand; 20% gravel up to 0.5 inch in diameter; dense.	
	37	Moisture:					@ 28.5 ft.: Olive (5Y 5/6); 50% fine sand; 25% medium to coarse sand; 25% gravel up to 0.75 inch in diameter; moist.	
	40	29-29.5		30				
	43						@ 29 ft.: Pale yellow (5Y 7/4); 40% fine sand; 30% medium sand; 25% coarse sand; 5% gravel up to 1 inch in diameter; sand is subangular; gravel is subrounded; very dense; dry.	
50/5.5"		VOCs:						
		30.5-31						
				35				
				40				

Note: Above contact is approximate.



REMARKS

Drilled using 11-inch-diameter continuous-flight hollow-stem augers to 29 feet, and 6-inch-diameter air-rotary to 85.5 feet. Soil samples collected with a modified California split-spoon sampler equipped with brass liners and driven into undisturbed soil beyond the augers with a down-hole hammer. Grab samples were collected for logging purposes. The boring was converted into a triple-completion gas probe using three 3/4-inch-diameter schedule 80 PVC pipes. The PID was calibrated to 100 ppm isobutylene.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0976-001038

WELL NO.: GP-9

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 3 of 5

BY: Dan Koning

DATE: September 14, 1995

SURFACE ELEVATION: 1090± MSL

PID Reading (ppm)	PENETRATION (blows/6")	SAMPLES SELECTED FOR ANALYSES	GROUNDWATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				45				
				50	⊗		@ 50 ft.: SILTY SAND (SM): Pale olive (5Y 6/3.5); 15% non to low plasticity fines; 25% fine sand; 25% medium sand; 10-15% coarse sand; 20-25% rounded gravel up to 0.5 inch in diameter; sand is subangular; arkosic; dry.	
				55			Note: Above contact is approximate.	
				60				



EMCON

REMARKS

Drilled using 11-inch-diameter continuous-flight hollow-stem augers to 29 feet, and 8-inch-diameter air-rotary to 85.5 feet. Soil samples collected with a modified California split-spoon sampler equipped with brass liners and driven into undisturbed soil beyond the augers with a down-hole hammer. Grab samples were collected for logging purposes. The boring was converted into a triple-completion gas probe using three 3/4-inch-diameter schedule 80 PVC pipes. The PID was calibrated to 100 ppm isobutylene.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0078-001038

WELL NO.: GP-9

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 4 of 5

BY: Dan Koning

DATE: September 14, 1995

SURFACE ELEVATION: 1090± MSL

PID Reading (ppm)	PENETRATION (blows/6")	SAMPLES SELECTED FOR ANALYSES	GROUNDWATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				65	⊗		<p>@ 65 ft.: SAND WITH SOME GRAVEL (SP): Light yellowish brown (2.5Y 6/4); 5% non to low plasticity fines; 35% fine sand; 40% medium sand; 10% coarse sand; 10% gravel up to 0.75 inch in diameter; subangular; arkosic; dry.</p>	
				70				
				75			Note: Above contact is approximate.	
				80				



REMARKS

Drilled using 11-inch-diameter continuous-flight hollow-stem augers to 29 feet, and 6-inch-diameter air-rotary to 85.5 feet. Soil samples collected with a modified California split-spoon sampler equipped with brass liners and driven into undisturbed soil beyond the augers with a down-hole hammer. Grab samples were collected for logging purposes. The boring was converted into a triple-completion gas probe using three 3/4-inch-diameter schedule 80 PVC pipes. The PID was calibrated to 100 ppm isobutylene.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: 0978-001038

WELL NO.: GP-9

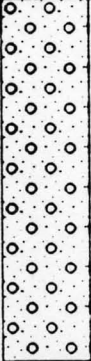

PROJECT NAME: Chiquita Canyon Landfill

PAGE: 5 of 5

BY: Dan Koning

DATE: September 14, 1985

SURFACE ELEVATION: 1090± MSL

PID Reading (ppm)	PENETRATION (blows/6")	SAMPLES SELECTED FOR ANALYSES	GROUNDWATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
				85	<input checked="" type="checkbox"/>		<p>3 80 ft.: GRAVELLY SAND (SP): Pale yellow (5Y 6/5); 5-10% non to low plasticity fines; 40% fine sand; 20-25% medium sand; 10-15% coarse sand; 15% gravel up to 0.5 inch in diameter; subangular; arkosic; dry. There are nodules of sand held weakly by fines; the nodules are about 0.5 inch in diameter.</p>	
				90				
				95				
				100			<p>BOTTOM OF BORING: 85.5 FEET</p> <p>Target Depth Reached</p> <p>Groundwater Not Encountered</p>	

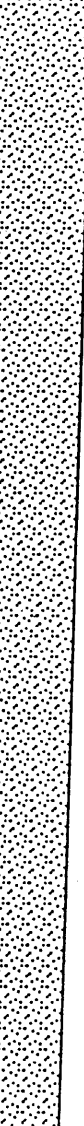


REMARKS

Drilled using 11-inch-diameter continuous-flight hollow-stem augers to 29 feet, and 8-inch-diameter air-rotary to 85.5 feet. Soil samples collected with a modified California split-spoon sampler equipped with brass liners and driven into undisturbed soil beyond the augers with a down-hole hammer. Grab samples were collected for logging purposes. The boring was converted into a triple-completion gas probe using three 3/4-inch-diameter schedule 80 PVC pipes. The PID was calibrated to 100 ppm isobutylene.

EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California		DRILLING METHOD: Air Rotary		DRILLING CONTRACTOR: Water Development Corp.		BORING NO. GP-10	
		RIG: Dresser T70W		OPERATOR:		SHEET 1 OF 3	
		SAMPLING METHOD:				DRILLING	
PROJECT NO. 792038		BOREHOLE DIAMETER: 10 5/8"		START TIME		FINISH TIME	
SURFACE CONDITIONS:		BOREHOLE DEPTH:		DRILLED DEPTH: 81.12'			
LOCATION:		WATER LEVEL					
EAST 6367711.9631 NORTH 1982606.4719		DATE				DATE	
DATUM MSL ELEVATION (FT. MSL) 1236.08		TIME				11/16/99 11/16/99	

TIME	PENETRATION BLOWS / 6"	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
10:10					2			SAND W/SILT (SP), brown (10YR 4/3); 95% fine sand; 5% non-plastic fines; trace medium sand, medium density, moist.
					4			
					6			
					8			
					10			
10:25					12			@5.5': abundant fine to medium gravel (<5%)
					14			
					16			
					18			
					20			
10:50					22			@12': gravel less abundant
					24			
					26			
					28			
					30			
					32			@29': trace medium plasticity fines
					34			
					36			
					38			

COMMENTS:

QA/QC
LOGGED BY Brian Eytcheson

CHECKED BY _____ DATE _____



EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: Air Rotary	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. GP-10	
	RIG: B-61	OPERATOR:	SHEET 2 OF 3	
	SAMPLING METHOD:		DRILLING	
PROJECT NO. 792038	BOREHOLE DIAMETER: 10 5/8"		START TIME	FINISH TIME
SURFACE CONDITIONS:	BOREHOLE DEPTH: DRILLED DEPTH: 81.12"		DATE 11/16/99	DATE 11/16/99
LOCATION:	WATER LEVEL			
EAST 6367711.9631 SOUTH 1982606.4719	DATE			
DATUM MSL ELEVATION (FT. MSL) 1236.08	TIME			

TIME	PENETRATION BLOWS / 6"	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
11:14					40			@41: trace shell fragments
					42			
					44			
					46			@46: abundant shell fragments, angular to subangular sandstone, granitoid, and mafic schist fragments. Nearly intact brachiopod (?) found in cuttings.
					48			
11:25					50			
					52			SANDY SILT (ML), pale red (2.5YR 6/2); 80% non-plastic fines; 20% fine to coarse sand, trace fine gravel, shell fragments; dense; damp.
					54			
					56			
					58			
11:35					60			@60: trace medium gravel, medium sand; poorly graded; subrounded to subangular.
					62			
					64			@64: pale yellow (2.5YR 8/2); trace subrounded to subangular coarse sand
					66			
					68			
11:45					70			
					72			
					74			@74: darker cuttings, light brownish grey (10YR 6/2); moist.
11:57					76			
					78			

COMMENTS:

QA/QC
LOGGED BY Brian Eytcheson

CHECKED BY _____ DATE _____



EXPLORATORY BORING LOG

SITE NAME AND LOCATION

Chiquita Canyon Landfill
Valencia, California

DRILLING METHOD:

Air Rotary

DRILLING CONTRACTOR:

Water Development Corp.

BORING NO.:

GP-10

RIG:

B-61

OPERATOR:

SHEET

3 OF 3

SAMPLING METHOD:

DRILLING

PROJECT NO. 792038

SURFACE CONDITIONS:

BOREHOLE DIAMETER: 10 5/8•

START
TIMEFINISH
TIME

BOREHOLE DEPTH: DRILLED DEPTH: 81.12•

LOCATION:

WATER LEVEL

EAST 6367711.9631 SOUTH 1982606.4719

DATE

DATE

DATUM MSL ELEVATION (FT. MSL) 1236.08

TIME

11/16/99

11/16/99

TIME

PENETRATION
BLOWS / 6"RECOVERY
FT. / FT.SAMPLE
NO.SAMPLE
INTERVALDEPTH
(FT.)WATER
LEVELGRAPHIC
LOG

DESCRIPTION

80

82

84

86

88

90

92

94

96

98

100

102

104

106

108

110

112

Boring Terminated at 81.12 ft.
Target Depth attained.

COMMENTS:

QA/QC

LOGGED BY Brian Eytcheson

CHECKED BY

DATE



EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: Air Rotary	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. GP-B	
	RIG: Dresser T70W	OPERATOR:	SHEET 1 OF 3	
	SAMPLING METHOD:		DRILLING	
PROJECT NO. 792038			START TIME	FINISH TIME
SURFACE CONDITIONS:	BOREHOLE DIAMETER: 10 5/8"		DATE 11/17/99	DATE 11/17/99
	BOREHOLE DEPTH: DRILLED DEPTH: 111.0'			
LOCATION:	WATER LEVEL			
EAST 6368378.1309 NORTH 1981245.3582	DATE			
DATUM MSL ELEVATION (FT. MSL) 1219.23	TIME			

TIME	PENETRATION BLOWS / 6"	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
					2			SILTY SANDSTONE (SM), yellowish brown (10YR 5/4); 80% fine sand; trace fine gravel; 5% medium course sand; moist; dense. @5'-5% fine to coarse gravel.
					4			
					6			
					8			
					10			SILTY SANDSTONE W/CLAY (SM), yellowish brown (10YR 5/4); 70% fine sand, trace medium sand; trace medium gravel; 20% non-plastic fines; 10% medium
					12			
					14			
					16			
					18			GRAVELLY SANDSTONE W/SILT (SW), yellowish red (10YR 5/4); 65% fine sand; 15% fine to coarse gravel; 15% non-plastic fines; 5% medium to coarse sand; moist; very dense.
					20			
					22			
					24			
					26			SANDY CLAYSTONE (CL), yellowish red (5YR 5/6); 25% fine sand; 75% medium plasticity fines; trace medium
					28			GRAVELLY SANDSTONE; (as above).
					30			SANDY SILTSTONE (SM), pinkish grey (5YR 7/2); 35% fine sand; 65% non-plastic fines; damp; very dense.
					32			
					34			
					36			
					38			

COMMENTS:

QA/QC
LOGGED BY Brian Eytcheson

CHECKED BY _____ DATE _____



EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: Air Rotary	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. GP-B
	RIG: B-61	OPERATOR:	SHEET 2 OF 3
	SAMPLING METHOD:		DRILLING
PROJECT NO. 792038	BOREHOLE DIAMETER: 10 5/8"		START TIME
SURFACE CONDITIONS:	BOREHOLE DEPTH: DRILLED DEPTH: 111.0'		FINISH TIME
LOCATION:	WATER LEVEL		DATE
EAST 6368378.1809 SOUTH 1981245.3582	DATE		DATE
DATUM MSL ELEVATION (FT. MSL) 1219.23	TIME		11/17/99 11/17/99

TIME	PENETRATION BLOWS / 6"	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
					40			
					42			
					44			@44: (10YR 6/2); trace medium to coarse sand
					46			
					48			SANDY SILTSTONE W/CLAY (ML), light brownish grey (10YR 6/2); 30% fine sand, 60% non-plastic fines; 10% low to medium plastic fines; very dense; moist.
					50			@48-50: more sand & gravel; less fines.
					52			CLAYEY SILTSTONE W/SAND (ML): grayish orange (10YR 7/4); 25% low-medium plastic fines; 70% non-plastic fines; 5% fine sand; moist; very dense.
					54			
					56			
					58			
					60			
					62			@62: ~35% medium plastic
					64			
10:35		Grab			66			SANDY SILTSTONE (ML), pale yellowish brown (10YR 6/2); 35% non-plastic fines; moist; very dense.
					68			
					70			
					72			@73: more fines, ~10%; medium plastic
					74			
11:00		Grab			76			CLAYEY SILTSTONE (ML), light olive grey (5YR 5/2); 60% non-plastic fines; 30% medium plastic fines; 10% fine sand; damp; very dense.
					78			SILTY SANDSTONE (SM), medium yellowish brown (10YR 5/4); 60% fine sand; 35% non-plastic fines; 5% medium-coarse sand; moist; very dense.

COMMENTS:

QA/QC

LOGGED BY Brian Eytcheson

CHECKED BY _____ DATE _____



EXPLORATORY BORING LOG

SITE NAME AND LOCATION Chiquita Canyon Landfill Valencia, California	DRILLING METHOD: Air Rotary	DRILLING CONTRACTOR: Water Development Corp.	BORING NO. GP-B	
	RIG: B-61	OPERATOR:	SHEET 3 OF 3	
	SAMPLING METHOD:		DRILLING	
PROJECT NO. 792038	BOREHOLE DIAMETER: 10 5/8"		START TIME	FINISH TIME
SURFACE CONDITIONS:	BOREHOLE DEPTH: 111.0'		DATE 11/17/99	DATE 11/17/99
LOCATION:	WATER LEVEL			
EAST 6368378.1809 NORTH 1981245.3582	DATE			
DATUM MSL ELEVATION (FT. MSL) 1219.23	TIME			

TIME	PENETRATION BLOWS / 6"	RECOVERY FT. / FT.	SAMPLE NO.	SAMPLE INTERVAL	DEPTH (FT.)	WATER LEVEL	GRAPHIC LOG	DESCRIPTION
11:30					80			
					82			
					84			
					86			
					88			
					90			@88: (SM), yellowish brown (10YR 5/4); less medium plastic fines.
					92			@89-93: 40% fines.
					94			@93: (SM), dark greyish brown (10YR 4/2); moist, ~5% fine gravel.
					96			@95: (SM), pale yellow brown (10YR 6/2); less fines.
					98			
					100			GRAVELLY SAND W/SILT (SW-SM), pale yellowish brown (10YR 6/2); 60% fine sand; 30% fine gravel; 10% non-plastic fines; trace medium-course sand; damp; very dense.
					102			
					104			
11:42					106			
					108			
					110			SANDY SILTSTONE (ML), yellowish grey (5YR 7/2); 70% fines; 30% fine to medium sand, dry to moist, hard.
					112			Boring Terminated at 111 ft. Target Depth attained.

COMMENTS:

QA/QC
LOGGED BY Brian Eytcheson

CHECKED BY _____ DATE _____

PROJECT NO: 827026

LOGGED BY: MC

DRILLER: WEST HAZMAT

DRILLING METHOD: HSA

SAMPLING METHOD: -

CASING TYPE: -

SLOT SIZE: -

GRAVEL PACK: -

CLIENT:

DATE DRILLED: 4/1-2/02

LOCATION: CHIQUITA CANYON LANDFILL

HOLE DIAMETER: 8"

HOLE DEPTH:

WELL DIAMETER: -

WELL DEPTH: -

CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
					2				CLAYSTONE little FINE SAND (Landslide debris): light brown; dry; very weak; open fractures to 1/2" (Soil/Rock Debris)
		1-5	45%	33 33 33	4				SANDSTONE: fine; some silt; dusky yellow; very dense; dry; friable; closely spaced silt partings
		1-10	85%	50/6"	10				
					12				SILTSTONE: some fine sand; light olive gray; very dense; dry
		1-15	100%	36 50/6"	14				
					16				
					18				
		1-20	100%	60/3"	20				Intermittent sandstone and siltstone; iron oxide staining on fractures
					22				

PROJECT NO: 827026
LOGGED BY: MC
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/1-2/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
					24				SILTSTONE (Soil/Rock Debris): cont.
		1-25	100%	60/5"	26				Friable; closely spaced fractures in random orientation
					28				
		1-30	75%	50/6"	30				Interbeds of SANDSTONE: fine; some silt; light olive gray; very dense; dry
					32				Some fine sand; low plasticity; olive gray and white; very dense; dry; very closely spaced chaotic fractures with secondary carbonate cementation along rough fractures
					34				
		1-35	100%	60/3"	36				
					38				
					40				Abundant subangular shell fragments; highly sheared; extremely close fractures with iron oxide staining
		1-40	0%	50/2"	42				
					44				
		1-42	100%	50/3"					

<div style="text-align: right; padding-right: 10px;"> BORING NO. LSB-1 PAGE 3 OF 3 </div>						<div style="display: flex; justify-content: space-between;"> <div> PROJECT NO: 827026 LOGGED BY: MC DRILLER: WEST HAZMAT DRILLING METHOD: HSA SAMPLING METHOD: - CASING TYPE: - SLOT SIZE: - GRAVEL PACK: - </div> <div> CLIENT: DATE DRILLED: 4/1-2/02 LOCATION: CHIQUITA CANYON LANDFILL HOLE DIAMETER: - HOLE DEPTH: - WELL DIAMETER: - WELL DEPTH: - CASING STICKUP: - </div> </div>					
						LOCATION MAP					
WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS		
		1-45	100%	50/2"	46				SILTSTONE (Soil/Rock Debris): cont. Primarily carbonate rich clasts; chaotic assemblage; no preferential orientation		
		1-47	100%	50/3"	48				SANDSTONE: fine; some silt; olive-gray; very dense; dry; possibly sheared; highly weathered		
		1-50	100%	50/3"	50				SANDSTONE (Pico Formation): fine; some silt; very pale orange; banded with light olive, gray and yellow-brown; very dense; dry; friable; highly weathered; silt in filling; intact laminated bedding		
		1-52	100%	60/4"	52						
		1-55	100%	60/3"	56				Interbedded; fine sandstone; fine; some silt and siltstone; very difficult drilling		
		1-57	100%	50/5"	58				Gradational contact to:		
		1-60	20%	60/4"	60				SILTSTONE: some fine sand; low plasticity; olive-gray; very dense; dry; laminated; subangular shell fragments faintly oriented with bedding; iron oxide staining		
					62				Bottom of boring at approximately 60.5 feet No groundwater observed		

Log of Exploration Boring

Boring Location				Project No. 827026140		Date 4-18-02		Boring No. LSB-1			
				Project Name Chiquita Canyon Landfill						Sheet 1 of 2	
				Client							
				Drilling Co. West Hazmat							
				Driller OSCAR				Drill Rig LAROMET5			
Drilling Method HSA				Hole Dia. 8-inch							
Surface Conditions											
Sample No.	Blow Counts	Recovery	Depth	Description				Moisture Density	Other Tests		
				El. 1520' (from section) Logged By MC							
1-5	33 33 33	44%	5	Claystone little finesand, light brown, dry, very weak, open fractures to 1/2 inch. Sandstone fine, some silt, dusky yellow, very dry, friable, closely spaced silt partings.							
1-10	50 1/2"	93%	10	10' Cobble							
1-15	36 50 1/2"	100%	15	Siltstone some fine sand, light olive gray, very dense, dry							
1-20	60 3/4"	100%	20	intermixed sandstone and siltstone, ironoxide staining at fractures on fractures							
1-25	60 1/5"	100%	25	friable, closely spaced fractures, in random orientation							
1-30	50 1/2"	75%	30	interbeds of sandstone, fine, some silt, light olive gray, very dense, dry							

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. 827026.40		Date 4-18-02	Boring No. LSB-1	
			Project Name				
			Client				
			Drilling Co.				
			Driller		Drill Rig	Sheet 2	
			Drilling Method		Hole Dia.	of 2	
			Surface Conditions				
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests
			20	El.	Logged By MC		
				SILTSTONE cont'd	some fine sand, low plasticity, olive gray and white, very dense, dry, locally cemented, very closely spaced chaotic fractures with secondary carbonate cementation along rough fractures		
				(LANDSLIDE DEBRIS)			
1-35	60/3"	100%	35				
1-40	50/2"	0%	40				
1-42	50/3"	100%					
1-45	50/2"	100%	45				
1-47	50/4"	100%					
1-50	50/3"	100%	50				
1-52	60/4"	100%					
1-55	60/3"	100%	55				
1-57	50/5"	100%					
1-60	60/4"	19%	60				

"ruptured claystone" in this interval

gray and pale yellow brown

49.2' SANDSTONE fine, some silt, olive gray, very dense, dry, possibly sheared, highly weathered (PILCO FORMATION)

49.5' where claystone referenced 2.2.2.1 SANDSTONE (PILCO FORMATION) fine, some silt, very pale orange, banded with light to fine, very dense, dry, friable, highly weathered, silt infilling, intact laminated bedding, very difficult drilling

055' interbedded fine sandstone, some silt and siltstone, gradual contact to SILTSTONE some fine sand, low plasticity, olive gray, laminated, very dense, dry, scattered subangular shell fragments faintly oriented with bedding, iron oxide staining

Bottom of Boring at 60.4 feet
No Groundwater Observed
Completed April 2, 2002.

Start Time

End Time

Groundwater

PROJECT NO: 827026
LOGGED BY: MS
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/1/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: 8"
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
					2				SANDSTONE (Soil/Rock Debris): little silt; dusky yellow; fine; dry; weak and friable; chaotic closely spaced sand partings and fractures
		2-5	55%	24 15 15	4				Dense
		2-10	85%	15 50/6"	8				Light olive-brown
		2-15	25%	32 50	10				Very dense
					12				
					14				
					16				Scattered cobbles; subrounded sandstone clasts
					18				
		2-20	100%	38 50/5"	20				Fine to medium sand; dusky yellow-orange
					22				

PROJECT NO: 827026
LOGGED BY: MC
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/1/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		2-25	100%	50	24				SANDSTONE (Soil/Rock Debris): cont.
					26				Fine to medium sand; dusky yellow-orange
		2-30	-	29 50	30				Localized intervals of chaotically oriented coarse sand with gravel and silt; fine sand; faint bedding laminations
					32				SILTSTONE: some fine sand; low plasticity; mottled light and moderate olive-brown with dusky yellow; very dense; moist; friable; iron oxide stained clasts; closely spaced fractures
		2-35	100%	40 50/3"	36				CLAYSTONE: some silt and fine sand; moderate brown with olive-gray inclusions; very hard; moist; chaotic very closely spaced fractures
					38				CLAYSTONE: some silt and fine sand; moderate brown with olive-brown inclusions; very hard; moist; chaotic very closely spaced fractures
		2-40	100%	41 50/5"	40				
					42				
					44				

PROJECT NO: 827026
LOGGED BY: MC
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/1/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		2-45	100%	26 50/4"	46				CLAYSTONE (Soil/Rock Debris): cont.
		2-50	100%	50/5"	48				SILT STONE: some fine sand; low plasticity; light olive-gray to light brown-gray; very dense; moist
		2-55	100%	50/6"	50				Moderate plasticity; grayish olive
		2-60	-	50/6"	52				
		2-65	100%	50/5"	54				
					56				
					58				
					60				
					62				
					64				SILTSTONE (Pico Formation): some fine sand; scattered shell fragments; low plasticity; light brown gray; very dense; moist; faint bedding laminations; localized caliche
					66				

PROJECT NO: 827026
LOGGED BY: MC
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/1/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		2-68	-	50/3"	68				At 68': shell and gypsum fragments
					70				Bottom of boring at approximately 68.5 feet Near refusal No groundwater observed

Log of Exploration Boring

2-20
2-40
60
2-65

Boring Location			Project No. 827020.40		Date 4-1-01		Boring No.	
			Project Name Chiquita Canyon Landfill				LSB-2	
			Client					
			Drilling Co. West Hazmat					
			Driller		Drill Rig LARCMETS			
			Drilling Method HSA		Hole Dia. 8"		Sheet 1	
			Surface Conditions				of 3	
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests	
				El. 1535' (from xsection) Logged By MC				
				SANDSTONE fine, little silt, dusky yellow, dry				
				(LANDSLIDE weak and friable, chaotic				
				DEBRIS) closely spaced sand partings and				
				fractures				
2-5	24 15 15	56%	5	dense				
				light olive brown				
2-10	15 50/6"	83%	10	very dense				
2-15	32 50	25%	15	scattered cobbles, sub				
				rounded sandstone clasts				
2-20	38 50/5"	100%	20					
2-25	50	100%	25	fine to medium sand				
				dusky yellow orange				
2-30	29 50	—	30	localized intervals				
				of chaotically oriented				
				coarse sand with				
				gravel and silt with				
				fine sand, faint bedding				
				laminations				

33'

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. <u>827026.40</u>		Date <u>4-1-02</u>		Boring No. <u>LSB-2</u>	
			Project Name <u>Chiguata Canyon Landfill</u>					
			Client					
			Drilling Co.					
			Driller		Drill Rig			
			Drilling Method		Hole Dia.			
			Surface Conditions				Sheet <u>2</u> of <u>3</u>	
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests	
			30	El. 1535' (from section) Logged By <u>MC</u>				
				<u>SANDSTONE</u> CONT'D (LANDSLIDE DEBRIS)				
<u>2-35</u>	<u>40</u> <u>50/3"</u>	<u>100%</u>	<u>35</u>	<u>SILTSTONE</u> some fine sand, low plasticity, mottled light and moderate olive brown, with dusky yellow, friable, iron oxide stained, very dense, moist, closely spaced fractures				
<u>2-40</u>	<u>41</u> <u>50/5"</u>	<u>100%</u>	<u>40</u>	<u>claystone</u> some silt and fine sand, moderate brown with olive gray inclusions, very hard, moist, chaotic very closely spaced fractures				
<u>2-45</u>	<u>26</u> <u>54/4"</u>	<u>100%</u>	<u>45</u>					
<u>2-50</u>	<u>50/5"</u>	<u>100%</u>	<u>50</u>	<u>SILTSTONE</u> some fine sand, low plasticity, light olive gray to light brown gray, very dense, moist, chaotic				
<u>2-55</u>	<u>50/6"</u>	<u>100%</u>	<u>55</u>					
<u>2-60</u>	<u>50/16"</u>		<u>60</u>	moderate plasticity, grayish olive				

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. 827026.40		Date 4-1-02		Boring No. LSB-2	
			Project Name Chigrita Canyon Landfill					
			Client				Sheet 3 of 3	
			Drilling Co.					
			Driller		Drill Rig			
			Drilling Method		Hole Dia.			
			Surface Conditions					
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests	
			60	El.	Logged By mc			
				SILTSTONE Cont'd (LANDSLIDE DEBRIS)				
2-65	50/100	100%	65	SILTSTONE SOME FINE SAND, scattered shell fragments, low plasticity (PILO FORMATION) light brown gray very dense, moist, faint bedding				
2-68	50/30	-		laminations, localized caliche				
			70	© 68' shell fragments and gypsum.				
			75	Bottom of Boring at 68.4 feet				
				Near Refusal				
			80	No Groundwater Observed				
				Completed April 1, 2002				
			85					
			90					

Start Time

End Time

Groundwater

PROJECT NO: 827026
LOGGED BY: DE/MC/JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/2-3/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: 8"
HOLE DEPTH:
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION			PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
				3-5	50%	11 11 15	2 4 6 8 10 12 14 16 18 20 22				SANDSTONE (Slide block): fine to medium; little silt; yellowish gray and white; medium dense; dry occasional pebbles to 1/8"; friable
				3-11	50%	11 16					Yellowish gray
				3-16	25%	23 23 30					Fine; little silt; yellowish gray; very dense; dry
				3-21	25%	27 27 43					Moist

PROJECT NO: 827026
LOGGED BY: DE/MC/JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/2-3/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
					24				Sandstone (Slide Block): cont.
		3-25	100%	27 50/3"	26				Dusky yellow
		3-30	50%	37 50/6"	30				
		3-35	100%	38 50/5"	36				
		3-40	100%	50/6"	40				Approximately 1/2" thick layer of coarse grained sandstone
					42				
					44				

PROJECT NO: 827026
LOGGED BY: DE/MC/JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/2-3/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		3-45	100%	50/3"	46				SANDSTONE (Slide Block): cont. Slight iron oxide staining
		3-50	0%	50/4"	48				GRAVEL AND COBBLES: indicated by drill action
		3-52	100%	20 23 30	52				SANDSTONE: fine; little silt; mottled coloring and staining of dusky yellow and greenish gray; very dense; moist; carbonate filled fractures up to 1/16" thick
		3-55	100%	50/5"	54				
		3-60	100%	60/4"	56				Claystone clast; greenish gray; approximately 1" diameter Laminated bedding; highly weathered; closely spaced silt partings
		3-65	100%	50/3"	58				Iron oxide staining; chaotic layering
					60				
					62				
					64				
					66				

PROJECT NO: 827026
LOGGED BY: MC
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/2-3/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		3-70	100%	60/5"	68					SANDSTONE (Soil/Rock Debris): cont.
					70					
					72					CLAYSTONE (Pico Formation): little fine sand; low plasticity; moderate reddish brown to moderate brown; very hard; moist; massive; highly weathered
		3-75	100%	60/5"	74					
					76					Blocky, medium gray, silt inclusions
					78					
		3-80	83%	60/6"	80					SILTSTONE and SANDSTONE: Interbedded; fine grained sandstone; banded light olive-brown and dusky yellow; very dense; moist; laminated bedding; closely spaced silt partings; fractures to 1/16" thick
					82					
					84					
		3-85	100%	31 50/3"	86					Chaotic distribution of siltstone and sandstone clasts
					88					COBBLES: indicated by drill action; sample driven on cobble, recovered broken fragments

PROJECT NO: 827026
LOGGED BY: DE/MC/JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/2-3/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		3-89	35%	50/6"	90				COBBLES (Pico Formation): cont.
		3-94	100%	50/5"	94				SANDSTONE: fine; little silt; light brown; very dense; dry; poor cementation
		3-96.5	100%	60/5"	96				Some silt; gray brown
		3-99	100%	60/6"	98				SILTSTONE: mottled gray, red-brown, brown; very dense; dry; laminated to stratified bedding; moderately weathered
		3-101.5	80%	50/5"	100				
					102				Bottom of boring at approximately 102 feet Near refusal, broke bearing at top of Kelley bar No groundwater observed
					104				

Log of Exploration Boring

Boring Location				Project No. 827026.40		Date 4-28-4-3-02		Boring No.	
				Project Name Chigaita Canyon Card Fill				LSB-3	
				Client					
				Drilling Co.					
				Driller		Drill Rig			
				Drilling Method		Hole Dia.			
				Surface Conditions				Sheet 1	
								of 4	
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests		
3-5	11	50%	5	El. 1475' (from xsection) to medium Sandstone fine, little silt, yellowish (LANDSLIDE gray and white, medium dense, dry Block) occasional pebbles to 1/8", friable.					
	15								
3-11	11	50%	10	yellowish gray					
	16								
3-16	23	25%	15	fine, little silt, yellowish gray, very dense, dry,					
	23								
	30								
3-21	27	25%	20	moist					
	27								
	43								
3-25	27	100%	25	dusky yellow					
	50/3"								
3-30	37	50%	30						
	50/6"								

3-5 1, 25% m
-21 20% m
30 20% m
40 15% m
75-75% m
80 70% m

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location				Project No. 827026.40		Date 4-24-3-02		Boring No. CSB-3			
				Project Name Chiquita Canyon Landfill							
				Client							
				Drilling Co.							
				Driller				Drill Rig			
				Drilling Method				Hole Dia.			
Surface Conditions								Sheet 2 of 4			
Sample No.	Blow Counts	Recovery	Depth	Description				Moisture Density	Other Tests		
			30	El. Logged By DE/mcl/RB							
				Sandstone cont'd (LANDSLIDE) BLOCK							
3-35	38 50/5"	100%	35								
3-40	50/18"	100%	40	approximately 1/2" thick layer of coarse grained sandstone							
3-45	50/3"	100%	45	slight iron oxide staining							
3-50	50/4"	0%	50	GRAVEL & cobbles indicated by drill action							
3-52	20 30	100%									
3-55	50/5"	100%	55	SANDSTONE fine little silt, mottled coloring/staining of dusky yellow and greenish gray, very dense, moist, carbonate filled fractures up to 1/16" thick							
3-60	60/4"	100%	60	claystone clast, greenish gray, approximate 1" diameter							

from report
Pico ← → Landslide block

Start Time

End Time

Groundwater

Log of Exploration Boring

From rpt. → Landslide Block
← Pico

Boring Location				Project No. <u>827026.40</u>		Date <u>4-24-3-02</u>		Boring No. <u>LSB-3</u>			
				Project Name <u>Chiquita Canyon Condill</u>						Sheet <u>3</u> of <u>4</u>	
				Client							
				Drilling Co.							
				Driller				Drill Rig			
				Drilling Method				Hole Dia.			
Surface Conditions											
Sample No.	Blow Counts	Recovery	Depth	Description				Moisture Density	Other Tests		
			<u>60</u>	El. Logged By <u>DE/mc/TB</u>							
				SANDSTONE CONT'D laminated bedding, highly weathered, closely spaced silt partings (LANDSLIDE BLOCK)							
<u>3-65</u>	<u>50/3"</u>	<u>100%</u>	<u>65</u>	iron oxide staining, chaotic layering, sheared							
<u>3-70</u>	<u>60/5"</u>	<u>100%</u>	<u>70</u>								
<u>3-75</u>	<u>60/5"</u>	<u>100%</u>	<u>75</u>	CLAYSTONE (PICOFORMATION) little fine sand, low plasticity, moderate reddish brown to moderate brown, very hard, moist; massive, highly weathered. blocky, medium gray, silt, inclusions							
<u>3-80</u>	<u>60/6"</u>	<u>83%</u>	<u>80</u>	SILTSTONE AND SANDSTONE Interbedded, fine grained sandstone, banded light olive brown and dusky yellow, very dense, moist, laminated bedding, closely spaced silt partings/fractures to 1/16" thick							
<u>3-85</u>	<u>31/50/3"</u>	<u>100%</u>	<u>85</u>	chaotic distribution of siltstone and sandstone clasts					used above in defining landslide block.		
<u>3-89</u>	<u>50/6"</u>	<u>33%</u>	<u>90</u>	Cobbles indicated by drill action, sample driven on cobble, recovered broken fragments							

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. 827026.40		Date 4-28-02		Boring No.			
			Project Name Chiquita Canyon Landfill					LSB-3		
			Client							
			Drilling Co.							
			Driller			Drill Rig		Sheet 4		
			Drilling Method			Hole Dia.		of 4		
			Surface Conditions							
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests			
		90		El.	Logged By					
				Cobbles CONT'D (PILLO FORMATION)						
3-94	59/5"	100%	95	SANDSTONE FINE, little silt, light brown, very dense, dry, poor cementation						
3-96.5	60/5"	100%		some silt, gray-brown						
3-99	60/6"	100%	100	SILTSTONE mottled gray, red-brown, brown, very dense, dry						
3-101.5	50/5"	80%		laminated to stratified bedding, moderately weathered						
			105							
			110	Bottom of boring at 102 feet						
				Near refusal, broke bearing at top of Kelley bar.						
			115	No groundwater observed						
			120	Completed April 3, 2002						

Start Time

End Time

Groundwater

PROJECT NO: 827026
LOGGED BY: JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/4/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: 8"
HOLE DEPTH:
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION			PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
							2					SAND (Fill): fine; some silt; light brown to white; loose; dry
				4-5	100%	11 16 18	4					SANDSTONE (Soil/Rock debris): fine; little silt; light gray-brown; medium dense; dry; poorly cemented
				4-10	100%	8 12 15	10					
				4-15	100%	17 17 11	14					Some silt; few gravel clasts of well cemented sandstone
				4-20	100%	21 50/4"	18					Grades to: fine to medium; few gravel clasts of siltstone and sandstone; light gray-brown; very dense; dry
							20					
							22					

PROJECT NO: 827026
LOGGED BY: JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/4/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
					24				SANDSTONE (Soil/Rock Debris): cont.
		4-25	100%	50/6"	26				GRAVEL: indicated by drill action
					28				
		4-30	100%	22 34 40	30				SANDSTONE: fine to medium; little silt; yellowish brown; very dense; dry
					32				
					34				
		4-35	100%	9 18 17	36				Some silt; dense
					38				
					40				Fine; trace medium sand; some silt; reddish brown; very dense; dry
		4-40	100%	13 13 21	42				
					44				

PROJECT NO: 827026
LOGGED BY: JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/4/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		4-45	100%	25 34 50/5"	46				SANDSTONE: cont.
					48				SILTSTONE: trace fine sand; low plasticity; reddish brown; very dense; moist; highly fractured; sheared
		4-50	100%	23 50/6"	50				SANDSTONE (Pico Formation): fine; brown; very dense; moist; laminated to stratified bedding; interbedded with siltstone; low plasticity; mottled brown and reddish brown
					52				
					54				
		4-55	100%	50/6"	56				Grades to CLAYSTONE: some fine sand; medium plasticity; reddish brown; very hard; moist; laminated with sandstone; fine; some silt; gray and siltstone; few fine sand; gray; highly fractured
					58				
		4-60	75%	32 50/5"	60				
					62				Moderately fractured
		4-62.5	100%	27 28 32	64				SANDSTONE: fine to medium; some silt; occasional fine gravel; clasts of sandstone and siltstone; light gray; very dense; moist
		4-65	100%	25 50/6"	66				

PROJECT NO: 827026
LOGGED BY: JB
DRILLER: WEST HAZMAT
DRILLING METHOD: HSA
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/4/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
					68				SANDSTONE (Pico Formation): cont.
		4-70	100%	50/6"	70				little silt; trace fine gravel clasts
					72				
					74				
		4-75	100%	50/5"	76				
					78				Fine; some silt; gray-brown; very dense; moist; faint bedding
					80				
		4-80	0%	50/6"	82				Fine to medium sand; little silt; brown; very dense; moist; gypsum fragments to 1/8"
					84				
					86				
		4-85	50%	18 35 50/5"	88				Fine; few medium sand; little silt; gray; very dense; moist

PROJECT NO: 827026
LOGGED BY: JB
DRILLER: WEST HAZMAT
DRILLING METHOD: -
SAMPLING METHOD: -
CASING TYPE: -
SLOT SIZE: -
GRAVEL PACK: -

CLIENT:
DATE DRILLED: 4/4/02
LOCATION: CHIQUITA CANYON LANDFILL
HOLE DIAMETER: -
HOLE DEPTH: -
WELL DIAMETER: -
WELL DEPTH: -
CASING STICKUP: -

LOCATION MAP

WELL COMPLETION	PRODUCT ODOR	SAMPLE NO.	RECOVERY	PENETRATION (BLOWS/6")	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
		4-90	50%	27 50/6"	90					SANDSTONE (Pico Formation): cont.
		4-92.5	100%	30 50/3"	92					
		4-95	100%	39 50/3"	94					
					96					Fine; some silt; light gray; iron oxide staining on partings; laminated with siltstone; stratified bedding
		4-99	100%	60/6"	98					
					100					
					102					
		4-102.5	100%	27 50/6"	104					Bottom of boring at approximately 103 feet Near refusal No groundwater observed

Log of Exploration Boring

<p>Boring Location</p>				<p>Project No. 827026.40 Date 4-4-02</p>		<p>Boring No. LSB-4</p>			
				<p>Project Name Chiquita Canyon Landfill</p>				<p>Sheet 1 of 4</p>	
				<p>Client</p>					
				<p>Drilling Co. West Haymat</p>					
				<p>Driller Oscar Drill Rig LARCHETS</p>					
<p>Drilling Method HSA Hole Dia. 8"</p>									
<p>Surface Conditions</p>									
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests		
				<p>El. 1440' (from x-section) Logged By JCB</p>					
				<p>SAND fine, some silt, light brown/white, (FILL) loose, dry</p>					
4-5	11 16 18	100%	5	<p>SANDSTONE FINE, LITTLE SILT, light gray-brown (LANDSLIDE medium dense, dry, poorly DEBRIS) cemented</p>					
4-10	8 12 15	100%	10						
4-15	17 17 11	100%	15	<p>some silt, few gravel clasts of well cemented sandstone</p>					
4-20	21 50/4"	100%	20	<p>grades to: fine to medium, few gravel clasts of siltstone and sandstone, light gray brown, very dense, dry</p>					
4-25	50/6"	100%	25	<p>GRAVEL indicated by drill action description?</p>					
4-30	22 34 40	100%	30	<p>SANDSTONE fine to medium, little silt, yellowish brown, very dense, dry</p>					

5 PL
5 F-c LITH
45 76 m
50 40 m
55 60 m
60 90 m
70 F-c LITH

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. 827026.40		Date 4-4-02		Boring No. LSB-4	
			Project Name Chiquita Canyon Landfill					
			Client					
			Drilling Co.					
			Driller		Drill Rig			
			Drilling Method		Hole Dia.			
			Surface Conditions				Sheet 2 of 4	
Sample No.	Blow Counts	Recovery	Depth	Description		Moisture Density	Other Tests	
			30	El. Logged By JCB				
				SANDSTONE (CONT'D) (LANDSLIDE DEBRIS)				
4-35	9 18 17	100%	35	Some silt dense				
4-40	13 13 21	100%	40	fine, trace medium sand, some silt, reddish brown, very dense, dry				
4-45	25 34 50/5"	100%	45	No core recovery in this interval, description from drill returns only.				
				SILTSTONE trace fine sand, low plasticity, reddish brown, very dense, moist, highly fractured, sheared				
4-50	23 50/6"	100%	50	SANDSTONE (PICO FORMATION) fine, brown, very dense moist, laminated to stratified bedding, interbedded w/ SILTSTONE, low plasticity, mottled brown and reddish brown, moist				
4-55	50/6"	100%	55	grades to CLAYSTONE some fine sand, medium plasticity, reddish brown, very hard, moist, laminated with sandstone, some silt, gray and siltstone, few fine sand, gray, highly fractured				
4-60	32 50/5"	75%	60					

"shear zone"

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. 827026-40		Date 4-4-02		Boring No. LSB-4			
			Project Name Chiquita Canyon Landfill							
			Client						Sheet 3 of 4	
			Drilling Co.							
			Driller				Drill Rig			
			Drilling Method				Hole Dia.			
Surface Conditions										

Sample No.	Blow Counts	Recovery	Depth	Description	Moisture Density	Other Tests
			60	El. Logged By JCB		
				CLAYSTONE Cont'd		
				(PILO FORMATION)		
4-62.5	27 32	100%		moderately fractured		
4-65	25 50 1/8"	100%	65	SANDSTONE fine to medium, some silt, occasional fine gravel clasts of SILTSTONE and SANDSTONE, light gray, very dense, moist		
4-70	50 1/8"	100%	70	little silt, trace fine gravel clasts		
4-75	50 1/8"	100%	75			
4-80	50 1/8"	0%	80	fine, some silt, gray-brown, very dense, moist, faint bedding		
4-85	18 35 50 1/8"	50%	85	fine to medium sand, little silt, brown, very dense, moist, gypsum fragments to 1/8"		
4-90	27 50 1/8"	50%	90	fine, few medium, little silt sand, gray, very dense, moist		

Start Time

End Time

Groundwater

Log of Exploration Boring

Boring Location			Project No. 827026.40		Date 4-4-02		Boring No. LSB-4			
			Project Name							
			Client							
			Drilling Co.				Drill Rig		Sheet 4 of 4	
			Driller				Hole Dia.			
			Drilling Method				Surface Conditions			
Sample No.	Blow Counts	Recovery	Depth	Description			Moisture Density	Other Tests		
			90	El. Logged By JCB						
4925	30 50/3"	0%		SANDSTONE cont'd (PILD FORMATION)						
495	39 50/3"	100%	95	fine, light gray, some silt ironoxide staining on partings, laminated with siltstone						
499	60 1/6"	100%	100	stratified bedding						
4-102	527 50/6"	100%								
			105	Bottom of boring at 103 feet Near Refusal						
			110	No groundwater observed						
			115	Completed on April 4, 2002						
			120							

Start Time

End Time

Groundwater

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~ 1330 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		SS	PICO FORMATION: SANDSTONE, grayish yellow (5Y 8/4); 10 to 15% fines; fine to medium grained; 10 to 15% fine gravel (up to 1/2" maximum diameter); local calcite cementation; moderate fracturing; friable, with local very hard zones; moderate weathering.
				10			@9-12': 15 to 20% fines; fine grained.
				15			@12-15': locally grayish yellow green (5GY 7/2); 15 to 20% fines; fine grained; trace to 5% coarse sand; micaceous; massive; bivalve fragments common; local partings along bedding planes.
				20			



REMARKS

Drilled with direct-air rotary drilling equipment to 165 feet. Samples collected in
3-inch-diameter Shelby tubes using a Pitcher-barrel sampler. Ground water not encountered.
Boring backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~ 1330 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
			25		SS	@19-22': 20 to 25% fines; fine grained; trace coarse sand.
						@22-28': 5 to 10% fines; fine grained; trace to 5% gravel (up to 1/2" maximum diameter).
			30			@28': 10 to 15% gravel (up to 1/2" maximum diameter).
						@29-32': fine grained; trace to 5% fine gravel (up to 2" maximum diameter).
			35		SL	SANDY SILTSTONE. dusky yellow (5Y 6/4) to light greenish gray (5GY 8/1); 40 to 45% fine sand; trace coarse sand; trace to 5% fine gravel; micaceous; trace indistinct laminations; friable; moderate weathering.
			40			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. -1330

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						MST	MUDSTONE, grayish olive green (5GY 3/2) to moderate yellowish brown (10YR 5/4); trace fine sand, grading upward in upper 1' to 15 to 20% sand; massive; slight to moderate fracturing; low to moderate hardness; moderate to deep weathering.
				45		SL/ MST	SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: pale olive (10Y 6/2); trace to 10% fine sand; trace to 10% gravel (up tp 1" maximum diameter); massive; moderate fracturing; moderate hardness; slight to moderate weathering. MUDSTONE: dark greenish gray (5G 4/1); trace fine sand; massive.
				50			
				55			@52': indistinct fine laminations. @55': MUDSTONE, moderate yellowish brown (10YR 5/4); slickensides. @57': MUDSTONE, grayish olive (10Y 4/2).
				60			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~1330 '

	PENETRATION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
			65		SL/ MST	@63-66': both lithologies: massive, with local fine laminations; moderate to intense fracturing; low to moderate hardness. SILTSTONE: grayish yellow green (5GY 7/2). MUDSTONE: grayish olive green (5GY 3/2) to moderate olive brown (5Y 4/4); slickensides common.
			70		SL	@69-72': both lithologies: massive, with local fine laminations; friable to low hardness; moderate to intense fracturing; weak to moderate weathering. SILTSTONE: grayish yellow green (5GY 7/2); 20 to 25% fine sand.
			75			SANDY SILTSTONE, greenish gray (5GY 6/1); 25 to 30% fine sand; trace to 5% medium to coarse sand; trace to 5% fine gravel; micaceous; indistinct fine laminations; bivalve fragments common; moderate fracturing, locally with thin (<1/16") calcite coating; friable to low hardness; slight weathering.
			80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~1330 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				85		SL	
				90		SL/ MST	SANDY SILTSTONE & MUDSTONE - Interbedded. Both lithologies: low hardness; moderate weathering. SANDY SILTSTONE: light olive brown (5Y 5/6); 5 to 10% fine sand; trace medium to coarse sand; micaceous; sparse wood fragments; moderate to intense fracturing. MUDSTONE: dusky yellow green (5GY 5/2); 10 to 15% fine to coarse sand; moderate fracturing.
				95		SS	
				100			SANDSTONE, yellowish gray (5Y 8/1); 10 to 20% fines: fine to medium grained; 5 to 10% coarse sand and fine gravel; trace bivalve fragments; local zones of very hard calcite cement; friable to loose; moderate weathering.

REMARKS



EMCON
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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~1330 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				105		SS	
				110			@107': 20 to 25% fines.
				115			@109-112': pale greenish yellow (10Y 8/2).
				120			@111-113': calcite-cemented; very hard.



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~1330 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				125		SS	@114-124': 20 to 25% fines; trace fine gravel. @119-122': grayish yellow (5Y 8/4); @127': 5 to 10% fine gravel. @131-134': pale greenish yellow (10Y 8/2); 20 to 25% fines; trace fine gravel; very hard @133 1/2 to 134'.
				130			
				135		SL	SANDY SILTSTONE, pale olive (10Y 6/2); 30 to 35% fine sand; trace to 5% fine gravel; bivalve fragments common; friable to loose; moderate weathering.
				140			

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 8 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~1330 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
			145	SL		@139-142': light olive brown (5Y 5/6); 15 to 20% fine sand.
			150			@145': light olive brown (5Y 5/6).
			155			@149-152': light olive brown (5Y 5/6); 20 to 25% fine sand.
			160	SS		@154-159': greenish black (5GY 2/1); 5 to 10% fine sand.
						SILTY SANDSTONE, grayish orange (10YR 7/4); 25 to 30% fines; fine grained; contains dark gray

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-1

PROJECT NAME Chiquita Canyon Landfill

PAGE 9 OF 9

BY E. A. Morelan DATE 3/21/89

SURFACE ELEV. ~1330'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				165		SS	lense of clayey sandstone (approximately 1" thick); friable to low hardness; deep weathering.
						SL	SANDY SILTSTONE, dark yellowish brown (10YR 4/2) with dark yellowish orange (10YR 6/6) mottling; 25 to 30% fine sand; trace fine gravel; fine laminations (approximately 1/32" thick); friable to loose. @ 165': light greenish gray (5G 8/1). BOTTOM OF BORING: 165 FEET. Terminated Hole.
				170			
				175			
				180			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~ 1269 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		SS/ SL	SAUGUS FORMATION: SANDSTONE and SILTSTONE-Interbedded. Both lithologies: dusky yellow (5Y 6/4). SANDSTONE: 10 to 20% fines; fine grained. SILTSTONE: trace fine sand.
				10		SS	SANDSTONE, light olive brown (5Y 5/6); trace to 5% fines; fine to medium grained; 10 to 15% coarse sand and fine gravel; friable to loose. @9': 2" thick gravel layer.
				15			
				20			@18-20.5': dusky yellow (5Y 6/4); 15 to 20% fines; 5 to 10% coarse sand and fine gravel.



REMARKS

Drilled with direct-air rotary drilling equipment to 121 feet. Samples collected in 3-inch Shelby tubes using a Pitcher-barrel sampler. Ground water not encountered. Boring backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1269'

		PENETRA-TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						SS	
				25		SL/ MST	SILTSTONE and MUDSTONE-Interbedded. SILTSTONE: grayish yellow green (5GY 7/2); 10 to 20% fine sand. MUDSTONE: olive gray (5Y 4/1); trace fine sand; indistinct fine laminations.
				30		MST SL	MUDSTONE, olive gray (5Y 4/1); trace fine sand; indistinct fine laminations. SILTSTONE, light olive gray (5Y 5/2); 10 to 15% fine sand; trace fine gravel.
				35		SL/ MST SL	SILTSTONE and MUDSTONE-Interbedded. Both lithologies: yellowish gray (5Y 7/2). SILTSTONE: 10 to 15% fine sand; trace fine gravel. MUDSTONE: trace fine sand; fine laminations. SANDY SILTSTONE, light olive gray (5Y 5/2); 30 to 40% fine sand; trace to 10% fine gravel.
				40			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 7

BY E. A. Morelan

DATE 3/8/89

SURFACE ELEV. ~1269 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				45		SL	
				50		MST	@48-49.5': light olive brown (5Y 5/6); 30 to 40% fine sand; trace fine gravel; loose.
				55		SL	MUDSTONE, olive gray (5Y 3/2) to light olive gray (5Y 5/2); fine laminations; small veinlets (1/16") of calcite; moderate fracturing; moderate hardness; moderate weathering.
						SL	SILTSTONE, pale olive (10Y 6/2); 10 to 15% fine sand.
						MST	MUDSTONE, light gray (N 7/0); 10 to 15% fine sand; trace fine gravel; massive; hard.
				60			@58-61': grayish olive (10Y 4/2) to very pale orange



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~ 1269 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
							(10YR 8/2); strong mottling; 1/4" thick calcite veinlet; moderate hardness; moderate to deep weathering.
				65		SL	SILTSTONE, dusky yellow (5Y 6/4); 5 to 10% fine sand.
				70		MST	MUDSTONE, grayish olive (10Y 4/2) to dark yellowish orange (10YR 6/6); indistinct laminations; veinlets of calcite (1/4"); slight fracturing; low hardness; weak to moderate weathering.
				75			@74': greenish black (5GY 2/1).
				80		SL/ MST	SANDY SILTSTONE & MUDSTONE-Interbedded. SANDY SILTSTONE: 35 to 40% fine sand. MUDSTONE: olive gray (5Y 3/2); calcite veinlets; low hardness; weak weathering.



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 of 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1269

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				85	SL/ MST		@86': SILTSTONE: grayish yellow green (5GY 7/2); trace to 10% fine sand. MUDSTONE: dark gray (N 3/0); fine laminations; hard.
				90	SS SL		SILTY SANDSTONE, pale olive (10Y 6/2); 15 to 20% fines; fine grained; faint laminations; friable. SILTSTONE, light olive gray (5Y 5/2); thin laminations; slight fracturing; low hardness; moderate weathering. @90-91': grayish olive (10Y 4/2); mudstone interbed; local slickensides.
				95			
				100	SS		@98': 10% fine sand; loose. SILTY SANDSTONE, moderate yellowish brown (10YR 5/4); 20 to 25% fines; fine to medium



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1269 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				105		SS	grained; trace to 10% coarse sand; friable. @101': pale olive (5Y 6/2).
				110			@103': light brown (5YR 5/6); minor mudstone interbeds.
				115			@108-111': 35 to 40% fines.
						MST	MUDSTONE, dark yellowish brown (10YR 4/2):
						SL	trace fine sand; massive; minor slickensides.
							SILTSTONE, dark yellowish orange (10YR 6/6); 5 to 10% fine sand; trace fine gravel.
				120			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-2

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1269 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
			125		SL	@121': grayish orange (10YR 7/4). BOTTOM OF BORING: 121 FEET. Terminated Hole.
			130			
			135			
			140			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 5

BY E. A. Morelan DATE 3/9/89

SURFACE ELEV. ~1115 '

		PENETRATION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		32		5	SW		GRAVELLY SAND - FILL, light yellowish brown (2.5Y 6/4); 5 to 10% fines; fine to coarse grained; 25 to 35% fine to coarse gravel; medium dense.
		28		10	ML		SANDY SILT - FILL, dark greenish brown (2.5Y 4/2); low plasticity; 30 to 35% fine sand; 10 to 15% fine to coarse gravel; very stiff.
		28		15	SM		SILTY SAND - FILL, olive (5Y 5/3); 20 to 25% low-plasticity fines; fine to medium grained; 20 to 25% fine gravel; medium dense. @14': natural materials; pale olive (5Y 6/3); 10 to 15% low-plasticity fines; fine grained.
		17		20	ML		SANDY SILT, olive brown (2.5Y 4/4); low plasticity; 30 to 35% fine sand; trace to 5% fine gravel; very stiff.



REMARKS

Drilled with mud-rotary equipment to 29 feet and sampled with a Standard Penetration sampler to 30.5 feet. Drilled with air-rotary equipment from 29 to 92 ft.; samples collected using pitcher-barrel sampler. Boring backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 5

BY E. A. Morelan DATE 3/9/89

SURFACE ELEV. ~ 1115 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						ML	@24': pale olive (5Y 6/3); 20 to 25% fine sand; very hard; slightly damp.
		50-5"		25		SL	SAUGUS FORMATION: SILTSTONE, pale olive (10Y 6/2); 5 to 10% fine sand; trace fine gravel; massive; friable; moderate weathering.
		50-5"		30		SS	SILTY SANDSTONE, light olive brown (5Y 5/6); 30 to 35% fines; fine grained; friable; damp.
				35			
				40			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 5

BY E. A. Morelan DATE 3/9/89

SURFACE ELEV. ~1115 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				45		SS	@40': dusky yellow (5Y 6/4); 20 to 25% fines; loose.
				50			@50.5': moderate olive brown (5Y 4/4); 35 to 40% fines; trace fine gravel.
				55		MST	MUDSTONE, moderate olive brown (5Y 4/4) to dark yellowish orange (10YR 6/6); trace to 10% fine to medium sand; fine laminations; low hardness; moderate to deep weathering.
						SL	SANDY SILTSTONE, light olive gray (5Y 5/2); 30 to 35% fine sand; trace fine gravel.
				60		SS	SANDSTONE, yellowish gray (5Y 7/2); 5 to 10% fines; fine to coarse grained; trace to 10% fine

REMARKS



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ASSOCIATES

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 5

BY E. A. Morelan DATE 3/9/89

SURFACE ELEV. -1115'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65		SS	to coarse gravel; loose.
				70		SL/ MST	SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: medium light gray (N 6/0); trace fine sand; micaceous; indistinct laminations; beds are 2 to 6" thick; friable. MUDSTONE: dark greenish gray (5G 4/1) to light olive gray (5Y 5/2), weathering to moderate brown (5YR 4/4); trace fine sand; massive; moderate hardness; moderate weathering.
				75			
				80		SS	SILTY SANDSTONE, light olive brown (5Y 5/6) to very pale orange (10YR 8/2); 35 to 40% fines;



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-3

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 5

BY E. A. Morelan DATE 3/9/89

SURFACE ELEV. ~1115 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				85		SS	fine to coarse grained; 15 to 20% fine to coarse gravel.
				90			@85-89': trace to 10% fine gravel.
							@89-92': yellowish gray (5Y 7/2); 10 to 15% fines; 5 to 10% fine grained; medium to coarse grained; trace fine gravel; thin laminations; thin interbed of mudstone present at approximately 89.5'; friable.
							BOTTOM OF BORING: 92 FEET. Terminated Hole.
				95			
				100			



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ASSOCIATES

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-4

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 5

BY E. A. Morelan DATE 3/7/89

SURFACE ELEV. ~1160 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		SS	SAUGUS FORMATION: SILTY SANDSTONE, greenish gray (5GY 6/1); 30 to 40% fines; fine to medium grained; 10 to 15% coarse grained; trace fine gravel to cobbles.
				10		MST	MUDSTONE, dusky yellow (5Y 6/4); massive; intense fracturing; low hardness; moderate weathering.
						SS	SANDSTONE, light greenish gray (5GY 8/1); 20 to 25% fines; fine grained; moderate fracturing; friable; moderate weathering.
						MST	MUDSTONE, pale brown (5YR 5/2); massive.
				15		SL	SANDY SILTSTONE, dusky yellow (5Y 6/4); 40 to 50% fine sand.
						SL/ MST	SILTSTONE and MUDSTONE - Interbedded. SILTSTONE: grayish yellow green (5GY 7/2); micaceous; massive; low hardness; slight weathering.
				20			



REMARKS

Drilled with direct-air drilling equipment to 82.5 feet. Samples collected in 3"-diameter Shelby tubes using a Pitcher-barrel sampler. Ground-water not encountered. Boring backfilled with cement/bentonite grout upon completion.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-4

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 5

BY E. A. Morelan DATE 3/7/89

SURFACE ELEV. ~1160'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						SL/ MST	MUDSTONE: dusky yellow green (5GY 5/2); fine laminations and crossbedding; moderate to intense fracturing.
						SS	SILTY SANDSTONE, (5GY 6/1); 40 to 50% fines; fine grained; micaceous; massive; slight fracturing; friable.
				25		MST	MUDSTONE, medium gray (N 4/0) to moderate olive brown (5Y 4/4); indistinct laminations.
						SS	SILTY SANDSTONE, greenish gray (5GY 6/1); 40 to 50% fines; fine grained.
						MST	MUDSTONE, medium gray (N 4/0) to moderate olive brown (5Y 4/4); indistinct laminations.
				30		SS	SANDSTONE, grayish yellow (5Y 8/4); 10 to 15% fines; fine to medium grained; 5 to 10% coarse grained and fine gravel; trace coarse gravel; moderate fracturing friable; moderate weathering.
						SS/ SL	SANDSTONE and SILTSTONE - Interbedded. Both lithologies are dusky yellow (5Y 6/4). SANDSTONE: fine to medium grained; 10 to 20% coarse grained. SILTSTONE: 40 to 50% fine sand.
				35			
						SS	SILTY SANDSTONE, grayish yellow green (5GY 7/2); 30 to 35% fines; interbedded fine to medium sand, with thin intervals of gravel and cobbles;
				40			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-4

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 5

BY E. A. Morelan

DATE 3/7/89

SURFACE ELEV. ~1160 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				45		SS	micaceous; moderate fracturing; friable; moderate weathering.
				50		CONG	SANDY CONGLOMERATE, pale olive (10Y 6/2); trace to 5% fines; 40 to 45% fine to medium sand; granitic gravel and cobbles; loose; moderate to deep weathering.
				55		SS	SANDSTONE, grayish yellow (5Y 8/4); 10 to 15% fines; fine to medium grained; 5 to 10% fine gravel; loose to friable; deep weathering.
				60			

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-4

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 5

BY E. A. Morelan DATE 3/7/89

SURFACE ELEV. ~1160 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65		SS	@59.5-62.5': fine grained; moderate weathering.
				70		SS/ MST	@62.5 to 65.5': pale olive (10Y 6/2), with dark yellowish orange (10YR 6/6) mottling; trace to 5% fine gravel. Contains thin bed (2 to 3") of claystone which is: grayish olive (10Y 4/2) with light olive brown (5Y 5/6) mottling; intense fracturing.
				75			SILTY SANDSTONE & MUDSTONE - Interbedded. SILTY SANDSTONE: dusky yellow (5Y 6/4); 30 to 35% fines; fine grained; trace to 5% coarse sand to fine gravel; contains thin interbeds (3-4") of gravel; moderate fracturing; friable; moderate to weak weathering; MUDSTONE: olive black (5Y 2/1); trace fine sand; wood fragments sparse to common; indistinct fine laminations to bioturbated; local thin interbeds of siltstone; moderate fracturing; moderate hardness; slight weathering to fresh.
				80			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-4

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 5

BY E. A. Morelan DATE 3/7/89

SURFACE ELEV. ~ 1160 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
			85		SS/ MST	BOTTOM OF BORING: 82.5 FEET. Terminated Hole.
			90			
			95			
			100			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~ 1125 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		SS	SAUGUS FORMATION: SILTY SANDSTONE, light olive gray (5Y 5/2); 20 to 30% fines; fine to medium grained; 10 to 20% gravel.
				10		MST	MUDSTONE, moderate yellowish brown (10YR 5/4); 10% sand to fine gravel; soft; moderate weathering.
				15		SS/ SL	SANDSTONE and SILTSTONE-Interbedded. SANDSTONE: light olive gray (5Y 6/1); 5 to 10% fines; fine grained; friable. SILTSTONE: light olive gray (5Y 5/2), weathering to light olive brown (5Y 5/6); 15 to 20% fine sand; indistinct laminations. Both lithologies: trace fine gravel; moderate fracturing; moderate weathering.
				20			



REMARKS

Drilled with direct-air rotary drilling equipment to 121 feet. Samples collected in 3-inch Shelby tubes using a Pitcher-barrel sampler. Ground water not encountered. Boring backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1125 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				25		SS/ SL	
						SL	SILTSTONE, grayish yellow green (5GY 7/2); 10 to 15% fine sand.
				30		SS	SILTY SANDSTONE, grayish yellow green (5GY 7/2) to dusky yellow (5Y 6/4); 20 to 30% fines; fine grained; friable.
							@30-33': pale olive (10Y 6/2); 5 to 10% fines; fine to medium grained, with thin intervals of coarse grained; trace fine gravel.
				35			
						MST	MUDSTONE, moderate brown (5YR 3/4); trace to 5% fine sand; massive: low hardness; moderate weathering.
				40			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~ 1125 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						MST	
						SS	SANDSTONE, light olive gray (5Y 5/2); 10 to 15% fines; fine to medium grained; 10 to 15% gravel (granitic clasts); friable; moderate weathering.
				45			@43-46': fine to coarse grained; 20 to 30% gravel.
				50			
				55			
				60			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~ 1125'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65		SS	@57-69': fine to coarse grained; 20 to 40% gravel and cobbles.
				70		MST SS	MUDSTONE, dark yellowish brown (10YR 4/2); massive; moderate weathering. SANDSTONE, light olive gray (5Y 5/2); 5 to 10% fines; fine to medium grained; very loose. @70': gravel and cobbles (inferred).
				75			
				80			@78.5-80': siltstone and mudstone interbeds.

REMARKS



LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~ 1125 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				85		SS SL SS	SILTSTONE, light olive gray (5Y 5/2); trace to 10% fine sand; 20 to 30% gravel (calcite concretions and metamorphic clasts); low hardness.
				90		SL	SILTY SANDSTONE, light olive gray (5Y 5/2); 20 to 25% fines; fine to medium grained; friable.
				95		MST	SANDY SILTSTONE, light olive gray (5Y 6/1); 40 to 50% fine sand; friable; slight weathering.
				100		SS	MUDSTONE, dark greenish gray (5GY 4/1) to moderate olive brown (5Y 4/4); massive; slight to moderate weathering.
							SANDSTONE, yellowish gray (5Y 3/2) to dusky



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1125 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				105		SS	yellow (5Y 6/4); trace to 5% fines; fine grained; trace to 5% gravel; low hardness.
				110			@102-110': yellowish gray (5Y 3/2); fine to medium grained; friable.
				115			@110-122': 20 to 40% gravel (percentage increases with depth); loose.
				120			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-5

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY E. A. Morelan DATE 3/8/89

SURFACE ELEV. ~1125 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
					SS	
						BOTTOM OF BORING: 122 FEET. Terminated Hole.
			125			
			130			
			135			
			140			



EMCON
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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~1265 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		SS	SAUGUS FORMATION: SILTY SANDSTONE, grayish orange (10YR 7/4); 30 to 40% fines; fine grained; 5 to 10% fine gravel.
				10		SL	SILTSTONE, very light gray (N 8/0); 20 to 25% fine sand; trace to 5% fine gravel; micaceous.
				15			@13-15': white (N 8/0); calcite cemented; very hard.
				20			@17': moderate olive brown (5Y 4/4).



REMARKS

Drilled with direct-air rotary drilling equipment to 122 feet. Samples collected with 3-inch Shelby tubes using a Pitcher-barrel sampler. Ground water not encountered. Borehole backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~1265 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				25		SL	@23': very light gray (N 8/0); calcite cemented; locally very hard.
				30			@27': light olive brown (5Y 5/6); contains thin interbeds of sandy mudstone.
				35			@32': dusky yellow (5Y 6/4).
						SS	SANDSTONE, grayish yellow green (5GY 7/2); 10 to 15% fines; fine grained.
						SL	SILTSTONE, light olive brown (5Y 5/6); 10 to 15% fine sand; trace fine gravel.
				40			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~1265'

		PENETRATION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						SL	
				45		SS	SILTY SANDSTONE, pale olive (10Y 6/2); 20 to 30% fines; fine grained; trace fine gravel.
						SL	SILTSTONE, pale olive (10Y 6/2); 10 to 15% fine sand; trace to 5% fine gravel.
				50		MST	MUDSTONE, pale olive (10Y 6/2); silt fraction greater than clay; trace to 5% fine sand; indistinct fine laminations.
						SL/ MST	SILTSTONE and MUDSTONE-Interbedded. Both lithologies: pale olive (10Y 6/2). SILTSTONE: 5 to 10% fine sand; trace fine gravel. MUDSTONE: trace fine sand; massive, with local very fine laminations.
				55			
				60			

REMARKS



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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~ 1265 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65		SL/ MST	
				70			
				75			@75': olive gray (5Y 4/1) mudstone interbeds.
							@78': moderate brown (5YR 4/4) siltstone interbeds; 25 to 30% fine sand.
				80			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~1265'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				85	SL/ MST SS		SILTY SANDSTONE, moderate brown (5YR 4/4); 35 to 45% fines; fine to medium grained; trace to 5% fine gravel. @84-89': light olive brown (5Y 5/6); 15 to 20% fines.
				90	MST		MUDSTONE, moderate brown (5YR 4/4); 10 to 15% fine sand; micaceous; locally very hard. @92': 20 to 25% fine gravel.
				95	SL		SILTSTONE, yellowish gray (5Y 8/1); 5 to 10% fine sand; calcite cemented; very hard. @95-102': no calcite cementation. @98': 20 to 25% fine gravel.
				100			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~1265'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				105		SL SL/ MST	SILTSTONE and MUDSTONE-Interbedded. SILTSTONE: light olive brown (5Y 5/6); trace to 5% fine sand. MUDSTONE: moderate brown (5YR 3/4); trace fine sand; massive. @106': siltstone contains 10 to 15% fine gravel.
				110		SL	SILTSTONE, light olive brown (5Y 5/6); 5 to 10% fine sand; trace to 5% fine gravel.
				115			114-117': trace to 5% fine sand.
				120			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-6

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY E. A. Morelan DATE 3/15/89

SURFACE ELEV. ~1265 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
			125			<p>@ 122': moderate brown (5YR 4/4); 5 to 10% fine sand; calcite cemented. BOTTOM OF BORING: 122 FEET. Terminated Hole.</p>
			130			
			135			
			140			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-7

PROJECT NAME Chiquita Canyon Landfill

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BY E. A. Morelan DATE 3/10/89

SURFACE ELEV. ~ 1107 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		19		5		SM	SILTY SAND, light yellowish brown (2.5Y 6/4); 30 to 40% low-plasticity fines; fine to medium grained; 15 to 20% fine gravel; medium dense; slightly damp.
		25		10			@ 11': 10 to 15% fines; trace to 5% fine gravel; local white veinlets of caliche.
		50-5"		15		GM	SILTY GRAVEL, light olive brown (2.5Y 5/4); 10 to 15% low-plasticity fines; 30 to 35% fine to coarse sand; fine to coarse clast size; crystalline, volcanic, and mudstone clast lithologies; very dense.
				20			



REMARKS

Drilled with mud-rotary equipment to 22 feet and sampled with Standard Penetration sampler to 23.5 feet. Drilled with air-rotary equipment from 22 to 91.5 feet; samples collected using Pitcher-barrel sampler. Boring backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-7

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 5

BY E. A. Morelan DATE 3/10/89

SURFACE ELEV. ~1107'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		50-5.5"		25		SS	SAUGUS FORMATION: SILTY SANDSTONE, moderate olive brown (5Y 4/4); 35 to 40% fines; fine to coarse grained; 5 to 10% fine gravel; loose.
				30			@28': dusky yellow (5Y 6/4); 15 to 20% fines.
				35			@28.5-30.5': light olive brown (5Y 5/6); 20 to 25% fines; 20 to 25% fine gravel.
				40		SL/ MST	SILTSTONE and MUDSTONE-Interbedded. Both lithologies: light brown (5YR 5/6). SILTSTONE: trace fine sand. MUDSTONE: massive, with local indistinct laminations.

REMARKS



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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-7

PROJECT NAME Chiquita Canyon Landfill

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BY E. A. Morelan DATE 3/10/89

SURFACE ELEV. ~1107'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				45		SS	SILTY SANDSTONE, moderate brown (5YR 3/4); 30 to 35% fines; fine to medium grained; trace to 10% coarse sand; friable.
						SL	SILTSTONE, dark yellowish orange (10YR 6/6); trace fine sand.
				50		SS	CLAYEY SANDSTONE, moderate yellowish brown (10YR 5/4); 35 to 40% fines; fine grained; trace medium to coarse grained; low hardness.
						SL	SILTSTONE, dark yellowish orange (10YR 6/6); trace fine sand.
				55		SS	SILTY SANDSTONE, dark yellowish brown (10YR 4/2); 10 to 15% fines; fine grained; thin laminations; friable.
				60			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-7

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 5

BY E. A. Morelan

DATE 3/10/89

SURFACE ELEV. ~1107'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65		SS	
						MST	MUDSTONE, moderate brown (5YR 4/4); trace fine sand; trace mica.
				70		CONG	SILTY CONGLOMERATE, dusky yellow (5Y 6/4) to yellowish gray (5Y 7/2); 40 to 50% siltstone; clast size to 2"; sparse calcite coatings on clasts; low hardness; slight weathering. @70.5': interbed of moderate yellowish brown (10YR 5/4) claystone; 10 to 15% fine sand; soft. @71.5-73.5': grayish orange (10YR 7/4); 40 to 60% fines; low hardness.
				75		SL/ MST	SILTSTONE and MUDSTONE-Interbedded. SILTSTONE: greenish gray (5GY 6/1); local calcite cement; locally hard. MUDSTONE: dark yellowish brown (10YR 4/2); massive; moderate fracturing; low hardness; trace slickensides.
				80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-7

PROJECT NAME **Chiquita Canyon Landfill**

PAGE 5 OF 5

BY **E. A. Morelan** DATE **3/10/89**

SURFACE ELEV. ~ 1107 '

PENETRATION		GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
Blow Ct.						
					SL/ MST	<p>@81.5': light gray (N 7/0), with grayish orange (10YR 7/4) mottling.</p> <p>@84': light olive (10YR 5/4).</p>
			85		SS	<p>CLAYEY SANDSTONE, light olive gray (5Y 5/2); 40 to 45% fines; fine grained; friable; moist.</p> <p>@89.5': 10 to 15% fines; fine to medium grained.</p>
			90			<p>BOTTOM OF BORING: 91.5 FEET.</p> <p>Terminated Hole.</p>
			95			
			100			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 7

BY E. A. Morelan DATE 3/16/89

SURFACE ELEV. ~ 1360 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				5		ML	CLAYEY SILT, yellowish brown (10YR 5/6); low plasticity; 10 to 15% fine sand; trace fine gravel; micaceous; stiff; damp.
				10		SS	SAUGUS FORMATION: SANDSTONE, yellowish gray (5Y 7/2); 15 to 20% fines; fine to coarse grained; trace to 5% fine gravel (angular quartzose clasts); locally calcite cemented; loose.
				15			
				20			



REMARKS

Drilled with direct-air rotary equipment to 122 feet. Samples collected in 3-inch Shelby tubes using a pitcher-barrel sampler. Ground water not encountered. Boring backfilled with cement/bentonite grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 7

BY E. A. Morelan DATE 3/16/89

SURFACE ELEV. ~ 1360'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				25		SS	
						SLT	SILTSTONE, dusky yellow (5Y 6/4); 15 to 20% fine sand; indistinctly bedded.
				30		SS	SANDSTONE, yellowish gray (5Y 7/2); trace to 5% fines; fine to coarse grained; trace to 5% fine gravel.
						MST	MUDSTONE, light olive brown (5Y 5/6); locally silty; indistinct fine laminations.
						SS	SANDSTONE, dusky yellow (5Y 6/4); 15 to 20% fines; fine grained; trace to 5% fine gravel. @34': thin interbedded mudstone.
				35		SLT	SILTSTONE, light olive brown (5Y 5/6); trace fine sand; micaceous.
				40			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 7

BY E. A. Morelan DATE 3/16/89

SURFACE ELEV. ~1360 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				45		SS	SILTY SANDSTONE, grayish orange (10YR 7/4); 20 to 25% fines; fine to medium grained; local interbeds of light olive brown (5Y 5/6), massive mudstone; friable; moderate weathering. @42': light olive brown (5Y 5/6); 30 to 35% fines; fine grained. @45-48': locally dusky yellow (5Y 6/4); 20 to 30% fines; fine grained; friable to low hardness; moderate weathering @46-47': 15 to 20% coarse sand.
				50			
				55		SLT/ MST	SILTSTONE and MUDSTONE-Interbedded. SILTSTONE: pale olive (10Y 6/2); 10 to 15% fine sand. MUDSTONE: olive gray (5Y 3/2); trace fine sand; massive.
				60			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 7

BY E. A. Morelan

DATE 3/16/89

SURFACE ELEV. ~1360'

		PENETRA-TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65	SLT/ MST SS		SANDSTONE, grayish orange (10YR 7/4); 10 to 15% fines; fine to medium grained; 5 to 10% fine gravel; micaceous; gypsum-filled voids. @64': 10 to 15% fine gravel.
				70	SS/ MST SS		SANDSTONE and MUDSTONE-Interbedded. SANDSTONE: moderate yellowish brown (10YR 5/4); 15 to 20% fines; fine to medium grained; 10 to 15% fine gravel. MUDSTONE: dark yellowish brown (10YR 4/2); massive.
				75	SS/ MST SS		SANDSTONE, light olive brown (5Y 5/6); 5 to 10% fines; fine to coarse grained; 10 to 15% gravel. SANDSTONE and MUDSTONE-Interbedded. SANDSTONE: moderate yellowish brown (10YR 5/4); 15 to 20% fines; fine to medium grained; 10 to 15% fine gravel. MUDSTONE: dark yellowish brown (10YR 4/2); massive.
				80			SANDSTONE, yellowish gray (5Y 7/2); trace to 5% fines; fine to coarse grained; 10 to 15% gravel; moist.

REMARKS



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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 7

BY E. A. Morelan DATE 3/16/89

SURFACE ELEV. ~ 1360 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				85		SS	@83-89': 5 to 10% fine gravel.
				90			@92-97': 30 to 35% gravel.
				95			@99': thin interbeds of mudstone.
				100			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 6 OF 7

BY E. A. Morelan DATE 3/16/89

SURFACE ELEV. ~1360'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						SS	
						SLT/ MST	SILTSTONE and MUDSTONE-Interbedded. SILTSTONE: light olive brown (5Y 5/6); 15 to 20% fine sand; 5 to 10% fine gravel. MUDSTONE: dark yellowish brown (10YR 4/2); indistinct fine laminations.
				105		SS	SANDSTONE, light olive brown (5Y 5/6); 10 to 15% fines; fine to medium grained; 5 to 10% fine gravel.
						SLT/ MST	SILTSTONE and MUDSTONE-Interbedded.
						SS	SILTSTONE: light olive brown (5Y 5/6); 15 to 20% fine sand; 5 to 10% fine gravel. MUDSTONE: dark yellowish brown (10YR 4/2); indistinct fine laminations.
				110			SANDSTONE, yellowish gray (5Y 7/2); 5 to 10% fines; fine to coarse grained; 15 to 20% gravel; thorough calcite cementation; very hard.
						MST	MUDSTONE, light olive gray (5Y 6/1), weathering to light olive brown (5Y 5/6); micaceous; massive.
				115		SLT	SILTSTONE, light olive brown (5Y 5/6); trace to 5% fine sand; trace fine gravel.
				120			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-8

PROJECT NAME Chiquita Canyon Landfill

PAGE 7 OF 7

BY E. A. Morelan DATE 3/16/89

SURFACE ELEV. ~1360 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				125		SS	PEBBLY SANDSTONE, greenish gray (5GY 6/1); 10 to 15% fines; fine to coarse grained; 25 to 30% gravel; calcite-cemented; hard. BOTTOM OF BORING: 122 FEET. Terminated Hole.
				130			
				135			
				140			



REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 1 OF 5

BY E. A. Morelan DATE 3/13/89

SURFACE ELEV. ~1005'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
						ML	SANDY SILT, very pale brown (10YR 7/3); non plastic; 25 to 30% fine sand; micaceous; firm; slightly damp.
		7		5			
						SC	CLAYEY SAND, very dark grayish brown (2.5Y 3/2); 25 to 30% moderate-plasticity fines; fine to medium grained; medium dense.
		12		10			
		29		15			@15-20': olive brown (2.5Y 4/4); 10 to 15% moderate-plasticity fines; trace to 5% fine gravel; medium dense.
							@20': dense.
				20			



REMARKS

Drilled with mud-rotary equipment to 58.5 feet & sampled with Standard Penetration sampler to 55.5 feet. Drilled with air-rotary equipment from 58.5 to 91 feet. Samples collected using pitcher-barrel sampler. Ground water at 77 feet.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 2 OF 5

BY E. A. Morelan DATE 3/13/89

SURFACE ELEV. ~1005 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
		34				SC	
		22		25			@25': olive brown (2.5Y 4/4); 20 to 25% moderate -plasticity fines.
		41		30			@30': light olive brown (2.5Y 5/4); 10 to 15% fine gravel; micaceous; dense.
		40		35			@35': grayish brown (2.5Y 5/2); 15 to 20% moderate-plasticity fines; 20 to 25% gravel, consisting mostly of strong brown (7.5YR 4/6) deeply weathered sandstone clasts.
						GW	SANDY GRAVEL, light gray (5Y 7/2); trace to 10% fines; 20 to 30% medium to coarse sand; clast size ranges from fine gravel to cobbles.
				40			



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REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 3 OF 5

BY E. A. Morelan DATE 3/13/89

SURFACE ELEV. ~ 1005 '

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				45		GW	
				50			
				55		MST	SAUGUS FORMATION:
						SL	MUDSTONE, olive gray (5Y 4/1); trace fine sand; fine laminations (<1 mm); scarce slickensides; moderate hardness; slight to moderate weathering.
						SS	SANDY SILTSTONE, greenish gray (5GY 6/1), with light olive brown (5Y 5/6) mottling; 25 to 30% fine to medium sand; trace to 10% coarse sand to fine gravel; massive; friable to low hardness; moderate weathering.
				60			

REMARKS



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LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 4 OF 5

BY E. A. Morelan DATE 3/13/89

SURFACE ELEV. ~1005'

		PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
				65		SS	SILTY SANDSTONE, dusky yellow green (5GY 5/2); 30 to 35% fines; fine to medium grained; trace to 10% fine gravel. @65': moderate olive brown (5Y 4/4); 10 to 15% fines. @68': yellowish gray (5Y 7/2); 5 to 10% fines; friable. @71': 25 to 30% gravel.
				70		CONG	SANDY CONGLOMERATE, light olive gray (5Y 5/2); trace to 5% fines; 30 to 35% medium to coarse sand; fine gravel (to 3/4" diameter).
				75		SS	SANDSTONE, light olive gray (5Y 5/2); trace to 5% fines; fine to coarse grained; 10 to 15% fine gravel; micaceous. @78': dusky yellow (5Y 6/4); 5 to 10% fines; indistinctly laminated; friable.
				80		SLT	SILTSTONE, pale olive (10Y 6/2); 15 to 20% fine

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 976-03.04

BORING NO. E-9

PROJECT NAME Chiquita Canyon Landfill

PAGE 5 OF 5

BY E. A. Morelan DATE 3/13/89

SURFACE ELEV. ~ 1005 '

	PENETRA- TION Blow Ct.	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO- GRAPHIC COLUMN	DESCRIPTION
					SLT	sand.
					SS	SANDSTONE, light olive gray (5Y 5/2); trace to 5% fines; fine to coarse grained; 10 to 15% fine gravel; micaceous.
			85			
						@88-91': yellowish gray (5Y 7/2); 10 to 15% fines; fine to medium grained; friable; weak to moderate weathering; moist.
			90			BOTTOM OF BORING: 91 FEET. Terminated Hole.
			95			
			100			



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REMARKS

LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-1
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1026 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk												ϕ°	C psf	
SOIL DESCRIPTION																	
5	SM																
10																	
15	SM																
20																	
25																	
30																	
35																	

FILL: Light gray, fine to medium SILTY SAND with some GRAVEL, damp to moist

ALLUVIUM: Light gray, fine to medium SILTY SAND with some GRAVEL, damp, very dense

... (10 feet) some coarse layers

... (15 feet) brown, light brown coarse SILTY SAND with some GRAVEL, moist, dense

... (20 feet) brown to olive, medium to coarse SILTY SAND/SANDY SILT with some fine GRAVEL, damp, dense

... (25 feet) light brown, coarse SILTY SAND with fine GRAVEL, dry to damp, dense to very dense

... (30 feet) same as above

... (35 feet) light gray to light brown, very dense

CON

GeoLogic Associates

Logged By: WJK

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LOG OF EXPLORATORY BORING

Sheet 2 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-1
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1026 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ°	C psf	
				Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table	SOIL DESCRIPTION							
				ALLUVIUM: Light gray, coarse to medium SILTY SAND/SANDY SILT with fine GRAVEL, dry to damp, dense to very dense			8	50	3.0					
45	SM						9	50/5"	3.3	112				
50				... (50 feet) olive-gray, SANDY SILT, interbedded medium SILTY SAND with fine GRAVEL, damp, very dense			10	50/6"	6.0					
55				BEDROCK: Gray-olive, fine SANDY SILTSTONE, moist			11	81	9.1	116				
60				... (60 feet) olive CLAYEY SILTSTONE, moist			12	50/5"	15.3					
65				NOTES: 1. Total depth of boring 61-1/2 feet. 2. No groundwater encountered. 3. Boring backfilled with cuttings on 1/15/07.										
70														
75														

GeoLogic Associates

 Logged By:
 WJK







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LOG OF EXPLORATORY BORING

Sheet 1 of 1

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-2
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1025 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample  2.5" Ring Sample  Standard Split Spoon Sample (SPT)  Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							ϕ°	C psf	
SOIL DESCRIPTION												
5	SM											
10												
15												
20	SM											
25												
30												
35												

FILL: Gray, medium to coarse SILTY SAND with fine GRAVEL, damp to moist, dense

... (5 feet) olive-gray SANDY SILT, medium to coarse SAND sizes with some fine GRAVEL, damp to moist, dense

... (10 feet) same as above

ALLUVIUM: Light gray, medium to coarse SANDY SILT/SILTY SAND, dry to damp, dense to very dense

... (20 feet) brown, medium to coarse SILTY SAND with fine GRAVEL, dry, very dense

... (25 feet) coarse to medium

... (30 feet) same as above

... (31 feet) refusal

NOTES:

- Total depth of boring 31 feet.
- No groundwater encountered.
- Auger refusal.
- Boring was backfilled with cuttings on 1/15/07.

GeoLogic Associates

 Logged By:
 WJK







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LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: **G-2A**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1025 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  2.5" Ring Sample  Seepage  Bulk Sample  Standard Split Spoon Sample (SPT)  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							ϕ	C psf	
SOIL DESCRIPTION												
5	SM											
10					1	38	10.0					
15												
20	SM				2	52	1.9	109				
25												
30					3	50/2"	2.4					
35					4	76	2.9	111				

FILL: Light gray, medium to coarse SILTY SAND with fine GRAVEL
 ... (1.5 feet) dark gray, damp to moist, dense

... (10 feet) SANDY SILT/SILTY SAND, medium to coarse, damp to moist, dense

ALLUVIUM: Light brown, medium to coarse SILTY SAND with fine GRAVEL, dry, dense

... (30 feet) very dense

GeoLogic Associates

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 WJK

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











Sheet 2 of 2

Boring No: **G-2A**

Drilling Contractor: ABC Livin Drilling

Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger

Approx. Ground Elevation: 1025 Feet




Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample	 2.5" Ring Sample	 Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk	 Bulk Sample	 Standard Split Spoon Sample (SPT)	 Static Water Table						ϕ°	C psf	
SOIL DESCRIPTION														
	SM			ALLUVIUM: Light gray, coarse to medium SILTY SAND with fine GRAVEL layers, dry to damp, very dense			5	50/6"	3.0					
45				... (45 feet) fine with some medium			6	69	4.7	111				CON
50				... (50 feet) dense			7	44	7.9					GS
55				... (55 feet) brown-olive, coarse to medium SILTY SAND with some fine GRAVEL and CLAYEY seams, moist to damp, very dense (sampler tip shows moisture)			8	50/6"	8.3	127	4.5			
60				BEDROCK: Olive-gray, CLAYEY SILTSTONE with fine SAND sizes, moist to wet			9	50/6"	25.8					
65				... (65.5 feet) olive-gray, fine SILTY SANDSTONE, damp			10	50/6"	16.7	104				
70				NOTES: 1. Total depth of boring 66 feet. 2. Seepage encountered at 56 feet. 3. Boring was backfilled with cuttings on 1/15/07.										
75														
GeoLogic Associates										Logged By: WJK		Page A-5		

LOG OF EXPLORATORY BORING

Sheet 1 of 3

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/16/2007
 Date Completed: 1/16/2007

Boring No: **G-3**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1018 Feet







Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  2.5" Ring Sample  Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							ϕ °	C psf	
SOIL DESCRIPTION												
		ASPHALTIC CONCRETE: 5 inches FILL: Olive-brown, fine to medium SILTY SAND with fine GRAVEL, damp, medium dense										
5	SM				1	24	5.3	110				
10					2	21	8.1					
15	SM				3	42	4.0	116				
20					4	41	6.2					
25					5	49	4.9	112				
30					6	50/6"	3.4					
35					7	77	3.0	119				
ALLUVIUM: Brown, coarse to medium SILTY SAND with fine GRAVEL, dry to damp, dense ... (10 feet) olive, light brown, fine SANDY SILT/ SILTY SAND with some fine GRAVEL, damp, medium dense ... (30 feet) olive-brown, medium to coarse, dry to damp, dense to very dense ... (35 feet) brown to light brown, coarse to medium SILTY SAND with some GRAVEL, dry to damp, very dense												
GeoLogic Associates									Logged By: WJK		Page A-6	

LOG OF EXPLORATORY BORING

Sheet 2 of 3

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/16/2007
 Date Completed: 1/16/2007

Boring No: **G-3**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1018 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample	 2.5" Ring Sample  Standard Split Spoon Sample (SPT)	 Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		ϕ°	C psf											
SOIL DESCRIPTION												Peak Ultimate		
40	SM						8	50/6"	NSR					
45							9	50/6"	8.9	113				
50							10	50/6"	5.4					
55							11	50/6"	5.0	119				
60	SM/SC						12	71	12.1					GS
65							13	50/4"	12.2	121				CON
70							14	50/3"	NSR					
75							15	50/3"	16.3	112				

... (40 feet) very dense

... (55 feet) medium to coarse SILTY SAND with trace of CLAY (some visible moisture on sampler)

Brown, mottled, coarse SAND with SILT and CLAY, some GRAVEL, very moist, very dense

... (65 feet) brown, medium to coarse CLAYEY SAND with SILT, some GRAVEL, very moist, very dense

... (70 feet) no recovery

... (75 feet) layered fine SANDY SILT with CLAY, very dense

... (78 feet) layered brown to gray, fine SILTY SAND/SANDY SILT, damp

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
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LOG OF EXPLORATORY BORING

Sheet 3 of 3

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/16/2007
 Date Completed: 1/16/2007

Boring No: **G-3**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1018 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  2.5" Ring Sample  Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							 Bulk Sample  Standard Split Spoon Sample (SPT)  Static Water Table	ϕ°	
SOIL DESCRIPTION												
				BEDROCK: Blue-gray, CLAYEY SILTSTONE with fine SAND sizes, moist	16	50/6"	18.5					
				NOTES: 1. Total depth of boring 81 feet. 2. Seepage encountered at 58 feet. 3. Boring was backfilled with cuttings on 1/15/07.								
85												
90												
95												
100												
105												
110												
115												

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


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LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-4
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1018 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample  2.5" Ring Sample  Standard Split Spoon Sample (SPT)  Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							ϕ°	C psf	
SOIL DESCRIPTION												
5	SM				1	29	3.0	116				
10	SM				2	40	9.1					
15					3	38	4.1					
20					4	44	8.7	117				
25					5	50/6"	4.0					
30					6	50/6"	4.5	113				CON
35					7	50/6"	19.6					
FILL: Light gray, medium to coarse SILTY SAND with fine GRAVEL, dry, medium dense ... (5 feet) brown to light brown, dry to damp, medium dense, with some construction debris, brick, concrete, etc. ALLUVIUM: Coarse to medium SILTY SAND, with fine GRAVEL, damp to dry, dense ... (15 feet) same as above ... (20 feet) same as above ... (25 feet) very dense ... (30 feet) very dense ... (36 feet) layered gray to dark gray, fine to coarse SANDY SILT with red and white layered zones BEDROCK: Gray to dark gray, CLAYEY												
GeoLogic Associates									Logged By: WJK		Page A-9	

LOG OF EXPLORATORY BORING

Sheet 2 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-4
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1018 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ	C	
				Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table								
SOIL DESCRIPTION														
				SILTSTONE with red stringers and some fine SILTY SANDSTONE layers			8	50/6"	20.3	104				
45				NOTES: 1. Total depth of boring 41 feet. 2. No groundwater encountered. 3. Boring was backfilled with cuttings on 1/15/07.										
50														
55														
60														
65														
70														
75														

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LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-5
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1022 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ	C psf	
				Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table								
SOIL DESCRIPTION														
ASPHALTIC CONCRETE over BASE at surface FILL: Light brown, fine to medium SILTY SAND with some scattered fine GRAVEL, dry to damp, dense														
5	SM						1	41	5.8					
10	SM						2	38	5.9	107				
15							3	36	4.9					
20							4	32	6.6	113				
25							5	39	6.7					
30							6	74	8.7	110				
35							7	91	6.6					

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LOG OF EXPLORATORY BORING

Sheet 2 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-5
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1022 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk												ϕ°	C psf	
SOIL DESCRIPTION																	
45	SM									8	73	10.4	102				
				... (40 feet) olive-brown, fine to medium SILTY SAND/SANDY SILT with fine GRAVEL, moist													
50										9	63	6.5					
				... (45 feet) coarse to medium SILTY SAND with fine GRAVEL, damp to moist, very dense													
55										10	50/6"	4.3	111				CON
				... (50 feet) moist to damp, very dense (sample at tip damp)													
				... (52 feet) seepage													
60										11	50/6"	8.0					
				BEDROCK: Coarse SILTY SANDSTONE, moist													
65										12	50/3"	17.6	121				
				... (60 feet) interbedded fine CLAYEY SILTSTONE, very moist													
				NOTES: 1. Total depth of boring 60-1/2 feet. 2. Seepage encountered at 52 feet. 3. Boring was backfilled with cuttings on 1/15/07.													

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LOG OF EXPLORATORY BORING

Sheet 1 of 1

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/15/2007
 Date Completed: 1/15/2007

Boring No: G-6
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1052 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk												ϕ°	C psf	
SOIL DESCRIPTION																	
0	SM																
40										1	50/6"	4.1	101				
45	SM									2	50/6"	2.9					
50										3	50/6"	9.6	118				
55										4	59	9.4					
60										6	Bulk	11.9					
										5	50/5"	14.7	108				
65																	
70																	

FILL: (0 to 41 feet) brown, fine to medium SILTY SAND/SANDY SILT, damp to moist (not logged in detail)

... (40 feet) brown-olive, fine to medium SILTY SAND/SANDY SILT with some scattered fine GRAVEL, damp, very dense

ALLUVIUM: Light brown-tan, coarse to medium SILTY SAND with some GRAVEL, dry to damp, very dense

... (45 feet) brown

... (50 feet) medium to coarse, moist

... (55 feet) CLAYEY fine to medium SAND, damp, very dense

BEDROCK: Gray, fine CLAYEY SILTSTONE with fine SAND, finely bedded, damp

... (56.5 feet) orange-brown, fine SILTY SANDSTONE with CLAY, damp to moist

... (60 feet) brown-orange, mottled, CLAYEY SILTSTONE, moist

NOTES:

1. Total depth of boring 60-1/2 feet.
2. Hard drilling at 51 feet.
3. Seepage encountered at 60 feet.
4. Boring was backfilled with cuttings on 1/16/07.

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LOG OF EXPLORATORY BORING

Sheet 1 of 1

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/16/2007
 Date Completed: 1/16/2007

Boring No: G-7
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1109 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk												ϕ	C	
SOIL DESCRIPTION																	
				FILL: Brown, medium SILTY SAND/SANDY SILT with CLAY and fine GRAVEL, some SILTSTONE and SANDSTONE fragments, dense (Depth of fill uncertain - not logged above 100 feet)													
100				ALLUVIUM: Brown, SILTY SAND with some CLAY, damp to moist, very dense							1	50/6"	7.1	120			
105	SM										2	80	14.2				
110				... (110 feet) light brown to brown, fine to medium SILTY SAND, damp, dense to very dense							3	54	11.1	123			CON
115				... (115 feet) tan, light gray, coarse to medium SILTY SAND, damp, very dense							4	50/4"	6.0				GS
120				BEDROCK: Gray, CLAYEY SILTSTONE, moist							5	50/6"	12.5	118			
125				NOTES: 1. Total depth of boring 121 feet. 2. No groundwater encountered. 3. Boring was backfilled with cuttings on 1/16/07.													
130																	

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




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LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/18/2007
 Date Completed: 1/18/2007

Boring No: **G-8**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1205 Feet













Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample	 2.5" Ring Sample  Standard Split Spoon Sample (SPT)	 Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ°	C psf	
SOIL DESCRIPTION														
	SM/ML			FILL: Olive-brown, firm to medium SILTY SAND/ SANDY SILT with some fine GRAVEL (not logged in detail from 0 - 30 feet)										
30				... (30 feet) light brown-olive, coarse to medium SILTY SAND with fine GRAVEL, dry, very dense			1	50/3"	3.8					
35				... (35 feet) inclusion of light gray-tan, CLAYEY SILTSTONE with fine SAND, damp, very dense			2	50/6"	8.7	117				
40							3	50/6"	3.0					
45				... (45 feet) medium SILTY SAND with some fine GRAVEL, damp, dense to very dense			4	69	7.4	121				CON
50				... (50 feet) olive, CLAYEY SILT with fine SAND, moist, very dense			5	50/6"	12.0					
55	SM			ALLUVIUM: Light gray, olive-brown, layered, fine SILTY SAND with some red-orange layers, dry to damp, very dense			6	70	8.0	105				
60				... (60 feet) light gray, olive-brown, layered, fine SILTY SAND with some red-orange layers, damp, very dense			7	50/6"	7.8					
GeoLogic Associates										Logged By: WJK		Page A-15		

LOG OF EXPLORATORY BORING

Sheet 2 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/18/2007
 Date Completed: 1/18/2007

Boring No: G-8
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1205 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample	 2.5" Ring Sample  Standard Split Spoon Sample (SPT)	 Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ°	C psf	
SOIL DESCRIPTION														
65	SM			... (65 feet) light gray, layered, white, fine SILTY SAND, dense			8 8A	81 Bulk	20.0 22.5	102				
70				BEDROCK: Olive-brown, SILTY CLAYSTONE with red-orange layers, weathered, small shears, gypsum crystals, moist ... (70 feet) olive-brown, CLAYEY SILTSTONE with red-orange layers, moist			9	87	23.3					
75				... (75 feet) olive-brown, CLAYEY SILTSTONE with trace of fine SAND, damp			10	50/5"	11.4	97				
80				NOTES: 1. Total depth of boring 76 feet. 2. No groundwater encountered. 3. Boring was backfilled with cuttings on 1/18/07.										
85														
90														
95														
100														

GeoLogic Associates

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













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LOG OF EXPLORATORY BORING

Sheet 1 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/18/2007
 Date Completed: 1/19/2007

Boring No: G-9
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1262 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample	 2.5" Ring Sample	 Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk	 Bulk Sample	 Standard Split Spoon Sample (SPT)	 Static Water Table						ϕ °	C psf	
SOIL DESCRIPTION														
	SM/ML			Not logged above 120 feet FILL: Brown-gray, medium SILTY SAND/ SANDY SILT with fine GRAVEL, some SILTSTONE and SANDSTONE fragments										
120				... (120 feet) light gray, SANDY SILT with CLAY, damp to moist, very dense			1	50/6"	8.9					GS
125				... (125 feet) gray, SILTY CLAY, damp, hard			2	50/3"	11.4	102	4.5			CON
130				... (130 feet) gray-olive, fine SILTY SAND with SANDY SILTSTONE inclusions, damp, very dense ... (131 feet) light gray, mottled, medium to coarse SILTY SAND, dry			3	50/6"	9.4					
135	SM			ALLUVIUM: Fine to medium SAND with trace of SILT, dry to damp, very dense			4	50/3"	5.0	102				
140				... (140 feet) light gray, gray, fine SILTY SAND/ SANDY SILT, dry to damp, very dense			5	50/4"	8.4					
145				... (145 feet) no recovery - 30 feet of augers pulled to clean flights			6	50/4"	NSR					
150							7	50/4"	NSR					
GeoLogic Associates										Logged By: WJK		Page A-17		

LOG OF EXPLORATORY BORING

Sheet 2 of 2

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/18/2007
 Date Completed: 1/19/2007

Boring No: G-9
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1262 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ°	C psf	
				Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table								
SOIL DESCRIPTION														
				BEDROCK: Olive-gray, SILTSTONE, moist, hard drilling ... (156 feet) light gray fine SANDY SILTSTONE fragment			8 8A	50/5" Bulk	11.9 9.4	79				
160				NOTES: 1. Total depth of boring 156 feet. 2. No groundwater encountered. 3. Boring was backfilled with cuttings on 1/19/07. 4. Hard drilling from below 65 feet. 5. Water added by drillers during boring (outside) of auger only.										
165														
170														
175														
180														
185														
180														

GeoLogic Associates

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 WJK







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LOG OF EXPLORATORY BORING

Sheet 1 of 4

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/25/2007
 Date Completed: 1/29/2007

Boring No: **G-10**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem
 Approx. Ground Elevation: 1143 Feet







Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample	 2.5" Ring Sample  Standard Split Spoon Sample (SPT)	 Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ°	C psf	
SOIL DESCRIPTION														
(0 to 80 feet not logged)														
80	SM						1	Bulk	22.2					MAX
85							2	50/6"	5.7					
90							3	77	11.5					
95							4	50/6"	4.9					
100							5	50/6"	3.8	121				CON
105							6	50/6"	10.0					GS
110							7	50/6"	3.6	118				
	SW						8	Bulk	19.1					
FILL: Grayish-brown (2.5 Y 5/2), subrounded to subangular, fine to medium SILTY SAND with minor CLAY, damp, very dense ... (85 feet) lens of light yellowish-brown to light olive-brown (2.5 Y 6/3 to 3/3), weathered, SILTSTONE inclusions, damp, very dense ... (90 feet) more SILTSTONE inclusions, moist, very dense ... (95 feet) light gray (2.5 Y 7/1 to 7/2), fine micaceous SAND with abundant quartz clasts over grayish-brown to dark grayish-brown (2.5 Y 5/2 to 4/2), fine SILTSTONE inclusions with scattered rounded pebbles, damp, very dense ... (100 feet) light olive-gray (5 Y 6/2), micaceous, fine SILTY SAND to SANDY SILT with abundant very fine quartz grains, damp ... (105 feet) light yellowish-brown (2.5 Y 6/3), fine to coarse SILTY SAND with scattered gray SILTSTONE fragments, damp to moist, very dense ... (110 feet) dry to damp ALLUVIUM: Light gray to light brownish-gray (2.5 Y 7/2 to 6/2), subangular to subrounded,														
GeoLogic Associates										Logged By: JAS		Page A-19		

LOG OF EXPLORATORY BORING

Sheet 2 of 4

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/25/2007
 Date Completed: 1/29/2007

Boring No: **G-10**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem
 Approx. Ground Elevation: 1143 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample	 2.5" Ring Sample  Standard Split Spoon Sample (SPT)	 Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk									ϕ°	C psf	
SOIL DESCRIPTION														
	SW						9	50+	3.1					
120							10	50/6"	7.5	131				
125							11	50+/6"	4.0					
130							12	50+/6"	3.5	113				
135	SM						13	50+/6"	8.3					
140							14	50+/6"	7.6	114				CON
145	SW						15	50+/6"	8.6					
150							16	50+/6"	10.3	112				
	SM													

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 JAS

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LOG OF EXPLORATORY BORING

Sheet 3 of 4

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/25/2007
 Date Completed: 1/29/2007

Boring No: **G-10**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem
 Approx. Ground Elevation: 1143 Feet

Depth in Feet	Soil Type	Sample Type		SOIL DESCRIPTION	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							ϕ	C	
	SM			to medium SILTY SAND with abundant rounded to subrounded quartz grains, moist, very dense	17	50+/6"	14.0					
160	SW/SM			Light yellowish-brown (2.5 Y 6/3), subrounded to rounded, arkosic fine to coarse SAND with scattered coarser lenses with rounded fine GRAVEL, moist, very dense	18	50+/6"	9.8	124				CON
165				... (165 feet) fine to coarse SILTY SAND, moist, very dense	19	50+/6"	11.9					GS
170					20	50+/6"	12.2					
175					21	50+/6"	13.9					
180					NSR	50+/6"						
185	SM			Yellowish-brown to dark yellowish-brown (10 YR 5/6 to 4/6), fine to medium SILTY SAND, moist, very dense	22	50+/6"	10.6					
190				... (190 feet) color now light brownish-gray to light yellowish-brown (2.3 Y 6/2 to 6/3) with more coarse SAND and rounded fine GRAVEL than above, damp, very dense	23	50+/6"	6.0					

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




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LOG OF EXPLORATORY BORING

Sheet 4 of 4

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/25/2007
 Date Completed: 1/29/2007

Boring No: **G-10**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem
 Approx. Ground Elevation: 1143 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  Bulk Sample  2.5" Ring Sample  Standard Split Spoon Sample (SPT)  Seepage  Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							ϕ°	C psf	
SOIL DESCRIPTION												
200				BEDROCK: (At 193 feet) - Mottled pale olive (5 Y 7/3) to light gray (2.5 Y 7/2), massive, CLAYEY SILTSTONE with argillaceous laminations and iron-oxide staining	24	50+/-6"	13.5					
205				NOTES: 1. Total depth of boring 200 feet. 2. Seepage encountered at 159 feet on 1/26/07 and groundwater measured at 143 feet on 1/29/07. 3. Boring backfilled with cuttings on 1/29/07.	25	50+/-6"	18.5					
210												
215												
220												
225												
230												

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

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Boring No: **G-11**

Drilling Contractor: ABC Liovin Drilling

Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger

Approx. Ground Elevation: 1259 Feet














Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample	 2.5" Ring Sample	 Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk	 Bulk Sample	 Standard Split Spoon Sample (SPT)	 Static Water Table						ϕ°	C psf	
SOIL DESCRIPTION														
	SM			(0 - 100 feet not logged)										
100				FILL: Brown, olive-gray, fine to medium SILTY SAND/SANDY SILT with CLAY, and fine GRAVEL, scattered large GRAVEL and scattered SILTSTONE and SANDSTONE fragments, moist										
105														
110				... (110 feet) gray-olive, fine SANDY SILT with CLAY, very dense			1	50/6"	9.2					
				... (110.5 feet) layered orange-brown CLAYEY fine SAND										
115				... (110.8 feet) light gray mottled, medium to coarse SILTY SAND (SANDSTONE)			NSR	75/6"						
				... (116 feet) mottled, light brownish-gray to grayish-brown (2.5 Y 6/2 and 5/2), fine to medium SILTY SAND with minor coarse SAND, scattered clayey iron-oxide stained veins, very dense										
120				... (121 feet) thin lens, fine to very fine subrounded quartz SAND with fine rounded GRAVEL, moist, very dense			2	50/6"	11.1	119				CON
125				... (126 to 126.5 feet) clean fine to medium SAND lens with minor rounded GRAVEL			NSR	50/6"						
130							3	91	12.1	121				
GeoLogic Associates										Logged By: JAS		Page A-23		

LOG OF EXPLORATORY BORING

Sheet 2 of 3

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/19/2007
 Date Completed: 1/24/2007

Boring No: G-11
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1259 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample	 2.5" Ring Sample	 Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk	 Bulk Sample	 Standard Split Spoon Sample (SPT)	 Static Water Table						ϕ	C psf	
SOIL DESCRIPTION														
140	SM			FILL: Continued ... (136 feet) lens of light brownish-gray (2.5 Y 6/2), fine SILTY SAND, very dense			NSR	83						CON
				... (142 feet) fine SAND with some SILT, moist, dense to very dense			4	85	12.5	118				
				... (145.5 feet) large weathered, friable clast, ... (146.5 feet) dark bluish-gray (5 PB 3/1 to 4/1), weathered, fine SANDY to CLAYEY SILTSTONE fragment, moist, dense to very dense			NSR	78						
							5	71	11.7	116				
							6	Bulk	13.4					
155				... (155.5 feet) 6-inch clean light brownish-gray sandy lens			NSR	68						
160	SM			ALLUVIUM: Grayish-brown to olive-gray (2.5 Y to 5 Y 5/2), subangular to subrounded, fine to medium SILTY SAND with abundant quartz clasts and scattered fine GRAVEL, moist, very dense			7	88	8.7	117				
165							NSR	84						
170				... (170 feet) finer grained than above			8	50/4"	13.4					
	SP/ SW			Light gray to light brownish-gray (2.5 Y 7/2 to										
GeoLogic Associates										Logged By: JAS		Page A-24		

LOG OF EXPLORATORY BORING

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Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/19/2007
 Date Completed: 1/24/2007

Boring No: G-11
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem Auger
 Approx. Ground Elevation: 1259 Feet

Depth in Feet	Soil Type	Sample Type		SOIL DESCRIPTION	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							φ°	C psf	
		Thin Wall Tube Sample 2.5" Ring Sample Seepage Bulk Sample Standard Split Spoon Sample (SPT) Static Water Table										
180	SP/SW			6/2), subrounded arkosic fine SAND, that grades with depth to fine to coarse grained, moist, very dense	9	150/8"	12.2	121				
185				... (180 feet) light yellowish-brown to light brownish-gray (2.5 Y 6/3), damp, very dense	10	140/4"	7.6					
190				... (185 feet) thin gravelly lens ... (186 feet) more medium SAND than above, damp, very dense	11	150/6"	4.8	127				CON
195				... (190 feet) SAND more fine to coarse grained, moist, very dense	12	140/6"	15.6					
200				... (194 feet) little to no fine and medium SAND, more fines than above	13	NSR	—					
205				BEDROCK: Grayish-brown to light olive-brown (2.5 Y 5/2 to 5/3), weathered, iron-oxide mottled, fine to very fine SILTY SANDSTONE to SANDY SILTSTONE	14	—	10.3					
210				NOTES: 1. Total depth of boring 198 feet. 2. No groundwater encountered. 3. Boring backfilled with cuttings on 1/24/07.								

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

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LOG OF EXPLORATORY BORING

Sheet 1 of 3

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/24/2007
 Date Completed: 1/25/2007

Boring No: **G-12**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem
 Approx. Ground Elevation: 1256 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample	 2.5" Ring Sample	 Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk	 Bulk Sample	 Standard Split Spoon Sample (SPT)	 Static Water Table						ϕ°	C psf	
SOIL DESCRIPTION														
50 <														

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LOG OF EXPLORATORY BORING

Sheet 2 of 3

Job Number: 2007-006
 Project: Chiquita Canyon Landfill
 Cell 5/6
 Date Started: 1/24/2007
 Date Completed: 1/25/2007

Boring No: **G-12**
 Drilling Contractor: ABC Liovin Drilling
 Drill Type: 8-1/2-inch Dia. Hollow-Stem
 Approx. Ground Elevation: 1256 Feet

Depth in Feet	Soil Type	Sample Type		Thin Wall Tube Sample	2.5" Ring Sample	Seepage	Bulk Sample	Standard Split Spoon Sample (SPT)	Static Water Table	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk												ϕ	C	
SOIL DESCRIPTION																	
90	SP/SM									11	50+/6"	10.7	111				
				... (90 feet) more silt than above													
95										12	50+/6"	10.9					
				... (94 feet) same as above													
100	SP									13	97	6.7	114				CON
105										14	99	5.8					
				... (105 feet) SILTY SAND lens, finer grained than above													
110										15	50+/6"	6.2	119				
				... (109 feet) fewer fines than above, color change to light gray (2.5 Y to 5 Y 7/2)													
115										16	50+/6"	3.8					
				... (115 feet) coarse grained than above, abundant medium and coarse SAND													
120										17	50+/6"	6.4	125				CON
				... (120 feet) thin SILTSTONE lens													
GeoLogic Associates													Logged By: JAS		Page A-27		

LOG OF EXPLORATORY BORING

Sheet 3 of 3

Job Number: 2007-006

Boring No: G-12

Project: Chiquita Canyon Landfill

Cell 5/6







Drilling Contractor: ABC Liovin Drilling

Date Started: 1/24/2007

Drill Type: 8-1/2-inch Dia. Hollow-Stem

Date Completed: 1/25/2007

Approx. Ground Elevation: 1256 Feet

Depth in Feet	Soil Type	Sample Type		 Thin Wall Tube Sample  2.5" Ring Sample  Seepage	Sample Number	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Pocket Pen. (tsf)	Direct Shear		Other Tests
		As Shown	Bulk							 Bulk Sample  Standard Split Spoon Sample (SPT)  Static Water Table	ϕ°	
SOIL DESCRIPTION												
	SP			... (125 feet) fine to coarse SAND, minor SILT, damp to moist, very dense	18	50+/6"	10.2					
130				BEDROCK: Weathered, dark yellowish-brown (10 YR 4/4), massive SILTSTONE with strong brown (7.5 YR 5/8) mottling and thin, very fine micaceous sandy laminations	19	50+/6"	13/0	114				
135					20	50+/6"	NSR					
140				NOTES: 1. Total depth of boring 135 feet. 2. No groundwater encountered. 3. Boring backfilled with cuttings on 1/25/07.								
145												
150												
155												
160												

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Boring Log

BORING NO.: CC-A

PAGE: 1 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON A
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/02/04
 DATE FINISHED: 12/03/04
 ELEVATION: ±1199.8
 NORTHING: ±1980877
 EASTING: ±6365266

GW DEPTH: NA
 TOTAL DEPTH: 71.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12:40						0			SM	ARTIFICIAL FILL: Brown (10YR 5/3), poorly sorted, very fine to very coarse SILTY SAND with abundant GRAVEL and minor CLAY.	Use digging bucket. Slightly moist.
				Bulk	1	5				...(7') - color change to brown (10YR 4/3).	
			23	2.5 SPT	2-10 1-10	10					
			33	2.5 SPT	4-20 3-20	20				...(21'-23') - oxidized CLAYEY SILT.	
			25	2.5 SPT	6-30 5-30	30				...(30.5'-31') - oxidized CLAYEY SILT.	

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: CC-A

PAGE: 2 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON A
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/02/04
 DATE FINISHED: 12/03/04
 ELEVATION: ±1199.8
 NORTHING: ±1980877
 EASTING: ±6365266

GW DEPTH: NA
 TOTAL DEPTH: 71.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
17:00 12/03 7:00			25	2.5 SPT	6-30 5-30	30			SM	...same as above. ...(30.5'-31') - oxidized CLAYEY SILT.	
				Bulk	2	35					
			48	2.5 SPT	8-40 7-40	40				...(40') - color change to brown (7.5YR 4/3). ...(42.5'-44') - reddish brown (5YR 5/3) to brown (7.5YR 5/2), moderately well-sorted, very fine to medium SILTY SAND to CLAYEY SILT.	
						45					
						50			ML- SW	ALLUVIUM: Very dark gray (7.5YR 3/1), poorly sorted, very fine to very coarse SANDY SILT with minor CLAY coarsening downward to fine to coarse GRAVELLY SAND with fine to very coarse GRAVEL.	
			13	2.5 SPT	10-50 9-50	55				BEDROCK (SAUGUS FORMATION): Light yellowish brown (10YR 6/4), poorly cemented, well-indurated, poorly sorted, fine to very coarse SANDSTONE with abundant SILT and fine GRAVEL. ...(54.5') - irregular contact with 6" thick CLAY lens. Bedding is oriented 104/42. ...(55') - decrease in grain size to very fine to medium SANDSTONE with abundant SILT and trace amounts of GRAVEL. Contains abundant CLAY-lined shears. ...(60.5'-62') - SILTSTONE with abundant very fine to fine SAND interbedded with oxidized, thinly laminated SILTY SANDSTONE. Bedding is oriented 075/42.	
				Bulk	3	60					
			158	2.5 SPT	12-60 11-60						

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: CC-A

PAGE: 3 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON A
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/02/04
 DATE FINISHED: 12/03/04
 ELEVATION: ±1199.8
 NORTHING: ±1980877
 EASTING: ±6365266

GW DEPTH: NA
 TOTAL DEPTH: 71.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			50+	2.5 SPT	12-60 11-60	60				...(60.5'-62') - SILTSTONE with abundant very fine to fine SAND interbedded with oxidized, thinly laminated SILTY SANDSTONE. Bedding is oriented 075/42.	
						65				Grayish brown (2.5Y 5/2) CLAYEY SANDSTONE. Bedding is oriented 115/40.	
12:15			50+/8"	2.5 SPT	14-70 13-70	70					
						75				Notes: 1. Total depth of boring 71.5 feet. 2. Groundwater not encountered. 3. Boring downhole-logged on 12/06/04. 4. Borehole backfilled with cuttings and tamped into place.	
						80					
						85					
						90					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: CC-B

PAGE: 1 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON B
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/01/04
 DATE FINISHED: 12/02/04
 ELEVATION: ±1196.6
 NORTHING: ±1980359
 EASTING: ±6365265

GW DEPTH: NA
 TOTAL DEPTH: 75 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
8:24						0			SM	ARTIFICIAL FILL: Dark yellowish brown (10YR 4/4), well sorted, very fine to medium SILTY SAND with trace amounts of fine to coarse GRAVEL.	Use digging bucket. Slightly moist.
			63	Bulk SPT	1	5			SW- SM	Light brownish gray (10YR 6/2), fine to coarse SAND with SILT and minor to trace GRAVEL composed of indurated SANDSTONE.	
			80	2.5 SPT	3-10 2-10	10				...(12') - approximately 8" thick, dark gray (N3) SILTY CLAY lens.	
						15			CL- ML	Dark gray (10YR 4/1) SILTY CLAY to CLAYEY SILT with minor amounts of fine to coarse SAND and trace amounts of fine GRAVEL.	
			28	SPT					SW- SM	Brown (10YR 5/3), fine to coarse SAND with SILT.	
			29	2.5 SPT	5-20 4-20	20					
				Bulk	2	25				...(27') - contains minor amounts of SILT and CLAY.	
			32	SPT							
			48	2.5 SPT	7-30 6-30	30					

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: CC-B

PAGE: 2 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON B
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/01/04
 DATE FINISHED: 12/02/04
 ELEVATION: ±1196.6
 NORTHING: ±1980359
 EASTING: ±6365265

GW DEPTH: NA
 TOTAL DEPTH: 75 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			48	2.5 SPT	7-30 6-30	30		SW- SM		...same as above.	
			45	SPT		35		SM		Brown (10YR 5/3), very fine to medium SILTY SAND with trace amounts of CLAY and GRAVEL.	
			24	2.5 SPT	9-10 8-10	40				...(40') - slight increase in grain size to fine to very coarse SAND with minor SILT and no CLAY.	
				Bulk	3	45		ML		Brown (7.5YR 5/4), fine SANDY SILT with minor CLAY and fine GRAVEL.	
			48	SPT		50		SM		Brown (10YR 5/3), very fine to medium SILTY SAND with trace amounts of CLAY and GRAVEL.	
			39	2.5 SPT	11-20 10-20	55		SM		ALLUVIUM: Brown (7.5YR 4/3), poorly sorted, moderately well-consolidated, very fine to very coarse SILTY SAND with minor CLAY and GRAVEL.	
			18	SPT		60				BEDROCK (SAUGUS FORMATION): Gray (10YR 6/1), poorly sorted, poorly cemented, well-consolidated, very fine to very coarse SANDSTONE with abundant coarse GRAVEL and minor SILT.	
16:00 12/02 7:00			64	2.5 SPT	13-30 12-30	60					

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The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: CC-B

PAGE: 3 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON B
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/01/04
 DATE FINISHED: 12/02/04
 ELEVATION: ±1196.6
 NORTHING: ±1980359
 EASTING: ±6365265

GW DEPTH: NA
 TOTAL DEPTH: 75 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
12/02 7:00			64	2.5 SPT	13-30 12-30	60				...(62'-63') - lens of very fine to medium SANDY SILT with minor CLAY. ...(63') - fault oriented 256/49.	
			80	2.5 SPT	15-10 14-10	70				Dark gray (N3), oxidized CLAYEY SILT to SILTY CLAY with zones of SILT. Bedding is oriented 305/48.	
9:15						75				Notes: 1. Total depth of boring 75 feet. 2. No groundwater encountered. 3. Boring downhole-logged on 12/02/04. 4. Borehole backfilled with cuttings and tamped into place.	
						80					
						85					
						90					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: CC-C

PAGE: 1 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON C
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/06/04
 DATE FINISHED: 12/07/04
 ELEVATION: ±1174.0
 NORTHING: ±1980082
 EASTING: ±6365550

GW DEPTH: NA
 TOTAL DEPTH: 61.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
10:55						0			SW-SM	ARTIFICIAL FILL: Brown (10YR 5/3), poorly sorted, very fine to very coarse SAND with abundant SILT and minor fine to coarse GRAVEL.	Use digging bucket. Slightly moist.
				Bulk	1	5				...(6') - color change to yellowish brown (10YR 5/4).	
			18	2.5 SPT	2-10 1-10	10			CL	Plastic SILTY CLAY.	
						15			SW-SM	Yellowish brown (10YR 5/4), poorly sorted, very fine to very coarse SAND with abundant SILT and minor fine to coarse GRAVEL.	...(14'-15.5') - use core bucket.
						20				...(16') - color change to brown (10YR 4/3 to 5/3).	
			7	2.5 SPT	4-20 3-20	25			SM	Light brownish gray (10YR 6/2), very fine to medium SILTY SAND.	
						30			GW	ALLUVIUM: Brown (7.5YR 4/3), medium to very coarse SANDY GRAVEL.	
			50+/9"	2.5 SPT	6-30 5-30						

CONTINUED ON NEXT PAGE

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GeoLogic Associates

Boring Log

BORING NO.: CC-C

PAGE: 2 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON C
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/06/04
 DATE FINISHED: 12/07/04
 ELEVATION: ±1174.0
 NORTHING: ±1980082
 EASTING: ±6365550

GW DEPTH: NA
 TOTAL DEPTH: 61.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			50+/9"	2.5 SPT	6-30 5-30	30			GW	...same as above.	
						35				BEDROCK (SAUGUS FORMATION): Gray (7.5YR 5/1), poorly cemented, poorly sorted, well-indurated, fine to very coarse GRAVELLY SANDSTONE interbedded with minor amounts of CLAYSTONE and SILTSTONE. GRAVEL clasts are fine to very coarse. ...(32') - SILTY CLAYSTONE to CLAYEY SILTSTONE. Upper contact is oriented 295/39. ...(34'-38.5') - medium to very coarse SANDSTONE grading to very fine to medium SANDY SILTSTONE. ...(38.5') - SILTY CLAYSTONE.	
15:40 12/07 7:10			50+/10"	2.5 SPT	8-40 7-40	40				...(41.5') - CLAY shears oriented 300/26 and 104/66. Contains more SILT with depth.	
						45				...(46'-47.5') - fine to coarse SANDSTONE grading to medium to coarse SANDY GRAVEL. ...(47.5') - fault oriented 200/45.	
			50+/8"	2.5 SPT	10-50 9-50	50				...(51.5') - very fine to medium, laminated SILTY SANDSTONE. Upper contact is oriented 318/25. ...(52.5') - laminations oriented 325/31. ...(52.6') - plastic CLAYSTONE.	
						55				Massive CLAYEY SILTSTONE.	
			50+/9"	2.5 SPT	12-60 11-60	60					

CONTINUED ON NEXT PAGE

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GeoLogic Associates

Boring Log

BORING NO.: CC-C

PAGE: 3 OF 3

JOB NO.: 2004-207
 SITE LOCATION: CHIQUITA LANDFILL - PALEOCANYON C
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: TRI-VALLEY DRILLING
 LOGGED BY: J. CZAJKOWSKI

DATE STARTED: 12/06/04
 DATE FINISHED: 12/07/04
 ELEVATION: ±1174.0
 NORTHING: ±1980082
 EASTING: ±6365550

GW DEPTH: NA
 TOTAL DEPTH: 61.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
9:20			50+/9"	2.5 SPT	12-60 11-60	60				...same as above.	
						65				Notes: 1. Total depth of boring 61.5 feet. 2. No groundwater encountered. 3. Boring downhole-logged on 12/07/04. 4. Borehole backfilled with cuttings and tamped into place.	
						70					
						75					
						80					
						85					
						90					

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GeoLogic Associates

Boring Log

BORING NO.: B-1

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: SD DRILLING
 LOGGED BY: J. SAPP, CHG

DATE STARTED: 6/25/05
 DATE FINISHED: 6/25/05
 ELEVATION: 1025.1
 NORTHING: 1980186
 EASTING: 6366631

GW DEPTH: 37 feet
 TOTAL DEPTH: 40 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0			SP/SM	FILL: Light olive brown (2.5Y 5/3), massive, well-sorted, fine SAND to SILTY SAND with scattered coarser-grained horizons.	
						5					
						10				...(10') - coarser SANDY lens.	
						15					
						20				...(22') - coarser GRAVELLY lens.	...(22') - hard lens.
						25				...(28') - COBBLES and GRAVEL with cemented SANDSTONE clasts.	...(28') - harder than above.
						30			SW	ALLUVIUM: Light brownish gray (2.5Y 6/2), poorly sorted, fine to coarse SAND with rounded GRAVEL and minor COBBLES.	...(32') - very damp cuttings.
						35				...(32') - better sorting than above, little to no coarse SAND or GRAVEL.	...(37') - saturated cuttings.
						40				BEDROCK: Dark greenish gray (5GY 4/1), massive, weathered SILTSTONE.	...(39') - no free water in bedrock.
						45				Notes: 1. Total depth of boring 40 feet. 2. Groundwater encountered at 37 feet. 3. Borehole backfilled with tamped cuttings.	
						50					
						55					
						60					

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GeoLogic Associates

Boring Log

BORING NO.: B-1B

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/06/05
 DATE FINISHED: 7/06/05
 ELEVATION: ~1025
 NORTHING: ~1980178
 EASTING: ~6366635

GW DEPTH: 36-37(?) feet
 TOTAL DEPTH: 45 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			16	SPT	1	0			SM	FILL: Yellowish brown (10YR 5/4), poorly sorted, fine to medium SILTY SAND with fine to medium GRAVEL and fragments of reworked bedrock.	All drive samples were collected using a 140-lb drop hammer.
			40	2.5	2	5				...(10') - same as above.	
			52	SPT	3	10					
			65	2.5	4	15					
			50/6"	SPT	5	20			SW	ALLUVIUM: Pale olive to olive (5Y 5.5/3), poorly sorted, fine to very coarse SAND with GRAVEL interbedded with fine, micaceous SAND with SILT.	
			60/6"	2.5	6	25				...(30') - same as above.	
			55/6"	SPT	7	30				BEDROCK (SAUGUS FORMATION): Dark gray (5Y 4/1) to olive gray (5Y 4/2), well-indurated, micaceous, fine SILTY SANDSTONE.	...(36'-37') - possible groundwater level.
			50/6"	2.5	8	35					
			50/6"	SPT	9	40					
						45				Notes: 1. Total depth of boring 45 feet. 2. Possible groundwater level at approximately 36-37 feet bgs. 3. Alluvium/Bedrock contact encountered at 33 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade to be at 14 feet above ground surface.	
						50					
						55					
						60					

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GeoLogic Associates

Boring Log

BORING NO.: B-2

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: SD DRILLING
 LOGGED BY: J. SAPP, CHG

DATE STARTED: 6/25/05
 DATE FINISHED: 6/25/05
 ELEVATION: 1023.7
 NORTHING: 1980103
 EASTING: 6366580

GW DEPTH: 45 feet
 TOTAL DEPTH: 52 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0			SP/SM	FILL: Light olive brown (2.5Y 5/3), massive, well-sorted, fine SAND to SILTY SAND with scattered GRAVELLY lenses.	
						5				...(6') - coarser SANDY lens.	
						10				...(8'-10') - GRAVELLY lens with cemented SANDSTONE GRAVEL.	
						15				...(10') - more SILT than above.	
						20					
						25				...(24'-28') - fine SILTY SAND.	
						30					
						35				...(33') - COBBLES and GRAVEL with SAND.	
						40				...(38') - mottled SILTY SAND and SANDY SILT, rounded pebble GRAVEL.	...(38') - wet cuttings.
						45			SW	ALLUVIUM: Light brownish gray (2.5Y 6/2), poorly sorted, fine to coarse SAND and scattered GRAVEL.	...(40') - very wet cuttings.
						50				...(43') - little to no GRAVEL or coarse SAND.	...(45') - saturated cuttings.
						55				...(48') - SAND showing depositional structure including oxidation layers and SAND/SILT interbeds.	
						60				BEDROCK: Dark greenish gray (5GY 4/1), massive, mottled, weathered SILTSTONE.	
										Notes: 1. Total depth of boring 52 feet. 2. Groundwater encountered at 45 feet. 3. Borehole unstable below 45 feet. 4. Borehole backfilled with tamped cuttings.	

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GeoLogic Associates

Boring Log

BORING NO.: B-2B

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/06/05
 DATE FINISHED: 7/06/05
 ELEVATION: ~1022
 NORTHING: ~1980095
 EASTING: ~6366575

GW DEPTH: 37 feet
 TOTAL DEPTH: 49.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			24	SPT	1	0		SM		FILL: Pale yellow (2.5Y 7/4), poorly sorted, fine to coarse SILTY SAND.	All drive samples were collected using a 140-lb drop hammer.
			70	2.5	2	5		SM-SW		ALLUVIUM: Light yellowish brown (2.5Y 6/3), poorly sorted, fine to very coarse, angular to subangular SILTY SAND with minor subangular to subrounded GRAVEL. Contains lenses of fine, micaceous SAND and coarse to very coarse GRAVELLY SAND.	
			45	SPT	3	10					
			90	2.5	4	15				...(20') - same as above.	
			65	SPT	5	20					
			52	2.5	6	25				...(30') - same as above.	
			50/5"	SPT	7	30					
			70/6"	2.5	8	35				...(40') - same as above.	...(37') - groundwater encountered.
			60/6"	SPT	9	40				BEDROCK (SAUGUS FORMATION): Moderately weathered, pale olive (5Y 6/3) to light gray (5Y 7/2), well-indurated, fine to medium SANDY SILTSTONE to SILTY SANDSTONE.	
			50/6"	2.5	10	45				Notes: 1. Total depth of boring 49.5 feet. 2. Groundwater encountered at approximately 37 feet bgs. 3. Alluvium/Bedrock contact encountered at 42 feet bgs. 4. Borehole backfilled with neat cements grout. 5. Proposed grade will be at 15 feet above ground surface.	
						50					
						55					
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-3

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: 24" BUCKET AUGER
 CONTRACTOR: SD DRILLING
 LOGGED BY: J. SAPP, CHG

DATE STARTED: 6/25/05
 DATE FINISHED: 6/25/05
 ELEVATION: 1020.6
 NORTHING: 1979929
 EASTING: 6366498

GW DEPTH: NA
 TOTAL DEPTH: 54 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
13:45						0			SP/	FILL:	
						5			SM	Light olive brown (2.5Y 5/3), well sorted, fine SAND to SILTY SAND.	
						10					
						15					
						20				...(19') - more medium and coarse SAND than above.	
						25				...(24') - scattered rounded GRAVEL and minor COBBLES.	
						30					
						35				...(32') - better sorting than above, little to no coarse SAND, GRAVEL; more SILT than above.	
						40					
						45				...(44') - mottled, weathered SILTSTONE fragments.	
						50			SM	Yellowish brown (10YR 5/4), well sorted, fine SILTY SAND.	...(49') - cuttings more damp than above.
15:15						55				BEDROCK: Olive gray (5Y 4/1) to light olive gray (5Y 5/2), massive, poorly indurated, well-sorted, fine GRAYWACKE with abundant angular QUARTZ fragments; minor amounts of MICA and SILT.	...(51') - more moisture in cuttings than above.
						60				Notes: 1. Total depth of boring 54 feet. 2. No groundwater encountered. 3. Borehole backfilled with tamped cuttings.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-3B

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/06/05
 DATE FINISHED: 7/06/05
 ELEVATION: ~1020
 NORTHING: ~1979935
 EASTING: ~6366497

GW DEPTH: 41 feet
 TOTAL DEPTH: 49.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0		SM		FILL: Light olive brown (2.5Y 5/4), poorly sorted, fine to very coarse SILTY SAND with GRAVEL.	All drive samples were collected using a 140-lb drop hammer.
			50/6"	SPT	1	5		SW		ALLUVIUM: Light olive brown (2.5Y 5/3), poorly sorted, fine to very coarse SAND with GRAVEL and minor interbeds of SILTY SAND to SANDY SILT.	
			55	2.5	2	10				...(10') - same as above.	
			50/6"	SPT	3	15					
			50/5"	2.5	4	20				...(20') - same as above.	
				BAG	5						
			50/6"	SPT	6	25					
			50/2"	2.5	7	30				...(30') - same as above.	
			50/6"	SPT	8	35					
			50/5"	2.5	9	40				...(39'-44.5') - contains abundant GRAVEL.	
			50/2"	SPT	10	45					...(41') - groundwater encountered.
			68/6"	2.5	11	50				BEDROCK (SAUGUS FORMATION): Mottled yellowish brown (10YR 5/4) with light olive brown (2.5Y 5/4), well-indurated, poorly sorted, fine, micaceous SILTY SANDSTONE.	
						55				Notes: 1. Total depth of boring 49.5 feet. 2. Groundwater encountered at approximately 41 feet bgs. 3. Alluvium/Bedrock contact encountered at 44.5 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 15 feet above ground surface.	
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-4

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/06/05
 DATE FINISHED: 7/06/05
 ELEVATION: ~1021
 NORTHING: ~1980022
 EASTING: ~6366541

GW DEPTH: 37 feet
 TOTAL DEPTH: 44.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0			SM	FILL: Light yellowish brown (2.5Y 6/3), poorly sorted, fine to coarse SILTY SAND with GRAVEL.	All drive samples collected using a 140-lb slide hammer.
			21	SPT	1	5			SW	ALLUVIUM: Light yellowish brown (2.5Y 6/3), poorly sorted, fine to very coarse SAND with lenses of GRAVEL and fine, micaceous SAND with SILT.	
			50/4"	2.5	2	10				...(10') - same as above.	
			BAG		3						
			45	SPT	4	15					
			50/5"	2.5	5	20				...(19'-20.5') - abundant GRAVEL.	
			41	SPT	6	25					
			50/5"	2.5	7	30				...(30') - same as above.	
			50	SPT	8	35				...(33'-39') - predominantly medium to very coarse SAND with fine GRAVEL.	
			50/3"	2.5	9	40				BEDROCK (SAUGUS FORMATION): Dark grayish brown (2.5Y 4/2) mottled with light brownish gray (10YR 6/2), very fine, micaceous SANDY SILTSTONE.	...(37') - groundwater encountered.
			61/6"	SPT	10	45				Notes: 1. Total depth of boring 44.5 feet. 2. Groundwater encountered at approximately 37 feet bgs. 3. Alluvium/Bedrock contact encountered at 39 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 17 feet above ground surface.	
						50					
						55					
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-5

PAGE: 1 OF 2

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/07/05
 DATE FINISHED: 7/07/05
 ELEVATION: ~1023
 NORTHING: ~1980125
 EASTING: ~6366597

GW DEPTH: 38 feet
 TOTAL DEPTH: 69.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0			SW	FILL: Light olive brown (2.5Y 5/4) to yellowish brown (10YR 5/4), poorly sorted, fine to medium SAND with SILT and minor amounts of GRAVEL.	All drive samples were collected using a 140-lb slide hammer.
			16	SPT	1	5					
			54	2.5	2	10				...(10') - same as above.	
			50/3"	SPT	3	15			SW	ALLUVIUM: Light olive brown (2.5Y 5/4) mottled with yellowish brown (10YR 5/7), poorly sorted, fine to coarse SAND with lenses of very coarse SAND and fine to medium GRAVEL and lenses of fine SAND with SILT.	
			50/5"	2.5	4	20				...(20') - same as above.	
				BAG	5						
			50/5"	SPT	6	25					
			60/3"	2.5	7	30				...(30') - same as above.	
			75/6"	SPT	8	35					
			62/3"	2.5	9	40				...(38'-54') - predominantly coarse to very coarse SAND with minor amounts of fine GRAVEL.	...(38') - groundwater encountered.
			53/6"	SPT	10	45					
			50/2"	2.5	NSR	50				...(48'-50') - contains abundant COBBLES.	...(49'-50') - no 2.5" ring sample was retained due to cobbles.
			50/4"	2.5	11	55					
			63/6"	SPT	12	60				...(60') - same as above.	

CONTINUED ON NEXT PAGE

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-5

PAGE: 2 OF 2

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/07/05
 DATE FINISHED: 7/07/05
 ELEVATION: ~1023
 NORTHING: ~1980125
 EASTING: ~6366597

GW DEPTH: 38 feet
 TOTAL DEPTH: 69.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			50/3"	2.5	13	60			SW	...(60') - same as above.	
			62/6"	SPT	14	70				BEDROCK (SAUGUS FORMATION): Moderately to slightly weathered, greenish gray (5BG 5/1), fine, micaceous SILTY SANDSTONE to SANDY SILTSTONE.	
						75				Notes:	
						80				1. Total depth of boring 69.5 feet.	
						85				2. Groundwater encountered at approximately 38 feet bgs.	
						90				3. Alluvium/Bedrock contact encountered at 67 feet bgs.	
						95				4. Borehole backfilled with neat cement.	
						100				5. Proposed grade will be at 15 feet above ground surface.	
						105					
						110					
						115					
						120					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-6

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/07/05
 DATE FINISHED: 7/07/05
 ELEVATION: ~1068.5
 NORTHING: 1980229
 EASTING: 6366207

GW DEPTH: NA
 TOTAL DEPTH: 44.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLGIC FORMATION	DESCRIPTION	COMMENTS
			42	SPT	1	0			SM	FILL: Brown (10YR 5/3), light olive gray (5Y 6/2), and light olive brown (2.5Y 5/4), poorly sorted, fine to medium SILTY SAND with minor coarse to very coarse SAND and fine GRAVEL.	All drive samples were collected using a 140-lb slide hammer.
			50/4"	2.5	2	5				...(10') - same as above.	
			37	SPT	3	10					
			52	2.5	4	15				...(20') - same as above.	
			50/5"	SPT	5	20					
			61/6"	2.5	6	25			SM/ SW	ALLUVIUM: Olive gray to light olive gray (5Y 5/2 to 6/2), poorly sorted, fine to medium, micaceous SILTY SAND interbedded with fine to very coarse SAND with fine GRAVEL.	
			68/6"	SPT	7	30					
			53/6"	2.5	8	35				BEDROCK (SAUGUS FORMATION): Greenish gray (10Y 5/1), well-indurated, slightly to moderately weathered, micaceous, fine SILTY SANDSTONE to SANDY SILTSTONE.	
			51/6"	SPT	9	40				Notes: 1. Total depth of boring 44.5 feet. 2. No groundwater encountered. 3. Alluvium/Bedrock contact encountered at 39 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 28 feet below ground surface.	
						45					
						50					
						55					
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-7

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/07/05
 DATE FINISHED: 7/07/05
 ELEVATION: ~1066
 NORTHING: ~1980221
 EASTING: ~6366227

GW DEPTH: NA
 TOTAL DEPTH: 39.7 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
						0			SM	FILL: Brown (10YR 5/3), light olive gray (5Y 6/2), and light olive brown (2.5Y 5/4), poorly sorted, fine to medium SILTY SAND with minor amounts of coarse SAND and fine GRAVEL.	All drive samples collected using a 140-lb slide hammer.
			24	SPT	1	5					
			50/4"	2.5	2	10				...(10') - same as above.	
			50/3"	SPT	3	15					
			72	2.5	4	20				...(20') - same as above.	
			30	SPT	5	25					
			47	2.5	6	30			SW	ALLUVIUM: Olive gray (5Y 5/2) to light olive gray (5Y 6/2), poorly sorted, fine to medium SAND interbedded with lenses of medium to very coarse SAND with fine GRAVEL.	
			42	SPT	7	35				BEDROCK (SAUGUS FORMATION): Light olive brown (2.5Y 5/4), well-indurated, fine to medium, micaceous SILTY SANDSTONE.	
			50/2"	2.5	8	40				Notes: 1. Total depth of boring 39.7 feet. 2. No groundwater encountered. 3. Alluvium/Bedrock contact encountered at 35 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 25 feet below ground surface.	
						45					
						50					
						55					
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-8

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/07/05
 DATE FINISHED: 7/07/05
 ELEVATION: ~1071
 NORTHING: ~1980106
 EASTING: ~8366183

GW DEPTH: NA
 TOTAL DEPTH: 59.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USCS/GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			33	SPT	1	0			SM	FILL: Pale olive (5Y 6/3), light olive brown (2.5Y 5/3), and yellowish brown (10YR 5/5), poorly sorted, fine to coarse SILTY SAND with minor GRAVEL.	All drive samples collected using a 140-lb slide hammer.
			57/6"	2.5	2	5				...(10') - same as above.	
			59	SPT	3	10					
			50/5"	2.5	4	15				...(20') - same as above.	
			55	SPT	5	20					
			50/4"	2.5	6	25			SM	ALLUVIUM: Pale olive (5Y 6/3), light olive brown (2.5Y 5/3), and yellowish brown (10YR 5/5), poorly sorted, fine to coarse SILTY SAND with minor GRAVEL. ...(30') - same as above.	
			52	SPT	7	30					
			55	2.5	8	35				...(40') - same as above.	
				BAG	9	40					
			60	SPT	10	45					
			70/5"	2.5	11	50				...(50') - same as above.	
			50/5"	SPT	12	55				BEDROCK (SAUGUS FORMATION): Light yellowish brown (2.5Y 6/3), well-indurated, poorly sorted, fine, micaceous SILTY SANDSTONE to SANDY SILTSTONE.	
			50/6"	2.5	13	60				Notes: 1. Total depth of boring 59.5 feet. 2. No groundwater encountered. 3. Fill/Bedrock contact encountered at 54.5 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 32 feet below ground surface.	

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

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Boring Log

BORING NO.: B-9

PAGE: 1 OF 1

JOB NO.: 2005-071
 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/08/05
 DATE FINISHED: 7/08/05
 ELEVATION: ~1071
 NORTHING: 1980274
 EASTING: 6366122

GW DEPTH: NA
 TOTAL DEPTH: 44.5 feet

TIME	DRY DENSITY (LBS/CU. FT.)	MOISTURE (%)	BLOWS (COUNT/FT.)	SAMPLE SIZE (INCHES)	SAMPLE NO.	DEPTH IN FEET	ELEVATION IN FEET	MATERIAL SYMBOL	USGS GEOLOGIC FORMATION	DESCRIPTION	COMMENTS
			45	SPT	1	0			SM	FILL: Olive gray (5Y 5/2) to light olive brown (2.5Y 5/3), poorly sorted, fine to medium SILTY SAND with minor amounts of coarse to very coarse SAND and GRAVEL.	All drive samples collected using a 140-lb slide hammer.
			80/11"	2.5	2	5				...(10') - same as above.	
			61/6"	SPT	3	10					
			72	2.5	4	15					
			48	SPT	5	20			SW	ALLUVIUM: Light olive gray (5Y 6/2), fine to medium SAND with lenses of coarse SAND with GRAVEL.	
			50/4"	2.5	6	25				...(30') - same as above.	
			50/5"	SPT	7	30					
			70/5"	2.5	8	35				BEDROCK (SAUGUS FORMATION): Brown to strong brown (7.5YR 4.5/5), well-indurated, poorly sorted, fine to coarse SILTY SANDSTONE.	
			50/6"	2.5	9	40				Notes: 1. Total depth of boring 44.5 feet. 2. No groundwater encountered. 3. Alluvium/Bedrock contact encountered at 37 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 30 feet below ground surface.	
						45					
						50					
						55					
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.

GeoLogic Associates

Boring Log

BORING NO.: B-10

PAGE: 1 OF 1

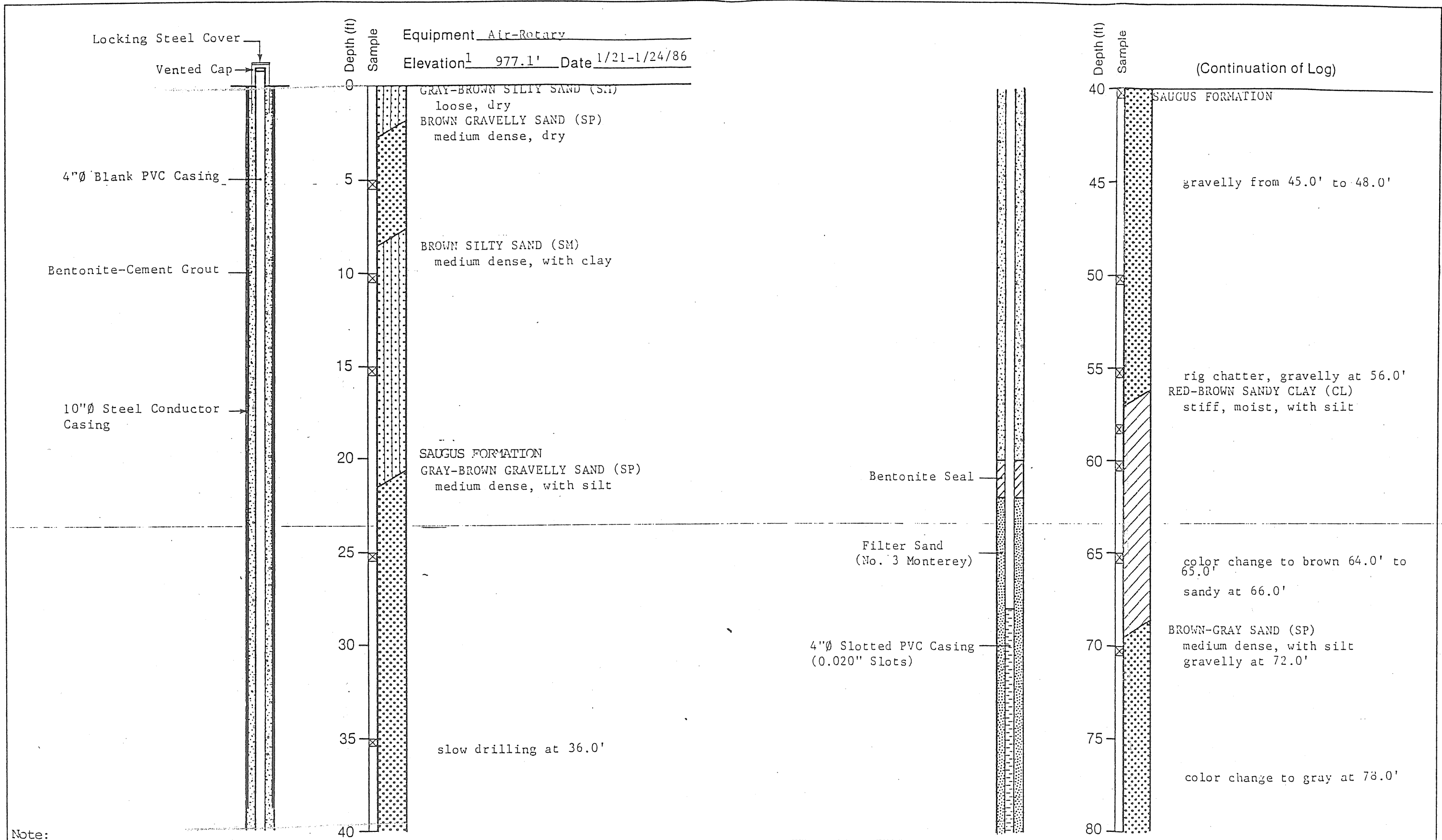
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 SITE LOCATION: CHIQUITA CANYON
 DRILLING METHOD: HOLLOW STEM AUGER
 CONTRACTOR: WDC EXPLORATION AND WELLS
 LOGGED BY: M. VINCENT, CEG

DATE STARTED: 7/08/05
 DATE FINISHED: 7/08/05
 ELEVATION: ~1068
 NORTHING: 1980351
 EASTING: 6366060

GW DEPTH: NA
 TOTAL DEPTH: 44.2 feet

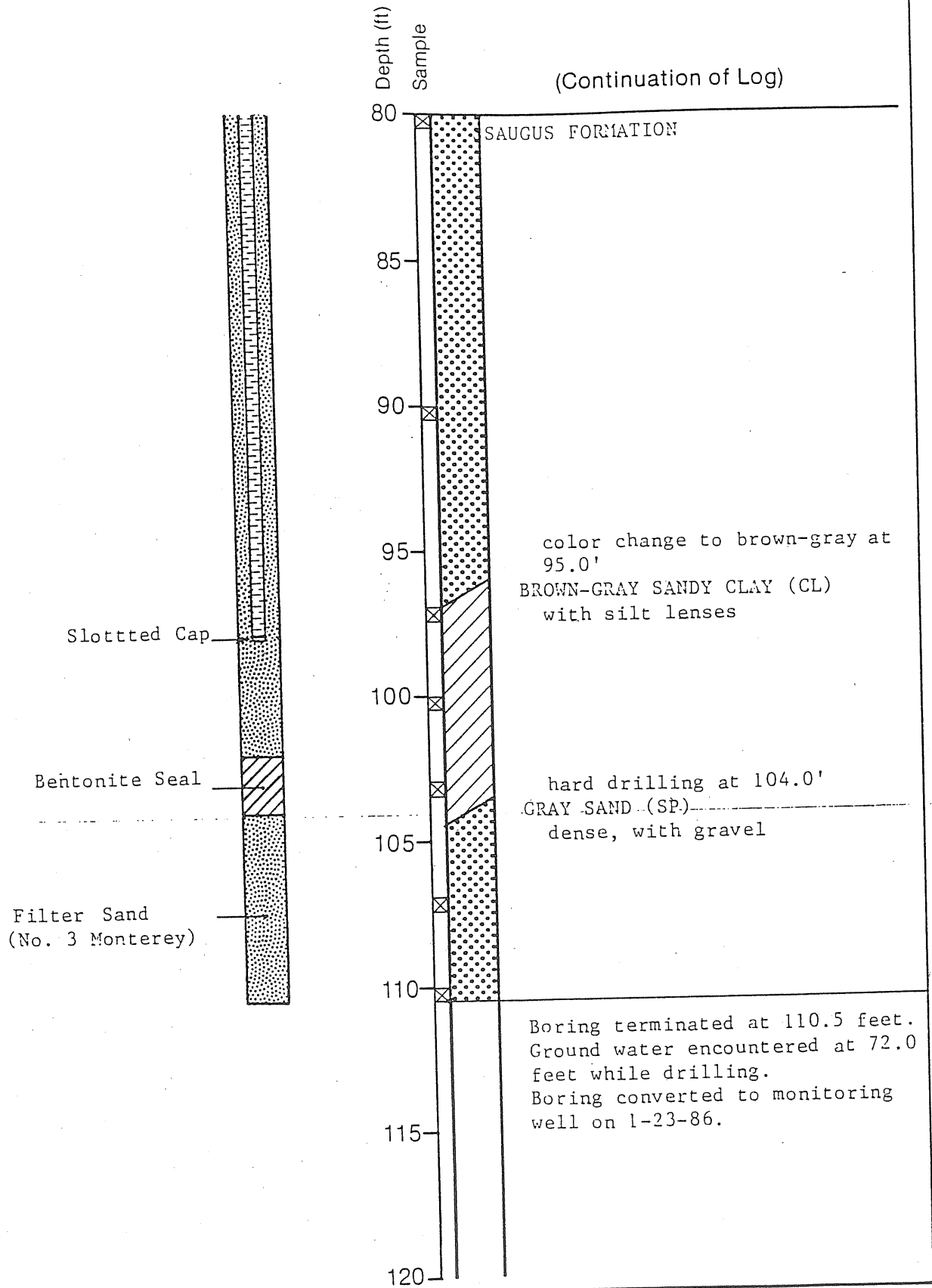
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			23	SPT	1	0			SM	FILL: Olive gray (5Y 5/2) and light olive brown (2.5Y 5/3), poorly sorted, fine to coarse SILTY SAND with minor GRAVEL.	All drive samples collected using a 140-lb slide hammer.
			50/4"	2.5	2	5				...(10') - same as above.	
			50	SPT	3	10					
			65	2.5	4	15				...(20') - same as above.	
			32	SPT	5	20					
			43	SPT	6	25					
			50/5"	2.5	7	30			SW	ALLUVIUM: Olive to olive gray (5Y 5/2.5), very fine to fine, micaceous SAND.	
			50/5"	SPT	8	35				BEDROCK (SAUGUS FORMATION): Reddish brown (5YR 5/3) mottled with Olive (5Y 5/3), well-indurated, fine, micaceous SANDY SILTSTONE.	
			50/4"	2.5	9	40				Notes: 1. Total depth of boring 44.2 feet. 2. No groundwater encountered. 3. Alluvium/Bedrock contact encountered at 37 feet bgs. 4. Borehole backfilled with neat cement grout. 5. Proposed grade will be at 25 feet below ground surface.	
						45					
						50					
						55					
						60					

The data presented on this log is a simplification of actual conditions encountered and applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change with the passage of time.



Note:
1. Top of casing elevation, Mean Sea Level datum

(Continuation of Log)



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Engineers, Geologists
& Geophysicists

LOG OF BORING DW-1
GSX-Chiquita Canyon Landfill
Monitoring Plan Implementation
Saugus, California

PLATE

C3_b

DRAWN
tl

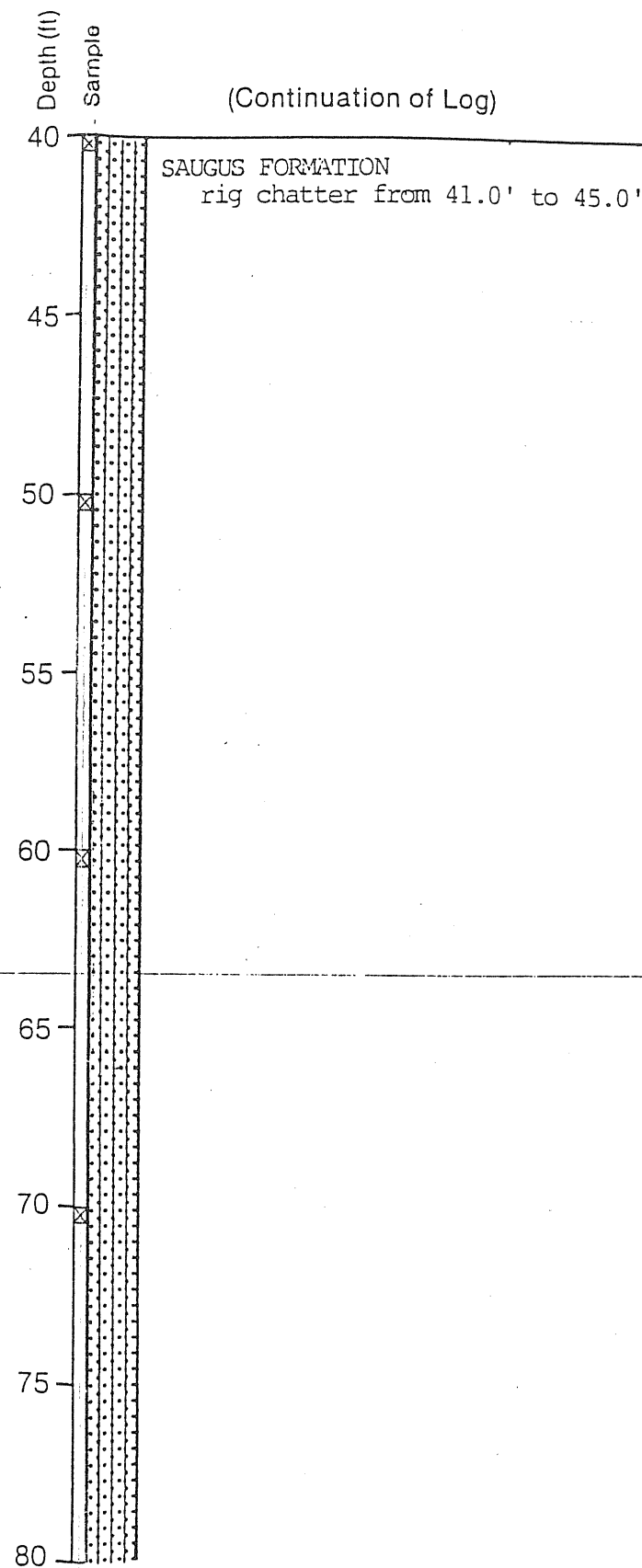
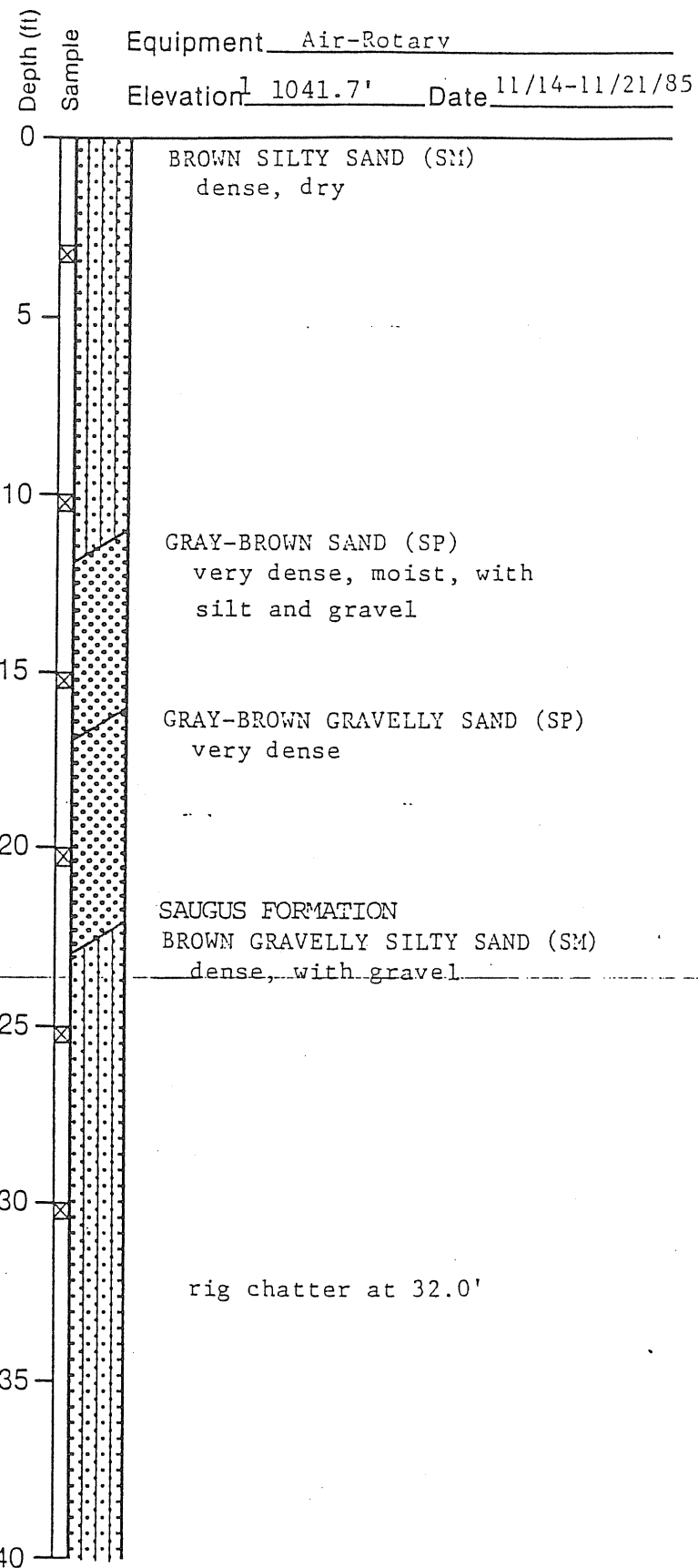
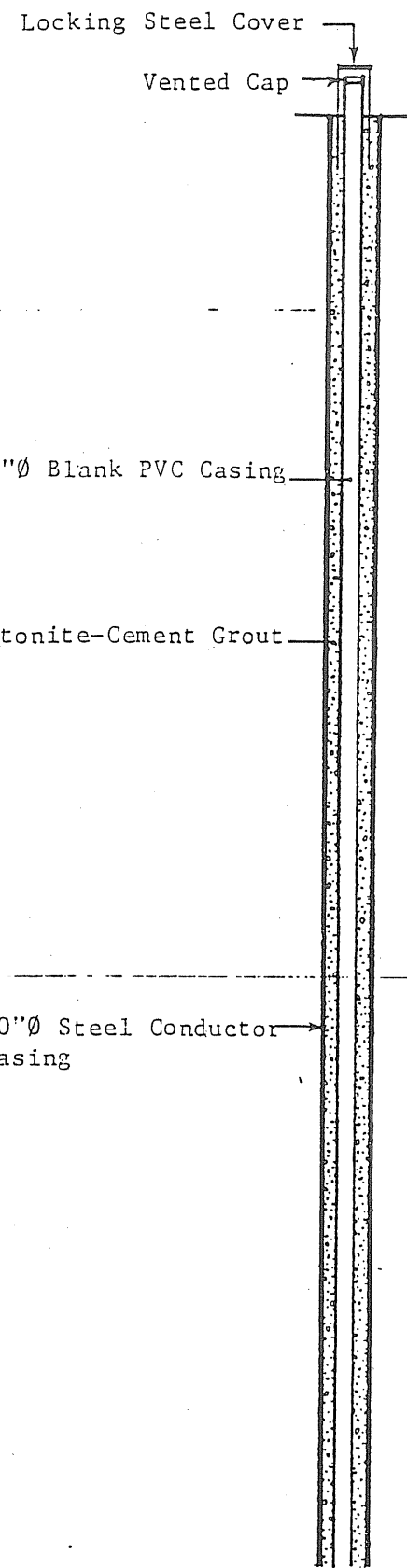
JOB NUMBER
17012,006.11

APPROVED
fm /ac

DATE
4-15-86

REVISED

DATE



Note:
 1. Top of casing elevation, Mean Sea Level datum



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 & Geophysicists

LOG OF BORING DW-2
 GSX-Chiquita Canyon Landfill
 Monitoring Plan Implementation
 Saugus, California

PLATE

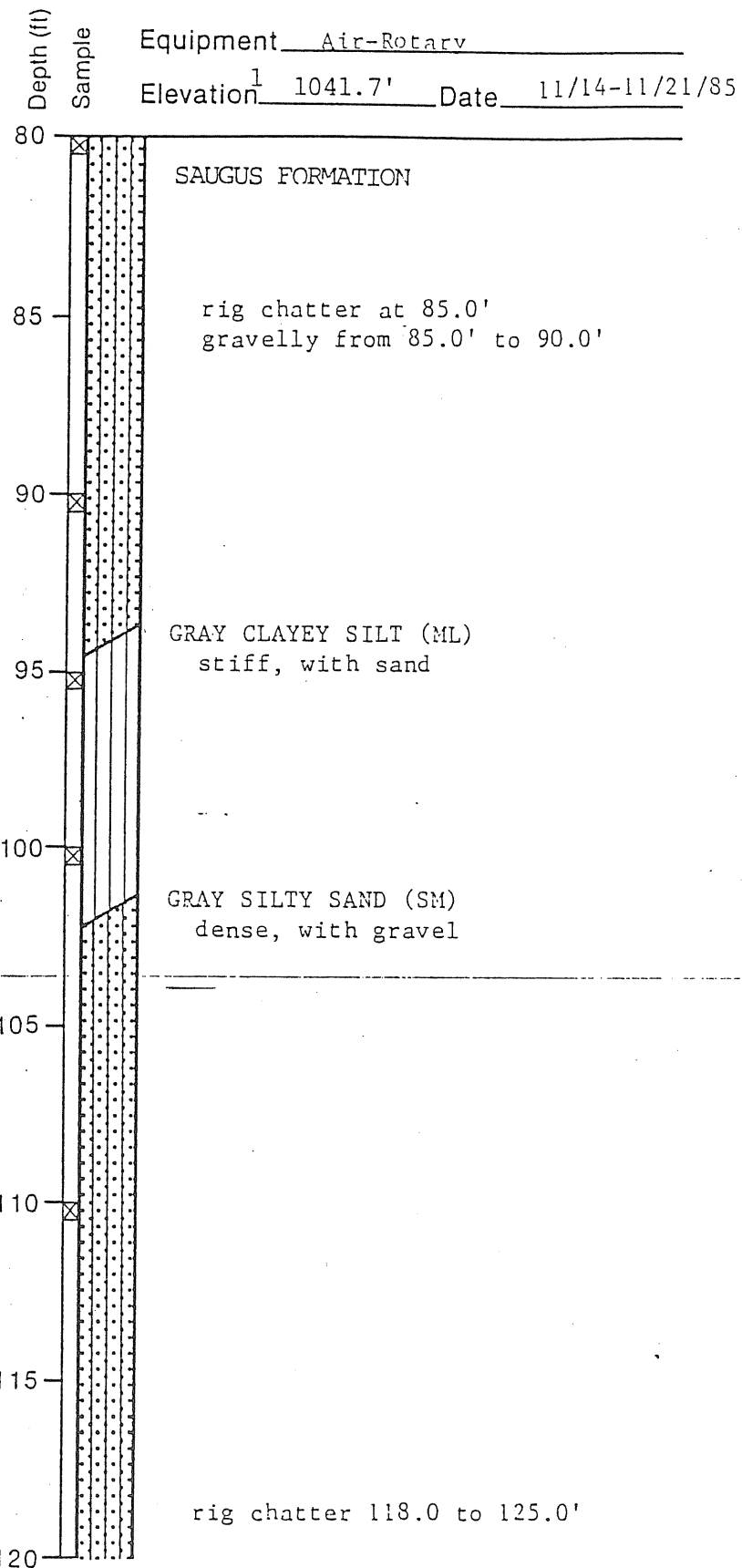
C4_a

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
tl	17012.006.11	<i>[Signature]</i> /ac	4-15-86		

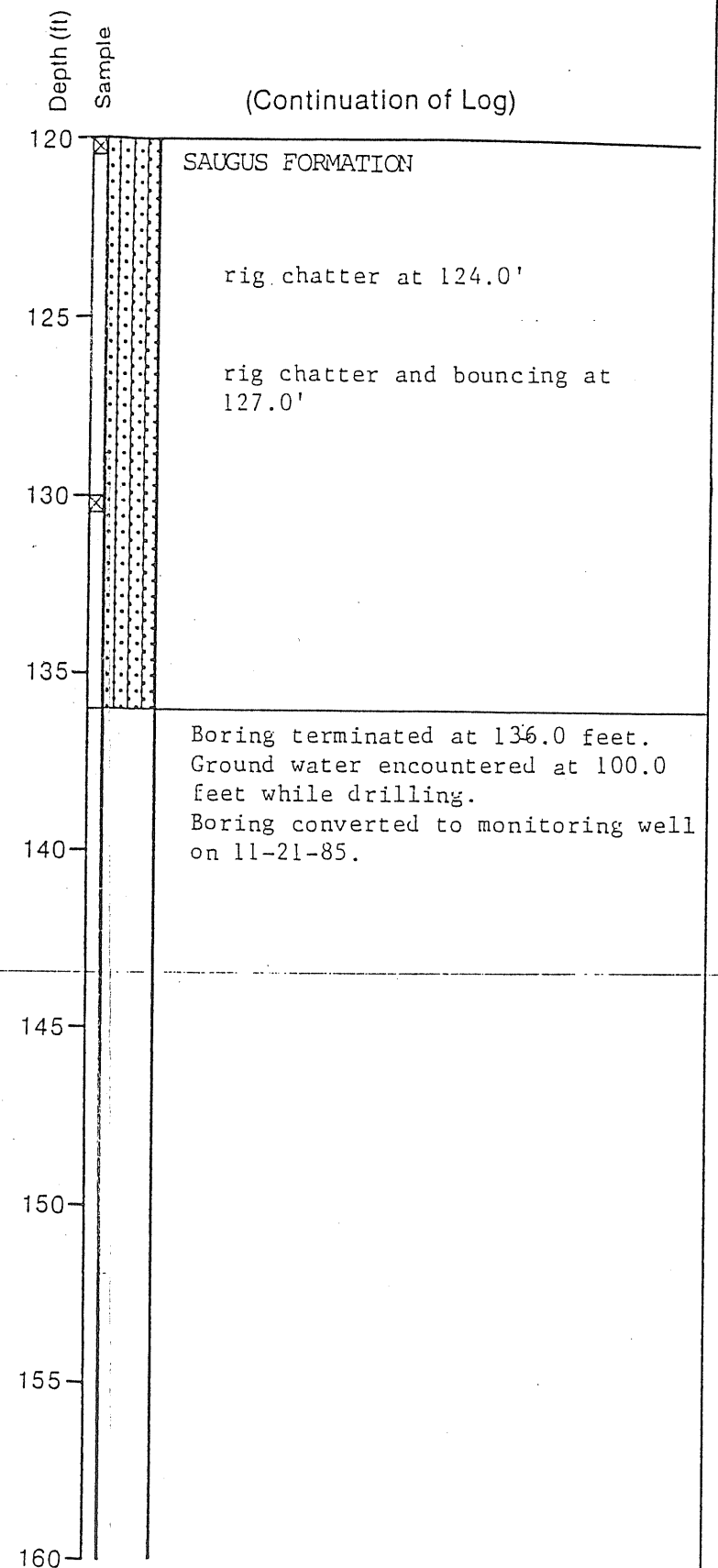
Bentonite Seal

Filter Sand
(No. 3 Monterey)

4"Ø Slotted PVC Casing
(0.020" Slots)

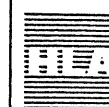


Slotted Cap
Natural Formation



Note:

1. Top of casing elevation, Mean Sea Level datum



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Engineers, Geologists
& Geophysicists

DRAWN
tl

JOB NUMBER
17012,006.11

APPROVED
Amo lac

DATE
4-15-86

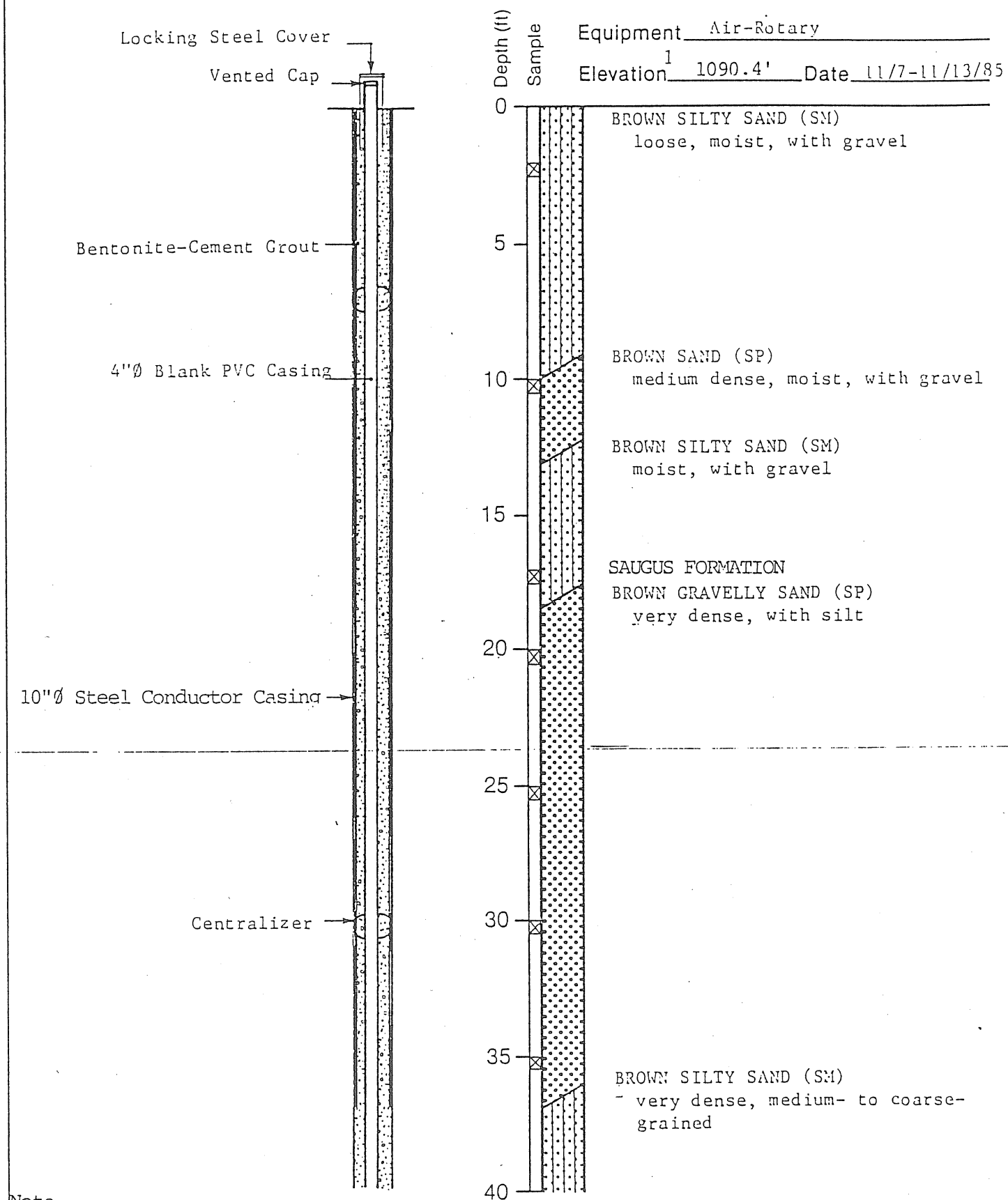
REVISED

DATE

LOG OF BORING DW-2
GSX-Chiquita Canyon Landfill
Monitoring Plan Implementation
Saugus, California

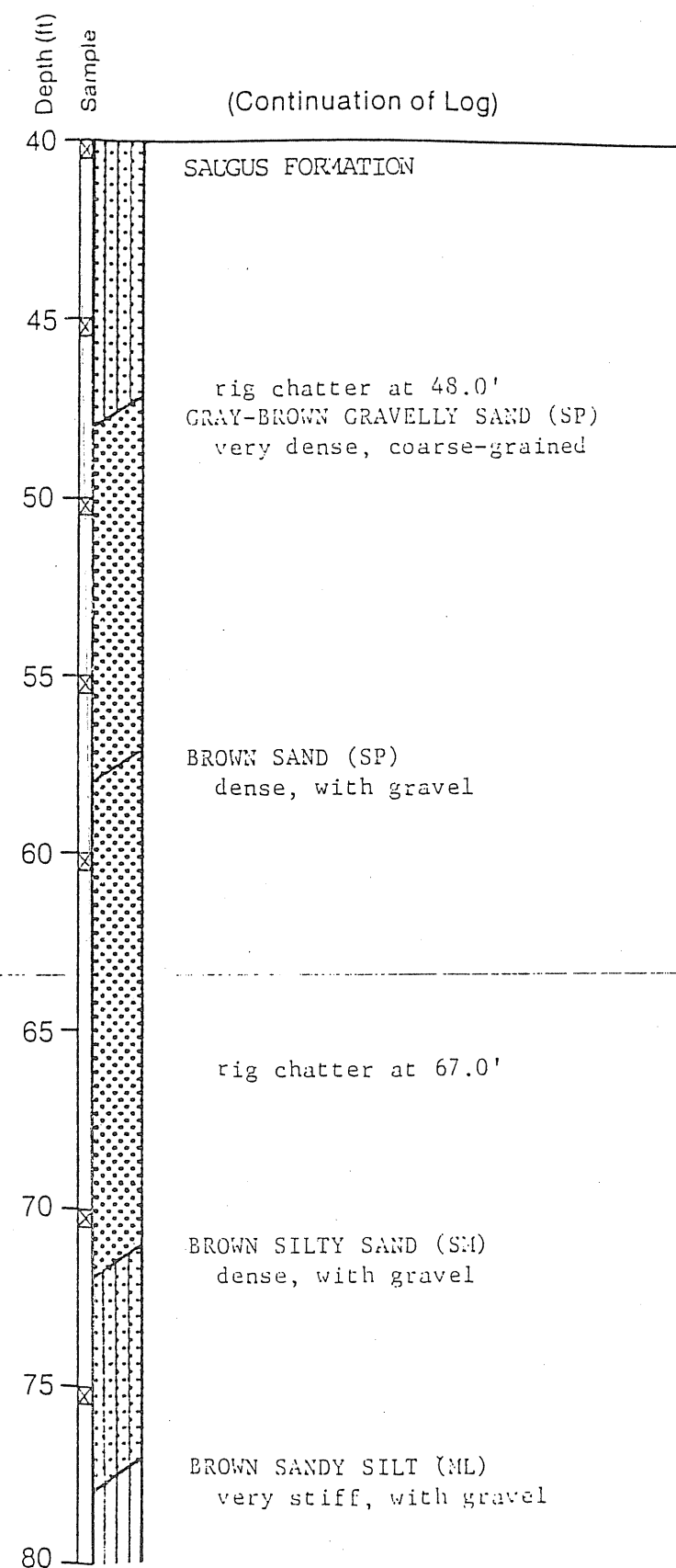
PLATE

C4_b



Note:

1. Top of casing elevation, Mean Sea Level datum



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LOG OF BORING DW-3
GSX- Chiquita Canyon Landfill
Monitoring Plan Implementation
Saugus, California

PLATE

C5a

DRAWN
tl

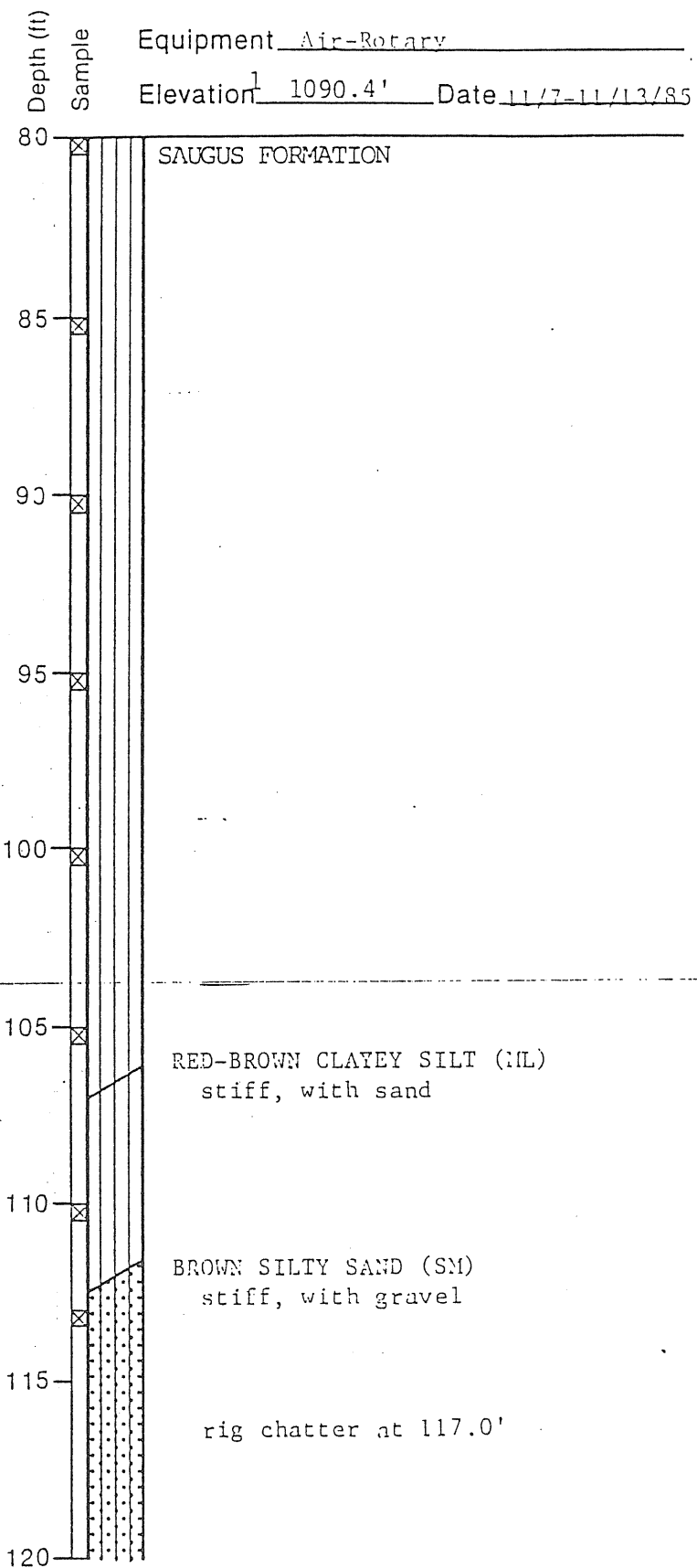
JOB NUMBER
17012,006.11

APPROVED
Jon S. Iac

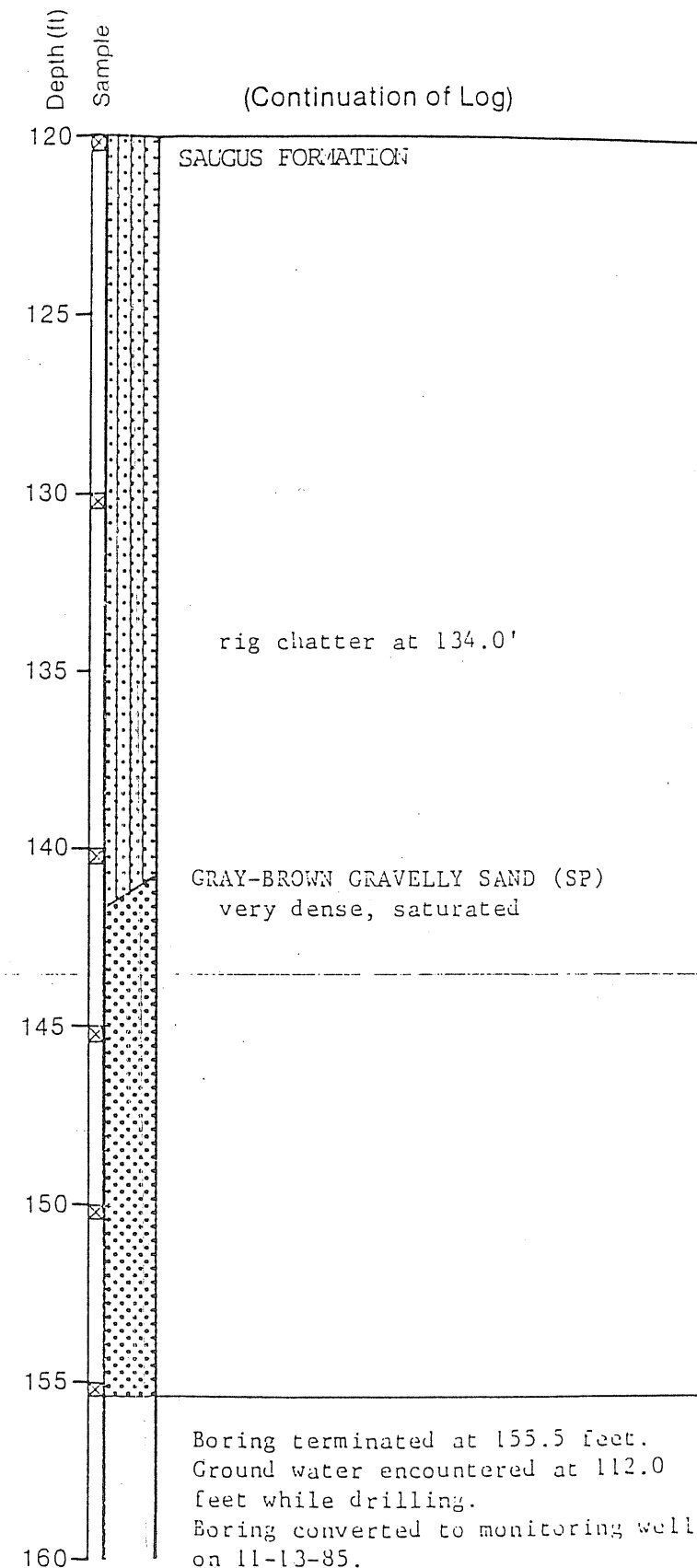
DATE
4-15-86

REVISED

DATE



Note:
 1. Top of casing elevation, Mean Sea Level datum



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 Engineers, Geologists
 & Geophysicists

LOG OF BORING DW-3
 GSX-Chiquita Canyon Landfill
 Monitoring Plan Implementation
 Saugus, California

PLATE

C5_b

DRAWN
 tl

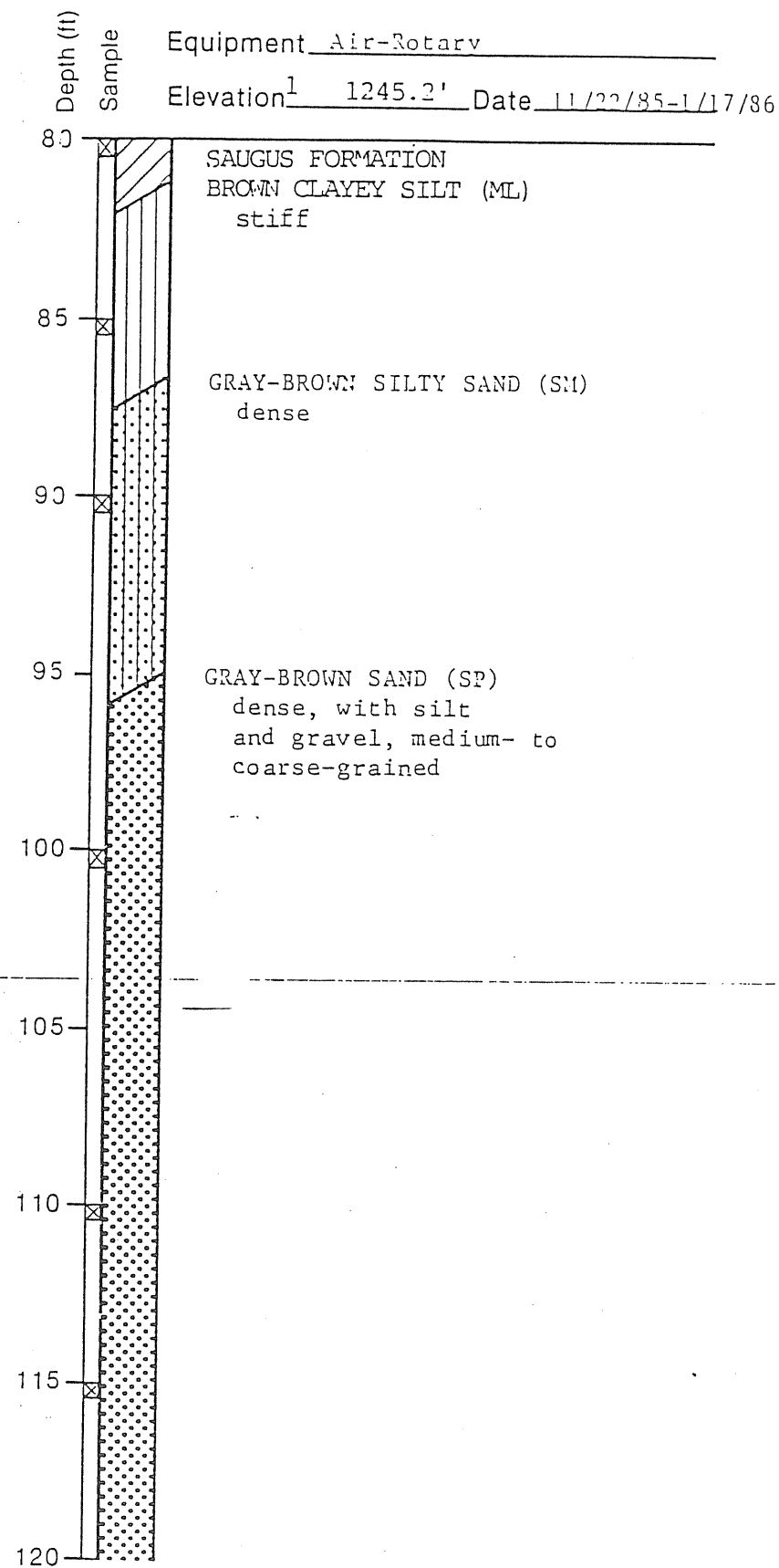
JOB NUMBER
 17012,006.11

APPROVED
Amc /ac

DATE
 4-15-86

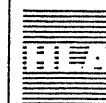
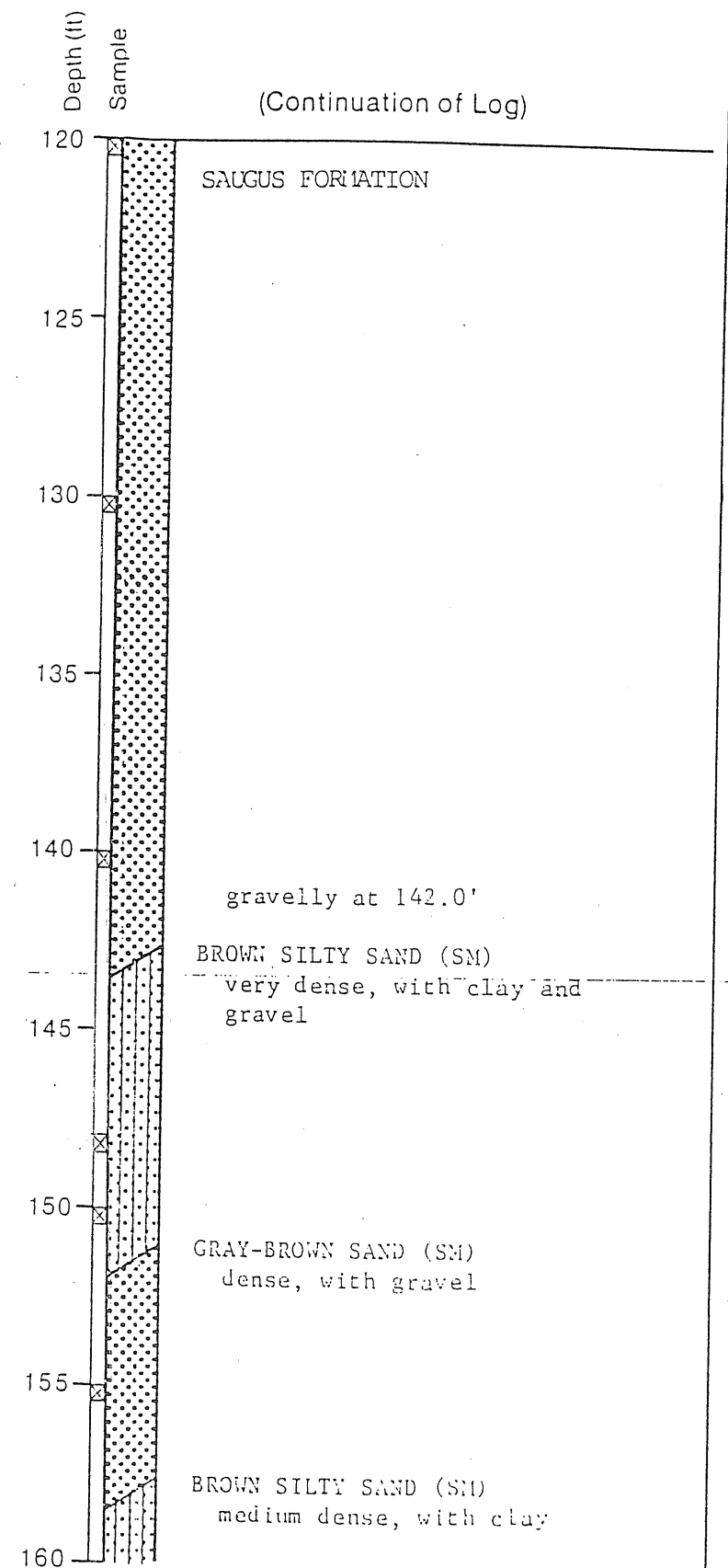
REVISED

DATE



Note:

1. Top of casing elevation, Mean Sea Level datum



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DRAWN
tl

JOB NUMBER
17012.007.11

APPROVED
[Signature] /ac

LOG OF BORING DW-6
GSX-Chiquita Canyon Landfill
Monitoring Plan Implementation
Saugus, California

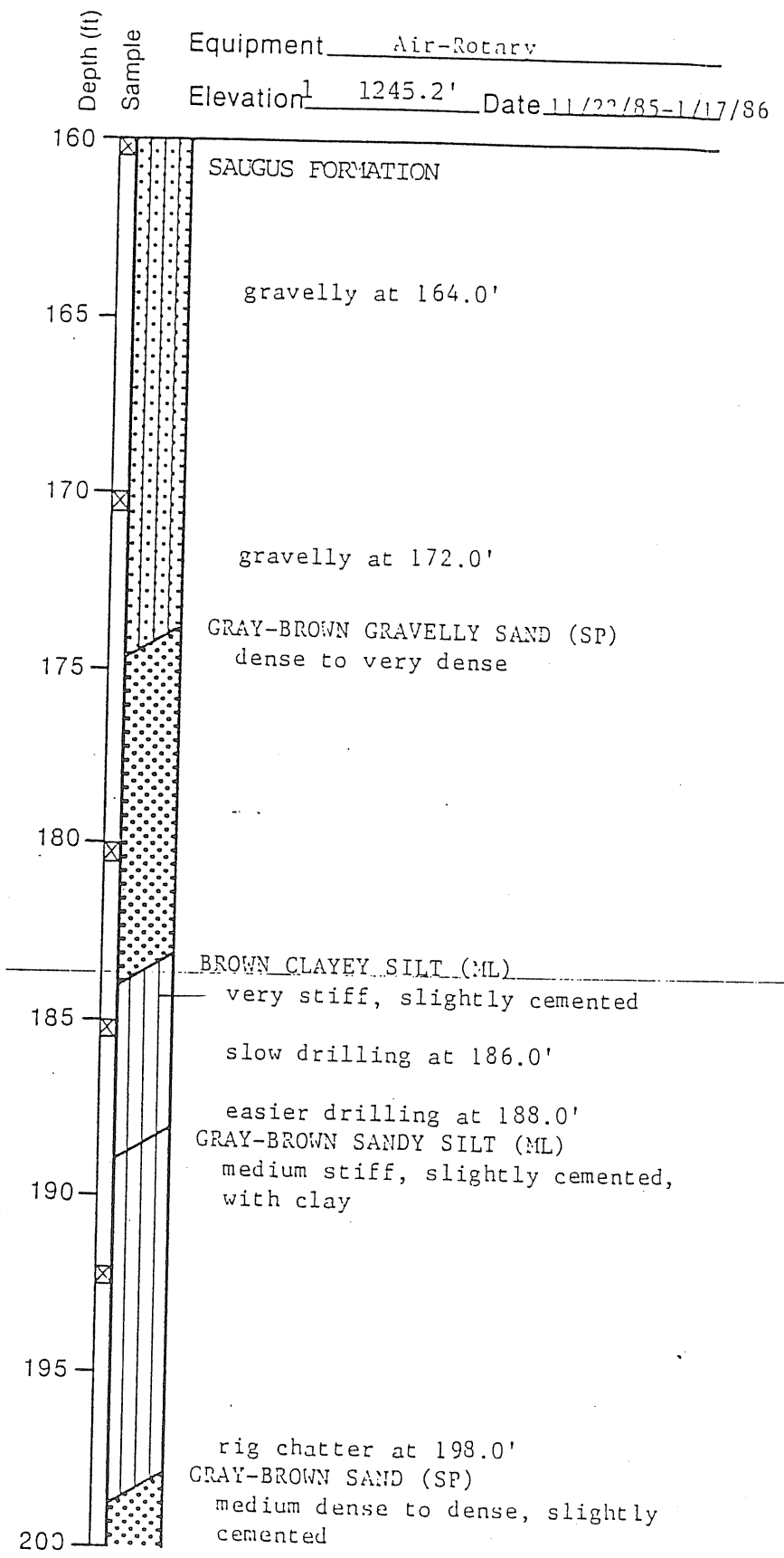
PLATE

C6_b

DATE
4-15-86

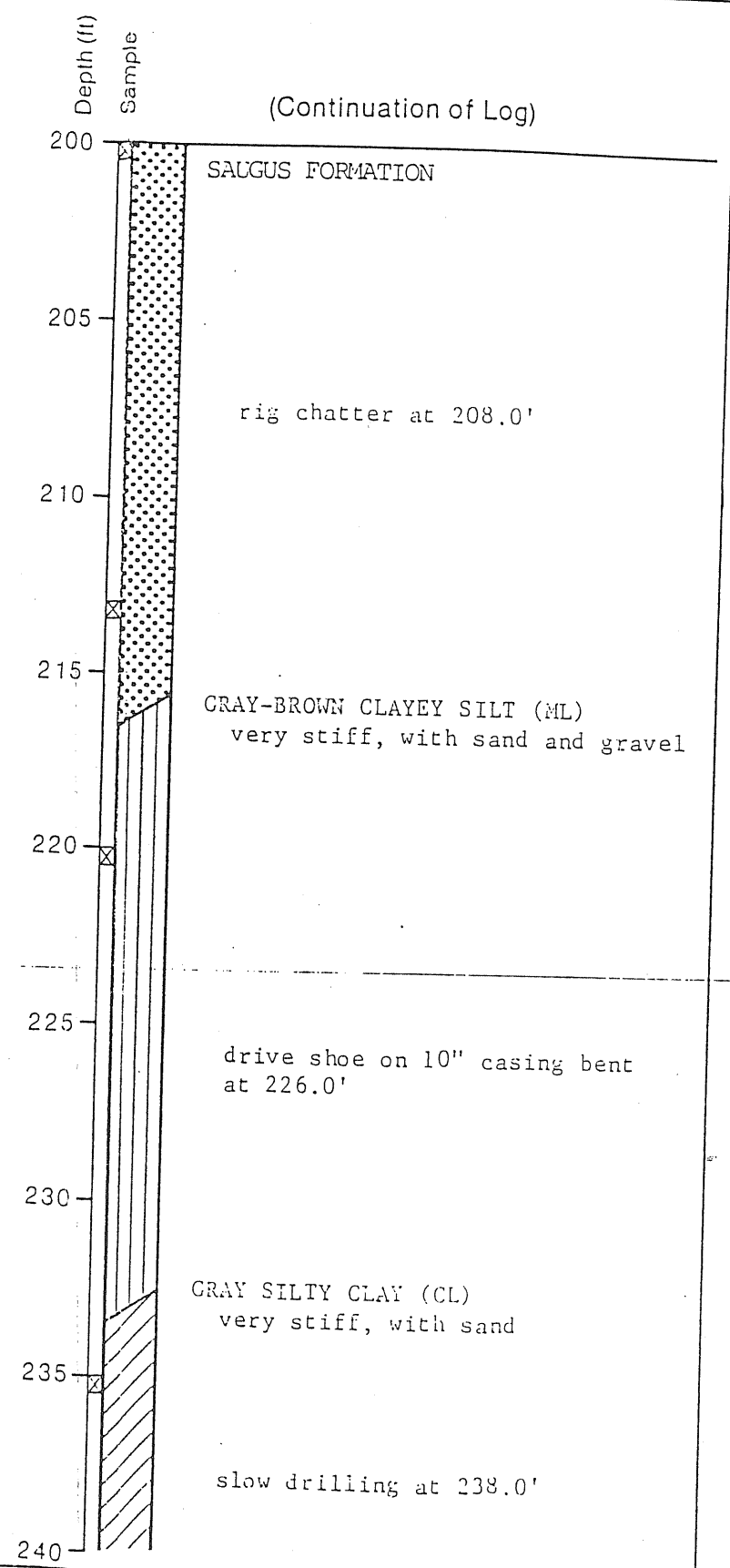
REVISED

DATE



Bentonite Slurry

Note:
 1. Top of casing elevation, Mean Sea Level datum



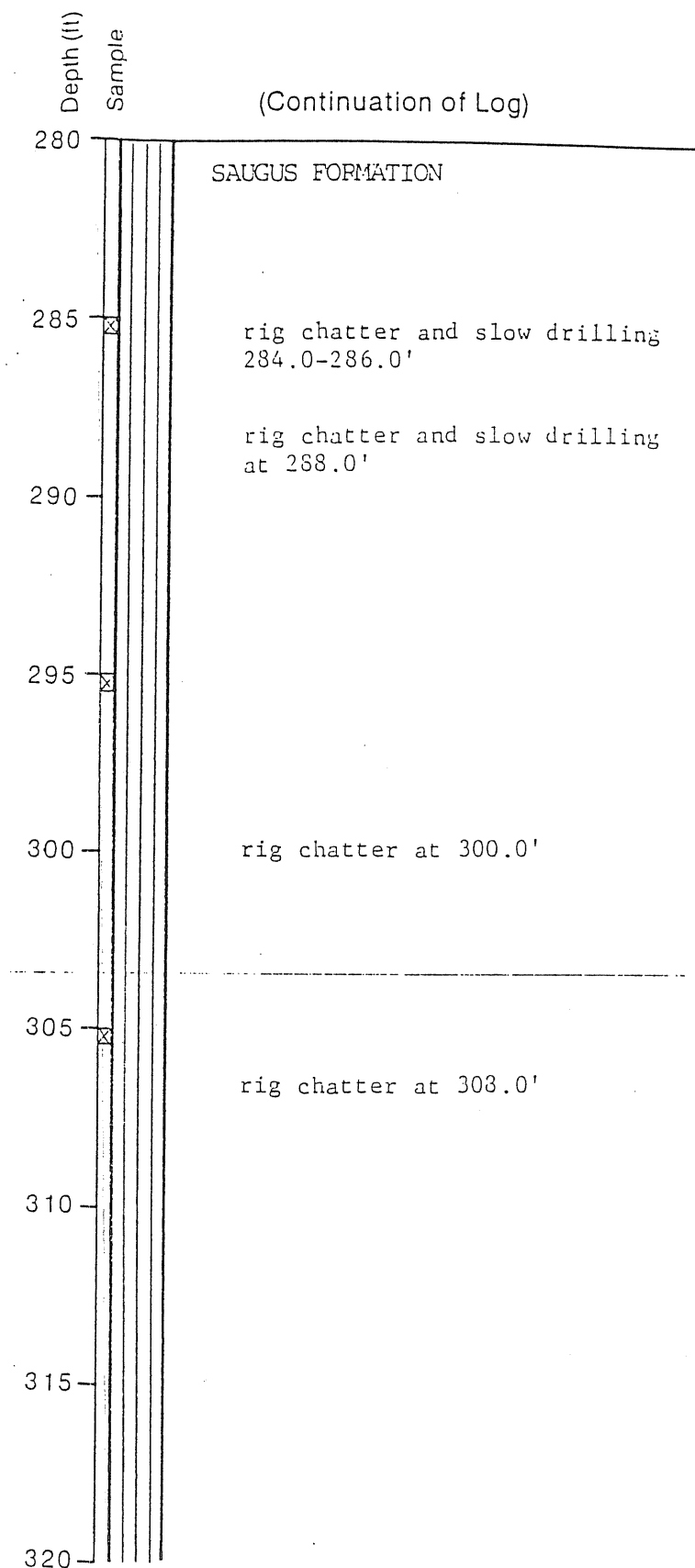
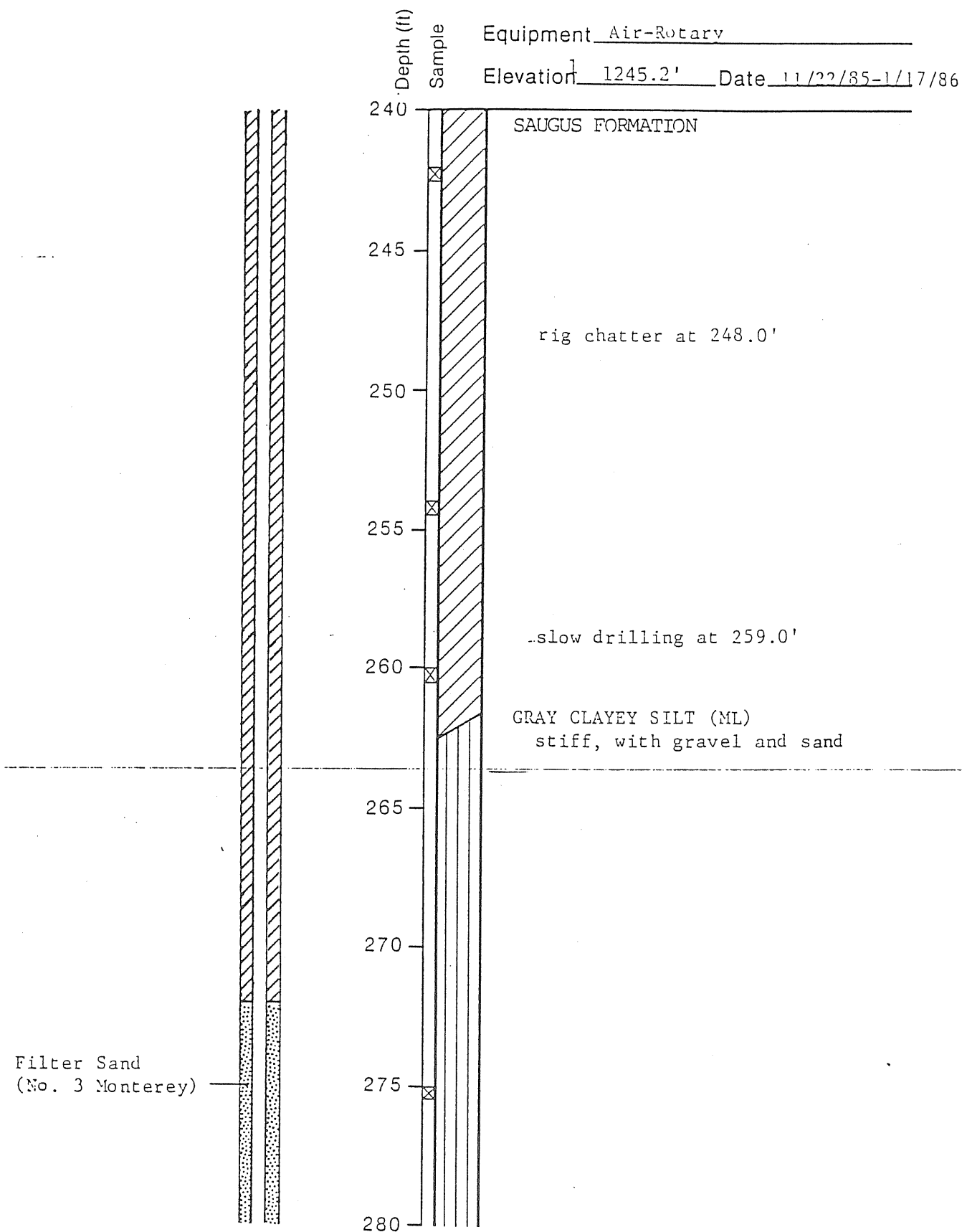
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 Engineers, Geologists
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LOG OF BORING DW-6
 GSX-Chiquita Canyon Landfill
 Monitoring Plan Implementation
 Saugus, California

PLATE

C6c

DRAWN tl	JOB NUMBER 17012.007.11	APPROVED <i>[Signature]</i> lac	DATE 4-15-86	REVISED	DATE
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Note:
 1. Top of casing elevation, Mean Sea Level datum



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LOG OF BORING DW-6
 GSX-Chiquita Canyon Landfill
 Monitoring Plan Implementation
 Saugus, California

PLATE

C6d

DRAWN
 tl

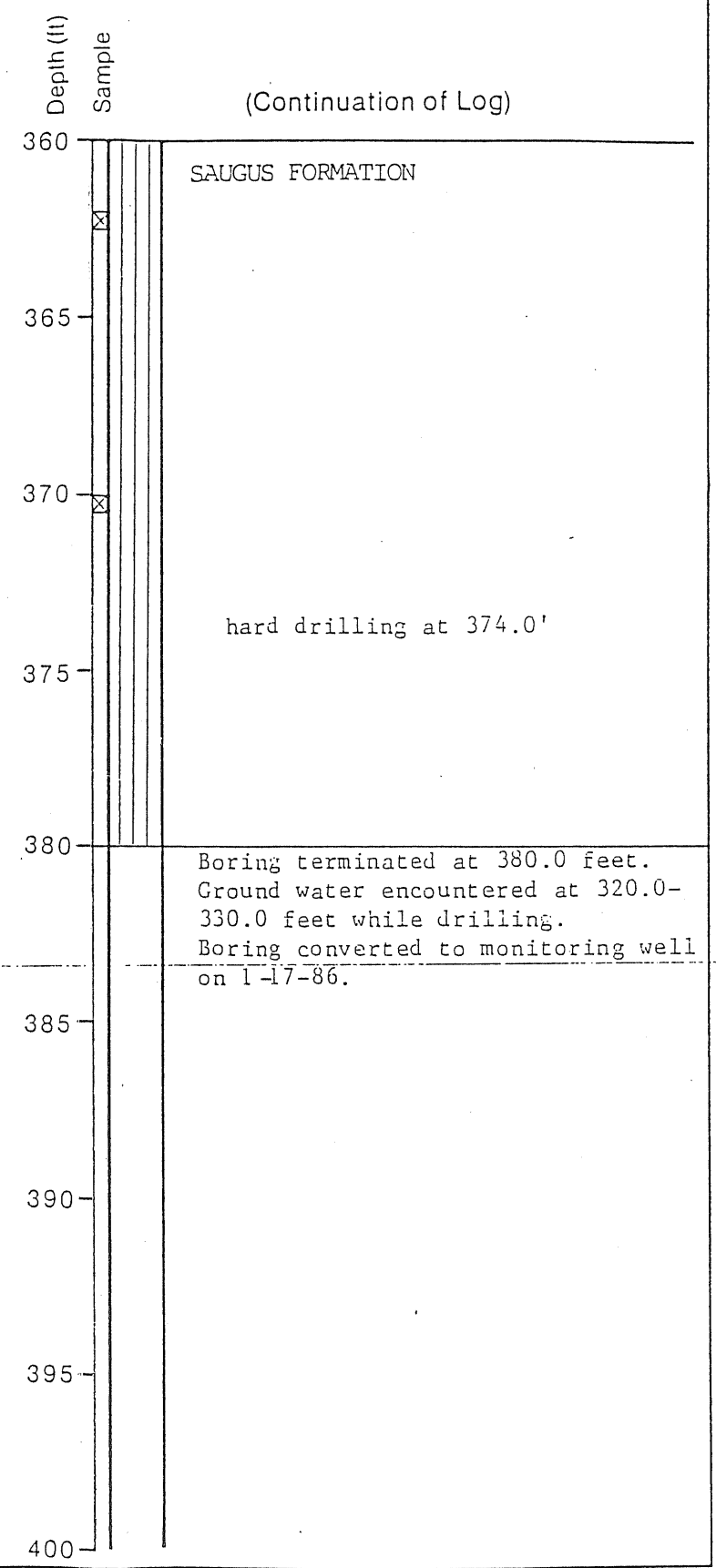
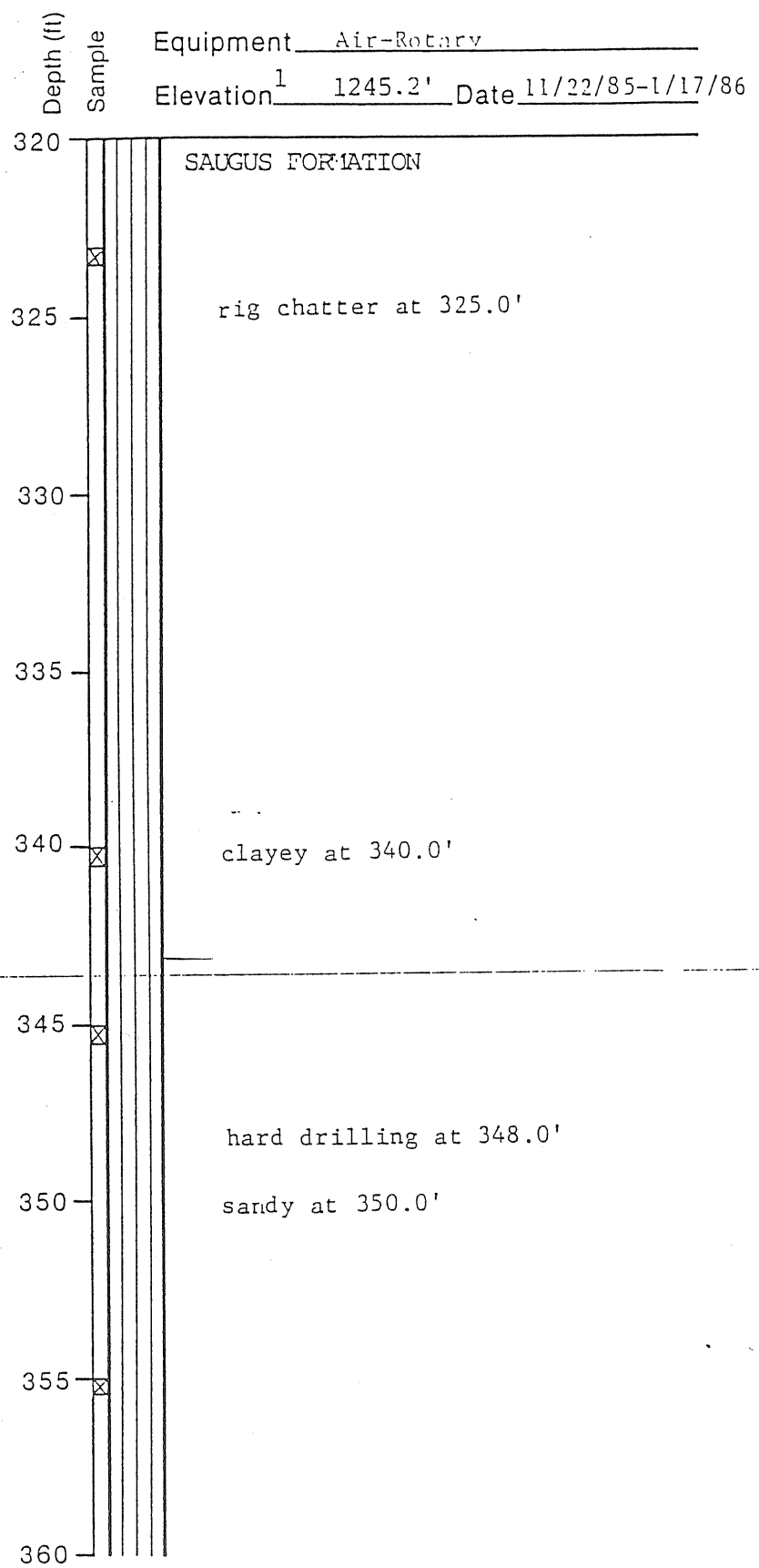
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DATE
 4-15-86

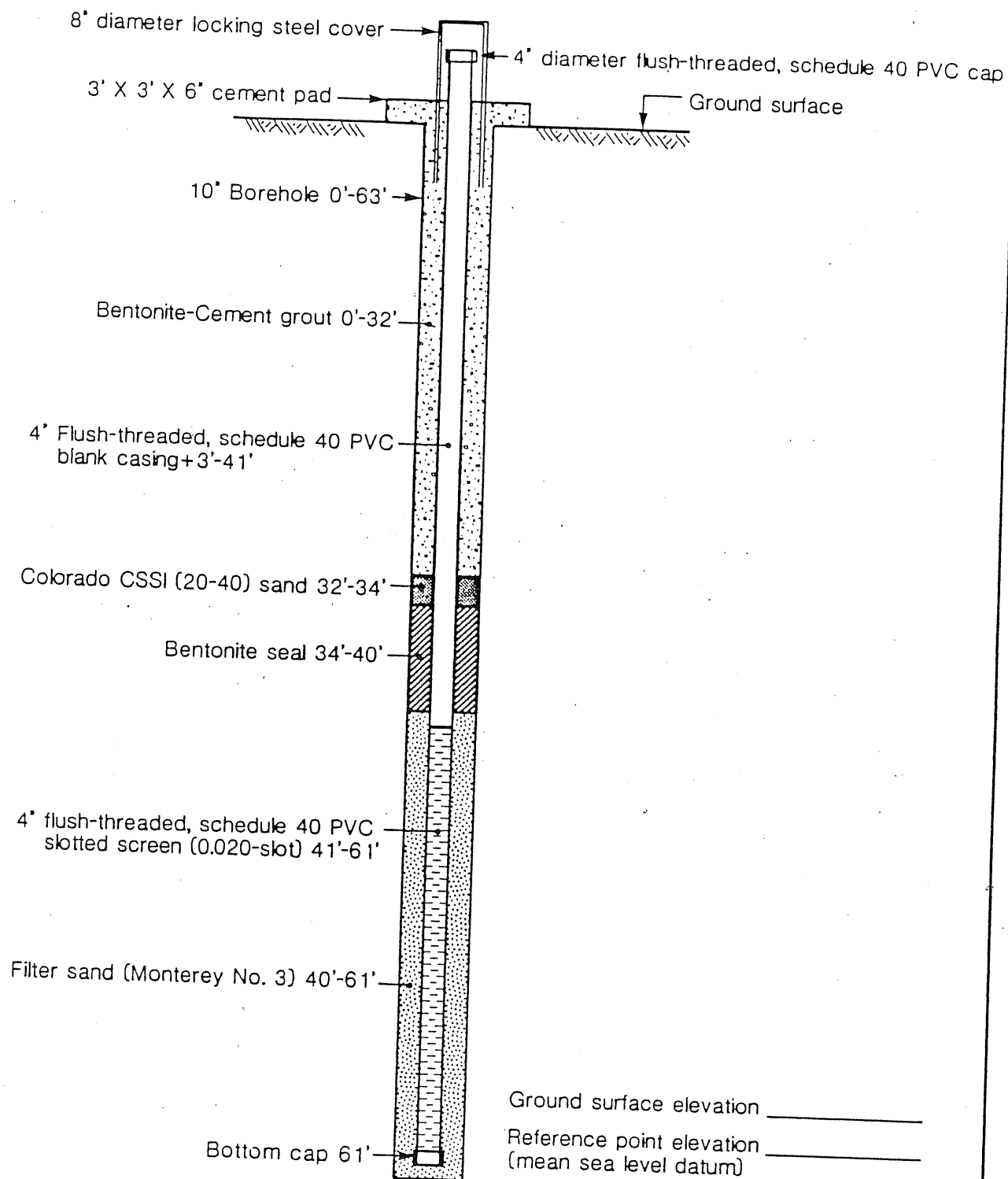
REVISED

DATE



Note:
 1. Top of casing elevation, Mean Sea Level datum

MONITORING WELL DW-7



Not to Scale



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MONITORING WELL COMPLETION
Chiquita Canyon
Laidlaw Waste Systems, Inc.
Valencia, California

PLATE

4

DRAWN
jd

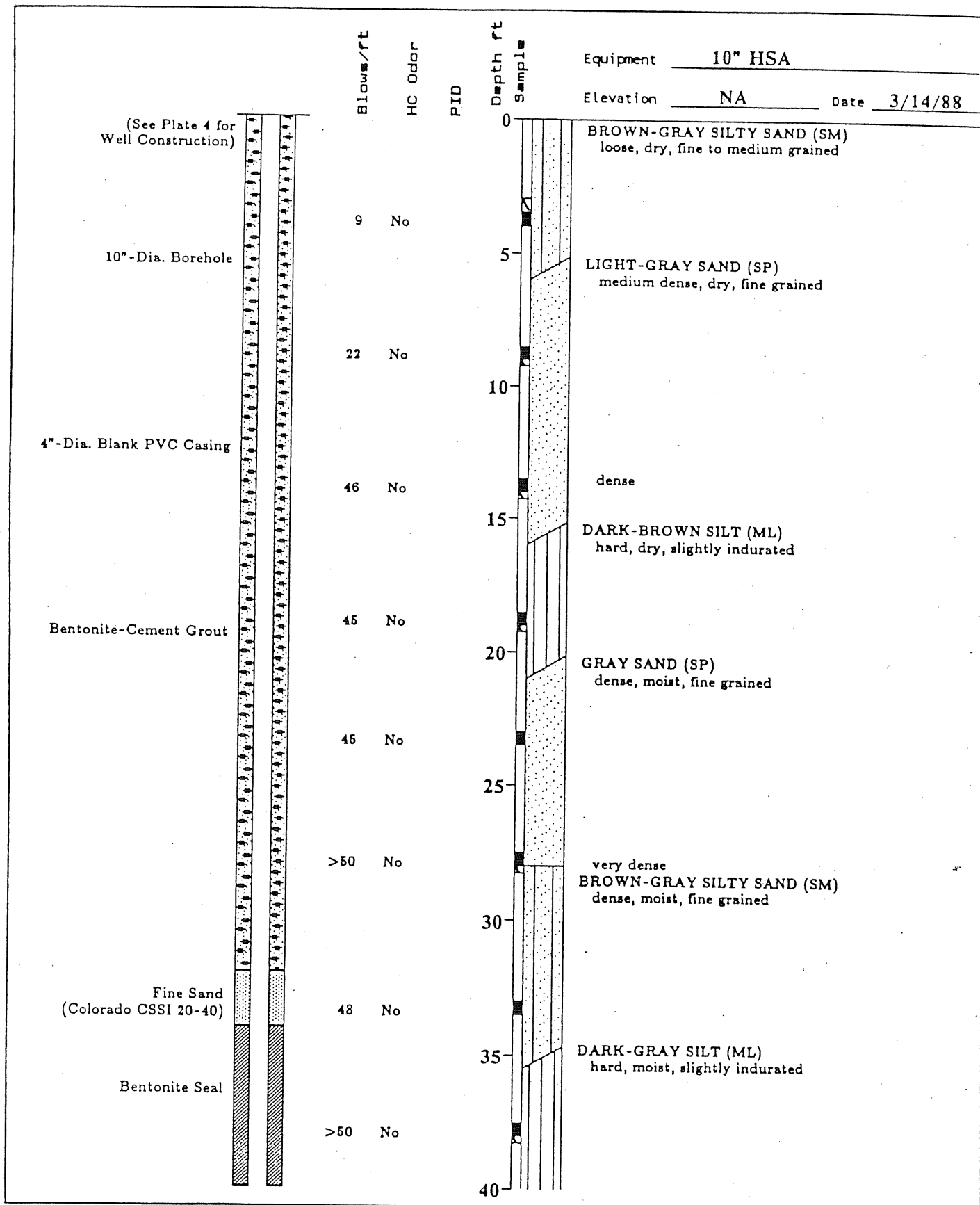
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18132,007.11

APPROVED
CAF

DATE

REVISED

DATE



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Log of Boring DW- 7 (sheet 1 of 2)
Laidlaw Chiquita Canyon
Valencia, California

PLATE

3a

DRAWN
SS

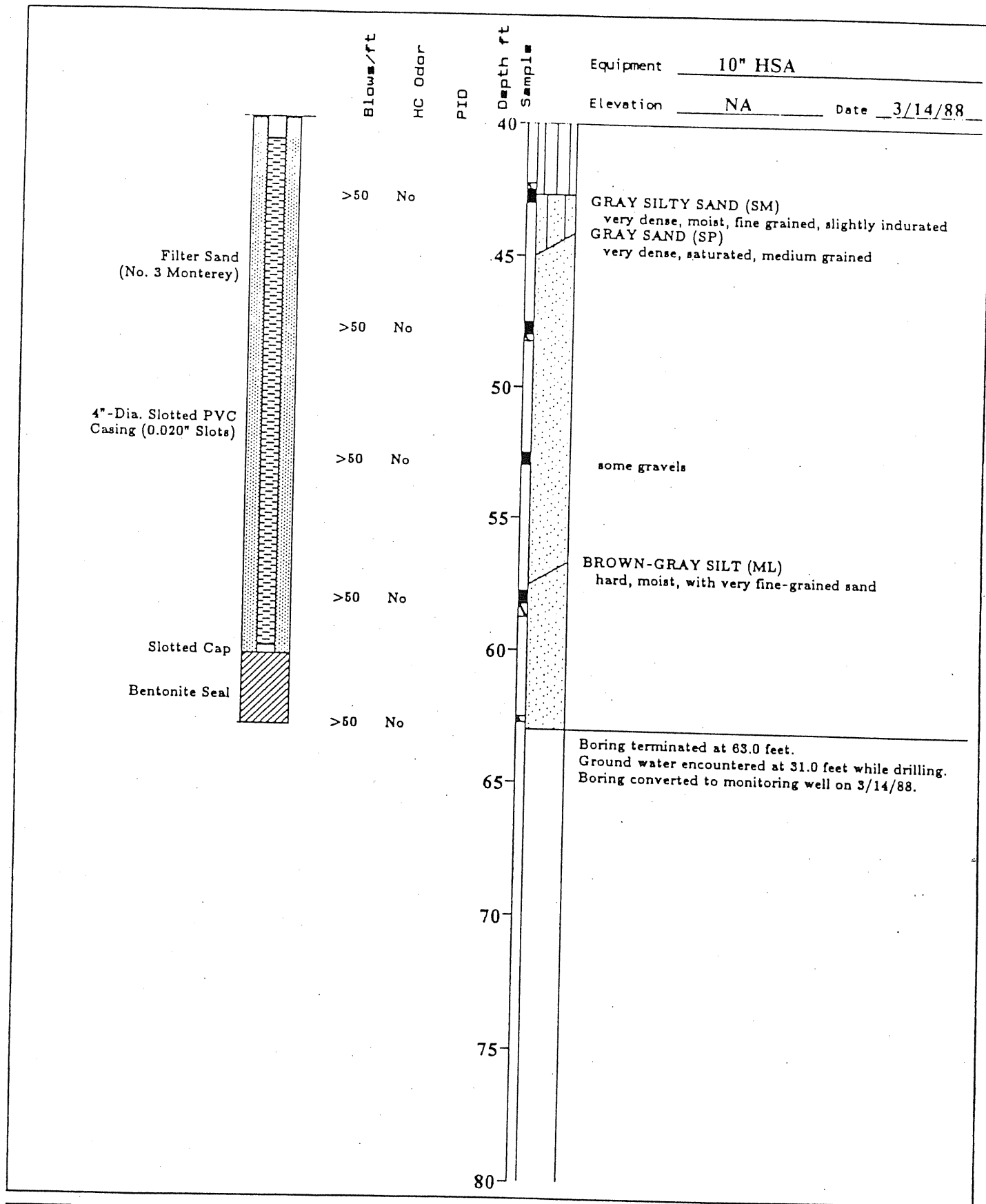
JOB NUMBER
18132,007.11

APPROVED

DATE
4/88

REVISED

DATE



Harding Lawson Associates
 Engineers and Geoscientists

Log of Boring DW- 7 (sheet 2 of 2)
 Laidlaw Chiquita Canyon
 Valencia, California

PLATE

3b

DRAWN
 SS

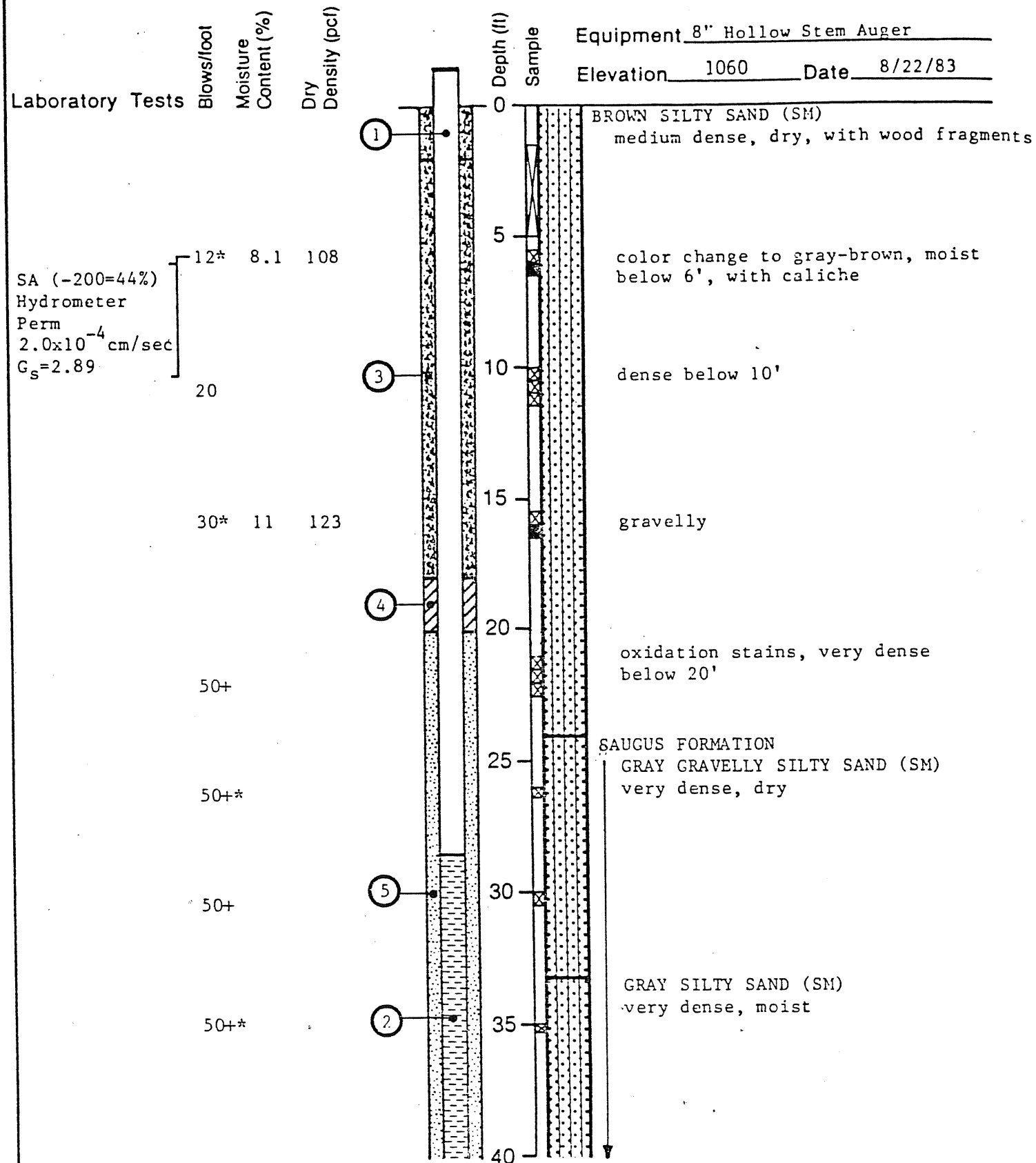
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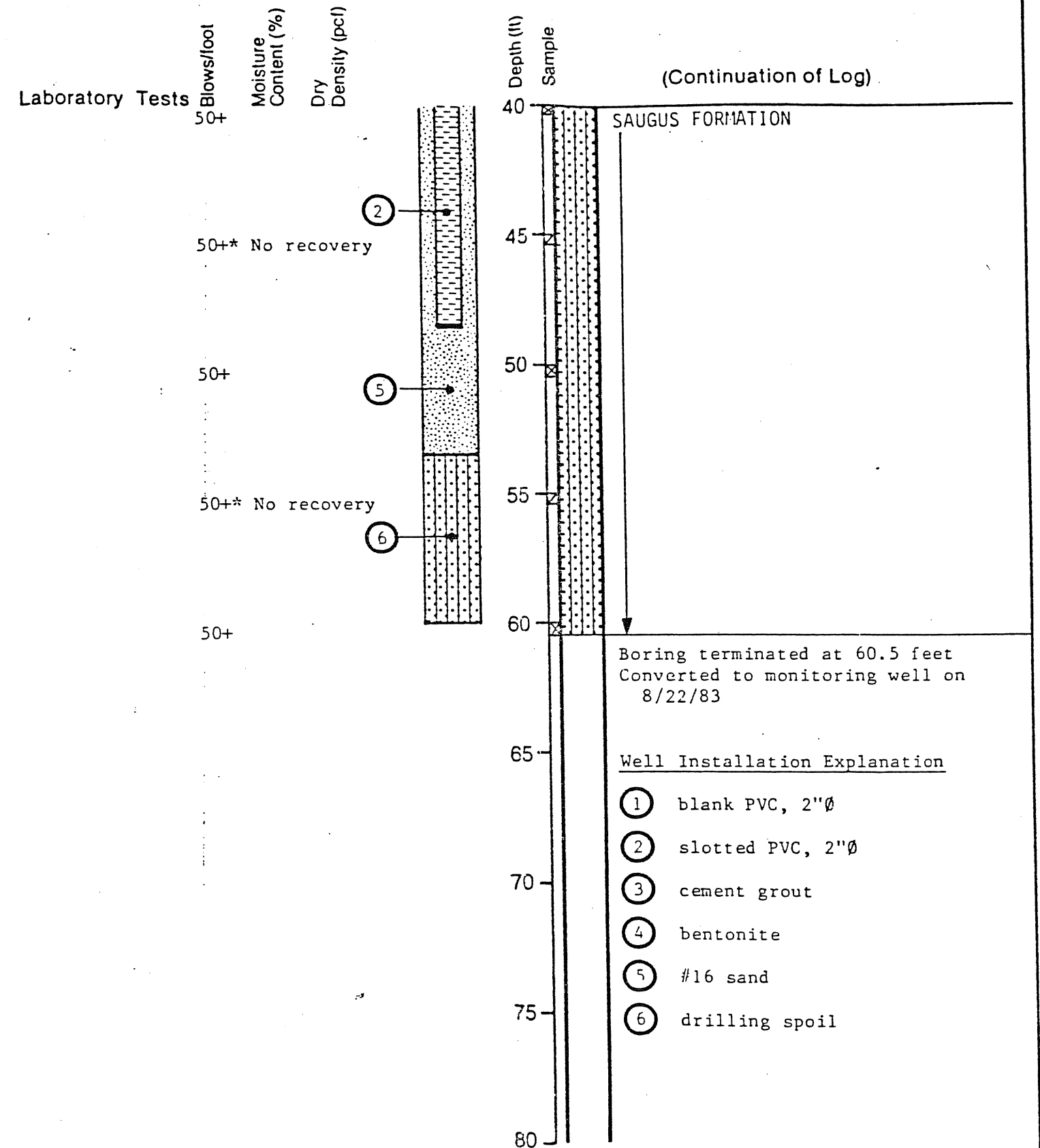
DATE
 4/88

REVISED

DATE



* S & H sample, blow count converted to approximate SPT N-value.



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& Geophysicists

LOG OF BORING A-1
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A2

DRAWN
jb

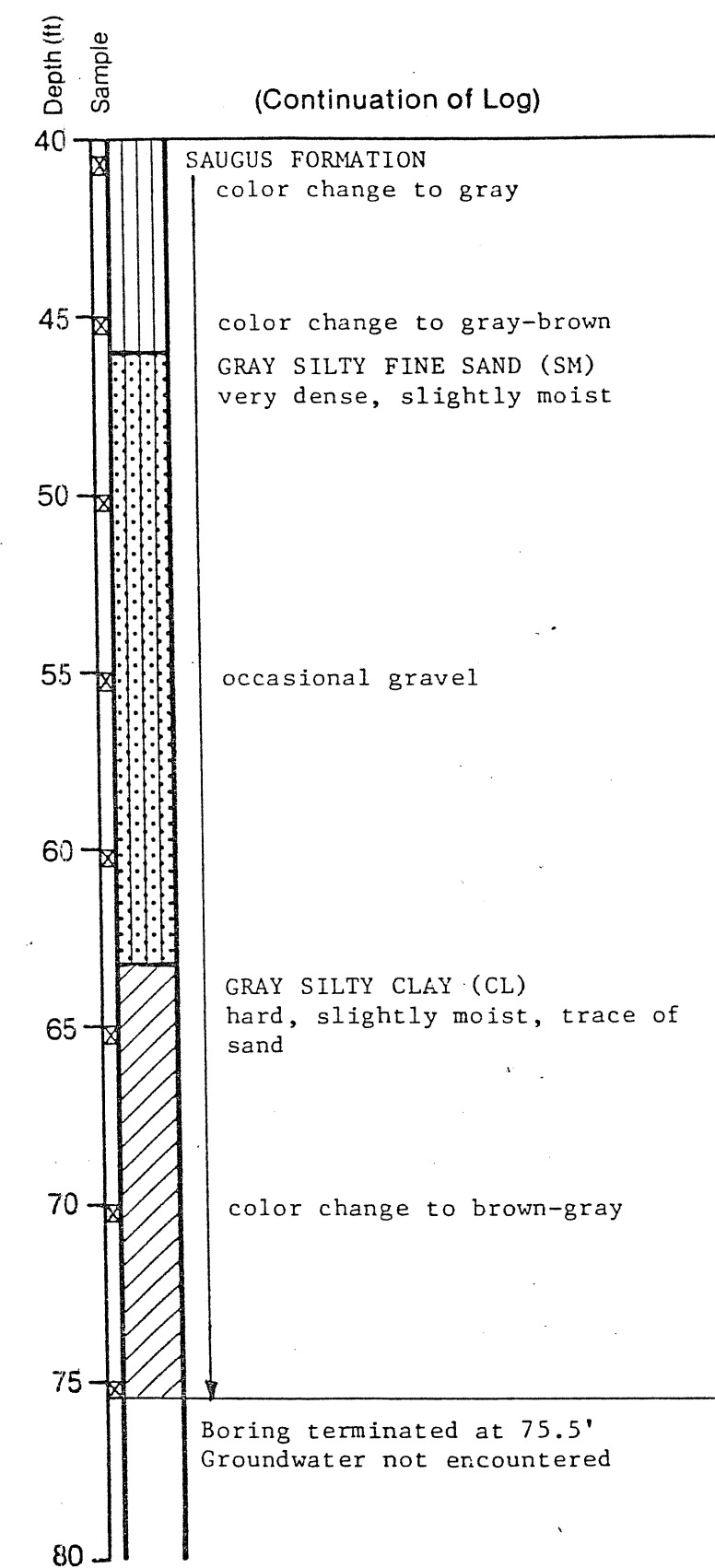
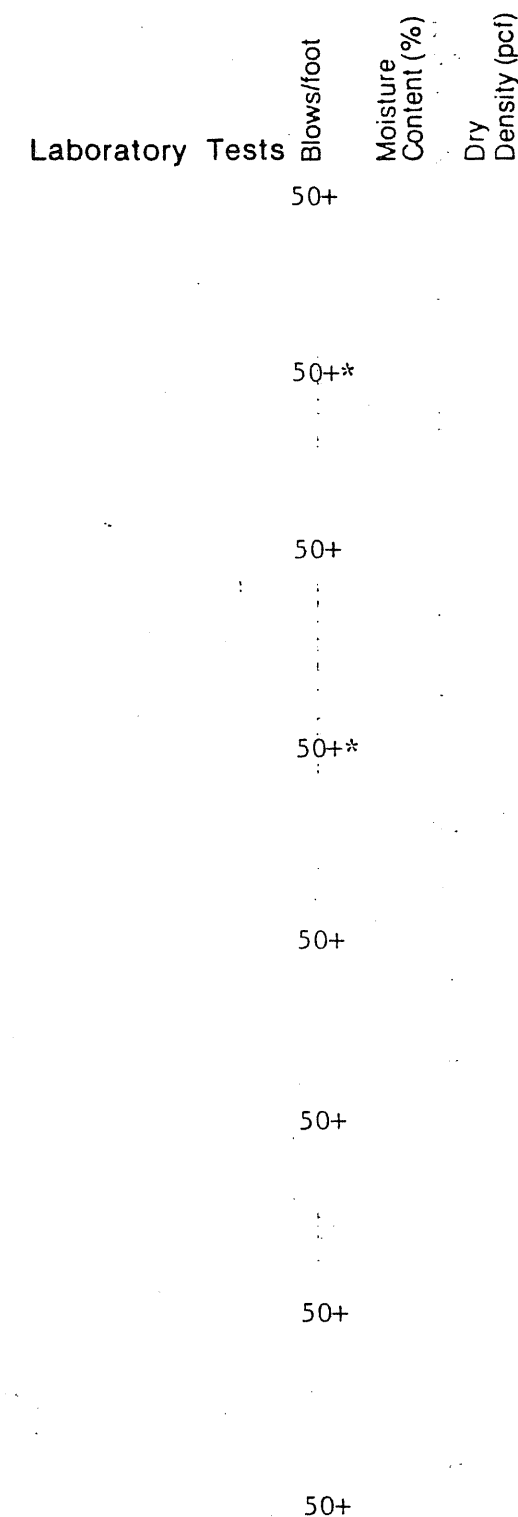
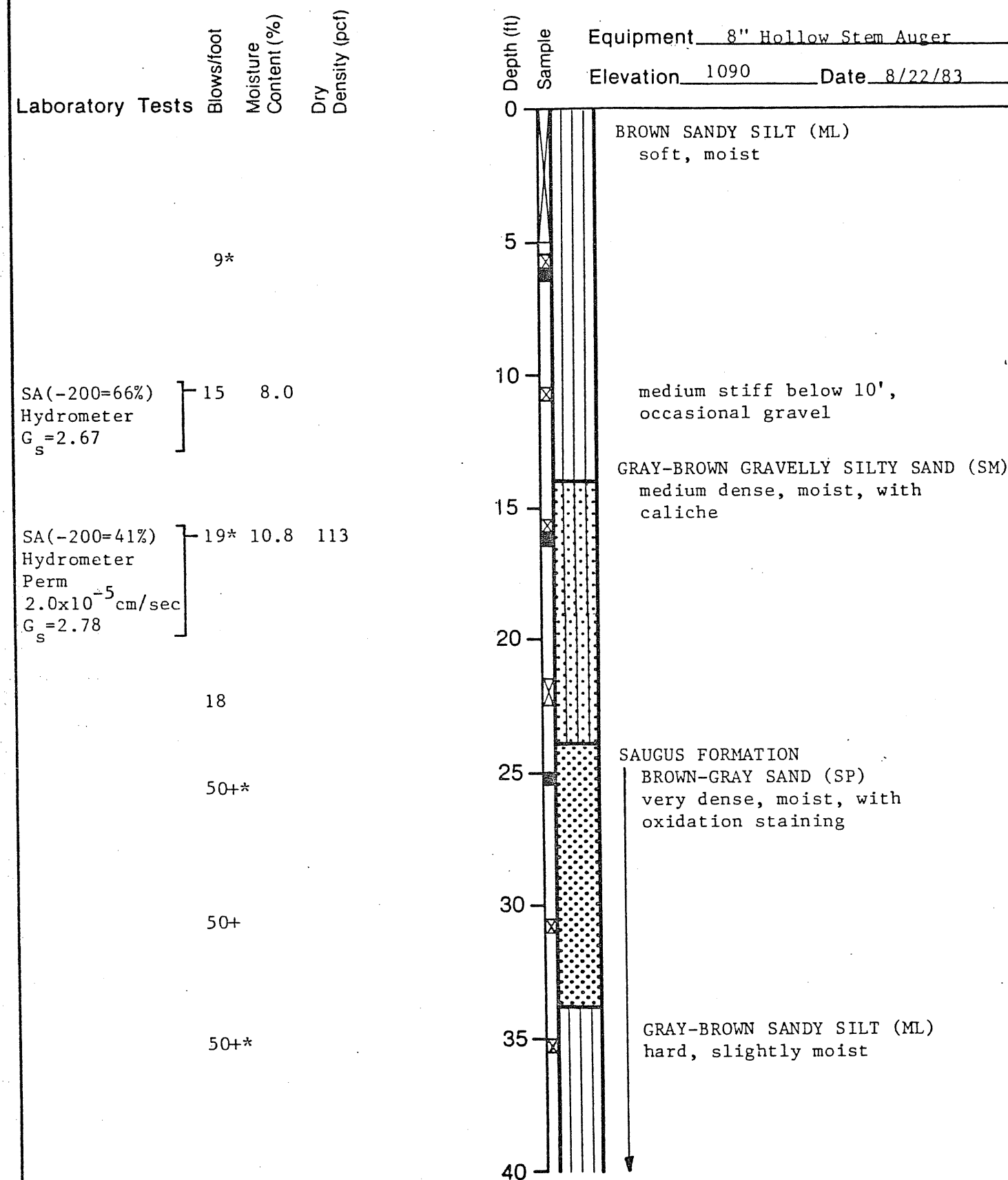
JOB NUMBER
17012,001.11

APPROVED
B.P. /sls

DATE
9/28/83

REVISED

DATE



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Engineers, Geologists
& Geophysicists

LOG OF BORING A-2
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A3

DRAWN
jb

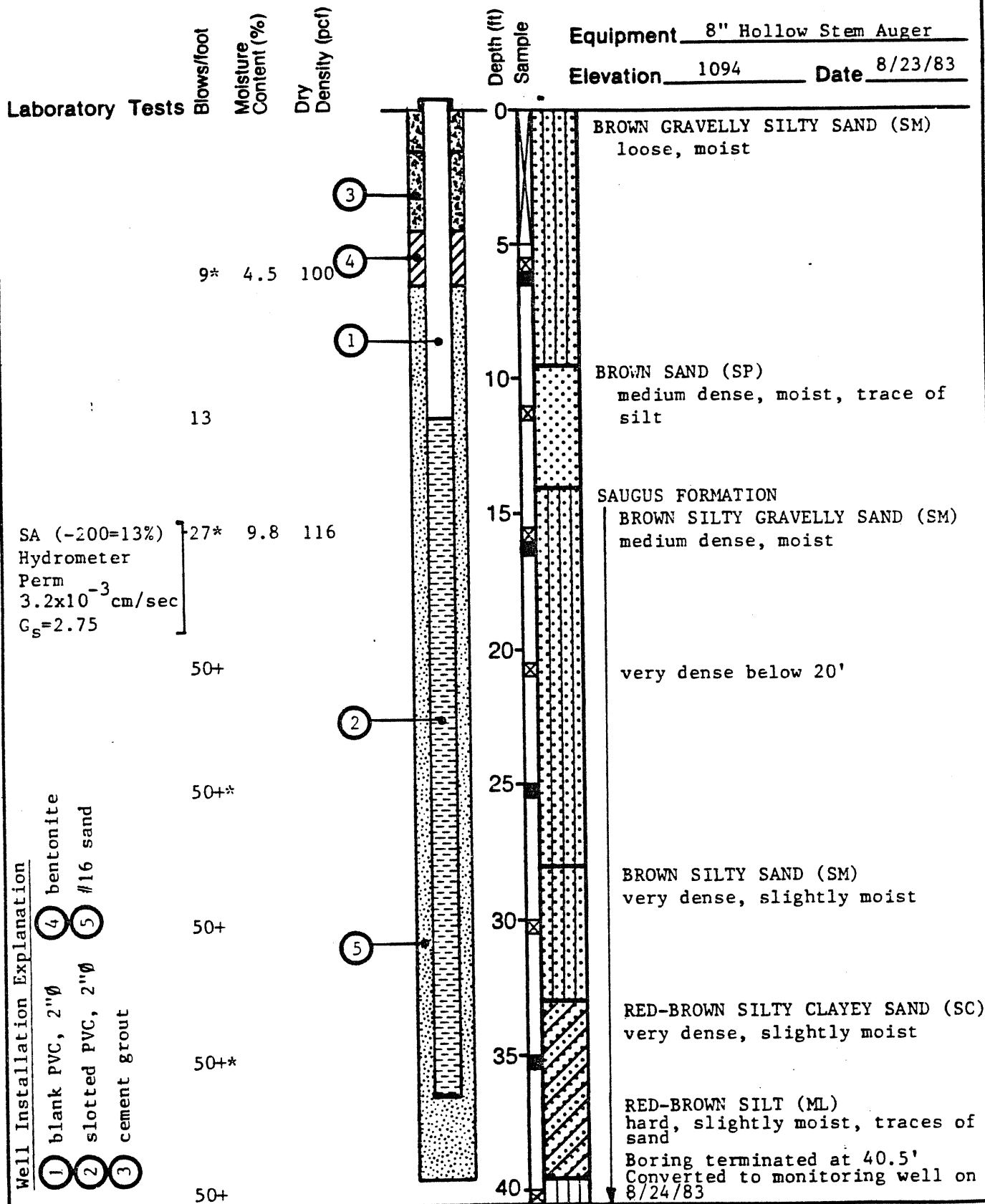
JOB NUMBER
17012,001.11

APPROVED
BSP/bc

DATE
9/28/83

REVISED

DATE



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LOG OF BORING B-1
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A4

DRAWN
jlb

JOB NUMBER
17012,001.11

APPROVED
JLP/sls

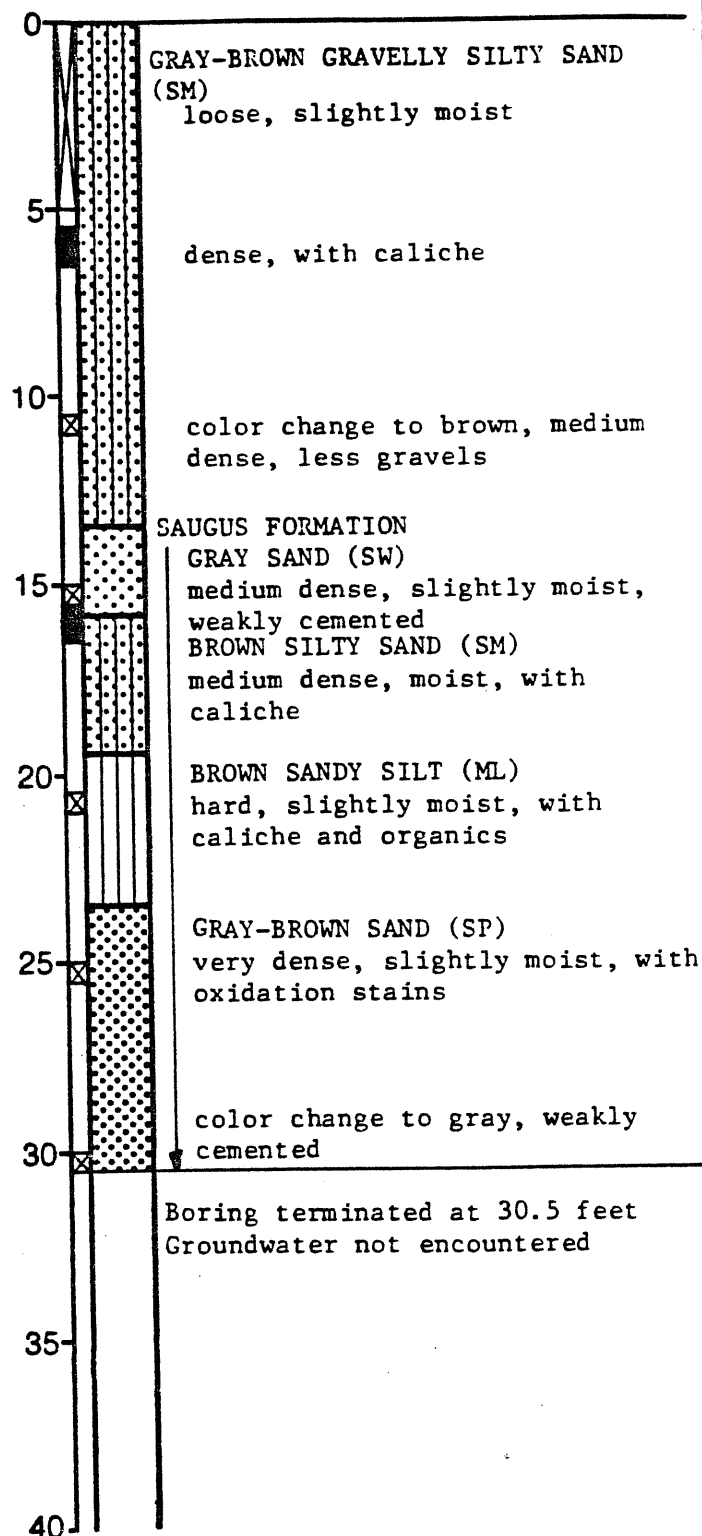
DATE
9/28/83

REVISED

DATE

SA(-200=42%)] -16* 12.0 107
Hydrometer	
Perm	
3.4×10^{-5} cm/sec	
G _s =2.84	

Depth (ft) **Equipment** 8" Hollow Stem Auger
Sample **Elevation** 1118 **Date** 8/23/83



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LOG OF BORING B-2
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A5

DRAWN
ib

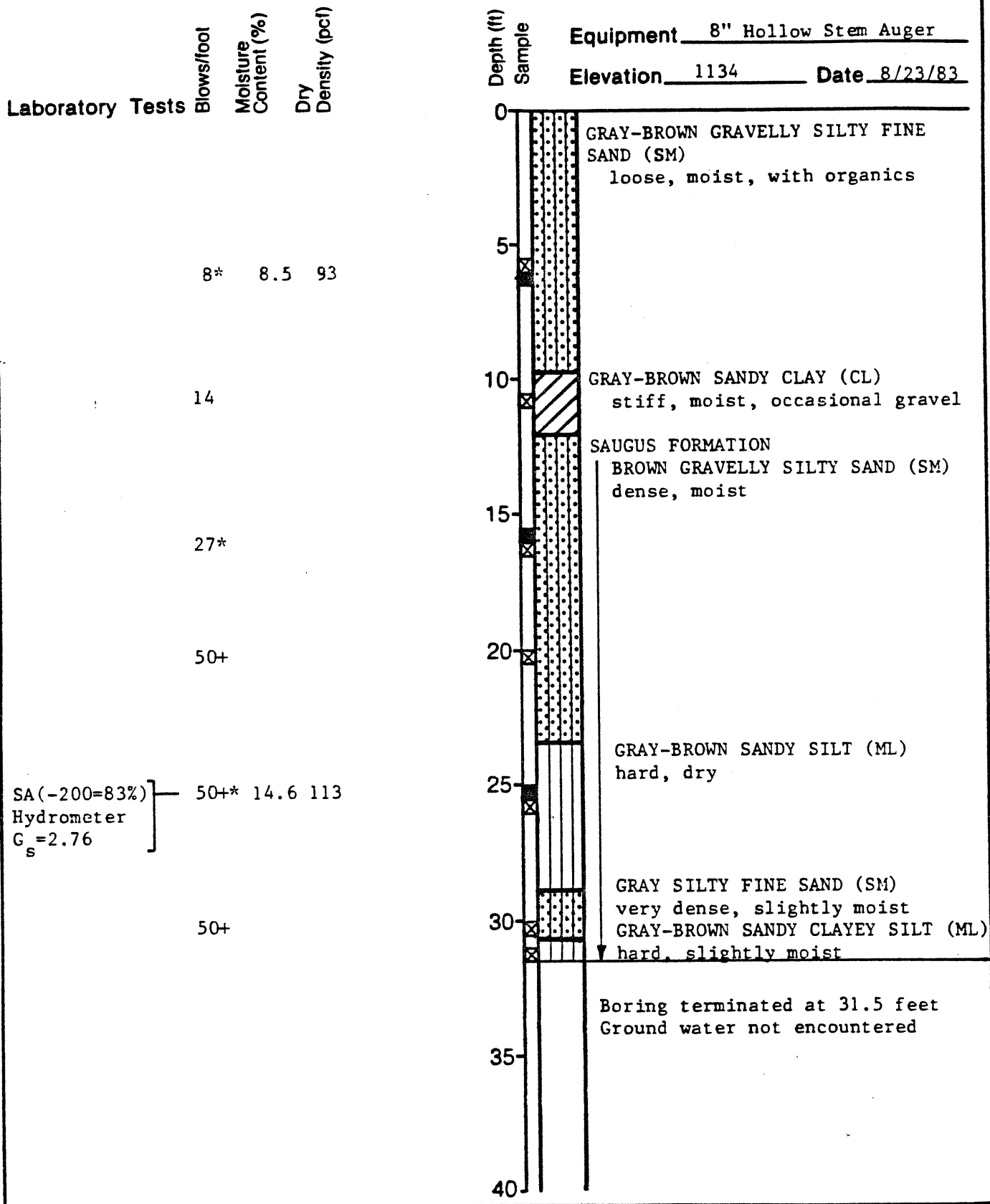
JOB NUMBER
17012,001.11

APPROVED
EWG /bc

DATE
9/28/83

REVISÉ

DATE _____



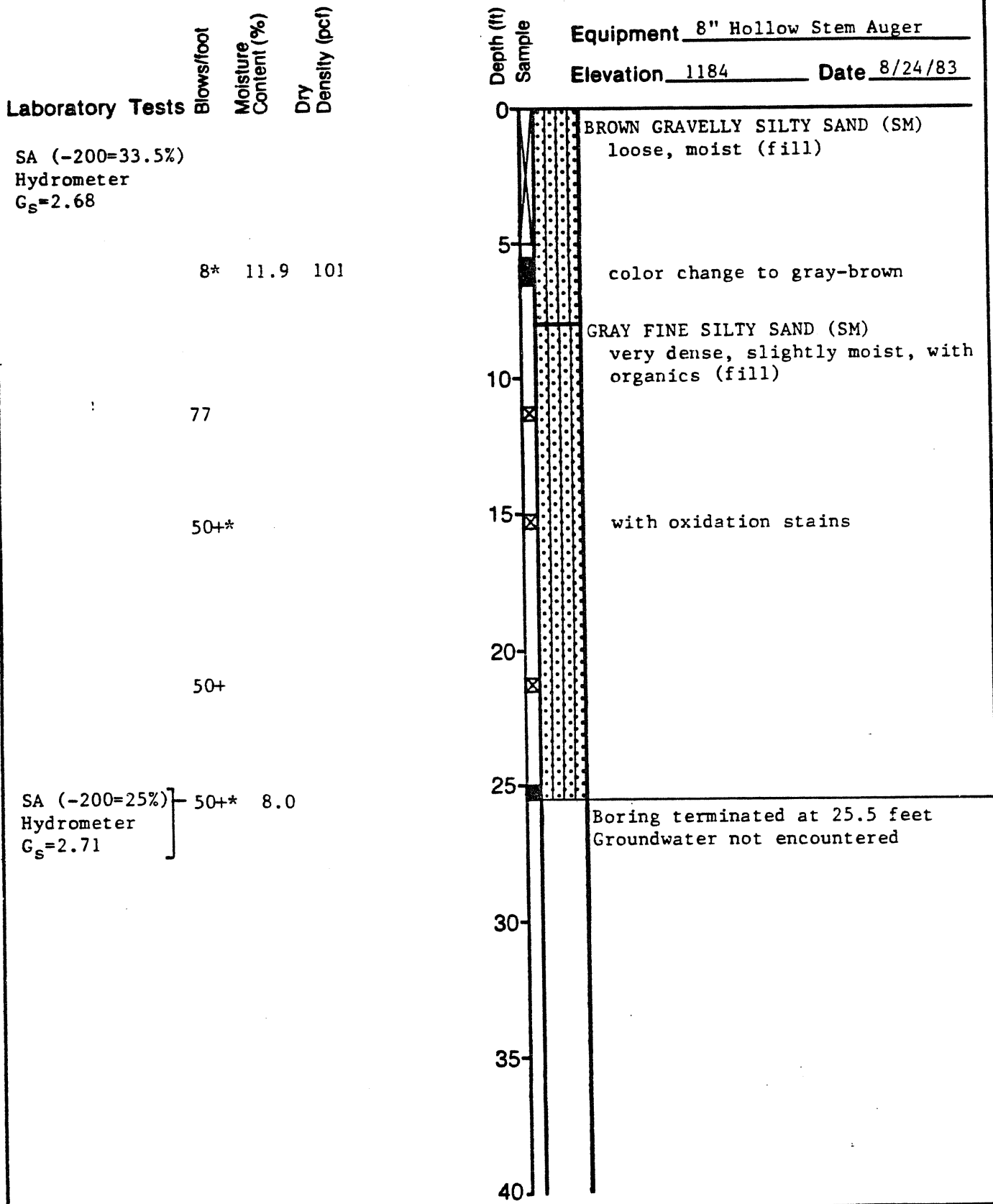
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LOG OF BORING B-3
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
jb	17011.001.11	BUP/bc	9/26/83		



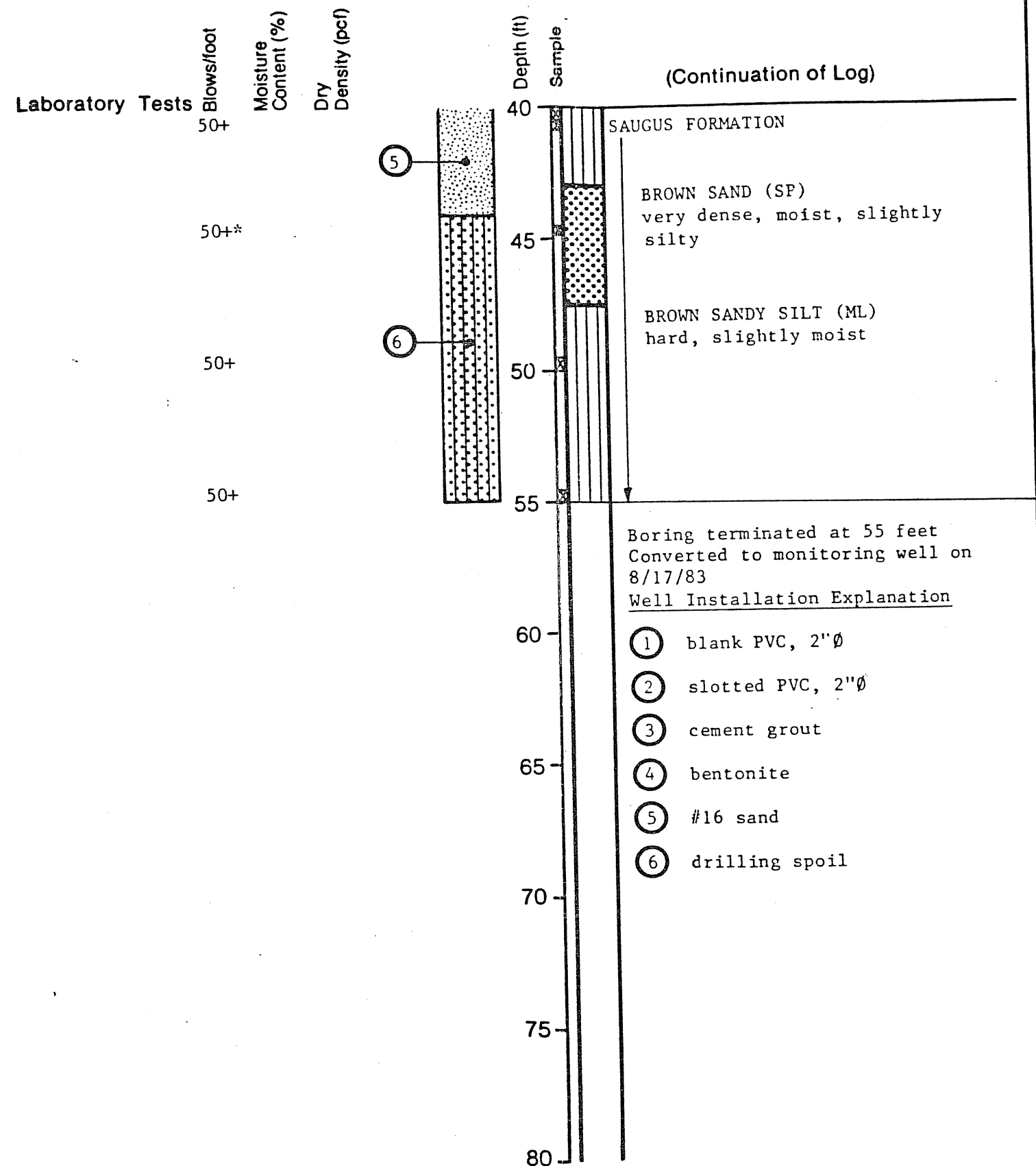
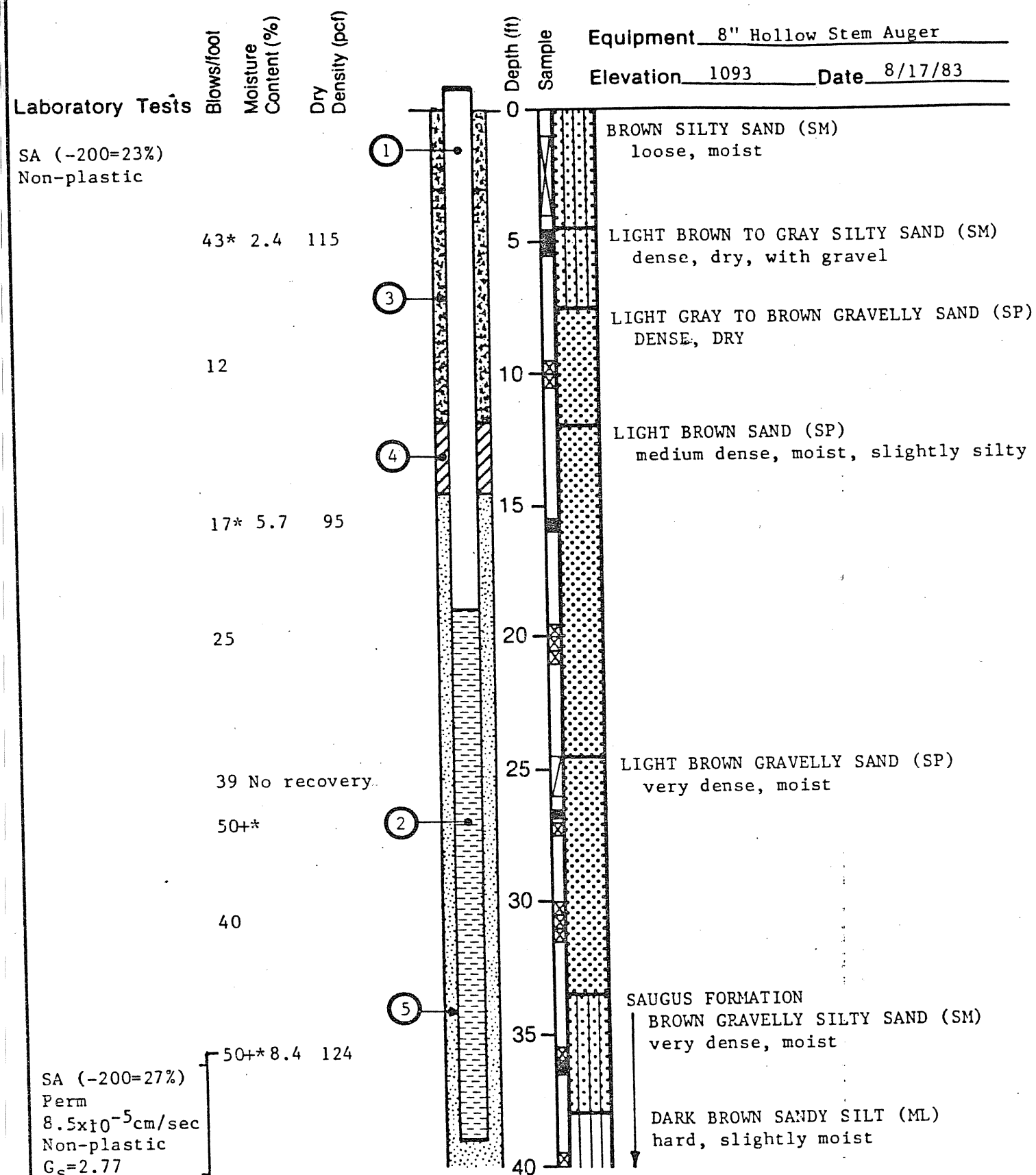
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LOG OF BORING B-4
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
jb	17012,001.11	BWP/sls	9/26/83		



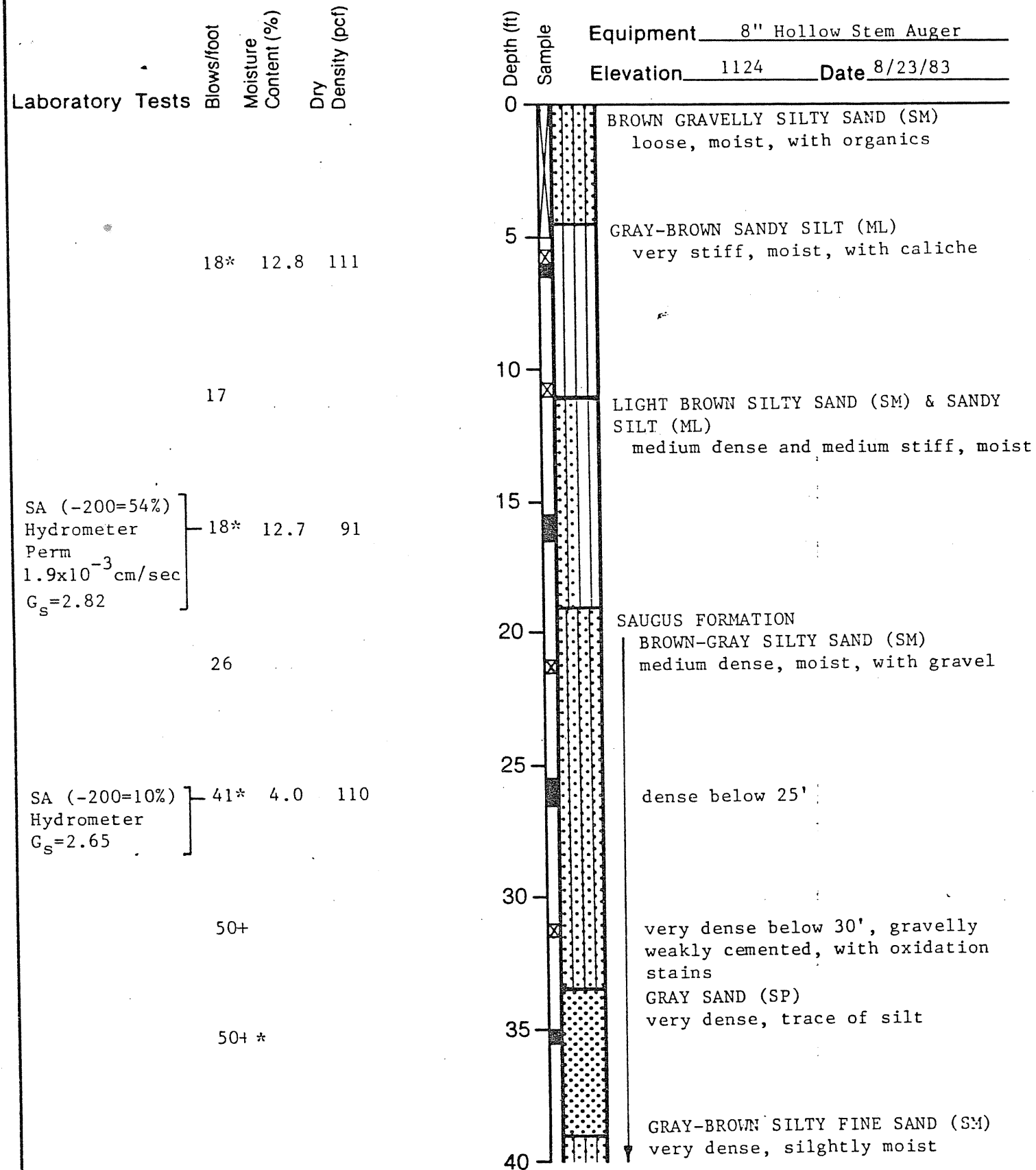
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LOG OF BORING C-1
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A8

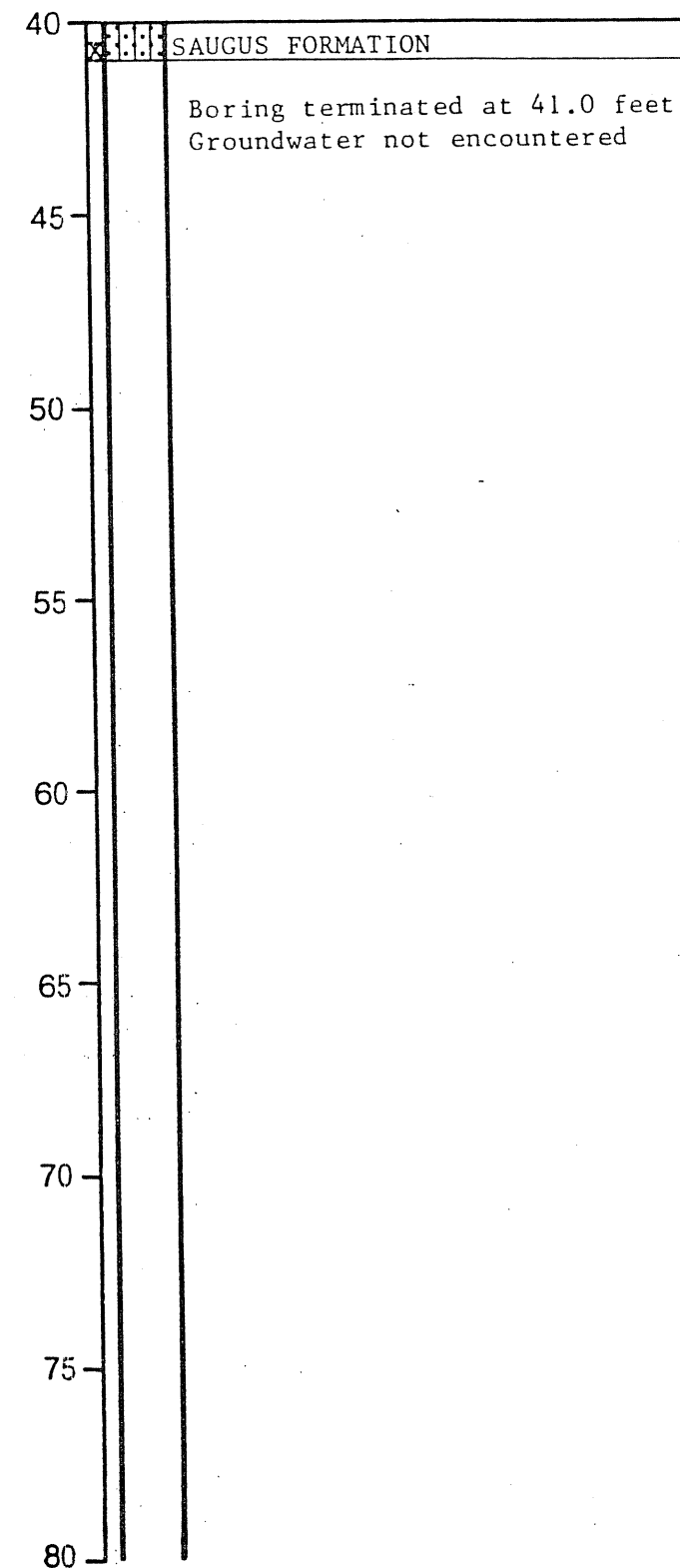
DRAWN jb	JOB NUMBER 17012,001.11	APPROVED BWP/sls	DATE 9/18/83	REVISED	DATE
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Laboratory Tests Blows/foot Moisture Content (%) Dry Density (pcf)

50+

Depth (ft) Sample (Continuation of Log)



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LOG OF BORING C-2
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A9

DRAWN
jb

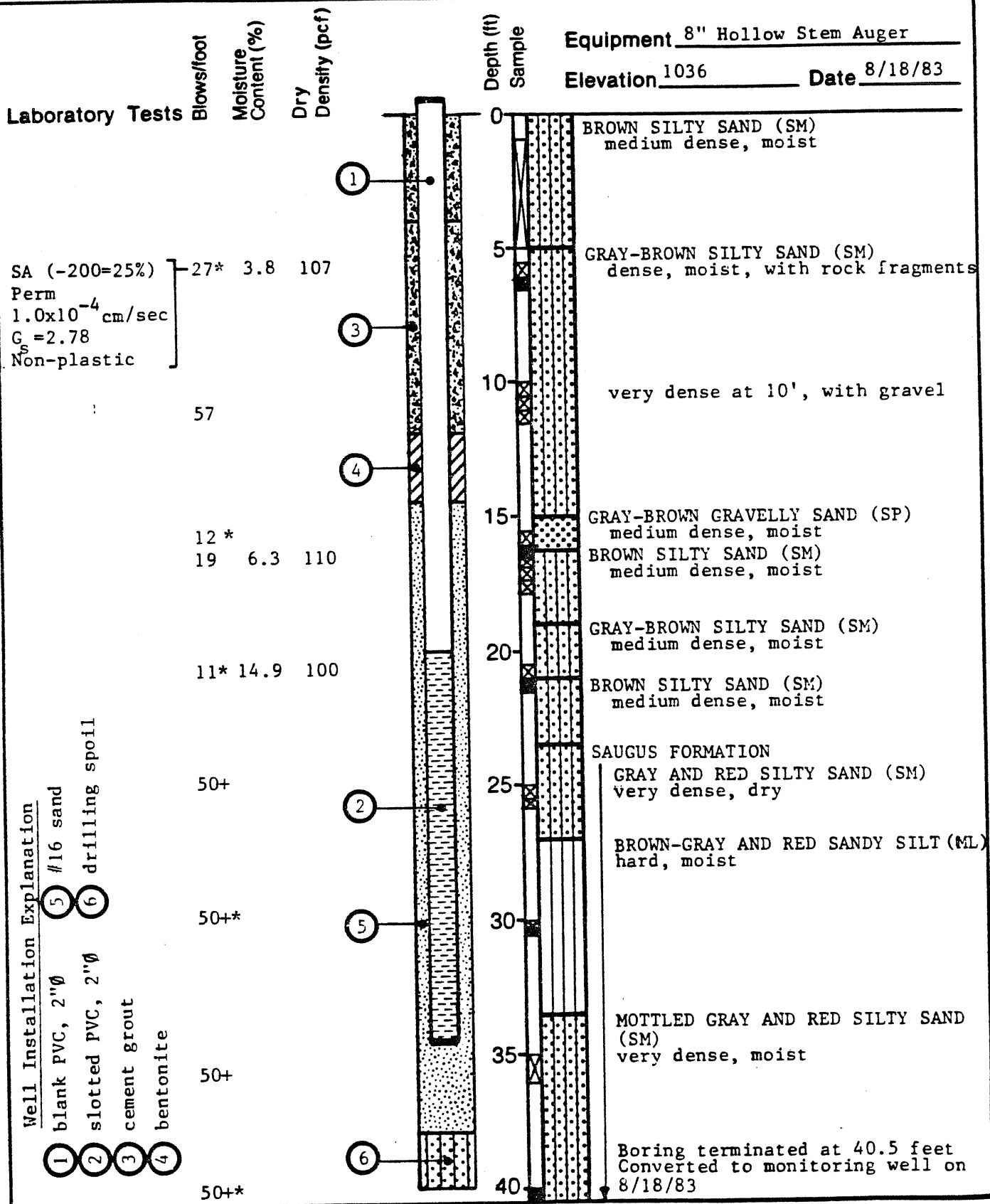
JOB NUMBER
17012,001.11

APPROVED
[Signature] /sls

DATE
9/28/83

REVISED

DATE



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LOG OF BORING D-1
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A10

DRAWN
jb

JOB NUMBER
17012,001.11

APPROVED
BWP/sls

DATE
9/26/83

REVISED

DATE

Laboratory Tests Blows/foot Moisture Content (%) Dry Density (pcf)

12* 4.8 94

22

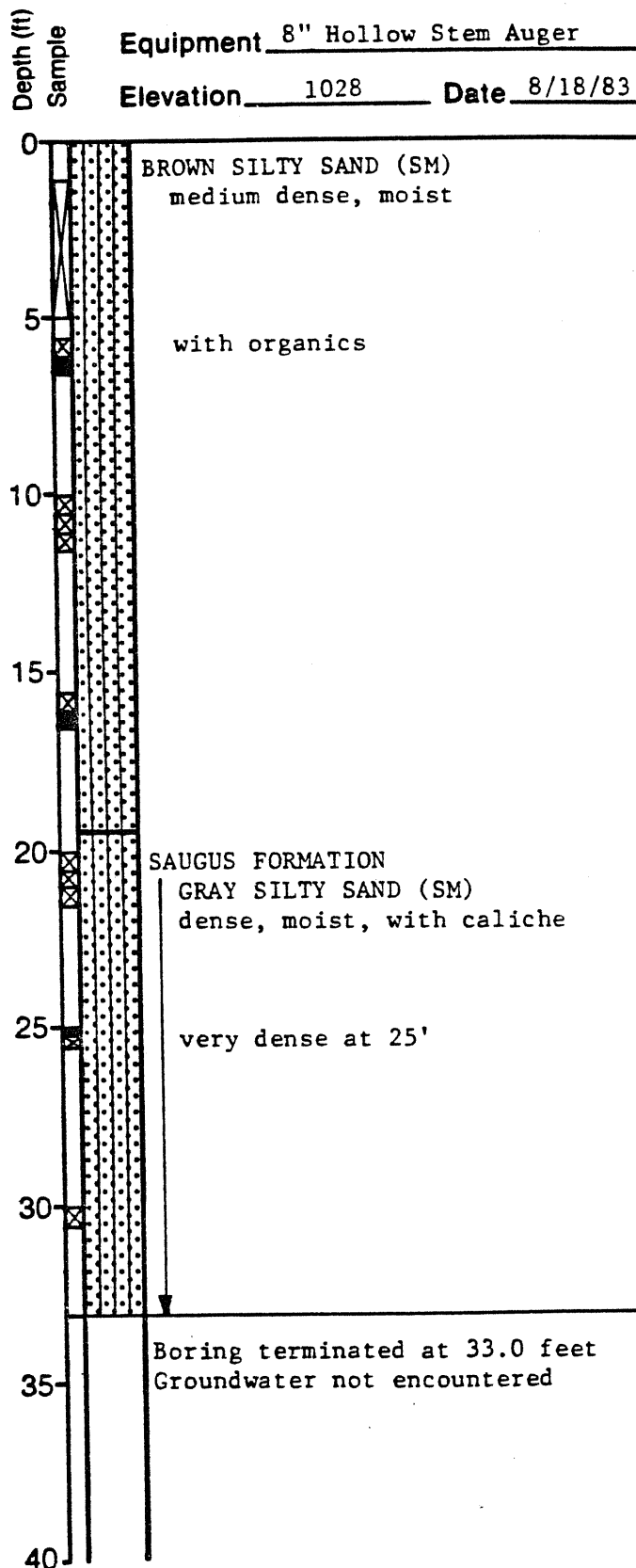
SA(-200=42%
Perm
 3.1×10^{-5} cm/sec
G = 2.70
Non-plastic

22* 6.7 120

39

50+*

50+



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& Geophysicists

LOG OF BORING D-2
Chiquita Canyon Landfill Expansion
Saugus, California

PLATE

A11

DRAWN
jb

JOB NUMBER
17012.001.11

APPROVED
BWP/bc

DATE
9/28/83

REVISED

DATE

6"Ø Protective Steel Casing

Cap
Centralizer
Cement Plug

2"Ø Blank PVC Casing

Bentonite

Cap

Natural Formation Plug

Depth (ft)
Sample

LOG OF BORING N-1

Equipment 8" Hollow-stem Auger

Elevation¹ 1135' Date 10-22-85

0

GRAY GRAVELLY SILT (ML)
dry, with sand

5

moist at 9.0'

10

15

Boring terminated at 12.0 feet.
Ground water not encountered.
Boring converted into neutron
access hole on 10-22-85.

6"Ø Protective Steel Casing

Cap
Centralizer
Cement Plug
Bentonite Seal

2"Ø Blank PVC Casing

Silica Sand
(#12)

Cap

Natural Formation Plug

Depth (ft)
Sample

LOG OF BORING N-2

Equipment 8" Hollow-stem Auger

Elevation¹ 1104' Date 10-22-85

0

BROWN SILTY SAND (SM)
dry, with gravel

5

10

15

Boring terminated at 12.0 feet.
Ground water not encountered.
Boring converted into neutron
access hole on 10-22-85.

Note:

1. Ground surface elevation,
Mean Sea Level datum



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LOG OF BORING N-1 & N-2
GSX- Chiquita Canyon Landfill
Monitoring Plan Implementation
Saugus, California

PLATE

B2

DRAWN
tl

JOB NUMBER
17012,006.11

APPROVED
Am /ac

DATE
4-15-86

REVISED

DATE

6"Ø Protective Steel Casing

Cap
Centralizer
Cement Plug
Bentonite Seal

2"Ø Blank PVC Casing

Natural Formation

Cap

Depth (ft)
Sample

LOG OF BORING N-3

Equipment 8" Hollow-stem Auger

Elevation 1093' Date 10-22-85

0

BROWN GRAVELLY SAND (SP)
moist, with silt

5

10

15

Boring terminated at 15.0 feet.
Ground water not encountered.
Boring converted into neutron
access hole on 10-22-85.

Note:

1. Ground surface elevation,
Mean Sea Level datum



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LOG OF BORING N-3
GSX- Chiquita Canyon Landfill
Monitoring Plan Implementation
Saugus, California

PLATE

B3

DRAWN
tl

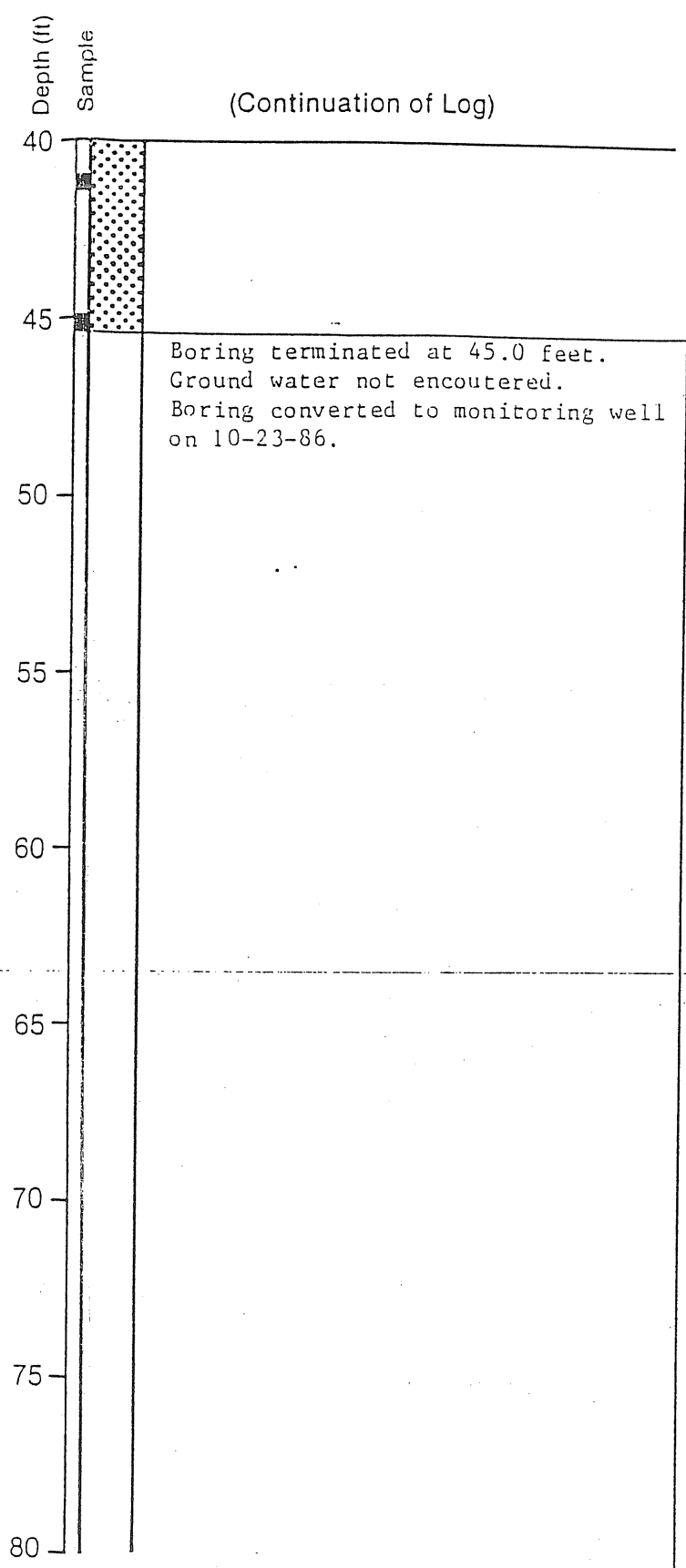
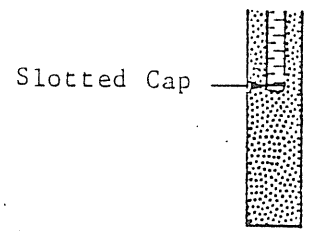
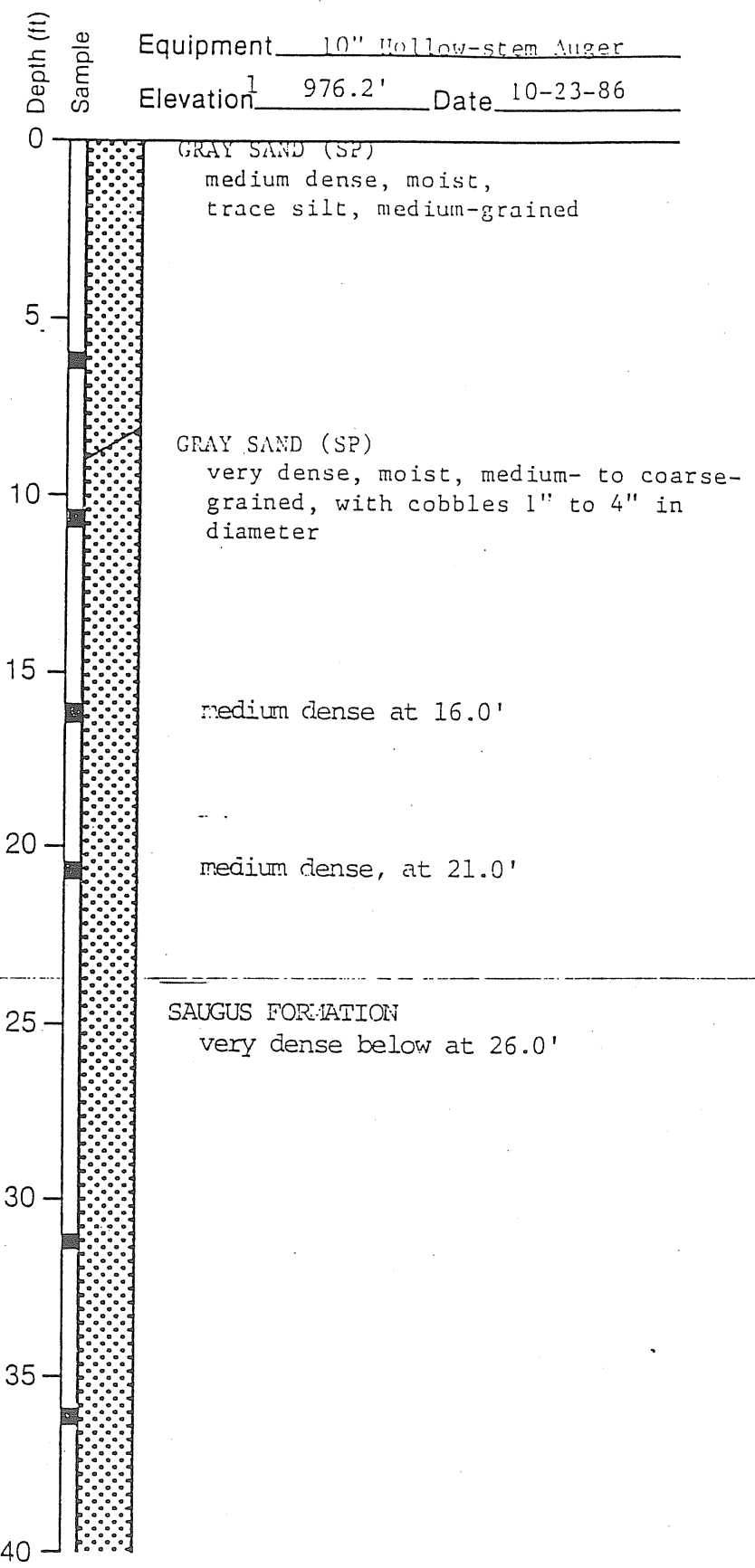
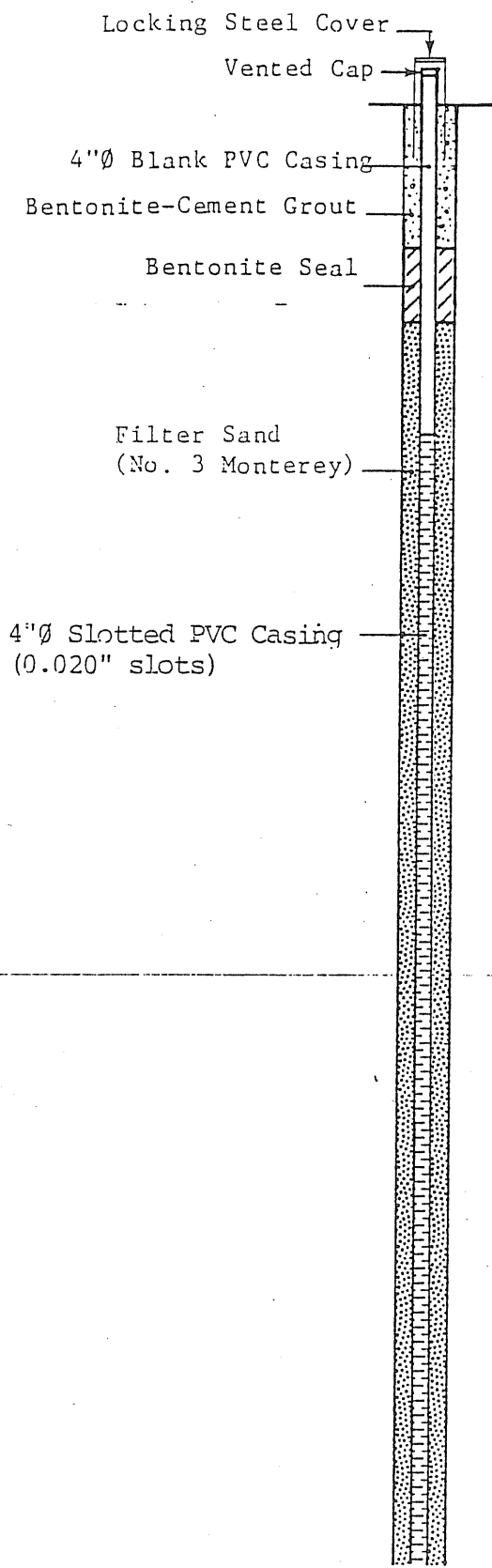
JOB NUMBER
17012,006.11

APPROVED
fmb/lac

DATE
4-15-86

REVISED

DATE



Note:

1. Top of casing elevation, Mean Sea Level datum



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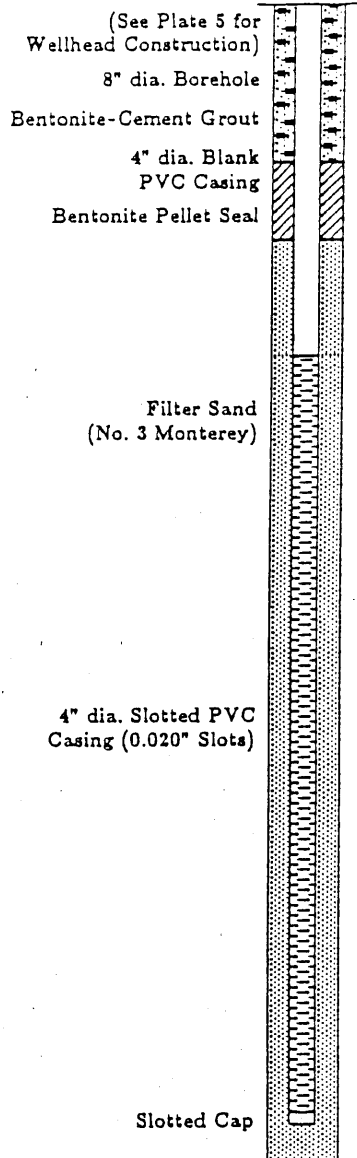
LOG OF BORING SW-1
 GSX-Chiquita Canyon Landfill
 Monitoring Plan Implementation
 Saugus, California

PLATE
C2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
tl	17012,006.11	<i>[Signature]</i> /ac	4-15-86		

88411/1

Top of Casing 1019 ft (est)



Depth ft
Sample

Equipment Mobil B-50
Elevation 1018 ft (est) Date 4/12/89

0
5
10
15
20
25
30
35
40

Note: Boring RD-1, and subsequent monitoring well installation, was drilled and completed to replace Alluvial Monitoring Well D-1, which was grouted and abandoned during construction of the Canyon D liner and leachate collection and removal system.

BROWN SAND (SP)
moist, fine grained, with minor silt

color change to light brown, fine to coarse grained, with angular rock fragments (mostly quartzite)

with interbedded sand and gravel

with interbedded sand and gravel

with interbedded sand and gravel

Boring terminated at 30.0 feet.
Ground water not encountered during drilling.
Boring converted to monitoring well on 4/12/89.



Harding Lawson Associates
Engineers and Geoscientists

Log of Boring/Well RD- 1 (sheet 1 of 1)
Chiquita Canyon D Monitoring Well Installation
Valencia, California

PLATE

4

DRAWN
HK

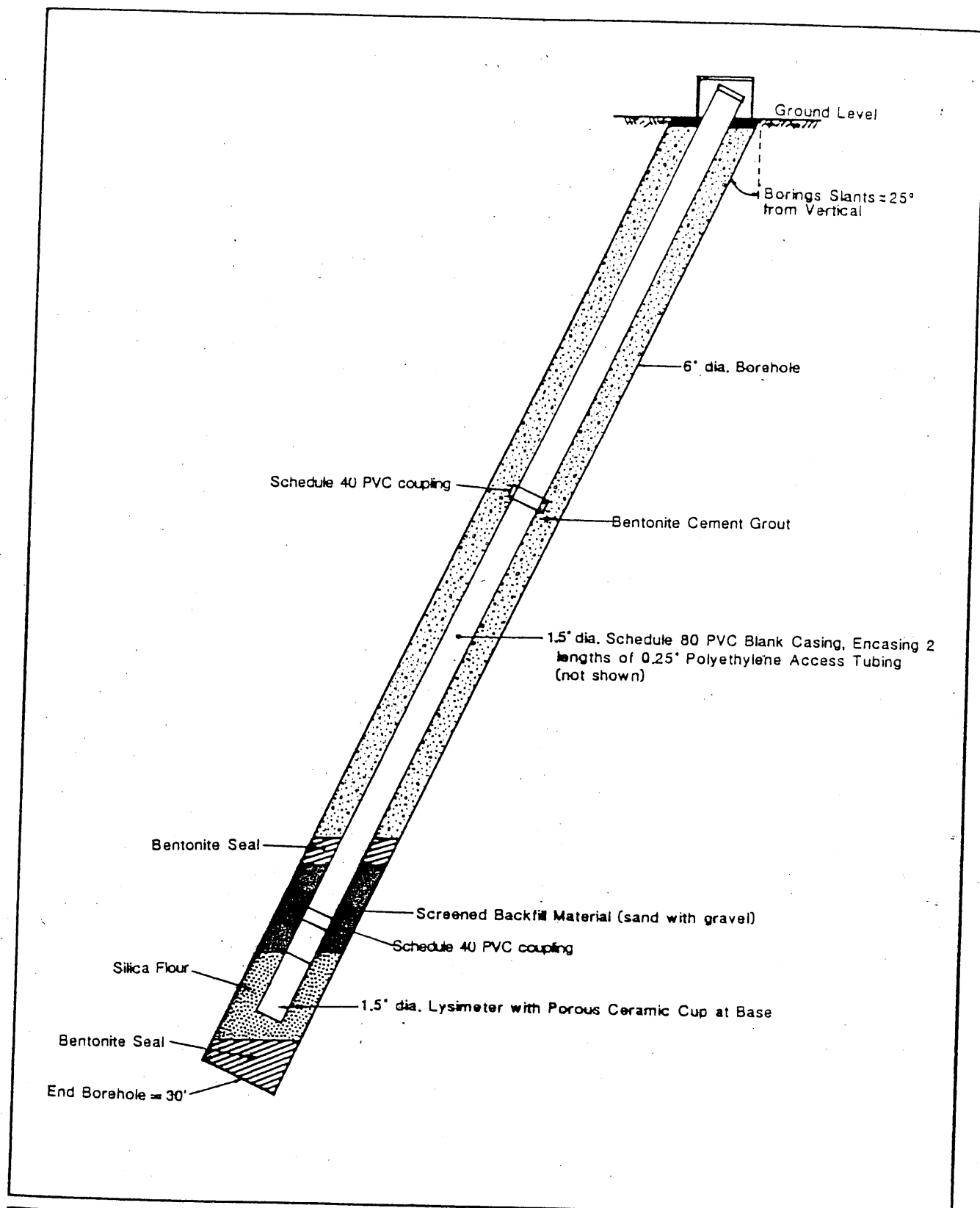
JOB NUMBER
18132,020.11

APPROVED
ad

DATE
8/89

REVISED

DATE



Harding Lawson Associates
Engineers, Geologists
& Geophysicists

LYSIMETER INSTALLATIONS L-1, L-2 and L-3 PLATE
Chiquita Canyon D
Laidlaw Waste Systems, Inc.
Valencia, California

9

DRAWN
jb

JOB NUMBER
18132,020.11

APPROVED
am

DATE
8/89

REVISED

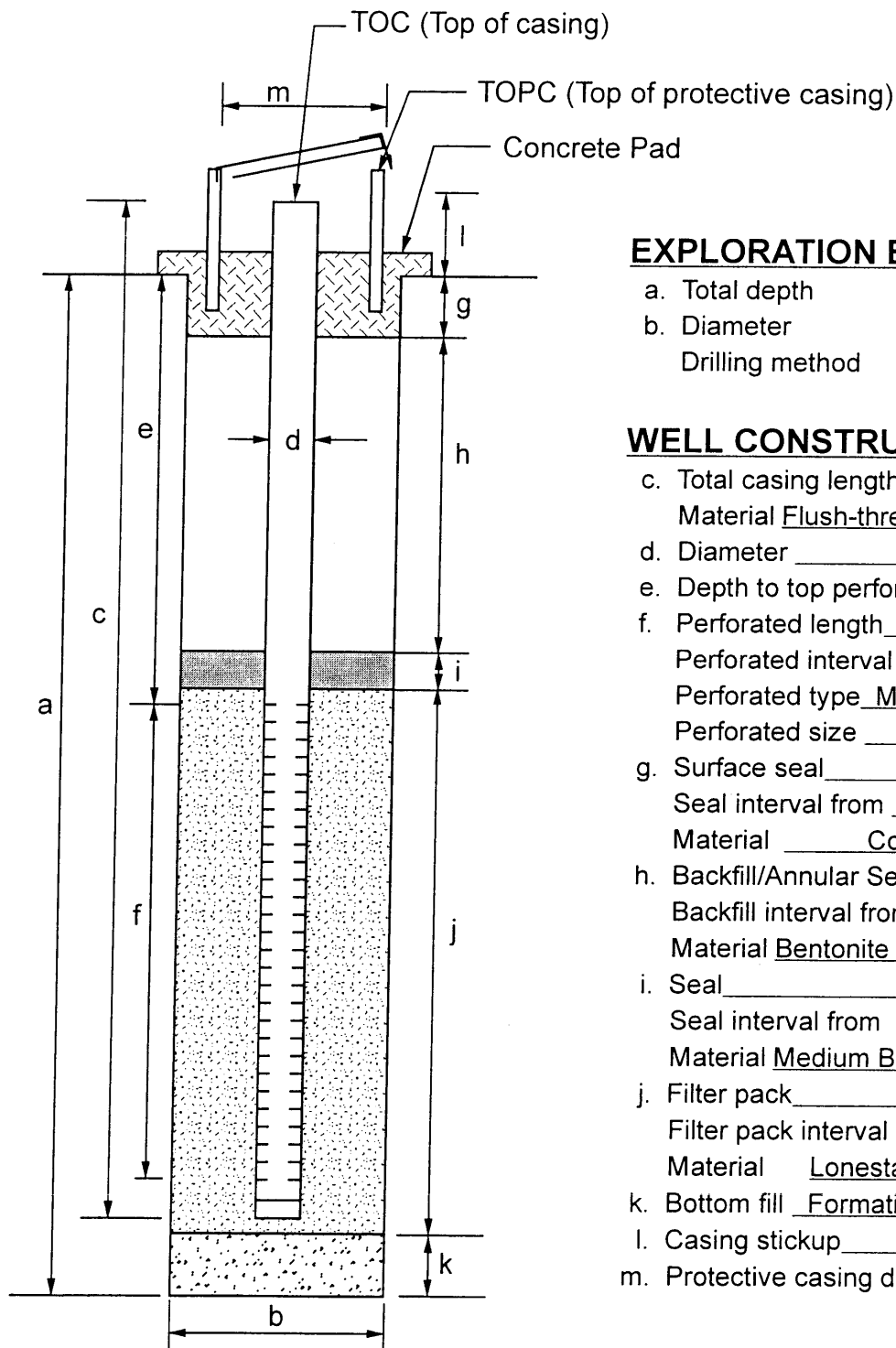
DATE

DW-15 AS BUILT WELL CONSTRUCTION

PROJECT NUMBER: 2002-036-90
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC/THF Drilling, Inc.
 INSTALLATION DATE 9-17-02

TOP OF PROTECTIVE CASING ELEV.: 1105.35
 TOP OF CASING ELEV.: 1104.56
 CONCRETE PAD SURFACE ELEV.: 1102.45
 DATUM: Mean Sea Level

NORTHING: 1979222.96 EASTING: 6367017.86



EXPLORATION BORING

a. Total depth 165 ft.
 b. Diameter 10 in.
 Drilling method Air Rotary

WELL CONSTRUCTION

c. Total casing length 165.08 ft.
 Material Flush-threaded Schedule 40 PVC.
 d. Diameter 4 in.
 e. Depth to top perforations 132.1 ft.
 f. Perforated length 29.59 ft.
 Perforated interval from 132.38 to 161.97 ft.
 Perforated type Machine-slotted
 Perforated size 0.020-inch.
 g. Surface seal 2 ft.
 Seal interval from 0 to 2 ft.
 Material Concrete.
 h. Backfill/Annular Seal 119 ft.
 Backfill interval from 2 to 121 ft.
 Material Bentonite Cement Grout.
 i. Seal 5.8 ft.
 Seal interval from 121 to 126.8 ft.
 Material Medium Bentonite Chips.
 j. Filter pack 36.7 ft.
 Filter pack interval from 126.8 to 163.5 ft.
 Material Lonestar #2/12.
 k. Bottom fill Formation.
 l. Casing stickup 2.58 ft.
 m. Protective casing diameter 10 3/4 in.

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

				BORING DW-15	
DATE & TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE	JOB NUMBER: 2002-036-90 DATE DRILLED: 9/16/02 - 9/17/02 EQUIPMENT USED: Dresser TH75W ELEVATION: 1102 feet - MSL SURFACE CONDITIONS: Graded road NORTHING: 1979222.96 EASTING: 6367017.86 BY: P. Chang	
9/16/02 12:05			ML	0-5.5 feet: ARTIFICIAL FILL (af)	
				@ 0 feet: SANDY SILT - mostly silt, dry to moist, grayish yellow (5Y 8/4)	
	0-5	5	SM	@ 3 feet: SILTY SAND - mostly fine sand, some silt, little gravel, light olive gray (10Y 5/4)	
12:31 12:38				5.5-165 feet: SAUGUS FORMATION (QTs)	
				@ 5.5 feet: SANDY SILTSTONE - mostly silt, some fine sand, damp, light olive brown (5Y 5/6)	
	5-10	10		<div style="border: 1px solid black; padding: 5px;"> Drilling 10 inch hole with 9-5/8 inch tricone bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method. </div>	
				@ 10 feet: more clayey	
	10-15	15		@ 14 feet: drive casing advances very slowly	
13:05 13:15				@ 14.5 feet: SILTY SANDSTONE: mostly fine to medium sand, some silt, little coarse sand and gravel, damp, dense, dusky yellow (5Y 6/4)	
	15-20	20		<div style="border: 1px solid black; padding: 5px;"> Set temporary drive casing shoe at 15.85 feet, then drill 10 inch open hole using 9-5/8 inch tricone bit and direct air rotary drilling method. </div>	
				@ 20 feet: moderate olive brown (5Y 4/4), slightly more silty	
	20-25	25		@ 21 feet: moderate yellowish brown (10YR 5/4), more fine to medium sand, less silt	
13:20 13:23					
	25-30	30			
				@ 31.5 feet: SILTSTONE - mostly silt, little clay and fine to medium sand, finely laminated, damp, moderately hard, dusky yellow (5Y 6/4)	
13:35 13:39				@ 36 feet: moderate yellowish brown (10YR 5/4), slightly more clayey, hard	
	30-35	35		@ 36.5 feet: SILTY SANDSTONE - mostly fine sand, some medium to coarse sand, some silt, little gravel, damp, moderately hard, yellowish gray (5Y 7/2)	
	35-40	40			

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-15 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/16/02 - 9/17/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
13:48 13:52	40-45	45	
	45-50	50	
	50-55	55	
14:00 14:03	55-60	60	
	60-65	65	
14:11 14:14	65-70	70	
	70-75	75	
14:23 14:25	75-80	80	

@ 45 feet: SANDSTONE - more coarse sand and gravel, subangular, little silt

@ 52 feet: some fine to coarse gravel, subrounded to subangular

@ 55 feet: mostly fine sand, little gravel

@ 60 feet: mostly fine to medium sand

@ 65 feet: little gravel

@ 67 feet: rig chatter, slightly more gravel

@ 70 feet: mostly fine to medium sand

@ 75 feet: more fines, mostly fine sand, damp, moderately hard

@ 77.5 feet: SANDY SILTSTONE - mostly silt, some fine sand, moist, moderately hard, olive gray (5Y 3/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

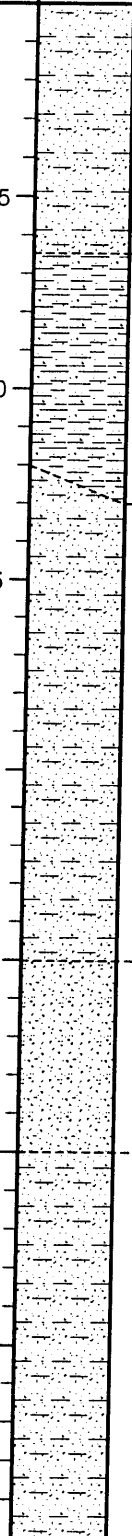
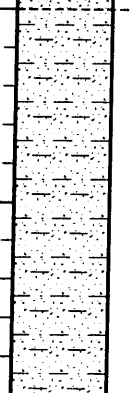
BORING DW-15 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 9/16/02 - 9/17/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
14:35 14:37	80-85	85	
	85-90	90	
14:52 14:55	90-95	95	
	95-100	100	
15:03 15:40	100-105	105	
	105-110	110	
15:48 15:50	110-115	115	
	115-120	120	

@ 80 feet: SILTY SANDSTONE - mostly fine sand, some silt, damp to moist, moderately hard, moderate olive brown (5Y 4/4)

@ 86.5 feet: SANDY SILTSTONE - mostly silt, some fine to medium sand, damp, moderately hard, olive gray (5Y 3/2)

@ 88 feet: light olive gray (5Y 5/2)

@ 90 feet: dark yellowish brown (10YR 4/2), more fine sand, damp

@ 92.5 feet: Gradational contact

@ 93.5 feet: SILTY SANDSTONE - mostly fine sand, some medium to coarse sand, some silt, light olive brown (5Y 5/6)

@ 100 feet: less silt and more fine to medium sand

@ 105 feet: SANDSTONE - mostly fine to medium sand, little gravel, some silt

@ 110 feet: SILTY SANDSTONE - mostly fine sand, more silt, damp

@ 115 feet: mostly fine sand, little silt

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-15 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 9/16/02 - 9/17/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
15:57 16:00	120-125	125	
16:12	125-130	130	
9/17/02 7:45	130-135	135	
	135-140	140	
7:59 8:02	140-145	145	
	150	150	
8:25	150-155	155	
		160	

@ 125 feet: light olive brown (5Y 5/6), more silt

@ 125.5 feet: SANDY SILTSTONE - sand as above with abundant olive gray (5Y 3/2) siltstone and claystone, damp, hard, slower drilling

@ 127 feet: SILTY SANDSTONE - mostly fine sand, some medium to coarse sand, some silt, damp to moist, moderately hard, light olive brown (5Y 5/6)

Water level sounded at 129.8' at 07:40 on 9/17/02, with total depth of boring at 136' prior to starting rig air compressor.

@ 131 feet: SANDSTONE -moist

@ 140 feet: moist drilling returns, but no water being blown out of hole

@ 145 feet: more coarse sand and gravel, poor drilling returns

@ 146 feet: water being returned after joint connection

@ 150 feet: poor returns, no sample collected

@ 155 feet: wet sandstone with silt and clay (possibly washed out from above)

@ 160 feet: no sample recovery

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-15 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 9/16/02 - 9/17/02

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9:20		165	
		170	
		175	
		180	
		185	
		190	
		195	
		200	

@ 160 feet: wet sandstone as above , very poor drilling returns

Terminate boring at target depth 165'

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

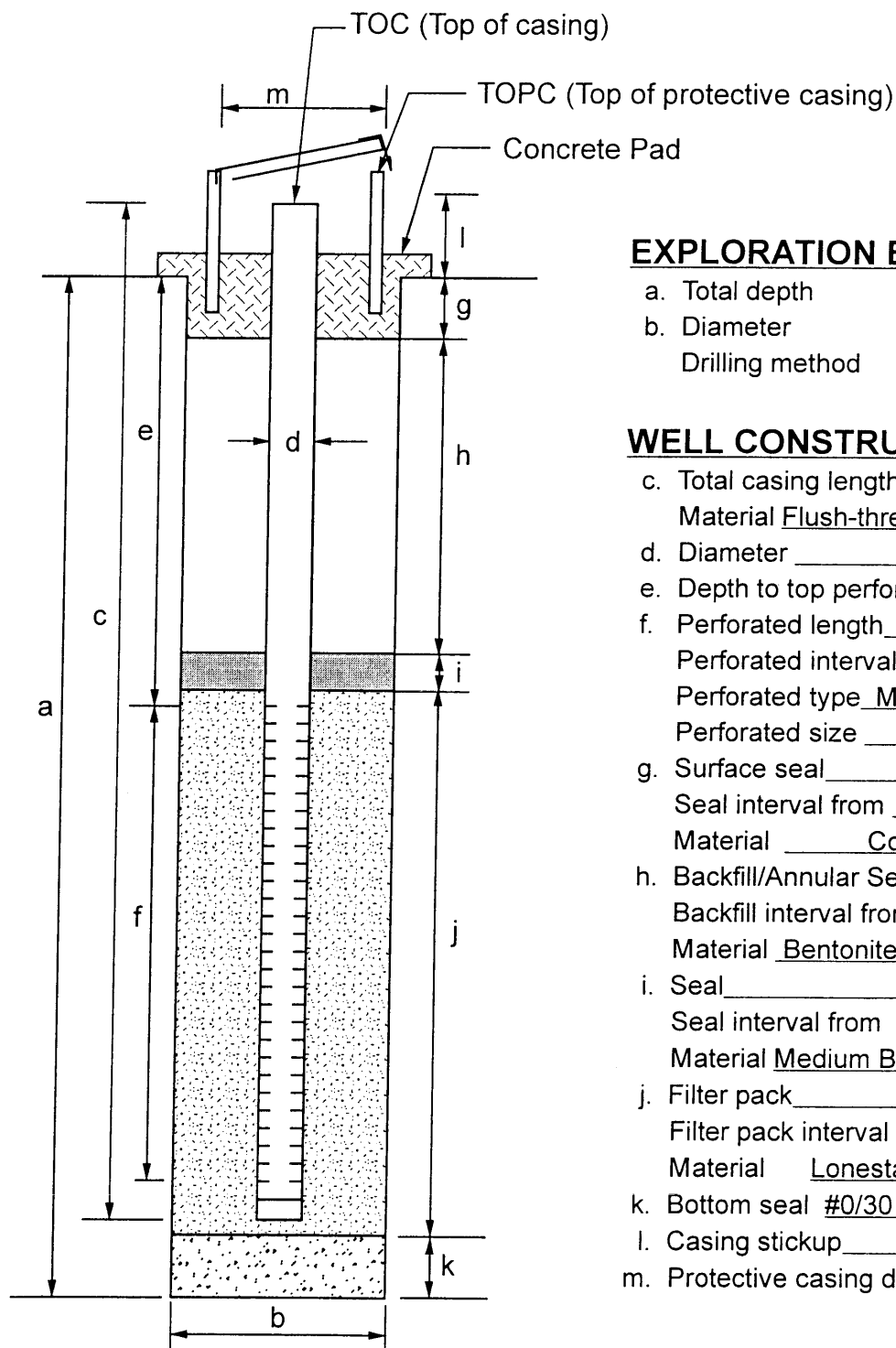
LOG OF BORING

DW-16 AS BUILT WELL CONSTRUCTION

PROJECT NUMBER: 2002-036-90
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC/THF Drilling, Inc.
 INSTALLATION DATE 9-20-02

TOP OF PROTECTIVE CASING ELEV.: 1174.52
 TOP OF CASING ELEV.: 1173.70
 CONCRETE PAD SURFACE ELEV.: 1171.64
 DATUM: Mean Sea Level

NORTHING: 1979612.66 EASTING: 6367520.63



EXPLORATION BORING

a. Total depth 227 ft.
 b. Diameter 10 in.
 Drilling method Air Rotary

WELL CONSTRUCTION

c. Total casing length 218.01 ft.
 Material Flush-threaded Schedule 40 PVC.
 d. Diameter 4 in.
 e. Depth to top perforations 184.97 ft.
 f. Perforated length 29.44 ft.
 Perforated interval from 185.39 to 214.83 ft.
 Perforated type Machine-slotted
 Perforated size 0.020-inch.
 g. Surface seal 2 ft.
 Seal interval from 0 to 2 ft.
 Material Concrete.
 h. Backfill/Annular Seal 170 ft.
 Backfill interval from 2 to 172 ft.
 Material Bentonite Cement Grout.
 i. Seal 5.8 ft.
 Seal interval from 172 to 177.8 ft.
 Material Medium Bentonite Chips.
 j. Filter pack 42.2 ft.
 Filter pack interval from 177.8 to 220 ft.
 Material Lonestar #2/12.
 k. Bottom seal #0/30 Sand and formation.
 l. Casing stickup 2.63 ft.
 m. Protective casing diameter 10 3/4 in.

BORING DW-16

JOB NUMBER: 2002-036-90
 DATE DRILLED: 9/20/02
 EQUIPMENT USED: Dresser TH75W
 ELEVATION: 1171 feet - MSL
 SURFACE CONDITIONS: Graded road
 NORTHING: 1979612.66
 EASTING: 6367520.63

BY: D.Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

DATE & TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE	
9/20/02			SM	0-3 feet: ARTIFICIAL FILL (af) @ 0 feet: SILTY SAND- mostly silt and fine sand, some medium to coarse sand and gravel, dry, yellowish gray (5Y 7/2)
8:05	0-5	5		3-227 feet: SAUGUS FORMATION (QTs) @ 3 feet: SILTY SANDSTONE- mostly fine sand, some silt, dry, soft, light olive gray (5Y 5/2) Drilling 10 inch hole with 9-5/8 inch tricone bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method.
8:37	5-10	10		@ 10 feet: SANDSTONE - fine sand, dry, moderately hard, yellowish gray (5Y 7/2)
8:40	10-15	15		@ 15 feet: CLAYEY SILTSTONE - mostly silt, some clay, moist, soft to moderately hard, light olive gray (5Y 5/2) Set temporary drive casing shoe at 20 feet, then drill 10 inch open hole using 9-5/8 inch tricone bit and direct air rotary drilling method.
8:54	15-20	20		@ 20 feet: SILTSTONE - loose, moist, light olive gray (5Y 5/2)
8:58	20-25	25		@ 25 feet: SILTSTONE - moist, moderately hard to soft, light olive gray (5Y 5/2)
9:15	25-30	30		@ 29 feet: drilling rate slows @ 30 feet: SILTY CLAYSTONE - mostly clay, some silt, dry to damp, hard, light olive gray (5Y 5/2)
9:26	30-35	35		@ 32 feet: water injected
9:31	35-40	40		@ 40 feet: SANDY SILTSTONE - mostly silt, trace fine to medium sand, moist, moderately hard to soft, dark yellowish brown (10YR 4/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-16 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/20/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9:38	40-45	45	
9:46	45-50	50	
9:55	50-55	55	
10:03	55-60	60	
10:07	60-65	65	
10:35	65-70	70	
10:40	70-76	75	
10:47	76-80	80	

@ 45 feet: SILTY CLAYSTONE - moist, moderately hard to hard, light olive gray (5Y 5/2)

@ 50 feet: SILTY CLAYSTONE - moist, moderately hard to hard, olive gray (5Y 3/2)

@ 55 feet: SILTY CLAYSTONE - moist, moderately hard, grayish olive green (5GY 3/2)

@ 60 feet: water injected
@ 60 feet: SILTY SANDSTONE - mostly fine to coarse sand, some silt, moderately hard to hard, light olive gray (5Y 5/2) (water injected)

@ 65 feet: same as above

@ 70 feet: CLAYEY SILTSTONE - mostly silt, some clay, moist, hard to moderately hard, olive gray (5Y 4/2)

@ 76 feet: same as above

@ 80 feet: SILTSTONE - moist, moderately hard to soft, moderate olive brown (5Y 4/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-16 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/20/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10:53	80-85	85	
10:58	85-90	90	
11:01	90-95	95	
11:09	95-100	100	
11:14	100-105	105	
NR	NR	110	
NR	NR	115	
NR	NR	120	

@ 85 feet: PEBBLY SANDSTONE - fine to coarse, moist, moderately hard to hard, light olive gray (5Y 5/2)

@ 87 feet: rig chatter

@ 90 feet: hard, light olive brown (5Y 5/4)

@ 95 feet: SILTSTONE - with fine sand, moist, moderately hard, yellowish gray (5Y 6/2)

@ 100 feet: CLAYEY SILTSTONE - trace fine sand, moist, moderately hard, moderate yellowish brown (10YR 5/4)

@ 105 feet: SILTSTONE - with fine sand, moist, moderately hard, dusky yellow (5Y 6/3)

@ 107 feet: mud in hole, clean hole 11:20 - 12:30

@ 108 feet: water injected

@ 110 feet: no cuttings from cyclone

@ 115 feet: CLAYEY SILTSTONE - hard, yellow olive brown (5Y 5/4), (water injected)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-16 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/20/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
12:55	122		
12:57	122-125	125	
13:02	125-130	130	
13:05	130-135	135	
13:15	135-140	140	
13:22	140-145	145	
13:30	145-150	150	
13:35	150-155	155	
		160	

@ 122 feet: SANDSTONE - fine to medium, moist, moderately hard, light olive gray (5Y 5/2)

@ 125 feet: same as above

@ 130 feet: SILTY SANDSTONE - fine to medium, moist, moderately hard, yellowish gray (5Y 6/2)

@ 135 feet: SILTSTONE - with fine grained sand, moist, moderately hard, yellowish gray (5Y 6/2)

@ 140 feet: SILTSTONE - moist, moderately hard to soft, dusky yellow (5Y 6/4)

@ 145 feet: same as above

@ 150 feet: SILTSTONE - with fine sand, moist, moderately hard, moderate yellowish brown (10YR 5/4)

@ 155 feet: SILTSTONE - moist, moderately hard, yellow olive brown (5Y 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-16 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/20/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
13:48	155-161		
13:53	161-165	165	
14:02	165-170	170	
14:04	170-175	175	
		180	
14:15	175-182		
		185	
14:30	182-190	190	
		195	
14:37	190-196		
	196-200	200	

@ 161 feet: SILTSTONE - with fine to coarse sand, moist, moderately hard, moderate yellowish brown (10YR 5/4)

@ 165 feet: moderately hard to soft, moderate olive brown (5Y 4/4)

@ 170 feet: same as above

@ 175 feet: SILTSTONE - moist, soft, moderate olive brown (5Y 4/4)

Water level @ 179.4 feet at 8:40 on 9/23/02 after rig idle over weekend (9/21 and 9/22)

@ 181 feet: moisture increase

@ 182 feet: SILTSTONE - moist, moderate hard to soft, light olive gray (5Y 5/2)

@ 185 feet: same as above

@ 190 feet: SILTSTONE - moist, moderately hard to soft, moderate olive brown 5Y 4/4)

@ 196 feet: SILTY SANDSTONE - fine to coarse, moist, moderately hard, light olive gray (5Y 5/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-16 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/20/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
14:51	200-206	205	
		210	
	210-215	215	
15:34	215-220	220	
15:39	220-225	225	
		230	
		235	
		240	

@ 206 feet: medium to coarse sand with clay, light olive gray (5Y 5/2)

@ 207 feet: rig down for 20 minute water check, free standing water

Water blown out of cyclone @ 206 feet bore hole depth after sitting for 20+/- minute (~20-30 gallons)

@ 210-215 feet: SILTSTONE - with fine to coarse sand, wet, moderately hard, light olive gray (5Y 5/2)

@ 220 feet: SANDSTONE - mostly fine to coarse sand, with silt, wet, moderately hard light olive gray (5Y 5/2)

@ 225 feet: CLAYEY SILTSTONE - with fine to medium sand, wet, moderately hard, grayish olive (10Y 4/2)

Terminate boring at target depth 227'

Remove 50 feet of drill rod, then check water level.
Water level tagged at 180 feet at 16:10 on 9/20/02.
Rig idle over weekend (9/21 and 9/22),
Water level at 179.4 feet at 08:40 on 9/23/02

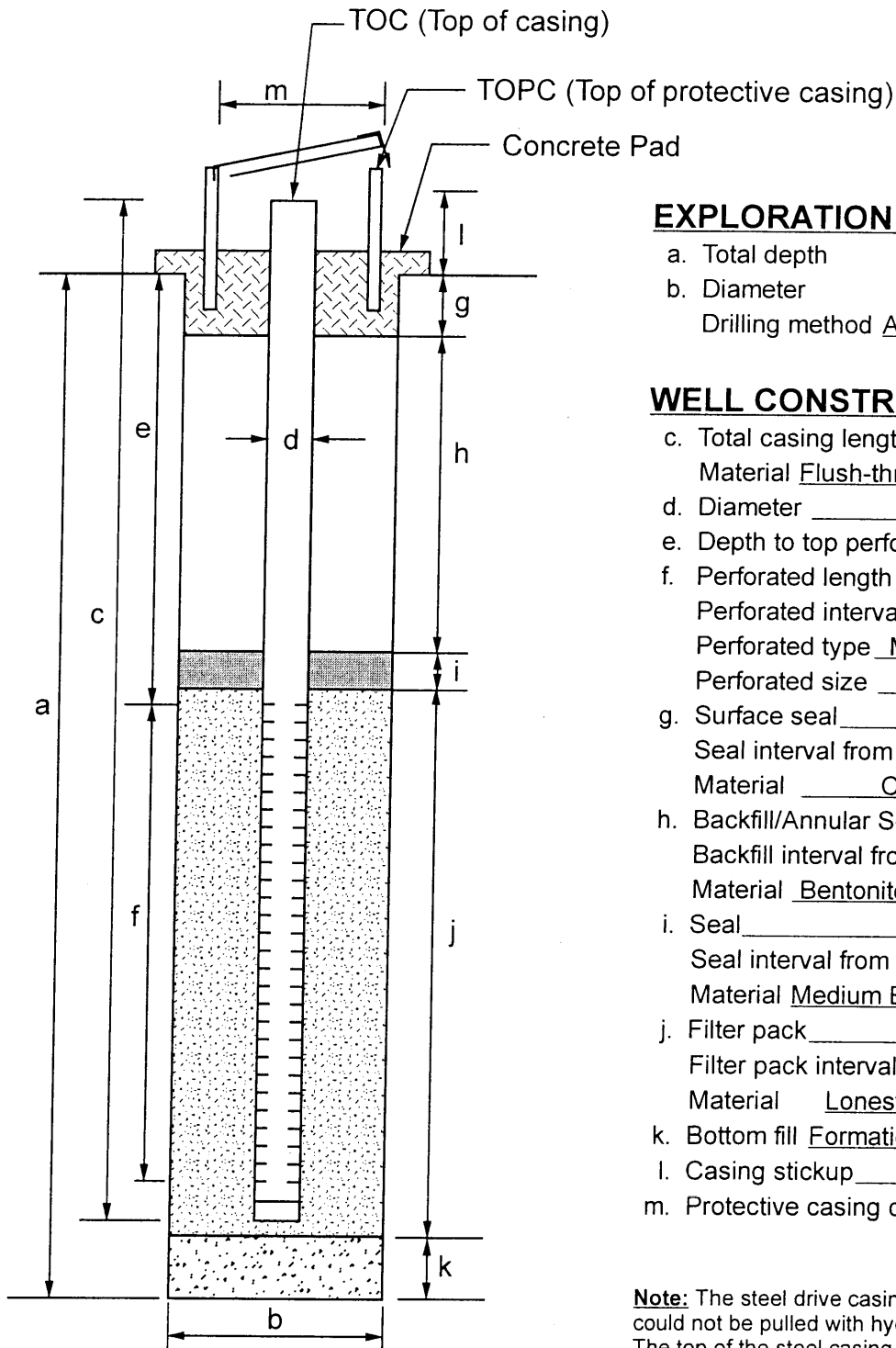
LOG OF BORING

DW-17 AS BUILT WELL CONSTRUCTION

PROJECT NUMBER: 2002-036-90
PROJECT NAME: Chiquita Canyon Landfill
LOCATION: Los Angeles County
DRILLER: WDC/THF Drilling, Inc.
INSTALLATION DATE 10-1-02

TOP OF PROTECTIVE CASING ELEV.: 1196.40
TOP OF CASING ELEV.: 1195.28
CONCRETE PAD SURFACE ELEV.: 1193.15
DATUM: Mean Sea Level

NORTHING: 1980244.21 EASTING: 6368079.60



EXPLORATION BORING

- a. Total depth 210 ft.
b. Diameter 10 in.
Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 206.80 ft.
Material Flush-threaded Schedule 40 PVC.
d. Diameter 4 in.
e. Depth to top perforations 173.8 ft.
f. Perforated length 29.6 ft.
Perforated interval from 173.8 to 203.4 ft.
Perforated type Machine-slotted
Perforated size 0.020-inch.
g. Surface seal 2 ft.
Seal interval from 0 to 2 ft.
Material Concrete
h. Backfill/Annular Seal 158.5 ft.
Backfill interval from 2 to 160.5 ft.
Material Bentonite Grout.
i. Seal 6.5 ft.
Seal interval from 160.5 to 167 ft.
Material Medium Bentonite Chips
j. Filter pack 40 ft.
Filter pack interval from 167 to 207 ft.
Material Lonestar #2/12
k. Bottom fill Formation
l. Casing pickup 2.30 ft.
m. Protective casing diameter 10 3/4 in.

Note: The steel drive casing (nominal 9-5/8-inch diameter) could not be pulled with hydraulic jacks, so it was left in place. The top of the steel casing is 5' below ground surface (bgs), and the bottom is at 135' bgs.

BORING DW-17

JOB NUMBER: 2002-036-90
 DATE DRILLED: 9/24/02 - 9/25/02
 EQUIPMENT USED: Dresser TH75W
 ELEVATION: 1193 feet - MSL
 SURFACE CONDITIONS: Graded drill pad
 NORTHING: 1980244.21
 EASTING: 6368079.60

BY: P. Chang 0-96'
 D.Francuch 96-210'

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
 It is not warranted to be representative of subsurface conditions at other locations or times.

DATE & TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9/24/02 14:30			SM
14:40 14:45	0-5	5	SP
	5-10	10	
14:53 14:56	10-15	15	
	15-20	20	
15:05 15:07	20-25	25	
	25-30	30	
15:12 15:15	30-35	35	
	35-40	40	

0-4 feet: ARTIFICIAL FILL (af)

@ 0 feet: SILTY SAND- mostly sand, some silt, dry, soft, yellowish gray (5Y 7/2)

4-13 feet: SAUGUS FORMATION (QTs)

@ 4 feet: possibly weathered SANDSTONE or COLLUVIUM - mostly fine to medium sand, some coarse sand and gravel, dry to damp, soft to medium dense, dark yellowish brown (10YR 4/2)

Drilling 10 inch hole with 9-5/8 inch tricone bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method.

@ 10 feet: more coarse sand and gravel

13-210 feet: SAUGUS FORMATION (QTs)

13 feet: SANDSTONE - mostly fine sand, little silt, some medium sand to gravel, damp, moderately hard, weathered, olive gray (5Y 3/2)

@ 15 feet: light olive gray (5Y 5/2), moist, moderately hard, moderately weathered

Set temporary drive casing shoe at 20 feet, then drill 10 inch open hole using 9-5/8 inch tricone bit and direct air rotary drilling method.

@ 20 feet: more gravel, weathered, soft to moderately hard

@ 25 feet: mostly fine to medium sand, some coarse, little gravel, moderately hard, moderately weathered, dry to damp, yellowish gray (5Y 7/2)

@ 30 feet: more fine to coarse gravel, subangular to subrounded

@ 35 feet: some fine to coarse gravel

@ 36 feet: rig chatter; little cobbles

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-17 (Continued)

BY: P. Chang 0-96'
D.Francuch 96-210'

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/24/02 - 9/25/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE	
15:22 15:25	40-45	45		@ 40 feet: some gravel and cobbles, angular to subrounded
				@ 45 feet: mostly fine sand, little silt and clay, some medium to coarse sand, moderately hard, dusky yellow (5Y 6/4)
	45-50	50		@ 48 feet: SANDY SILTSTONE - mostly silt, few fine sand, damp, moderately hard, yellowish gray (5Y 7/2)
				@ 50 feet: 9-5/8" casing 8:00 (9/27/02)
15:34 15:37	50-55	55		@ 51 feet: GRAVELLY SANDSTONE - mostly fine sand, some medium to coarse gravel and cobbles, moderately hard, dry to damp, light olive gray (5Y 5/2)
	55-60	60		@ 60 feet: 9-5/8" casing 8:07 (9/27/02)
15:48 15:51	60-65	65		@ 65 feet: mostly medium to coarse sand and gravel, some fine sand, hard, damp, lots of rig chatter ,
				@ 66 feet: hard, slow drilling, rig chatter
15:59	65-70	70		@ 70 feet: 9-5/8" casing 8:16 (9/27/02)
				@ 71 feet: more fine to medium sand, drilling gets easier
16:03 16:05	70-76	75		@ 75 feet: SILTY SANDSTONE - mostly fine to medium sand, some silt and clay, minor grave, moderately hard, damp, dusky yellow (5Y 6/4)
	76-80	80		@ 80 feet: 9-5/8" casing 8:34 (9/27/02)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-17 (Continued)

BY: P. Chang 0-96'
D.Francuch 96-210'

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/24/02 - 9/25/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
16:17 16:20	80-85	85	
16:24	85-90	90	
16:32	90-95	95	
9/25/02 7:30			
7:41	95-100	100	
7:49	100-105	105	
8:58	105-110	110	
9:05	110-115	115	
9:13	115-120	120	

@ 83 feet: SANDY SILTSTONE and CLAYSTONE - mostly low to medium plasticity siltstone and claystone, some fine sand, moderately hard, damp to dry, (10Y 4/2)

@ 88.5 feet: SILTY SANDSTONE - mostly fine sand, some silt, moderately hard, damp, light olive gray (5Y 5/2)

@ 83 feet: SANDY SILTSTONE and CLAYSTONE - mostly low to medium plasticity siltstone and claystone, some fine sand, moderately hard, damp to dry, (10Y 4/2)

@ 94 feet: SILTY SANDSTONE - mostly fine sand, some silt, moderately hard, damp, light olive brown (5Y 5/6)

@ 96 feet: terminate drilling on 9/24/02.
No ground water encountered.
Restart drilling at 7:30 9/25/02 DGF logging.

@ 100 feet: SILTSTONE - moderately hard, damp to moist, light olive gray (5Y 5/2)

@ 100 feet: 9-5/8" casing 10:00 (9/27/02)

@ 104 feet: CLAYEY SILTSTONE - moderately hard to hard, damp, moderate yellowish brown (10YR 5/4),

replacing pipe from 7:55 to 8:50

@ 110 feet: same as above, moisture decrease dry to damp

@ 114 feet: 9-5/8" casing 14:30 (9/27/02)

@ 115 feet: SILTSTONE - moderately hard to hard, dry to damp, moderate yellowish brown (10YR 5/4)

@ 115 feet: 9-5/8" casing 7:55 (9/30/02)

@ 120 feet: same as above

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-17 (Continued)

BY: P. Chang 0-96'
D.Francuch 96-210'

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/24/02 - 9/25/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9:22	127	125	
9:27	127-130	130	
9:33	137	135	
9:35	137-140	140	
9:38	140-145	145	
9:46	145-150	150	
9:49	150-155	155	
9:58	155-160	160	

@ 127 feet: SILTY SANDSTONE - mostly fine sand, some silt, moderately hard, dry, yellowish gray (5Y 7/2)

@ 130 feet: SANDY SILTSTONE - mostly silt, some fine sand, moderately hard, dry to damp, yellowish gray (5Y 7/2)

@ 137 feet: SILTY SANDSTONE - mostly fine to coarse sand, some silt, moderately hard, dry, pale yellowish brown (10 YR 6/2)

@ 140 feet: 9-5/8" drive casing refusal 11:40 (9/30/02)

@ 145 feet: SILTSTONE - moderately hard, damp, light olive brown (5Y 5/4)

@ 150 feet: SANDSTONE - fine to medium, moderately hard, damp, pale yellowish brown (10YR 6/2)

@ 155 feet: SILTSTONE - moderately hard, damp, light olive brown (5Y5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-17 (Continued)

BY: P. Chang 0-96'
D.Francuch 96-210'

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/24/02 - 9/25/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10:05	160-167	165	@ 160 feet: SANDSTONE - fine, moderately hard, damp, light olive brown (5Y 5/4)
10:10	167-172	170	@ 167 feet: SANDSTONE - medium, moderately hard, damp, pale yellowish brown (10Y 6/2)
10:22	175-177	175	Water level at 170 feet at 12:15 on 9/25/02 with boring TD at 206 feet tagged with driller's weighted tape because electronic sounder would not drop to bottom. @ 172 feet: SANDSTONE - fine to coarse, moderately hard, damp to moist, pale yellowish brown (10YR 6/2)
10:34	180-185	180	@ 175 feet: groundwater, cuttings return wet (10:24) @ 175-177 feet: composite sample, fine to medium silty sand, moderately hard to hard, wet, light olive gray
10:46	185-190	185	@ 180 feet: composite sample same as above
10:53	190-196	190	@ 190 feet: fine to coarse sand, hard, wet, light olive gray (5Y 5/2)
11:03	196-200	195	@ 196 feet: SILTY SANDSTONE - mostly fine to coarse sand, some silt, hard, wet, light olive gray (5Y 5/2)
		200	@ 200 feet: same as above

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-17 (Continued)

BY: P. Chang 0-96'
D.Francuch 96-210'

JOB NUMBER: 2002-036-90
DATE DRILLED: 9/24/02 - 9/25/02

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
11:08 9/25/02 10/1/02 13:15	200-205	205	
		210	
		215	
		220	
		225	
		230	
		235	
		240	

@ 206 feet: Terminate 10 inch boring at target depth.
Water level tagged at 170 feet at 12:15 on 9/25/02. Could not build well due to caving formation. On 9/27 and 9/30, advanced 9-5/8 inch steel drive casing to 140' refusal depth.
Run 7-5/8 inch steel casing to 206 feet, then drill ahead on 10/1/02.

Terminate boring at target depth 210'

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

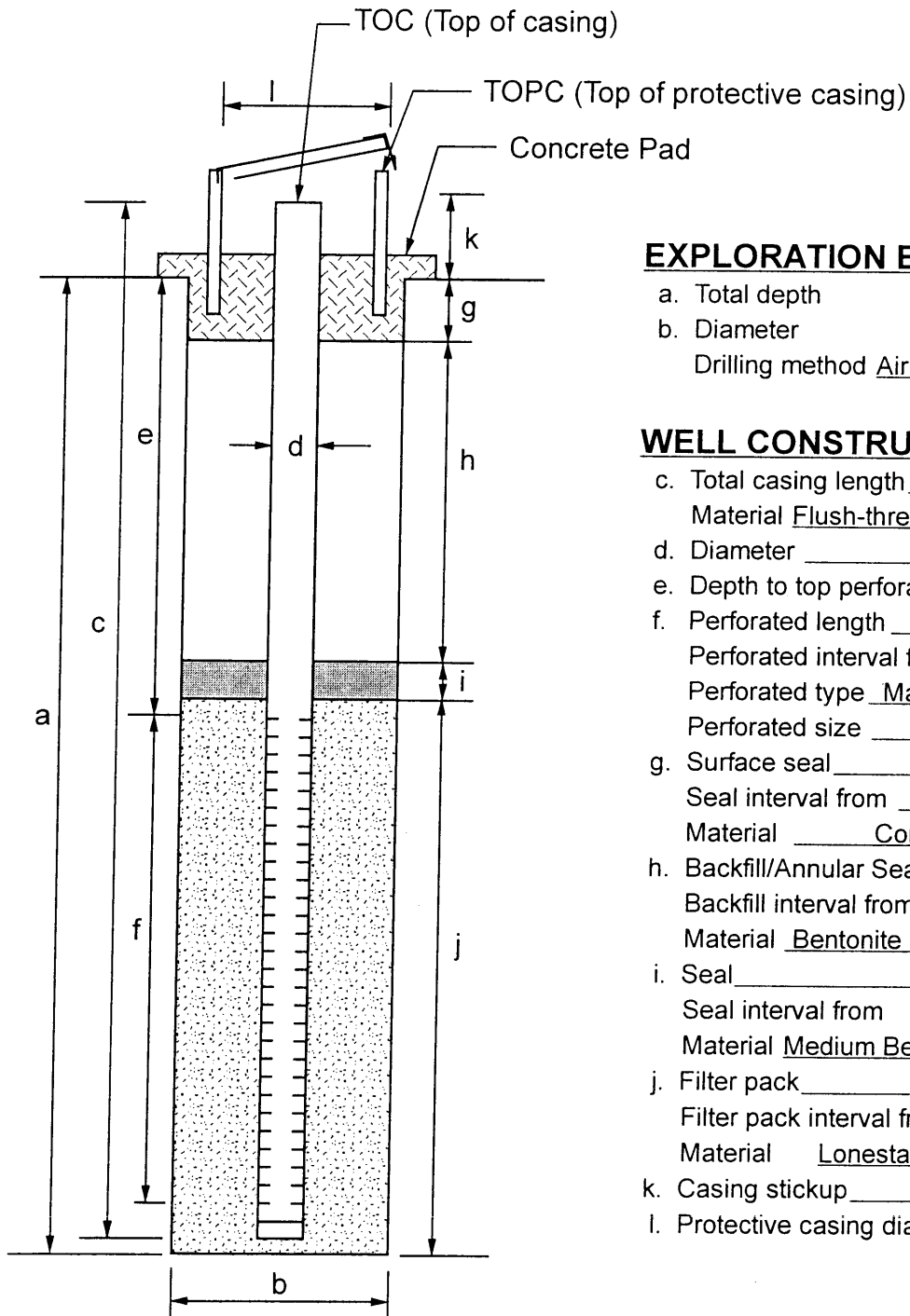
LOG OF BORING

DW-20 AS BUILT WELL CONSTRUCTION

PROJECT NUMBER: 2002-036-90
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC/THF Drilling, Inc.
 INSTALLATION DATE: 9-19-02

TOP OF PROTECTIVE CASING ELEV.: 1009.36
 TOP OF CASING ELEV.: 1008.31
 CONCRETE PAD SURFACE ELEV.: 1006.44
 DATUM: Mean Sea Level

NORTHING: 1979045.58 EASTING: 6366418.91



EXPLORATION BORING

- a. Total depth 97 ft.
 b. Diameter 10 in.
 Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 97.75 ft.
 Material Flush-threaded Schedule 40 PVC.
 d. Diameter 4 in.
 e. Depth to top perforations 64.99 ft.
 f. Perforated length 29.81 ft.
 Perforated interval from 65.31 to 95.12 ft.
 Perforated type Machine-slotted
 Perforated size 0.020-inch.
 g. Surface seal 2 ft.
 Seal interval from 0 to 2 ft.
 Material Concrete
 h. Backfill/Annular Seal 54 ft.
 Backfill interval from 2 to 56 ft.
 Material Bentonite Cement Grout.
 i. Seal 5.5 ft.
 Seal interval from 56 to 61.5 ft.
 Material Medium Bentonite Chips
 j. Filter pack 35.5 ft.
 Filter pack interval from 61.5 to 97 ft.
 Material Lonestar #2/12
 k. Casing stickup 2.34 ft.
 l. Protective casing diameter 10 3/4 in.

BORING DW-20

JOB NUMBER: 2002-036-90
 DATE DRILLED: 9/18/02
 EQUIPMENT USED: Dresser TH75W
 ELEVATION: 1006 feet - MSL
 SURFACE CONDITIONS: Graded road
 NORTHING: 1979045.58
 EASTING: 6366418.91

BY: D.Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
 It is not warranted to be representative of subsurface conditions at other locations or times.

DATE & TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9/18/02			
11:01	0-5	5	SM
11:20	5-10	10	
11:35	10-15	15	
11:40	15-20	20	SP
11:45	20-27	25	
		30	
		35	
12:10	27-40	40	

0-18 feet: ARTIFICIAL FILL (af)

@ 0 feet: SANDY SILT - mostly silt, some fine sand, dry, loose, micaceous, grayish brown (2.5Y 5/2)

Drilling 10 inch hole with 9-5/8 inch tricone bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method to 65 feet.

@ 10 feet: color change to light brownish gray (2.5Y 6/2)

18-41 feet: ALLUVIUM (Qal)

@ 20 feet: PEBBLY SAND - mostly fine to coarse pebbly sand, some silt, moist, loose, light brownish gray (2.5Y 6/2)

caving below 25 feet in open hole, so continue driving 9-5/8 casing

@ 27 feet: fine to coarse pebbly sand, loose, moist, light olive brown (2.5Y 5/3)

@ 37 feet: fine to coarse sand with pebbles, moist, loose, light brownish gray (10YR 6/2)

@ 40 feet: same as above

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-20 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90

DATE DRILLED: 9/18/02 - 9/19/02

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
12:30	40-45	45	SP
12:40	45-50	50	
12:45	50-55	55	
	55-60	60	
13:45	55-65	65	
14:48	65-70	70	
14:52	70-75	75	
15:02	75-80	80	

@ 41 feet: driving casing slower

41-97 feet: SAUGUS FORMATION (QTs)

@ 41 feet: SANDSTONE - fine to coarse, moist, loose, light yellowish brown (2.5Y 6/3)

@ 50 feet: fine to coarse, pebbly, loose, moist, light brownish gray (10YR 6/2)

note moisture increasing at 50 feet

@ 55 feet: SILTY SANDSTONE - mostly fine to coarse sand, some silt, loose, moist, light brownish gray (2.5Y 6/2)

Water level tagged at 59.10 feet at 7:20 on 9/19/02 with boring TD at 97 feet.

@ 60 feet: SILTSTONE - with fine to medium sand, loose, moist, light brownish gray (2.5Y 6/2)

tagged mud in hole at 64 feet @ 13:45 on 9/18/02 with casing @ 65'

Set temporary drive casing shoe at 65 feet, then drill 10 inch open hole using 9-5/8 inch tricone bit and direct air rotary drilling method.

@ 65 feet: SILTSTONE - loose, moist, grayish brown (2.5Y 5/2)

@ 70 feet: SANDSTONE - fine to coarse, trace silt, loose, moist, grayish brown (2.5Y 5/2)

@ 75 feet: SANDSTONE - medium to coarse, loose, wet, grayish brown (2.5Y 5/2)

@ 80 feet: SANDY SILTSTONE - mostly silt, some fine to coarse sand, loose, wet dark grayish brown (2.5Y 4/2)

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-20 (Continued)

BY: D.Francuch

JOB NUMBER: 2002-036-90

DATE DRILLED: 9/18/02 - 9/19/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
15:10	80-85	85	@ 85 feet: silt with fine sand, loose, wet, dark grayish brown (2.5Y 4/2)
15:25	85-91	90	@ 91 feet: silt with fine to coarse sand, loose, wet, dark gray (5Y 4/1)
15:30	91-95	95	@ 95 feet: silt, trace fine to medium sand, trace clay, loose, wet, dark gray (5Y 4/1)
16:10		100	Terminate boring at target depth 97 feet. Water level tagged at 59.10 feet at 7:20 on 9/19/02.
		105	
		110	
		115	
		120	

LOG OF BORING

BORING DW-22 RDA

JOB NUMBER: 2002-036-90
 DATE DRILLED: 10/7/02 - 10/9/02
 EQUIPMENT USED: Failing and Speedstar Star 30K
 ELEVATION: 1219.77 feet - MSL
 SURFACE CONDITIONS: Graded drill pad on road
 NORTHING: 1980139.48
 EASTING: 6368093.80

BY: P. Chang

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
 It is not warranted to be representative of subsurface conditions at other locations or times.

DATE & TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10/7/02 14:07			SM
	0-5	5	
14:12	5-10	10	
	10-15	15	
14:19 14:30	15-20	20	
	20-25	25	
14:38	25-30	30	
	30-35	35	
14:47 14:51			
	35-40	40	

0 -2 feet: ARTIFICIAL FILL (af)

@ 0 feet: SILTY SAND- mostly silt and fine sand, some medium to coarse sand and gravel, dry, yellowish gray (5Y 7/2)

2-320 feet: SAUGUS FORMATION (QTs)

@ 2 feet: SILTY SANDSTONE- mostly fine sand, some silt, some medium and coarse sand, damp, soft to moderately hard, light olive (10Y 5/4)

@ 7 feet: SANDY SILTSTONE- mostly silt, some fine to medium sand, damp, moderately hard, medium olive brown (5Y4/4)

Drilling 10 inch hole with 8 ½ inch tricone bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method.

@ 15 feet: more fine sand; olive gray (5Y 3/2)

@ 25 feet: as above; light olive gray (5Y 5/2)

@ 28.5 feet: SILTY SANDSTONE- mostly fine to medium sand, some silt, damp, moderately hard, dark yellowish brown (10YR 4/2)

Set temporary drive casing shoe at 37 feet, then drill 10 inch open hole using 8 ½ inch tricone bit and direct air rotary drilling method.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 10/7/02 - 10/9/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
	40-45	45	
	45-50	50	
14:57 15:07	50-55	55	
	55-60	60	
	60-65	65	
15:08	65-70	70	
	70-75	75	
15:13 15:18			
	75-80	80	

@ 40 feet: moderate brown (5YR 4/4)

@ 44 feet: GRAVELLY SANDSTONE: mostly fine to coarse sand, some fine to coarse gravels; subangular to subrounded, dry, moderately hard, yellowish gray (5Y 7/2)

@ 50 feet: little gravels, light olive brown (5Y 5/6)

@ 55 feet: little gravels, damp

@ 60 feet: little gravels, yellowish gray (5Y 7/2)

@ 70 feet: trace gravels, mostly fine to medium sand, dry

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

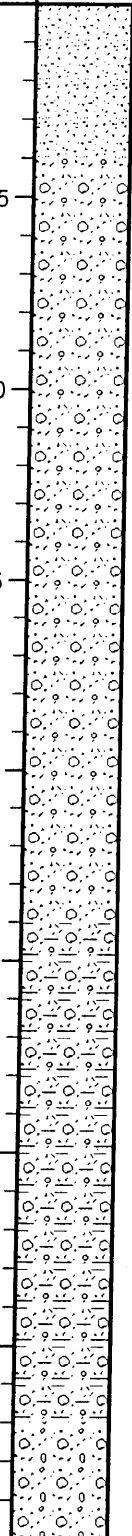
BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 10/7/02 - 10/9/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
15:18	80-85	85	
15:18	85-90	90	
15:22 15:28	90-95	95	
15:22 15:28	95-100	100	
15:28	100-105	105	
15:28	105-110	110	
15:34 15:42	110-115	115	
15:34 15:42	115-120	120	

@ 85 feet: minor subrounded gravel

@ 90 feet: little gravels, subangular to subrounded, dry, moderately hard

@ 92-95 feet: drill chatter

@ 110 feet: SILTY GRAVELY SANDSTONE: mostly fine to coarse sand, little silt and gravels, damp, moderately hard, light olive brown (5Y 5/6)

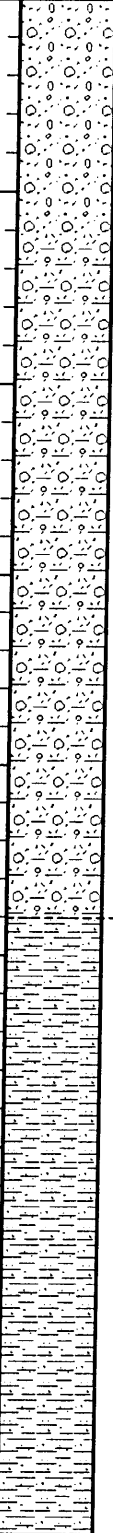

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90
DATE DRILLED: 10/7/02 - 10/9/02

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
15:48	120-125	125	
	125-130	130	
	130-135	135	
15:55 16:02	135-140	140	
	140-145	145	
16:05	145-150	150	
	150-155	155	
16:12 16:16	155-160	160	

@ 120 feet: mostly fine sand to coarse gravels, pale olive (10Y 6/2)

@ 125 feet: less gravels

@ 130 feet: more silt and gravels, slower drilling, light olive gray (5Y 5/2)

@ 144 feet: SANDY SILTSTONE-mostly silt and siltstone fragments, some fine to medium sand, moist, moderately hard, light olive gray (5Y 5/2)

@ 155 feet: slightly more fine to medium sand

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90
DATE DRILLED: 10/7/02 - 10/9/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
	160-165	165	
16:22	165-170	170	
	170-175	175	
16:32			
7:41 10/8/02	175-180	180	
	180-185	185	
7:50	185-190	190	
	190-195	195	
8:05 8:09	195-200	200	

@ 165 feet: slightly more sand and gravels

@ 170 feet: little claystone, moist, moderate yellowish brown (10YR 5/4)

@ 175 feet: mostly silt, some sand and gravels, moist, moderately hard, light olive brown (5Y 5/6)

@ 185 feet: moist, hard, no dust in drilling returns

@ 190 feet: wet, more sand; start injecting water to lift cuttings

@ 193 feet: SANDSTONE: mostly fine to medium sand, little silt, hard moderate olive brown (5Y 4/4)
with boring bottom at 219 feet, water level at 194.2 feet at 9:27 on 10/8/02 after shutting down rig at 9:05

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90
DATE DRILLED: 10/7/02 - 10/9/02

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
	200-205	205	
	NR	210	
	210-215	215	
9:05 9:50	215-230	220	
		225	
		230	
	230-235	235	
10:05 10:58	NR	240	

@ 200 feet: mostly medium to coarse sand

@ 208 feet: no returns, more silt

@ 210 feet: begin injecting water to lift cuttings

@ 214 feet: SILTY SANDSTONE- mostly fine to medium sand, some silt, wet, moderately hard, light olive brown (5Y 5/6)

@ 220 feet: SANDSTONE - little silt, mostly fine to coarse sand, little gravel, wet, moderately hard, pale yellowish brown (10YR 5/2), water being injected

@ 235 feet: mostly fine to medium sand, few coarse sand and gravel, little silt, light olive brown (5Y 5/6)

10/8: Lost circulation at 240 feet; jets in drill bit clogged with silty sand. Attempt lowering 7-5/8 inch steel casing to bottom, but can't push past 110 feet.

10/9: Pull 7-5/8 casing; drive 9-5/8 casing to 46.5 feet. Add 750 cfm auxiliary air compressor to provide more lift of cuttings. Ream hole from 200 to 240 feet.

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 10/7/02 - 10/9/02

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10/9/02 13:57			
	240-245	245	
	245-250	250	
	250-255	255	
15:15 14:19	255-260	260	
	260-265	265	
14:21	265-270	270	
	270-275	275	
14:24 14:28	275-280	280	

@ 240 feet: SILTY SANDSTONE-mostly fine to medium sand, some silt, wet, moderately hard, light olive brown (5Y 5/6)
Drilling without injecting water

@ 250 feet: few fine to coarse gravel

@ 255 feet: slightly more gravel

@ 260 feet: mostly fine to coarse sand, some silt, few gravel

@ 270 feet: less gravel, more fine to medium sand

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

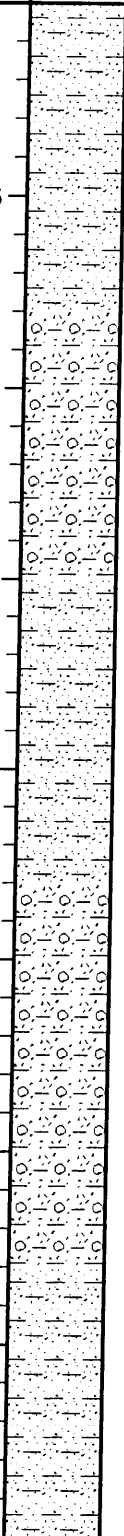
BORING DW-22 RDA (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-90

DATE DRILLED: 10/7/02 - 10/9/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
	280-285	285	
	285-290	290	
	290-295	295	
14:41	295-300	300	
14:45			
	300-305	305	
	305-310	310	
	310-315	315	
14:58	315-320	320	

@ 280 feet: some silt, mostly fine to medium sand

@ 290 feet: slightly more medium to coarse sand, little gravel

@ 295 feet: trace gravel

@ 305 feet: more medium to coarse sand, little gravel

@ 315 feet: trace gravel, mostly fine to coarse sand, some silt

10/10/02: Hole caved to 190'. 7-5/8 inch drive casing met refusal at 140'.
Abandoned borehole; plugged with bentonite grout up to 152.5 feet;
then bentonite cement grout to surface.

Terminate boring at target depth 320'

LOG OF BORING

BORING DW-22 RDB

JOB NUMBER: 2002-036-90
 DATE DRILLED: 10/11/02 - 10/14/02
 EQUIPMENT USED: Failing & Speedstar Star 30K
 ELEVATION: 1220.33 feet - MSL
 SURFACE CONDITIONS: Graded drill pad on road
 NORTHING: 1980130.64
 EASTING: 6368097.52

BY: T.M.Clark 0-54'
 P. Chang 54'-160'

DATE & TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10/11/02 13:00			SM
	0-5	5	
	5-10	10	
	10-15	15	
13:30	15-20	20	
	20-25	25	
	25-30	30	
	30-35	35	
	35-40	40	

0-1.5 feet: ARTIFICIAL FILL (af)

@ 0 feet: SANDY SILT - mostly fine sand, some silt, dry, yellowish gray (5Y 7/2)

1.5-160 feet: SAUGUS FORMATION (QTs)

@ 2 feet: SILTY SANDSTONE - mostly fine sand, moist, yellowish gray (5Y 7/2), with siltstone interbeds, light olive gray (5Y 5/2)

Drilling 10 inch hole with 9-5/8 inch tricone bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method.

@ 7.5 feet: SANDY SILTSTONE - mostly silt, some fine sand, moist, moderate olive brown (5Y 4/4) to light olive gray (5Y 5/2)

@ 14 feet: SANDY SILTSTONE - interbedded with sandstone; very fine to fine, moist, light olive gray (5Y 5/2)

@ 20 feet: SANDY SILTSTONE - as above, with some olive gray (5Y 3/2) siltstone interbeds, and some very fine to fine sand, moist

@ 28 feet: SILTY SANDSTONE - mostly very fine to fine sand, some silt, moist, dark yellowish brown (10YR 4/2)

@ 38 feet: SILTY SANDSTONE - as above, moderate brown (5YR 3/4)

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDB (Continued)

BY: T.M.Clark 0-54'
P. Chang 54'-160'

JOB NUMBER: 2002-036-90
DATE DRILLED: 10/11/02 - 10/14/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10/11/02 14:00			
	40-45	45	
	45-50	50	
14:15			
10/14/02 8:00	50-55	55	
8:10 8:45	55-60	60	
	60-65	65	
	65-70	70	
	70-75	75	
9:13 9:24	75-80	80	

@ 43.5 feet: SANDSTONE - mostly fine sand, few very fine to medium, moist, pale yellowish brown (10YR 6/2)

@ 47.5 feet: GRAVELLY SANDSTONE - mostly fine sand, few medium, few gravel, granitic fragments, moist, yellowish gray (5Y 7/2)

Set 9-5/8 temporary drive casing shoe at 48.5'
with 8.5 inch open hole drilled to 54'

@ 52 feet: SANDSTONE - mostly very fine to fine sand, few silt, moist, yellowish gray (5Y 7/2)

Switch over to 7-5/8" temporary steel drive casing
at 54 feet. Reduce hole size to 6-1/2" bit, and proceed
using air rotary casing hammer method

@ 56 feet: minor siltstone

@ 59 feet: mostly sand

@ 60 feet: mostly fine sand, little silt, some medium to coarse sand, moderately hard, moist, dark yellow (5Y 6/4)

@ 65 feet: some gravel, yellowish gray (5Y 7/2)

GRAVELLY SANDSTONE: mostly fine to coarse sand, some fine to coarse gravel, subangular to subrounded

(CONTINUED ON THE FOLLOWING FIGURE)

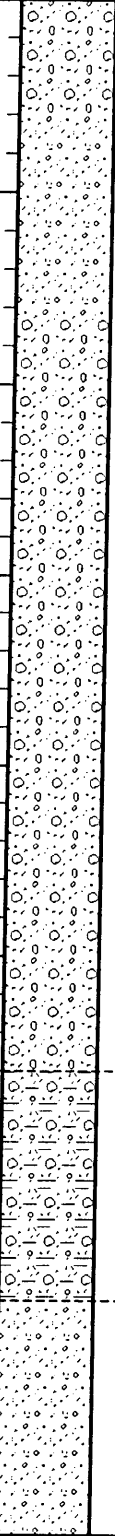
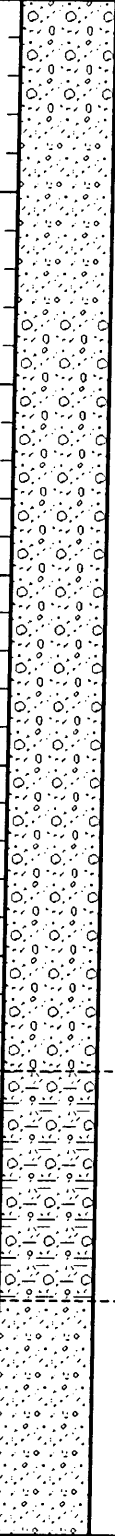
LOG OF BORING

BORING DW-22 RDB (Continued)

BY: T.M.Clark 0-54'
P. Chang 54'-160'

JOB NUMBER: 2002-036-90
DATE DRILLED: 10/11/02 - 10/14/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9:58 10:08	80-85	85	
	85-90	90	
	90-95	95	
	95-100	100	
	100-105	105	
	105-110	110	
	110-115	115	
10:47 11:12	115-120	120	

@ 85 feet: slightly less gravel

@ 90 feet: more gravels (30%)

@ 108 feet: SILTY GRAVELLY SANDSTONE - mostly fine sand, some fine to coarse gravel, some siltstone, moderately hard to hard, moist, moderate olive brown (5Y 4/4)

@ 110 feet: slow casing driving

@ 114 feet: GRAVELLY SANDSTONE - mostly fine to medium sand, some coarse sand to gravel, moderately hard, moist, yellowish gray (5Y 7/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-22 RDB (Continued)

BY: T.M.Clark 0-54'
P. Chang 54'-160'

JOB NUMBER: 2002-036-90
DATE DRILLED: 10/11/02 - 10/14/02

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
11:35	120-125	125	
11:46	125-130	130	
12:08	130-135	135	
12:19	135-140	140	
13:36			
13:59	140-145	145	
14:15	145-150	150	
14:56	150-155	155	
15:25	155-160	160	

@ 120 feet: occasional cobbles, hard

@ 125 feet: more silt and siltstone interbeds in gravelly sandstone, hard, light olive gray (5Y 5/2))

@ 127-129 feet: SILTY SANDSTONE - mostly sand, some silt

@ 130 feet: GRAVELLY SANDSTONE - with siltstone interbeds

@ 132 feet: SILTY SANDSTONE - mostly fine sand, some silt and siltstone, moderately hard, light olive brown, moist

@ 143 feet: SANDY SILTSTONE - mostly silt, some fine sand, moderately hard to hard, moist, light olive gray (5Y 5/2)

@ 148 to 150 feet: slightly more fine sand

@ 155 feet: SANDY SILTSTONE - as above very slow casing driving

Terminate boring at depth 160'. Drive casing refusal.
No groundwater encountered. Abandon borehole.

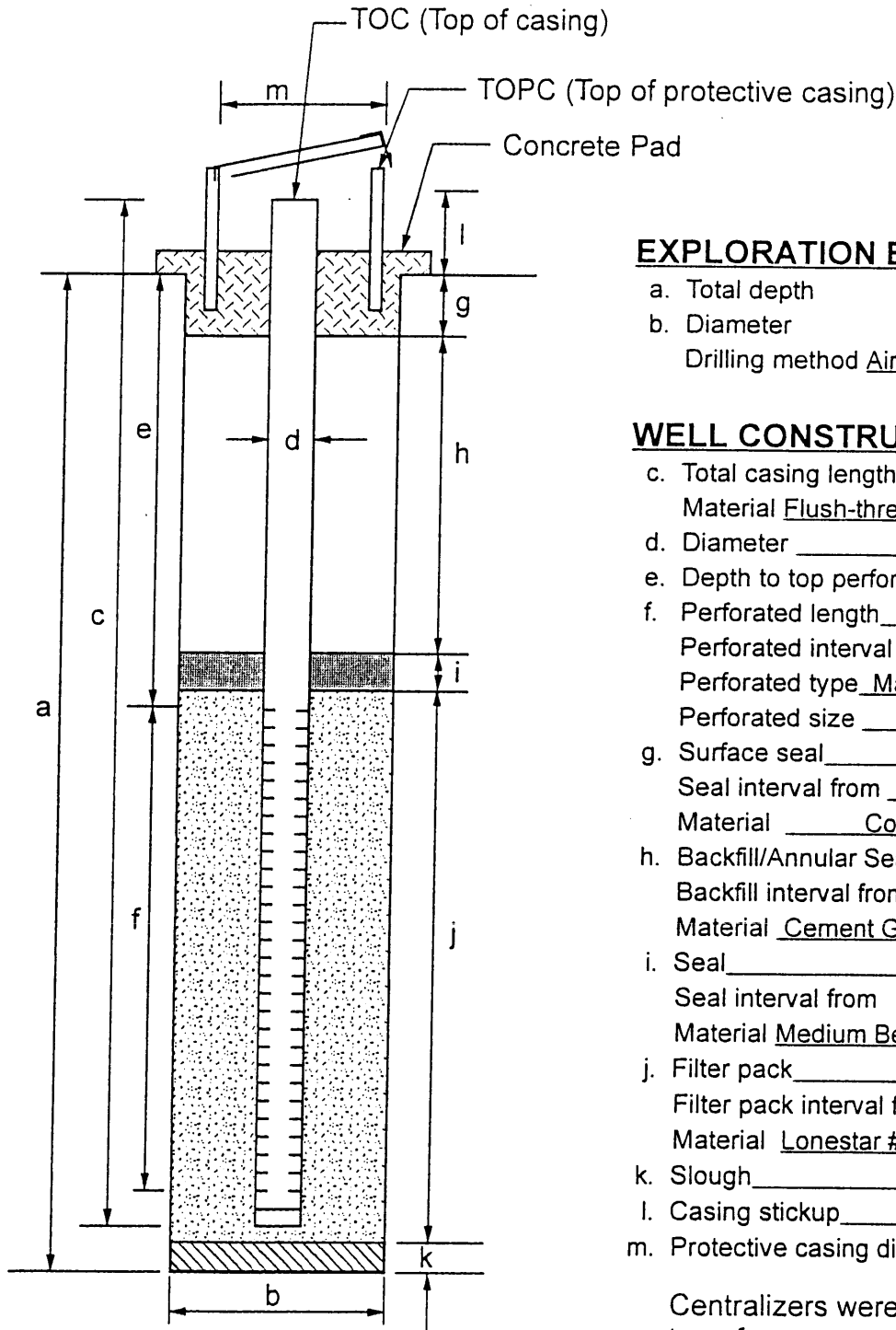
LOG OF BORING

DW-23 AS BUILT WELL CONSTRUCTION

PROJECT NUMBER: 2002-036-01
PROJECT NAME: Chiquita Canyon Landfill
LOCATION: Los Angeles County
DRILLER: WDC
INSTALLATION DATE: 5/1/03 - 5/2/03

TOP OF PROTECTIVE CASING ELEV.: 1370.68
TOP OF CASING ELEV.: 1370.24
CONCRETE PAD SURFACE ELEV.: 1368.06
DATUM: Mean Sea Level

NORTHING: 1983409.6870 · EASTING: 6369800.4960



EXPLORATION BORING

- a. Total depth 391 ft.
b. Diameter 9 in.
Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 382.16 ft.
Material Flush-threaded Schedule 80 PVC.
- d. Diameter 4 in.
- e. Depth to top perforations 350.24 ft.
- f. Perforated length 28.89 ft.
Perforated interval from 350.24 to 379.13 ft.
Perforated type Machine-slotted
Perforated size 0.020-inch.
- g. Surface seal 2 ft.
Seal interval from 0 to 2 ft.
Material Concrete.
- h. Backfill/Annular Seal 295 ft.
Backfill interval from 2 to 297 ft.
Material Cement Grout with 5% bentonite.
- i. Seal 7 ft.
Seal interval from 297 to 304 ft.
Material Medium Bentonite Chips.
- j. Filter pack 76 ft.
Filter pack interval from 304 to 380 ft.
Material Lonestar #2/12 and native slough.
- k. Slough 380 to 391 ft.
- l. Casing stickup 2.46 ft.
- m. Protective casing diameter 10.75 in.

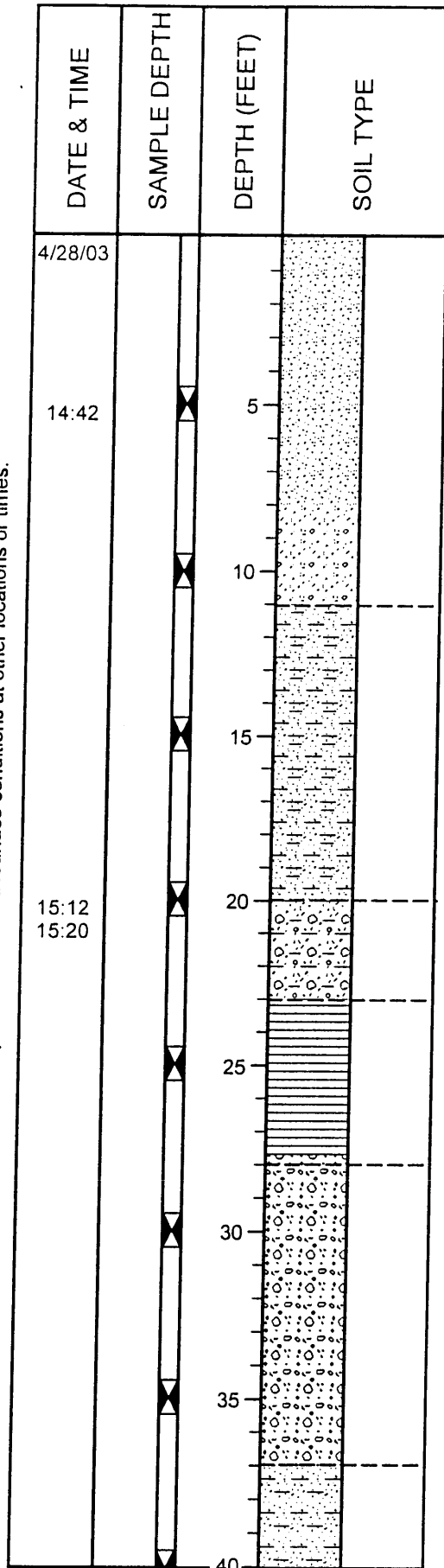
Centralizers were placed at bottom and top of screen, and every 40 feet above.

BORING DW-23

JOB NUMBER: 2002-036-01
 DATE DRILLED: 4/28/03 - 4/30/03
 EQUIPMENT USED: Dresser T70W Air Rotary
 ELEVATION: 1368
 SURFACE CONDITIONS: dirt road at saddle
 NORTHING: 1983409.6870
 EASTING: 6369800.4960

BY: P. Chang

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
 It is not warranted to be representative of subsurface conditions at other locations or times.



0-391 feet; SAUGUS FORMATION (QTs)

SANDSTONE: mostly fine to medium grained sand, few coarse sand to gravel, minor silt, moderately hard, grayish orange (10YR7/4)

Drilling 9-inch hole with 8 1/2 inch bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method

@ 5 feet: light olive brown (5Y 5/6), moist

@ 8 feet: some gravel

@ 11 feet: SILTY SANDSTONE: mostly fine grained sand, some silt and siltstone clasts, trace gravel

Set temporary drive casing at 17 feet, then drill open hole using 8 1/2 inch bit and direct air rotary drilling method.

@ 20 feet: more gravel and cobbles

CLAYSTONE: mostly clay and claystone fragments, few fine sand, moderately hard, moist, moderate brown (5Y 4/4)

GRAVELLY SANDSTONE: mostly medium to coarse sand, some subangular gravel and cobbles, moderately hard to hard, dry to moist, pale yellowish brown

@ 35 feet: slightly more sand and less gravel

SILTY SANDSTONE: mostly silt and fine sand, medium to coarse sand, moderately hard, moist, light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01

DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
15:43 16:02		45	
		50	
		55	
16:14		60	
4/29/03 7:30		65	
		70	
		75	
		80	

@ 41.5 feet: more silt and siltstone clasts

@ 45 feet: moderate brown (5Y 4/4)

GRAVELLY SANDSTONE: mostly fine to coarse sand, little silt, some angular to subrounded gravel, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 55 feet: slightly less gravel

CLAYSTONE to SILTSTONE: mostly fines and claystone clasts, little fine sand, moderately hard, moist, moderate brown (5Y 4/4)

@ 60 feet: more silt, dusky yellow (5Y 6/4)

SILTY SANDSTONE: mostly fine to medium sand, some silt, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 65 feet: more silt and siltstone clasts, light brown (5Y 5/6)

@ 70 feet: moderate yellowish brown (10 YR 5/4)

SANDSTONE: mostly fine sand, some medium sand, little silt, dusky yellow (5Y 6/4)

@ 75 feet: few gravel

(CONTINUED ON THE FOLLOWING FIGURE)

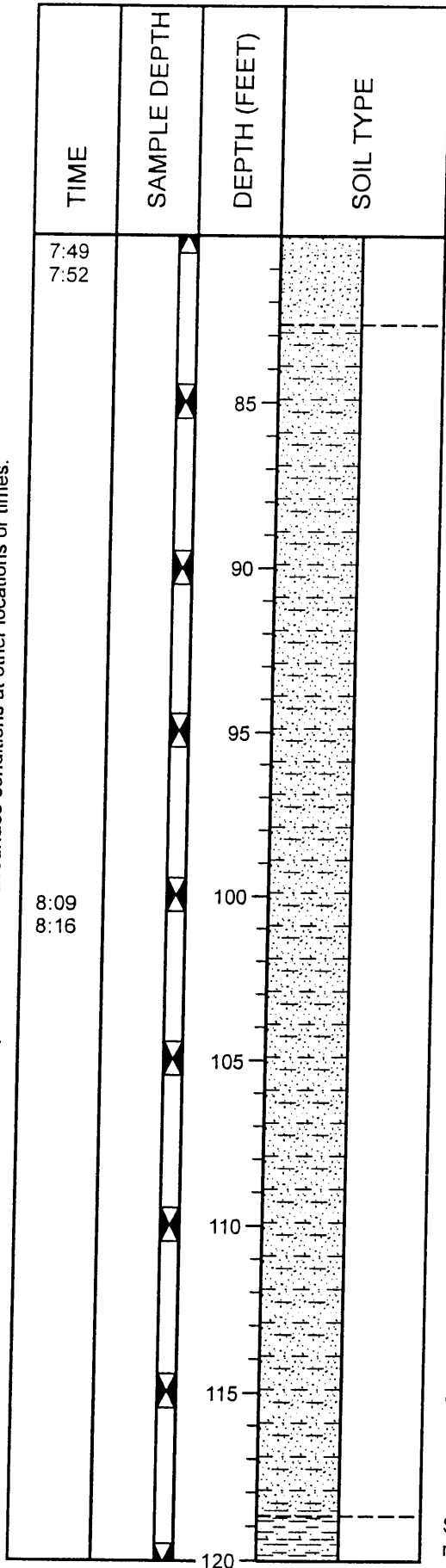
LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

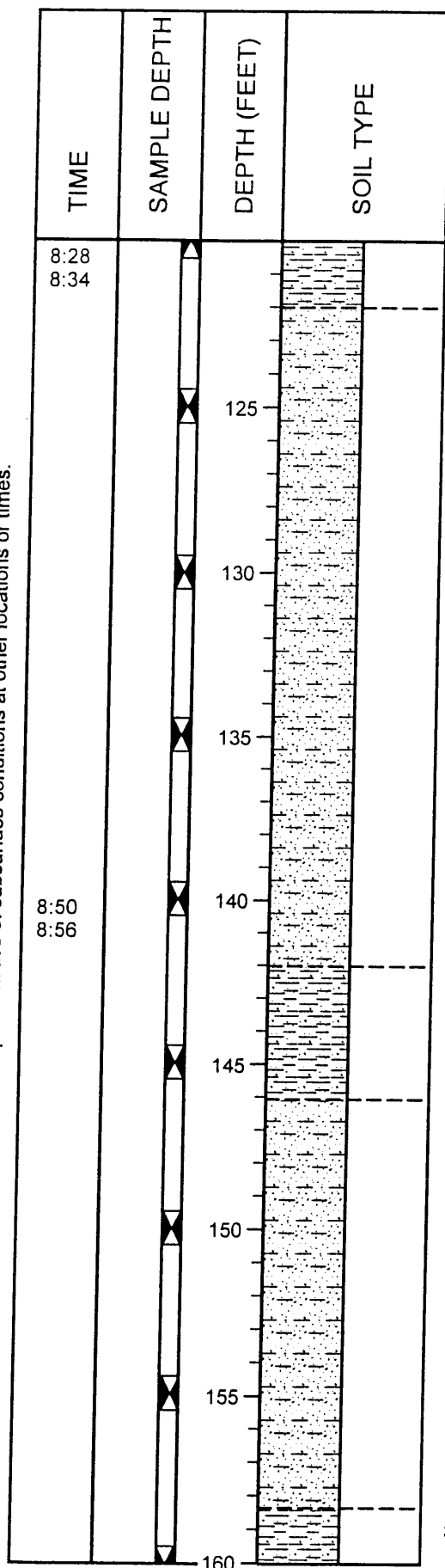
LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



SILTY SANDSTONE: mostly fine sand, some silt, little gravel, moderately hard, moist, dusky yellow (5Y 6/4)

@ 130 feet: more siltstone clasts, light olive brown

@ 132 feet: more medium sand, light brown (5YR 5/6)

@ 136 feet: moderate yellowish brown (10YR 5/4)

SANDY SILTSTONE: mostly silt and siltstone clasts, little fine to medium sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

SILTY SANDSTONE: mostly fine sand, little medium sand, some silt and siltstone clasts, few gravel, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 155 feet: more silt and siltstone clasts, light olive brown (5Y 5/6)

SANDY SILTSTONE: mostly siltstone clasts with little silt, few fine to medium sands, moderately hard to hard, moist, moderate yellowish brown (10YR 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
9:14		165	
		170	
		175	
9:27 9:32		180	
		185	
		190	
		195	
		200	

@ 165 feet: siltstone and claystone clasts, light brown (5Y 5/6)

@ 170 feet: more fine to medium sand

SILTY SANDSTONE: mostly fine sand, some medium sand, some silt and siltstone clasts, moderately hard, moist, light olive brown (5Y 5/6)

@ 180 feet: less silt, few gravel

SANDSTONE: mostly fine sand, little medium to coarse sand, moderately hard, moist, yellowish gray (5Y 7/2)

@ 190 feet: dusky yellow (5Y 6/4)

@ 195 feet: more silt

SILTY SANDSTONE: mostly fine sand, little medium to coarse sand, some silt, moderately hard, moist, moderate yellowish brown (10YR 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
9:44 9:50		205	
		210	
		215	
10:04 10:15		220	
		225	
		230	
		235	
		240	

@ 205 feet: more silt

@ 207 feet: some silt and siltstone clasts, mostly fine to medium sand,
light olive brown (5Y 5/6)

@ 215 feet: more silt and siltstone clasts

@ 230 feet: slightly more silt, mostly fine sand

@ 235 feet: more coarse sand and fine gravel

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
10:26 10:32		245	
		250	
		255	
10:47 14:11		260	
		265	
		270	
14:20		275	
		280	

@ 245 feet: moderate yellowish brown (10YR 5/4)

GRAVELLY SANDSTONE: mostly fine to coarse sand, few gravel, trace fines, moderately hard, moist, pale yellowish brown (10YR 6/2)

@ 255 feet: slightly more gravel

@ 270 feet: slightly less gravel

@ 274 feet: circulation drops, poor drilling returns, driller reports possible water

@ 275 feet: no noticeable change in moisture

@ 276-278 feet: few siltstone clasts

@ 280 feet: continue to experience loss of circulation and poor returns

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
15:06 15:15		285	
15:25		290	
		295	
15:47 15:55		300	
4/30/03 10:19		305	
		310	
		315	
		320	

@ 285 feet: some fines, mostly fine to medium sand, some gravel, moist, pale yellowish brown (10YR 6/2)

SANDY CLAYSTONE: mostly clay and claystone fragments, little fine to medium sand, moderately hard to hard, moist, olive gray (5Y 3/2)

SILTY SANDSTONE: mostly fine sand, some fine silt with few siltstone fragments, moderately hard, moist, light olive gray (5Y 5/2)

SANDY SILTSTONE: mostly silt and siltstone clasts, little fine sand, moderately hard, moist, light olive brown (5Y 5/6)

@301 feet: 7:40 am sounded boring, no water.
Add 2nd air compressor to better lift cuttings.

@ 305 feet: light olive gray (5Y 5/2)

@ 310 feet: more sand, moderate yellowish brown (10YR 3/2)

SILTY SANDSTONE: mostly fine sand, little silt, trace gravel, moderately hard, moist, moderate olive brown (5Y 4/4)

SANDY SILTSTONE: mostly fines and siltstone fragments, some fine sand, few medium sand to gravel, moderately hard, moist, light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01

DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
10:32 10:37		325	
		330	
		335	
10:57 11:02		340	
		345	
		350	
		355	
11:15		360	

@ 325 feet: hard, moderate yellowish brown (10YR 5/4)

@ 330 feet: mostly siltstone fragments with some silt, little fine to medium sand, hard

@ 335 feet: less silt and siltstone, more fine sand, moderately hard

@ 340 feet: more fines and siltstone clasts

At 14:45 on 4/30/03 water level measured at 343.0 feet inside drill pipe, with the borehole depth of 361 feet and the drill bit at 360 feet.

@ 350 feet: more fine to medium sand

@ 353 feet: more fine sand, pale yellowish brown (10 YR 6/2)

SILTY SANDSTONE: mostly fine to medium sand, little coarse sand and fine gravel, little silt, moderately hard, moist, (slight massive), dark yellowish brown (10YR 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-23 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 4/28/03 - 4-30/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
11:20 14:50		365	
		370	
		375	
15:12		380	
		385	
15:29		390	
		395	
		400	

@ 361 feet: water blew out of the hole when drilling resumed.

@ 361-381 feet: wet sand and gravel, poor recovery

GRAVELLY, SILTY SANDSTONE: mostly fine to coarse sand, some gravel, some silt, moderately hard, wet

@ 370 feet: mostly gravel in returns (poor recovery)

@ 385-390 feet: continued poor recovery, returns are mostly medium to coarse sand and gravel

BOTTOM OF BORING AT 391.0 FEET.
Target depth reached.

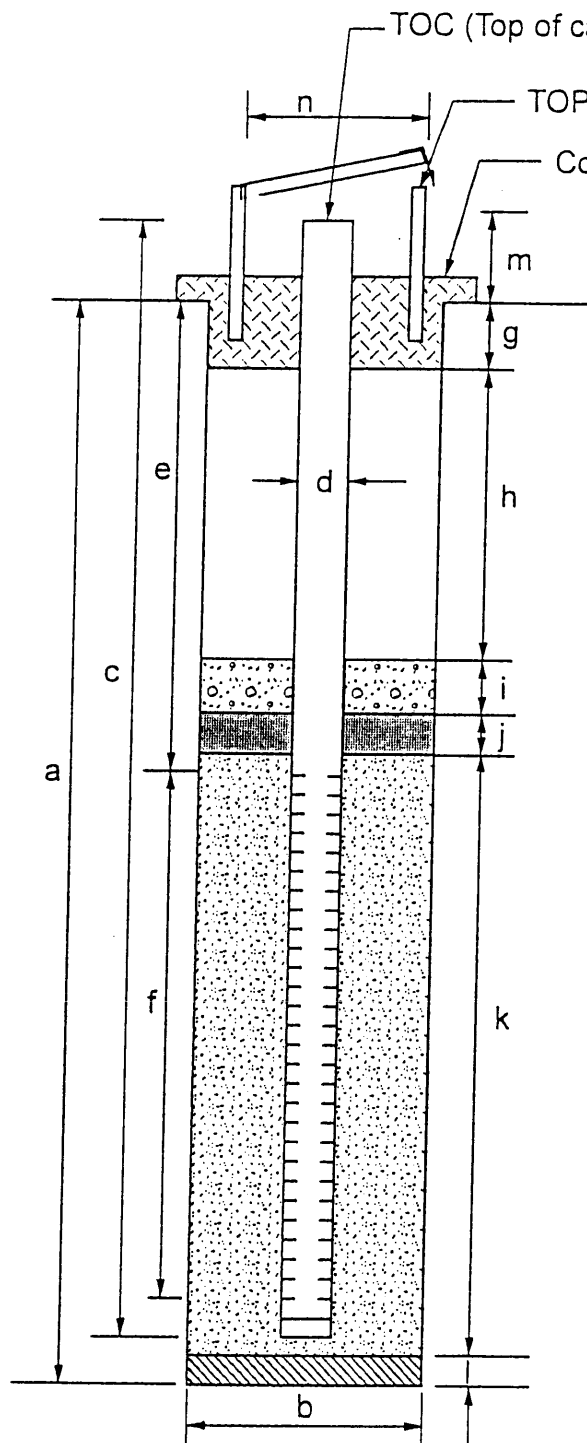
LOG OF BORING

DW-24 AS BUILT WELL CONSTRUCTION

PROJECT NUMBER: 2002-036-01
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC
 INSTALLATION DATE: 5/6/03 - 5/7/03

TOP OF PROTECTIVE CASING ELEV.: 1288.47
 TOP OF CASING ELEV.: 1287.74
 CONCRETE PAD SURFACE ELEV.: 1285.61
 DATUM: Mean Sea Level

NORTHING: 1983309.6170 EASTING: 6369377.5790



EXPLORATION BORING

- a. Total depth 313 ft.
 b. Diameter 9 in.
 Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

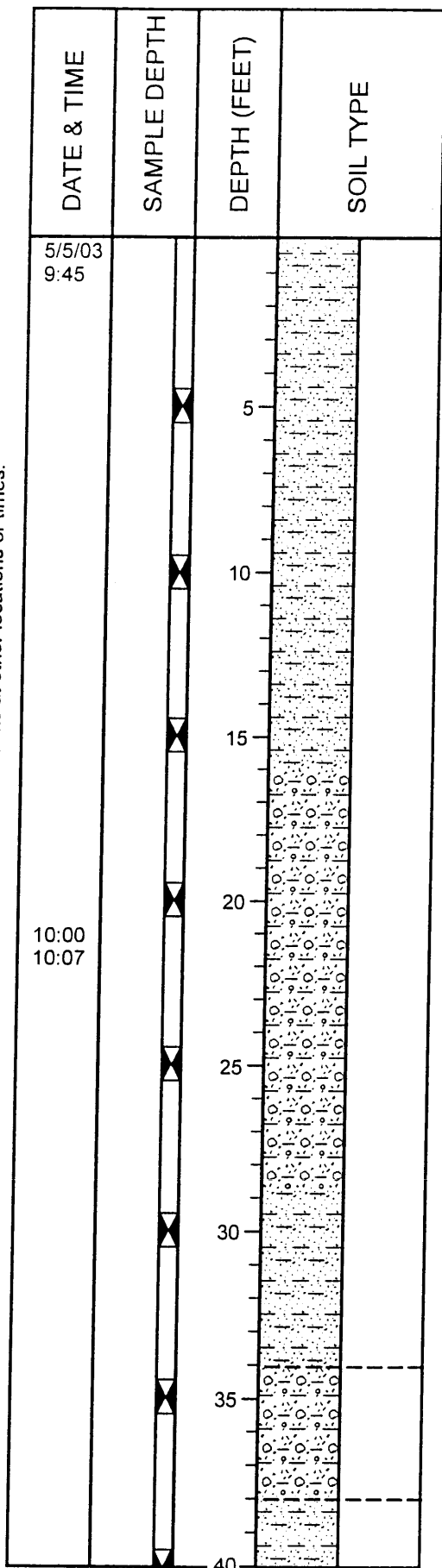
- c. Total casing length 303.22 ft.
 Material Flush-threaded Schedule 80 PVC.
 d. Diameter 4 in.
 e. Depth to top perforations 271.37 ft.
 f. Perforated length 28.95 ft.
 Perforated interval from 271.37 to 300.32 ft.
 Perforated type Machine-slotted
 Perforated size 0.020-inch.
 g. Surface seal 5 ft.
 Seal interval from 0 to 5 ft.
 Material Concrete
 h. Backfill/Annular Seal 197 ft.
 Backfill interval from 5 to 202 ft.
 Material Cement Grout with 5% Bentonite.
 i. Slough 202 to 241 ft.
 j. Seal 12.6 ft.
 Seal interval from 241 to 253.6 ft.
 Material Medium Bentonite Chips
 k. Filter pack 45.4 ft.
 Filter pack interval from 253.6 to 299 ft.
 Material Lonestar #2/12
 l. Backfill Slough 299 to 313 ft.
 m. Casing stickup 2.43 ft.
 n. Protective casing diameter 10.75 in.

Centralizers were placed at bottom and top of screen, and every 40 feet above.

BORING DW-24

JOB NUMBER: 2002-036-01
 DATE DRILLED: 5/5/03 - 5/6/03
 EQUIPMENT USED: Dresser T70W Air Rotary
 ELEVATION: 1285
 SURFACE CONDITIONS: Dirt drilling pad on hillside
 NORTHING: 1983309.6170
 EASTING: 6369377.5790

BY: P. Chang



0-313 feet: SAUGUS FORMATION (TQs)

SILTY SANDSTONE: mostly fine to medium sand, some fine silt, little coarse sand and gravel, loose to moderately hard, moist, dusky yellow (5Y 6/4)

Drilling 9-inch hole with 8 1/2 inch bit, and driving temporary steel casing (nominal 9-5/8 inch) using air rotary casing hammer method.

@ 5 feet: moderately hard

@ 10 feet: more silt and siltstone fragments

@ 16 feet: becomes gravelly

Set temporary drive casing at 17.68 feet, then drill open hole using 8 1/2 inch bit and direct air rotary drilling method.

@ 25 feet: light olive brown (5Y 5/6)

@ 28 feet: more silt and siltstone fragments, little coarse sand and gravel

GRAVELLY SANDSTONE: mostly fine sand, some medium to coarse sand, some gravel to 2", trace fines, moist, moderately hard, light olive gray (5Y 5/2)

SILTY SANDSTONE: mostly fine to medium sand, few gravel, some fines and siltstone fragments, moderately hard, moist, light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

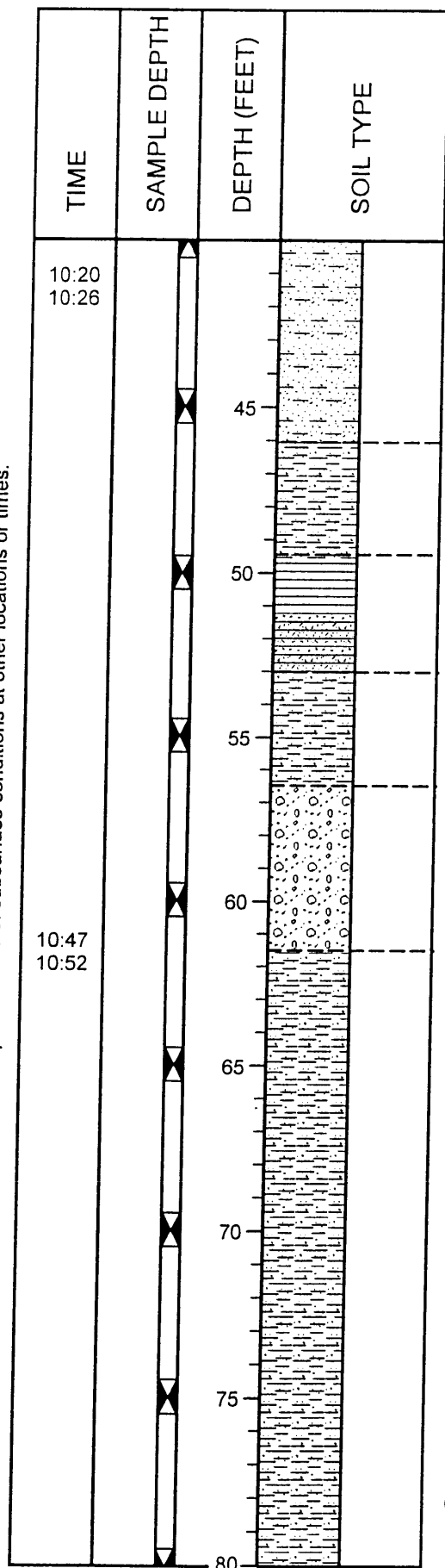
LOG OF BORING

BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 5/5/03 - 5/6/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



SANDY SILTSTONE: mostly silt and siltstone fragments, little fine sand, moderately hard, moist, light olive brown (5Y 5/6)

CLAYSTONE: mostly fine clay and claystone fragments, few fine sand, moderately hard, moist, olive gray (5Y 3/2)

@ 51 feet: more fine sand

SANDY SILTSTONE: mostly silt and siltstone fragments, some fine to medium sand, few gravel, hard, moist, light olive gray (5Y 5/2)

GRAVELLY SANDSTONE: mostly fine to coarse sand, some fine to coarse gravel, subangular, few silt, moderately hard, moist, dusky yellow (5Y 6/4)

SANDY SILTSTONE: mostly silt and siltstone fragments, little sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 70 feet: more fine to medium sand

@ 73 feet: less sand, more silt and siltstone fragments

@ 78 feet: few fine to medium sand, light olive brown (5Y5/6)

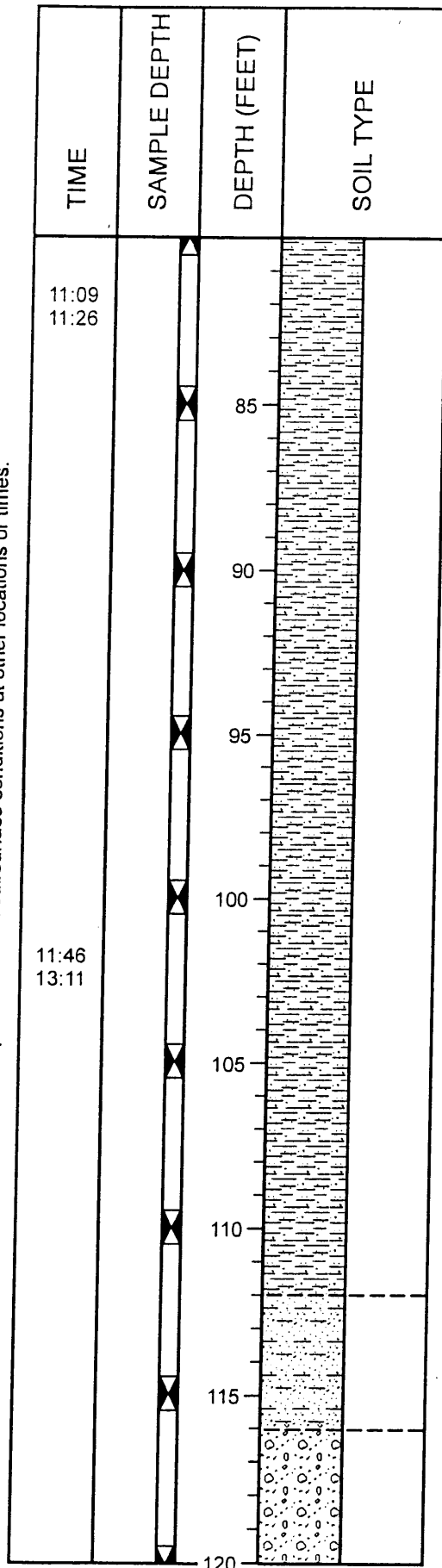
(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 5/5/03 - 5/6/03



@ 85 feet: hard, light olive gray (5Y 5/2)

@ 90 feet: light olive brown (5Y 5/6)

@ 95 feet: few sand, mostly siltstone fragments, hard

@ 100 feet: slightly more fine to medium sand

@ 105 feet: mostly fine silt and siltstone fragments, little fine to medium sand, moderately hard to hard, moist, light brown (5Y 5/6)

SILTY SANDSTONE: mostly fine sand, some silt, little medium to coarse sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 115 feet: gradually becomes coarser

GRAVELLY SANDSTONE: mostly fine to medium sand, some coarse sand and gravel, subangular to subrounded, few silt, moderately hard, moist, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

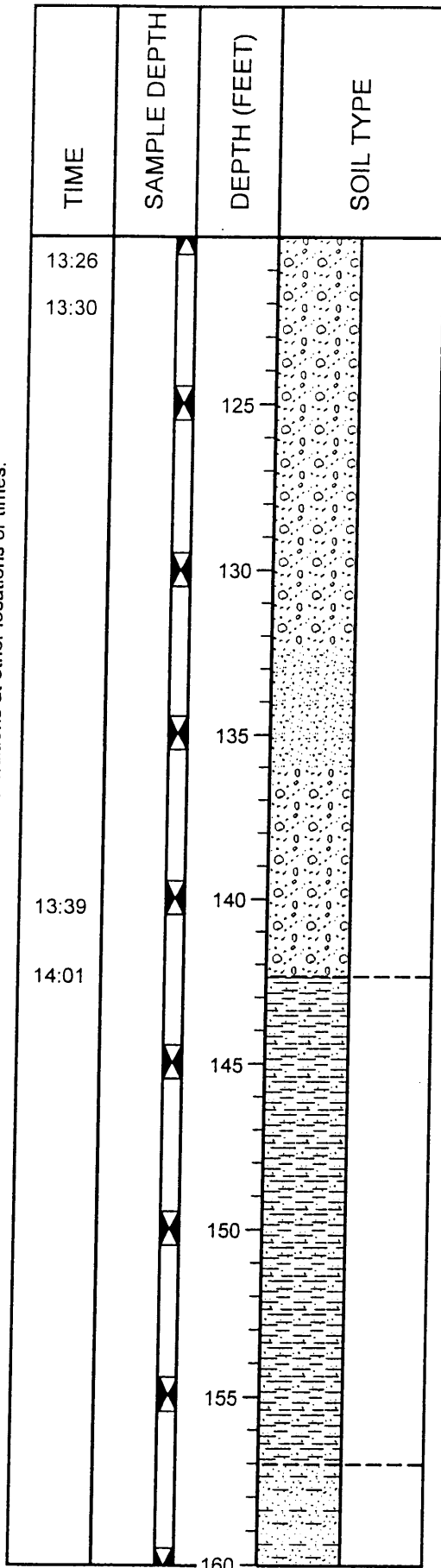
Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 5/5/03 - 5/6/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



@ 132 feet: few to no gravel

@ 134 feet: slightly moisture increase

@ 136 feet: little gravel, moist

@ 141 feet: moderate yellowish brown (10YR 5/4)

@ 142 feet: @ 13:55 shut down air compressors for 15 minutes, water check no water

SANDY SILTSTONE: mostly silt and siltstone fragments, little fine to medium sand, moderately hard to hard, moist, moderate yellowish brown (10YR 5/4)

@ 150 feet: few fine sand

@ 155 feet: slightly more fine to coarse sand

SILTY SANDSTONE: mostly fine to medium sand, little coarse sand and fine gravel, little silt, moderately hard, moist, moderate olive brown (5Y 4/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

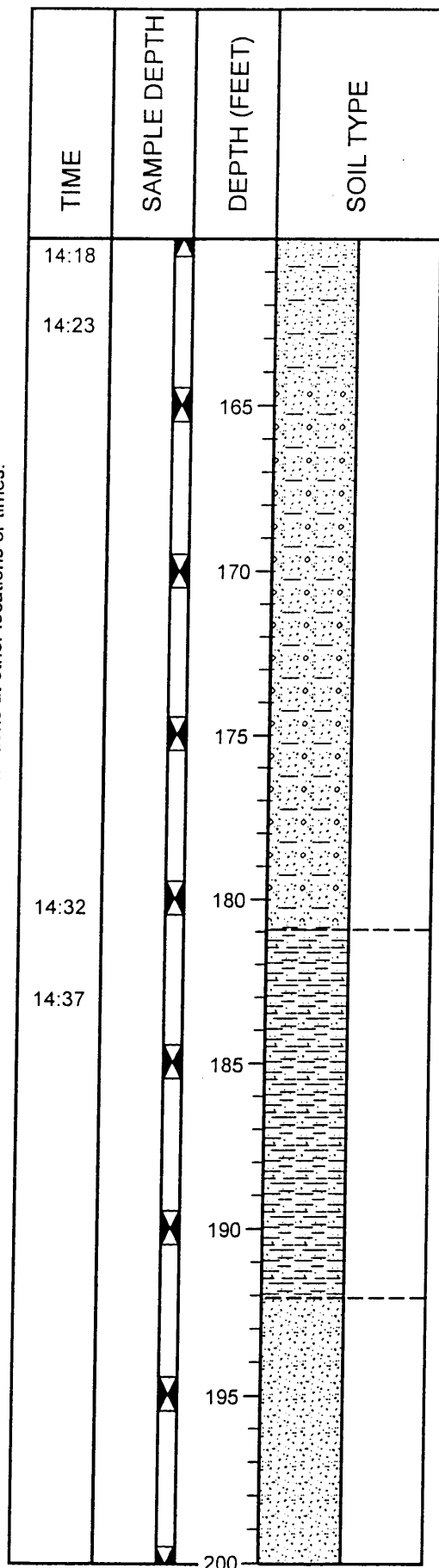
BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01

DATE DRILLED: 5/5/03 - 5/6/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



@ 165 feet: few gravel

@ 168 feet: slightly moisture increase

SANDY SILTSTONE: mostly silt and siltstone fragments, little fine to medium sand, hard, moist, light olive gray (5Y 5/2)

@ 189 feet: more fine sand, light brown (5Y 5/6)

SANDSTONE: mostly fine sand, little medium sand to gravel, few fines, moderately hard, moist, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)

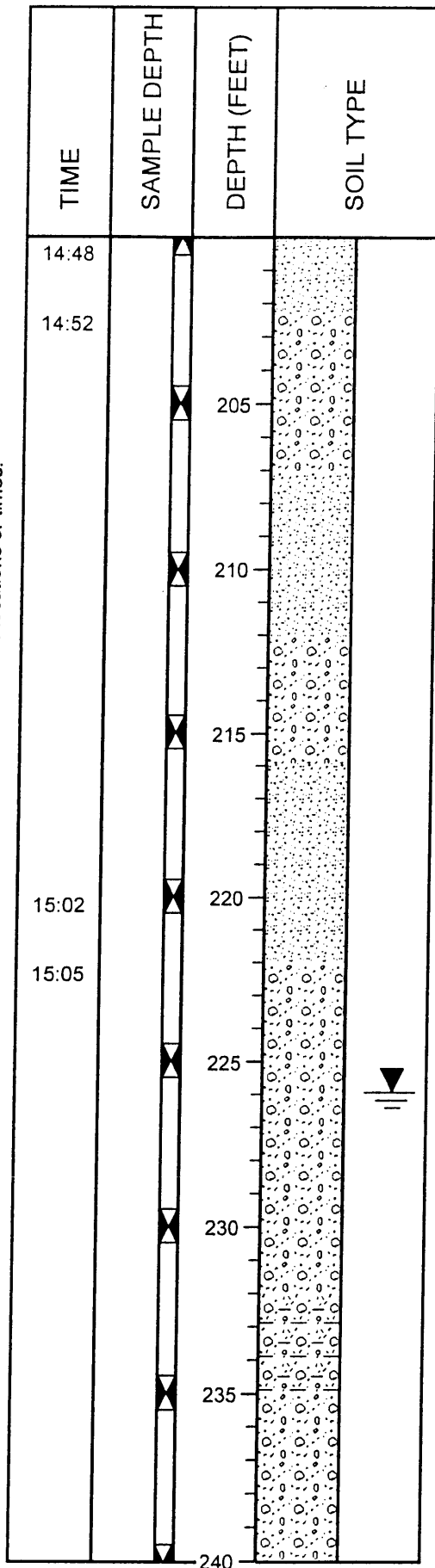
LOG OF BORING

BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 5/5/03 - 5/6/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



@ 202 feet: becomes gravelly

@ 207 feet: less gravel

@ 212 to 216 feet: gravelly

@ 218 feet: slight moisture increase

@ 225 feet: more medium and coarse sand, few gravel, light olive gray (5Y 5/2)

At 8:15 am on 5/6/03, water level sounded at 226.1' feet with total depth of boring at 302' prior to starting rig air compressor.

@ 232 - 235 feet: little silt

(CONTINUED ON THE FOLLOWING FIGURE)

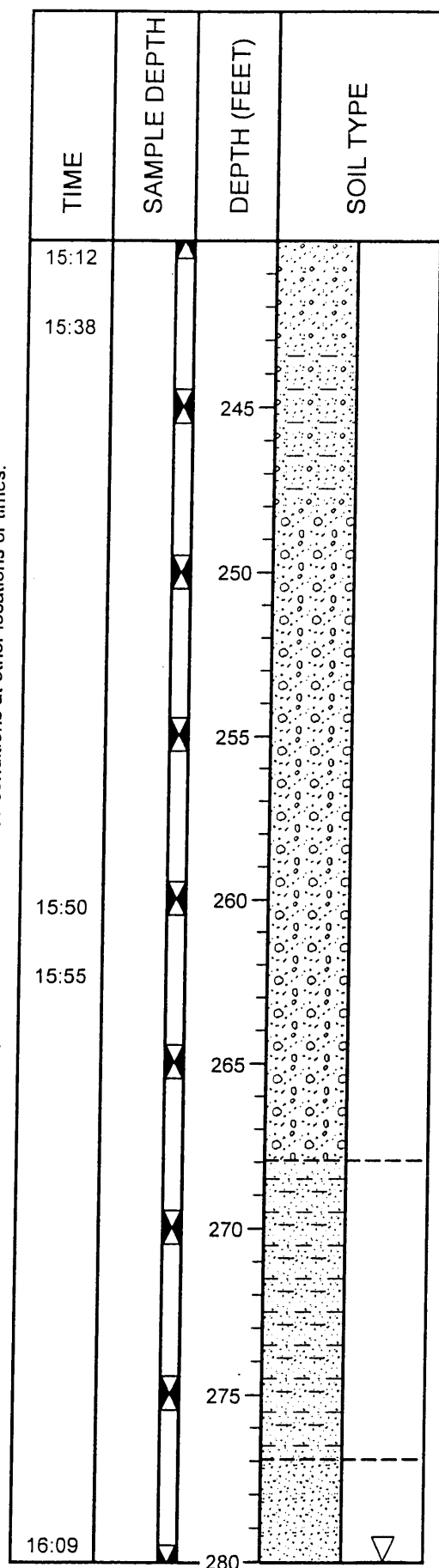
LOG OF BORING

BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 5/5/03 - 5/6/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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@ 242 feet: 15 minute water check, no water

@ 243 - 248 feet: some silt and siltstone fragments, mostly fine to coarse sand, little gravel, hard, moist

@ 245 feet: moderate yellowish brown (10YR 5/4)

@ 248 feet: few silt

@ 260 feet: moderate brown (5YR 4/4)

@ 265 feet: moderate yellowish brown (10YR 5/4)

SILTY SANDSTONE: more silt, less gravel

@ 270 feet: moderately hard to hard, light brown (5YR 5/6)

@ 275 feet: some silt and siltstone fragments, mostly fine to medium sand

SANDSTONE: mostly fine to coarse sand, less silt, dark yellowish brown (10YR 4/2), less dust in return

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING DW-24 (Continued)

BY: P. Chang

JOB NUMBER: 2002-036-01
DATE DRILLED: 5/5/03 - 5/6/03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE DEPTH	DEPTH (FEET)	SOIL TYPE
16:11			
16:16		285	
		290	
		295	
16:40		300	
5/6/03 9:55		305	
		310	
10:05		315	
		320	

@ 280 feet: few siltstone fragments, fragments are wet

@ 282 feet: poor recovery after joint connection

@ 293 feet: rig chatter , possible gravels

@ 295 feet: small amount of gravel in returns, poor recovery

@ 300 feet composite sample: medium to coarse sand and siltstone fragments

@ 302 feet: starting to blow small amount of water out during hole cleaning

@ 304 - 313 feet composite sample: mostly siltstone fragments, little sand, wet

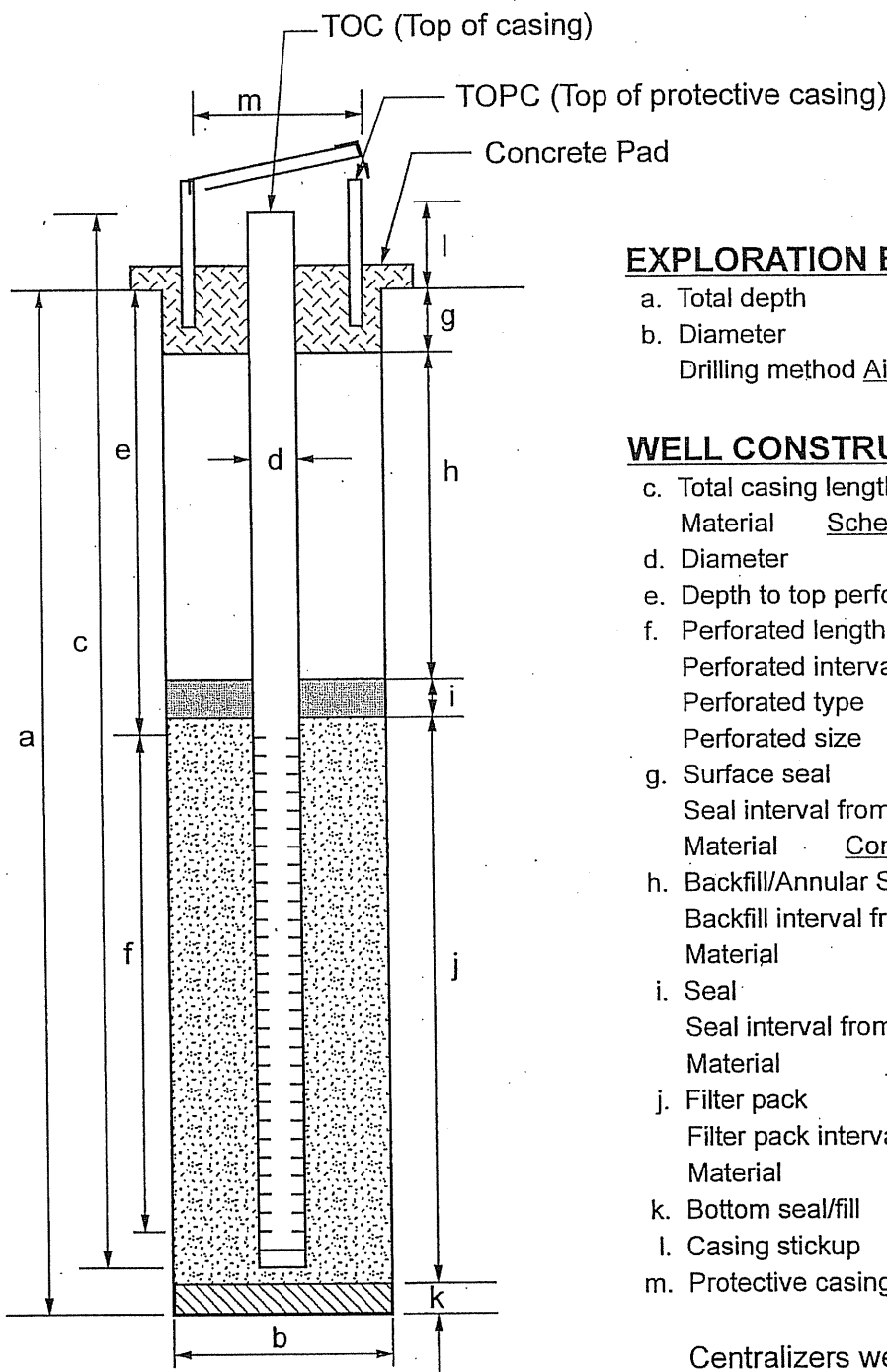
BOTTOM OF BORING AT 313 FEET.
Target depth reached.

LOG OF BORING

AS BUILT WELL DETAIL: DW-25

PROJECT NUMBER: 2002-036-91
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC

SURFACE ELEVATION: 1263.00
 TOC ELEVATION: 1265.50
 DATUM: Mean Sea Level
 INSTALLATION DATE: 12-2-04



EXPLORATION BORING

- a. Total depth 106 ft.
- b. Diameter 8.5 in.
- Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 107.50 ft.
 Material Schedule 80 PVC
- d. Diameter 4.0 in.
- e. Depth to top perforations 65.16 ft.
- f. Perforated length 38.97 ft.
 Perforated interval from 65.16 to 104.13 ft.
 Perforated type machine slotted
 Perforated size 0.020 in.
- g. Surface seal 2 ft.
 Seal interval from 0 to 2 ft.
 Material Concrete / Bentonite Chips
- h. Backfill/Annular Seal 52.0 ft.
 Backfill interval from 2.0 to 54.0 ft.
 Material neat cement
- i. Seal 4.5 ft.
 Seal interval from 54.0 to 58.5 ft.
 Material medium bentonite chips
- j. Filter pack 47.5 ft.
 Filter pack interval from 58.5 to 106 ft.
 Material #2/12 graded sand
- k. Bottom seal/fill none
- l. Casing stickup 2.5 ft.
- m. Protective casing diameter 10 3/4 in.

Centralizers were placed at bottom and top of screen, and every 40 feet above.

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING DW-25		
					JOB NUMBER: 2002-036-91 DATE DRILLED: 12/1/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1263' LOGGED BY: Paul Chang BORING DEPTH: 0-111' SURFACE CONDITIONS: Dirt drilling pad		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				0			0-41' LANDSLIDE (Qls)
				0			SILTY SANDSTONE: mostly fine to medium sand, some fine silt, few coarse sand and gravel, moderately hard, dry to moist, moderate brown (5YR 4/4)
				5			SANDY SILTSTONE: some fine to medium sand, mostly silt, moderately hard, moist, pale yellowish brown (10YR 6/2)
							@ 5 ft. more clayey fines
				8			@ 8 ft. slightly more moist
				10			@ 10 ft. light olive gray (5Y 5/2): moist
				15			SILTY SANDSTONE: mostly fine sand, some silt with clay, little medium sand, moderately hard, moist, dark yellowish brown (10 YR 4/2)
							(10:04)
							(10:12)
				20			
				25			@ 25 ft. more fine sands
				30			SANDY SILTSTONE: some fine to medium sand, mostly silt and clay with siltstone fragments, moderately hard to hard, moist, moderate yellowish brown (10YR 5/4)
				35			SILTY SANDSTONE: mostly fine sand, some silt, few medium sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)
							(10:21)
							(10:28)
				40			

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING DW-25 (CONTINUED)		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
							JOB NUMBER: 2002-036-91 DATE DRILLED: 12/1/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1263' LOGGED BY: Paul Chang BORING DEPTH: 0-111' SURFACE CONDITIONS: Dirt drilling pad
							@ 40 ft. slightly more medium to coarse sands
							41-111' PICO FORMATION (Tp)
							SANDY SILTSTONE: some fine sand, mostly silt, hard, moist, light olive brown (5Y 5/6)
							@ 43 ft. some light olive gray (5Y 5/2): siltstone fragments
				45			SILTSTONE: mostly silt and siltstone fragments, few fine sands, light olive brown (5Y 5/6)
							@ 47 ft. more fine sands
							@ 47.12 ft. bottom of drive casing (removed 12/2/2004): drill 8.5-inch open hole to 100 feet using air rotary method
				50			@ 48 ft. more siltstone fragments: making fine dust
							@ 54 ft. light olive gray (5Y 5/2): mostly silt and siltstone fragments, few fine sand: very hard
				55			(10:40) (10:52)
							@ 60 ft. grayish olive (10 Y 4/2): more siltstone fragments
				60			
							SANDY SILTSTONE: mostly silt, some fine sand, hard, moist, light olive gray (5Y 5/2)
				65			@ 66 ft. grayish orange (10YR 7/4): mostly siltstone fragments: dry to moist: making fine dust
							@ 70 ft. moderate yellowish brown (10YR 5/4): mostly silt: some fine sand: hard: moist
				70			
							▽ groundwater at 74.3 feet
							with borehole total depth at 95 feet (1:00 PM) 12/1/04
				75			▽ groundwater at 75.81 feet
							in well (3:55 PM) 12/2/04
							@ 75 ft. Sandy Siltstone/Claystone: moderate brown (5YR 4/4): mostly silt and clay: little fine sand: moist to very moist: hard.
							(11:02) (11:11)
				80			

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING DW-25 (CONTINUED)		
					JOB NUMBER: 2002-036-91 DATE DRILLED: 12/1/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1263' LOGGED BY: Paul Chang BORING DEPTH: 0-111' SURFACE CONDITIONS: Dirt drilling pad		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				85			@ 80 ft. light olive gray (5Y 5/2): more fine to medium sand
							SILTY SANDSTONE: mostly fine sand, some silt with clay, hard, moist, light olive gray (5Y 5/2)
				90			@ 90 ft. grayish olive (10Y 4/2): slightly more sands
				95			@ 95 ft. more clay: few medium to coarse sands. (11:28) Convert to Christensen 94 mm continuous coring system. 92 minute water check: groundwater at 74.3 feet, 1:00 P.M. 12/1/04 (13:00)
							@ 96 to 99 ft. no recovery on continuous core
				100			@ 100.5 ft. Silty Sandstone
				105			
				110			SANDY SILTSTONE: some fine sand, mostly silt, finely laminated, hard, wet, light olive gray (5Y 5/2)
							Bottom of Boring at 111 feet. At 4:00 pm 12/1/04. Target depth reached
				115			
				120			

LOG OF BORING

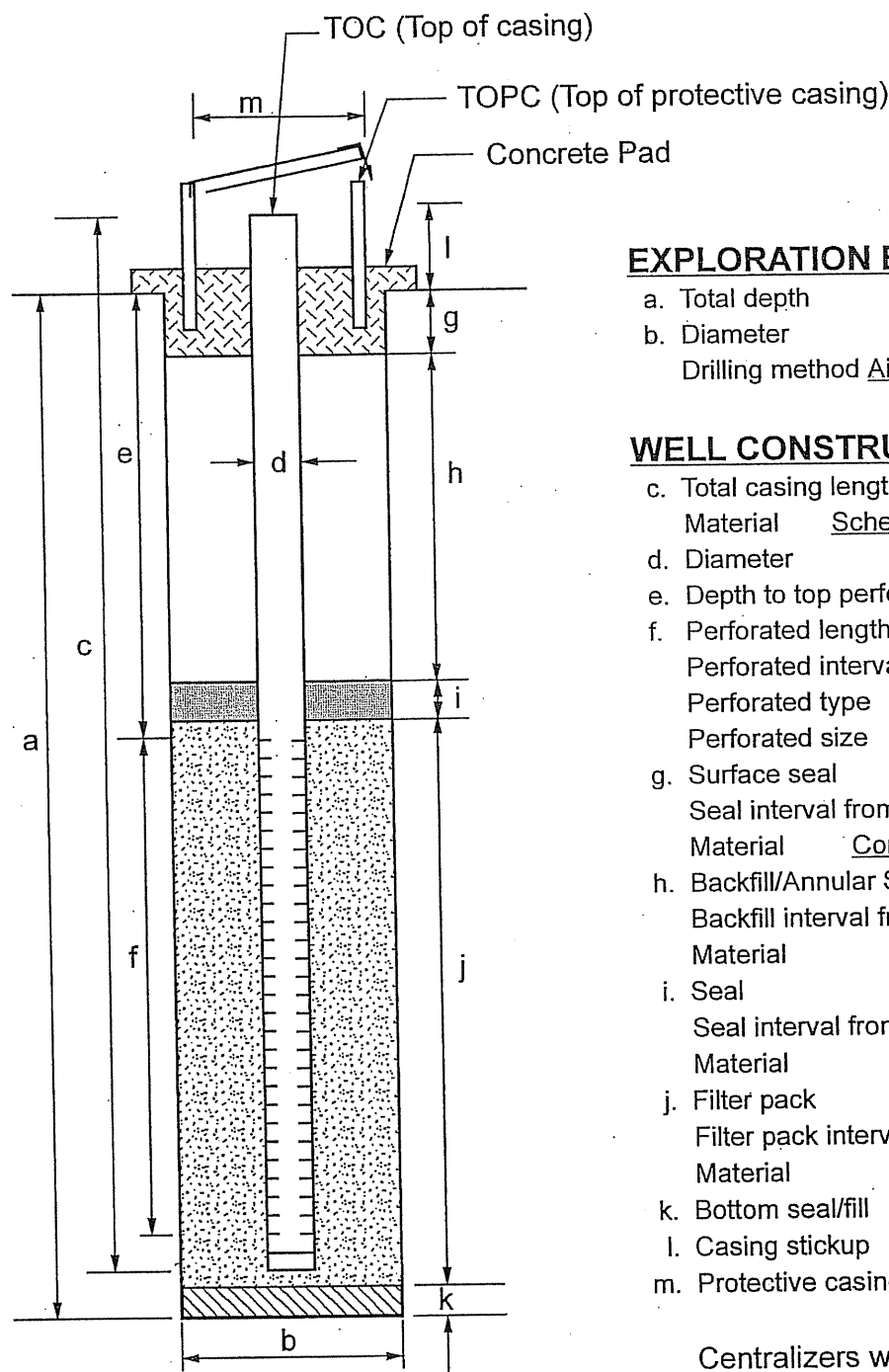
R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

AS BUILT WELL DETAIL: DW-26

PROJECT NUMBER: 2002-036-91
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC

SURFACE ELEVATION: 1174.81
 TOC ELEVATION: 1177.31
 DATUM: Mean Sea Level
 INSTALLATION DATE: 12-14-04



EXPLORATION BORING

- a. Total depth 146.5 ft.
 b. Diameter 8.5 in.
 Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 148.11 ft.
 Material Schedule 80 PVC
 d. Diameter 4.0 in.
 e. Depth to top perforations 115.52 ft.
 f. Perforated length 29.62 ft.
 Perforated interval from 115.52 to 145.14 ft.
 Perforated type machine slotted
 Perforated size 0.020 in.
 g. Surface seal 2 ft.
 Seal interval from 0 to 2 ft.
 Material Concrete / Bentonite Chips
 h. Backfill/Annular Seal 94.5 ft.
 Backfill interval from 2.0 to 96.5 ft.
 Material neat cement
 i. Seal 13 ft.
 Seal interval from 96.5 to 109.5 ft.
 Material medium bentonite chips
 j. Filter pack 37 ft.
 Filter pack interval from 109.5 to 146.5 ft.
 Material #2/12 graded sand
 k. Bottom seal/fill none
 l. Casing stickup 2.5 ft.
 m. Protective casing diameter 10 3/4 in.

Centralizers were placed at bottom and top of screen, and every 40 feet above.

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

BORING DW-26

JOB NUMBER: 2002-036-91

DATE DRILLED: 12/10/04

EQUIPMENT USED: Air Rotary Casing Hammer

ELEVATION: 1174.81'

LOGGED BY: Paul Chang

BORING DEPTH: 0-146.5'

SURFACE CONDITIONS: Dirt access road for power tower, on ridge line.

0-146.5' SAUGUS FORMATION (QTs)

SILTY SANDSTONE: mostly fine to coarse sand, some silt, few gravels, moderately hard, dry to moist, light olive brown (5Y 5/6)

@ 8 ft. more silt

@ 15 ft. more clayey: few gravels: moderate yellowish brown
(10YR 4/5) (16:05)
(10:08 12/13/2004)

@ 19 ft. more silty

@ 22 ft. some gravels

@ 25 ft. silty, gravelly, sandstone: light olive brown (5Y 5/6);
some silt: mostly fine sand: little medium sand to gravels:
moderately hard to hard: moist

@ 30 ft. less gravels

SANDY SILTSTONE: some fine sand, mostly silt and siltstone
fragments, moderately hard, moist, light olive gray (5Y 5/6)

(10:29)
(10:39)

SILTY SANDSTONE: mostly fine to medium sand, some silt, hard,
moist, light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

BORING DW-26 (CONTINUED)
JOB NUMBER: 2002-036-91
DATE DRILLED: 12/10/04
EQUIPMENT USED: Air Rotary Casing Hammer
ELEVATION: 1174.81'
LOGGED BY: Paul Chang
BORING DEPTH: 0-146.5'
SURFACE CONDITIONS: Dirt access road for power tower, on ridge line.

@ 42 ft. more medium sand to gravels

SANDY SILTSTONE: some fine to medium sand, mostly silt and siltstone fragments, hard, moist, light olive gray (5Y 5/2)

@ 50 ft. less siltstone fragments: more fine sand

SILTY SANDSTONE: mostly fine to medium sand, some silt, little coarse sand and gravels, moderately hard to hard, moist, light olive brown (5 Y 5/6)

(10:48)
(10:52)

SILTSTONE: few fine sand, mostly silt and siltstone fragments, hard to very hard, moist, grayish olive (10Y 4/2) to olive gray (5Y 3/2)

SILTY SANDSTONE: mostly fine sand, some silt, few medium sands to gravels, hard, moist, moderate olive brown (5Y 4/4)

SANDY SILTSTONE: little fine sand, mostly silt and siltstone fragments, hard to very hard, moist, moderate olive brown (5Y 4/4)

@ 71 ft. yellowish gray (5Y 7/2): more silt: making fine dust: dry, very hard

@ 75 ft. dusky yellow (5Y 6/4): slightly more fine to medium sand: hard to very hard

(11:12)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.CPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING DW-26 (CONTINUED)		
					JOB NUMBER: 2002-036-91 DATE DRILLED: 12/10/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1174.81' LOGGED BY: Paul Chang BORING DEPTH: 0-146.5' SURFACE CONDITIONS: Dirt access road for power tower, on ridge line.		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				85			(11:23) @ 80 ft. moderate yellowish brown (10YR 5/4): more sands
							@85 ft. more silt and siltstone fragments: hard: moist
				90			@ 90 ft. more sandy
							SILTY SANDSTONE: mostly fine sand, some silt, few medium sands to gravels, hard, moist, light olive brown (5Y 5/6)
				95			@ 95 ft. more fine to medium sands: little gravels
				100			(11:35) (11:42) @ 101 ft. slight increase in moisture
							SANDY SILTSTONE: some fine to medium sand, mostly silt and siltstone fragments, hard, moist, moderate yellowish brown (10YR 5/4)
				105			SILTY SANDSTONE: mostly fine to medium sands, some silt, hard, moist (slightly more moisture), light olive brown (5Y 5/6)
				110			SANDY SILTSTONE: some fine sand, mostly silt and siltstone fragments, hard, moist (less moisture), moderate yellowish brown (10YR 5/4)
				115			@ 115 ft. moderate brown (5YR 4/4): hard to very hard: some fine to medium sands
				120			SILTY SANDSTONE: mostly fine to medium sand, little silt, little coarse sand and gravels, hard, moist to wet, moderate yellowish brown

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING DW-26 (CONTINUED)		
					JOB NUMBER: 2002-036-91 DATE DRILLED: 12/10/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1174.81' LOGGED BY: Paul Chang BORING DEPTH: 0-146.5' SURFACE CONDITIONS: Dirt access road for power tower, on ridge line.		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
							(10YR 5/4) @ 119 ft. 15 minute water check (to 109'): no water. (11:54) Groundwater estimated at 120 feet (12:15 pm) 12/13/2004 (12:12) @ 122 ft. more coarse sands and gravels
				125			SANDY SILTSTONE: some fine to medium sand, mostly silt and siltstone fragments, hard, moist to very moist, moderate yellowish brown (10YR 5/4) to pale brown (5YR 5/2)
							@ 128 ft. slightly less moisture
				130			@ 130 ft. moderate yellowish brown (10YR 5/4): more silt and fine sand: moist
							SILTY SANDSTONE: mostly fine to medium sand, little silt, some coarse sand and gravels, hard, wet, light olive brown (5Y 5/6)
							SANDY SILTSTONE: some fine sand, mostly silt with few siltstone fragments, hard, moist to very moist, moderate yellowish brown (10YR 5/4)
				135			SILTY SANDSTONE: mostly fine to medium sand, little silt, some coarse sand and gravels, hard, wet, light olive brown (5Y 5/6)
							@ 138 ft. 1 hour water check: no water (to 124') blowing water out of hole when rig compressor starts. (12:29) (13:31)
				140			@ 140 ft. more silt: moist to wet
							SANDY SILTSTONE: some fine sand, mostly siltstone and siltstone fragments, hard, very moist, light olive brown (5Y 5/6)
				145			
							Bottom of Boring at 146.5 feet. At 1:43 pm 12/13/04. Target depth reached
				150			
				155			
				160			

LOG OF BORING

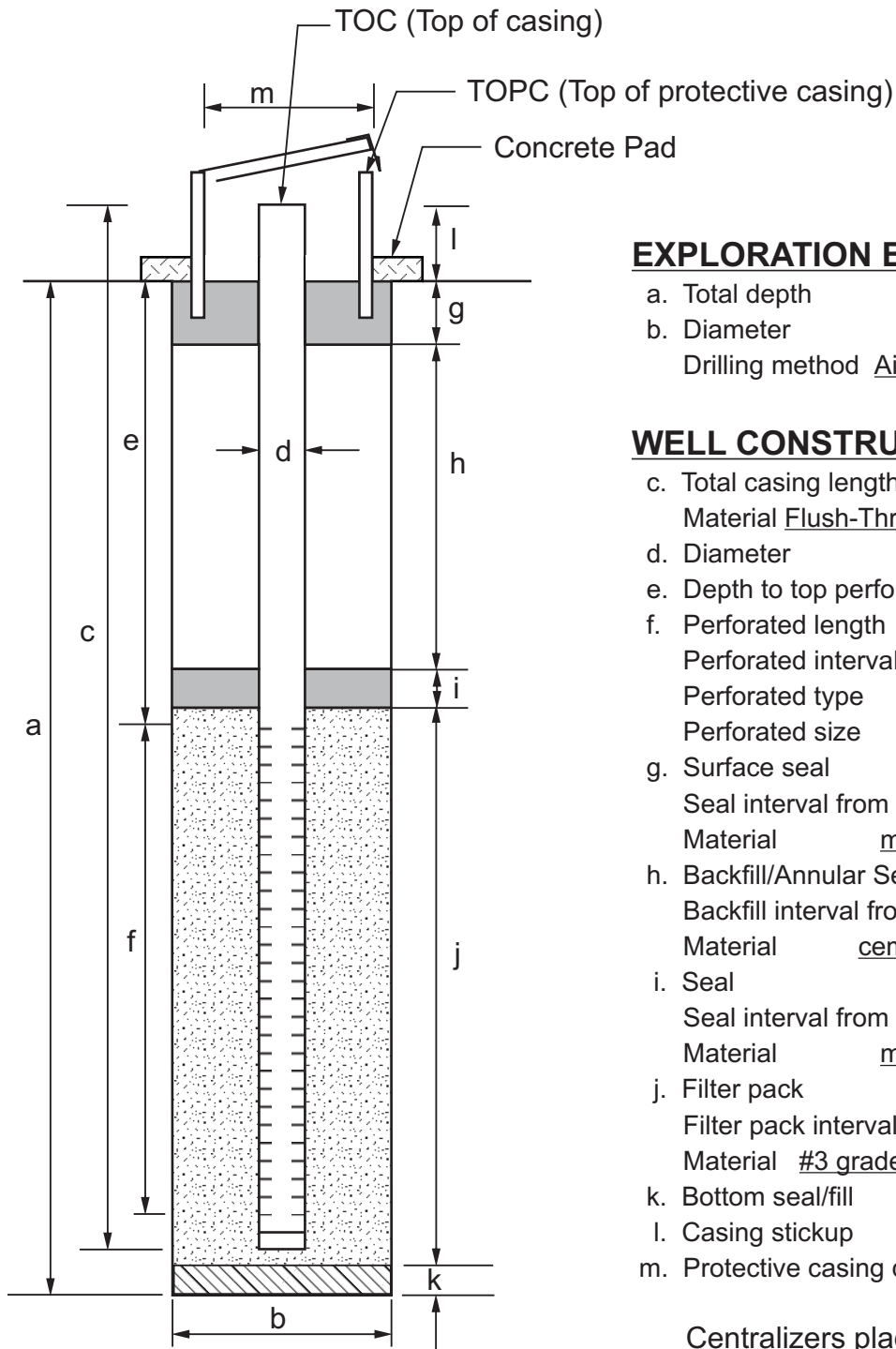
R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

As-Built Well DW-27

PROJECT NUMBER: 2002-036-005
PROJECT NAME: Chiquita Canyon Landfill
LOCATION: Los Angeles County
DRILLER: WDC

TOP CONCRETE PAD ELEVATION: 1457.505
TOC ELEVATION: 1459.48
DATUM: Mean Sea Level
INSTALLATION DATE: 7/12/2010
BY: P. Chang



EXPLORATION BORING

- a. Total depth 452 ft.
- b. Diameter 8.5 in.
- Drilling method Air Rotary Casing Hammer

WELL CONSTRUCTION

- c. Total casing length 441.69 ft.
Material Flush-Threaded Schedule 80 PVC
- d. Diameter 4.0 in.
- e. Depth to top perforations 388.6 ft.
- f. Perforated length 50 ft.
Perforated interval from 388.6 to 438.59 ft.
Perforated type machine slotted
Perforated size 0.020 in.
- g. Surface seal 4.5 ft.
Seal interval from 0 to 4.5 ft.
Material medium bentonite chips
- h. Backfill/Annular Seal 304 ft.
Backfill interval from 4.5 to 308.5 ft.
Material cement with 5% bentonite
- i. Seal 29 ft.
Seal interval from 308.5 to 337.5 ft.
Material medium bentonite chips
- j. Filter pack 114.5 ft.
Filter pack interval from 337.5 to 452 ft.
Material #3 graded sand and native slough
- k. Bottom seal/fill none
- l. Casing stickup 2.5 ft.
- m. Protective casing diameter 10 3/4 in.

Centralizers placed at bottom and top of screen, and every 40 feet above.

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

						BORING DW-27	
						JOB NUMBER: 2002-036-005 DATE DRILLED: 7/7/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-452'	
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
8:38			-			PICO FORMATION (Tp) SANDSTONE: fine, little silt, friable to medium dense, dry to moist, pale orange (10YR 8/2), no odor	
			-	5		more silt, medium dense, grayish orange (10YR 7/4)	
			-	10			
			-	15		some medium to coarse sand, less silt	
8:54			-	20		bottom of temporary drive casing; removed 7/14/10 SANDY SILTSTONE: some fine sand, medium dense, moist, dusky yellow (5Y 6/4)	
9:00			-	25		more fine to medium sand	
			-	30		moderate yellowish brown (10YR 5/4)	
			-	35		more sand, dark yellowish orange (10YR 6/6) dusky yellow (5Y 6/4)	
			-	40		more silt, light olive gray (5Y 5/2) more sand and few gravel, moderate yellowish brown (10YR 5/4)	
			-			SILTY SANDSTONE: fine, some medium sand to gravel, medium	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

(CONTINUED ON THE FOLLOWING FIGURE)

R.T. FRANKIAN & ASSOCIATES

(CONTINUED ON THE FOLLOWING FIGURE)

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	10:20 10:25			- - - -	125	little sand and gravel
				- - - -	130	dense to very dense, some rig chatter
				- - - -	135	FOSSILIFEROUS SILTSTONE: few shell fragments, medium dense to dense
	10:38 10:43			- - - -	140	dense to very dense
				- - - -	145	SILTY SANDSTONE: fine to medium, medium dense to dense, moist, grayish yellow green (5GY 7/2)
				- - - -	150	gradational contact
				- - - -	155	SANDSTONE: fine to coarse, medium dense to dense, moist, pale olive (10Y 6/2)
				- - - -	160	SANDY SILTSTONE: fine sand, medium dense, moist, grayish yellow green (5GY 7/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

(CONTINUED ON THE FOLLOWING FIGURE)

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG SOIL TYPE
11:25 13:17	13:31 13:37			-	205	more plasticity, dark yellowish brown (10YR 4/2) dusky yellow green (5GY 5/2)
					210	
					215	
					220	SILTY SANDSTONE: fine, some medium sand to gravel, medium dense to dense, moist, grayish green (10GY 5/2)
					225	FOSSILIFEROUS SILTY SANDSTONE: little shell fragments, dense to very dense, pale olive (10Y 6/2), making lots of dust (driller slowed the drilling rate) gradational contact
					230	SANDY SILTSTONE: fine to medium sand, dense to very dense, moist, light olive gray (5Y 5/2) more silt
					235	SILTSTONE: grayish green (10GY 5/2)
					240	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

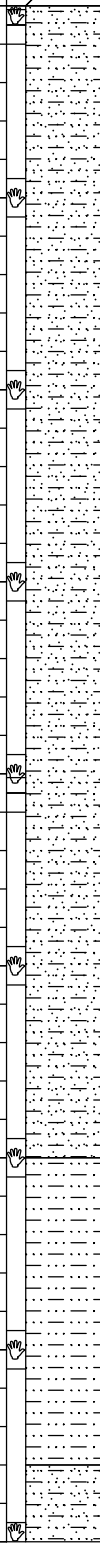
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
14:06 14:12				-	245	more fine sand
14:48 14:57				-	250	SANDY SILTSTONE: more fine and medium sand
				-	255	PEBBLY SANDSTONE: fine to coarse, some gravel, some silt, dense, moist, dusky yellow green (5GY 5/2)
				-	260	making lots of dust SANDSTONE: fine to coarse, little gravel, dense to very dense, moist, pale olive (10Y 6/2)
				-	265	SANDY SILTSTONE: fine to medium sand, dense, moist, grayish green (10GY 5/2)
				-	270	more sand
				-	275	more silt, more moisture
				-	280	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	15:15 16:10			- - - -		still blowing lots of dust 45 minute water check: no water detected
				-	285	more fine sand, light olive gray (5Y 5/2)
				-	290	less sand
				-	295	grayish olive (10Y 4/2)
	16:26 8:09			- - - -	300	overnight water check: no water detected (7:00 am 7/8/10)
				-	305	▽ groundwater at 304.8 feet (8:45 am) 7/12/10 fine sand, dense, moist, grayish olive green (5GY 3/2)
				-	310	more fine sand
				-	315	SILTSTONE: some finely laminated, dense, moist, grayish olive green (5GY 3/2)
				-	320	little fine sand SANDY SILTSTONE: fine sand, dense, moist, pale olive (10Y 6/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG SOIL TYPE
	8:28 8:34			- - -		
				-	325	more sand, light olive gray (5Y 5/2)
				-	330	dense to very dense, pale olive (10Y 6/2), rig chatter, making dust more silt, dense
				-	335	
	8:48 8:52			-	340	some fine to medium sand, light olive gray (5Y 5/2)
				-	345	more silt, dense to very dense, dusky yellowish green (5GY 5/2)
				-	350	more sand, dense, pale olive (10Y 6/2)
				-	355	
				-	360	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
<div> <div>9:06</div> <div>10:22</div> </div>				-	365	light olive gray (5Y 5/2) 1 hour water check: no water detected
				-		mostly silt, medium dense to dense, grayish olive (10Y 4/2)
				-	370	▽ groundwater at 369 feet (7:44 am) 7/9/10 little fine to medium sand, driller notes easier drilling
				-	375	pale olive (10Y 6/2)
				-	380	2 hour water check: no water detected
				-	385	little fine to coarse sand
				-	390	
				-	395	some fine to coarse sand, light olive gray (5Y 5/2)
				-	400	
	10:35 12:50			-		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG SOIL TYPE
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.	13:10 13:15			- - -	405	hard gravel size fragments greenish yellow green (5GY 7/2)
				- - -	410	few gravel
				- - -	415	more fine to medium sand and gravel
	13:27 13:38			- - -	420	
				- - -	425	little gravel, dusky yellow green (5GY 5/2)
				- - -	430	
				- - -	435	more silt and less sand and gravel
				- - -	440	SILTSTONE: little fine sand, dense to very dense, light olive gray (5Y 5/2), making dust
				- - -		
				- - -		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-27 (CONTINUED)							
JOB NUMBER: 2002-036-005 DATE DRILLED: 7/7/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-452'							
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
13:52 10:04			- - - -	445			SANDY SILTSTONE: poor recovery, some fine to medium sand
10:18			- -	450			
				455			poor recovery driller injects water to clean out hole Bottom of Boring at 452 feet. On 7/12/10. Target depth reached. Groundwater monitoring well installed.
				460			
				465			
				470			
				475			
				480			

LOG OF BORING

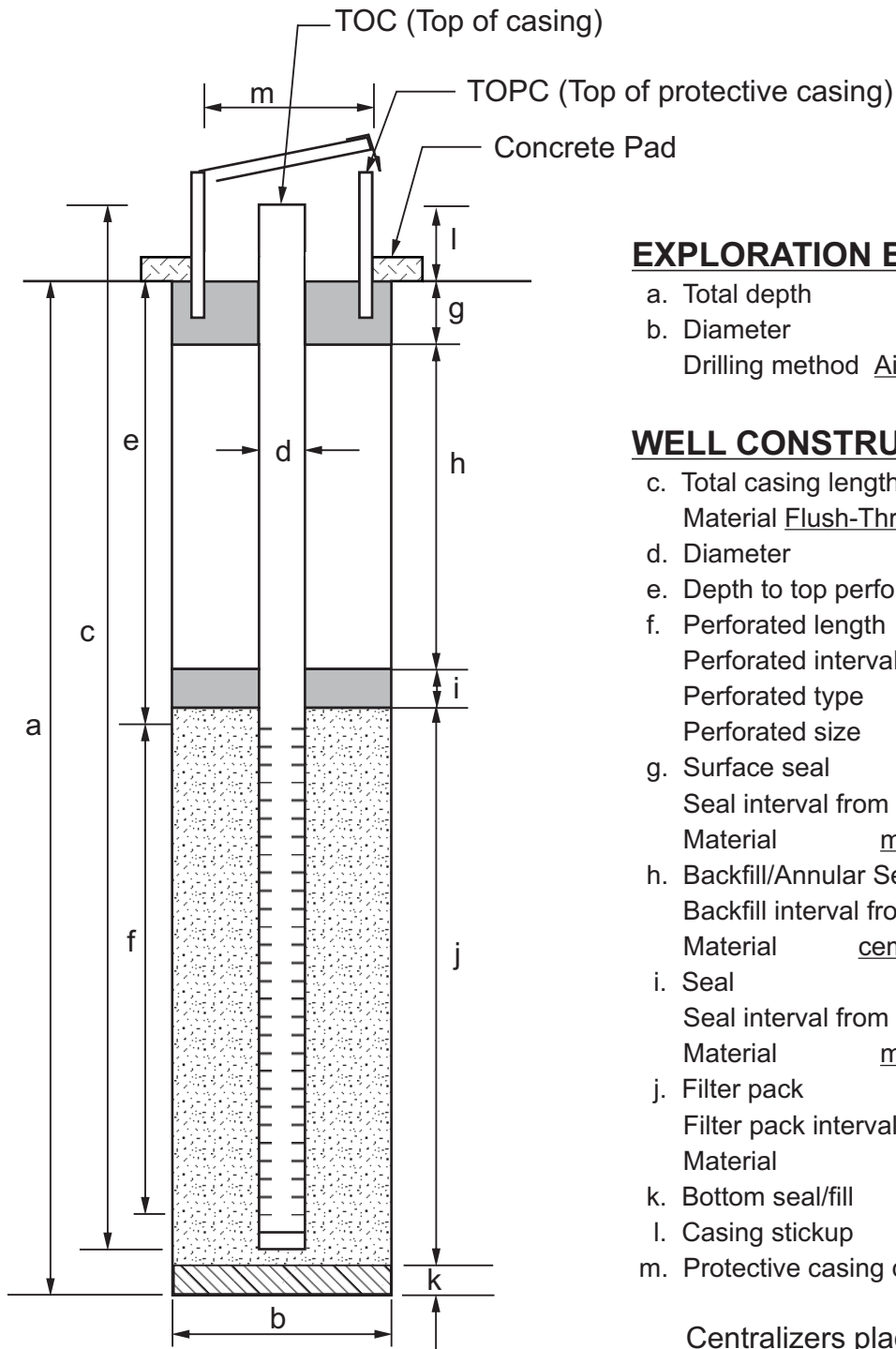
2002-036-005 REPORT DATED 10-27-2010

R.T. FRANKIAN & ASSOCIATES

As-Built Well DW-28

PROJECT NUMBER: 2002-036-005
PROJECT NAME: Chiquita Canyon Landfill
LOCATION: Los Angeles County
DRILLER: WDC

TOP CONCRETE PAD ELEVATION: 1444.867
TOC ELEVATION: 1447.15
DATUM: Mean Sea Level
INSTALLATION DATE: 7/2/2010
BY: P. Chang



EXPLORATION BORING

- a. Total depth 402 ft.
- b. Diameter 8.5 in.
- Drilling method Air Rotary Casing Hammer

WELL CONSTRUCTION

- c. Total casing length 383 ft.
Material Flush-Threaded Schedule 80 PVC
- d. Diameter 4.0 in.
- e. Depth to top perforations 330.34 ft.
- f. Perforated length 49.23 ft.
Perforated interval from 330.34 to 379.57 ft.
Perforated type machine slotted
Perforated size 0.020 in.
- g. Surface seal 8.2 ft.
Seal interval from 0 to 8.2 ft.
Material medium bentonite chips
- h. Backfill/Annular Seal 304.4 ft.
Backfill interval from 8.2 to 312.6 ft.
Material cement with 5% bentonite
- i. Seal 10.9 ft.
Seal interval from 312.6 to 323.5 ft.
Material medium bentonite chips
- j. Filter pack 74 ft.
Filter pack interval from 323.5 to 397.5 ft.
Material #3 graded sand
- k. Bottom seal/fill native slough
- l. Casing stickup 2.5 ft.
- m. Protective casing diameter 10 3/4 in.

Centralizers placed at bottom and top of screen, and every 40 feet above.

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-28						
						JOB NUMBER: 2002-036-005 DATE DRILLED: 6/29/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-402'
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
9:02			-			SM
			-	5		
9:07			-	10		
9:18			-	15		
			-	20		
9:25			-	25		
			-	30		
9:50			-	35		
9:53			-	40		
ARTIFICIAL FILL (af) SILTY SAND: fine to medium, some coarse sand and gravel, loose to medium dense, dry to moist, grayish orange (10YR 7/4), no odor PICO FORMATION (Tp) SILTY SANDSTONE: fine, little medium sand, medium dense, moist, very pale orange (10YR 8/2) little medium sand, dusky yellow (5Y 6/4) little coarse sand and gravel bottom of temporary drive casing; removed 7/16/10 SANDSTONE: fine to medium, little silt, medium dense, moist, yellowish gray (5Y 7/2) fine, less silt, grayish yellow (5Y 8/4) FOSSILIFEROUS SANDSTONE: fine to medium, little shell fragments more medium sand and gravel, less silt						

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

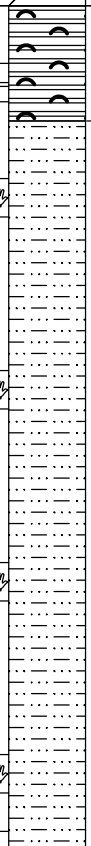
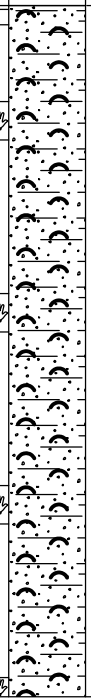
BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	10:13			-		more silt, more shell fragments
	10:16			-		more sand, medium dense to dense
				-	45	more silt, dark yellowish orange (10YR 6/6)
				-	50	CLAYEY SANDSTONE: fine to medium, little coarse sand and angular gravel, low plasticity, medium dense, moist, moderate brown (5YR 4/4)
				-	55	SANDY MUDSTONE: fine to medium sand, medium dense to dense, moderate yellowish brown (10YR 5/4)
				-	60	
				-	65	CLAYSTONE: hard to very hard, moist, light brown (5YR 5/6), slow drilling
				-	70	moderate brown (5YR 4/4)
				-	75	
				-	80	FOSSILIFEROUS CLAYSTONE: few shell fragments

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	11:04 11:08			- - - -		moderate yellowish brown (10YR 5/4), few shell fragments caving problems SILTSTONE: very hard, moist, pale olive (10Y 6/2), rig chatter making lots of dust little fine sand, dusky yellow (5Y 6/4) begin using auxillary compressor, some gravel returned initially easier drilling mostly silt, making lots of dust
	11:35 12:30			- - - - - - -		FOSSILIFEROUS SILTY SANDSTONE: fine to coarse, dense to very dense, moist, light olive gray (5Y 5/2), little shell fragments, making lots of dust driller begins injecting water to keep dust down fine, more silt, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	12:55 13:00			-		
				-		
				-	125	
				-		FOSSILEFEROUS SANDY SILTSTONE: fine, dense, moist, olive gray (5Y 3/2), some shell fragments
				-	130	
				-		light olive gray (5Y 5/2), less shell fragments
				-	135	
				-		more silt, more shell fragments
				-	140	
				-		
	13:21 13:24			-	145	
				-		SILTY SANDSTONE: fine to medium, little coarse sand, dense to very dense, moist, yellowish gray (5Y 7/2)
				-	150	
				-		FOSSILIFEROUS SILTY SANDSTONE: sample collection difficult; mostly blown dust, some sand and shell fragments
				-	155	
				-		some shell fragments
				-	160	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-28 (CONTINUED)							
JOB NUMBER: 2002-036-005 DATE DRILLED: 6/29/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-402'							
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
13:50 13:54			-				more fine sand
			-				
14:13 14:17			-	165			some medium to coarse sand, slow drilling
			-				
			-	170			more silt
			-				
			-	175			more fine to medium sand
			-				
			-	180			fine, more silt
			-				NOTE* - not able to grab samples from cyclone due to dust and sand being blown away
			-				SANDSTONE: fine to coarse, dense to very dense, moist, grayish yellow (5Y 8/4)
			-	185			very dense, poor sample - fines and fine sand being blown away. slow drilling
			-				
			-	190			driller continuing to inject water to keep dust down
		-					
		-	195				
		-					
		-	200				

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING DW-28 (CONTINUED)						
						JOB NUMBER: 2002-036-005 DATE DRILLED: 6/29/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-402'
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
14:48			-			more silt, moist
14:55			-			NOTE* - continued poor sampling from cyclone
			-	205		SILTY SANDSTONE: fine, little medium sand, dense, moist, yellowish gray (5Y 7/2), slightly easier drilling
			-	210		more silt
			-	215		
			-	220		SANDSTONE: fine to medium, dense to very dense, moist, yellowish gray (5Y 7/2)
15:16			-			NOTE* - continued poor sampling from cyclone
15:18			-	225		SILTY SANDSTONE: fine, little medium sand, dense to very dense, moist, yellowish gray (5Y 7/2)
			-	230		more silt, dusky yellow (5Y 6/4)
			-	235		
			-	240		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	15:44 15:03			-	245	less silt, more fine sand
	15:13 15:16			-	250	SANDY SILTSTONE: fine to medium sand, dense, moist, dusky yellow (5Y 6/4), cored but no recovery, resumed drilling with air rotary
				-	255	dense to very dense, grayish yellow (5Y 8/4), making lots of dust
				-	260	less silt, dusky yellow (5Y 6/4)
				-	265	
				-	270	SILTY SANDSTONE: fine to medium, little coarse sand, dense to very dense, moist, dusky yellow (5Y 6/4)
				-	275	some gravel MUDSTONE: very dense, moist, grayish yellow green (5GY 7/2), difficult to sample, slow drilling and making lots of dust
				-	280	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	15:33			-		little fine sand, light olive gray (5Y 5/2)
	15:36			-		
				-	285	SILTSTONE: very dense, moist, dusky yellow green (5GY 5/2), making lots of dust, slow drilling
				-	290	little fine sand
				-	295	MUDSTONE: little fine sand, very dense, moist, pale yellowish brown (10YR 6/2) to light olive gray (5Y 5/2)
				-	300	SILTSTONE: pale olive (10Y 6/2)
	15:56			-		
	8:15			-	305	more fine sand
				-	310	SANDY SILTSTONE: fine sand, very dense, dusky yellow green (5GY 5/2)
				-	315	
				-	320	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	8:27 8:32			- - - -		fine to medium sand
				- -	325	gradational contact SILTY SANDSTONE: fine to medium, little gravel, dense to very dense, moist, grayish yellowish green (5GY 7/2)
				- -	330	more sand and subrounded gravel
				- -	335	
				- -	340	▽ groundwater at 338 feet (8:40 am) 7/1/10 PEBBLY SANDSTONE: fine to coarse, some subrounded to subangular gravel, dense to very dense, moist, pale olive (10Y 6/2), slightly less dust and more moisture
	8:51 8:54			- - -	345	
				- -	350	FOSSILIFEROUS SANDSTONE: more silt and less gravels, little shell fragments
				- -	355	SANDY SILTSTONE: very dense, moist, light olive brown (5Y 5/6), making lots of dust
				- -	360	less sand, pale olive (10Y 6/2) making lots of dust, light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING DW-28 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
<div> <div>9:23</div> <div>10:38</div> <div>11:05</div> <div>11:10</div> </div>				-	365	grayish olive (10Y 4/2)
				-		30 minute water check: no water detected, but probe tip was wet; waited another 30 minutes: no water. Not making water when air turned on, but less dust being produced
				-		▽ groundwater at 365.2 feet (7:25 am) 7/2/10
				-		SILTSTONE: little sand
				-	370	very dense, grayish olive green (5GY 3/2), slow drilling, producing more dust
				-	375	MUDSTONE: very dense, moist, grayish olive (10Y 4/2)
				-	380	no sample, very little returned to surface other than fine dust
				-	385	FOSSILIFEROUS MUDSTONE: little shell fragments
				-	390	poor sample, lots of dust and slow drilling
				-	395	SANDY SILTSTONE: fine to medium sand, few gravel
				-	400	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

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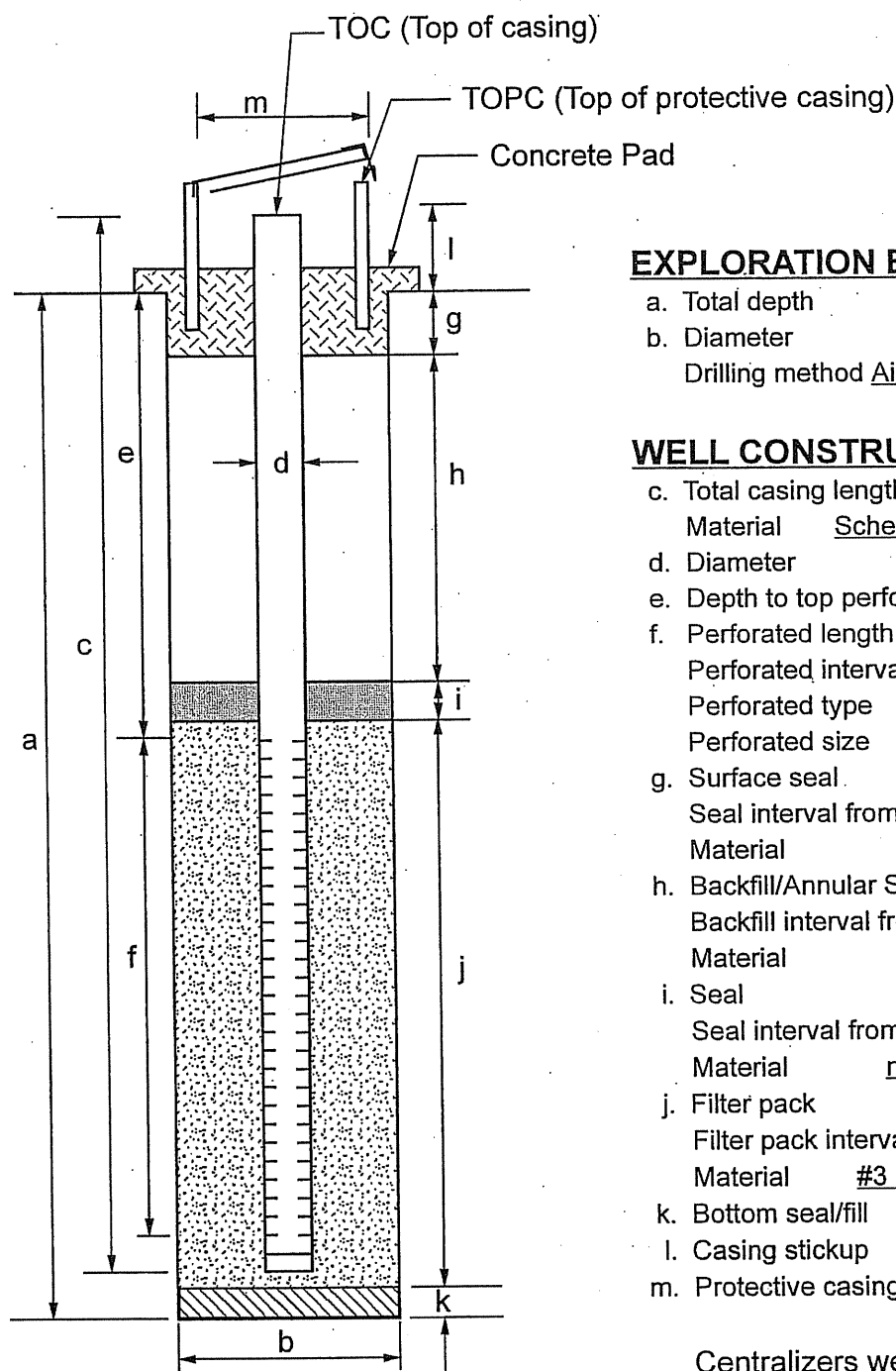
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	BORING DW-28 (CONTINUED)		
						SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
	11:35			-				
								2 hour water check: water level at 365.2' (7:25 am 7/2/10)
								Bottom of Boring at 402 feet. On 7/1/10. Target depth reached. Groundwater monitoring well installed.
					405			
					410			
					415			
					420			
					425			
					430			
					435			
					440			

LOG OF BORING

AS BUILT WELL DETAIL: PZ-5

PROJECT NUMBER: 2002-036-91
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC

SURFACE ELEVATION: 1212.08
 TOC ELEVATION: 1214.58
 DATUM: Mean Sea Level
 INSTALLATION DATE: 11-23-04



EXPLORATION BORING

- a. Total depth 190 ft.
- b. Diameter 8.5 in.
- Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 192.03 ft.
 Material Schedule 80 PVC
- d. Diameter 2.0 in.
- e. Depth to top perforations 159.50 ft.
- f. Perforated length 29.61 ft.
 Perforated interval from 159.50 to 189.11 ft.
 Perforated type machine slotted
 Perforated size 0.020 in.
- g. Surface seal 1.5 ft.
 Seal interval from 0 to 1.5 ft.
 Material Concrete / Cement
- h. Backfill/Annular Seal 143.6 ft.
 Backfill interval from 1.5 to 145.1 ft.
 Material neat cement
- i. Seal 7.7 ft.
 Seal interval from 145.1 to 152.8 ft.
 Material medium bentonite chips
- j. Filter pack 37.2 ft.
 Filter pack interval from 152.8 to 190.0 ft.
 Material #3 and #2/12 graded sand
- k. Bottom seal/fill none
- l. Casing stickup 2.5 ft.
- m. Protective casing diameter 10 3/4 in.

Centralizers were placed at bottom and top of screen, and every 40 feet above.

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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							BORING PZ-5	
							JOB NUMBER: 2002-036-91 DATE DRILLED: 11/22/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1212.08' LOGGED BY: Paul Chang BORING DEPTH: 0-190' SURFACE CONDITIONS: Dirt drilling pad	
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	0-3' FILL (af) SANDY SILT: some fine sand, few medium sand to fine gravel, loose to moderately hard, dry to damp, grayish orange (10YR 7/4), no odor. (10:27)
				5				3-190' PICO FORMATION (Tp) SANDY SILTSTONE: mostly silt, some fine to medium sand, few fine gravels, moderately hard to hard, dry to damp, pale yellowish brown (10YR 6/2), no odor (10:35) @ 7 ft. driller switches to downhole hammer. Drilling 9-inch hole with 8.5-inch bit; driving temporary steel casing (nominal 9 5/8-inch) to 46.52 feet using air rotary casing hammer method. (10:40) (10:58) @ 10 ft. dark yellowish orange: more silts
				10				
				15				@ 15 ft. dusky yellow (5YR 6/4): more fine sand
				20				CLAYSTONE: little fine sands: mostly clay and silt, moderately hard, damp, light olive gray (5Y 5/2), no odor
				25				SANDY SILTSTONE: mostly silt: few claystone fragments, some fine sand, moderately hard, damp, dusky yellow (5YR 6/4), no odor
				30				@ 25 ft. mostly silt: some fine to medium sand
				35				SILTY SANDSTONE: some silt, mostly fine sand, few medium to coarse sand, moderately hard, moist, dusky yellow (5Y 6/4), no odor (11:15) (11:20)
				40				SANDY SILTSTONE: mostly fine silt: some fine to medium sand, little coarse sand and fine gravels, moderately hard, moist, olive brown (5Y 5/6), no odor

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

BORING PZ-5 (CONTINUED)

JOB NUMBER: 2002-036-91
DATE DRILLED: 11/22/04
EQUIPMENT USED: Air Rotary Casing Hammer
ELEVATION: 1212.08'
LOGGED BY: Paul Chang
BORING DEPTH: 0-190'
SURFACE CONDITIONS: Dirt drilling pad

@ 40 ft. more medium to coarse sand

@ 45 ft. little medium sand to gravels: mostly silt: some fine sand: occasional claystone fragments

@ 46.52 bottom of drive casing (removed 11/23/04); drill to 190 ft. open hole using direct air rotary method.

(11:42)

(11:47)

@ 50 ft. few medium to coarse sand

SILTY SANDSTONE: some silt: mostly fine to medium sand, some coarse sand and gravel, moderately hard, moist, dusky yellow (5Y 6/4), no odor

@ 60 ft. light olive brown (5Y 5/6): more silt and fine sand

@ 65 ft. some silt: mostly fine sand: little medium sand

(11:54)

(11:57)

@ 70 ft. more silts

▽ groundwater at 75.53 feet (8:40 am) 12/1/04
in piezometer (8:40 AM) 12/01/04

(CONTINUED ON THE FOLLOWING FIGURE)

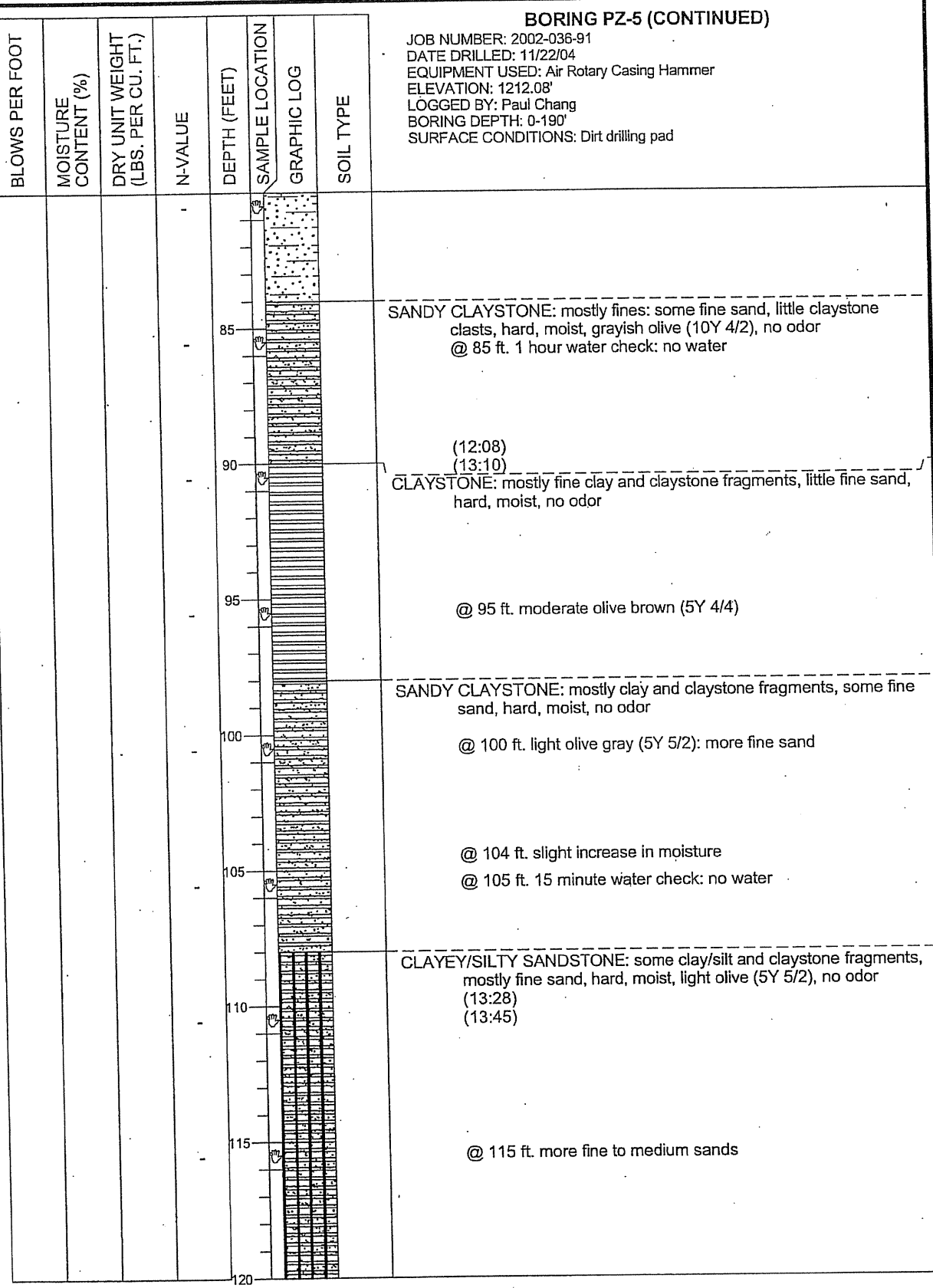
LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				125			
				130			
				135			
				140			
				145			
				150			
				155			
				160			

BORING PZ-5 (CONTINUED)

JOB NUMBER: 2002-036-91
DATE DRILLED: 11/22/04
EQUIPMENT USED: Air Rotary Casing Hammer
ELEVATION: 1212.08'
LOGGED BY: Paul Chang
BORING DEPTH: 0-190'
SURFACE CONDITIONS: Dirt drilling pad

@ 122 ft. more clay and claystone fragments

@ 125 ft. more fine to coarse sand: little gravels: harder drilling.
10 minute water check: no water

@ 128 ft. making lots of whitish dust (dry returns)
SILTY SANDSTONE: little silt; mostly fine sand and rock fragments,
some medium to coarse sand; few white fragments, hard, dry to
moist, yellowish gray (5Y 7/2), no odor
(13:58)
(14:10)

@ 135 ft. light olive gray (5Y 5/2): more silt and fine sands:
moist

@ 140 ft. pale olive (10Y 6/2): few white (shell?) fragments

@ 145 ft. more fine sand: very hard: moist. Water check for 15
minutes: no water

(14:21)
(14:39)
▽ groundwater at 150.62 feet (7:15 am) 11/23/04
(7:15 am) 10/23/2004 after overnight water check with boring
total depth 189 feet.

@ 158.5 moderate olive brown (5Y 4/4): slightly coarser sand
and few rock fragments

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				165			
				170			
				175			
				180			
				185			
				190			
				195			
				200			

BORING PZ-5 (CONTINUED)

JOB NUMBER: 2002-036-91
DATE DRILLED: 11/22/04
EQUIPMENT USED: Air Rotary Casing Hammer
ELEVATION: 1212.08'
LOGGED BY: Paul Chang
BORING DEPTH: 0-190'
SURFACE CONDITIONS: Dirt drilling pad

@ 161 ft. pale olive (10YR 6/2): mostly fine to medium sand: few rock fragments: some silt: moist: hard: no odor

@ 165 ft. 15 minute water check: no water

▽ probable first encountered (3:08 pm) 11/22/04
groundwater at 169 feet (3:08 pm) 12/30/99
CLAYEY SANDSTONE: some clay with silt: some fine sand, little medium to coarse sand, hard, moist (possible water) to very moist, moderate brown (5YR 4/4), no odor. (14:59) (15:08)

@ 175 ft. slightly more medium to coarse sand
SILTY SANDSTONE: some silt: mostly fine sand, hard, moist to very moist, pale olive (10 Y 6/2), no odor

@ 185 ft. light olive brown (5Y 5/6): some silt: mostly fine sand: some medium to coarse sand: hard: moist to very moist: no odor. 15 minute water check: No water

@ 190 ft. (15:24) Overnight water check: water = 150.62' at 7:00 11/23/04. Tag bottom of hole at 162.1 ft., drill out to 190 ft.

Bottom of Boring at 190 feet. At 3:24 pm 11/22/04.
Target depth reached

LOG OF BORING

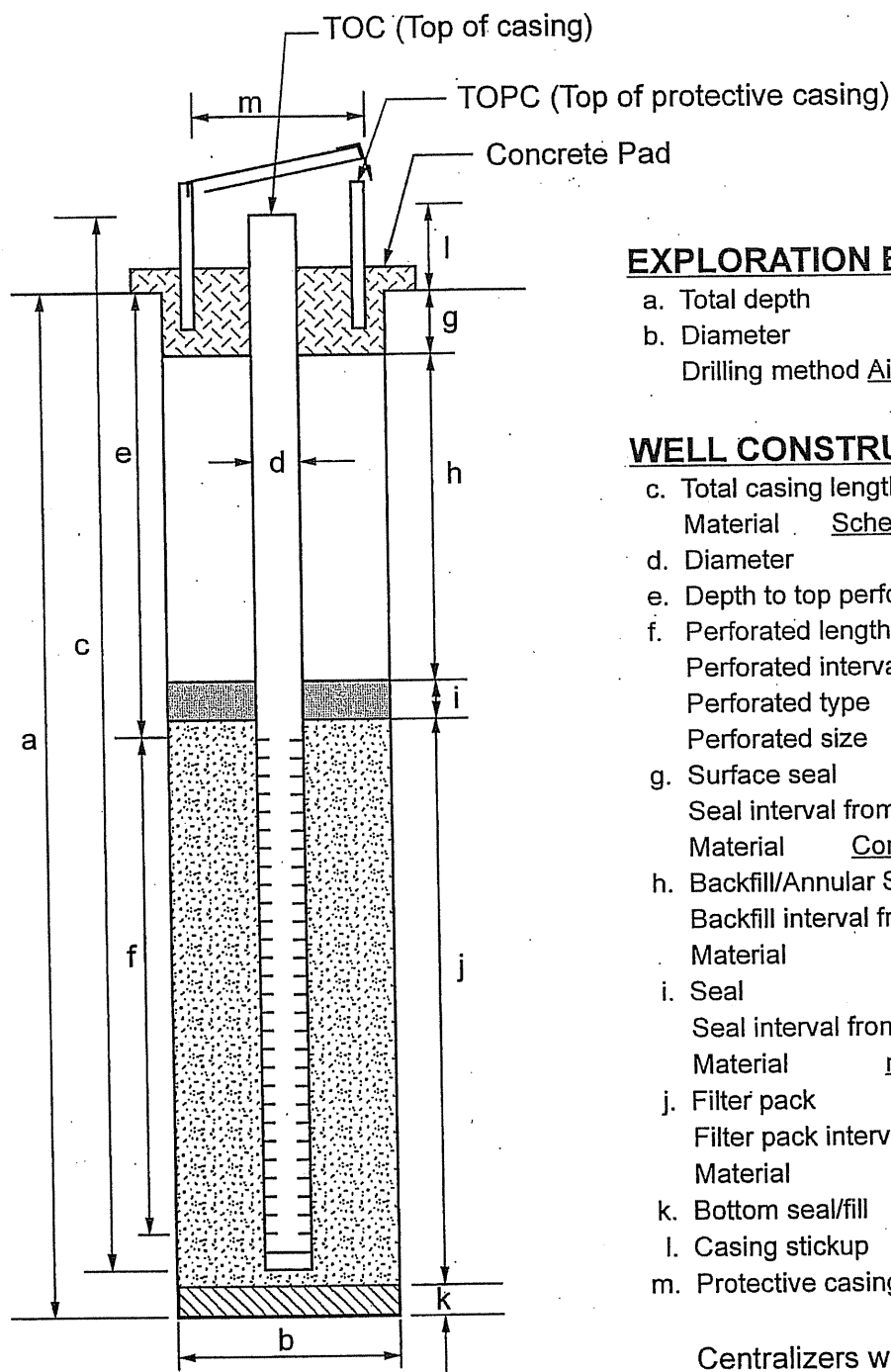
R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

AS BUILT WELL DETAIL: PZ-6

PROJECT NUMBER: 2002-036-91
PROJECT NAME: Chiquita Canyon Landfill
LOCATION: Los Angeles County
DRILLER: WDC

SURFACE ELEVATION: 1180.10
TOC ELEVATION: 1182.60
DATUM: Mean Sea Level
INSTALLATION DATE: 11-30-04



EXPLORATION BORING

- a. Total depth 116 ft.
b. Diameter 8.5 in.
Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- | | | | |
|----|----------------------------|-----------------------------------|-----|
| c. | Total casing length | <u>118.56</u> | ft. |
| | Material | <u>Schedule 80 PVC</u> | |
| d. | Diameter | <u>2.0</u> | in. |
| e. | Depth to top perforations | <u>86.01</u> | ft. |
| f. | Perforated length | <u>29.61</u> | ft. |
| | Perforated interval from | <u>86.01 to 115.62</u> | ft. |
| | Perforated type | <u>machine slotted</u> | |
| | Perforated size | <u>0.020</u> | in. |
| g. | Surface seal | <u>2</u> | ft. |
| | Seal interval from | <u>0 to 2</u> | ft. |
| | Material | <u>Concrete / Bentonite Chips</u> | |
| h. | Backfill/Annular Seal | <u>70.8</u> | ft. |
| | Backfill interval from | <u>2 to 72.8</u> | ft. |
| | Material | <u>neat cement</u> | |
| i. | Seal | <u>7.4</u> | ft. |
| | Seal interval from | <u>72.8 to 80.2</u> | ft. |
| | Material | <u>medium bentonite chips</u> | |
| j. | Filter pack | <u>35.8</u> | ft. |
| | Filter pack interval from | <u>80.2 to 116</u> | ft. |
| | Material | <u>#2/12 graded sand</u> | |
| k. | Bottom seal/fill | <u>none</u> | |
| l. | Casing stickup | <u>2.5</u> | ft. |
| m. | Protective casing diameter | <u>10 3/4</u> | in. |

Centralizers were placed at bottom and top of screen, and every 40 feet above.

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

BORING PZ-6
 JOB NUMBER: 2002-036-91
 DATE DRILLED: 11/29/04
 EQUIPMENT USED: Air Rotary Casing Hammer
 ELEVATION: 1180.10'
 LOGGED BY: Paul Chang
 BORING DEPTH: 0-116'
 SURFACE CONDITIONS: Dirt Road

0-42' LANDSLIDE (QIs)

SILTSTONE: mostly silt: some clay, minor fine to medium sand, moderately hard, dry to moist, light olive gray (5Y 5/2), no odor.
 (14:35) Drilling 9-inch hole with 8.5-inch bit; driving temporary steel casing (nominal 9 5/8-inch) to 47.22 feet using air rotary casing hammer method.

SANDY SILTSTONE: mostly silt: some fine sand, few medium sand, moderately hard, moist, moderate yellowish brown (10 YR 5/4), no odor

(14:45)
 (14:58)
 @ 10 ft. moderate brown (5 YR 4/4): slightly more clayey

SILTY SANDSTONE: some silt: mostly fine sand, little medium sand, moderately hard, moist, moderate yellowish brown (10 YR 5/4), no odor

@ 25 ft. more sand: some medium to coarse sand

@ 30 ft. more silt and fine sands. (15:10)
 (15:22)

@ 32 ft. grayish yellow (5Y 8/4): some silt: mostly fine sand: making fine dust: hard: dry to moist: no odor

@ 34 ft. light olive brown (5Y 5/6) some silt: mostly fine sand: some medium to coarse sand: moderately hard to hard: moist: no odor

@ 38 ft. pale olive (10 YR 6/2): some silt: mostly fine sand

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
							BORING PZ-6 (CONTINUED) JOB NUMBER: 2002-036-91 DATE DRILLED: 11/29/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1180.10' LOGGED BY: Paul Chang BORING DEPTH: 0-116' SURFACE CONDITIONS: Dirt Road
							@ 42 ft. probable base of landslide <hr/> 42-116' PICO FORMATION (Tp) SANDY SILTSTONE: mostly silt and siltstone fragments, some fine sand: few medium sand, hard, moist, light olive brown (5Y 5/6), no odor
				45			
				50			@ 47.22 ft. bottom of drive casing (removed 11/30/04); drill to 116 ft. open hole using direct air rotary method. SILTSTONE: mostly silt and siltstone fragments, few fine to medium sand, hard, moist, grayish olive (10Y 4/2), no odor (15:47)
				55			
				60			@ 57-60 ft. slightly more sandy <hr/> @ 60 ft. mostly silt: some fine sand SILTY SANDSTONE: dusky yellow (5YR 6/2)
				65			SILTSTONE: mostly siltstone, some fine sand <hr/> SILTY SANDSTONE: some silt: mostly fine to medium sand, few coarse sand, hard, moist, light olive brown (5 Y 5/6), no odor
				70			
				75			@ 73 ft. more silt and fine sand. (16:05) (16:09) SILTSTONE: mostly silt and siltstone fragments, few fine sand, hard, moist, light olive gray (5YR 5/2), no odor
				80			SILTY SANDSTONE: some silt: mostly fine sand, hard, moist, light olive gray (5Y 5/2), no odor ▽ groundwater at 79.25 feet (8:30 am) 12/1/04

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING PZ-6 (CONTINUED)		
					JOB NUMBER: 2002-036-91 DATE DRILLED: 11/29/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1180.10' LOGGED BY: Paul Chang BORING DEPTH: 0-116' SURFACE CONDITIONS: Dirt Road		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				85			in piezometer (8:30 am) 12/1/04
				90			SANDY SILTSTONE: mostly silt, some fine sand, hard, moist, light olive gray (5Y 5/2), no odor
							@ 90 ft. grayish olive (10Y 4/2): some siltstone fragments
				95			SILTY SANDSTONE: some silt: mostly fine sand, few medium sand, hard, moist to very moist, light olive gray (5Y 3/2), no odor
							@ 95 ft. (16:26) overnight water check: water = 93.16 ft. (7:00 AM) 11/30/04
							@ 95-100 ft. poor recovery
				100			
				105			
							@ 106 ft. pale olive gray (10Y 6/2): some fines (less than above): mostly fine sand: hard to very hard: very moist: no odor
				110			
							@ 115 ft. yellowish gray (5Y 7/2): slightly less silt
				115			Bottom of Boring at 116 feet. At 8:10 am 11/30/04. Target depth reached
				120			

LOG OF BORING

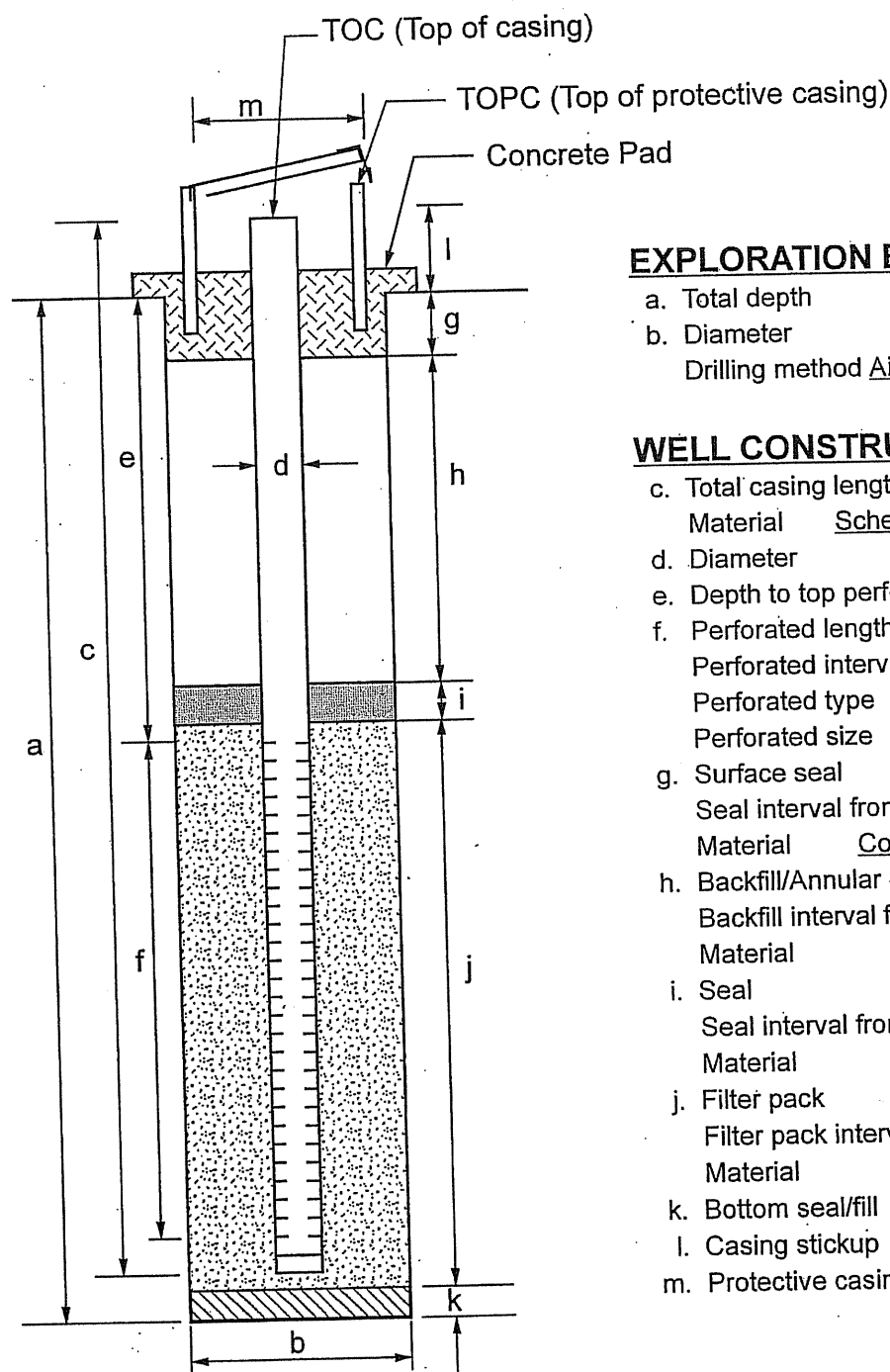
R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

AS BUILT WELL DETAIL: PZ-7

PROJECT NUMBER: 2002-036-91
 PROJECT NAME: Chiquita Canyon Landfill
 LOCATION: Los Angeles County
 DRILLER: WDC

SURFACE ELEVATION: 1193.14
 TOC ELEVATION: 1195.64
 DATUM: Mean Sea Level
 INSTALLATION DATE: 12-9-04



EXPLORATION BORING

- a. Total depth 295 ft.
- b. Diameter 8.5 in.
- Drilling method Air Rotary Casing Hammer.

WELL CONSTRUCTION

- c. Total casing length 241.63 ft.
 Material Schedule 80 PVC
- d. Diameter 4.0 in.
- e. Depth to top perforations 219.76 ft.
- f. Perforated length 18.97 ft.
 Perforated interval from 219.76 to 238.73 ft.
 Perforated type machine slotted
 Perforated size 0.020 in.
- g. Surface seal 2 ft.
 Seal interval from 0 to 2 ft.
 Material Concrete / Bentonite Chips
- h. Backfill/Annular Seal 120 ft.
 Backfill interval from 2 to 120 ft.
 Material neat cement
- i. Seal 8 ft.
 Seal interval from 120 to 128 ft.
 Material medium bentonite chips
- j. Filter pack 167 ft.
 Filter pack interval from 128 to 295 ft.
 Material native sandy slough
- k. Bottom seal/fill none
- l. Casing stickup 2.5 ft.
- m. Protective casing diameter 10 3/4 in.

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

					BORING PZ-7		
					JOB NUMBER: 2002-036-91 DATE DRILLED: 12/3/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1193.14' LOGGED BY: Paul Chang BORING DEPTH: 0-295' SURFACE CONDITIONS: Dirt drill pad in canyon bottom		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				5			0-295' SAUGUS FORMATION (QTs) SILTY SANDSTONE: mostly fine sand, some silt, little medium to coarse sand and gravels, moderately hard, dry to moist, moderate yellowish brown (10YR 5/4), (9:44) Drilling 9-inch hole with 8.5-inch bit; driving temporary steel casing (nominal 9 5/8-inch) to 46.3 feet using air rotary casing hammer method. (9:46) (10:06)
				10			SANDSTONE: little silt: mostly fine to coarse sands, some gravels, hard, dry to moist, pale olive (10Y 6/2)
				15			SILTY SANDSTONE: some silt: mostly fine sand, some medium sand to fine gravels, moderately hard, moist, light olive brown (5Y 5/6)
				20			@ 15 ft. more fine gravels
				25			@ 20 ft. little coarse sand to gravels: mostly fine sand: some silt
				30			@ 25 ft. pale olive (10Y 6/2): more silts and fine sand: few medium sand
				35			(10:18) (10:20) @ 30 ft. dusky yellow (5YR 6/4): more fine sand
				40			@ 35 ft. light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

BORING PZ-7 (CONTINUED)
JOB NUMBER: 2002-036-91
DATE DRILLED: 12/3/04
EQUIPMENT USED: Air Rotary Casing Hammer
ELEVATION: 1193.14'
LOGGED BY: Paul Chang
BORING DEPTH: 0-295'
SURFACE CONDITIONS: Dirt drill pad in canyon bottom

@ 40 ft. more medium to coarse sands: few gravels

@ 46.3 ft. bottom of drive casing (removed 12/10/04); drill to 54 ft. open hole using direct air rotary method.

SANDY SILTSTONE: some fine sand, mostly silt and siltstone fragments, moderately hard, moist, dusky yellow (5Y 6/4)

@ 54 ft. begin continuous coring (10:46)
(11:40)
@ 55 ft. light olive gray (5Y 5/2): mostly silt: some fine sands: moist: hard
@ 55.5 high angle fracture (60 degrees) with slickenside.
(11:46)
(13:05)
@ 57 ft. very hard: massive: some gravels at bottom
SILTY, GRAVELLY SANDSTONE: mostly fine to medium sand, little silt, some coarse sand and fine gravels, massive, hard, moist, light olive brown (5Y 5/6), @ 57.5 ft - 61.5 ft. No recovery (13:12)
(13:20)
(13:26)
(13:37)
@ 65.5 ft. less gravels: more fine sand
(13:41)
(13:55)
SILTY SANDSTONE: some silt, mostly fine sand, moist, (increasing in moisture)
(14:03)
(14:12)
@ 68.8 ft. more medium to coarse sands: few fine gravels: moderately hard: friable: less moist
(14:24)
(14:35)
SANDSTONE: mostly fine sand, little silt, moderately hard, moist, dusky yellow (5Y 6/4), (14:40)
(14:44)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 9/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				85			
				90			
				95			
				100			
				105			
				110			
				115			
				120			

BORING PZ-7 (CONTINUED)
 JOB NUMBER: 2002-036-91
 DATE DRILLED: 12/3/04
 EQUIPMENT USED: Air Rotary Casing Hammer
 ELEVATION: 1193.14'
 LOGGED BY: Paul Chang
 BORING DEPTH: 0-295'
 SURFACE CONDITIONS: Dirt drill pad in canyon bottom

GRAVELLY SANDSTONE: some fine sand: little medium to coarse sand, some gravels, hard, moist, pale olive (10Y 6/2), massive (14:56) (15:02)

@ 90 ft. Gravelly Sandstone: moist: light olive (10Y 5/4): mostly fine to medium sand: some coarse sand and gravels: little silt (15:10) (15:13)

SILTSTONE TO CLAYSTONE: little fine sand, mostly fines (silt & clays), hard, moist, dusky yellow (5Y 6/4) to moderate brown (5YR 4/4), finely laminated in places (15:19) (15:35)
 @ 97.8 ft. high angle fracture (55 degrees) with slickenside: otherwise massive

@ 100 ft. more fine sands
 CLAYSTONE: mostly clay with silt, little fine sand, hard to very hard, moist, moderate brown (5YR 4/4), (15:44) (15:55)
 SILTSTONE: mostly silt with clay, moist
 @ 103 ft. some fine sand: less moisture

SILTY SANDSTONE: mostly fine sand, some silt, little medium sand, moderately hard to hard, moist, light olive brown (5Y 5/6)

@ 107.5 ft. (16:00) overnight water check: no water. (9:31 12/06/2004)
 @ 108 ft. dusky yellow (5Y 6/4): moist
 @ 108.8 ft. slight increase in moisture
 @ 110 ft. light olive gray (5Y 5/2): moist (9:40) (9:49)
 @ 113 ft. more silt

@ 115.5 ft. little silt: mostly fine sand. (9:57) (10:07)

▽ groundwater at 118.9 feet (8:20 am) 12/13/04 (8:20 AM) 12/13/04 in piezometer

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
							BORING PZ-7 (CONTINUED) JOB NUMBER: 2002-036-91 DATE DRILLED: 12/3/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1193.14' LOGGED BY: Paul Chang BORING DEPTH: 0-295' SURFACE CONDITIONS: Dirt drill pad in canyon bottom
							SANDY SILTSTONE: some fine sand, mostly silt, hard, moist, light olive brown (5Y 5/6) (10:12) (10:18) @ 120.5 ft. more fine sands
				125			SILTSTONE: mostly fines, few fine sand, very hard, moist, light olive gray (5Y 5/2) @ 121.5 ft. olive gray (5Y 3/2): less fine sand (10:24) (10:35) @ 124.5 ft - 125.5 ft. few black (organic?) streaks @ 125.7 ft. light olive gray (5Y 5/2) (10:43) (10:58) @ 128.5 ft. Sandy Siltstone: more fine sands: moist @ 129.2 ft. Siltstone: few fine sands: mostly silt (11:07) (11:18)
				130			
				135			@ 133.5 ft. some organics @ 134.2 ft. high angle (60 degrees) bedding/lamination @ 134.8 ft. more fine sands (11:21) (11:37) @ 136.5 ft. easier drilling
				140			(11:45) (11:55) @ 140 ft. little fine sand: shiny fractured surfaces: moist @ 140.8 ft. yellowish gray (5Y 7/2)
				145			(12:01) (12:15) @ 144.5 ft - 145.2 ft Sandy Siltstone: light olive (10Y 5/4): mostly silt: some fine sands: moist: hard: bedding ~50 - 60 degrees
							SILTSTONE: mostly silt, few fine sands, hard, moist, light olive brown (5Y 5/6) @ 147.5 ft. 1 hour water check: no water. (12:21) (13:45)
				150			SANDY SILTSTONE: mostly silt, some fine sand, hard, moist, light olive brown (5YR 4/4) (13:55) (14:05)
				155			SILTSTONE: mostly silt: few sands, some oxide staining, hard to very hard, moist, grayish olive (10Y 4/2) (14:20) (14:26)
				160			@ 157.5 ft. very hard: highly fractured. (14:31) (14:45)

(CONTINUED ON THE FOLLOWING FIGURE)

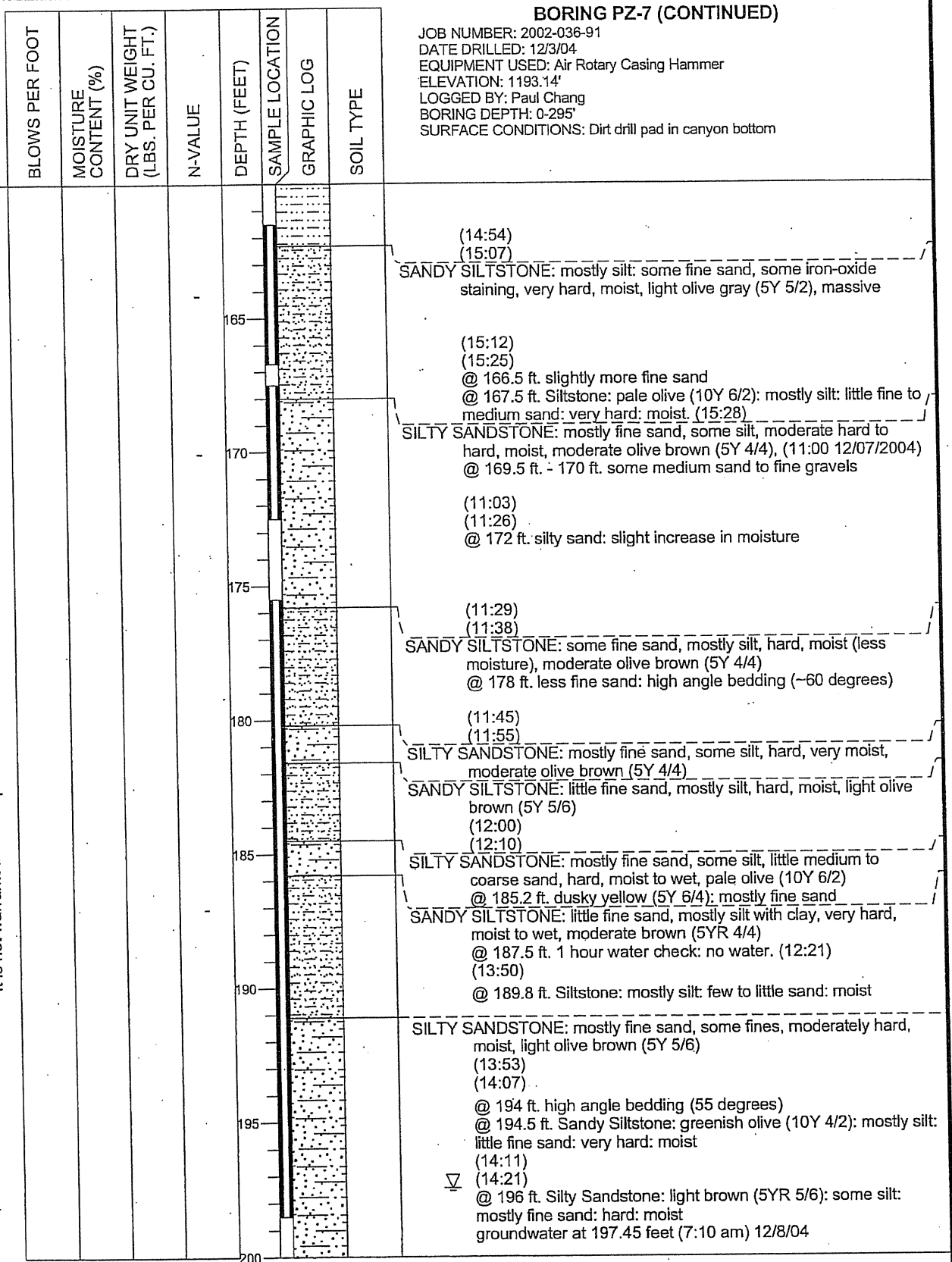
LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

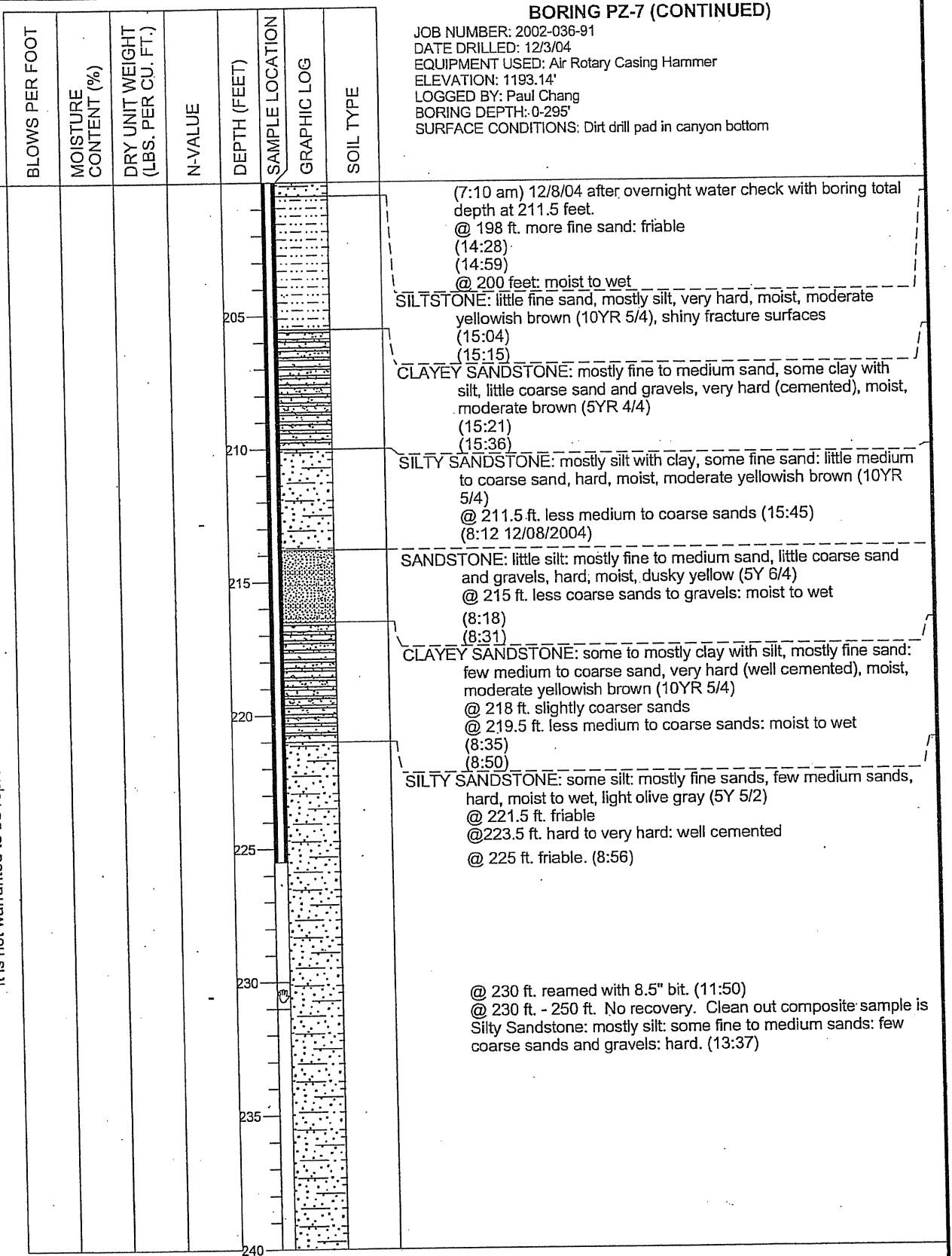
LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				245			
				250			
				255			
				260			
				265			
				270			
				275			
				280			

(CONTINUED ON THE FOLLOWING FIGURE)

BORING PZ-7 (CONTINUED)

JOB NUMBER: 2002-036-91
 DATE DRILLED: 12/3/04
 EQUIPMENT USED: Air Rotary Casing Hammer
 ELEVATION: 1193.14'
 LOGGED BY: Paul Chang
 BORING DEPTH: 0-295'
 SURFACE CONDITIONS: Dirt drill pad in canyon bottom

@ 250 ft. - 270 ft. poor recovery. Composite sample shows some silt, some fine to medium sands: little coarse sand: few gravels. (14:02)
 (14:06)

@ 260 ft. driller notes possible water

@ 270 ft. 30 minute water check: no water measurement to 262' inside drill pipe (14:20)
 @ 270 ft. after making next connection, small quantity of water being blown from hole (14:58)
 @ 270 ft. - 290 ft. poor recovery. Driller notes that hole is making water but not very much. Composite sample is silty, gravelly sandstone

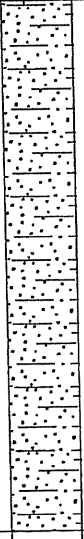
LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

BOREHOLE LOG 2002-036-91.GPJ FRANKIAN.GDT 8/25/05

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING PZ-7 (CONTINUED)						
JOB NUMBER: 2002-036-91 DATE DRILLED: 12/3/04 EQUIPMENT USED: Air Rotary Casing Hammer ELEVATION: 1193.14' LOGGED BY: Paul Chang BORING DEPTH: 0-295' SURFACE CONDITIONS: Dirt drill pad in canyon bottom						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				285		
				290		
				295		
				295		
				300		
				305		
				310		
				315		
				320		

@ 282 ft. - 290 ft. no recovery: no water being blown out: some rig chatter

@ 290 ft. Driller adds water to clean out hole

(15:20)

Bottom of Boring at 295 feet. At 4:00 pm 12/8/04.
Target depth reached

LOG OF BORING

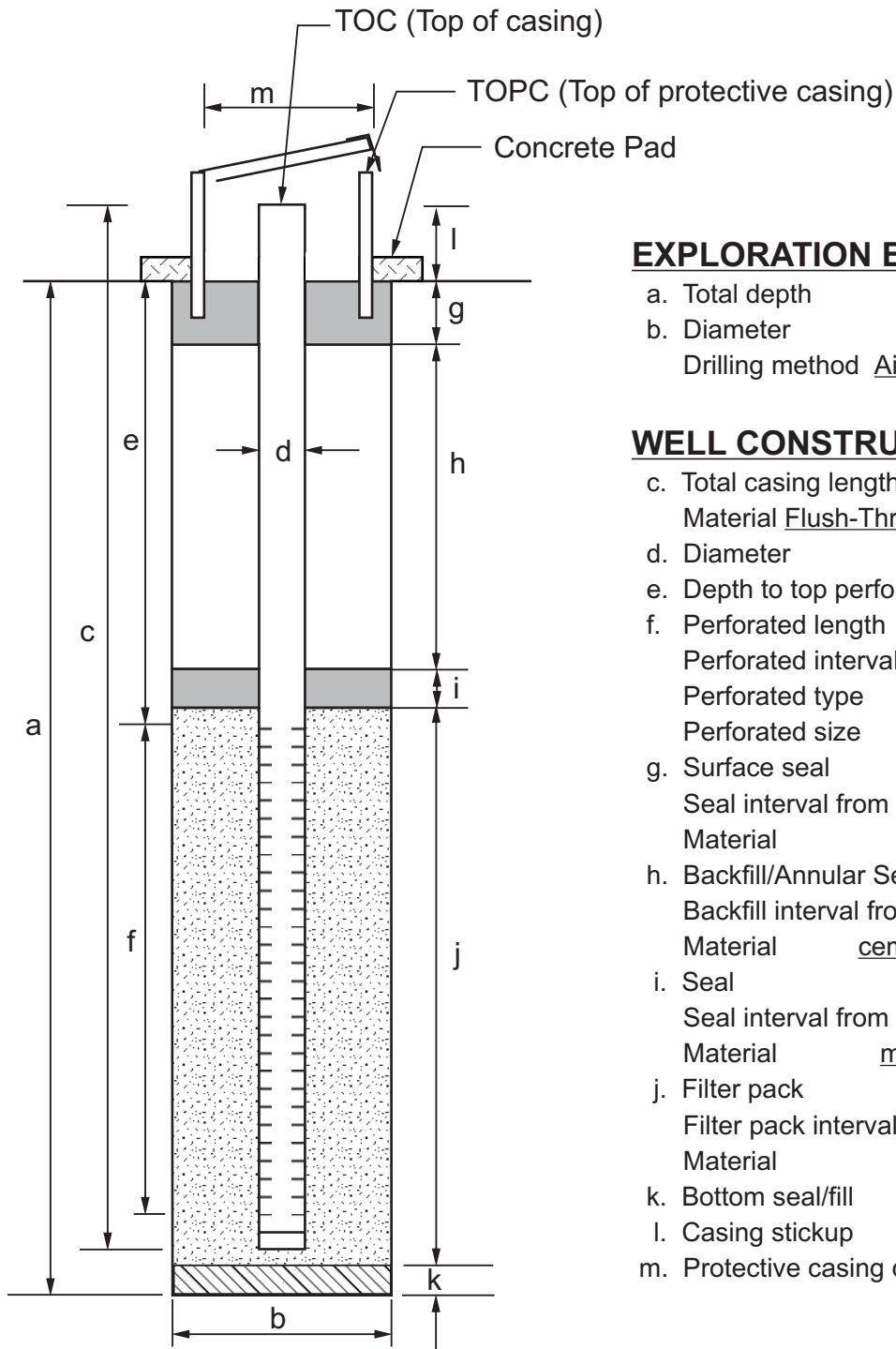
R.T. FRANKIAN & ASSOCIATES

2002-036-91 REPORT DATED 08-26-2005

As-Built Well PZ-8

PROJECT NUMBER: 2002-036-005
PROJECT NAME: Chiquita Canyon Landfill
LOCATION: Los Angeles County
DRILLER: WDC

TOP CONCRETE PAD ELEVATION: 1281.533
TOC ELEVATION: 1283.86
DATUM: Mean Sea Level
INSTALLATION DATE: 6/22/2010
BY: P. Chang



EXPLORATION BORING

- a. Total depth 96 ft.
- b. Diameter 8.5 in.
- Drilling method Air Rotary Casing Hammer

WELL CONSTRUCTION

- c. Total casing length 92.85 ft.
Material Flush-Threaded Schedule 80 PVC
- d. Diameter 2.0 in.
- e. Depth to top perforations 60 ft.
- f. Perforated length 30 ft.
Perforated interval from 60 to 90 ft.
Perforated type machine slotted
Perforated size 0.020 in.
- g. Surface seal 6 ft.
Seal interval from 0 to 6 ft.
Material Bentonite Chips
- h. Backfill/Annular Seal 43.5 ft.
Backfill interval from 6.0 to 49.5 ft.
Material cement with 5% bentonite
- i. Seal 8.5 ft.
Seal interval from 49.5 to 58 ft.
Material medium bentonite chips
- j. Filter pack 34.5 ft.
Filter pack interval from 58 to 92.5 ft.
Material #3 graded sand
- k. Bottom seal/fill native sandy slough
- l. Casing stickup 2.5 ft.
- m. Protective casing diameter 10 3/4 in.

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING PZ-8						
						JOB NUMBER: 2002-036-005 DATE DRILLED: 6/22/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-96'
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
10:45			-			SM ARTIFICIAL FILL (af) SILTY SAND: fine to coarse, few gravel, loose to medium dense, dry to moist, dusky yellow (5Y 6/4), no odor
10:53 11:19			-	5		PICO FORMATION (Tp) SANDY SILTSTONE: fine, moderately hard, moist, light olive brown (5Y 5/6) fine to medium, yellowish gray (5Y 7/2)
			-	10		PEBBLY SANDSTONE: fine to medium, some silt, some coarse sand and gravel, moderately hard, damp, dusky yellow (5Y 6/4)
			-	15		CLAYSTONE: moderately hard, moist, moderate brown (5YR 4/4) bottom of temporary drive casing; removed 6/22/10
11:27 11:40			-	20		little sand
			-	25		SILTSTONE: trace fine sand, moderately hard, moist, light olive brown (5Y 5/6) grading to
			-	30		SILTY SANDSTONE: fine, little medium to coarse sand, moderately hard, moist, dusky yellow (5Y 6/4)
			-	35		CLAYSTONE: moderately hard to hard, moist, light brown (5YR 5/6)
			-	40		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

							BORING PZ-8 (CONTINUED)	
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
11:58 13:06			- - - -					
			- - - -	45				interbedded with Siltstone to 46' with light olive gray (5Y 5/2), moist, dense
			- - - -	50				
			- - - -	55				SILTSTONE: little sand to gravel, moderately hard, moist, dusky yellow (5Y 6/4)
13:28 14:00			- - - -	60				no sand and gravel, dense
			- - - -					more fine to medium sand
			- - - -	65				
			- - - -	70				SILTY SANDSTONE: moderately dense, moist, duskey yellow (5Y 6/4)
			- - - -					no dust being blown, more moisture
			- - - -	75				mostly fine sands
								groundwater at 76.5 feet (3:00 pm) 6/22/10
				80				

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING PZ-8 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2002-036-005 DATE DRILLED: 6/22/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-96'
	14:23 14:26			· · ·	85	fine to medium, more silt
	14:35 15:00 15:30			· · · · ·	90	
					95	some medium sand, more silt
						some medium to coarse sand
						SANDSTONE: mostly medium and coarse
					100	Bottom of Boring at 96 feet. Target depth reached. Piezometer installed.
					105	
					110	
					115	
					120	

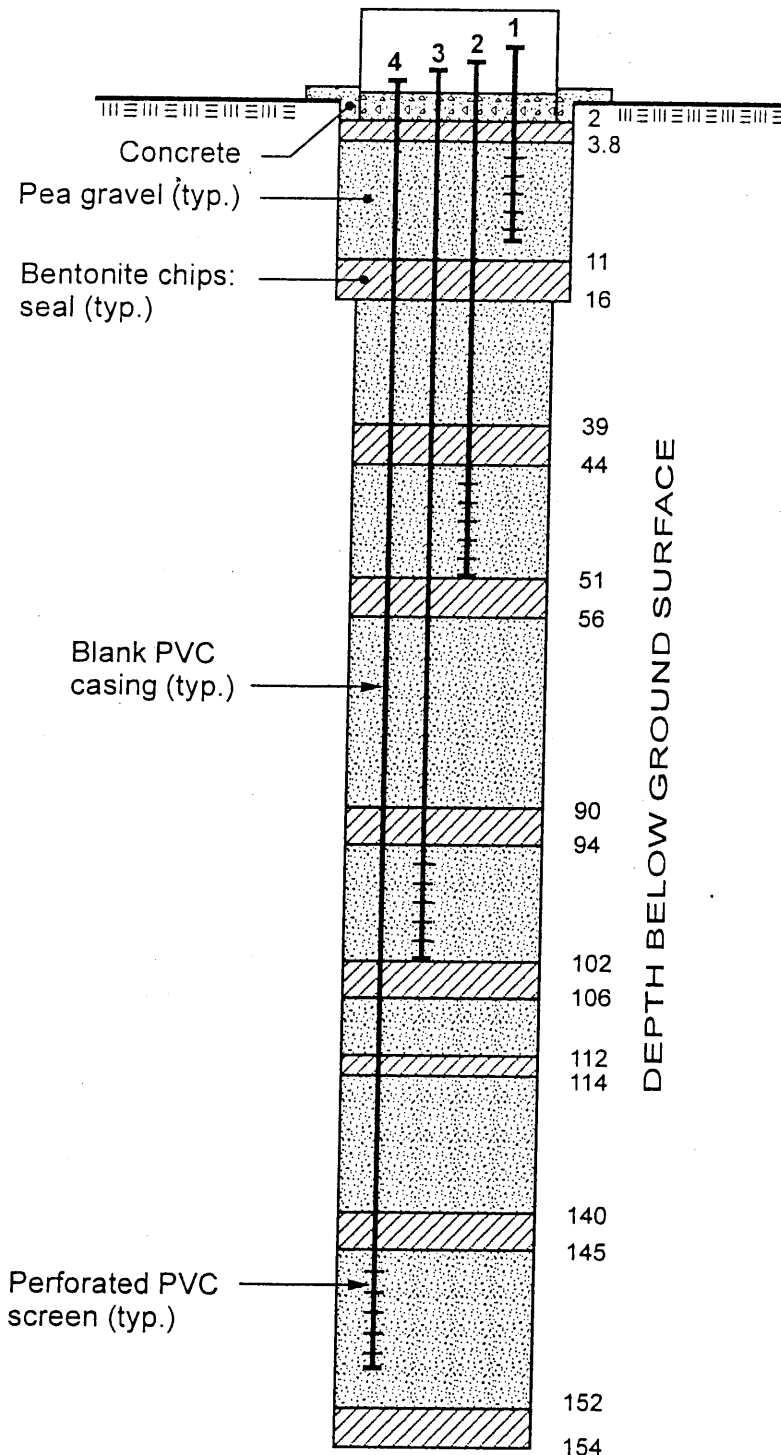
LOG OF BORING

SOIL-GAS PROBE GP-A

Chiquita Canyon Landfill
Los Angeles County, CA

Project No.: 2000-025-90
Drilling Contractor: Water Development Corp.
Installed 7/29/00 by T. Clark

Top of vault elev. 1268.95
Ground Surface elev. 1266.0
Datum MSL



Exploratory Boring

Total depth 154 feet
Diameter 9 5/8" from 0 to 16 ft.
8 1/2" from 16 to 154 ft.

Probe Construction

Material: 3/4-inch. schedule 80 PVC,
flush-threaded
Perforations: 1/8-inch
holes, 20 per foot

Probe 1

Total length: 12.⁰⁹ ft.
Perforation depth: 4.⁷⁷ to 9.⁶⁵ ft.

Probe 2

Total length: 53.²¹ ft.
Perforation depth: 46.⁰⁰ to 50.⁹⁰ ft.

Probe 3

Total length: 104.²² ft.
Perforation depth: 97.¹⁷ to 102.⁰⁴ ft.

Probe 4

Total length: 153.⁵⁷ ft.
Perforation depth: 146.⁶³ to 151.⁵¹ ft.

Protective vault

Steel pipe, 8 3/4" diameter,
5 ft. overall length

BORING GP-A

JOB NUMBER: 2000-025-90

BY: Ted Clark

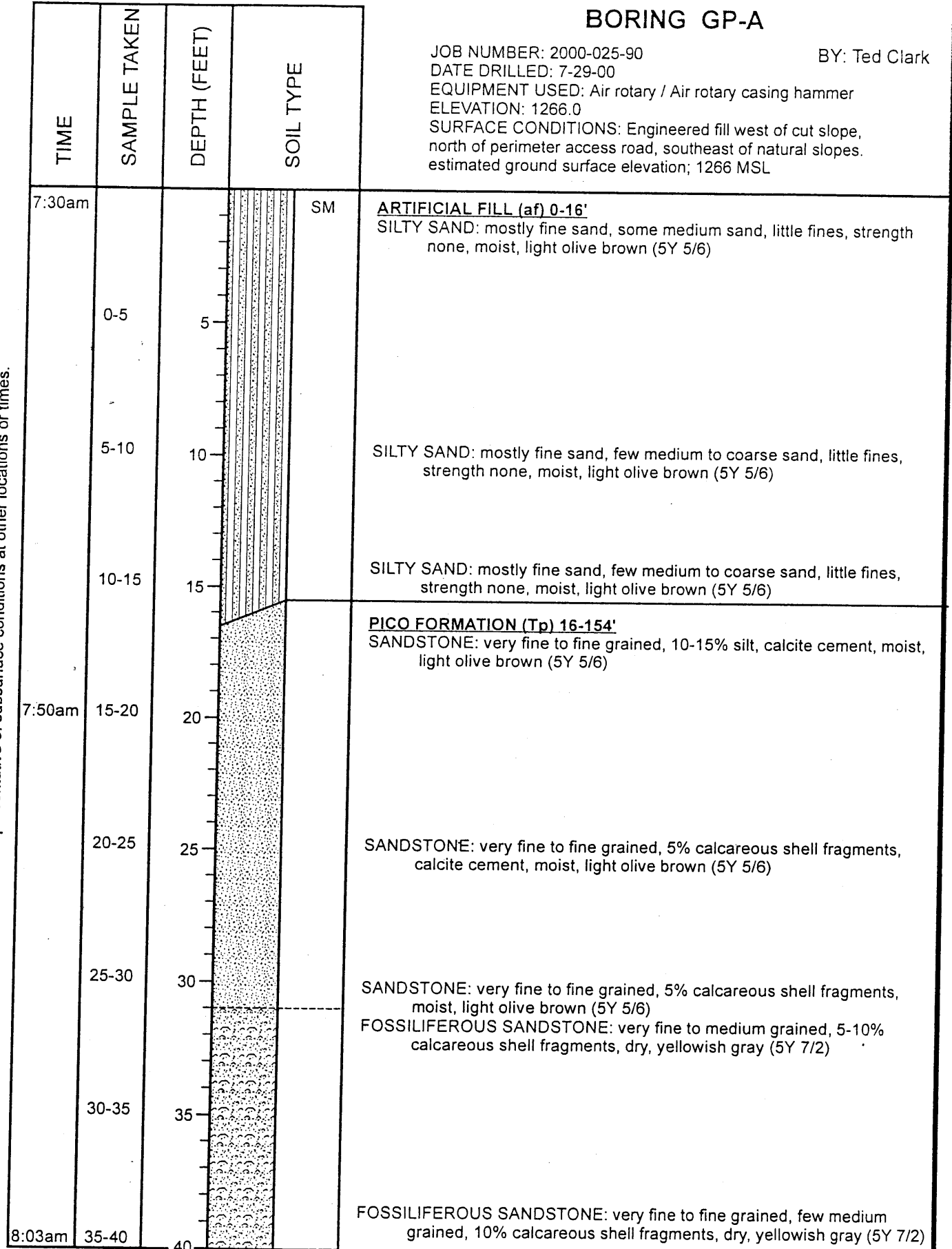
DATE DRILLED: 7-29-00

EQUIPMENT USED: Air rotary / Air rotary casing hammer

ELEVATION: 1266.0

SURFACE CONDITIONS: Engineered fill west of cut slope, north of perimeter access road, southeast of natural slopes. estimated ground surface elevation; 1266 MSL

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-A (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-29-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
8:20am	40-45	45	SANDSTONE: very fine to medium grained, few coarse to very coarse grained, 5% calcareous shell fragments, light dusky yellow (5Y 7/4)
	45-50	50	SANDSTONE: very fine to fine grained, 1% calcareous shell fragments, moist, light dusky yellow (5Y 7/4)
	50-55	55	SANDSTONE: very fine to fine grained, moist, light dusky yellow (5Y 7/4)
	55-60	60	SANDSTONE: very fine to fine grained, 1% calcareous shell fragments, moist, light dusky yellow (5Y 7/4)
	60-65	65	SANDSTONE: very fine to fine grained, moist, dusky yellow (5Y 6/4)
	65-70	70	FOSSILIFEROUS SANDSTONE: very fine to medium grained, <5% calcareous shell fragments, moist, grayish yellow (5Y 8/4)
8:30am	70-75	75	SANDSTONE: very fine to fine grained, 2% calcareous shell fragments, moist, dark yellowish orange (10YR 6/6)
	75-80	80	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-A (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-29-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
8:50am start 9:25am	80-85	85	INTERBEDDED SANDSTONE AND MUDSTONE: very fine to fine grained sandstone, mudstone with 5% fine to medium sand, moist, moderate brown (5YR 4/4)
	85-90	90	SANDSTONE: very fine to fine grained, moist, grayish olive, (10Y 4/2)
			INTERBEDDED SILTSTONE AND SANDSTONE
	90-95	95	90-95' poor sample recovery
			SILTSTONE: with 10% fine sand, moist, interbedded moderate brown (5YR 4/4) and olive gray (5Y 3/2) siltstones
			SANDSTONE: very fine grained, moist, moderate brown (5YR 4/4)
	95-100	100	SANDSTONE: very fine grained, moist, olive gray (5Y 3/2)
			SANDSTONE: very fine to fine, moist, moderate brown, (5YR 4/4)
			SILTSTONE: with 10-15% fine sand, moist, moderate brown (5YR 3/4)
	100-105	105	
	105-110	110	SANDSTONE: very fine to fine grained, moist, light olive (10Y 5/2)
			INTERBEDDED LIMESTONE AND MUDSTONE:
			MUDSTONE: <5% very fine to fine sand, laminations several millimeters thick with dusky yellow (5Y 6/4) and grayish olive (10Y 4/2), and rare moderate brown (5YR 3/4) laminations
	110-115	115	LIMESTONE: microcrystalline, dry, very light gray (N8)
			SANDSTONE: very fine to fine grained, few silt, moist, grayish olive green (5GY 4/2)
115-120	115-120	120	

(CONTINUED ON THE FOLLOWING FIGURE)


LOG OF BORING

BORING GP-A (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-29-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
10:am	120-125	125	SANDSTONE: very fine to fine grained, few silt, moist, grayish olive green (5GY 4/2)
	125-130	130	SANDSTONE: very fine to fine grained, moist, grayish olive green (5GY 4/2)
	130-135	135	SANDSTONE: very fine to fine grained, moist, grayish olive green (5GY 4/2)
	135-140	140	SANDSTONE: very fine to fine grained, trace silt, trace calcareous shell fragments, grayish green (5GY 4/2)
	140-145	145	FOSSILIFEROUS SANDSTONE: very fine to fine grained, 50% calcareous shell fragments ranging from medium sand to pebble size, calcite cement, dry, light gray (N7)
10:10 am	145-150	150	SANDSTONE: very fine to fine grained, moist, grayish olive green (5GY 4/2)
	150-154	155	SANDSTONE: very fine to medium grained, moist, grayish olive green (5GY 4/2) <div style="text-align: center;">  </div> Terminated boring depth at 154' based on increased moisture in drilling returns. Pulled drill rod and tagged boring TD at 154'. Bottom of measuring tape tagged wet sand.
		160	

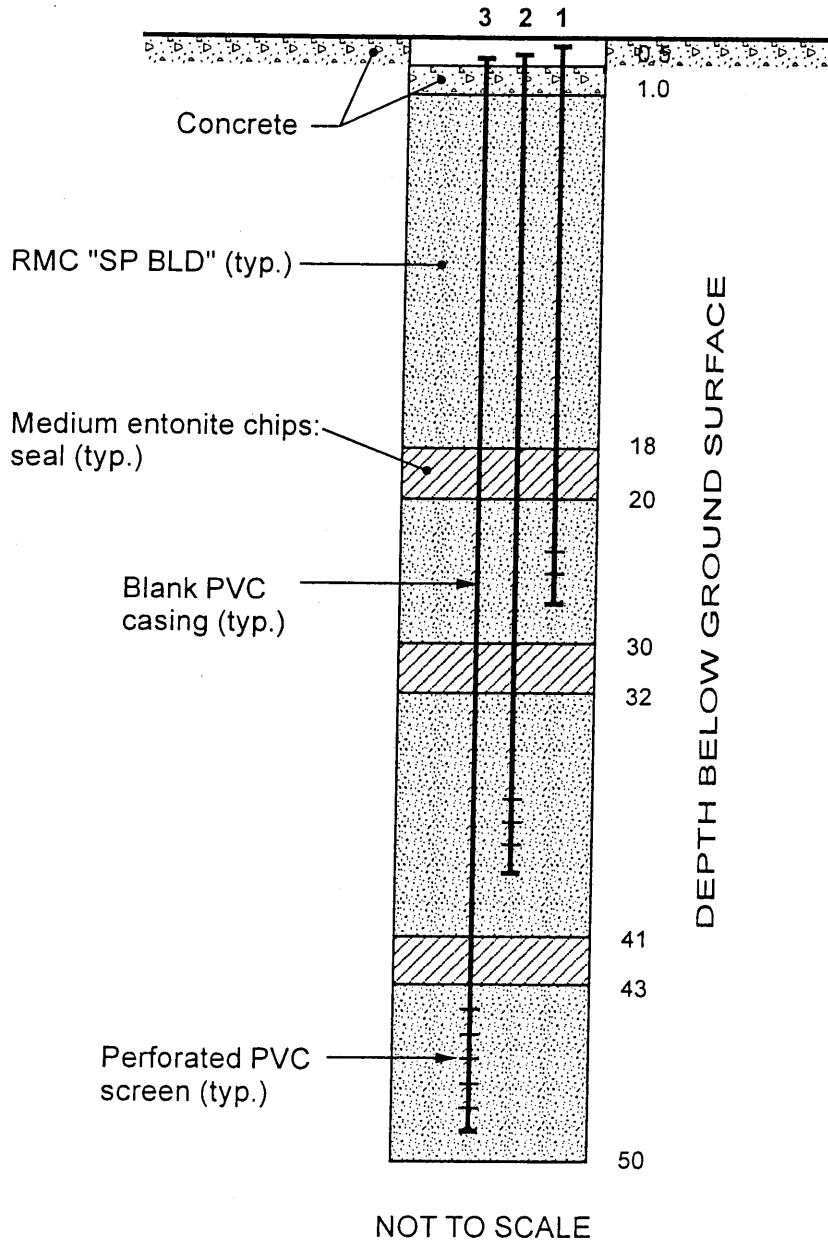
LOG OF BORING

GP-1R SOIL-GAS PROBE DETAIL

Chiquita Canyon Landfill
Los Angeles County, CA

Project No.: 2002-036-91
Drilling Contractor: Water Development Corp.
Installed 2/12/03 by D.G.Francuch

Top of vault elev. 976.37
Ground Surface elev. 976.3
Northing: 1977628.10
Easting: 6366605.12
(Top of Probe 3)



Exploratory Boring

Total depth 50 feet
Diameter 10" from 0 to 50 ft.

Probe Construction

Material: 3/4-inch. schedule 80 PVC,
flush-threaded
Perforations: 1/8-inch
holes, 20 per foot

Probe 1

Total length:
Perforation depth: 24.0 to 26.0 ft.
Top of casing elev.: 976.01

Probe 2

Total length:
Perforation depth: 36.0 to 38.0 ft.
Top of casing elev.: 975.93

Probe 3

Total length:
Perforation depth: 45.0 to 47.0 ft.
Top of casing elev.: 975.87

Protective vault

EMCO Wheaton Flush
12" diameter.

BORING GP-1R

JOB NUMBER: 2002-036-91

BY: DGF

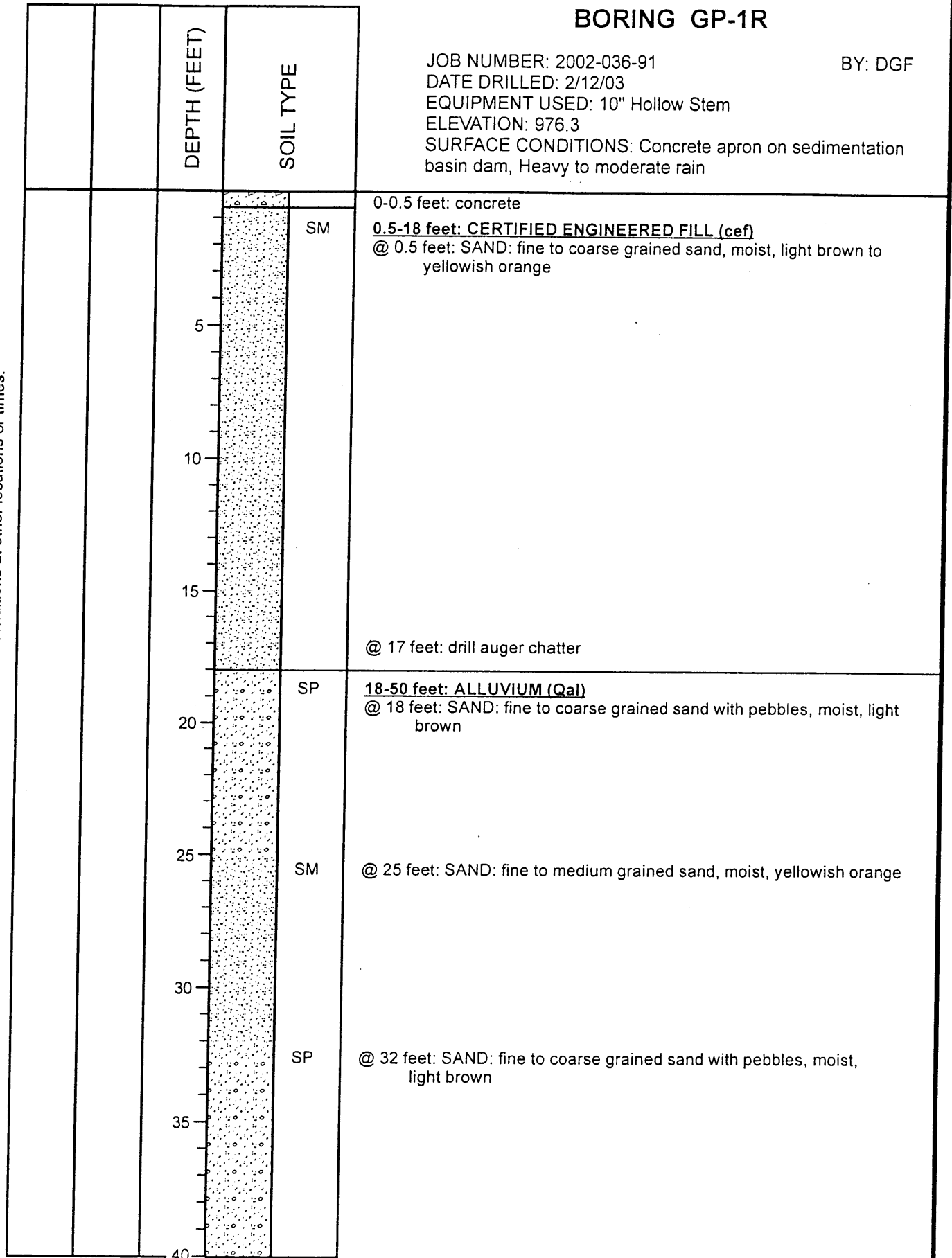
DATE DRILLED: 2/12/03

EQUIPMENT USED: 10" Hollow Stem

ELEVATION: 976.3

SURFACE CONDITIONS: Concrete apron on sedimentation basin dam, Heavy to moderate rain

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-1R (Continued)

BY: DGF

JOB NUMBER: 2002-036-91
DATE DRILLED: 02-12-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

		DEPTH (FEET)	SOIL TYPE
		45	SP
		50	
		55	
		60	
		65	
		70	
		75	
		80	

@ 42 feet: GRAVELLY SAND: fine to coarse grained sand with pebbles, moist, light brown

TOTAL DEPTH 50 FEET.
No groundwater.
No caving.

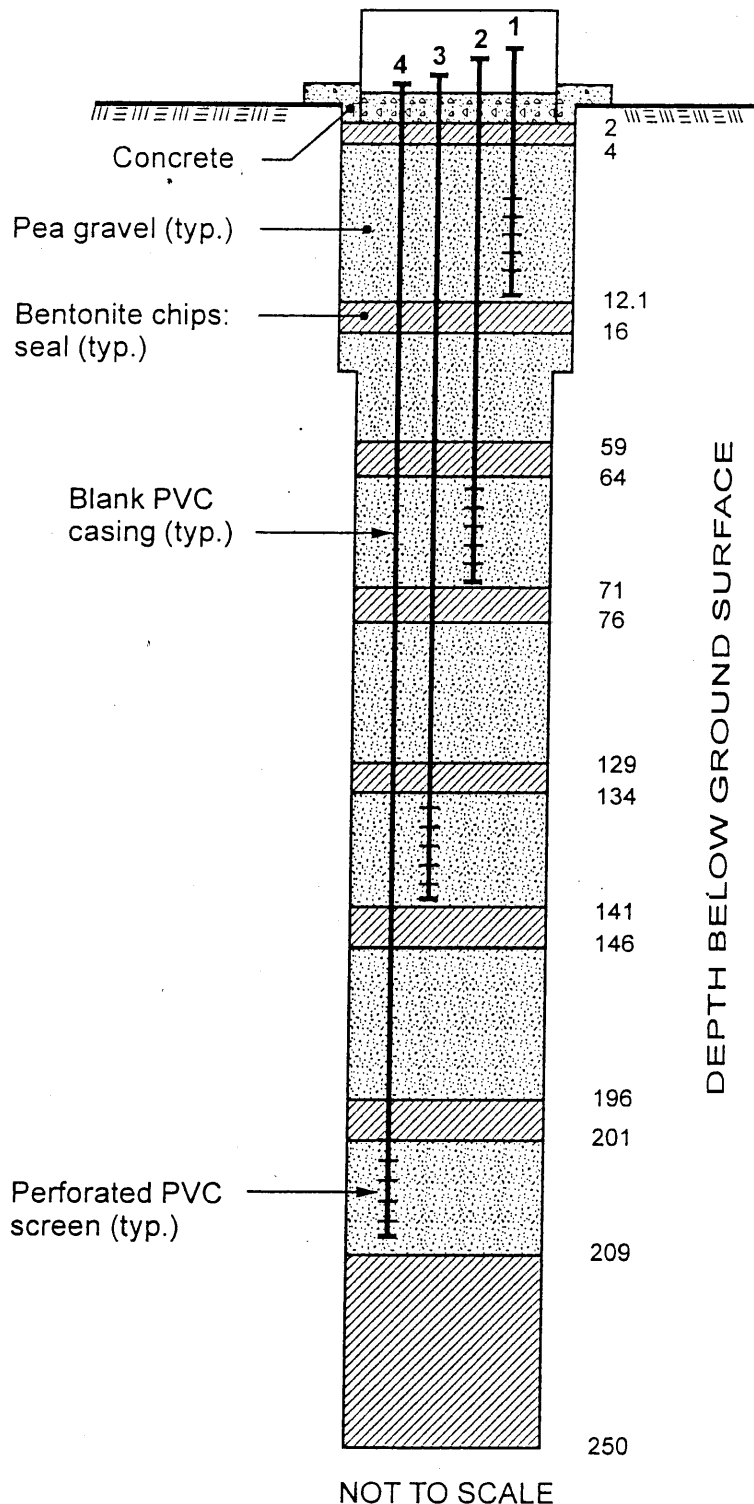
LOG OF BORING

SOIL-GAS PROBE GP-11

Chiquita Canyon Landfill
Los Angeles County, CA

Project No.: 2000-025-90
Drilling Contractor: Water Development Corp.
Installed 7/28/00 by T. Clark

Top of vault elev. 1318.28
Ground Surface elev. 1315.3
Datum MSL



Exploratory Boring

Total depth 250 feet
Diameter 9 5/8" from 0 to 26.8 ft.
8 1/2" from 26.8 to 250 ft.

Probe Construction

Material: 3/4-inch. schedule 80 PVC,
flush-threaded
Perforations: 1/8-inch
holes, 20 per foot

Probe 1

Total length: 12.⁸³ ft.
Perforation depth: 5 to 10 ft.

Probe 2

Total length: 72.⁸⁷ ft.
Perforation depth: 65.⁰⁸ to 69.⁹⁷ ft.

Probe 3

Total length: 143.³⁷ ft.
Perforation depth: 136.⁰⁶ to 140.⁹⁹ ft.

Probe 4

Total length: 210.⁰⁵ ft.
Perforation depth: 202.⁹² to 207.⁸² ft.

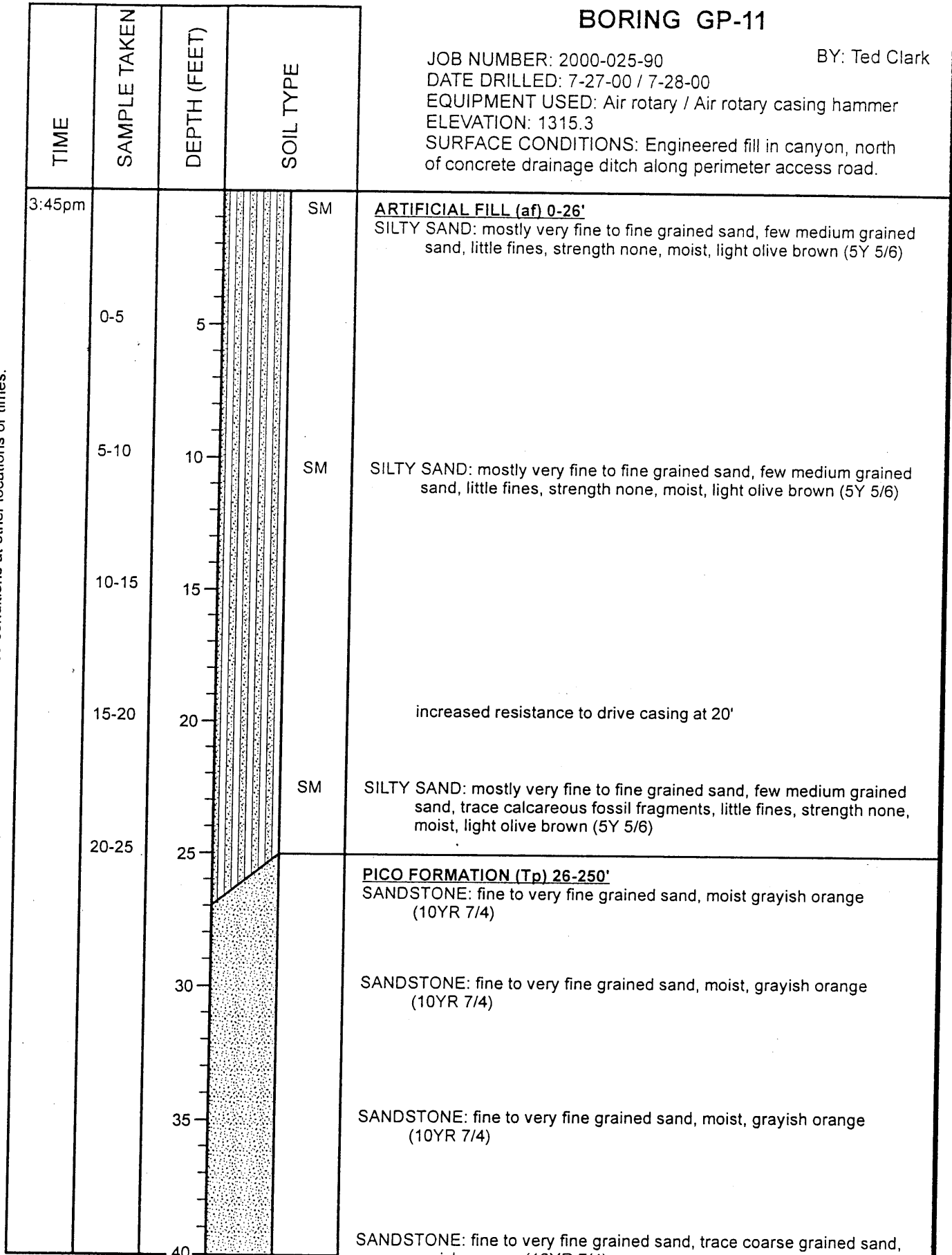
Protective vault

Steel pipe, 8 3/4" diameter,
5 ft. overall length

BORING GP-11

JOB NUMBER: 2000-025-90 BY: Ted Clark
 DATE DRILLED: 7-27-00 / 7-28-00
 EQUIPMENT USED: Air rotary / Air rotary casing hammer
 ELEVATION: 1315.3
 SURFACE CONDITIONS: Engineered fill in canyon, north of concrete drainage ditch along perimeter access road.

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
 It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-11 (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-27-00 / 7-28-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
		45	SANDSTONE: very fine to fine grained sand, moist, moderate yellowish brown (10YR 5/4)
		50	SANDSTONE: fine to very fine grained sand, moist, moderate yellowish brown (10YR 5/4)
		55	SANDSTONE: medium to fine grained sand, few very fine grained, moist, grayish orange (10YR 7/4)
		60	SANDSTONE: medium to fine grained sand, few coarse grained, moist, moderate yellowish brown (10YR 5/4)
	60-65	65	SANDSTONE: very fine to fine grained sand, some calcite cement, light olive gray (5Y 5/2)
	65-70	70	SANDSTONE: fine grained, few medium grained sand, moist, grayish orange (10YR 7/4)
	70-75	75	SANDSTONE: fine grained, few medium grained sand, moist, grayish orange (10YR 7/4)
	75-80	80	SANDSTONE: fine to very fine grained; trace medium to coarse grained, moist, very pale orange (10YR 8/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-11 (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-27-00 / 7-28-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
	80-85	85	SANDSTONE: very fine to fine grained, moist, moderate yellowish brown (10YR 5/4)
	85-90	90	SANDSTONE: very fine to fine grained; trace coarse to very coarse grained, moist, dark yellowish orange (10YR 6/6)
	90-95	95	SANDSTONE: very fine to fine grained, moist, moderate yellowish brown (10YR 5/4)
	95-100	100	SANDSTONE: very fine to fine grained; trace coarse to very coarse grained, moist, grayish orange (10YR 7/4)
	100-105	105	SANDSTONE: very fine to medium grained; trace coarse to very coarse grained, moist, grayish orange (10YR 7/4)
stop @ 5:15 pm	105-110	110	SANDSTONE: very fine to medium grained; trace coarse to very coarse grained, moist, grayish orange (10YR 7/4)
start @ 7:15 am			SILTSTONE and MUDSTONE interbeds: moist, olive gray (5Y 3/2)
	110-115	115	SANDSTONE: very fine to fine grained, moist, yellowish gray (5Y 7/2)
	115-120	120	SANDSTONE: very fine to fine grained, moist, yellowish gray (5Y 7/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-11 (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-27-00 / 7-28-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
7:45 am	120-125	125	SANDSTONE: very fine to fine grained, moist, dark yellowish orange (10YR 6/6)
	125-130	130	FOSSILIFEROUS SANDSTONE: very fine to fine grained sand, moist, grayish orange (10YR 7/4), 2% calcareous shell fragments
	130-135	135	FOSSILIFEROUS SANDSTONE: very fine to fine grained sand, trace medium grained, moist, moderate yellowish brown (10YR 5/4), 2% calcareous shell fragments
	135-140	140	SANDSTONE: very fine to fine grained sand, moist, grayish orange (10YR 7/4)
	140-145	145	FOSSILIFEROUS SANDSTONE: very fine to fine grained sand, trace medium to coarse grained, 2% calcareous shell fragments, calcite cement, moist, yellowish gray (5Y 7/2)
	145-150	150	FOSSILIFEROUS SANDSTONE: very fine to fine grained sand, trace medium to coarse grained, 2% calcareous shell fragments, moist, yellowish gray (5Y 7/2),
	150-155	155	INTERBEDDED SANDSTONE, SILTSTONE and MUDSTONE: fine to very fine grained sand, moist, olive gray (5Y 3/2)
	155-160	160	SANDSTONE: very fine to fine grained, moist, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-11 (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-27-00 / 7-28-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
	160-165	165	SANDSTONE: very fine to fine grained, moist, yellowish gray (5Y 7/2)
	165-170	170	SANDSTONE: very fine to fine grained, calcite cement, calcareous fossil fragments, moist, yellowish gray (5Y 7/2)
	170-175	175	SILTY SANDSTONE: interbeds, very fine to fine grained, few silt, moist, moderate brown (5YR 4/4)
	175-180	180	SANDSTONE with SILTSTONE INTERBEDS: very fine to fine grained, trace medium grained, dark yellowish brown (10YR 4/2) sandstone, with moderate brown (5YR 3/4) siltstone
	180-185	185	SANDSTONE: very fine to fine grained, calcite cement, <2% calcareous shell fragments, moist, yellowish gray (5Y 7/2)
8:18 am	185-190	190	SANDSTONE: very fine to medium grained, calcite cement, <2% calcareous shell fragments, moist, yellowish gray (5Y 7/2)
	190-195	195	SANDSTONE: very fine to fine grained, calcite cement, moist, yellowish gray (5Y 7/2)
	195-200	200	SANDSTONE: very fine to fine grained, moist, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)


LOG OF BORING

BORING GP-11 (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90
DATE DRILLED: 7-27-00 / 7-28-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
8:40 am	200-205	205	SANDSTONE: very fine to fine grained, moist, dusky yellow (5Y 6/4)
	205-210	210	SANDSTONE: very fine to fine grained, trace silt, moist, dusky yellow (5Y 6/4)
			 Water level measured at a depth of 211.8 on 7-28-00 at 10:35am
	210-215	215	FOSSILIFEROUS SANDSTONE: very fine to medium grained sand, 20% calcareous shell fragments of coarse sand size, dry, yellowish gray, (5Y 7/2)
	215-220	220	SANDSTONE: very fine to fine grained, moist, yellowish gray, (5Y 7/2)
9:05 am	220-225	225	SANDSTONE: very fine to fine grained, few medium grained, moist, dark yellowish orange (10YR 6/6)
			poor drilling returns 225-235
	225-230	230	SANDSTONE: very fine to fine, moist, dark yellowish orange (10YR 6/6)
	230-235	235	SANDSTONE: very fine to fine grain, trace medium grained, <5% calcareous shell fragments, dusky yellow (5Y 6/4)
		NR	No drilling returns 235-243 (NR)
		240	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-11 (Continued)

BY: Ted Clark

JOB NUMBER: 2000-025-90

DATE DRILLED: 7-27-00 / 7-28-00

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	SAMPLE TAKEN	DEPTH (FEET)	SOIL TYPE
9:30 am	243-245	245	NR
	245-250	250	
		255	
		260	
		265	
		270	
		275	
		280	

No drilling returns 235-243 (NR)

SANDSTONE: very fine to fine grained, few medium grained, wet, grayish olive (10Y 4/2)

SANDSTONE: very fine to fine grained, wet grayish olive (10Y 4/2)

Terminate boring at target depth 250'

LOG OF BORING

AS-BUILT SOIL-GAS PROBE GP-12

Chiquita Canyon Landfill
Los Angeles County, CA

Project No.: 2004-001-92

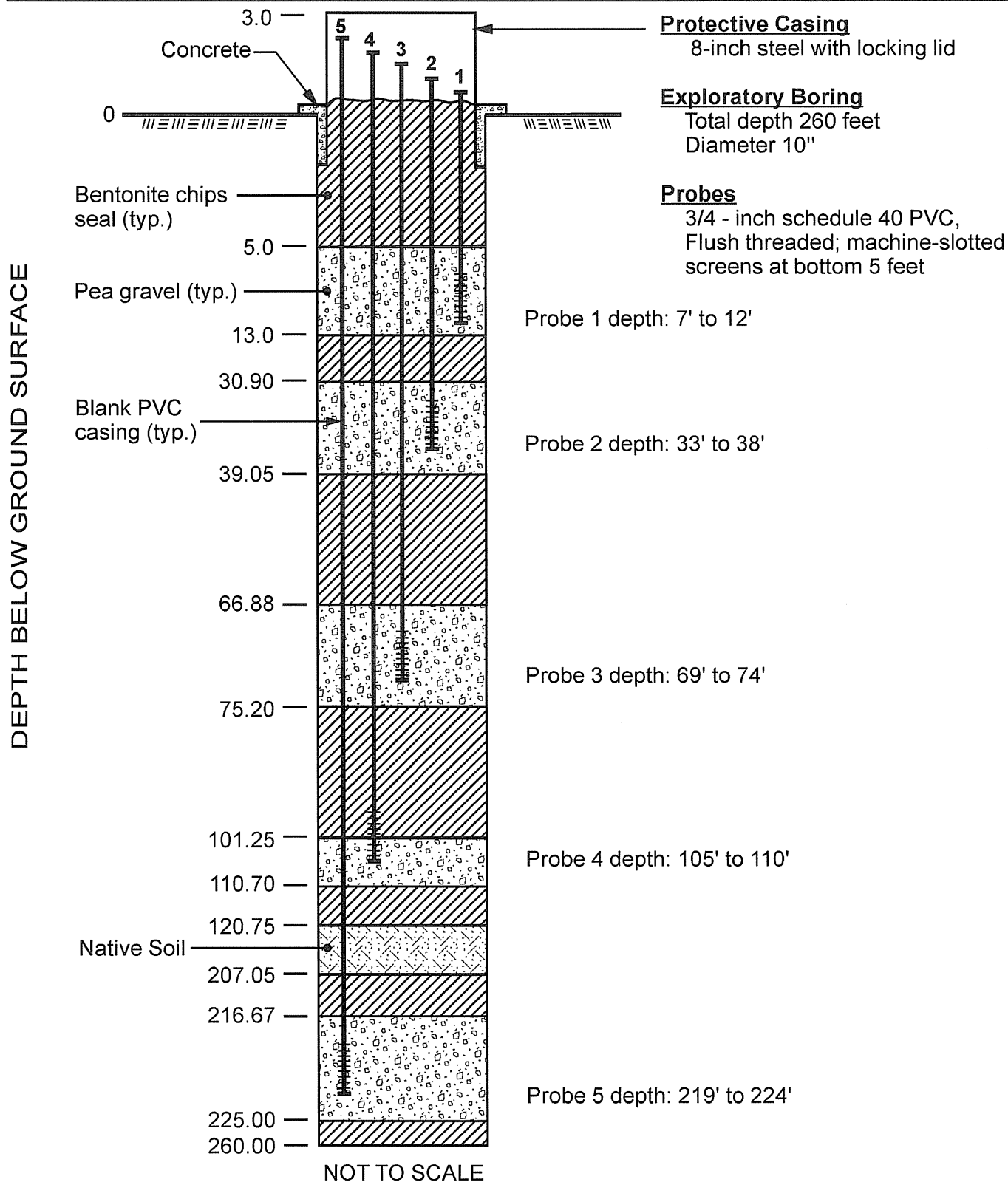
Drilling Contractor: WDC Exploration and Wells

Installed 12/6/05 by P. Chang

Ground Surface elev. 1335⁷⁸

Datum

MSL



BORING GP-12

JOB NUMBER: 2004-001-92
 DATE DRILLED: 12/5/05
 EQUIPMENT USED: Air Rotary
 LOGGED BY: PDC
 BORING DEPTH: 0-260'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
15:45			-	5		
			-	10		
			-	15		
15:57 16:02			-	20		
			-	25		
			-	30		
			-	35		
16:06 7:20			-	40		

ARTIFICIAL FILL (af)

PICO FORMATION (Tp)

SILTY SANDSTONE: mostly fine sand, little silt, little medium sand,
 medium hard, moist, yellowish gray (5Y 7/2)

more fine to coarse sands, dusky yellow (5Y 6/4)

more silt, less medium to coarse sands

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
 It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-12 (CONTINUED)						
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG SOIL TYPE
7:35 7:39				-	40	medium hard to hard, light olive brown (5Y 5/6)
				-	45	more silt, less medium to coarse sands
				-	50	yellowish gray (5Y 7/2)
				-	55	more fine to coarse sand, few fine gravels, dusky yellow (5Y 6/4)
				-	60	more fine to medium sands, grayish orange (10YR 7/4)
				-	65	
				-	70	less medium to coarse sands, dusky yellow (5Y 6/4)
				-	75	
				-	80	
	7:49 7:52			-		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

8:00
8:03

8:13
8:17

(CONTINUED ON THE FOLLOWING FIGURE)

BORING GP-12 (CONTINUED)

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/5/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-260'

moderate yellow (5Y 7/6)

more silt, hard, dusky yellow (5Y 6/4)

hard to medium hard, slow drilling

more sand, some siltstone fragments, hard, light olive gray (5Y 5/2)

mostly fine to coarse sand, some silt, moist, dusky yellow (5Y 6/4)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-12 (CONTINUED)						
						JOB NUMBER: 2004-001-92 DATE DRILLED: 12/5/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-260'
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
8:26 8:29			-	125		more silt
			-	130		SANDY SILTSTONE: mostly silt, some fine to medium sands, hard, moist, light olive gray (5Y 8/2)
			-	135		more silt, some siltstone fragments, slightly more moisture, grayish olive (10Y 4/2)
			-	140		
			-	145		
			-	150		more fine to coarse sands, light olive brown (5Y 5/6)
8:42 8:46			-	155		more fine to coarse sands, hard to very hard, less moisture, yellowish gray (5Y 7/2), making lots of fine dust
			-	160		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-12 (CONTINUED)						
JOB NUMBER: 2004-001-92 DATE DRILLED: 12/5/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-260'						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
9:02 9:06			-	165		more sands
			-	170		still making lots of fine dust, some rig chatter
			-	175		
			-	180		
			-	185		
			-	190		SILTY SANDSTONE: mostly fine to coarse sand, some silt, hard, moist, yellowish gray (5Y 7/2), easier drilling
9:12 9:16			-	195		
			-	200		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-12 (CONTINUED)						
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2004-001-92 DATE DRILLED: 12/5/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-260'
					SAMPLE LOCATION	
					GRAPHIC LOG	
					SOIL TYPE	
9:28 9:53				-	205	less sand
				-	210	SANDY SILTSTONE: mostly silt, some fine to medium sand, hard, moist, yellowish gray (5Y 7/2), making less dust
				-	215	more silt, slight increase in moisture
				-	220	15 minute water check, no water more fine to medium sand
				-	225	SILTY SANDSTONE: mostly fine to medium sand, some silt, little coarse sand, hard, moist, dusky yellow (5Y 6/4)
				-	230	more fine to coarse sands, grayish orange (10YR 7/4)
				-	235	increasing moisture
10:05 10:24				-	240	▽ very moist, dark yellowish orange (10YR 6/6) groundwater at 238 feet 12/6/05 15 minute water check, no water

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-12 (CONTINUED)						
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2004-001-92 DATE DRILLED: 12/5/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-260'
					SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				-	240	slightly more silt, less moisture, grayish orange (10YR 7/4)
				-	245	
				-	250	SANDY CLAYSTONE: mostly clay and silt with claystone fragments, little fine to medium sand, medium hard to hard, moist, moderate yellowish orange (10YR 5/4)
				-	255	more fine to medium sand
				-	260	SANDY SILTSTONE: mostly silt with siltstone fragments, little fine to medium sand, medium hard, moist, pale olive (10Y 6/2)
10:40				-	260	Bottom of Boring at 260 feet. On 12/6/05.
					265	
					270	
					275	
					280	

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

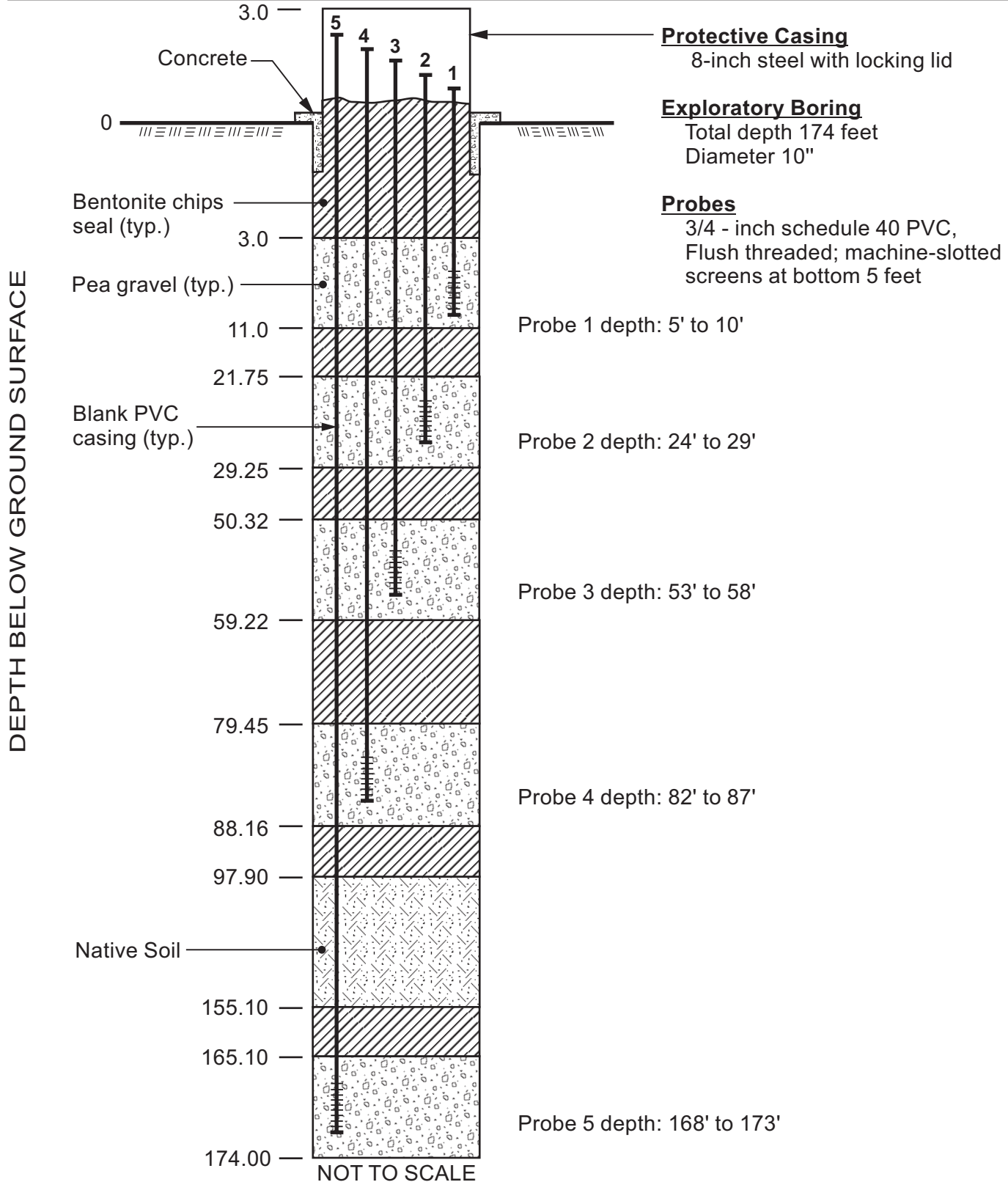
2004-001-92 REPORT DATED 05-25-2007

AS-BUILT SOIL-GAS PROBE GP-13

Chiquita Canyon Landfill
Los Angeles County, CA

Project No.: 2004-001-92
Drilling Contractor: WDC Exploration and Wells
Installed 12/5/05 by P. Chang

Ground Surface elev. 1262⁸⁸
Datum MSL



BORING GP-13

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/5/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-174'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
7:25 7:38			-	5		SM
			-	10		
			-	15		
			-	20		
			-	25		
			-	30		
			-	35		
7:45 7:49			-	40		

ARTIFICIAL FILL (af)
SILTY SAND: mostly fine to coarse sand, some silt, little gravel, loose to medium dense, dry to moist, olive yellow (25Y 6/6)

PICO FORMATION (Tp)
SILTSTONE: mostly silt, little sand, medium hard, moist, pale olive (10Y 6/2), making fine dust

little more fine sand, medium hard to hard, light olive brown (5Y 5/6)

some white siltstone fragments, pale olive (10Y 6/2), making fine dust

SANDY SILTSTONE: mostly silt and siltstone fragments, some fine to medium sand, medium hard, moist, light olive brown (5Y 5/6)

slightly coarser sand

SILTSTONE: mostly silt and siltstone fragments, little fine sand, medium hard to hard, moist, moderate yellowish brown (10YR 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-13 (CONTINUED)						
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2004-001-92 DATE DRILLED: 12/5/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-174'
					SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
	7:58 8:01			-		SILTY SANDSTONE: mostly fine to coarse sand, some silt, medium hard, moist, grayish orange (10YR 7/4) SILTSTONE: mostly silt and siltstone fragments, little fine to medium sand, medium hard, moist, light olive brown (5Y 5/6) more silt, few sands making lots of fine light gray dust some very hard siltstone fragments, dusky yellow (5Y 6/4) medium hard to hard, light olive brown (5Y 5/6), less fine dust hard, dusky yellow (5Y 6/4), making lots of dust very hard, slow drilling
	8:13 8:17			-		CLAYSTONE: mostly clay and silt with claystone fragments, hard to very

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
8:25 8:28			-	80			hard, moist, grayish olive (10Y 4/2)
			-	85			SILTSTONE: mostly silt and siltstone fragments, few coarse sand, medium hard to hard, moist, olive gray (5Y 5/2)
			-	90			CLAYSTONE: mostly clay and silt, medium hard to hard, moist, grayish olive (10Y 4/2)
			-	95			some very hard claystone fragments
			-	100			
			-	105			hard, very hard
			-	110			
			-	115			still making lots of fine dust
8:36 8:40			-	120			

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING GP-13 (CONTINUED)

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/5/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-174'

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
8:51 8:56			-	125		
			-	130		
			-	135		
			-	140		
			-	145		
			-	150		
			-	155		
9:05 9:09			-	160		

BORING GP-13 (CONTINUED)

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/5/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-174'

SILTSTONE/CLAYSTONE: mostly silt and clay with few sand

mostly siltstone fragments, light olive brown (5Y 5/6)

mostly silt and clay, grayish olive (10Y 4/2)

mostly silt and siltstone fragments, very hard, moist, light olive gray (5Y 5/2)

mostly silt, few fine sand, medium hard to hard, moist, dusky yellow (5Y 6/4)

hard, light olive gray (5Y 5/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-13 (CONTINUED)						
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2004-001-92 DATE DRILLED: 12/5/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-174'
					SAMPLE LOCATION GRAPHIC LOG	
					SOIL TYPE	
	9:20			-		hard to very hard, dusky yellow (5Y 6/4), making lots of dust CLAYSTONE/SILTSTONE: mostly clay and silt, hard to very hard, moist, grayish yellow green (5GY 7/2), making fine powder some claystone fragments, grayish olive (10Y 4/2)
				-		Bottom of Boring at 174 feet.

LOG OF BORING

2004-001-92 REPORT DATED 05-25-2007

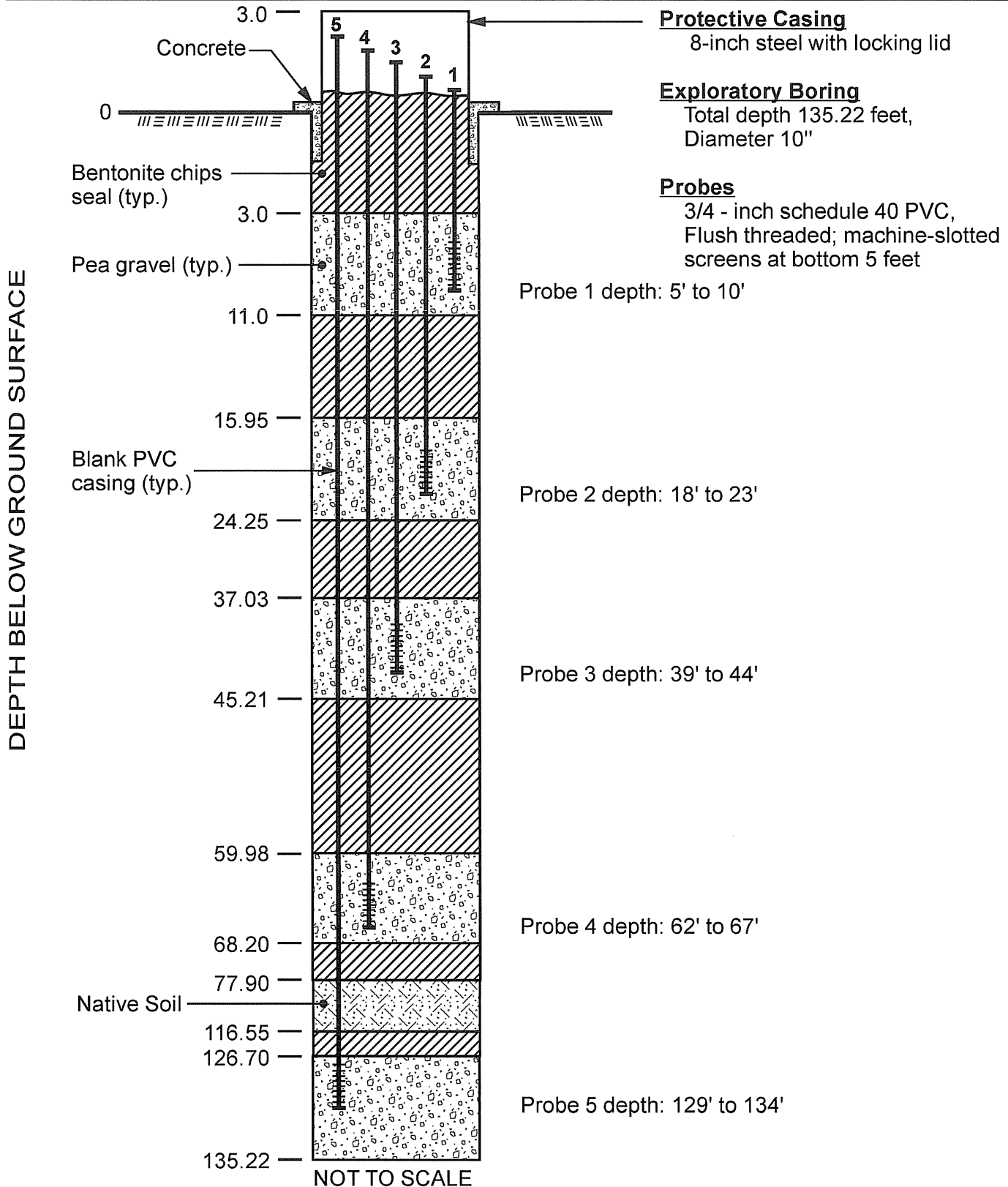
R.T. FRANKIAN & ASSOCIATES

AS-BUILT SOIL-GAS PROBE GP-14

Chiquita Canyon Landfill
Los Angeles County, CA

Project No.: 2004-001-92
Drilling Contractor: WDC Exploration and Wells
Installed 12/2/05 by P. Chang

Ground Surface elev. 1212⁰⁰
Datum MSL



BORING GP-14

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/1/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-165'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
8:36			-				
			-	5			
			-	10			
			-	15			
8:42 8:46			-	20			
			-	25			
8:53 8:57			-	30			
			-	35			
			-	40			

SAUGUS FORMATION (QTs)

SILTY SANDSTONE: mostly fine to medium sand, some silt, some coarse sand and gravel, slightly weathered, loose, moist, light olive brown (5Y 5/6)

more gravels, less weathering

less gravels, more silt, loose to medium hard

some gravels and cobbles

more sands, less gravels, yellowish gray (5Y 7/2)

SANDY SILTSTONE: mostly silt and siltstone fragments, some fine to medium sand, medium hard, moist, dusky yellow (5Y 6/4)

bottom of drive casing

SILTSTONE: less sand, hard, light olive gray (5Y 5/2)

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
9:05 9:10			-	45		
			-	50		
			-	55		
			-	60		
9:18 9:23			-	65		
			-	70		
			-	75		
			-	80		

BORING GP-14 (CONTINUED) JOB NUMBER: 2004-001-92 DATE DRILLED: 12/1/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-165'						
SILTSTONE/CLAYSTONE: mostly silt and claystone fragments, medium hard to hard, moist						
SANDY SILTSTONE: mostly silt with siltstone fragments, some fine sand, medium hard, moist, light olive brown (5Y 5/6)						
slightly more sand						
less sand, more silt & clay						
CLAYSTONE: mostly clay and silt with claystone fragments, few sands, medium hard to hard, moist, pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4)						
SILTY SANDSTONE: mostly fine to medium sand, some silt, little coarse sand, medium hard, moist, light olive brown (5Y 5/6)						
some gravel to 2"						

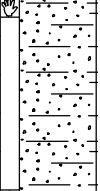
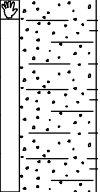
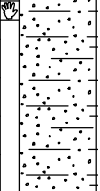
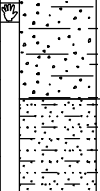
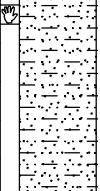
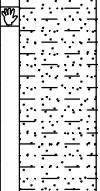
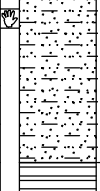
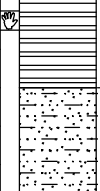
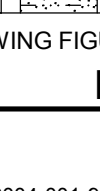
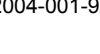
(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-14 (CONTINUED)						
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2004-001-92 DATE DRILLED: 12/1/05 EQUIPMENT USED: Air Rotary LOGGED BY: PDC BORING DEPTH: 0-165'
					SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
9:31 9:35 9:43 9:47				-		less gravel, mostly fine to coarse sand, little silt
				-		more silt, less medium to coarse sand
				-		more silt
				-		SANDY SILTSTONE: mostly silt and siltstone fragments, some fine sand, medium hard to hard, moist, light olive gray (5Y 5/2)
				-		little sand, moderate olive brown (5Y 4/4)
				-		light olive brown (5Y 4/4)
				-		CLAYSTONE: mostly clay with dark claystone fragments, hard, moist, moderate olive brown (5Y 4/4)
				-		SANDY SILTSTONE: mostly silt, some fine to medium sand, hard, moist, pale olive (10Y 6/2), making lots of fine white dust
				-		
				-		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
9:57 10:02			-	125		
10:15 10:20			-	130		
			-	135		
			-	140		
			-	145		
			-	150		
			-	155		
			-	160		

BORING GP-14 (CONTINUED)

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/1/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-165'

SILTSTONE: mostly silt and siltstone fragments, medium hard, moist,
light olive gray (5Y 5/2)

more siltstone & claystone fragments, hard

making fine dust to 142'
dusky yellow (5Y 6/4)

slightly more sand, medium hard, moist, light olive brown (5Y
5/6)

▽ groundwater at 146 feet 12/2/05

slightly more sandy

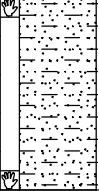
(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

2004-001-92 REPORT DATED 05-25-2007

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
10:37			-	165			
				170			
				175			
				180			
				185			
				190			
				195			
				200			

BORING GP-14 (CONTINUED)

JOB NUMBER: 2004-001-92
DATE DRILLED: 12/1/05
EQUIPMENT USED: Air Rotary
LOGGED BY: PDC
BORING DEPTH: 0-165'

SANDY SILTSTONE: some fine sand



groundwater at 165 feet 12/1/05

Bottom of Boring at 165 feet.

Groundwater first encountered at 165', then rose to 146' following overnight water check.

LOG OF BORING

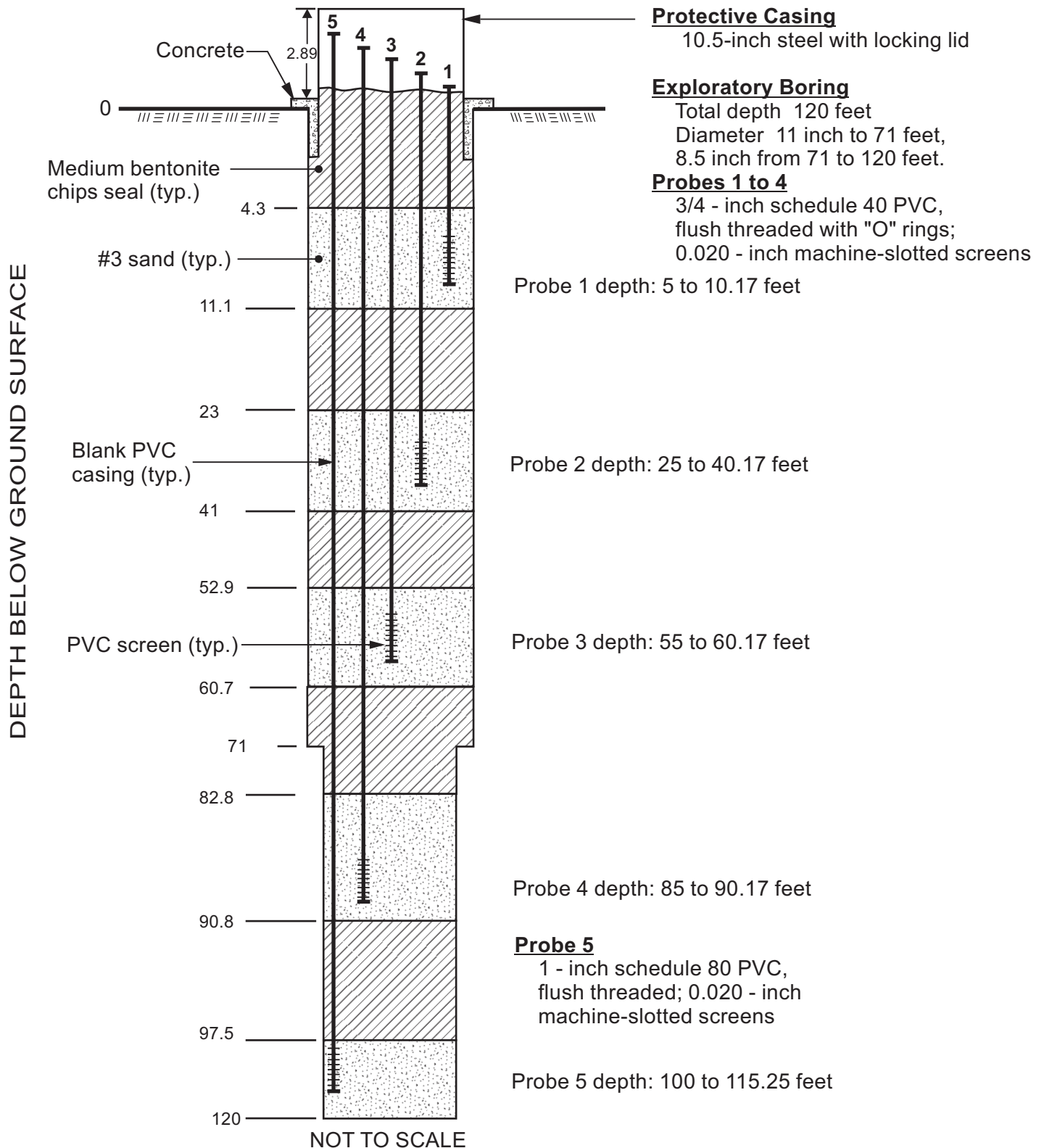
2004-001-92 REPORT DATED 05-25-2007

R.T. FRANKIAN & ASSOCIATES

As-Built Gas Probe GP-15

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 8/25/09 By: P. Chang

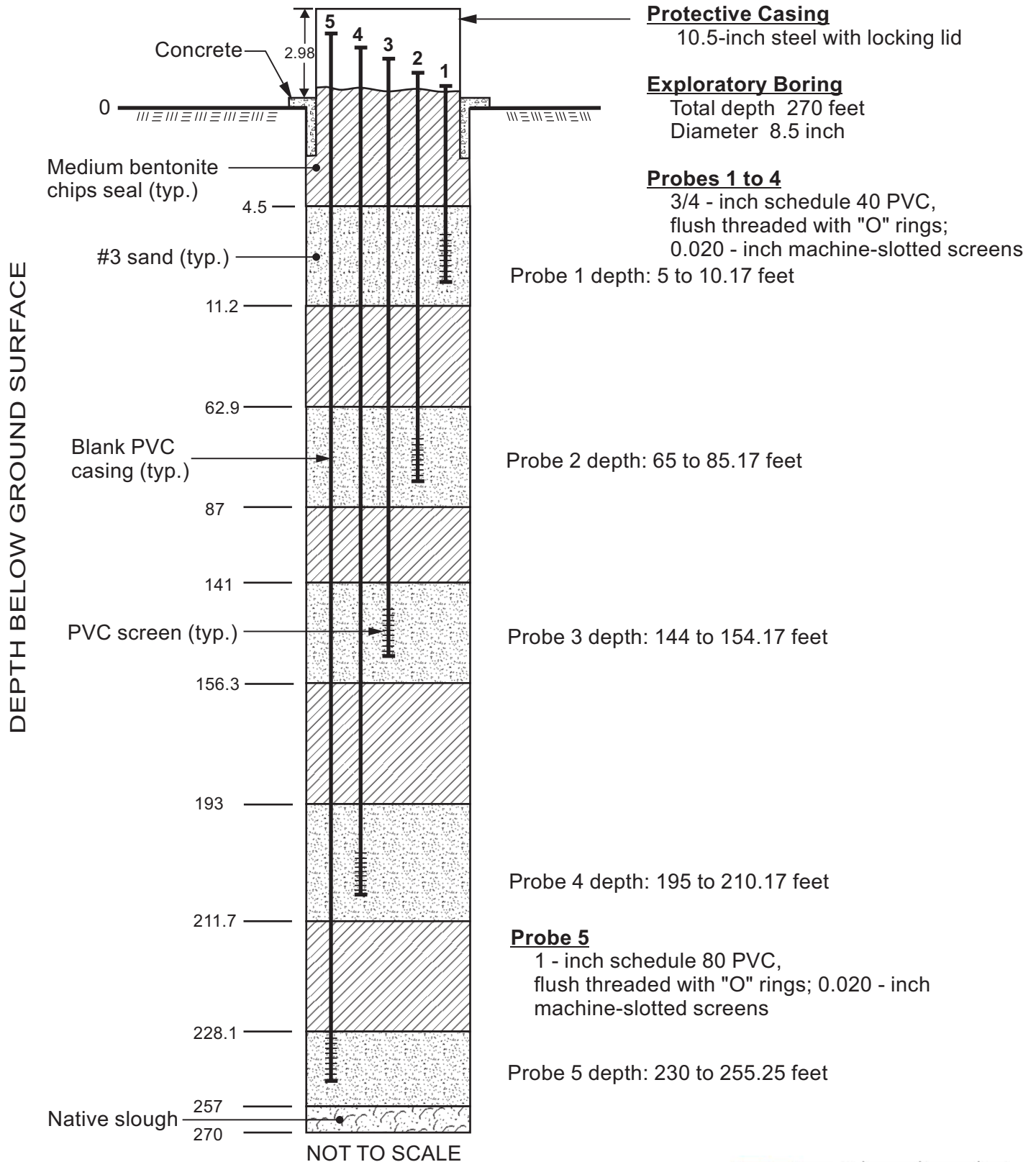
Top Concrete Pad Elev. 1215.86 feet
Ground Surface Elev. 1215.5 feet
Datum MSL



As-Built Gas Probe GP-16

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 9/01/09 By: P. Chang

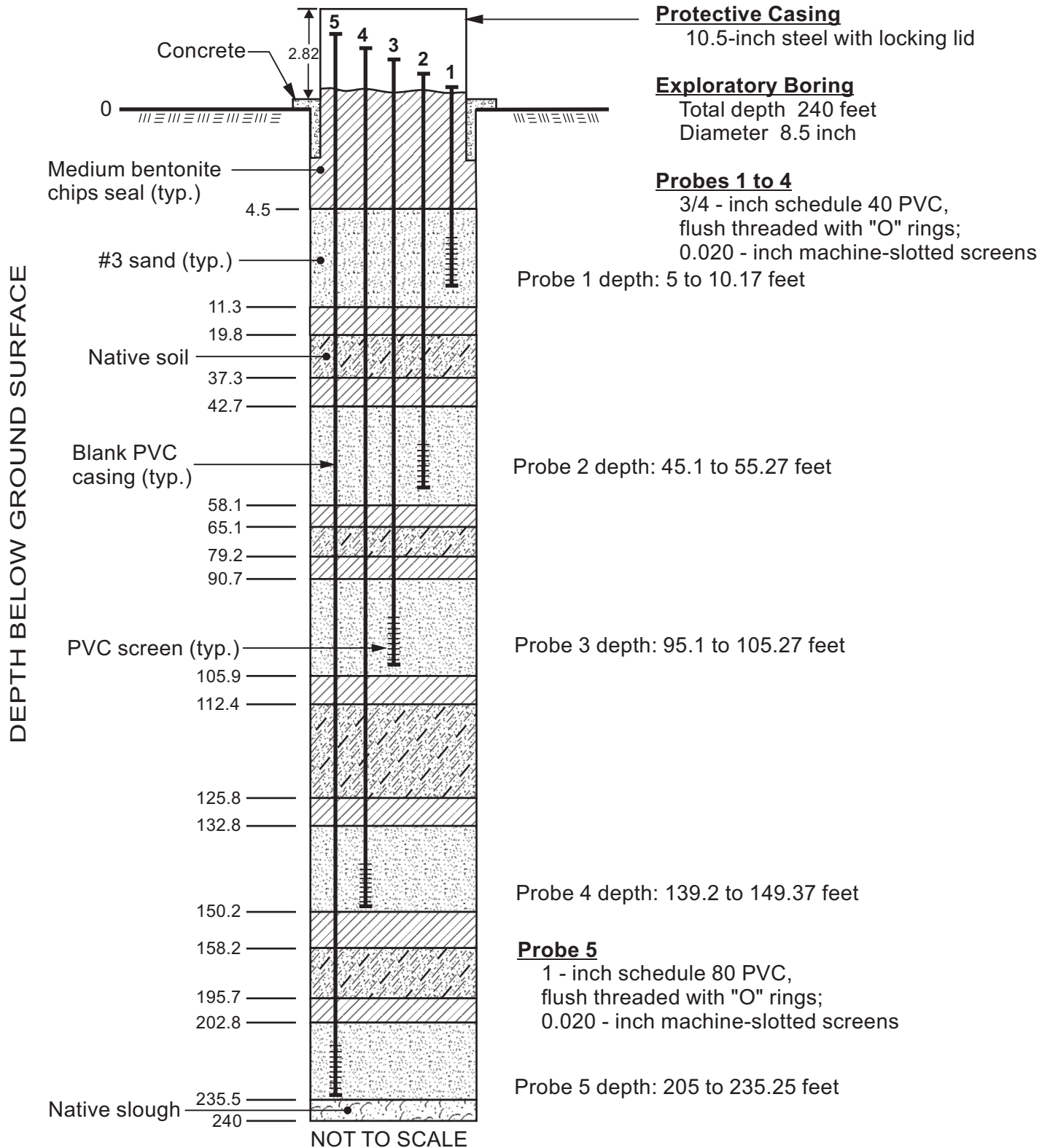
Top Concrete Pad Elev. 1254.48 feet
Ground Surface Elev. 1254.2 feet
Datum MSL



As-Built Gas Probe GP-17

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 8/28/09 By: P. Chang

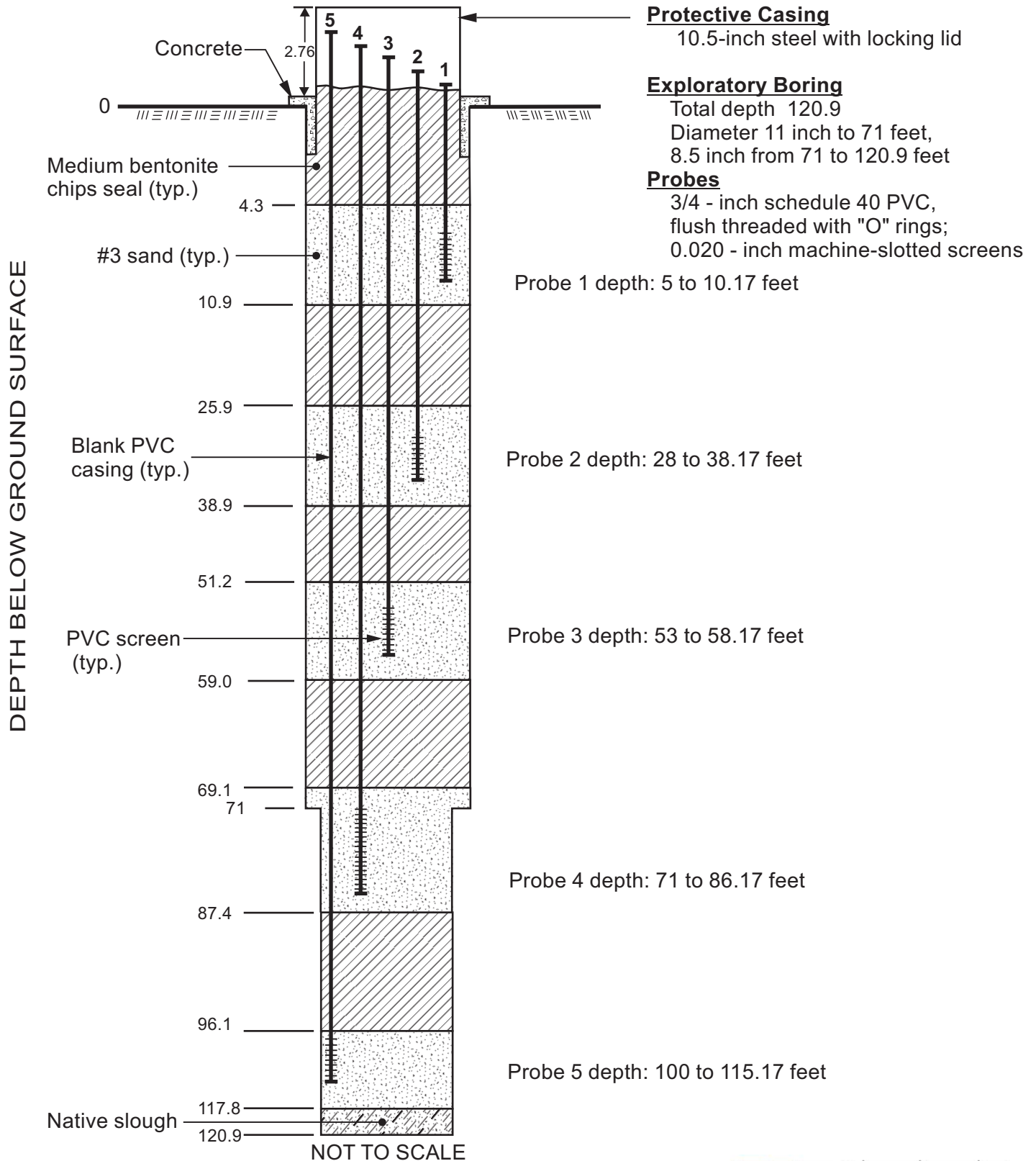
Top Concrete Pad Elev. 1213.84 feet
Ground Surface Elev. 1213.6 feet
Datum MSL



As-Built Gas Probe GP-18

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 8/26/09 By: P. Chang

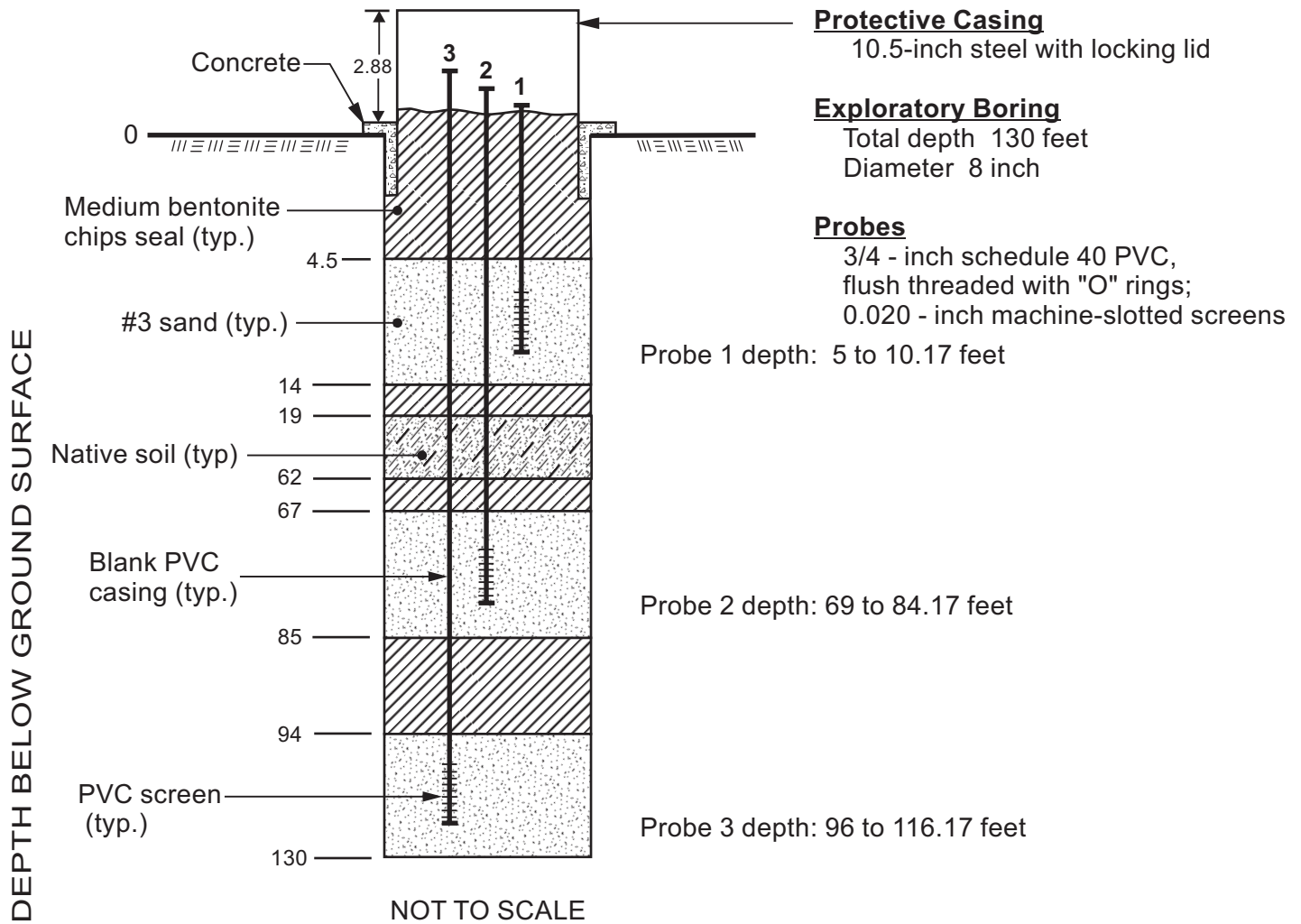
Top Concrete Pad Elev. 1110.93 feet
Ground Surface Elev. 1110.7 feet
Datum MSL



As-Built Gas Probe GP-19

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 9/4/09 By: K. Pitcher

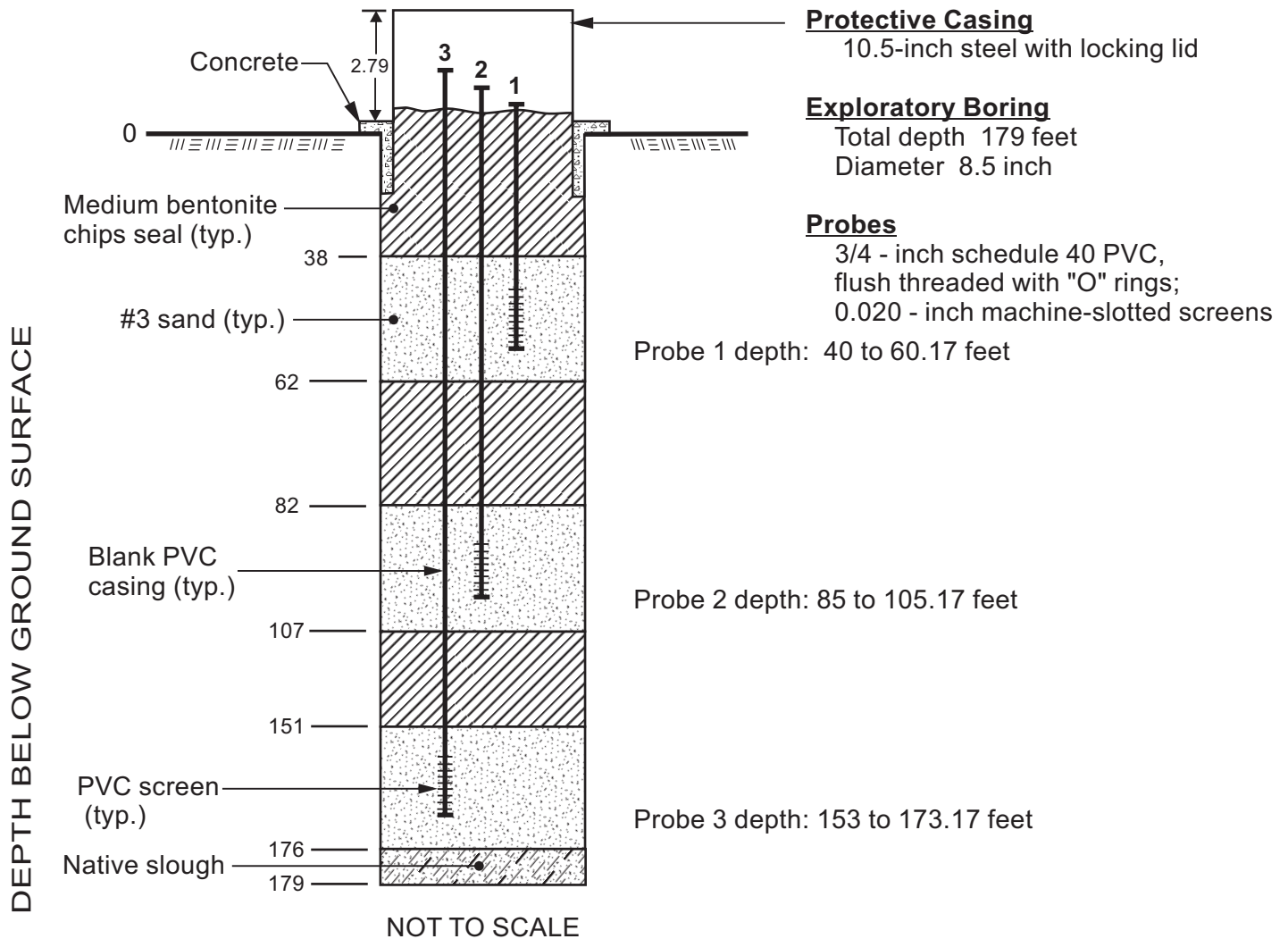
Top Concrete Pad Elev. 1128.84 feet
Ground Surface Elev. 1128.6 feet
Datum MSL



As-Built Gas Probe GP-20

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 9/4/09 By: K. Farrell

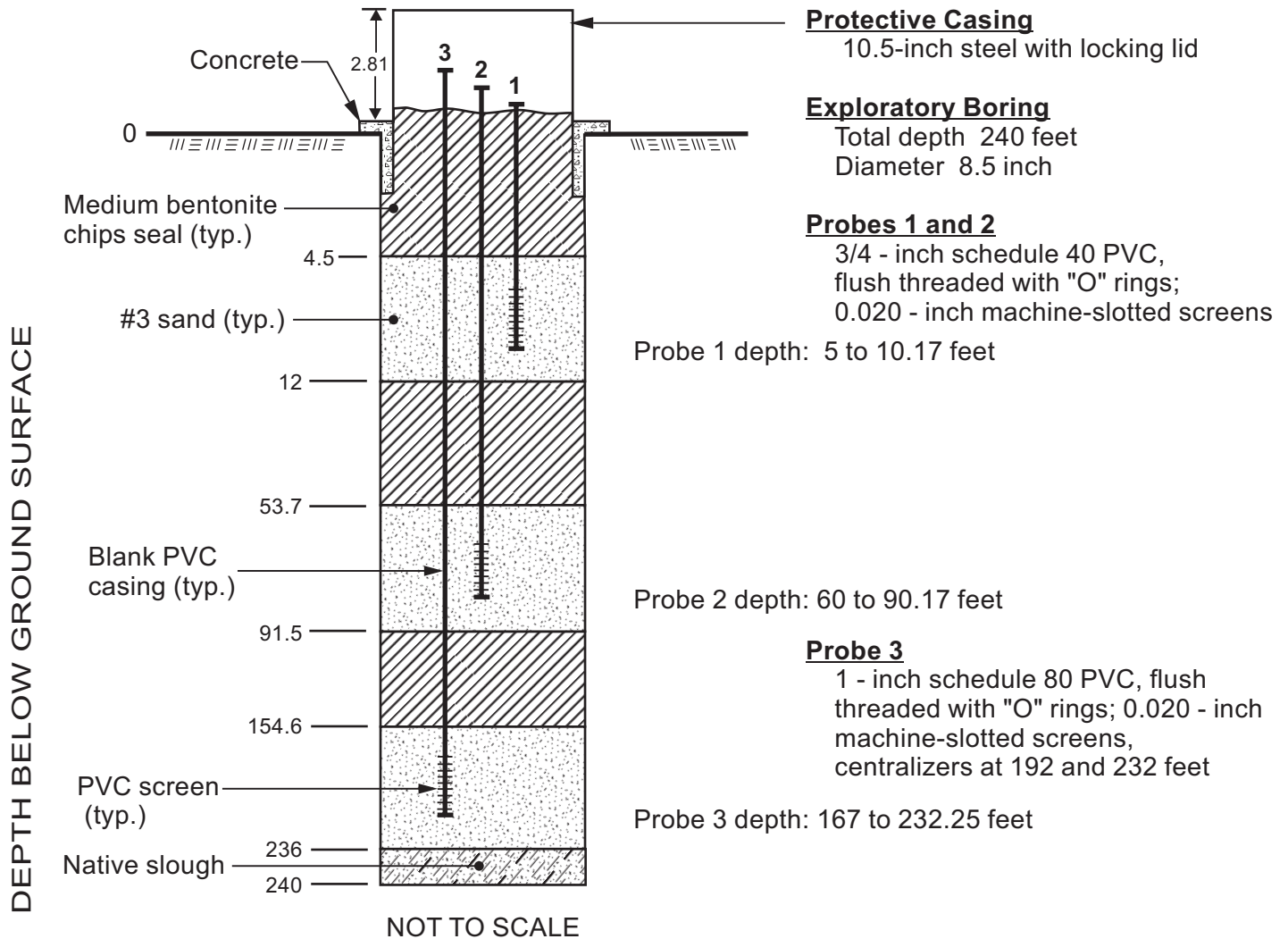
Top Concrete Pad Elev. 1175.10 feet
Ground Surface Elev. 1174.9 feet
Datum MSL



As-Built Gas Probe GP-21

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 9/2/09 By: P. Chang

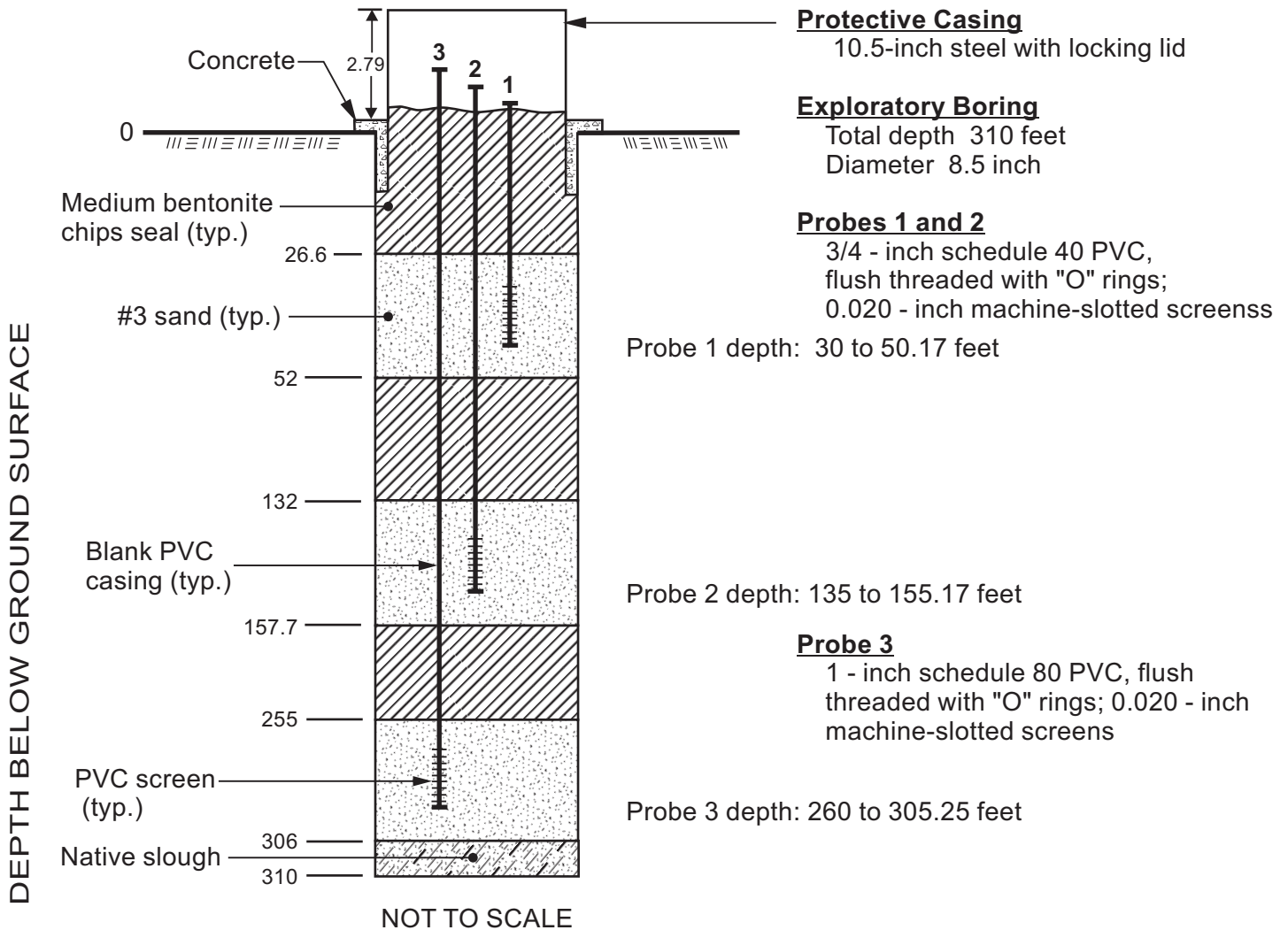
Top Concrete Pad Elev. 1218.14 feet
Ground Surface Elev. 1217.9 feet
Datum MSL



As-Built Gas Probe GP-22

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 9/8/09 By: P. Chang

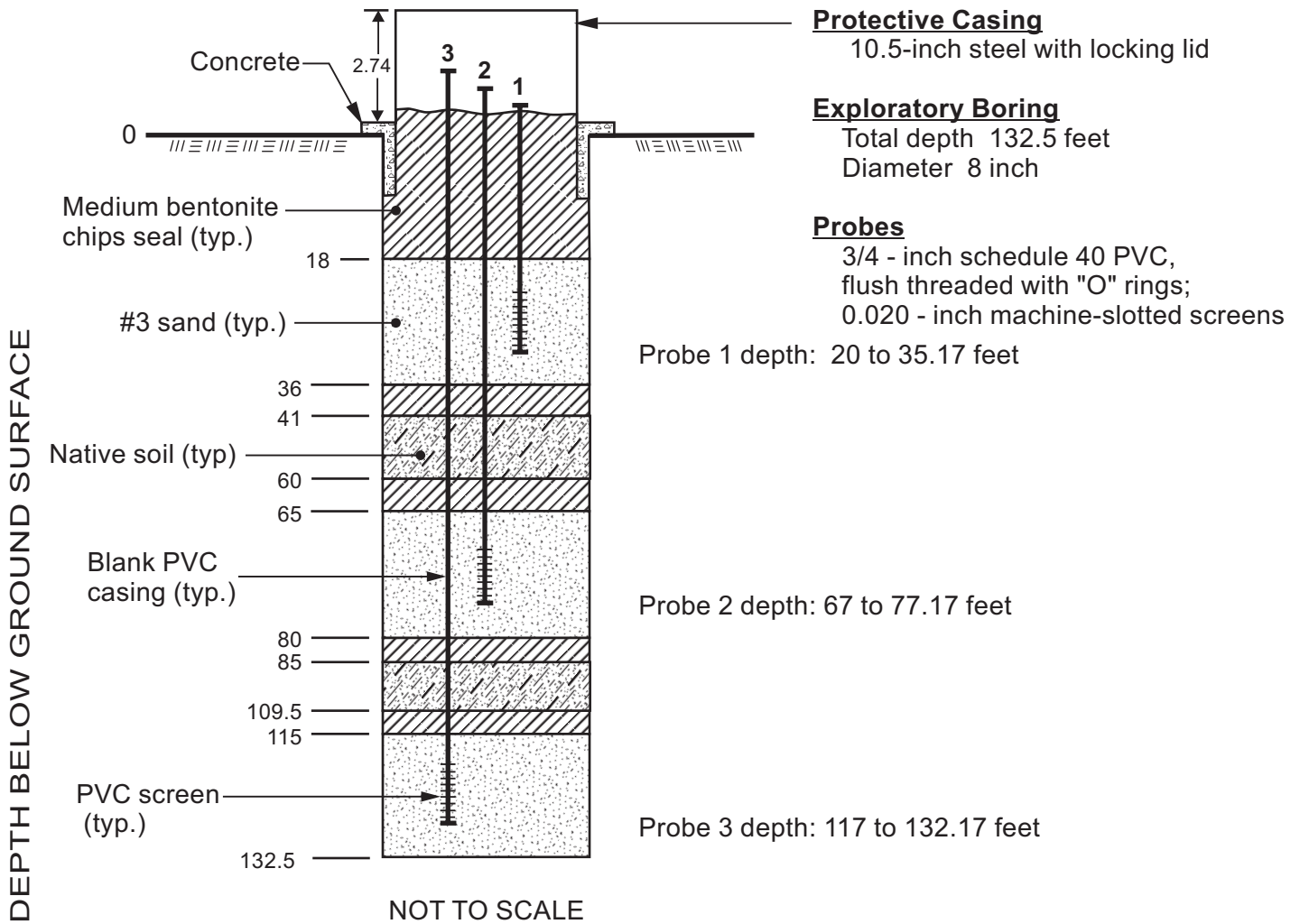
Top Concrete Pad Elev. 1324.20 feet
Ground Surface Elev. 1324.0 feet
Datum MSL



As-Built Gas Probe GP-23

Project No.: 2004-001-92
 Drilling Contractor: Cascade Drilling, Inc.
 Installed: 9/3/09 By: K. Pitcher

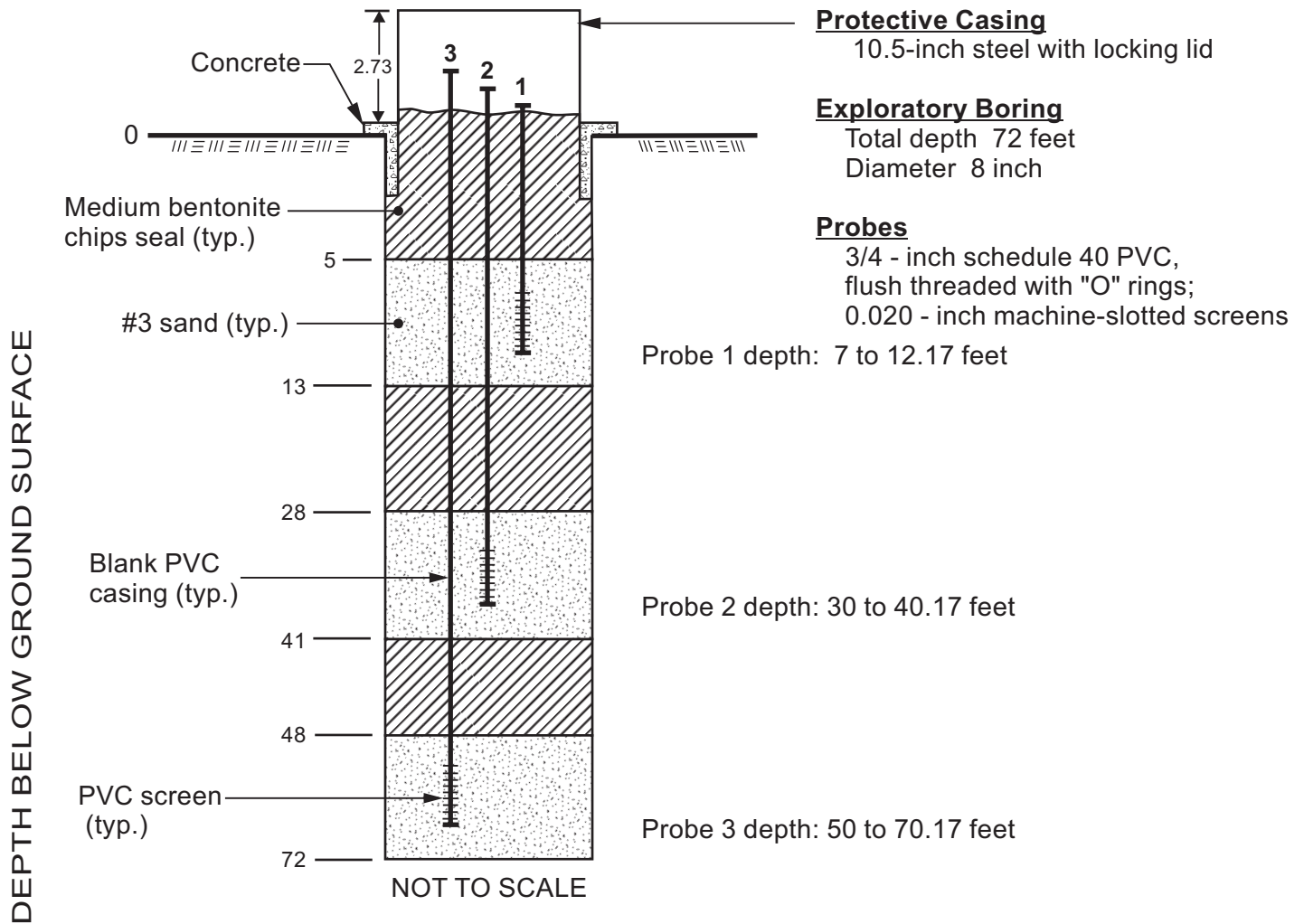
Top Concrete Pad Elev. 1231.88 feet
 Ground Surface Elev. 1231.6 feet
 Datum MSL



As-Built Gas Probe GP-24

Project No.: 2004-001-92
 Drilling Contractor: Cascade Drilling, Inc.
 Installed: 9/2/09 By: K. Pitcher

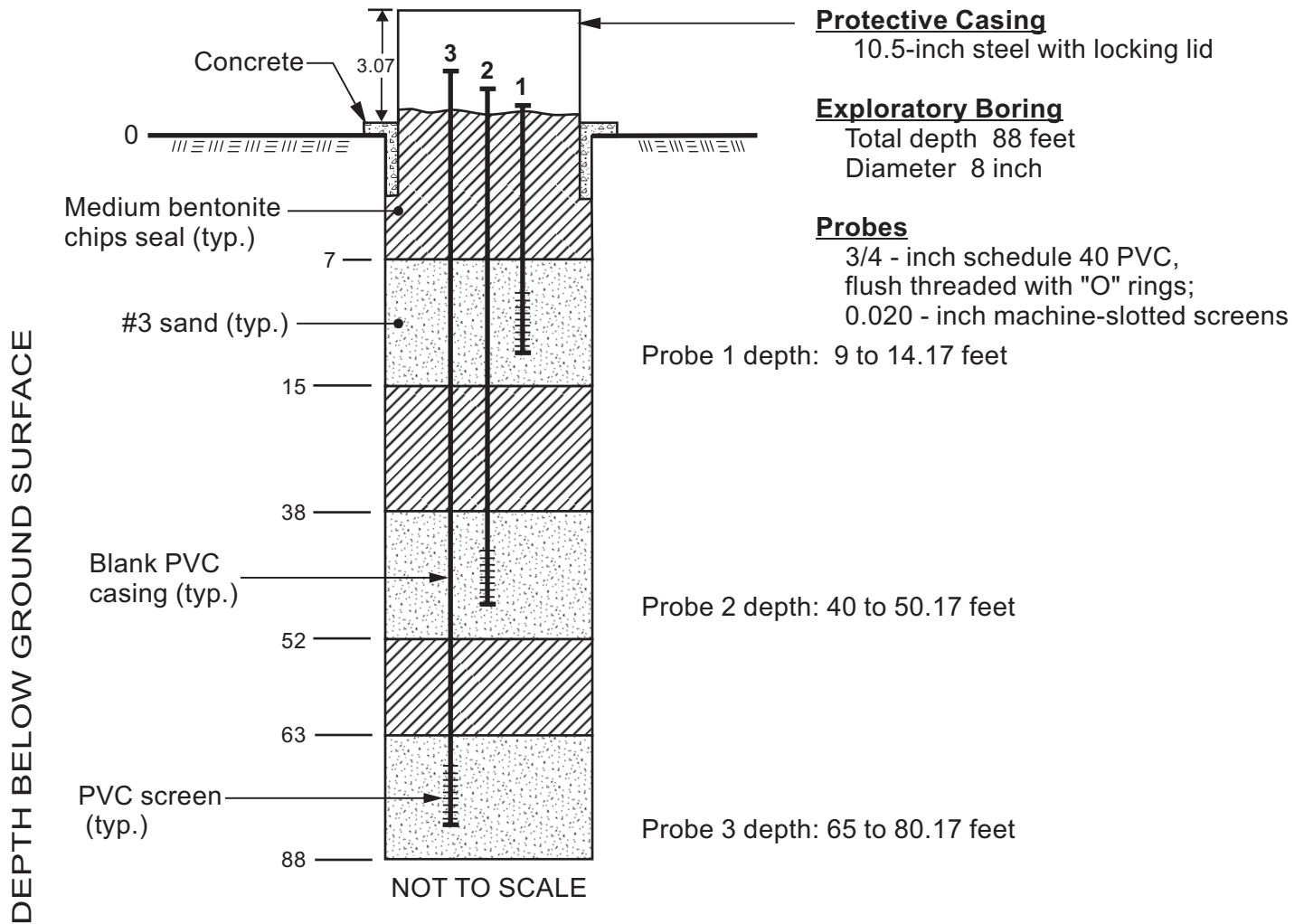
Top Concrete Pad Elev. 1118.38 feet
 Ground Surface Elev. 1118.1 feet
 Datum MSL



As-Built Gas Probe GP-25

Project No.: 2004-001-92
Drilling Contractor: Cascade Drilling, Inc.
Installed: 9/2/09 By: K. Farrell

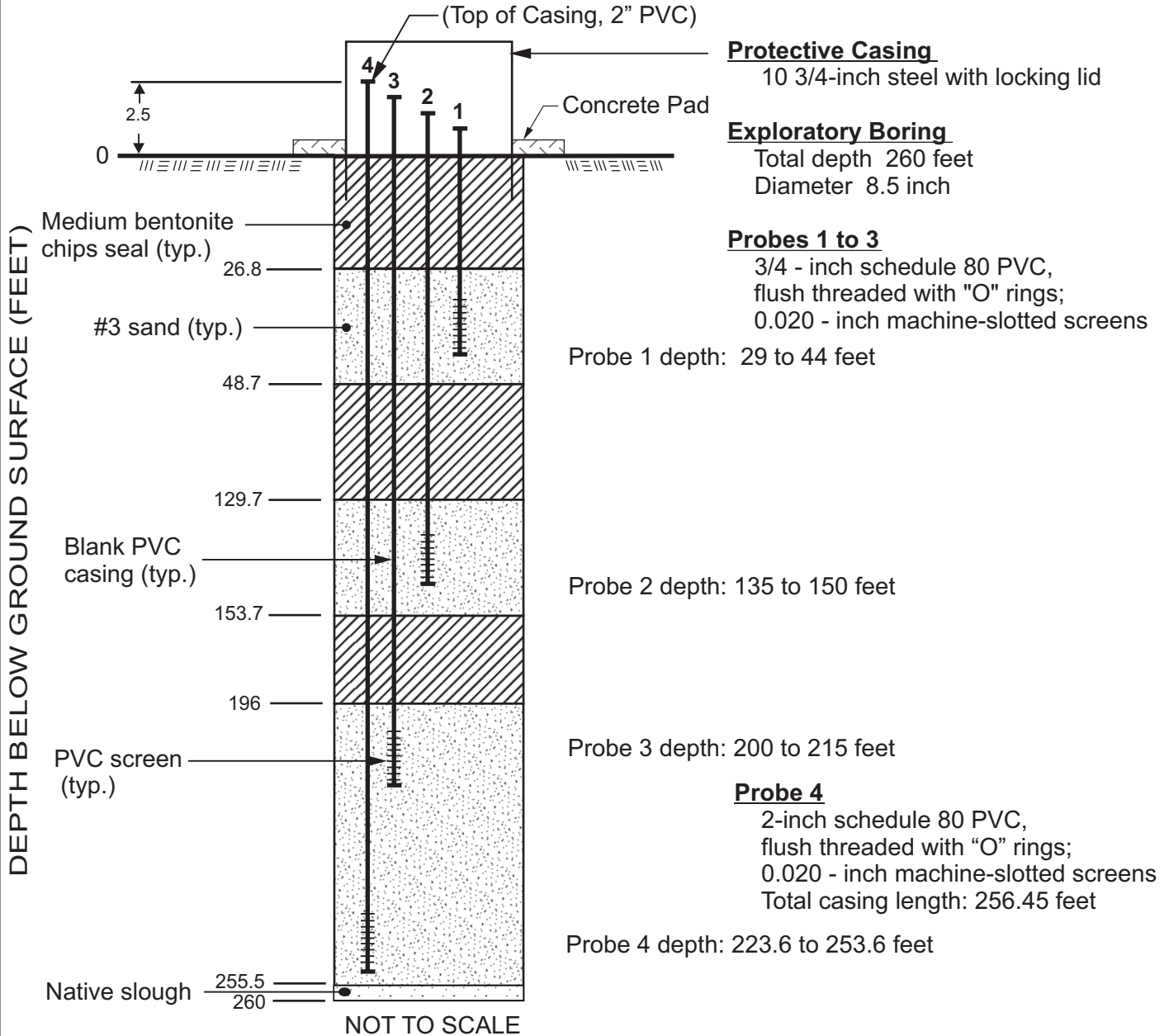
Top Concrete Pad Elev. 1211.11 feet
Ground Surface Elev. 1210.9 feet
Datum MSL



As-Built Gas Probe GP-26

Project No.: 2002-036-005
Drilling Contractor: WDC
Installed: 6/28/10 By: P. Chang

Top Concrete Pad Elev. 1376.342 feet
2" PVC TOC Elevation 1378.51 feet
Datum MSL



R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-26						
						JOB NUMBER: 2002-036-005 DATE DRILLED: 6/23/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-260'
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
15:28			-			PICO FORMATION (Tp) CLAYSTONE: moderately hard, moist, light brown (5YR 5/6) SILTSTONE: little fine sand, medium dense, moist, light olive gray (5Y 5/2), no odor
			-	5		dusky yellow (5Y 6/4)
			-	10		interbedded dusky yellow (5Y 6/4) and light olive gray (5Y 5/2)
15:52			-	15		SANDY SILTSTONE: fine sand, medium dense, moist, dusky yellow (5Y 6/4) bottom of temporary drive casing; removed 6/28/10
15:59			-			gradational contact
			-	20		SILTY SANDSTONE: fine, little medium, medium dense, moist, dusky yellow (5Y 6/4)
			-	25		SANDY SILTSTONE: fine sand, medium dense, moist, light olive (10Y 5/6)
			-	30		SANDSTONE: fine to medium with little coarse sand, medium dense, moist, light olive brown (5Y 5/6)
			-			grayish orange (10YR 7/4)
16:22			-	35		fine, less medium and coarse sand
7:20			-	40		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-26 (CONTINUED)						
JOB NUMBER: 2002-036-005 DATE DRILLED: 6/23/10 EQUIPMENT USED: Air-Rotary rig (STAR 50K-CH) LOGGED BY: P. Chang BORING DEPTH: 0-260'						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
7:47 7:51			-			more medium to coarse sand
				45		CLAYEY SANDSTONE: fine to medium, medium dense, moist, moderate yellowish brown (10YR 5/4)
			-			SILTSTONE: medium dense, moist, dusky yellow (5Y 6/4)
				50		CLAYSTONE: medium dense, moist, dark yellowish orange (10YR 6/6)
			-			SILTSTONE: medium dense, moist, yellowish gray (5Y 7/2)
				55		
			-			
				60		
			-			moderate yellow (5Y 7/6)
				65		
			-			light olive brown (5Y 5/6)
				70		little fine sand, more siltstone fragments, medium dense to dense
			-			medium dense
				75		SANDY SILTSTONE: fine sand, medium dense, moist, dusky yellow (5Y 6/4)
			-			more fine to medium sand
				80		SILTSTONE: medium dense, moist, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-26 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	8:52 8:56			-		grayish yellow green (5GY 7/2) very dense, making a lot of dust
				-	85	driller injecting water to keep dust down
				-	90	little fine sand
				-	95	
				-	100	
				-	105	SANDY SILTSTONE: fine sand, dense, moist, dusky yellow green (5GY 5/2)
				-	110	FOSSILIFEROUS SANDY SILTSTONE: shell fragments
				-	115	more fine to medium sand
	9:32 9:36			-	120	CLAYSTONE: moderately hard to hard, moist, dark yellowish brown (10YR 4/2)
				-		SILTSTONE: medium dense, moist, light olive gray (5Y 5/2)
				-		SILTY SANDSTONE: fine to medium, little coarse sand, medium dense, moist, grayish yellow green (5GY 7/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-26 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	10:05 10:22			-		less medium and coarse
				-	125	more silt
				-	130	more fine sand and less silt
				-	135	some medium
				-	140	
				-	145	few coarse sand and gravel
				-	150	few claystone fragments (possibly interbeds)
	10:45 10:49			-	155	SANDY SILTSTONE: fine to medium sand, medium dense to dense, moist, light olive gray (5Y 5/2)
				-	160	SILTY SANDSTONE: fine, medium dense, moist, light olive (10Y 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-26 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	11:18 12:00			-	165	few gravel
				-	170	CLAYSTONE: moderately hard, moist, moderate brown (5YR 4/4), minor thin siltstone lamination
				-	175	interbedded with light olive siltstone
				-	180	making lots of dust, driller injecting water to keep dust down
				-	185	interbedded mudstone, pale yellowish brown (10YR 6/2)
				-	190	SILTSTONE: dense, moist, yellowish gray (5Y 7/2), making lots of dust
				-	195	FOSSILIFEROUS SILTY SANDSTONE: fine, little medium sand, dense, moist, light olive gray (5Y 5/2), some shell fragments
	12:37 12:50			-	200	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-26 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG SOIL TYPE
	13:22			-		more silt and less shell fragments
	12:22			-	205	SILTSTONE: dense, moist, dusky yellow green (5GY 5/2) olive gray (5Y 3/2)
				-	210	FOSSILIFEROUS SILTY SANDSTONE: fine, little medium sand, little shell fragments, dense, moist, light olive gray (5Y 5/2) more shell fragments, making lots of dust
				-	215	▽ groundwater at 213.14 feet (9:30 am) 6/28/10 more siltstone fragments, possibly interbeds
				-	220	fine to medium, little silt, dense to very dense, few shell fragments, making lots of dust
				-	225	PEBBLY SANDSTONE: fine to coarse, gravel, subangular fragments in drill returns, very dense, dry to moist, grayish yellow (5Y 8/4) SILTSTONE: dense, moist, grayish olive green (5GY 3/2), easier drilling
				-	230	more fine sands less sands, light olive gray (5Y 5/2)
	12:53			-	235	▽ groundwater at 234.25 feet (2:10 pm) 6/25/10 little fine sands, light olive gray (5Y 3/2)
	12:58			-	240	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

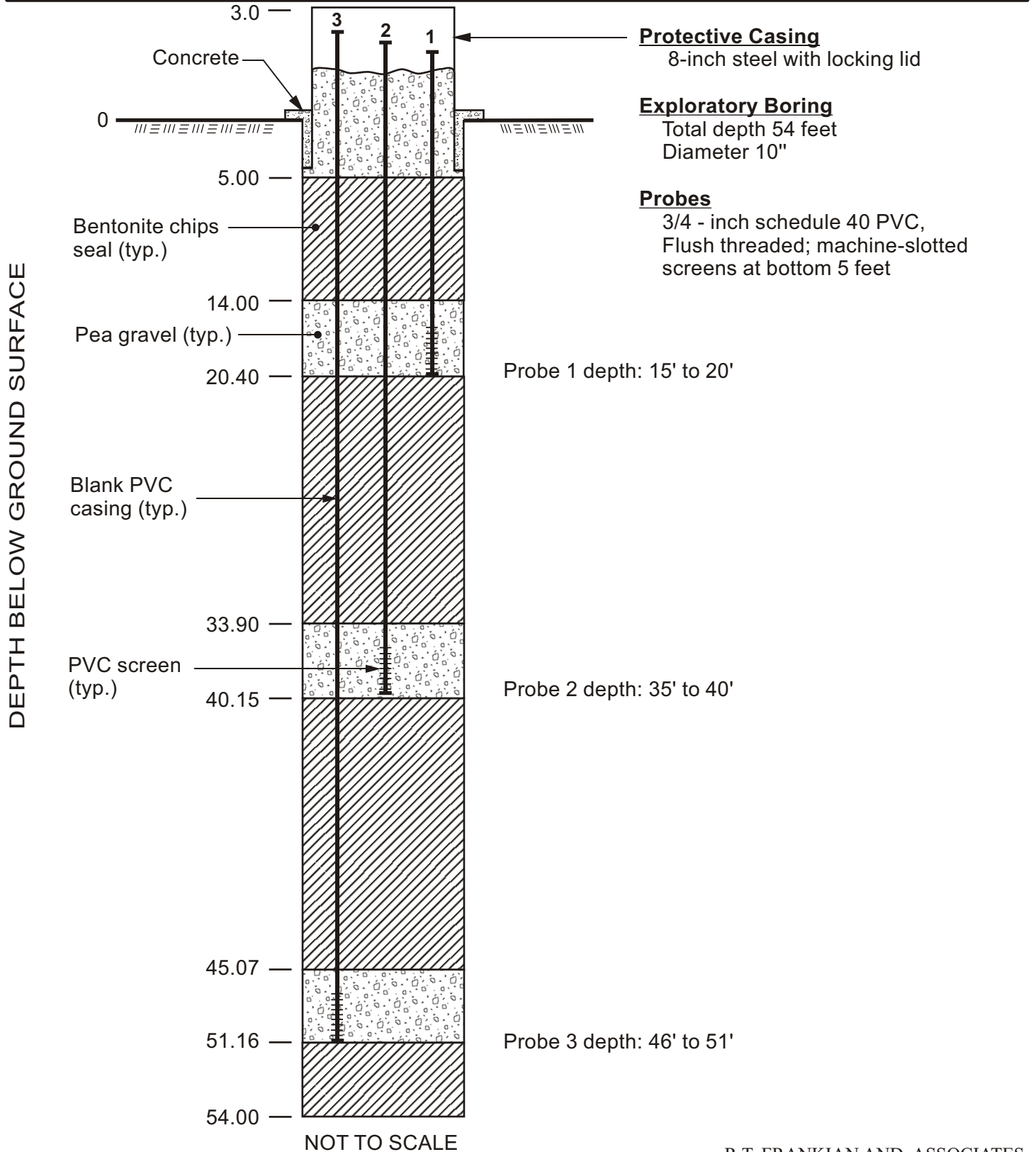
BORING GP-26 (CONTINUED)						
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG SOIL TYPE
	13:22 13:28			- - - - -	245 250 255 260	FOSSILIFEROUS SILTY SANDSTONE: fine to medium, very dense, moist, grayish yellow green (5GY 7/2), few shell fragments SANDSTONE: fine to medium, dense, moist, yellowish gray (5Y 7/2), producing less dust some medium to coarse sand, started producing water from hole at connection
					260 265 270 275 280	Bottom of Boring at 260 feet. On 6/25/10. Target depth reached. Multi-level gas probe installed.

LOG OF BORING

As-Built Soil-Gas Probe GP-D1

Project No.: 2004-001-91
Drilling Contractor: WDC Exploration and Wells
Installed 11/30/05 by P. Chang

Ground Surface elev. 1009³⁵
Datum MSL



Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-D1						
	DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	JOB NUMBER: 2004-001-91 DATE DRILLED: 11/30/05 EQUIPMENT USED: Air rotary casing hammer LOGGED BY: PDC BORING DEPTH: 0-55'
					SAMPLE LOCATION	
					GRAPHIC LOG	
					SOIL TYPE	
	12:05			-		SP
				-	5	ARTIFICIAL FILL (af) SAND: mostly fine to coarse sand, some silt, little gravel & cobbles, loose to medium dense, dry to moist, olive brown (10YR 4/3)
				-	10	less gravel & cobbles
				-	15	ALLUVIUM (Qal) SILTY SAND: mostly fine to medium sand, some silt, little coarse sand, medium dense, moist, light yellowish brown
	12:11 12:20			-	20	some gravels, loose to medium dense
				-	25	slightly less gravels
	12:25 12:30			-	30	more gravels and cobbles
				-	35	
	12:34 12:39			-	40	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-D1 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
12:38 12:45			-	45		SM
12:48			-	55		less gravels
				60		
				65		
				70		
				75		
				80		

JOB NUMBER: 2004-001-91
DATE DRILLED: 11/30/05
EQUIPMENT USED: Air rotary casing hammer
LOGGED BY: PDC
BORING DEPTH: 0-55'

SAUGUS FORMATION (QTs)

SILTY SANDSTONE: mostly fine to coarse sand, some silt, little gravels, medium hard, moist, light olive brown (5Y 5/6), slightly harder drilling

▽ groundwater at 54 feet 11/30/05

coarser sands

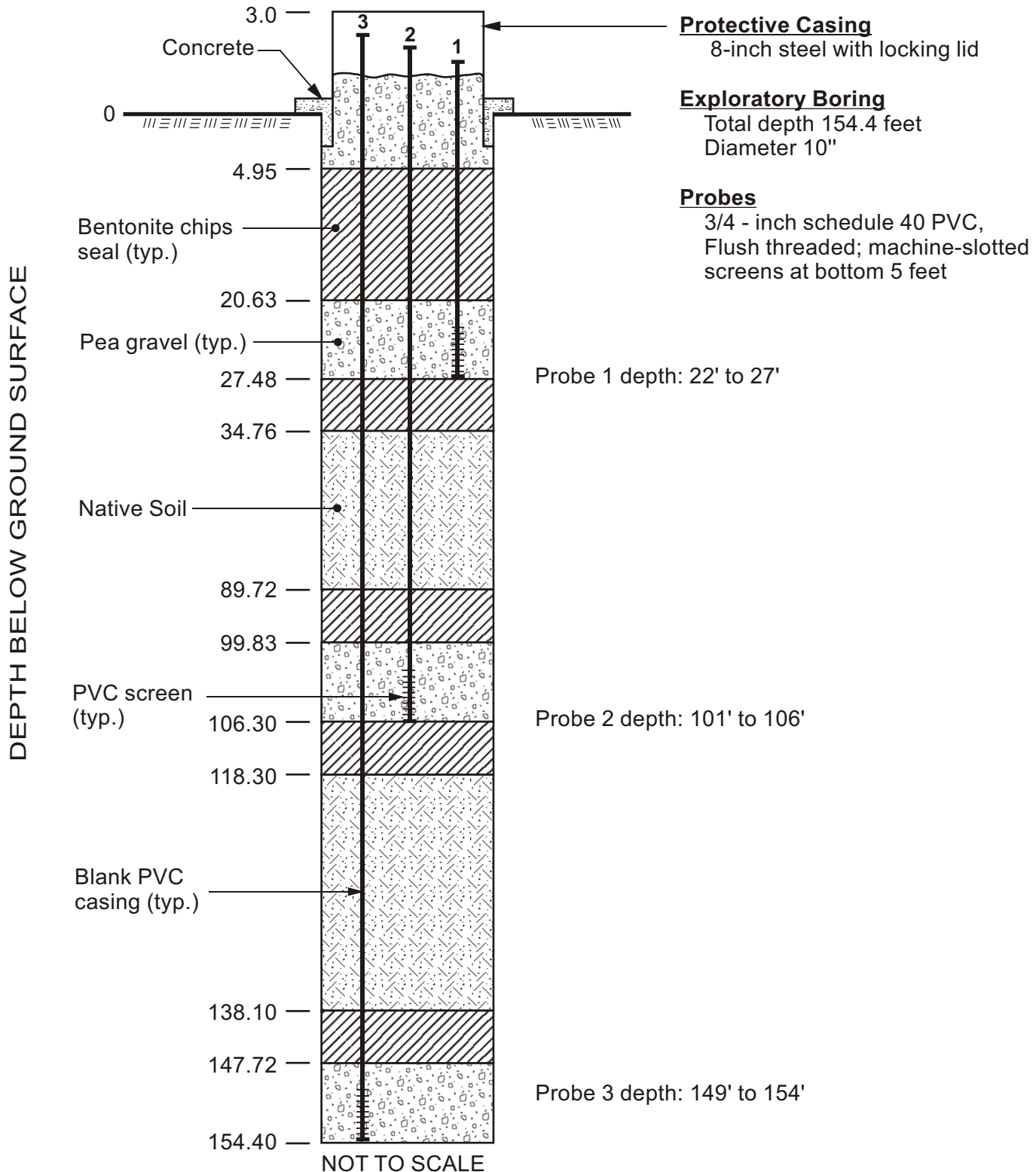
Bottom of Boring at 55 feet.

LOG OF BORING

As-Built Soil-Gas Probe GP-P1

Project No.: 2004-001-91
Drilling Contractor: WDC Exploration and Wells
Installed 11/30/05 by P. Chang

Ground Surface elev. 1173⁴⁶
Datum MSL



Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

						BORING GP-P1	
						JOB NUMBER: 2004-001-91 DATE DRILLED: 11/29/05 EQUIPMENT USED: Air rotary casing hammer LOGGED BY: PDC BORING DEPTH: 0-154'	
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
14:05			-			SP	ARTIFICIAL FILL (af) SAND: mostly fines and fine sand, some medium to coarse sand and gravels, loose to medium dense, dry to moist, light brownish gray
			-	5			SAUGUS FORMATION (QTs) SILTY SANDSTONE: mostly fine to fine sand, some medium sand to gravels, cobble fragments, medium hard, moist, dusky yellow (5Y 6/4)
			-	10			more fine to medium sand, light olive brown (5Y 5/6)
			-	15			more sands
14:14 14:20			-	20			SANDY SILTSTONE: mostly fines, some fine to medium coarse sand, little coarse sand and gravels, medium hard, moist, light olive gray (5Y 5/2) more clayey fines, dusky yellow (5Y 6/4)
			-	25			more sand and siltstone fragments bottom of drive casing: removed 11/30/2005
14:27 14:31			-	30			more silt and fine sand
			-	35			CLAYSTONE: mostly clay and claystone fragments, some silt, little fine to medium sand, medium hard, moist, light olive gray (5Y 5/2)
			-	40			SANDY SILTSTONE: mostly silt, some clay, some fine sand, medium hard, moist, light olive gray (5Y 5/2)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

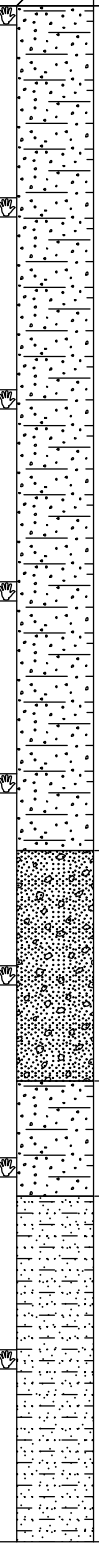
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-P1 (CONTINUED)						
	DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SOIL TYPE
	14:37 14:42			-	45	mostly silt and siltstone fragments, little fine sand
				-	50	more fine sand, dusky yellow (5Y 6/4)
				-	55	light olive gray (5Y 5/2)
				-	60	more fine sand, dusky yellow (5Y 6/4)
				-	65	trace gravels
	14:50 14:58			-	70	moderate olive brown (5Y 4/4)
				-	75	more siltstone and claystone fragments, light olive gray (5Y 5/2)
				-	80	CLAYSTONE: mostly clay and claystone fragments, little fine sand, medium hard, moist, grayish olive (10Y 4/2)
				-		SILTY SANDSTONE: mostly fine to medium sand, some silt, some medium to coarse sand, medium hard, moist, moderate olive

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING GP-P1 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
15:10 15:14			-	85		brown (5Y 4/4)
			-	90		more medium to coarse sands, pale yellowish brown (10YR 6/3)
			-	95		more fine to coarse sands
			-	100		more fines, little medium to coarse sand, light olive brown (5Y 5/6)
			-	105		dusky yellow (5Y 6/4)
			-	110		harder drilling conditions GRAVELLY SANDSTONE: mostly fine to coarse sand, little gravels, hard, moist
			-	115		some gravels, yellowish gray (5Y 7/2)
15:21 15:25			-	120		more fine to coarse sand, less gravels, easier drilling SILTY SANDSTONE: mostly fine to medium sand, some silt, medium hard, moist, dusky yellow (5Y 6/4)
			-			SANDY SILTSTONE: mostly silt, some fine sand, medium hard, moist, light olive brown (5Y 5/6)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING GP-P1 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
15:37 15:42			-			more sand, light olive gray (5Y 5/2)
				125		SILTY SANDSTONE: mostly fine to medium sand, some silt, some coarse sand and fine gravels, medium hard to hard, moist, dusky yellow (5Y 6/4)
15:49 15:53			-	130		more fines, less medium to coarse sands
				135		more fines
16:10			-	140		SANDY SILTSTONE: mostly silt, some fine sand, medium hard, moist, light olive brown (5Y 5/6)
				145		more siltstone fragments
			-	150		more fine sand
			-	155		more fine to medium sand
				155		Bottom of Boring at 154 feet. Target Depth Reached
				160		

LOG OF BORING

BORING B-1-03

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-13-03

EQUIPMENT USED: 24"-Diameter Bucket Auger

ELEVATION: 1175+/-

SURFACE CONDITIONS:

SAMPLING METHOD: 2 5/8-inch drive

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION SW NE	GRAPHIC LOG	SOIL TYPE
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

0-40 feet: OLDER LANDSLIDE (Qols)

@ 0 feet: CLAYEY SILTSTONE, plastic to moderate stiff, moist, caliche pods, brownish gray (5Y 4/1)

@ 5 feet: blebs of dark brown siltstone within light reddish brown silty sand

@ 11 feet: CLAYSTONE, plastic, moist, dark reddish brown (10R 3/4)

Slide Plane: N60W, 85W, 1"-2" thick

@ 11.3 feet: CLAYEY SILTSTONE, olive gray (5Y 4/1)

@ 14 feet: SANDSTONE, fine to coarse grained, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 19 feet: CLAYEY SILTSTONE, stiff, moist, micaceous, pale yellowish brown (10YR 6/2)

@ 21 feet: Sheared Claystone, Irregular dips to NW, 1"-2" thick

@ 25 feet: CLAYEY SANDSTONE, fine grained, clayey to silty sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 26 feet: Shear, N30E, 45NW, 1/4" reddish brown clay gouge

@ 26.5 feet: Bedding, approx. N70W, 20NE, sandstone

@ 27 feet: SILTSTONE (ML), some fine grained sand and clay, moderately hard, moist, light brown (5YR 5/6)

@ 27.5 feet: Shear, irregular, bedding discontinuous N10E, 52SE

@ 30 feet: color changes to light olive gray (5Y 5/2)

@ 35 feet: SANDSTONE, fine to medium grained with small cobbles, moderately hard, moist, light olive gray (5Y 5/2)

@ 38 feet: SILTSTONE, minor to trace clay, moderately hard, moist, light olive gray (5Y 5/2)

@ 39.5 feet: Shear, N35W, 65SW well defined clay shear polished, below 39.5 feet gradual color change to olive gray, no distinct shears or slide planes

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-1-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 10-13-03

By: D.G. Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION SW NE	GRAPHIC LOG	SOIL TYPE
26				40-76			
				75		no log	
				80			

40-76 feet: PICO FORMATION (Tp)

@ 40 feet: SILTY CLAYSTONE, dark reddish brown (10R 3/4) to olive gray (5Y 4/1), Bedding parallel to shear

@ 43 feet: SILTY CLAYSTONE, hard, moist, olive gray (5Y 4/1), conchoidal fracture possible contact with bedrock, note hardness and color change

@ 45.5 feet: Bedding N85W, 47SW, sandstone bed in siltstone

@ 47 feet: fossiliferous, small clam fragments and caliche bed, Bedding: N90W, 54S, 1 foot thick

@ 56 feet: zone of sandstone blocks in clay matrix, discontinuous high angle shear, polished claystone above with hackly fracture

@ 57 feet: CLAYEY SANDSTONE: fine grained sand with silt and clay, hard, moist, greenish gray (5GY 6/1)

@ 59 feet: Shear, N75E, 50SE, poorly developed zone of discontinuous sandstone blocks within siltstone

@ 60 feet: SILTY CLAYSTONE, approximately 6" thick

@ 61 feet: SANDSTONE, fine grained sand, hard, moist, light olive gray (5Y 6/1)

@ 68 feet: Bedding, N80W, 52SW, dark brown clayey siltstone bed in sandstone 4" thick, Fault offsets siltstone bed

@ 69 feet: CLAYSTONE, moderately hard, moist, semi-plastic, dark yellowish brown (10YR 4/2)

70 feet: increase in moisture

@ 72 feet: CLAYEY SANDSTONE, fine to medium grained sand with clay, hard, moist, light olive gray (5Y 6/1)

TOTAL DEPTH 76 FEET.
No Groundwater. No caving.
Downhole logged to 71 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-28'	5952 lbs.
28-55'	3921 lbs.
55-84'	2531 lbs.
84-114'	1407 lbs.
+1000 lbs/30 ft. stem	

LOG OF BORING

BORING B-2-03

JOB NUMBER: 2002-036-01 By: D.G. Francuch
 DATE DRILLED: 10-13-03 - 10-14-03
 EQUIPMENT USED: 24"-Diameter Bucket Auger
 ELEVATION: 1287+/-
 SURFACE CONDITIONS:
 SAMPLING METHOD: 2 5/8-inch drive

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
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BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
						cased	
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

0-4 feet: ARTIFICIAL FILL (af)

@ 0 feet: SANDY SILT (SM), silt with fine sand, loose, dry, pale yellowish brown (10YR 6/2)

4-19 feet: LANDSLIDE (Qls)

@ 4 feet: SILTSTONE, soft, moist, light olive gray (5Y 5/2)

@ 7 feet: Slide Plane: N75W, 11SW, olive gray siltstone over brown sandy siltstone 8" thick soil zone with sandstone blocks

@ 8 feet: stopped drilling on 10/13/03 @ 15:30
 Resume drilling on 10/14/03 @ 7:00

@ 11 feet: SANDY SILTSTONE: fine sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 12 feet: chaotic assemblage of sandy silt and clayey siltstone

@ 19 feet: Slide Plane: N25E, 22SE 2-3" zone of dark brown polished clay, moderately plastic

19-125 feet: SAUGUS FORMATION (QTs)

@ 19 feet: SILTSTONE, moderately hard to hard, moist, light olive gray (5Y 5/2)

@ 24 feet: Bedding; N40E, 34SE; limey siltstone bed, 8" thick

@ 28 feet: Bedding; N30E, 28SE, dark olive green clayey siltstone

@ 31 feet: CLAYEY SILTSTONE, trace fine sand, hard, moist, dark yellowish brown (10YR 4/2)

@ 32 feet: Bedding; N50E, 31SE, limey siltstone

@ 32 feet: wood fragments in siltstone

@ 33 feet: SANDSTONE, fine grained, hard, moist, yellowish gray (5Y 7/2)

@ 36 feet: Increased drilling effort

@ 37 feet: Bedding N60E, 38SE; pebble bed in sandstone

@ 37 feet: CLAYEY SILTSTONE, hard, moist, moderate yellowish brown (10 YR 5/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-2-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-13-03 - 10-15-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
Bag				45			
				50			
				55			
Bag				60			
				65			
				70			
				75			
				80			

@ 49.5 feet: Bedding; N40E, 22SE, limey siltstone
@ 50 feet: SANDY SILTSTONE, some fine sand, moderately hard, dry to moist, yellowish gray (5Y 7/2)

@ 56 feet: CLAYEY SILTSTONE, moderately hard to hard, moist, light olive gray (5Y 5/2), Bedding; N40E, 25SE, clay bed 1" thick

@ 63.9 feet: Bedding; N40E, 24SE, clay bed 1" thick
@ 64 feet: SANDSTONE, fine grained sand, moderately hard, moist, pale olive (10Y 6/2)
@ 65.5 feet: Bedding; N25E, 28SE, clay bed 8" thick
@ 66 feet: CLAYEY SILTSTONE, hard moist, moderate yellowish brown (10YR 5/4)

@ 73 feet: limey siltstone

@ 79 feet: SILTSTONE, trace fine sand, hard, moist, dark yellowish brown (10YR 4/2)
@ 79.3 feet: bedding; N40E, 29SE, limey siltstone bed, 12" thick

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-2-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 10-13-03 - 10-15-03

By: D.G. Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
				85			
				90			
				95			
				100			
				105			
				110			
				115			
				120			

- @ 89 feet: Bedding; N45E, 28SE
- @ 89 feet: SILTSTONE, trace fine to medium grained sand, moderately hard to hard, moist, dusky yellow (6Y 6/4)
- @ 90 feet: SANDSTONE, fine to medium grained sand, trace silt, moderately hard, moist, moderate yellowish brown (10YR 5/4)
- @ 95 feet: SANDSTONE, fine to coarse grained with large pebbles, moderately hard, moist, yellowish gray (5Y 7/2)
- @ 98 feet: Bedding; N55E, 28SE, pebbly sandstone bed 6" thick
- @ 104 feet: Bedding; N30E, 31SE, heavy mineral, fine sand bed
- @ 110 feet: SANDSTONE, fine to coarse grained sand with medium pebbles, moderately hard, moist, yellowish gray (5Y 7/2)
- @ 115 feet: Bedding; N40E, 22SE, gray sandstone over reddish brown sandstone
- @ 115 feet: SILTY SANDSTONE, fine to coarse grained sand, some silt, trace small pebbles, moderately hard to hard, moist, grayish orange (10YR 7/4)
- @ 118 feet: Stopped drilling at 15:30 on 10-14-03
resume drilling @ 7:00 on 10-15-03

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-2-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-13-03 - 10-15-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
				125		no log	
				130			
				135			
				140			
				145			
				150			
				155			
				160			

@ 120.5 feet: Bedding; N45E, 24SE at contact
@ 121 feet: SILTSTONE, trace clay, moderately hard, moist,
light brown (5YR 5/6)

@ 124 feet: small cobbles

TOTAL DEPTH 125 FEET.
No Groundwater. No caving.
Downhole logged to 121 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-28'	5952 lbs.
28-55'	3921 lbs.
55-84'	2531 lbs.
84-114'	1407 lbs
+1000 lbs/30 ft. stem	

LOG OF BORING

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-3-03

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-16-03

EQUIPMENT USED: 24"-Diameter Bucket Auger

ELEVATION: 1203.5

SURFACE CONDITIONS:

SAMPLING METHOD: 2 5/8-inch drive

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S N	GRAPHIC LOG	SOIL TYPE
						cased	
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

0-6 feet: **LANDSLIDE (Qls)**

@ 0 feet: SILT (ML), soft, dry, some caliche staining, light olive gray (5Y 6/1)

@ 4 feet: SILTY SANDSTONE, fine grained sand with silt, moderately hard, dry, moderate yellowish brown (10YR 5/4)

@ 6 feet: Slide Plane; N60W, 14SW, dark brown clay, 2" thick, gypsum

6-16 feet: **ALLUVIUM (Qal)**

@ SILT (ML), trace clay, moderately hard to moderately soft, dry, yellowish gray, (5Y 7/2)

@ 8 feet: PEBBLY SAND (SP), fine to coarse grained sand with small to large pebbles, hard, dry, intermixed with silt, yellowish gray, (5Y 7/2)

@ 11-14 feet: well bedded sand deposits, shallow dip to north

@ 13 feet: medium cobbles up to 6" diameter

@ 14-16 feet: base of alluvium, irregular erosional contact

16-110 feet: **PICO FORMATION (Tp)**

@ 16 feet: SILTY SANDSTONE, fine sand with some silt, hard, moist, dusky yellow (5Y 6/4)

@ 16 feet: Bedding approximate; N40W, 52NE, limey siltstone

@ 22 feet: Fracture; N35W, 52NE, 54 SE, 1/16" clay gouge

@ 25 feet: increased drilling effort

@ 28 feet: Minor fault; N10E, 54SE, 1/8" clay gouge

@ 29 feet: Minor fault; N20W, 34NE, 1/2" - 2" wide zone, clay shears 1/16" thick

@ 29 feet : Bedding; N55W, 47NE siltstone bed cut by fault

@ 33 feet: Minor Fault; N/S, 43E, 1/2" - 1" wide shear zone of 1/16" clay gouge

@ 34 feet: SANDSTONE, fine to medium grained, trace silt, hard, moist, yellowish gray (5Y 7/2)

@ 36 feet: Bedding approximate; N30W, 57NE, fine grain sandstone/ siltstone

@ 36 feet: SANDY SILTSTONE, some fine grained sand, moderately hard, moist, light olive gray (5Y 5/2)

@ 39 feet: Minor Fault; N80W, 72NE, 1/8" -1/4" thick red clay gouge

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-3-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 10-16-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S N	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

@39 feet: CLAYEY TO SANDY SILTSTONE, some clay, some fine sand, hard, moist, moderate yellowish brown (10YR 5/4)
 @ 40 feet: Shear; subparallel to minor fault at 39 feet
 @ 42 feet: SANDSTONE, fine to coarse grained sand, trace silt, hard, moist, pale yellowish brown (10YR 6/2)

@ 49 feet: Bedding; N50W, 63NE, coarse sandstone

@ 53 feet: PEBBLY SANDSTONE, fine to coarse sand with small to medium pebbles, moderately hard to hard, moist, pale yellowish brown (10YR 6/2)
 @ 55.5 feet: Minor Fault; N75W, 24NE, 1/4" to 1" thick shear zone of 1/8" - 1/4" clay gouge

@ 57 feet: Bedding; N55W, 57NE, coarse sandstone / siltstone
 @ 57 feet: SILTSTONE, trace fine grained sand, trace clay, hard, moist, moderate yellowish brown (10YR 5/4)

@ 65 feet: moisture increase
 @ 66 feet: Minor Fault; N15E, 30SE, 1/8" - 1/4" thick clay gouge

@ 72 feet: increase in clay content

@ 75 feet: SILTSTONE, trace clay, hard, moist, moderate yellowish brown (10YR 5/4)
 @ 75 feet: Bedding; N50W, 62NE

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-3-03 (CONTINUED)

JOB NUMBER: 2002-036-01

DATE DRILLED: 10-16-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S N	GRAPHIC LOG	SOIL TYPE
30				85			
				90			
				95			
				100			
				105			
				110		no log	
				115			
				120			

@ 80 feet: CLAYEY SILTSTONE, hard, moist, moderate yellowish brown (10YR 5/4)

@ 87 feet: Minor Fault, N20E, 25SE, 1/8" clay gouge, separates silty sandstone from siltstone

@ 87 feet: SILTSTONE, trace fine sand, hard, moist, moderate yellowish brown (10YR 5/4)

@ 90 feet: SANDSTONE, fine to coarse grained sand, trace small pebbles, hard, moist, pale yellowish brown (10YR 6/2)

@ 94 feet: SILTSTONE, moderately hard, moist, moderate yellowish brown, (10YR 5/4), Erosion surface; N/S 33E

@ 96 feet: Bedding approximate; N35E, 24SE

@ 100 feet: SANDY SILTSTONE: some fine grained sand, moderately hard, moist, pale yellowish brown (10YR 6/2)

@ 103 feet: SILTY SANDSTONE, fine to coarse grained sand, some silt, hard, moist, moderate brown (5YR 4/4), Bedding approx. N20E, 23SE

@ 105 feet: SANDSTONE, fine to coarse grained, hard, moist, pale yellowish brown (10YR 6/2)

TOTAL DEPTH 110FEET.
No Groundwater.
Minor caving at 8-15 feet.
Downhole logged to 106 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-28'	5952 lbs.
28-55'	3921 lbs.
55-84'	2531 lbs.
84-114'	1407 lbs
+1000 lbs/30 ft. stem	

LOG OF BORING

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S N	GRAPHIC LOG	SOIL TYPE
				5		cased	
				10			
				15			
				20			
				25			
				30			
				35			
				40			

BORING B-4-03

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-21-03 - 10-28-03

EQUIPMENT USED: 24"-Diameter Bucket Auger

ELEVATION: 1260.6

SURFACE CONDITIONS:

SAMPLING METHOD: 2 5/8-inch drive

0-53 feet: LANDSLIDE (Qls)

@ 0 feet: GRAVELLEY SANDSTONE, fine to coarse grained sand with pebbles and gravel up to 6" diameter, soft, dry, pale yellowish brown (10YR 6/2)

@ 10 feet: Bedding approximate; N50E, 16SE

@ 10.5 feet: SILTSTONE, moderately soft, dry, moderate yellowish brown (10YR 5/4),

@ 13 feet: density increase

@ 15.5 feet: Slide Plane, N40E, 28SE, reddish brown silty clay, 3"-5" thick

@ 19 feet: SANDSTONE, fine to coarse grained sand with trace small pebbles, moderately hard, dry to moist, pale yellowish brown (10YR 6/2),

@ 22 feet: cobbles up to 6" diameter

@ 27 feet: SANDY SILTSTONE, fine sand, hard, moist, moderate yellowish brown (10YR 5/4),

@ 32 feet: CLAYEY SILTSTONE, moderately hard to hard, moist, moderate yellowish brown (10YR 5/4),

@ 33.2 feet: Slide Plane: N70E, 6SE 4"-5" thick reddish brown waxy clay

@ 36 feet: SANDY SILTSTONE, fine grained sand and silt, moderately hard, moist, moderate yellowish brown (10YR 5/4),

@ 40 feet: pods of sand in siltstone matrix

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-4-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 10-21-03 - 10-28-03

By: D.G. Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
						S N	
				45			
Bag							
				50			
Bag							
				55			
				60			
				65			
Bag							
				70			
				75			
				80			

- @ 40 feet: slight increase in grain size
- @ 41.5 feet: Slide Plane N80E, 29SE, 4"-5" thick reddish brown waxy clay
- @ 42 feet: CLAYEY SILTSTONE: some clay, hard, moist, moderate yellowish brown (10 YR 5/4),
- @ 43 feet: SILTSTONE to SANDY SILTSTONE, cobbles up to 8" diameter
- @ 45.5 feet: waxy to plastic brown clay
- @ 47 feet: SILTY CLAYSTONE, some silt, moderately hard, moist, moderately plastic, moderate yellowish brown (10YR 5/4),
- @ 48 feet: SANDY SILTSTONE, fine grained sand, hard, moist, trace large pebbles of cemented sandstone, moderate yellowish brown (10YR 5/4),
- @ 48.5 to 50.5 feet: numerous low angle fractures
- @ 50.5 feet: CLAYEY SILTSTONE, moderate yellowish brown (10YR 5/4)
- @ 51 feet: CLAYSTONE, plastic, moist, possible, slide plane, dark yellowish brown (10YR 4/2),
- @ 51.9 feet: Slide Plane, N5W, 7SW, 1"-2" thick reddish brown clay, plastic
- @ 52 feet: SANDSTONE, fine to medium grained sand, trace silt, pale yellowish brown (10YR 6/2),
- @ 53 feet: Slide Plane, N60W, 6SW, ½" thick red clay gouge
- 53 - 81 feet: SAUGUS FORMATION (QTs)**
- @ 53 feet: SANDSTONE, fine to medium grained sand, trace silt, hard, moist, pale yellowish brown (10YR 6/2)
- @ 56 feet: Minor fault; N25W, 25NE ½" thick red clay gouge
- @ 56.5 feet: Bedding; N/S, 40E, sandstone/siltstone
- @ 62 feet: Bedding; N30E, 28SE, fine grained sandstone/siltstone
- @ 62 feet: SILTSTONE, hard, moist, dark yellowish brown (10YR 4/2)
- @ 65 feet: SILTY CLAYSTONE, some silt, hard to very hard, moist, dark yellowish brown (10YR 4/2)
- @ 70 feet: Drilling rate slows
- @ 71 feet: Bedding approximate; N40E, 29SE, clayey silt/silty sandstone
- @ 71 feet: SILTY SANDSTONE; fine to coarse grained sand with silt, hard, moist, dark yellowish brown (10YR 4/2)
- @ 77 feet: Gradational contact

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-4-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 10-21-03 - 10-28-03

By: D.G. Francuch

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S N	GRAPHIC LOG	SOIL TYPE
				85			
				90			
				95			
				100		no log	
				105			
				110			
				115			
				120			

81 -101 feet: PICO FORMATION (Tp)

@ 81 feet: Bedding, N40E, 24SE, limey siltstone bed 5" thick

@ 82 feet:
Rig down 13:50 on 10-21-03
Resume drilling 7:30 on 10-28-03

@ 84.7 feet: Bedrock, N40E, 33SE

@ 85 feet: PEBBLY SANDSTONE, yellowish gray (5Y 7/2), fine to coarse grained sand, trace medium to large pebbles, hard, moist

@ 90 feet: Bedding, N10E, 20SE, pebbly sandstone / silty sandstone

@ 91 feet: Bedding, N40E, 31SE, 1" thick clayey siltstone

93.5 feet: Bedding, N40E, 35SE, coarse grained sandstone / siltstone

93.5 feet: SANDY SILTSTONE, moderate yellowish brown (10YR 5/4), some fine to medium grained sand, hard, moist

@ 98 feet: moisture increase

TOTAL DEPTH 101FEET.
No Caving.
No Groundwater.
Downhole logged to 95 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-30'	5962 lbs.
30-57'	3921 lbs.
57-86'	2531 lbs.
86-116'	1407 lbs
+600 lbs/30 ft. stem	

LOG OF BORING

BORING B-5-03

JOB NUMBER: 2002-036-01

By: D.G. Francuch

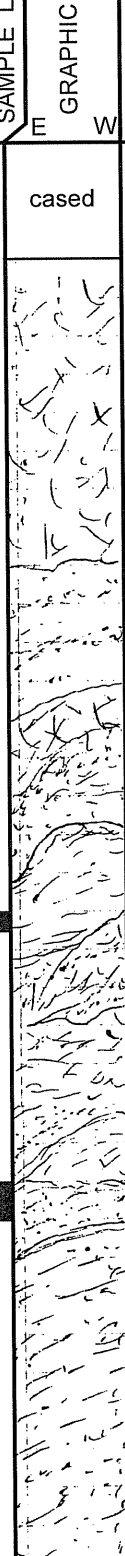
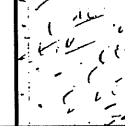
DATE DRILLED: 10-29-03

EQUIPMENT USED: 24"-Diameter Bucket Auger

ELEVATION: 1306.8

SURFACE CONDITIONS:

SAMPLING METHOD: 2 5/8-inch drive

BLOWS PER FOOT	
MOISTURE CONTENT (%)	
DRY UNIT WEIGHT (LBS. PER CU. FT.)	
N-VALUE	
DEPTH (FEET)	
SAMPLE LOCATION	
E	
W	
SOIL TYPE	
Bag	cased 
Bag	

0-28 feet: LANDSLIDE (Qls)

@ 0 feet: SANDSTONE, fine to medium grained sand, soft, dry, pale yellowish brown, (10YR 6/2)

Hole cased from 0-3 feet

@ 6 feet: SANDY SILTSTONE, silt with fine grained sand, moderately hard, dry to moist, moderate yellowish brown (10YR 5/4)

@ 9 feet: color change to grayish orange (10YR 7/4)

@ 11 feet: SANDSTONE, fine to coarse grained sand, trace silt, trace small to medium pebbles, soft, dry, yellowish gray (5Y 7/2),

@ 11-14 feet: Minor caving of sands

@ 14 feet: SILTSTONE, moderately hard, moist, moderate yellowish brown (10YR 5/4),

@ 14 to 17.8 feet: chaotic mix of sand and siltstone

@ 17.8 feet: Slide Plane, N/S, 40E, 2"-3" thick reddish brown clay, waxy, no distinct slide surface

@ 19 feet: CLAYEY SILTSTONE, silt with clay, moderately soft, moist, moderate yellowish brown (10YR 5/4)

@ 20 feet: SILTSTONE, hard, moist, moderate yellowish brown (10YR 5/4)

@ 25 feet: Bedding approximate, N10W, 43NE

@ 25 feet: CLAYSTONE, plastic, moist, moderate yellowish brown (10YR 5/4) to olive gray (5Y 4/1)

@ 28 feet: Slide Plane, N40E, 24SE, 1"-3' thick red to dark gray clay gouge, striations 12° S 15° E

@ 28 feet: CLAYEY SILTSTONE, moderately hard to hard, moist, dark yellowish brown (10YR 4/2),

28.1-95.5 feet: SAUGUS FORMATION (QTs)

@ 34 feet: SILTSTONE, trace fine sand, hard, moist, moderate yellowish brown (10YR 5/4)

@ 37 feet: SILTY SANDSTONE, fine to medium grained sand with silt,
hard, moist, moderate yellowish brown (10YR 5/4)

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-5-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-21-03 - 10-28-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

@ 40.3 feet: Bedding approximate, N10E, 28SE, coarse sandstone

@ 40 feet: PEBBLY SANDSTONE, pale yellowish brown (10YR 6/2), fine to coarse grained sand with small to large pebbles, hard, moist

@ 46 feet: Bedding, N30E, 33SE, coarse sandstone

@ 51.7 feet: Fracture, N30E, 63NW, 1/4" thick silt gouge, approximate 1/2"-1" normal offset

@ 52.3 feet: Bedding, N/S, 26E, coarse sandstone

@ 62 feet: Bedding, N15E, 22SE, medium to coarse grained sandstone

@ 69 feet: Bedding, N/S, 18E, fine to coarse grained sandstone

@ 70 feet: PEBBLY SANDSTONE, fine to coarse grained sand with small to large pebbles, hard, moist, yellowish gray (5Y 7/2)

@ 74 feet: Bedding, N10E, 22SE, coarse sandstone / siltstone

@ 74 feet: SILTY SANDSTONE, fine to coarse grained sand with silt, hard, moist, moderate yellowish brown (10YR 5/4)

@ 77 feet: Bedding, N15E, 30SE, fine to coarse grained sandstone in silty sandstone

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

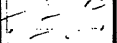
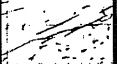
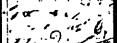
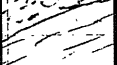
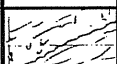
BORING B-5-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-21-03 - 10-28-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
Bag				85			@ 79 feet: SILTSTONE, trace fine to coarse sand, hard, moist, moderate yellowish brown (10YR 5/4)
							@ 80 feet: CLAYEY SILTSTONE, some clay, hard, moist, moderate yellowish brown (10YR 5/4)
							@ 82 feet: Bedding, N30E, 22SE, siltstone/fine to coarse sandstone
							@ 82 feet: SANDSTONE, fine to coarse grained sand with some small to medium pebbles, hard, moist, moderate yellowish brown (10YR 5/4)
							@ 84 feet: SILTSTONE, hard, moist, moderate yellowish brown (10YR 5/4)
				90		no log	@ 86-95 feet: No log due to low oxygen
				95			@ 95 feet: CLAYEY SILTSTONE, silt with some clay, hard, moist, moderate yellowish brown (10YR 5/4)
Bag							@ 95.5 feet: Bedding, N/S, 24E
				100		no log	@ 95.5-102 feet: PICO FORMATION (Tp)
							@ 95.5 feet: CLAYSTONE, trace silt, hard to very hard, moist, medium dark gray (N4), No seepage below 97 feet.
							@ 100 feet: SILTY SANDSTONE, fine grained sand with silt, hard, moist, dark greenish gray (5GY 4/1)
				105			
				110			
				115			
				120			

@ 79 feet: SILTSTONE, trace fine to coarse sand, hard, moist, moderate yellowish brown (10YR 5/4)

@ 80 feet: CLAYEY SILTSTONE, some clay, hard, moist, moderate yellowish brown (10YR 5/4)

@ 82 feet: Bedding, N30E, 22SE, siltstone/fine to coarse sandstone

@ 82 feet: SANDSTONE, fine to coarse grained sand with some small to medium pebbles, hard, moist, moderate yellowish brown (10YR 5/4)

@ 84 feet: SILTSTONE, hard, moist, moderate yellowish brown (10YR 5/4)

@ 86-95 feet: No log due to low oxygen

@ 93-97 feet: perched groundwater, boring wall wet but no free water

@ 95 feet: CLAYEY SILTSTONE, silt with some clay, hard, moist, moderate yellowish brown (10YR 5/4)

@ 95.5 feet: Bedding, N/S, 24E

@ 95.5-102 feet: PICO FORMATION (Tp)

@ 95.5 feet: CLAYSTONE, trace silt, hard to very hard, moist, medium dark gray (N4), No seepage below 97 feet.

@ 100 feet: SILTY SANDSTONE, fine grained sand with silt, hard, moist, dark greenish gray (5GY 4/1)

TOTAL DEPTH 102 FEET.
Minor Caving 11-14 feet.
Minor seepage 93-97 feet.
Downhole logged to 97 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-30'	5962 lbs.
30-57'	3921 lbs.
57-86'	2531 lbs.
84-116'	1407 lbs
+600 lbs/30 ft. stem	

LOG OF BORING

BORING B-6-03

By: D.G. Francuch

EQUIPMENT USED: 24"-Diameter Bucket Auger

SURFACE CONDITIONS:

SAMPLING METHOD: 2 5/8-inch drive

By: D.G. Francuch

0-31.1 feet LANDSLIDE (QIs)

@ 0 feet: SILTY SANDSTONE, fine to grained sand with silt, hard, moist, pale yellowish brown (10YR 6/2)

@ 4 feet: Fracture

@ 5 feet: pebbles up to 2" in diameter

@ 8 feet: color change to moderate yellowish brown (10YR 5/4),
Bedding approximate; N65E, 55SE

@ 8.5 feet: rootlets

@ 9 feet: SANDY SILTSTONE, silt with fine grained sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 10 feet: Fracture; N55W, 45NE, 1/8" -1/4" clay gouge separates silty sandstone from pebbly sandstone

@ 13 feet: SANDSTONE, fine to medium grained sand, hard, dry to moist, yellowish gray (5Y 7/2)

@ 13-15 feet: rootlets

@ 17 feet: SILTY SANDSTONE, fine to coarse grained sand with silt, moderately hard, moist, grayish orange (10YR 7/4)

@ 17 feet: Fracture; N65W, 82NE

@ 20 feet: rootlets

@ 20.5 feet: Bedding; N10E, 26SE, irregular contact

@ 21.5 feet: PEBBLY SANDSTONE, fine to coarse grained sand, trace silt, pebbles up to 2" diameter, hard, moist, pale yellowish brown (10YR 6/2)

@ 25 feet: Fracture splits into two strands, separates fine grained sand from coarse grained sand

@ 28 feet: Bedding? N10E, 46SE, irregular contact

@ 28 feet: SILTSTONE, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 31.1 feet: Slide Plane; N5W, 22NE, 3" wide zone of waxy clay sandwiched between two shears each 1/16"-1/8" thick gouge

31.5-96 feet: SAUGUS FORMATION (QTs)

@ 31.5 feet: CLAYEY SILTSTONE, trace fine to medium grained sand, hard, moist, moderate yellowish brown (10YR 5/4)

@ 34 feet: Minor Fault; N50W, 42NE, 1/16" wide clay gouge, 4" reverse offset (apparent)

@ 35 feet: SANDSTONE, fine to medium grained sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)

@ 38 feet: Fracture N45W, 46NE, 1/16"-1/8" wide silt gouge

@ 39 feet: SANDSTONE, fine to coarse grained sand, trace pebbles up to 2" diameter, moderately hard, moist, pale yellowish brown (10YR 6/2),

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
23				0		cased	
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-6-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-30-03 - 10-31-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S Z	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

- @ 40 feet: Bedding, N/S, 23E, contact, worm burrows
- @ 40 feet: SANDY SILTSTONE, silt with fine sand, trace clay, hard, moist, moderate brown (5YR 4/4),
- @ 46 feet: SILTY SANDSTONE, fine grained sand with silt, hard, moist, gradational contact, moderate brown (5YR 4/4),
- @ 47 feet: PEBBLY SANDSTONE, fine to coarse grained sand with pebbles and small cobbles, up to 4" diameter, hard, moist, moderate yellowish brown (10YR 5/4)
- @ 50 feet: Fracture; N40E, 30SE, 1/8" wide clay gouge
- @ 50 feet: SANDY SILTSTONE, silt with fine to medium sand, moderately hard, moist, moderate yellowish brown (10YR 5/4)
- @ 52 feet: SILTY SANDSTONE, fine grained sand with silt, moderately hard, moist, pale yellowish brown (10YR 6/2)
- @ 54 feet: Bedding, N10E, 26SE
- @ 54 feet: SANDSTONE, fine to coarse grained sand, trace small pebbles, moderately hard, moist, yellowish gray (5Y 7/2)
- @ 60.5 feet: Bedding; N5W, 24NE, fine grained sandstone,
- @ 63 feet: PEBBLY SANDSTONE, fine to coarse grained sand with medium pebbles, trace cobbles up to 8" diameter, hard, moist, yellowish gray (5Y 7/2)
- Stopped @ 69 feet, @ 15:30 on 10/30/03
Resume @ 7:00 on 10/31/03
- @ 70.7 feet: Bedding; N5E, 22SE, coarse grained sandstone / fine grained sandstone
- @ 71.6 feet: Bedding; N/S, 26E 1/2"-3" thick clayey siltstone
- @ 72 feet PEBBLY SANDSTONE, fine to coarse grained sand with small pebbles, moderately hard, moist, yellowish gray (5Y 7/2)
- @ 77.8 feet: Bedding; N5W, 23NE contact
- @ 77.8 feet: SANDY SILTSTONE, silt with fine to coarse grained sand, trace clay, hard, moist, moderate yellowish brown (10 YR 5/4),

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

FIGURE A-2.6b

BORING B-6-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 10-30-03 - 10-31-03

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION S N	GRAPHIC LOG	SOIL TYPE
				85			
				90			
				95			
				100		no log	
				105			
				110			
				115			
				120			

@ 81 feet: SANDSTONE, fine to coarse grained sand, trace small pebbles up to 1" diameter, moderately hard, moist, pale yellowish brown (10YR 6/2),

@ 85.5 feet: Bedding N15W, 27NE, contact

@ 85.5 feet: SILTY SANDSTONE, fine grained sand with silt, hard, moist, moderate yellowish brown (10YR 5/4)

@ 90.7 feet: Bedding; N/S, 23E, contact

@ 90.7 feet: CLAYEY SILTSTONE, silt with clay, hard, moist, moderate yellowish brown (10YR 5/4),

@ 95 feet: Bedding N/S, 27E, parting in siltstone

96-101 feet: PICO FORMATION (Tp)

@ 96 feet: limey siltstone

@ 97 feet: CLAYEY SILTSTONE, hard, moist, light olive gray (5Y 5/2)

@ 98 feet: SILTY CLAYSTONE, clay with silt, moderately hard to hard, moist, medium dark gray (N4)

TOTAL DEPTH 101 FEET.
No Caving.
No groundwater.
Downhole logged to 97 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-30'	5962 lbs.
30-57'	3921 lbs.
57-86'	2531 lbs.
86-116'	1407 lbs
+600 lbs/30 ft. stem	

LOG OF BORING

BORING B-7-03

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 11-3-03 - 11-4-03

EQUIPMENT USED: 24"-Diameter Bucket Auger

ELEVATION: 1201+/-

SURFACE CONDITIONS:

SAMPLING METHOD: 2 5/8-inch drive

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
					SW	NE	
						cased	
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

0-74 feet: SAUGUS FORMATION (QTs)

@ 0 feet: SILTY SANDSTONE, fine to medium grained sand with silt, moderately hard, moist, light brown (5YR 6/4)

@ 6 feet: SANDY SILTSTONE, silt with fine grained sand, trace coarse grained sand, moderately hard, moist to dry, grayish orange (10YR 7/4)

@ 10 feet: Bedding; N40W, 50NE

@ 10 feet: SILTY CLAYSTONE, clay with silt, hard, moist, moderate yellowish brown (10YR 5/4)

@ 18 feet: plastic clay, gray

@ 24.4 feet: Minor Fault; N75E, 35SE, 1/4" wide brown silt gouge

@ 26 feet: Bedding; N60W, 44NE

@ 26 feet: SILTY SANDSTONE, fine grained sand with silt, moderately hard, moist, pale yellowish brown (10YR 6/2)

@ 31 feet: Minor Fault; N90W, 44S, 1/8" wide silt gouge, 2" normal apparent offset

@ 32 feet: Bedding N30W, 46NE

@ 34 feet: CLAYEY SILTSTONE, silt with clay, trace fine to medium grained sand, hard, moist, moderate yellowish brown (10YR 5/4)

@ 35.5 feet: Minor Fault; N90W, 37S, 1/16" -1/8" wide clay gouge

@ 36 feet: CLAYSTONE, clay with trace silt, moderately hard, moist, dark yellowish brown (10YR 4/2)

@ 36.5 feet: Bedding N40W, 53NE, silt/silty clay

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R T FRANKIAN & ASSOCIATES

FIGURE A-2.7a

BORING B-7-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 11-3-03 - 11-4-03

By: D.G. Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION SW NE	GRAPHIC LOG	SOIL TYPE
Bag				45			
				50			
7				55			
				60			
				65			
				70			
				75			
				80			

- @ 42 feet: SILTY CLAYSTONE, clay with silt, moderately hard, moist, light olive gray (5Y 6/1)
- @ 44 feet: Minor Fault N55W, 90, joins clay bed at 44'
- @ 44 feet: SILTY SANDSTONE, fine grained sand with silt, moderately hard, moist, yellowish gray (5Y 7/2)
- @ 45 feet: Bedding: N35W, 33NE, 1" thick gray clay
- @ 46 feet: CLAYSTONE, moderately soft, moist, plastic, light olive gray (5Y 5/2)
- @ 48 feet: CLAYEY SILTSTONE, silt with clay, hard, moist, olive gray (5Y 4/1)

- @ 53 feet: CLAYSTONE, moderately soft, moist, plastic, medium dark gray (N4)
- @ 54 feet: Bedding N30W, 49 NE, 4-5" thick plastic gray clay

- @ 58 feet: SILTSTONE, hard, moist, medium dark gray (N4)

- @ 63 feet: Minor Fault: N10W, 47SW, ½"-1" wide zone of silt and clay gouge
- @ 65 feet: Shear: N10E, 55SE, along base of sheared claystone
- @ 67 feet: Bedding: N35W, 35NE

- @ 70 feet: CLAYSTONE, moderately soft, moist, plastic, medium dark gray (N4)
- @ 72 feet: Bedding: N20W, 35NE
- @ 72 feet: SANDY SILTSTONE, silt with fine grained sand, moderately hard, moist, pale olive (10Y 6/2)
- @ 74-111 feet: PICO FORMATION (Tp)**
- @ 74 feet: SILTY CLAYSTONE, clay with silt, hard, moist, fossiliferous, dark gray (N3),
- @ 77 feet: Bedding: N50E, 43SE, truncated by sheared clay

(CONTINUED ON THE FOLLOWING FIGURE)


LOG OF BORING

BORING B-7-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 11-3-03 - 11-4-03

By: D.G. Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION SW NE	GRAPHIC LOG	SOIL TYPE
				85			
				90			
				95			
				100			
				105			
				110		no log	
				115			
				120			

- @ 82 feet: CLAYSTONE, moderately soft, moist, plastic, dark gray (N3)
- @ 84 feet: Bedding: N10W, 26NE, siltstone/claystone
- @ 84 feet: SILTSTONE, hard, moist, fossiliferous, dark greenish gray (5GY 4/1)
- @ 85 feet: Rig down @ 13:00 on 11/3/03
resume drilling @ 7:55 on 11/4/03
No water from bottom of boring @ 85 feet
- @ 87 feet: limey siltstone, very hard
- @ 92 feet: CLAYSTONE, hard, moist, moderate plasticity, dark greenish gray (5GY 4/1)
- @ 95 feet: SILTSTONE, hard, moist, dark greenish gray (5GY 4/1)
- @ 96 feet: Shear: N60W, 35SW, brown clay 1" thick
- @ 97 feet: sandstone block 12" diameter in claystone matrix, sheared
- @ 99 feet: Shear N40E, 50SE, 1" clay gouge
- @ 100 feet: Bedding N40E, 46SE
- @ 100 feet: increase in moisture, perched groundwater above clay at 103 feet
- @ 104 feet: CLAYEY SILTSTONE, silt with clay, hard to very hard, moist, dark greenish gray (5GY 4/1)
- @ 104 feet: Bedding N50E, 39SE, siltstone / claystone

TOTAL DEPTH 111 FEET.
No Caving.
Minor perched water at 100-103 feet.
Downhole logged to 105 feet.

SAMPLE DEPTH	KELLY WEIGHT
0-30'	5952 lbs.
30-57'	3921 lbs.
57-86'	2531 lbs.
86-116'	1407 lbs
+600 lbs/30 ft. stem	

LOG OF BORING

BORING B-8-03

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 11-4-03 - 11-5-03

EQUIPMENT USED: 24"-Diameter Bucket Auger

ELEVATION: 1213.6

SURFACE CONDITIONS:

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
					E	W	
				5			
				10			
				15			
				20			
				25			
				30			
				35			
				40			

0-30.5 feet: LANDSLIDE (QIs)

@ 0 feet: SANDY SILTSTONE, silt with fine grained sand, moderately soft, dry to moist, moderate yellowish brown (10YR 5/4)

@ 7 feet: PEBBLY SANDSTONE, fine to coarse grained sand with pebbles up to 3" in diameter, moderately soft, moist, yellowish gray (5Y 7/2),

@ 10 feet: Slide plane; N/S, 31E, 1" thick plastic clay gouge, reddish brown

@ 10 feet: SANDY TO CLAYEY SILTSTONE, moderately soft, moist, semi plastic, moderate yellowish brown (10YR 5/4)

@ 15 feet: Bedding; N10E, 28SE

@ 15 feet: SANDSTONE, fine to coarse grained sand with small pebbles, moderately hard, moist, yellowish gray (5Y 7/2)

@ 18 feet: PEBBLY SANDSTONE, fine to coarse grained sand with pebbles up to 3" diameter, pale yellowish brown (10YR 6/2)

@ 24 feet: Bedding; N70E, 24SE, cross-bedding coarse sandstone

@ 27 feet: Bedding; N55E, 20SE

@ 27 feet: COBBLY SANDSTONE, fine to coarse grained sand with pebbles and cobbles up to 5", hard, moist, yellowish gray (5Y 7/2)

@ 30.5 feet: Slide plane: N25E, 31SE, polished surface

30.5 -76 feet: SAUGUS FORMATION (QTs)

@ 30.6 feet: CLAYSTONE, moderately soft, moist, plastic (possible slide plane), moderate brown (5YR 4/4)

@ 32.5 feet: SILTSTONE, trace fine sand, trace clay, moderately hard, moist, moderate brown (5YR 4/4)

@ 35 feet: PEBBLY SANDSTONE, fine to coarse grained sand with pebbles up to 2" diameter, moderately hard, moist, pale yellowish brown (10YR 6/2)

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)


LOG OF BORING

BORING B-8-03 (CONTINUED)

JOB NUMBER: 2002-036-01

By: D.G. Francuch

DATE DRILLED: 11-4-03 - 11-5-03

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION E W	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

- @ 42.7 feet: Fault; N65E, 49SE, reddish brown, clayey silt gouge 1/2"-1" wide
- @ 43 feet: interbedded silt and clay within sandstone
- @ 45.5 feet: Bedding; N20E, 22SE, medium to coarse grained sandstone
- @ 48 feet: Bedding; N20E, 22SE, striations 20° due south
- @ 48 feet: SILTSTONE, trace clay, moderately hard to hard, moist, moderate brown (5YR 4/4)
- @ 50 feet: Stopped drilling @ 17:05 on 11/4/03
Resume drilling @ 6:40 on 11/5/03
- @ 52 feet: SANDSTONE, fine to coarse grained sand, some pebbles up to 2" diameter, moderately hard to hard, moist, yellowish gray (5Y 7/2)
- @ 56 feet: SANDY SILTSTONE, silt with fine grained sand, moderately hard, moist, gradational contact, moderate yellowish brown (10YR 5/4)
- @ 57 feet: Bedding, N5E, 22SE, fine grained sandstone in siltstone
- @ 60 feet: PEBBLY SANDSTONE, fine to coarse grained sand with pebbles up to 1" diameter, moderately hard to hard, moist, pale yellowish brown (10YR 6/2),
- @ 65 feet: SANDY SILTSTONE, silt with fine grained sand, hard, moist, moderate yellowish brown (10YR 5/4)
- @ 69 feet: Bedding; N65E, 40SE
- @ 69 feet: SILTY SANDSTONE, fine grained sand with silt, hard, moist, pale yellowish brown (10YR 6/2)
- @ 72 feet: SILTSTONE, hard, moist, laminated, moderate yellowish brown (10YR 5/4),
- @ 74 feet: CLAYEY SILTSTONE, silt with clay, hard, moist, moderate yellowish brown (10YR 5/4),
- 76-120 feet: PICO FORMATION (Tp)**
- @ 76 feet: limey siltstone

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES
FIGURE A-2.8b

BORING B-8-03 (CONTINUED)

JOB NUMBER: 2002-036-01
DATE DRILLED: 11-4-03 - 11-5-03

By: D.G. Francuch

Note: The log of subsurface conditions shown hereon applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION F W	GRAPHIC LOG	SOIL TYPE
				85			
				90			
				95			
				100			
				105			
				110			
				115			
				120		no log	

@ 82 feet: SILTY SANDSTONE, fine to medium grained sandstone with silt, hard, moist, dark yellowish brown (10YR 4/2)

@ 85 feet: Bedding approximate; N50E, 38SE, limey siltstone

@ 85 feet: SANDY SILTSTONE, silt with fine grained sand, hard, moist, limey, moderate yellowish brown (10YR 5/4),

@ 89 feet: Bedding; N45E, 27SE

@ 89 feet: SILTY SANDSTONE, fine to medium grained sand with silt, moderately hard, moist, limey, yellowish gray (5Y 7/2),

@ 91 feet: CLAYEY SILTSTONE, silt with clay, trace fine grained sand, hard, moist, moderate yellowish brown (10YR 5/4)

@ 92 feet: SILTSTONE, hard, moist, moderate yellowish brown (10YR 5/4)

@ 95.5 feet: Bedding; N30E, 23SE

@ 96 feet, PEBBLY SANDSTONE, fine to coarse grained sand with pebbles up to 2" diameter, hard moist, yellowish gray (5Y 7/2)

Stopped logging @ 96 feet on 11/5/03 at 16:50

Resume logging on 11/6/03 @ 7:15

@ 98 to 100 feet: interbedded siltstone and sandstone

@ 100 feet: SILTSTONE, hard to very hard, moist, limey, moderate yellowish brown (10YR 5/4)

@ 107 feet: Bedding approximate: N30E, 28SE, fine grained sandstone

@ 107 feet: CLAYEY SILTSTONE, silt with clay, moderately hard to hard, moist, dark yellowish orange (10YR 6/6)

@ 108 feet: increase in moisture

@ 112 feet: Begin stemming @ 12:10

@ 113 feet: Bedding, approximate, N35E, 27SE, pebble bed

@ 114 feet: SILTY SANDSTONE, fine grained sand with silt, hard, moist, moderate yellowish brown (10YR 5/4)

TOTAL DEPTH 120 FEET.

No Caving.

No Groundwater

Downhole logged to 116 feet.

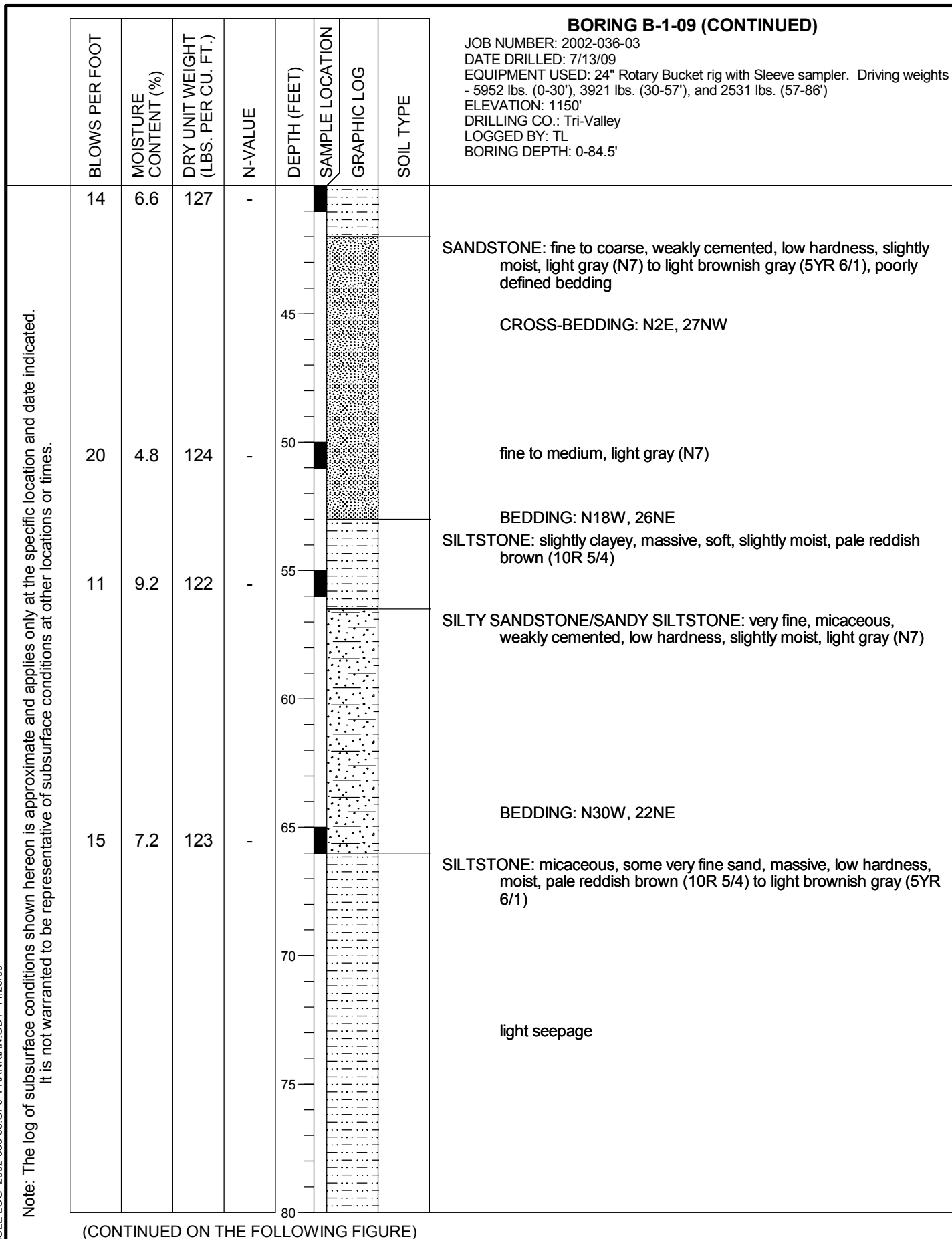
SAMPLE DEPTH	KELLY WEIGHT
0-30'	5952 lbs.
30-57'	3921 lbs.
57-86'	2531 lbs.
86-116'	1407 lbs
+600 lbs/30 ft. stem	

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES
FIGURE A-2.8c

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
4	2.6	121	-	10			ML
8	3.1	120	-	20			
10	4.5	118	-	30			

LOG OF BORING

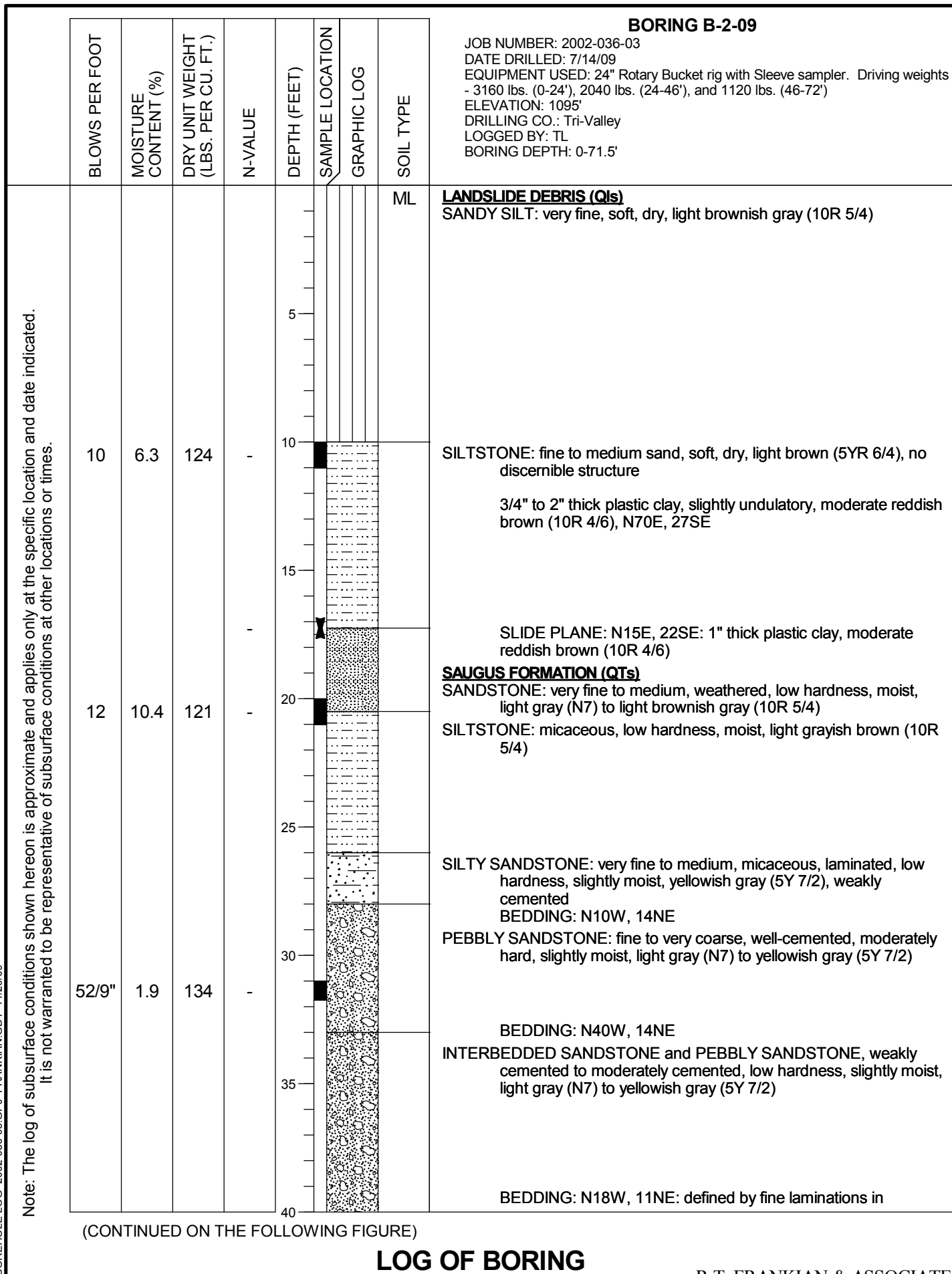


LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

							BORING B-1-09 (CONTINUED)		
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
	40/6"	7.2	117	-					
					85				Bottom of Boring at 84.5 feet. No caving. Light seepage at 72.5'.
					90				
					95				
					100				
					105				
					110				
					115				
					120				

LOG OF BORING



BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
57/9"	4.7	124	-				
58	10.6	131	-	45			
62/9"	15.3	117	-	50			
62/8"	11.8	123	-	55			
				60			
62	15.9	114	-	70			
				75			
				80			

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

sandstone

BEDDING: N-S, 16E

BEDDING: N18E, 25SE

SILTSTONE: slightly clayey, micaceous, low hardness, slightly moist, greenish gray (5GY 6/1)

4-6" thick plastic clay bed, dark gray (N3)

unoxidized, medium light gray (N5)

pale yellowish brown (10YR 6/2)

Bottom of Boring at 71.5 feet.
No groundwater. No caving.

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

						BORING B-3-2009	
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
							JOB NUMBER: 2002-036-004 DATE DRILLED: 4/13/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-72'(1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1026' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-72'
5			-	5			SM/ML LANDSLIDE DEBRIS (Qls) SILTY SAND/ SANDY SILT: fine, light olive brown (2.5Y 5/3), silty appears as mixture of fine grained sandstone & siltstone
7/9"			-	10			laminated fine sands, near horizontal slightly clayey
12/10"			-	15			concretionary layer, near horizontal sandy, hard, cemented layer, fractured, olive gray (5Y 5/2)
14			-	20			ML CLAYEY SILT: base of Qls near horizontal
27/7"			-	25			SAUGUS FORMATION (QTs) SANDSTONE: fine to medium, moderately well sorted, moderately hard, slightly moist BEDDING: N25W, 8NE BEDDING: N21W, 14NE: coarse sand layer N5W, 16NE
36/7"			-	30			CONGLOMERATE: coarse sand, pebbly, moderately hard, slightly moist BEDDING: N10, 15E: silty layer in pebble conglomerate
24/7"			-	35			
				40			

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-3-2009 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
39/7"			-			
42/9"			-	45		SANDSTONE: fine to medium, well sorted, slightly laminated, very moist to wet, yellowish brown
42			-	50		CONTACT/BEDDING: N10W, 14E: light seepage SILTSTONE: with clay, massive, moderately hard, moist, bluish gray to dark gray (5Y, 4/1), seepage along fractures from 45'-48'
46			-	55		
45/10"			-	60		becomes very clayey, slickensides within clay layer
68			-	65		
58/9"			-	70		SANDSTONE: fine to medium, poorly sorted, dense, moist, dark olive gray
				75		Bottom of Boring at 72 feet. Light seepage at 45'. No caving. Minor sloughing in saturated sand @ 43' to 45'. Slickenside clay layer at 62'-64'. Downhole logged to 50'.
				80		

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

LOG OF BORING

							BORING B-1-10	
							JOB NUMBER: 2002-036-004 DATE DRILLED: 4/14/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-72'(1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1260.5' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-72'	
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.							PICO FORMATION (Tp) SANDSTONE: medium to coarse, with granules (10%) and occasional pebbles (2-5%), slightly moist, light olive brown (2.5Y 5/4)	
							fine to medium	
	12	7.4	126	-	5			
	12/9"	4.2	126	-	10		BEDDING: N50E, 35SE drilling slower, rock appears to be more cemented becomes primarily medium, slightly silty	
	15	4.6	119	-	15		BEDDING: N70E, 35S CLAYSTONE/SILTSTONE: massive, dense, olive brown to dark olive brown (2.5Y 4/3)	
	9	12.1	119	-	20		BEDDING: N40E, 30SE PEBBLY SANDSTONE: fine to coarse, with gravel (5-10%), poorly sorted, damp, yellowish brown to tan (2.5Y, 6/6) BEDDING: N80E, 38S (pebble lineation) BEDDING: N79E, 41S	
	21/9"	3.3	115	-	25		BEDDING: N70E, 35S coarse, with granules and pebbles	
	21/9"	2.9	118	-	30			
12/9"	4	123	-	35		SHEAR: N50E, 80S BEDDING: N75E, 33S with rounded to sub-rounded gravel, occasional cobbles to 5"		
					40			

(CONTINUED ON THE FOLLOWING FIGURE)

(CONTINUED ON THE FOLLOWING FIGURE)

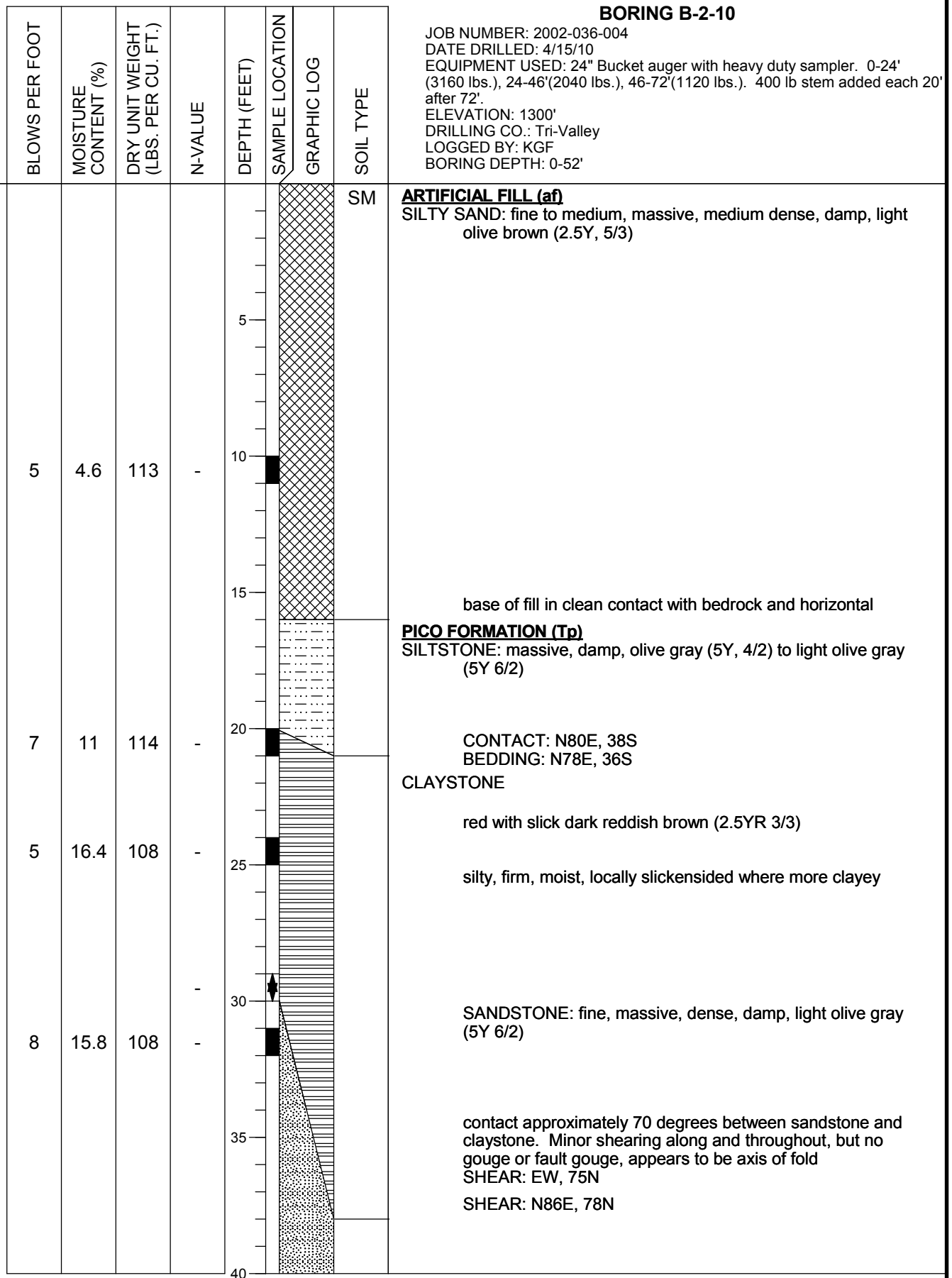
LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-1-10 (CONTINUED)						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
19/6"	3.9	116	-			
23	3.9	119	-	45		minor cobbles (5%) to 4" CLAYSHEAR: N60W, 61S BEDDING: N68E, 36S
35/6"	3.7	113	-	50		BEDDING: N60E, 38S (SANDSTONE OVER CLAYSTONE) CLAYSTONE: fine to medium, massive to thickly bedded, dense, slightly moist, olive greenish gray (5Y 5/4) to yellowish gray
38/6"	8.1	113	-	55		CLAYEY LAYER: N30E, 38S fine, laminated, clayey
47/11"	11.3	118	-	60		BEDDING: N60E, 38S: clay
25	9.2	119	-	65		CLAYEY SILTSTONE: interlayered, laminated, soft, slightly moist, brown to bluish gray BEDDING: N70E, 42S BEDDING: N72E, 41S silt and clayey silt and fine sand with bluish gray to reddish brown layers of clayey silt with yellowish brown sandy layers becomes olive gray
40/6"	8.9	113	-	70		SANDSTONE: fine to medium, slightly silty, dense, moist, bluish gray (unoxidized)
				75		Bottom of Boring at 72 feet. No groundwater. No caving.
				80		

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

						BORING B-2-10 (CONTINUED)		
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
	11	9.8	117	-	45			
	28	4.6	133	-	50			
					55			
					60			
					65			
					70			
					75			
					80			
						BEDDING/CONTACT: N50W, 65NE; N48W, 68NE CLAYSTONE: fine, massive, dense, damp, red, with slicks very plastic, stiff, no bedding discernable downhole, occasional sandy interlayers, but not laterally extensive, massive SILTSTONE: fine, dense, damp, light olive gray (5Y 6/2), laminated with claystone interlayers, appears in sample as near vertical, approximately 80 degree dip Bottom of Boring at 52 feet. No groundwater. No caving.		

LOG OF BORING

							BORING B-3-10	
							JOB NUMBER: 2002-036-004 DATE DRILLED: 4/14/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-72'(1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1376' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-111'	
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.					5		PICO FORMATION (Tp) SANDSTONE/ MUDSTONE: fine to coarse, with minor pebbles, poorly sorted, plastic, moist to slightly moist, yellowish red to reddish brown (5YR, 4/4) becoming coarser with depth and better sorted	
	12/8"	4.9	128	-	10		SANDSTONE: medium to coarse, slightly silty with minor granules, very hard, very dense, damp to slightly moist, yellowish brown to gray (5YR, 6/1) BEDDING: N85W, 43N BEDDING: N89W, 42N fine to medium, moist, yellowish brown (10YR, 5/4) BEDDING: N85W, 44N	
	19	6.1	134	-	20		coarse, with approximately 5% gravel, very hard, well cemented BEDDING: E-W, 38N cobble layer (pink quartzite) cobbles to 6" fine	
	22	3.4	123	-	30		PEBBLE CONGOMERATE: medium to coarse, with minor gravel and cobbles, well cemented, moderately well sorted, light gray BEDDING: N60W, 47N increase in moisture and increase in fines, poorly sorted with approximately 5-15% rounded gravel	
						40		
(CONTINUED ON THE FOLLOWING FIGURE)								
LOG OF BORING							R.T. FRANKIAN & ASSOCIATES	
2002-036-004 REPORT DATED 08-20-2010								

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-3-10 (CONTINUED)						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	SOIL TYPE
30/9"	5.1	126	-			CROSS-BEDDING: N80E, 34N
				45		SANDSTONE: fine to medium, poorly sorted, slightly plastic, medium dense, moist, yellowish brown (10YR, 5/4)
						BEDDING: 50W, 36NE
				50		SILTSTONE: slightly plastic, dark brown
31/9"	7.9	121	-			SANDSTONE: coarse, with gravel, hard, dense, yellowish brown (10YR, 5/4)
				55		BEDDING: N60W, 37NE
				60		BEDDING: N59W, 39NE
34/9"	7.2	111	-			SILTY SANDSTONE: light olive brown (2.5Y, 5/4)
				65		BEDDING: N61W, 37N
						MUDSTONE: slightly plastic, moist, dark gray (5Y, 4/1)
				70		SILTSTONE: grayish brown (2.5Y, 5/2)
41/6"	6.5	103	-			very hard, well cemented, massive, damp, fractured, concretionary from 69-71'
				75		massive, well sorted, micaceous, dense, moist, olive (5Y, 4/3)
				80		CONTACT: N58W, 37N

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING B-3-10 (CONTINUED)						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
29	21.5	109	-			CLAYSTONE: with slickensides, plastic, soft, moist, black with bi-valve shells approximately 1%, small white thin clamshells to 1/2" (freshwater), and reed casts to 82'. Grading to clayey siltstone
38/9"	9.7	116	-	85		MUDSTONE: clayey, slightly plastic, moist, olive gray (10YR, 4/3)
				90		SANDSTONE: fine, locally well cemented, dense, slightly moist, brown (10YR, 4/3)
				95		CLAYSHEAR CONTACT: N40E, 30SE, N35E, 29SE SILTSTONE: massive, slightly plastic, dense, moist, greenish gray to olive gray (5Y, 4/2), and with minor fine sand (10%) BEDDING: N38, 32SE
37/9"	11.9	124	-	100		
				105		SANDSTONE: fine to medium, poorly sorted, with 20-30% silt and 5% clay, damp to slightly moist, yellowish brown (10YR, 5/4)
				110		becoming better sorted with depth clean
				115		Bottom of Boring at 111 feet. No groundwater. No caving.
				120		

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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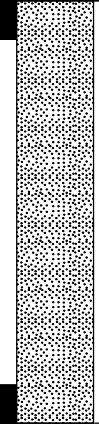
						BORING B-4-10		
						JOB NUMBER: 2002-036-004 DATE DRILLED: 4/14/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46' (2040 lbs.), 46-72' (1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1405' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-51'		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
				5			PICO FORMATION (Tp)	
							CLAYSTONE/MUDSTONE: massive, slightly plastic, moist, dark yellowish brown (10YR, 4/4)	
15/9"	7.7	129	-	10			CLAYEY SANDSTONE: fine, silty (10-20%) with occasional coarse (2%), poorly sorted, dense, damp, yellowish brown (10YR, 5/4)	
							@12' BEDDING: N40E, 25SE	
				15			PEBBLY SANDSTONE: fine to medium, with minor gravel (2-5%), moderately sorted, light brownish gray (10YR, 6/2)	
							BEDDING: N26E, 24SE	
							BEDDING: N31E, 22SE	
							BEDDING: N28E, 26SE	
							slight change in color to brown (7.5YR, 5/4)	
							BEDDING: N15E, 26SE	
15	14.4	120	-	20			SILTSTONE/MUDSTONE: dark brown (7.5YR, 3/3)	
				25			SILTY SANDSTONE: fine to medium, dense, damp, light brownish gray (2.5Y, 6/2)	
							@ 25'-26': concretionary layer of nodules in sandy clay layer	
23/11"	15.9	117	-	30			BEDDING: N21E, 21SE	
							BEDDING: N18E, 22SE	
				35			BEDDING: N39E, 25SE	
							SILTSTONE: micaceous, slightly laminated, dense, slightly moist, dark olive gray (5Y, 3/2)	
							BEDDING: N36E, 26SE	
							BEDDING: N36E, 25SE	
							BEDDING: N32E, 24SE	
				40			SANDSTONE: fine to medium, moderately well sorted, damp, light	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING B-4-10 (CONTINUED)						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
35	4.6	113	-	45		<p>brownish gray (2.5Y, 6/2)</p> <p>BEDDING: N27E, 24SE</p> <p>BEDDING: N26E, 25SE</p> <p>BEDDING: N28E, 24SE grading to predominately medium grained</p>
42	6.3	109	-	50		<p>Bottom of Boring at 51 feet. No groundwater. No caving.</p>
				55		
				60		
				65		
				70		
				75		
				80		

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

							BORING B-5-10		
							JOB NUMBER: 2002-036-004 DATE DRILLED: 4/19/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-72'(1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1398' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-71'		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE		
5	3	102	-	10			SM	LANDSLIDE DEBRIS (Qls)	
								SILTY SAND: fine to medium, loose, moist, light olive brown (2.5Y, 5/3)	
								fine, loose to medium dense, damp to slightly moist, light yellowish brown (2.5Y, 6.4)	
4	3.1	104	-	20				fine to medium	
								with pebbles and cobbles, increase in moisture	
6	13.4	115	-	30			ML	CLAYEY SILT: soft to firm, moist, brown	
							CL	@30' SHEAR: N10W, 24W	
								SILTY CLAY: soft to firm, moist, brown	
								@31' SHEAR: N10W, 12W	
								@31'-32': CLAY/SAND CONTACT: N60E, 20SE	
								@32': BEDDING: N50W, 30SW	
							SP	@ 32' SAND: fine, moderately well sorted, micaceous, loose to medium dense, light yellowish brown (2.5Y, 5/3)	
								rock exhibits shearing	
								SHEAR: N5W, 15E	
				40					

(CONTINUED ON THE FOLLOWING FIGURE)

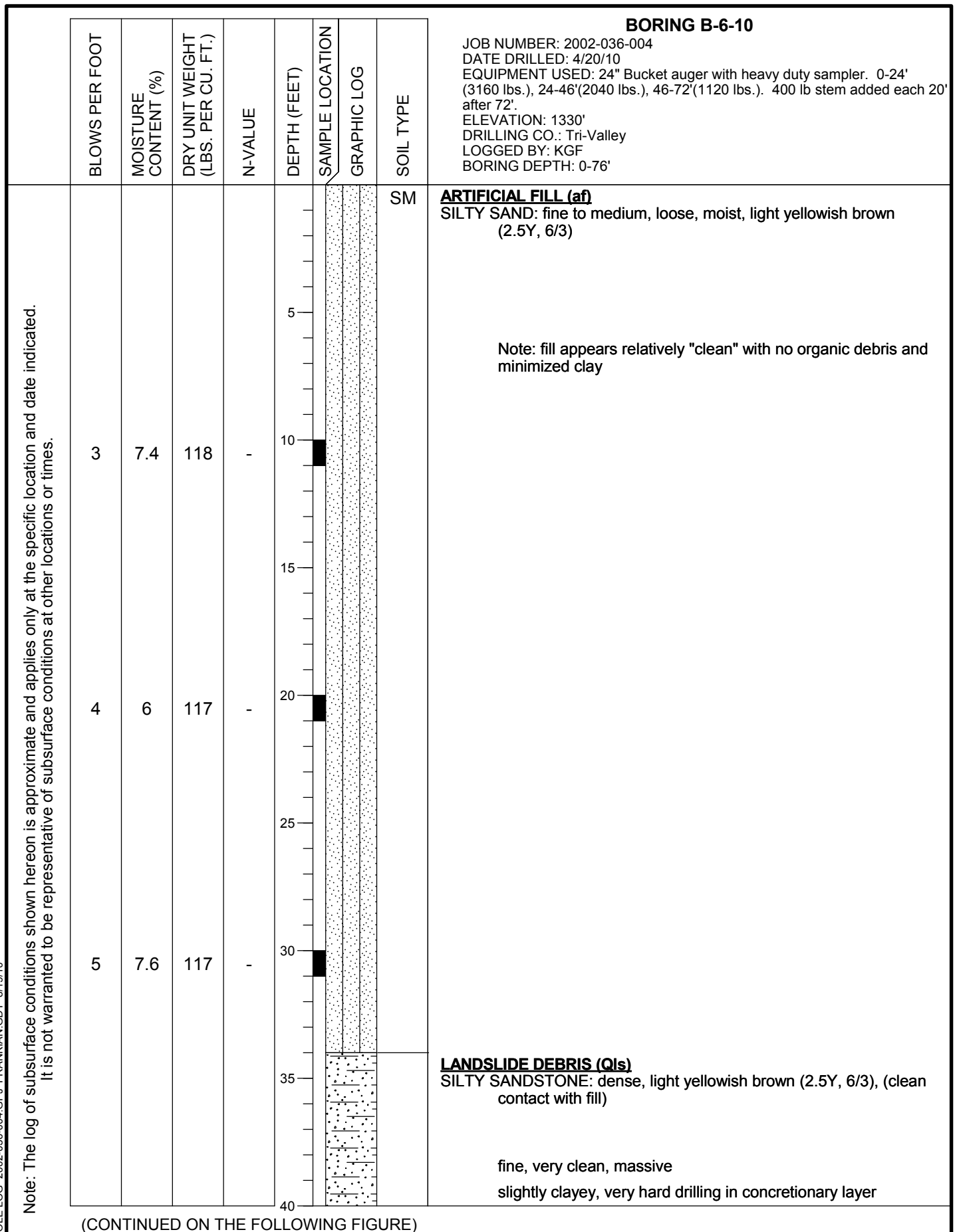
LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.


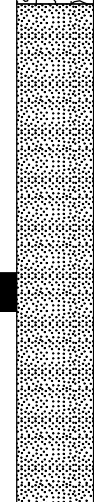


						BORING B-5-10 (CONTINUED)		
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	JOB NUMBER: 2002-036-004 DATE DRILLED: 4/19/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46' (2040 lbs.), 46-72' (1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1398' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-71'	
18	5.6	111	-				@41': SLIDE PLAN CONTACT: N21E, 31SE: Base of landslide/top of bedrock PICO FORMATION (Tp) SANDSTONE: medium to coarse, with pebbles, dense, slightly moist, yellowish brown (2.5Y, 5/3)	
42/9"			-	45				
				50			(Sample fell out) BEDDING: N30E, 34SE BEDDING: N15E, 29SE	
				55			BEDDING: N32E, 31SE BEDDING: N28E, 29SE	
42/9"	7.1	120	-	60				
				65				
				70			SILTY SANDSTONE: fine, moist, olive (5Y, 5/4) light yellowish brown (10YR, 6/4)	
35/9"	5.5	111	-				Bottom of Boring at 71 feet. No groundwater. No caving.	
				75				
				80				

LOG OF BORING



LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-6-10 (CONTINUED)						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
27	2.6	126	-	45		PEBBLY CONGLOMERATE: medium to coarse, with granules and pebbles, poorly sorted, dense, damp, light yellowish brown (2.5Y, 6/3), with coarse sand size shell fragments
20	6.8	109	-	50		N59E, 35S: pebble layer @46'-48': orange layer, olive yellow (2.5Y, 6/8) BEDDING: N30E, 34SE BEDDING: N60E, 40S softer
21	6.9	104	-	55		SANDSTONE: medium to coarse, moderately sorted, dense, damp to slightly moist, light yellowish brown (2.5Y, 6/3) BEDDING: N10E, 35E BEDDING: N12E, 33E
12	17.6	102	-	60		BEDDING: N16E, 34SE
				65		SILTSTONE: with clam fossils, micaceous, moist, bluish gray
				70		@68': CLAY SEAM: N50E, 20SE: (landslide plane) CLAYSTONE: plastic, moist, reddish brown @69' BEDDING: N52, 18SE
				75		PICO FORMATION (Tp) MUDSTONE/CLAYEY SILTSTONE: massive, with sand and granules, mottled brown and olive gray
				80		(no discernable bedding)
						Bottom of Boring at 76 feet. No groundwater. Minor caving in sandy fill.

LOG OF BORING

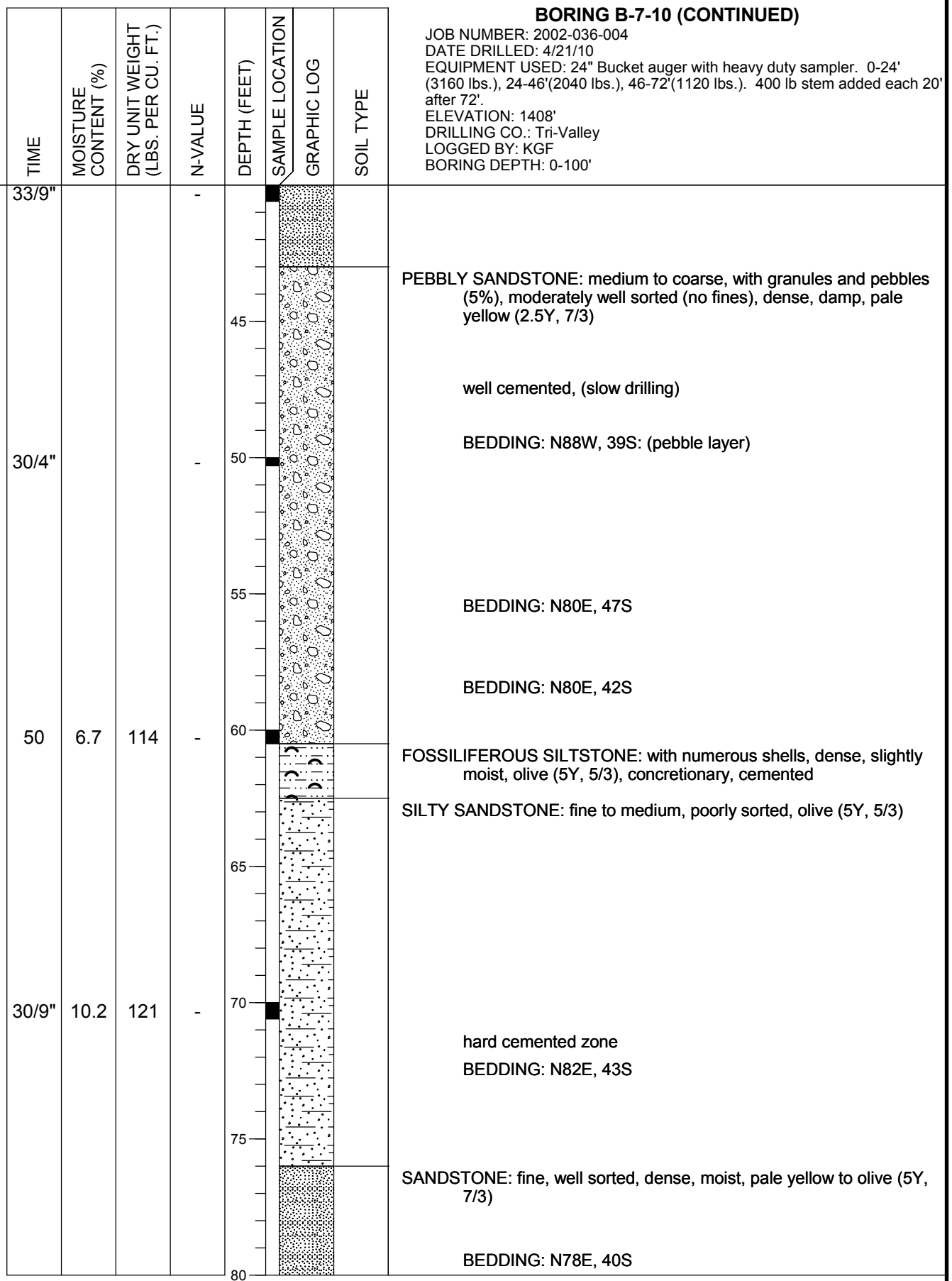
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

							BORING B-7-10		
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	JOB NUMBER: 2002-036-004 DATE DRILLED: 4/21/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46' (2040 lbs.), 46-72' (1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1408' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-100'		
				5			PICO FORMATION (Tp)		
							SANDSTONE: fine to medium, moderately well sorted, dense, damp, light yellowish brown		
16/9"	7.2	112	-	10			BEDDING: N75E, 41S		
							BEDDING: N75E, 42S		
				15			BEDDING: N78E, 42S		
							CONGLOMERATE: with pebbles		
							SANDSTONE: fine, moderately well sorted, dense, damp, pale yellow (2.5Y, 8/2), with minor pebbles, minimal to no fines		
18/9"	4.3	116	-	20			medium to coarse		
							pebble conglomerate layer: N78E, 44S		
				25					
							BEDDING: N76E, 48S		
							fine to medium, slightly silty, light gray (2.5Y, 7/1)		
34/9"	6.1	107	-	30					
				35					
							medium to coarse, with granules and pebbles, yellow		
				40					

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.



(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

BORING B-7-10 (CONTINUED)

JOB NUMBER: 2002-036-004
DATE DRILLED: 4/21/10
EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46' (2040 lbs.), 46-72' (1120 lbs.). 400 lb stem added each 20' after 72'.
ELEVATION: 1408'
DRILLING CO.: Tri-Valley
LOGGED BY: KGF
BORING DEPTH: 0-100'

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING B-7-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
34/9"	10.1	113	-	85		N83E, 42S
52/9"	6.8	122	-	90		BEDDING: N86W, 39S: (shell layer), slightly silty and concretionary
				95		SANDY SILTSTONE: laminated, locally concretionary, dense, moist, mottled bluish gray and brown
				100		SANDY SILTSTONE: no clay in matrix
						BEDDING: N88E, 41S
						SILTY SANDSTONE: fine to medium, poorly sorted, dense, slightly moist, olive brown
						SANDSTONE: fine, slightly silty, moderately well sorted, light gray (5Y, 7/1)
				105		Bottom of Boring at 100 feet. No groundwater. No caving.
				110		
				115		
				120		

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

						BORING B-8-10		
						JOB NUMBER: 2002-036-004 DATE DRILLED: 4/23/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-72'(1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1135' DRILLING CO.: Tri-Valley LOGGED BY: TL BORING DEPTH: 0-101'		
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
3	2.9	109	-	5			SAUGUS FORMATION (QTs)	
				10			SILTSTONE: micaceous, soft, dry, light grayish brown (10YR 5/2)	
2	7.9	123	-	15			BEDDING: N72W, 16N	
				20			BEDDING: N80W, 12N	
7	3.6	118	-	25			CLAYSTONE: moderately soft, dark grayish brown (10YR 4/2)	
				30			massive	
				35			CLAYEY SANDSTONE: with sand and silt, moderately soft, light reddish brown (5YR 4/3)	
				40			BEDDING: N72W, 8N): (top of sandstone)	
				45			SANDSTONE: fine, moderately well sorted, micaceous, medium dense, damp, light olive brown (2.5Y, 5/3)	
				50			BEDDING: N32W, 12NE: pebble layer cross bed	
				55			grading coarser with pebbles	
				60			BEDDING: N51W, 19NE	
				65			BEDDING: N53W, 12NE	
				70			FAULT: N60E, 58S	
				75			BEDDING: N85E, 24N	
				80			SANDY SILTSTONE: fine sand and trace gravel to 1/2", with fraction of clay, poorly sorted, dense, slightly moist, dark grayish brown (2.5Y 4/2)	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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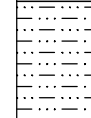
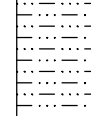





						BORING B-8-10 (CONTINUED)	
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
	12	7.1	118	-	40		grading to mudstone
	33	2.8	123	-	45		CONGLOMERATE: medium to coarse sand, with pebble to 1" and few cobbles to 6", dark grayish brown (2.5Y, 4/2) BEDDING: N81W, 9N OFFSET LITHOLOGY BUT NO SHEARING OBSERVEABLE FAULT: N80E, 68S: (hard drilling)
					50		medium, light bluish gray (2.5Y, 6/2)
					55		silty and well cemented BEDDING: N86E, 26N SANDSTONE: fine to medium, laminated, light gray
	39	4.5	115	-	60		BEDDING: N55W, 16NE: clean sand layer SANDY SILTSTONE: damp, olive gray (5Y, 5/2)
					65		SILTSTONE: micaceous, soft, moist, olive gray (5Y, 5/2) BEDDING: N48W, 24NE: thin clay bed increasing clay with depth CLAYSTONE: plastic, firm, moist, dark olive gray
	28	13.8	113	-	70		SILTSTONE: with clay, slightly plastic, locally micaceous and laminated, slightly firm to soft, moist, olive gray (5Y, 5/2) @74': BEDDING: 50W, 22NE
					75		CLAYSTONE: with silt, massive, firm, slightly moist, olive gray (5Y,

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

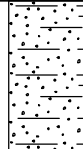

















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BORING B-8-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
18	16.4	115	-	80		5/2) @79' BEDDING: N60W, 14N: clay seam
				85		SILTSTONE: laminated, soft
42	3.9	124	-	90		SANDSTONE: medium, moderately sorted with small pebble inclusions, hard, light olive gray (5Y 6/2), (cuttings fell out of basket)
				95		CROSS-BEDDING: N20W, 15E CONGLOMERATE: fine to medium sand, with granules and pebbles, well cemented and poorly sorted, slightly moist, light olive gray (5Y 6/2) BEDDING: N32W, 13NE: fine sand layer
38/10"	5.3	112	-	100		BEDDING: N36W, 14NE fine sand, no pebbles, massive, well sorted, light gray
				105		
				110		
				115		
						Bottom of Boring at 101 feet. No groundwater. No caving.

LOG OF BORING

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							BORING B-9-10		
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	JOB NUMBER: 2002-036-004 DATE DRILLED: 4/27/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-72'(1120 lbs.). 400 lb stem added each 20' after 72'. ELEVATION: 1250' DRILLING CO.: Tri-Valley LOGGED BY: KGF BORING DEPTH: 0-107'		
7	13	120	-	5			OLDER LANDSLIDE DEBRIS (Qols)		
							SILTY SANDSTONE: fine, soft, damp, light olive brown (2.5Y, 5/3), appears jumbled		
							SANDY SILTSTONE: clean, slightly laminated, soft, olive brown (2.5Y, 4/3)		
9/7"	4.2	131	-	10			SILTY SANDSTONE: medium to coarse, with pebbles, poorly sorted, slightly moist, light olive brown (2.5Y, 5/3)		
							hard zone		
							CLAYSTONE: with silt, massive, slightly plastic, moist, dark brown (10YR, 3/3), (jumbled)		
20/9"	4	131	-	15			MUDSTONE: with coarse sand & granules in silty matrix, massive, poorly sorted, slightly plastic, slightly moist, dark brown (10YR, 3/3)		
							CONTACT: N20W, 17SW		
							SAUGUS FORMATION (QTs)		
20/9"	4	131	-	20			SANDSTONE: fine to medium, moderately well sorted, cemented, hard, light gray (2.5Y, 7/2)		
							BEDDING: N40W, 60NE: (pebble layer)		
							CONGLOMERATE: coarse sand, with pebbles and cobbles, hard, light gray (2.5Y, 7/2)		
20/9"	4	131	-	25			BEDDING: N25W, 37NE		
							medium to coarse sand, no fines		
							BEDDING: N25W, 31NW: fine sand layer		
				30					
				35					
				40					

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

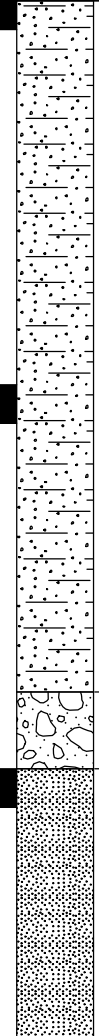
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-9-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
24/9"	3.9	128	-			
				45		CONTACT/BEDDING: N61W, 53NE SILTSTONE: with clay, poorly sorted, massive, dense, brown (10YR, 4/3)
38/9"	5.5	108	-	50		SANDSTONE: medium, with granules, hard, olive gray (5Y, 5/2)
				55		BEDDING: N50W, 41NE
				60		PEBBLY SANDSTONE: fine to medium, poorly sorted with granules, grayish brown (2/5Y, 4/2) BEDDING: N38W, 42NE
57/9"	4.7	110	-	65		SHEAR: N15W, 67NE BEDDING: N38W, 71NE SHEAR: N18W, 44NE: (with slicks) CONTACT: N61W, 43NE: (top of siltstone) SILTSTONE: with clay, firm, massive, slightly plastic, slightly moist, reddish brown (5YR, 4/4)
				70		SHEAR: N31W, 55NE: (clay slicks) grades to brown silty sandstone to 72'
53	9.6	132	-	75		very plastic
				80		SILTY SANDSTONE: fine, poorly sorted, massive, dense, yellowish brown (10YR, 5/4) BEDDING: N51W, 52N

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

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BORING B-9-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
51/9"	10.9	116	-	85		BEDDING: N61W, 58W: (sandy layer)
53/11"	7.1	133	-	90		fine to medium, olive brown (2.5Y, 4/4)
40/10"	3.7	121	-	100		CONGLOMERATE: with pebbles, medium to coarse sand, slightly silty, massive, light brownish gray (2.5Y, 6/2) BEDDING: N38W, 43NE SANDSTONE: fine to medium, clean, well sorted, dense, light gray (2.5Y, 7/2), well indurated
				105		
				110		Bottom of Boring at 107 feet. No groundwater. No caving.
				115		
				120		

LOG OF BORING

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							BORING B-10-10		
							JOB NUMBER: 2002-036-004 DATE DRILLED: 10/7/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-70'(1120 lbs.). ELEVATION: 1002.5' DRILLING CO.: Tri-Valley LOGGED BY: TPL BORING DEPTH: 0-70'		
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE		
				5			ML	<u>ALLUVIUM (Qal)</u>	
				10				SANDY SILT: very fine sand, soft, slightly moist, grayish brown (10YR 5/2)	
				15				minor caliche veins	
				20				trace cobbles, medium stiff	
				25				angular sandstone cobble; 8" long, 3" wide	
				30				siltstone rip up clasts	
				35				<u>SAUGUS FORMATION (QTs)</u>	
				40				SANDY SILTSTONE: very fine sand, micaceous, some caliche pods, soft, slightly moist, yellowish gray (5Y 7/2) slight orangish brown mottling	
								BEDDING: N10E, 20SE: defined by 1/4" thick caliche at contact	
								SILTY SANDSTONE: very fine, trace pebbles, some siltstone interbeds up to 6" thick, friable, slightly moist, yellowish gray (5Y 7/2) very fine to medium with cross bedding	
								BEDDING: N27E, 17SE	
								SANDY SILTSTONE: very fine to fine sand, low hardness, slightly moist, yellowish gray (5Y 7/2)	
								SANDSTONE: fine to coarse, minor amount of pebbles, moderately hard, slightly moist, yellowish gray (5Y 7/2)	
								CROSS-BEDDING: N57E, 15SE: moderately well cemented	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING B-10-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
						BEDDING: N5E, 17SE
				45		PEBBLY SANDSTONE: fine to very coarse, moderately cemented, moderately hard, moist, yellowish gray (5Y 7/2), light seepage moderate seepage
				50		CONTACT: N10W, 15NE SANDY SILTSTONE: very fine to fine sand, weakly cemented, micaceous, low hardness, moist, light olive gray (5Y 5/2) thin very fine sandstone interbed @ 52'
				55		1" thick siltstone; 4" thick very fine sandstone SILTSTONE: moderately indurated, moderately hard, slightly moist, medium dark gray (N4)
				60		
				65		light olive gray (5Y 5/2) dark yellowish brown (10YR 4/2)
				70		Bottom of Boring at 70 feet. Light seepage at 44', moderate seepage at 47'. No caving.
				75		
				80		

LOG OF BORING

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						BORING B-11-10		
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	JOB NUMBER: 2002-036-004 DATE DRILLED: 10/7/10 EQUIPMENT USED: 24" Bucket auger with heavy duty sampler. 0-24' (3160 lbs.), 24-46'(2040 lbs.), 46-70'(1120 lbs.). ELEVATION: 1145.5' DRILLING CO.: Tri-Valley LOGGED BY: TPL BORING DEPTH: 0-70'
				5			ML	RESIDUAL SOIL SANDY SILT: very fine to fine sand, minor caliche, soft, slightly moist, dark yellowish brown (10YR 4/2)
				10				yellowish brown (10YR 5/4) SAUGUS FORMATION (QTs) SANDY SILTSTONE: very fine sand, micaceous, soft, dry, yellowish gray (5Y 7/2) BEDDING: N20E, 10SE BEDDING: N40E, 10SE: some siltstone interbeds, 1" to 2" thick
				15				SILTSTONE: moderately indurated, low hardness, slightly moist, light olive gray (5Y 5/2)
				20				SILTY SANDSTONE: very fine to fine, micaceous, soft, slightly moist, yellowish gray (5Y 7/2) SILTSTONE: moderately indurated, low hardness, slightly moist, light olive gray (5Y 5/2)
				25				SANDSTONE: very fine to fine, low hardness, slightly moist, light olive gray (5Y 6/1), laminated bedding defined by aligned mafic minerals
				30				SANDY SILTSTONE: very fine sand, micaceous, soft, slightly moist, yellowish gray (5Y 7/2) SANDSTONE: very fine to medium, weakly cemented, slightly micaceous, soft, dry, yellowish gray (5Y 7/2), laminated
				35				trace pebbles BEDDING: N-S, 12E some cross bedding
				40				BEDDING: N10E, 8SE

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

R.T. FRANKIAN & ASSOCIATES

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BORING B-11-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				45		BEDDING: N15E, 10SE
				50		PEBBLY SANDSTONE: fine to coarse, trace cobbles, weakly cemented, low hardness, dry, yellowish gray (5Y 7/2)
				55		SILTY SANDSTONE: very fine to fine, micaceous, soft, slightly moist, light olive gray (5Y 5/2) SANDY SILTSTONE: very fine sand, micaceous, soft, slightly moist, light olive gray (5Y 5/2) BEDDING: N11E, 15SE: 2" thick siltstone interbed
				60		SILTSTONE: micaceous, moderately hard, slightly moist, moderate olive brown (5Y 4/4), some very fine to fine sandstone interbeds dark yellowish brown (10YR 4/2)
				65		massive olive gray (5Y 4/1) minor very fine sand, caliche coating on fracture surfaces medium bluish gray (5B 5/1)
				70		SILTY SANDSTONE: fine to coarse, trace pebbles, moderately hard, slightly moist, light olive gray (5Y 5/2)
				75		Bottom of Boring at 70 feet. No groundwater. No caving.
				80		

LOG OF BORING

(CONTINUED ON THE FOLLOWING FIGURE)

R.T. FRANKIAN & ASSOCIATES

							BORING HS-1-10 (CONTINUED)	
							JOB NUMBER: 2002-036-004 DATE DRILLED: 5/10/10 EQUIPMENT USED: Hollow Stem Auger CME 95 with heavy duty sampler and SPT sampler ELEVATION: 1248' DRILLING CO.: WDC LOGGED BY: KGF BORING DEPTH: 0-112'	
	TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.	-			32			SM	slightly clayey
	41	6.1	120	-	45			fine to medium, with gravel, moderately to poorly sorted, olive brown (2.5Y, 4/3)
								with abundant fossil shell fragments
	-			50/3"	50			
	50/4"	8.3	107	-	55			PICO FORMATION (Tp) SANDSTONE: medium to coarse, moderately well sorted, well cemented, hard, dark yellowish brown (10YR, 4/4)
								(hard drilling)
	-			65/3"	60			PEBBLY SANDSTONE: medium, well cemented, light yellowish brown (10YR, 6/4), poorly sorted with granules (10%) and pebbles (5-10%)
	70/4"			-	65			(sampler bouncing)
								(sampler bouncing)
	-			65/5"	70			(bouncing after 5")
	75/5"	8.1	123	-	75			(very hard drilling, adding water to cool bit)
								hard, with localized olive brown fine clayey mottling
								becomes coarser with pebbles

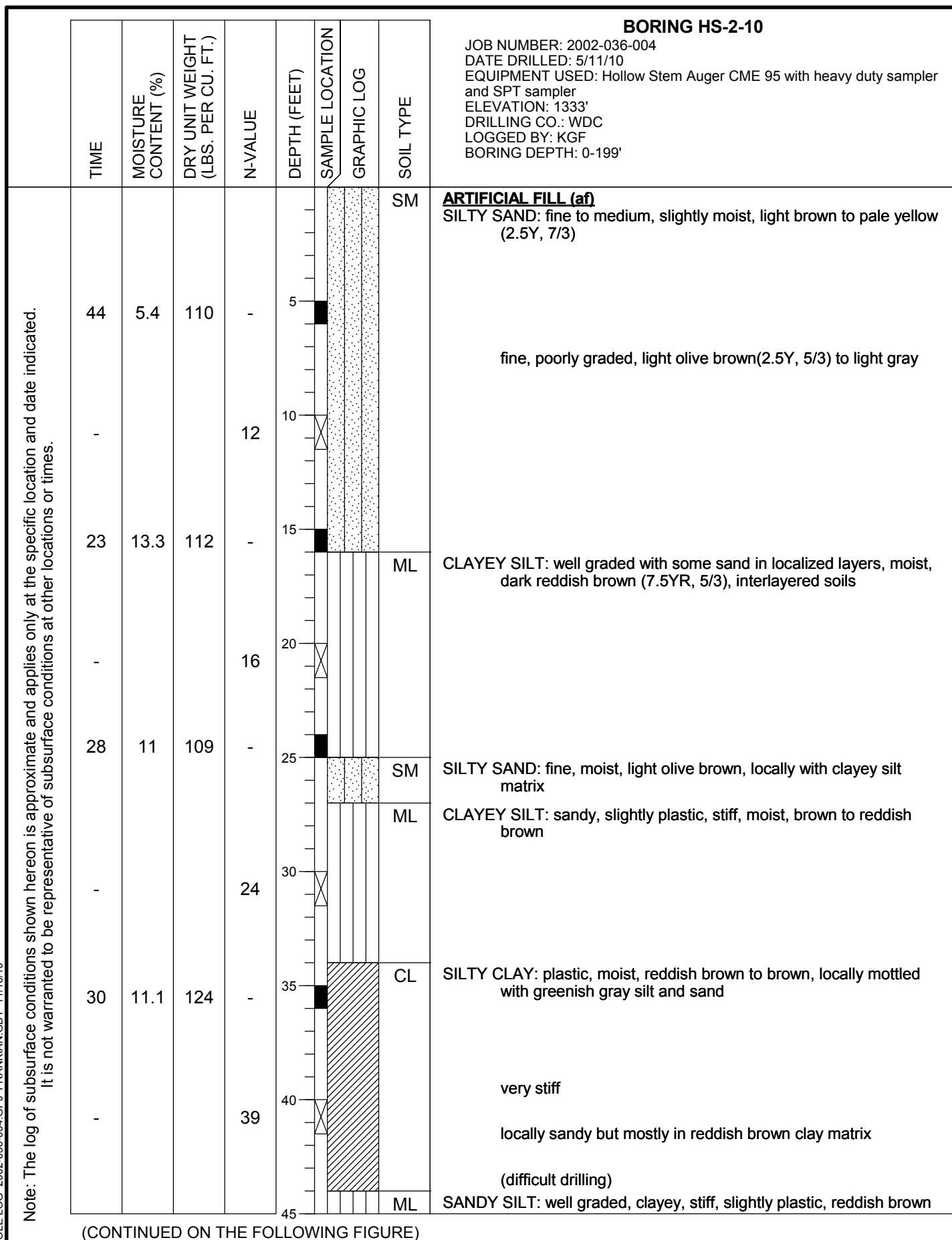
(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

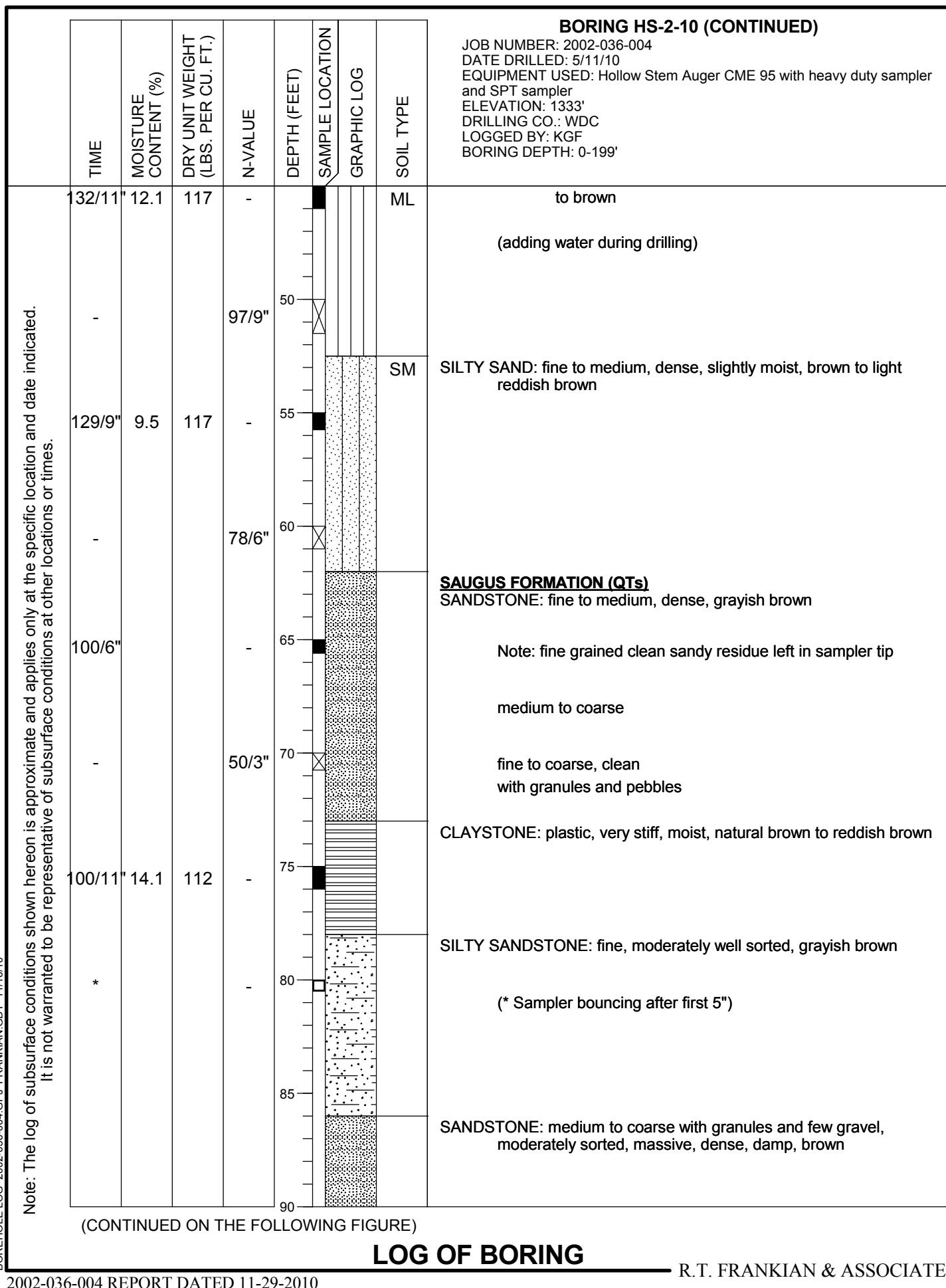
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING HS-1-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
-			30/1"			
80/4"			-	85		coarse, (bouncing after 6")
-						(bouncing after 4")
						▽ groundwater at 87.08 feet 7/1/10
68/5"			-	90		(bouncing after 5")
						medium to coarse
				95		
						▽ groundwater at 97.5 feet 5/14/10
-			50/6"	100		MUDSTONE: dark gray, mixture of sand (25%), silt (50%), and clay (25%)
				105		
				110		
				115		Bottom of Boring at 112 feet. Very slight groundwater seep noted at about 100'
				120		Installed temporary piezometer of 2" schedule 80 PVC with bottom at 108'; 0.020" machine-slotted screen from 108-88'; blank PVC to surface. Backfilled with #3 sand up to 85', and sealed with medium bentonite chips to 81'. Destroyed piezometer on July 14, 2010 by removing PVC casing and backfilling to surface with cement grout and 5% bentonite.

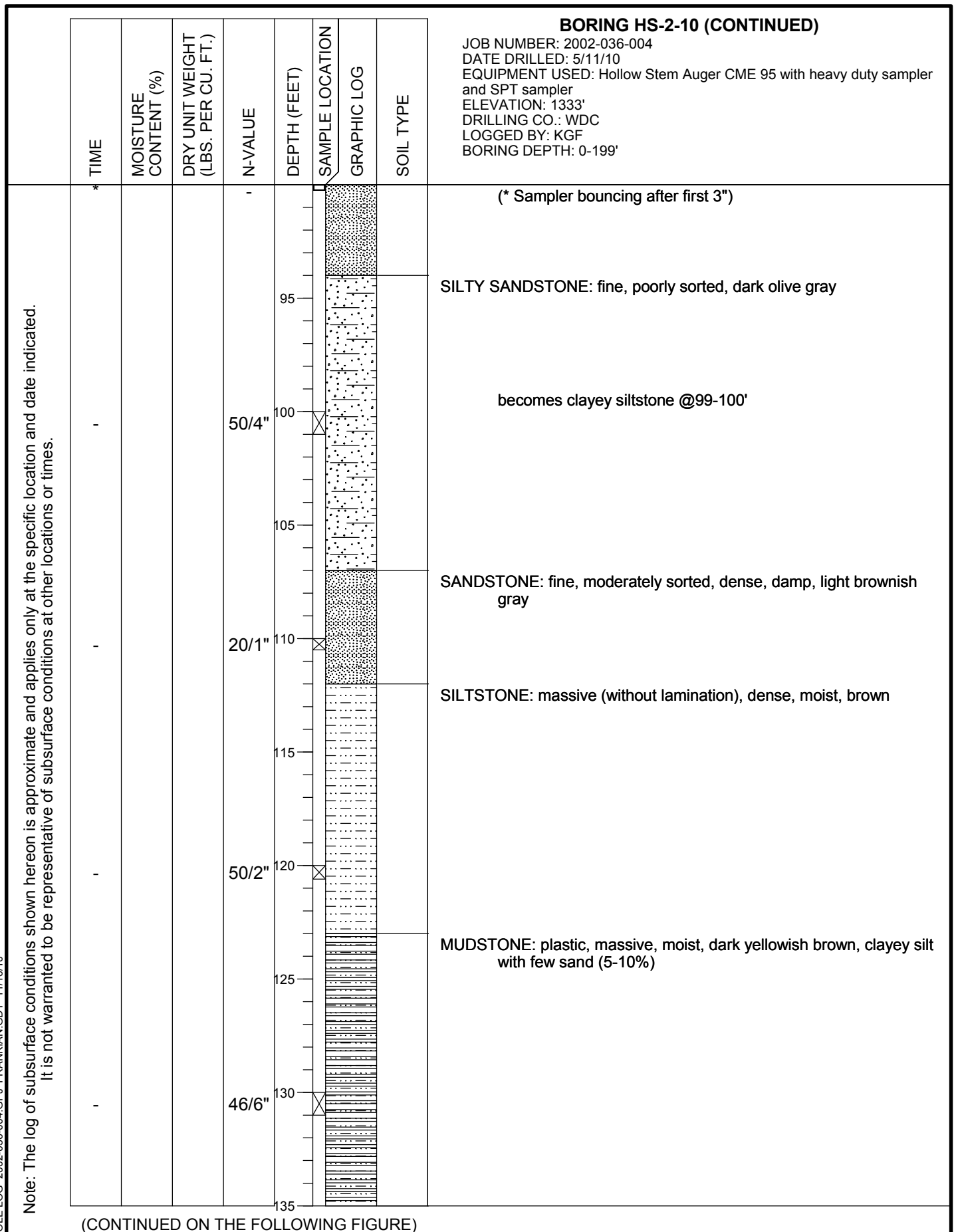
LOG OF BORING



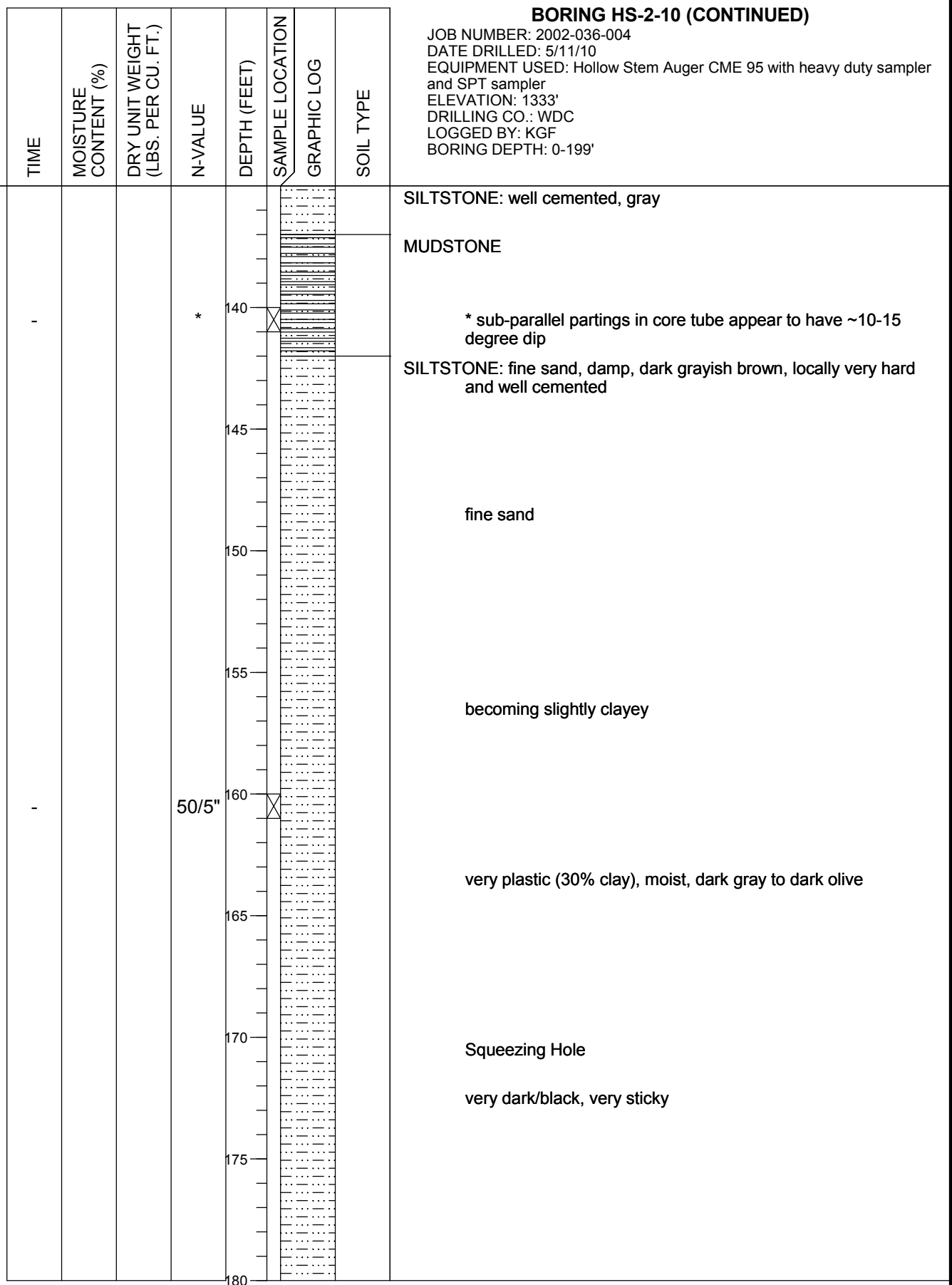
LOG OF BORING



LOG OF BORING

**LOG OF BORING**

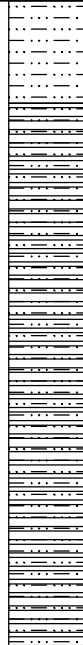
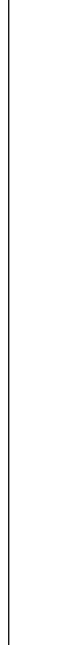
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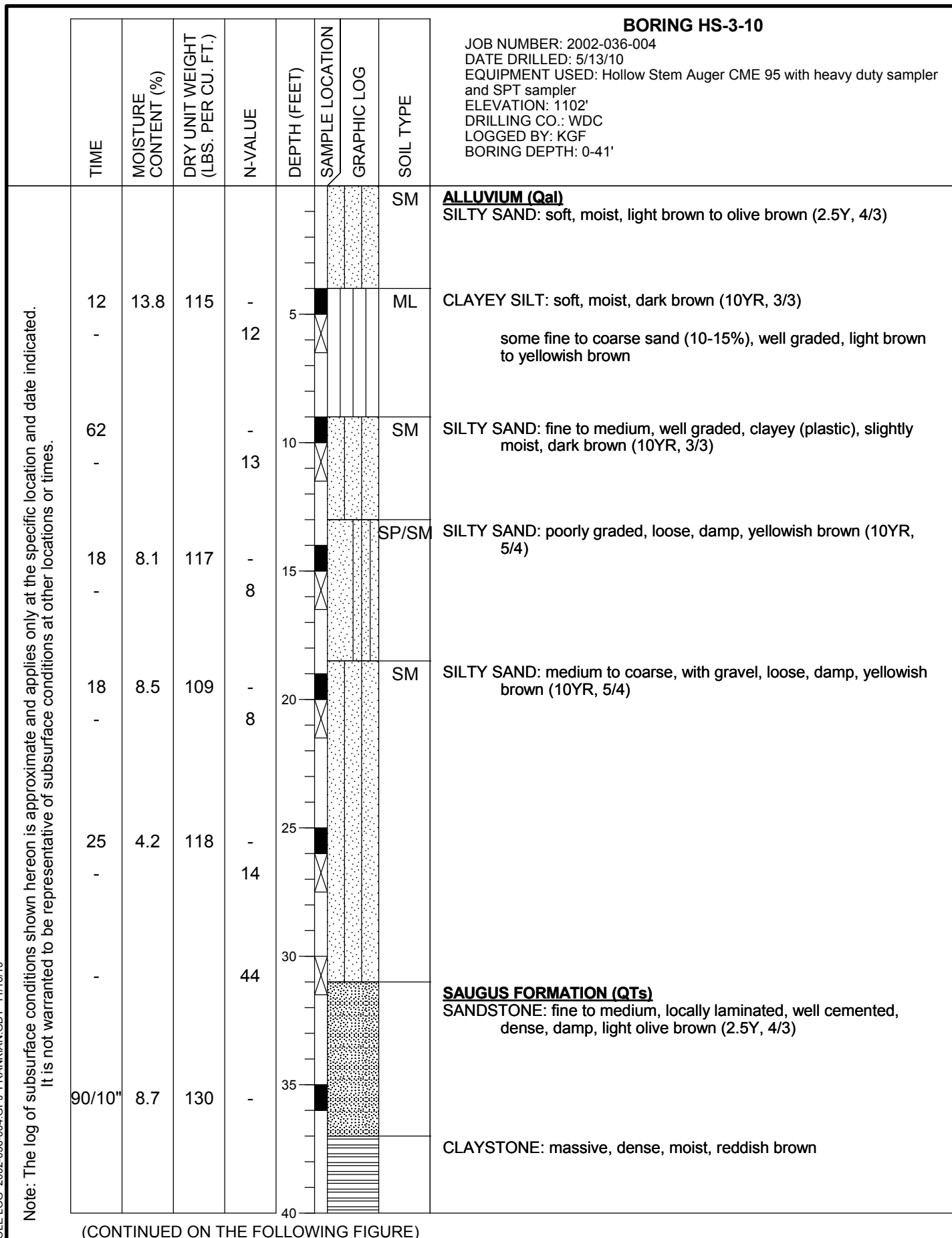
(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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BORING HS-2-10 (CONTINUED)						
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				185		dark olive
				190		MUDSTONE: fine to medium sand, trace clayey silt, olive gray
				195		slight increase in sand content, but still clayey silt matrix
				200		Bottom of Boring at 199 feet. No groundwater in boring or in temporary piezometer monitored 5/17/10 to 6/25/10.
				205		Installed temporary piezometer of 2" schedule 80 PVC with bottom at 190'; 0.020" machine-slotted screen from 190-180'; blank PVC to surface. Backfilled with #3 sand up to 178', and sealed with medium bentonite chips to 176'. Destroyed piezometer on July 14, 2010 by removing PVC casing and backfilling to surface with cement grout and 5% bentonite.
				210		
				215		
				220		
				225		

LOG OF BORING

**LOG OF BORING**

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
75/6"	6.8	120	-					
								Bottom of Boring at 41 feet. No groundwater. No caving.
				45				
				50				
				55				
				60				
				65				
				70				
				75				
				80				

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

							BORING HS-4-10		
							JOB NUMBER: 2002-036-004 DATE DRILLED: 5/14/10 EQUIPMENT USED: Hollow Stem Auger CME 95 with heavy duty sampler and SPT sampler ELEVATION: 1099' DRILLING CO.: WDC LOGGED BY: KGF BORING DEPTH: 0-41.5'		
TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE		
-	53/10"	10.8	119	19			SM	ALLUVIUM (Qal)	
-				-			ML	SILTY SAND: fine to medium with few coarse, localized gravel, dry to damp, light olive brown (2.5Y, 5/3)	
-	-	-	-	45					
-	-	-	-	27			SM	SILTY SAND: fine to medium, moderately well graded, slightly moist, light olive brown (2.5Y, 5/3)	
55	8.7	125	-	15				increase in fines	
-	-	-	-	30				becomes dark brown brown (10YR, 4/3)	
-	-	-	-	20					
20	5.8	112	-	25				with gravel (5%)	
-	-	-	-	16					
-	-	-	-	30			SP/SM	SILTY SAND: fine, poorly graded, damp, light yellowish brown (10YR, 6/4)	
47	11.4	108	-	35				SAUGUS FORMATION (QTs)	
				40				SILTSTONE: massive, poorly indurated (soft), damp, light olive gray (5Y, 6/2)	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

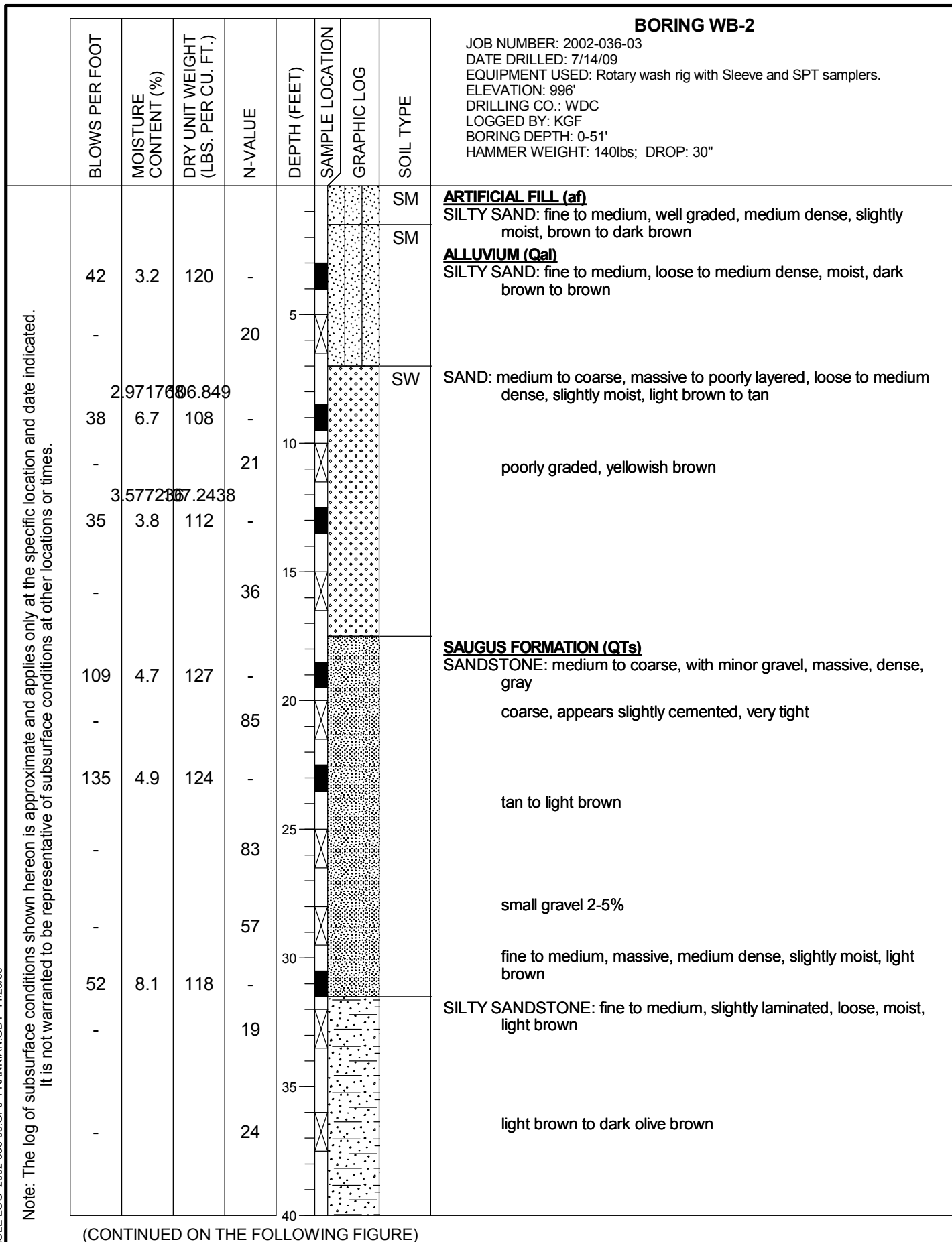
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	BORING HS-4-10 (CONTINUED) JOB NUMBER: 2002-036-004 DATE DRILLED: 5/14/10 EQUIPMENT USED: Hollow Stem Auger CME 95 with heavy duty sampler and SPT sampler ELEVATION: 1099' DRILLING CO.: WDC LOGGED BY: KGF BORING DEPTH: 0-41.5'
-			55		X			
				45				Bottom of Boring at 41.5 feet. No groundwater. No caving.
				50				
				55				
				60				
				65				
				70				
				75				
				80				

LOG OF BORING

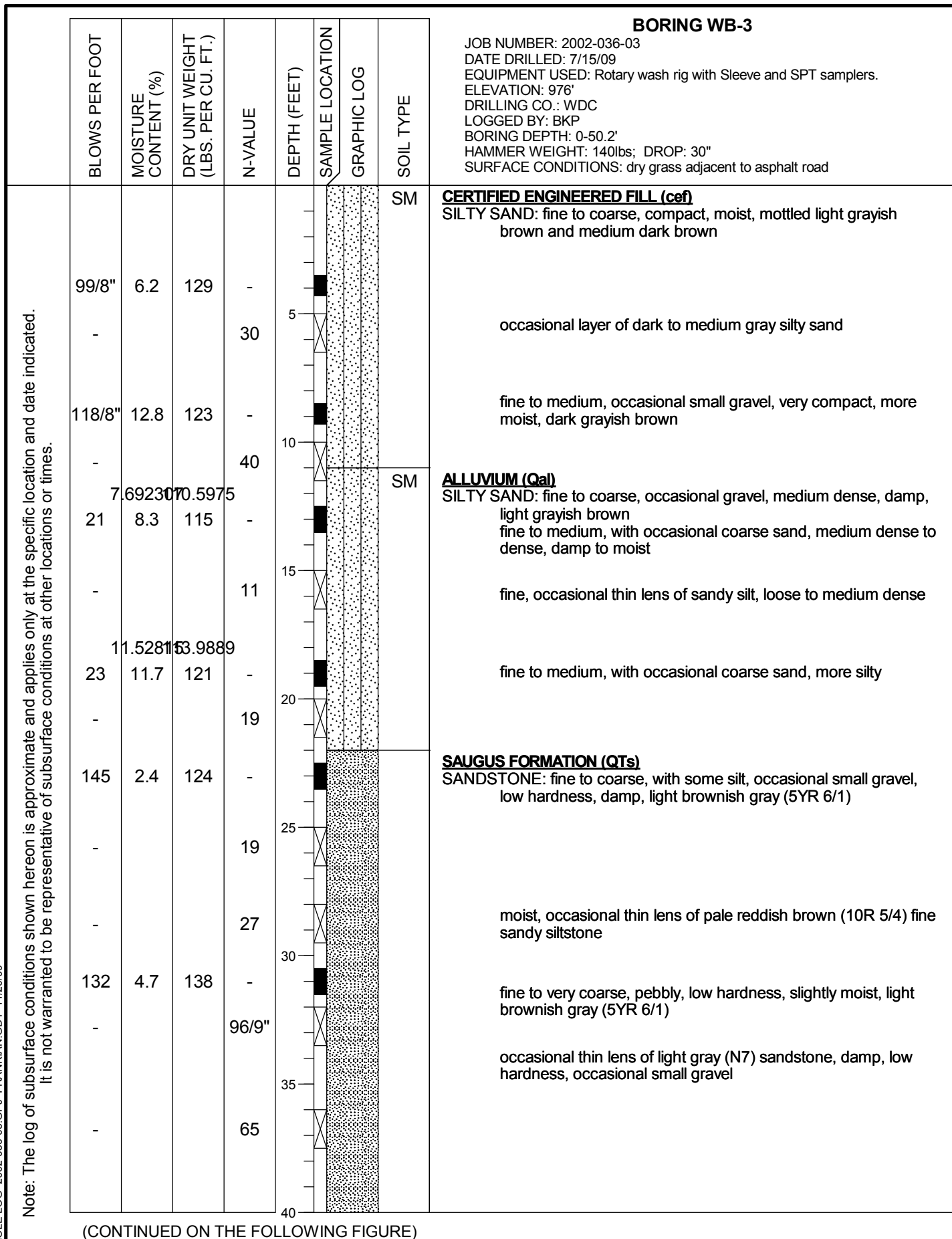
							BORING WB-1	
							JOB NUMBER: 2002-036-03 DATE DRILLED: 7/13/09 EQUIPMENT USED: Rotary wash rig with Sleeve and SPT samplers. ELEVATION: 1000' DRILLING CO.: WDC LOGGED BY: KGF BORING DEPTH: 0-21.5' HAMMER WEIGHT: 140lbs; DROP: 30"	
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.	61	9.2	116	-			SM	ARTIFICIAL FILL (af) SILTY SAND: fine to medium, well graded, dense, slightly moist, dark brown
	-			23	5			minor inert debris (glass & concrete)
	28	14.6	109	-				minor concrete, moist
	-			12	10		SP	ALLUVIUM (Qal) SAND: medium, poorly graded, loose, slightly moist, light brown to grayish brown
	102	11	119	-				SAUGUS FORMATION (QTs) SANDSTONE: coarse, with gravel, dense, damp to slightly moist, tan to gray
	-			63	15			medium to coarse, silty, slightly moist, light brown to tan
	13.011	120.0294						
	119	11.6	119	-				medium, light brown to reddish brown
	-			44	20			
					25			Bottom of Boring at 21.5 feet.
					30			
					35			
					40			

LOG OF BORING

**LOG OF BORING**

							BORING WB-2 (CONTINUED)	
							JOB NUMBER: 2002-036-03 DATE DRILLED: 7/14/09 EQUIPMENT USED: Rotary wash rig with Sleeve and SPT samplers. ELEVATION: 996' DRILLING CO.: WDC LOGGED BY: KGF BORING DEPTH: 0-51' HAMMER WEIGHT: 140lbs; DROP: 30"	
	BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE	
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.	-			20				
	-			100/12"	45			SANDSTONE: coarse, with gravel (5%), massive, low hardness, slightly moist, grayish orange (10YR 7/4) to light gray (N7)
	-			100/12"	50			poorly bedded, light brown to tan, bedding observed (distorted) in sampler at about 25 to 35 degree dip
	175/8"	10	124	-				Bottom of Boring at 51 feet.
					55			
					60			
					65			
					70			
					75			
					80			

LOG OF BORING



LOG OF BORING

BORING WB-3 (CONTINUED)						
JOB NUMBER: 2002-036-03 DATE DRILLED: 7/15/09 EQUIPMENT USED: Rotary wash rig with Sleeve and SPT samplers. ELEVATION: 976' DRILLING CO.: WDC LOGGED BY: BKP BORING DEPTH: 0-50.2' HAMMER WEIGHT: 140lbs; DROP: 30" SURFACE CONDITIONS: dry grass adjacent to asphalt road						
BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	SOIL TYPE
-	-	-	84	45		fine to coarse, slightly silty, damp to moist, light gray (N7) to medium brownish gray (5YR 6/1)
-	-	-	22	45		SANDY SILTSTONE: fine, soft to low hardness, moist, pale reddish brown (10R 5/4)
-	-	-	96	50		SILTSTONE: low hardness, moist, light gray (N7) to medium light gray (N5)
100/2"	-	-	-	50		Bottom of Boring at 50.2 feet.
				55		
				60		
				65		
				70		
				75		
				80		

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

							BORING SW-30	
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	JOB NUMBER: 2004-001-092 DATE DRILLED: 3/18/10 EQUIPMENT USED: 24" Solid Stem Auger ELEVATION: 1212' DRILLING CO.: SCS Engineers LOGGED BY: PC/TC BORING DEPTH: 0-98'
				5			ML	SANDY SILTY: some fine sands, low plasticity, moist, olive brown (5Y 5/6)
				10				
				15				
				20			SM	SILTY SAND: fine, some fine silt, medium dense, moist, yellowish gray (5Y 7/2)
				25				
				30			SP	SAND: very fine to fine, little medium sand, moist, yellowish gray (5Y 7/2)
				35				little medium to coarse, few gravels and cobbles
				40				

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

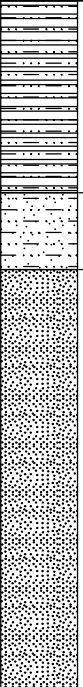
Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING SW-30 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
						SP
				45		GRAVELLY SANDSTONE: very fine to coarse, moist, yellowish gray (5Y 7/2)
				50		SANDSTONE: fine to medium, some coarse sand, few gravels and cobbles, yellowish gray (5Y 7/2)
				55		SILTY SANDSTONE: very fine to fine, little medium sand, little silt, moist, light olive gray (5Y 5/2)
				60		finer, little silt
				65		SANDY SILTSTONE: little fine sand, moist, light olive gray (5Y 5/2)
				70		with mudstone interbeds, light olive brown (5Y 5/6)
				75		SILTY SANDSTONE: fine, little silt, moist, light olive gray (5Y 5/2)
						SANDY SILTSTONE: little fine sand, light olive gray (5Y 5/2)
						MUDSTONE: little silt, micaceous, massive, moist, Olive gray (5Y 3/2), (no laminations)
				80		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING SW-30 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				85		SANDY SILTSTONE: fine to medium, moist, dusky yellow (5Y 6/4) SANDSTONE: fine to medium, few gravels and cobbles, moist, yellowish gray (5Y 7/2)
				100		Bottom of Boring at 98 feet. Target depth reached. No groundwater.
				105		
				110		
				115		
				120		

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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						BORING SW-32	
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				5			ML
				10			SANDY SILT
				15			
				20			
				25			
				30			SANDY SILTSTONE: light olive brown (5Y 5/6)
				35			more fine sands, yellowish gray
				40			SILTY SANDSTONE: fine with little medium grained sand, some silt

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

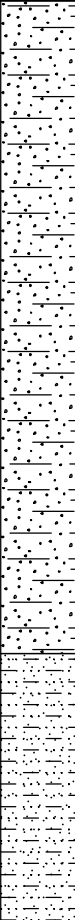

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING SW-32 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				45		and siltstone fragments, moist
				50		more fine sands, some silt
				55		SANDY SILTSTONE: some fine sand, moist, light olive gray (5Y 5/2)
				60		SILTY SANDSTONE: dusky yellow (5Y 6/4)
				65		
				70		
				75		fine to medium, little silt, minor oxidation, light olive brown (5Y 5/6)
				80		

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING SW-32 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				85		more medium to coarse sands, few gravels
				90		
				95		large gravels and cobbles
				100		SANDY SILTSTONE: fine to medium, moist, light olive brown (5Y 5/6)
				105		more fine sands Bottom of Boring at 104 feet. Target depth reached. No groundwater.
				110		
				115		
				120		

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING SW-71						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
						JOB NUMBER: 2004-001-092 DATE DRILLED: EQUIPMENT USED: 24" Solid Stem Auger ELEVATION: 1129.46' DRILLING CO.: SCS Engineers LOGGED BY: PC BORING DEPTH: 0-86'
				5		SILTY SAND: fine to medium, moist, light olive brown (5Y 5/6)
				10		more medium sand
				15		
				20		SANDY SILTSTONE: fine, dense, moist, dark yellowish brown (10YR 4/2)
				25		SANDSTONE: fine, little silt, friable, moist, light olive brown (5Y 5/6)
				30		SANDY SILTSTONE: fine, medium dense to dense, moist, light olive brown (5Y 5/6)
				35		more fine to medium sands, moderate yellowish brown (10YR 5/4)
						dense, siltstone/mudstone
				40		SANDSTONE: fine, little medium to coarse sands and gravels, moist, dusky yellow (5Y 6/4)

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE
				45			
				50			
				55			
				60			
				65			
				70			
				75			
				80			

BORING SW-71 (CONTINUED)

JOB NUMBER: 2004-001-092
DATE DRILLED:
EQUIPMENT USED: 24" Solid Stem Auger
ELEVATION: 1129.46'
DRILLING CO.: SCS Engineers
LOGGED BY: PC
BORING DEPTH: 0-86'

some gravels

less gravels, mostly fine sands

few gravels and cobbles

slightly more fines, massive

more silt, light olive brown (5Y 5/6)

mostly fine to coarse sand and gravels
few mudstone fragments, (claystone?)

well cemented, slow drilling?

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
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							BORING SW-71 (CONTINUED)		
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	JOB NUMBER: 2004-001-092 DATE DRILLED: EQUIPMENT USED: 24" Solid Stem Auger ELEVATION: 1129.46' DRILLING CO.: SCS Engineers LOGGED BY: PC BORING DEPTH: 0-86'	
				85				driller says the hole is caving in	
								CLAYSTONE: with fine to medium sands, hard, moist, moderate olive brown (5Y 4/4), (mixed in with caving sands from above?)	
				90				Bottom of Boring at 86 feet. Target depth reached. Gas well installed per SCS	
				95					
				100					
				105					
				110					
				115					
				120					

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

						BORING SW-72		
						JOB NUMBER: 2004-001-092 DATE DRILLED: 3/24/10 EQUIPMENT USED: 24" Solid Stem Auger ELEVATION: 1220.24' DRILLING CO.: SCS Engineers LOGGED BY: PC BORING DEPTH: 0-83'		
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE		
							FILL: water line damaged	
				5		SP	SAND: fine, some medium sands, loose to medium dense, moist	
				10			SILTSTONE: little sand, dense, moist, light olive gray (5Y 5/2)	
				15				
				20			SANDSTONE: fine to medium, some coarse sand with gravels, little silt, medium dense, moist, pale olive (10Y 6/2)	
				25			SANDY SILTSTONE: some fine sands, medium dense, moist, light olive brown (5Y 5/6)	
				30				
				35			mixed with moderate olive brown (5Y 4/4) hard siltstone fragments	
				40			SILTSTONE: little fine sand, dense to very dense, moist, moderate olive brown (5Y 4/4)	

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated.
It is not warranted to be representative of subsurface conditions at other locations or times.

BORING SW-72 (CONTINUED)						
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION GRAPHIC LOG	SOIL TYPE
				45		more fine sands
						little fine sands, dark yellowish brown (10YR 4/2)
				50		SANDY SILTSTONE: some fine sands, medium dense to dense, moist, light olive brown (5Y 5/6)
						more fine to medium sands, little coarse sand, moderate yellowish brown (10YR 5/4)
				55		SILTY SANDSTONE: fine to medium, some coarse sand and little gravels, medium dense, moist, light olive gray (5Y 5/2)
				60		SANDSTONE: fine to medium, some coarse sands and little gravels, little silt, medium dense, moist, yellowish gray (5Y 7/2)
				65		less gravels
				70		SILTY SANDSTONE: fine with some medium sands, few gravels and some silt, medium dense, moist, moderate yellowish brown (10YR 5/4)
				75		GRAVELLY SANDSTONE: fine to medium, some gravels and cobble, medium dense, moist, dusky yellow (5Y 6/4)
						less silt and more gravels
				80		fine to coarse, some gravels with and cobbles, yellowish gray (5Y 7/2) less gravels and cobbles

(CONTINUED ON THE FOLLOWING FIGURE)

LOG OF BORING

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

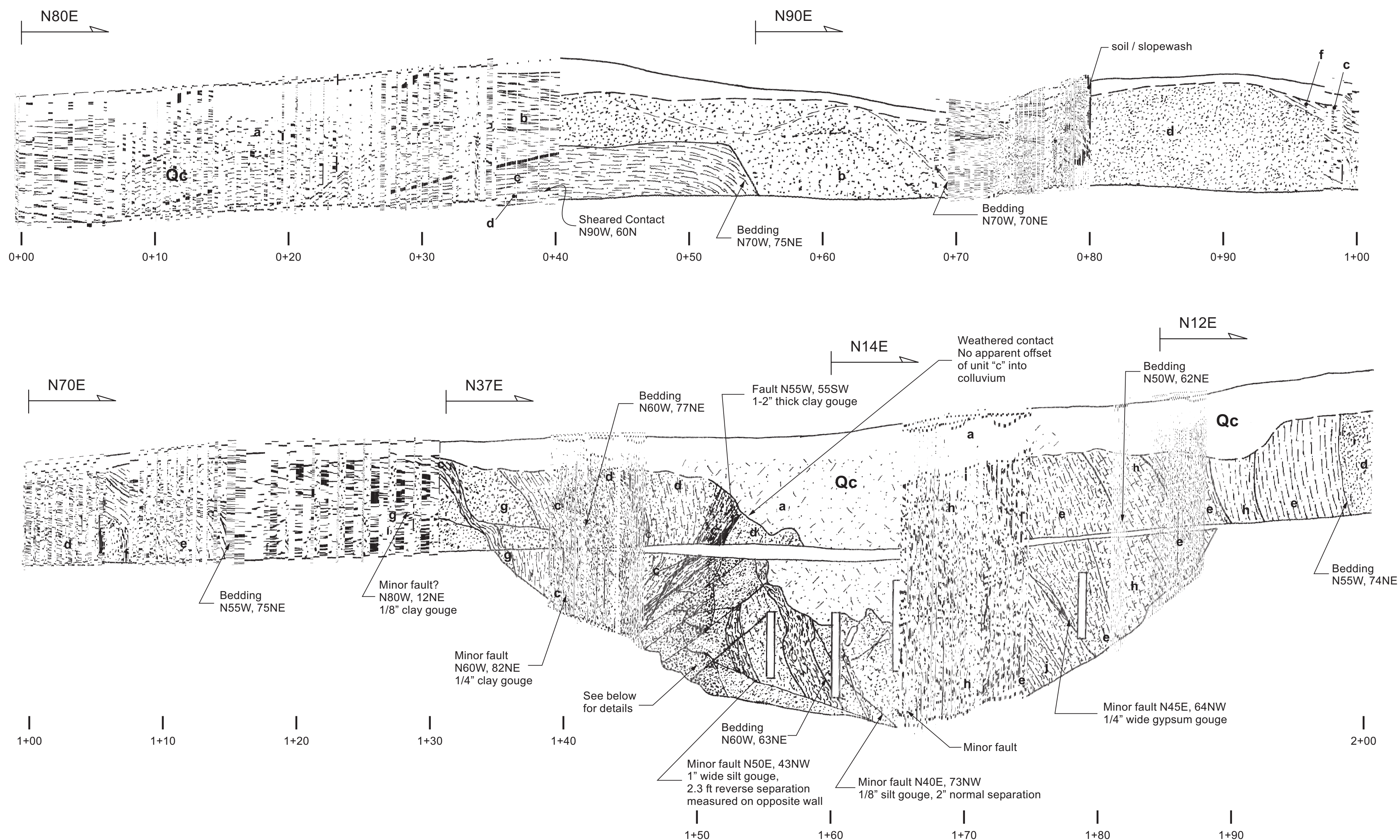
DATE/TIME	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
								<p>BORING SW-72 (CONTINUED)</p> <p>JOB NUMBER: 2004-001-092 DATE DRILLED: 3/24/10 EQUIPMENT USED: 24" Solid Stem Auger ELEVATION: 1220.24' DRILLING CO.: SCS Engineers LOGGED BY: PC BORING DEPTH: 0-83'</p>
								<p>more silt</p> <p>SANDY SILTSTONE SILTY SANDSTONE/: fine to medium sands, some silt, medium dense, moist, light olive gray (5Y 5/2)</p> <p>Bottom of Boring at 83 feet. Target depth reached. Gas well installed per SCS</p>
				85				
				90				
				95				
				100				
				105				
				110				
				115				
				120				

LOG OF BORING

2004-001-092 REPORT DATED

• R.T. FRANKIAN & ASSOCIATES

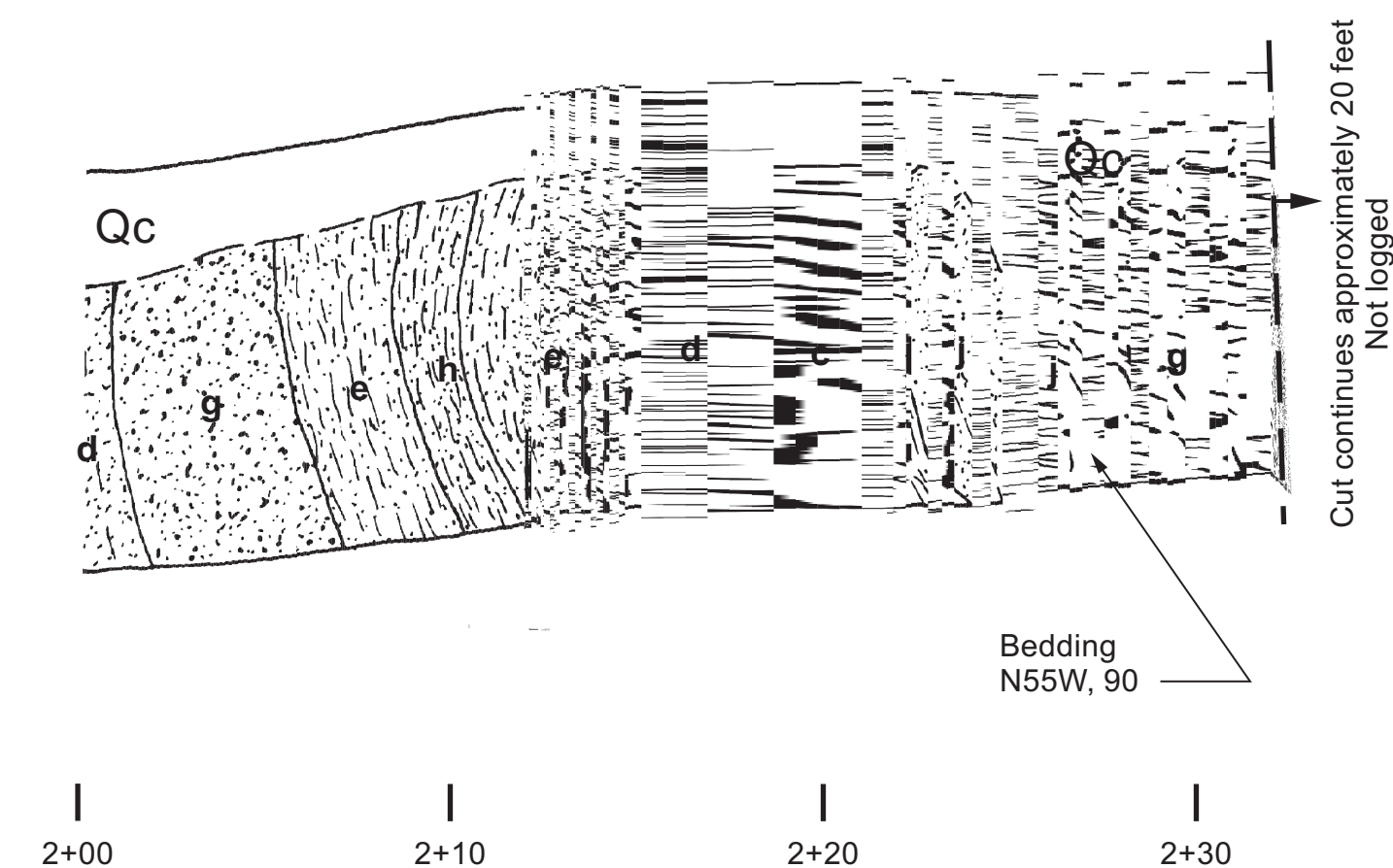
DOZER CUT DC-1



EXPLANATION

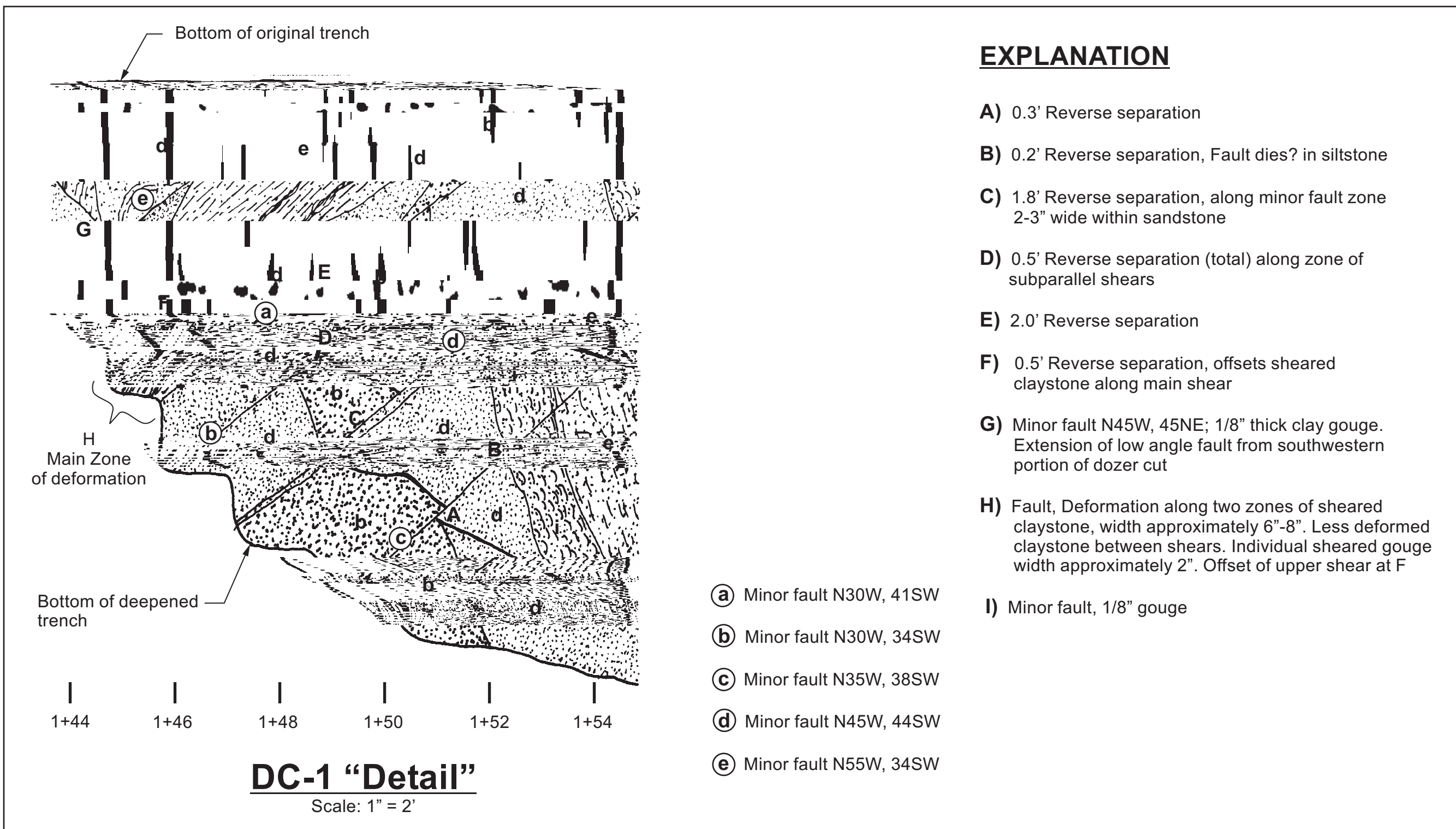
Colluvium/Slopewash (Qc)

- a) Silty sand: pale yellowish brown (10YR 7/2), fine to medium sand with silt, dry, massive, sandstone clasts up to 8" diameter
- b) Sandstone: grayish orange (10YR 7/4), medium to coarse grained, dry, medium hard to loose
- c) Clayey siltstone: moderate brown (5YR 5/4), moderately hard (stiff), moist, hackly fracture
- d) Silty sandstone: pale greenish yellow (10Y 8/2), fine grained sand with silt, moderately hard, moderately cemented, dry, massive
- e) Siltstone: yellowish gray (5Y 7/2), moderately hard, fractured, dry, jarosite staining
- f) Silty claystone: dark yellowish brown (10YR 4/2), moderately hard (stiff), moist, moderately well bedded
- g) Sandstone: very light gray (N8), fine to coarse grained sand, moderately hard, dry, massive to poorly bedded
- h) Siltstone: greenish gray (5GY 6/1), moderately hard, dry to moist, hackly fracture, limey
- i) Siltstone: light brownish gray (5YR 6/1), moderately hard to soft, dry, fossiliferous hash
- j) Sandstone: medium light gray (N6), fine grained sand, dry, moderately hard



EXPLANATION

- A) 0.3' Reverse separation
- B) 0.2' Reverse separation, Fault dies? in siltstone
- C) 1.8' Reverse separation, along minor fault zone 2-3" wide within sandstone
- D) 0.5' Reverse separation (total) along zone of subparallel shears
- E) 2.0' Reverse separation
- F) 0.5' Reverse separation, offsets sheared claystone along main shear
- G) Minor fault N45W, 45NE; 1/8" thick clay gouge. Extension of low angle fault from southwestern portion of dozer cut
- H) Fault, Deformation along two zones of sheared claystone, width approximately 6"-8". Less deformed claystone between shears. Individual sheared gouge width approximately 2". Offset of upper shear at F
- I) Minor fault, 1/8" gouge



DC-1 "Detail"

Scale: 1" = 2'

R.T. FRANKIAN & ASSOCIATES

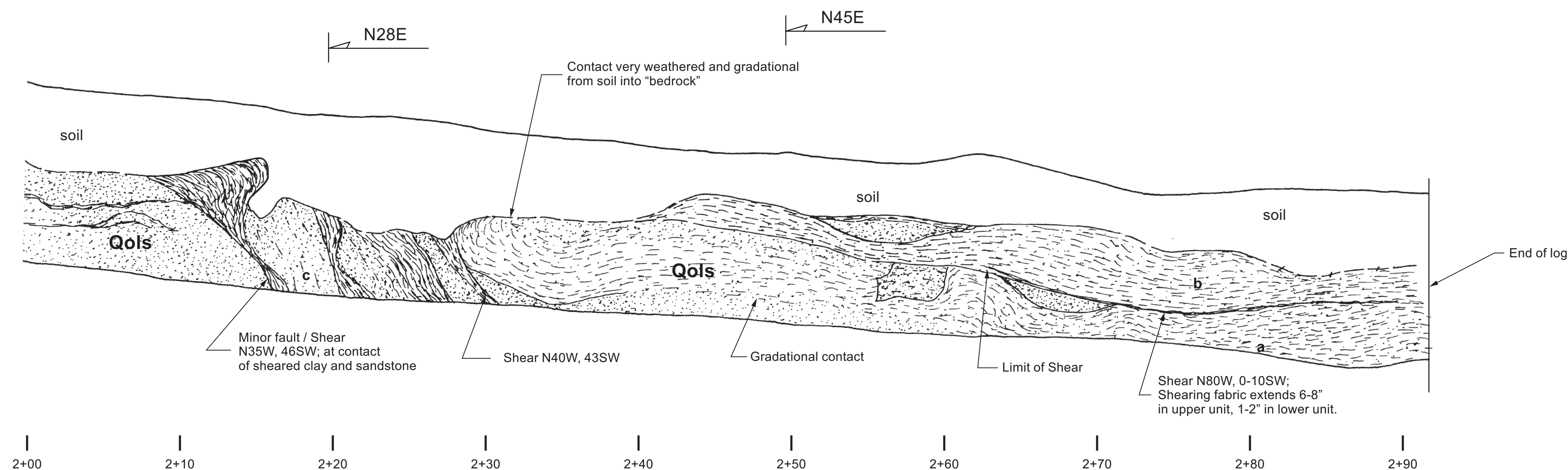
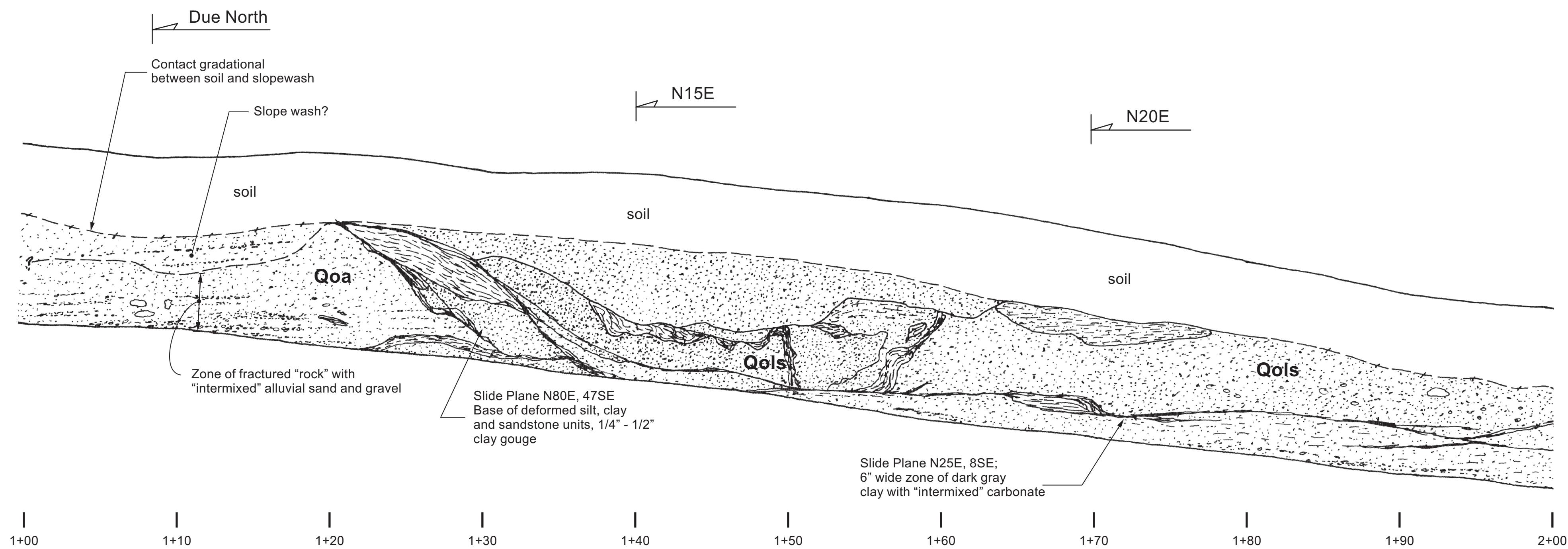
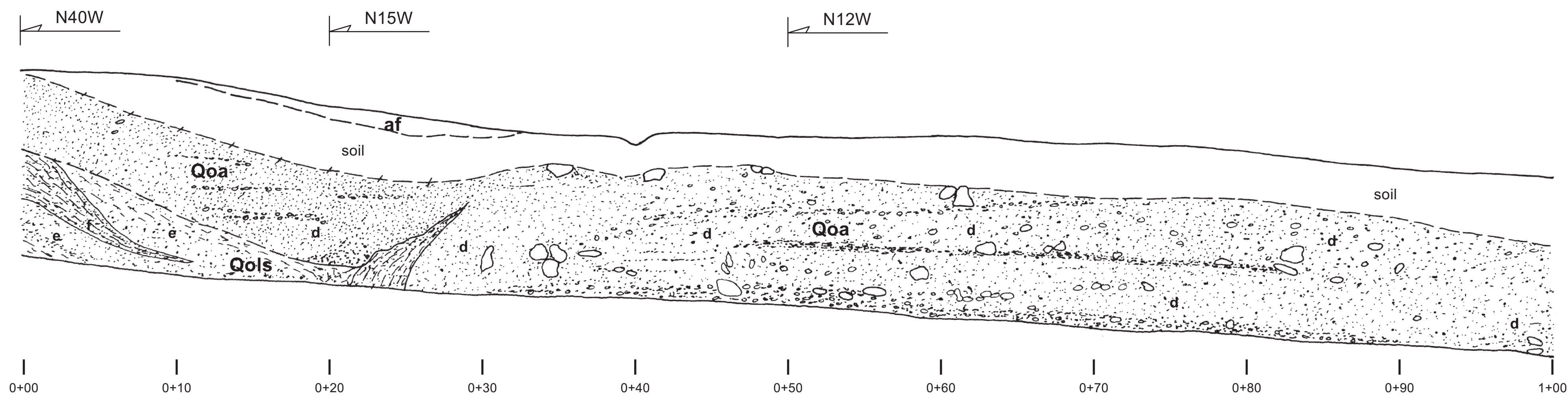
DOZER CUT DC-1

Chiquita Canyon Landfill

Chiquita Canyon Landfill
Valencia, California

SCALE	1" = 5'	DRAWN BY	MN	CHECKED BY	DGF/TMC
DATE	4-11-06	FIGURE	4.1	Job No.	2002-036-01

DOZER CUT DC-2



EXPLANATION

Older Landslide (Qols)

- a) Silty Claystone: moderate yellowish brown (10YR 5/4) stiff, weathered to hackly fracture with polished surfaces, minor amount of carbonate pods near top of unit
- b) Silty Claystone: olive gray (5Y 4/1), stiff, weathered to hackly fracture with polished surfaces, carbonate pods in upper half of unit (minor)
- c) Silty Sandstone: yellowish brown (5Y 8/1), fine grained sand with silt, hard, micaceous, massive bedding
- e) Sandstone: yellowish gray (5Y 8/1), fine to coarse grained sand, loose, poorly cemented
- f) Siltstone: light brown (5Y 6/4), moderately hard, massively bedded, landslide material "e" and "f" derived from Saugus Formation

Older Alluvium (Qoa)

- d) Silty to Pebbly Sand: grayish orangish pink (5YR 7/2), fine to coarse grained sand with silt and pebble interbeds, poorly cemented, poorly bedded, chaotic mix of sandstone and siltstone blocks derived from Saugus Formation

R.T. FRANKIAN & ASSOCIATES

DOZER CUT DC-2

PREPARED FOR

Chiquita Canyon Landfill

Chiquita Canyon Landfill
Valencia, California

SCALE

1" = 5'

DRAWN BY

MN

CHECKED BY

DGF/TMC

DATE

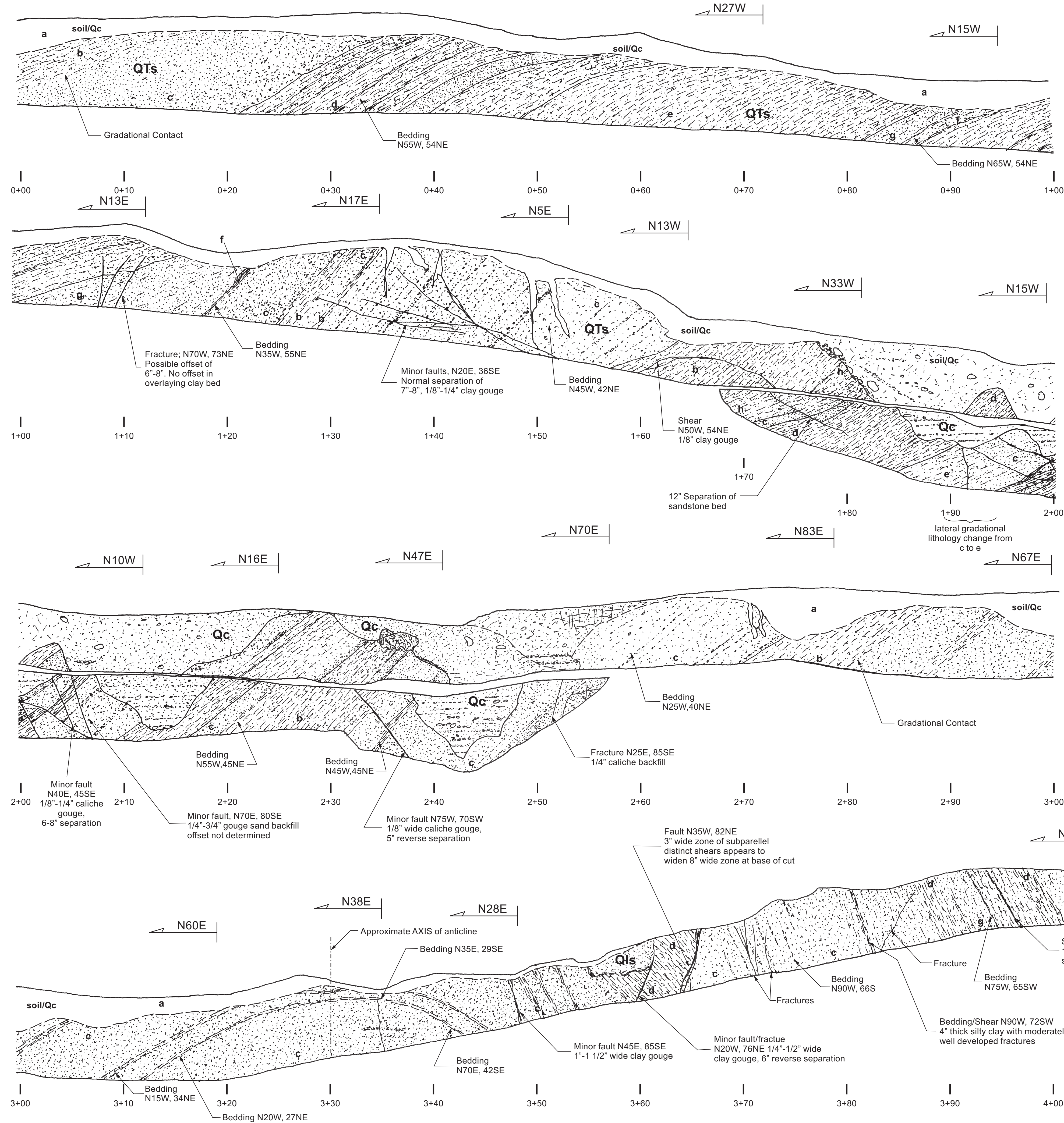
4-11-06

FIGURE 4.2

JOB NO.

2002-036-01

DOZER CUT DC-3



EXPLANATION

Colluvium/Slopewash (Qc)

- a) Sandy silt: moderate yellowish brown (10YR 5/4), fine grained sand with silt, moist, loose

Saugus Formation (QTs)

- b) Sandy siltstone: moderate yellowish brown (10YR 5/4), moderately hard, dry, caliche on fracture surfaces
- c) Sandstone: yellowish gray (5Y 8/1), fine to coarse grained sand with pebbles, moderately hard to soft, dry, poorly bedded
- d) Clayey siltstone: light brown (5YR 6/4) to light brown (5YR 5/6)
- e) Siltstone: yellowish gray (5Y 7/2), siltstone, moderately hard, dry, hackly fracture, weathers to dusky yellow (5Y 6/4)
- f) Claystone: olive black (5Y 2/1), moderately hard (stiff), moist
- g) Silty sandstone: Yellowish gray (5Y 7/2), fine grained, sand with silt soft to moderately hard, dry, poorly bedded to massive
- h) Sandy siltstone: very pale orange (10YR 8/2), silt with fine grained sand, hard to very hard, dry, caliche staining

R.T. FRANKIAN & ASSOCIATES

DOZER CUT DC-3

PREPARED FOR

Chiquita Canyon Landfill

Chiquita Canyon Landfill
Valencia, California

SCALE 1" = 5'

DRAWN BY MN

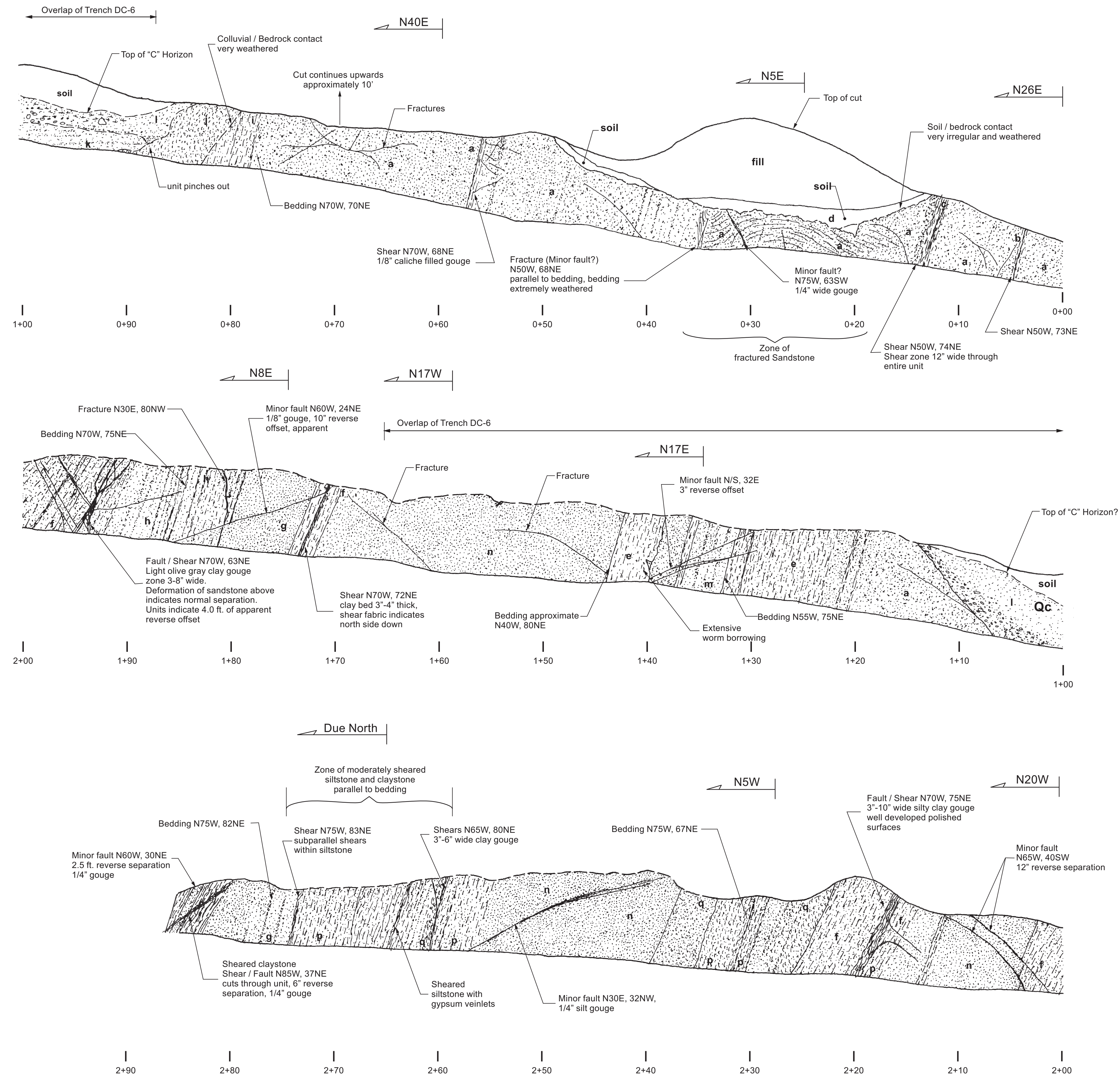
CHECKED BY DGF/TMC

DATE 4-11-06

FIGURE 4.3

JOB No. 2002-036-01

DOZER CUT DC-4



EXPLANATION

Soil/Colluvium

d) Sandy silt (soil): pale yellowish brown (10YR 6/2), silt with fine to coarse sand, loose, dry, massive

j) Sandy silt: grayish orange pink (5YR 7/2), silt with fine sand and fossil fragments, abundant CaCo3 coating, massive (colluvium)

l) Sandy silt: pale yellowish brown (10YR 6/2), silt with fine to coarse sand and pebbles to small cobbles, dry, massive abundant root holes, cobbles composed of unit a material also material derived from unit e

Pico Formation (Tp)

a) Sandstone: yellowish gray (5Y 8/1), fine to coarse grained, poorly bedded, moderately well cemented, hard

b) Siltstone: pale yellowish brown (10YR 6/2) silt with fine grained sand, trace clay, hard, carbonate flecks

c) Claystone: grayish red (10R 4/2), clay with trace silt, carbonate staining

e) Siltstone: moderate yellowish orange (10YR 6/4), silt with trace clay, hard, very minor shearing

f) Siltstone: light olive gray (5Y 5/2), silt with fine sand and interbedded clay, abundant gypsum along bedding

g) Sandstone: yellowish gray (5Y 7/2), fine grained, poorly bedded, moderately well cemented, iron staining

h) Sandstone: light gray (N7), fine to coarse grained sand with silt, well bedded, moderately well cemented

i) Silty sandstone: yellowish gray (5Y 8/1), fine grained sand with silt, moderately well bedded, well cemented, fossiliferous

k) Sand: yellowish gray (5Y 7/2), fine sand with scattered coarse sand to small pebbles, dry, loose

m) Sandstone: yellowish gray (5Y8/1), fine grained, massive, moderately well cemented

n) Sandstone: yellowish gray (5Y8/1), fine grained, massive, moderately well cemented

p) Siltstone: yellowish gray (5Y 7/2), trace clay, hard, fractured

q) Fossiliferous sandstone: yellowish gray (5Y 7/2), fine grained sand with silt, hard, bivalve hash

R.T. FRANKIAN & ASSOCIATES

DOZER CUT DC-4

PREPARED FOR

Chiquita Canyon Landfill

Chiquita Canyon Landfill
Valencia, California

SCALE

1" = 5'

DRAWN BY

MN

CHECKED BY

DGF/TMC

DATE

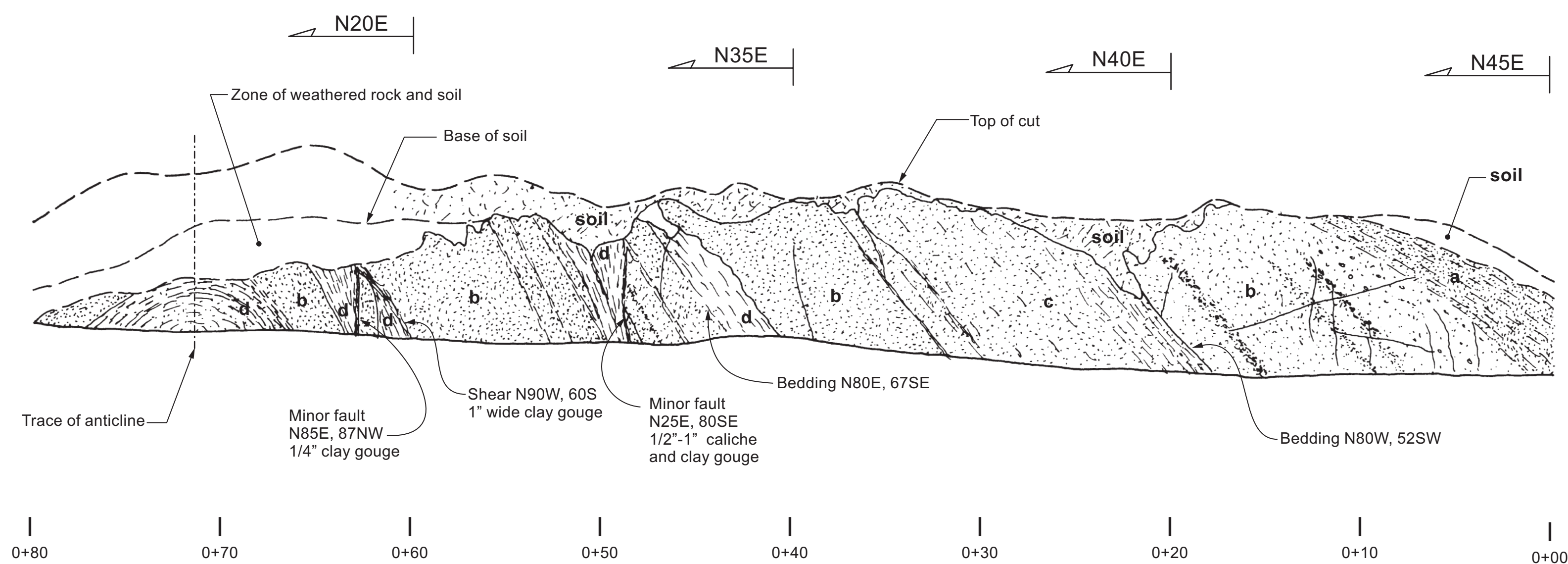
4-11-06

FIGURE 4.4

JOB No.

2002-036-01

DOZER CUT DC-5

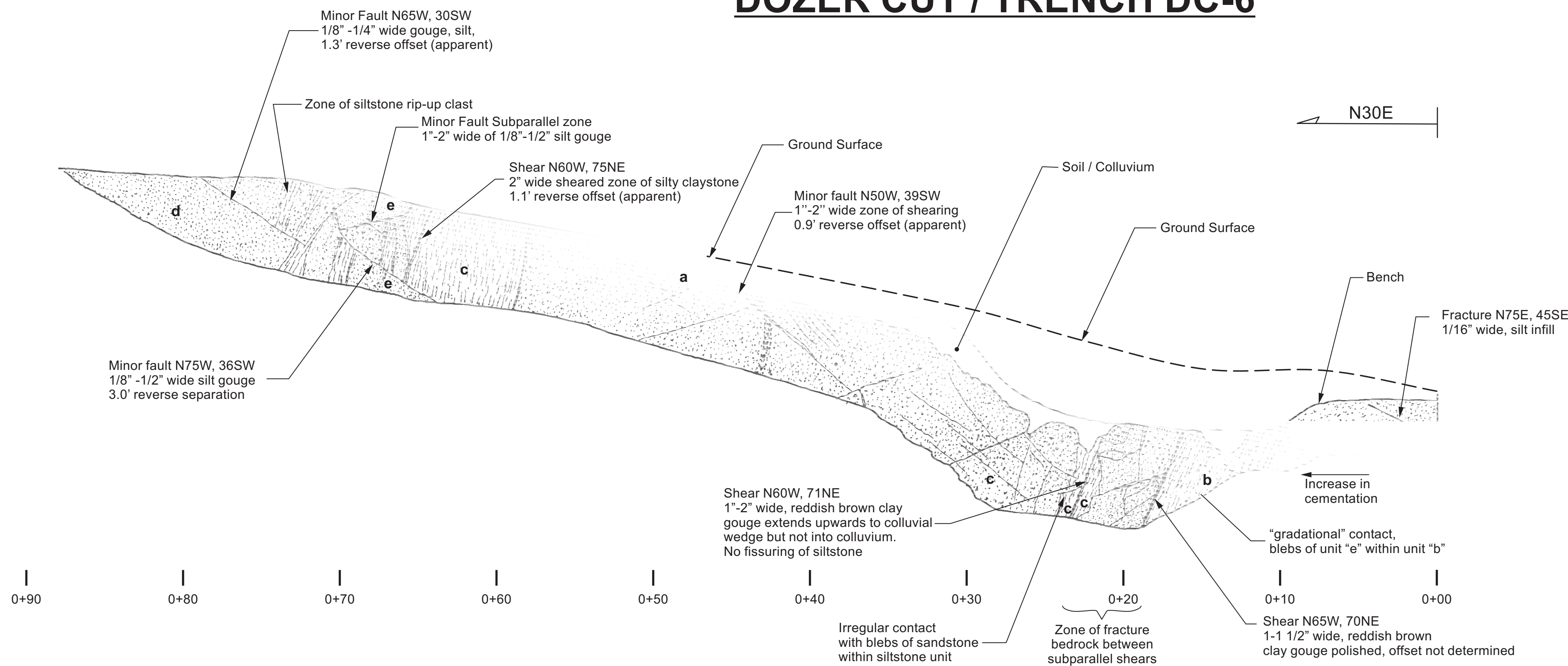


EXPLANATION DC-5

Saugus Formation (QTs)

- a) Clayey sandstone: pale reddish brown (10R 5/4), fine to coarse grained sand with clay, moderately hard, massive
- b) Sandstone: pinkish gray (5YR 8/1), fine to coarse grained sand, well cemented, poorly bedded
- c) Silty sandstone: pale yellowish brown (10YR 6/2), fine to medium grained sand with silt, moderately hard, poorly bedded
- d) Clayey siltstone: dark yellowish brown (10YR 4/2), silt with clay, stiff, hackly fracture

DOZER CUT / TRENCH DC-6



EXPLANATION DC-6

Pico Formation (Tp)

- a) Sandstone: grayish yellow (5Y 8/4), fine to medium grained sand, moderately hard, poorly bedded to massive, FeO staining carbonate cement in places
- b) Silty sandstone: yellowish gray (5Y 7/2), fine grained sand with silt, massive, hard
- c) Clayey siltstone: moderate reddish brown (10 R 4/6), silt with clay, clay content increases upward in unit, hard to stiff, caliche filled fractures
- d) Sandstone: yellowish gray (5Y 8/1), fine grained sand, moderately hard, poorly bedded to massive
- e) Sandstone: grayish orange (10YR 7/4), fine to coarse grained sand, moderately hard, well-bedded, trace pebbles

R.T. FRANKIAN & ASSOCIATES

DOZER CUT DC-5 & DC-6

PREPARED FOR

Chiquita Canyon Landfill

Chiquita Canyon Landfill
Valencia, California

SCALE

1" = 5'

DRAWN BY

MN

CHECKED BY

DGF/TMC

DATE

4-11-06

FIGURE 4.5

Job No.

2002-036-01

LOG OF TEST PIT TP-1

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1200

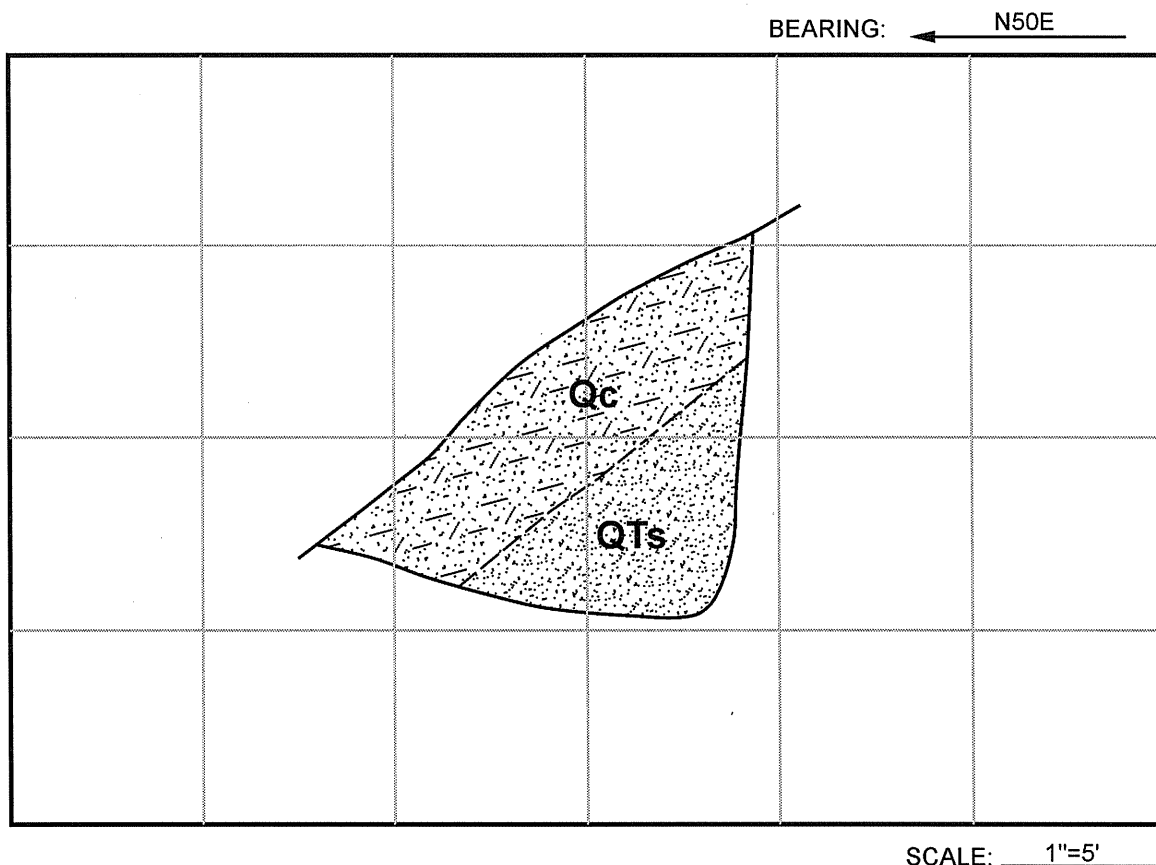
DATE LOGGED 4-2-03

0-4 ft. Colluvium (Qc):

fine to medium-grained silty sand, moderate yellowish brown (10 YR 5/4), loose, moist, massive roots to 3 feet.

4-10 ft. Bedrock? (QTs):

fine-grained sandstone with caliche nodules, grayish orange (10YR 7/4), soft, moist, massive, possible landslide



NOTE:

THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-2

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1220

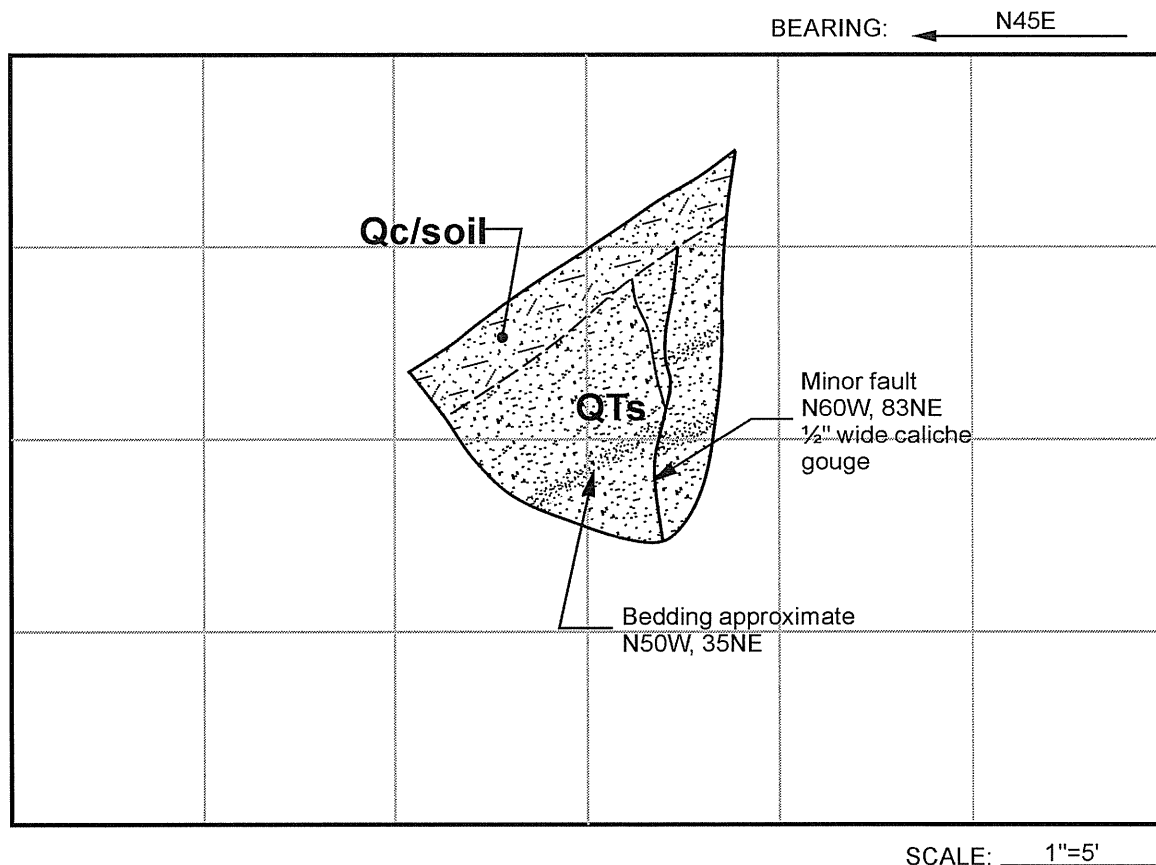
DATE LOGGED 4-2-03

0-1.5 ft. Colluvium/Soil :

fine to medium-grained silty sand, moderate yellowish brown (10 YR 5/4), loose, moist, roots to 1.5 feet.

1.5-10 ft. Bedrock (QTs):

fine to coarse-grained sandstone, yellowish gray (5Y 7/2), hard, moist, poorly bedded.



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-3

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1430

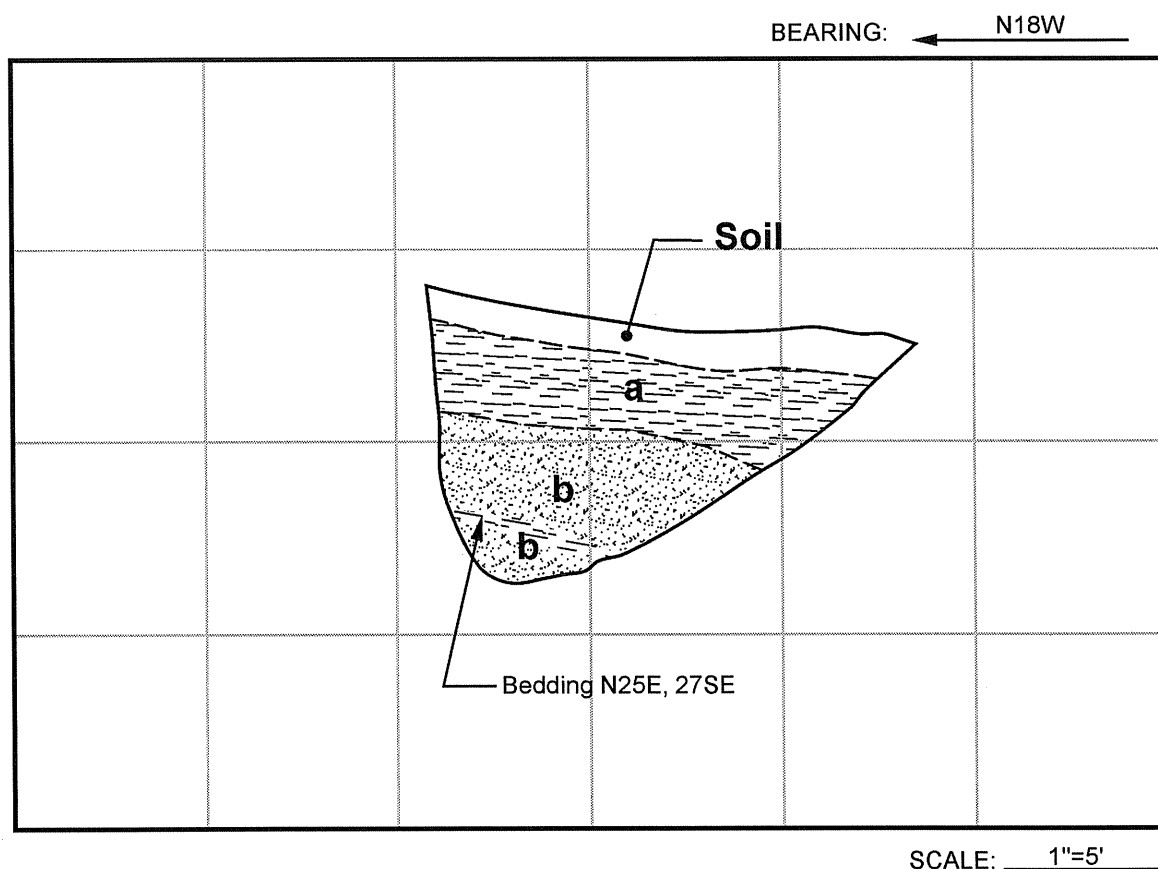
DATE LOGGED 9-29-03

0-0.8 ft. Soil

0.8'-7.5' ft. Bedrock (QTs):

a) silty claystone, light brown (5YR 6/4), stiff to very stiff, dry, caliche pods

b) fine grained sandstone, grayish orange (10YR 7/4), moderately hard, moist



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-4

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1420

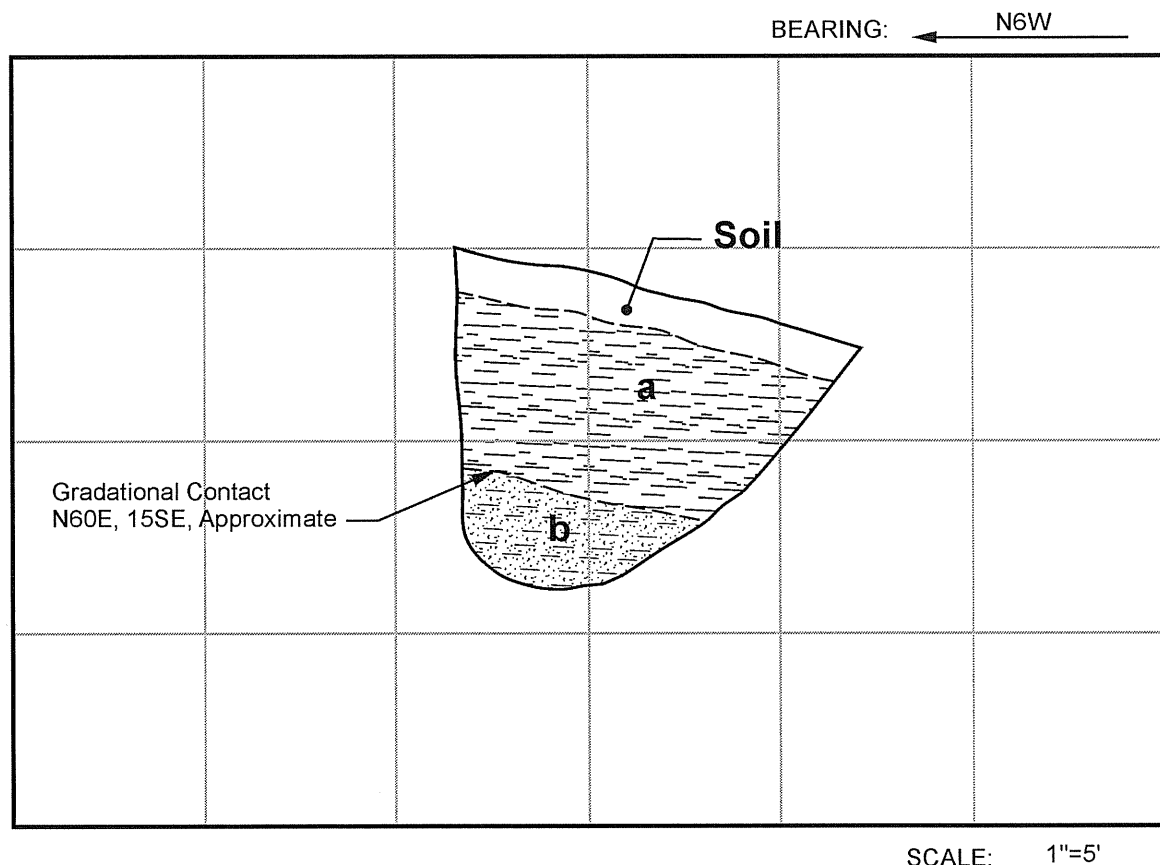
DATE LOGGED 9-29-03

0-1 ft. Soil

1-9 ft. Bedrock (QTs):

a) silty claystone, dark brown (10YR 4/2), stiff, dry, moderately weathered

b) fine grained silty sandstone, moderate yellowish brown(10YR 5/4), hard, moist, abundant caliche stringers and pods



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-5

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

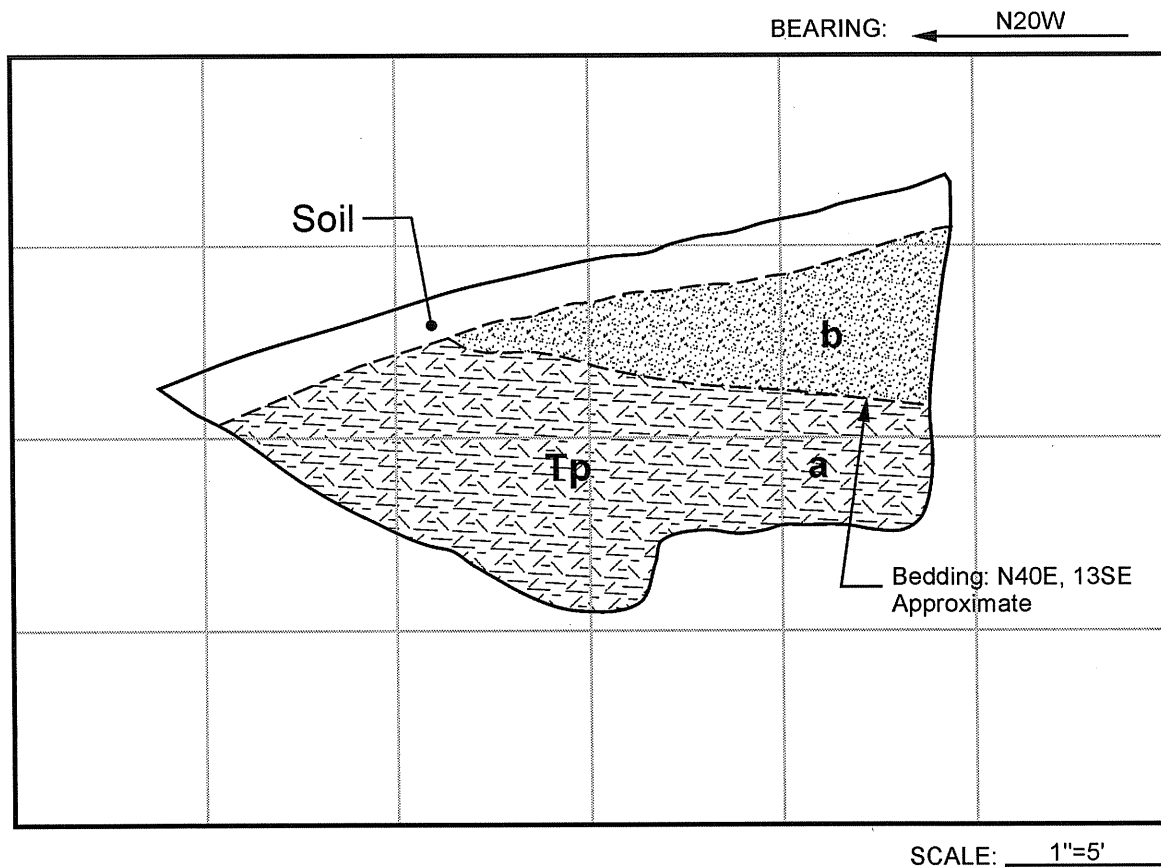
ELEVATION 1410

DATE LOGGED 9-29-03

0-1 ft. Soil

1-9.5 ft. Bedrock (Tp):

- a) sandy siltstone to claystone, dark gray (N3), moderately hard to stiff, moist, bedding massive
- b) fine grained sandstone, moderate yellowish brown (10YR 5/4), soft, dry



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-6

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1175

DATE LOGGED 9-29-03

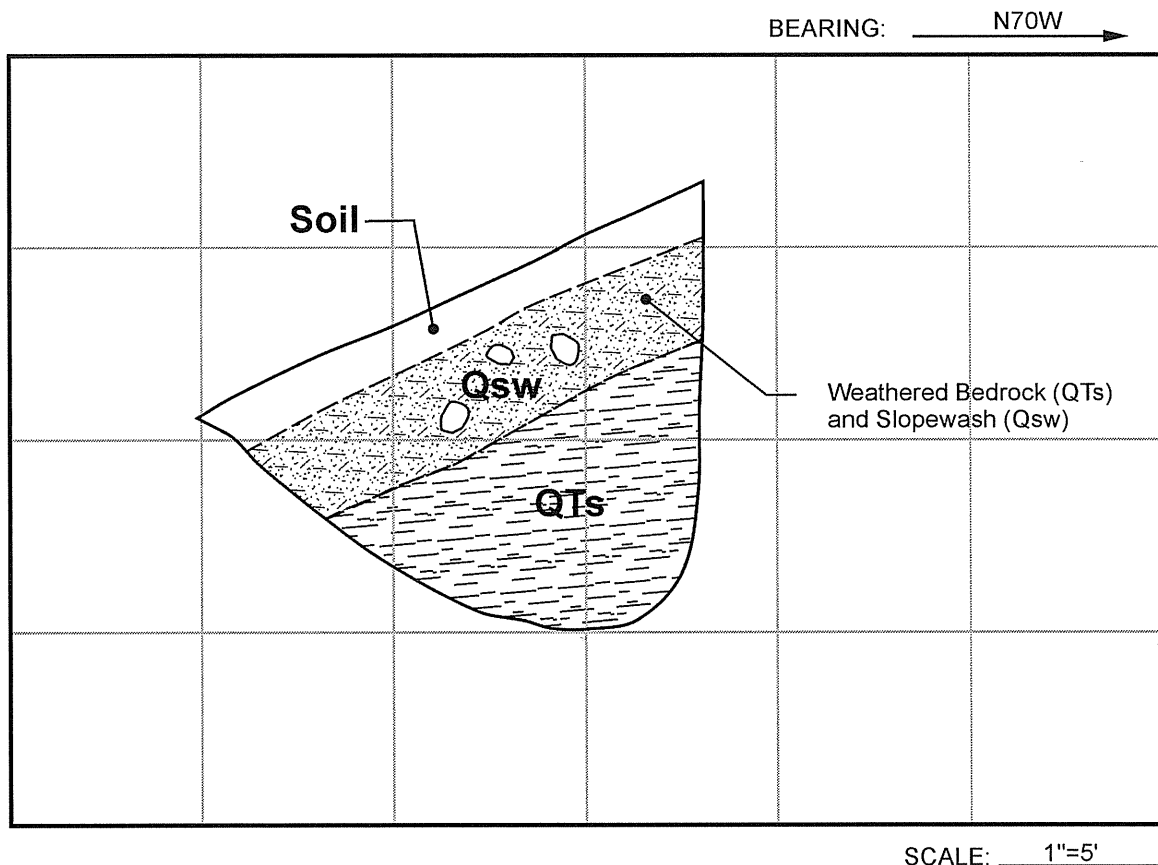
0-1 ft. Soil

1-4 ft. Slopewash (Qsw):

sandy silt with blocks of light gray sandstone, light gray (N7), soft, dry

4-12 ft. Bedrock (QTs):

silty claystone, dark reddish brown (10YR 3/4), hard, moist, massive bedding, hackly fracture to 8 feet



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-7

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

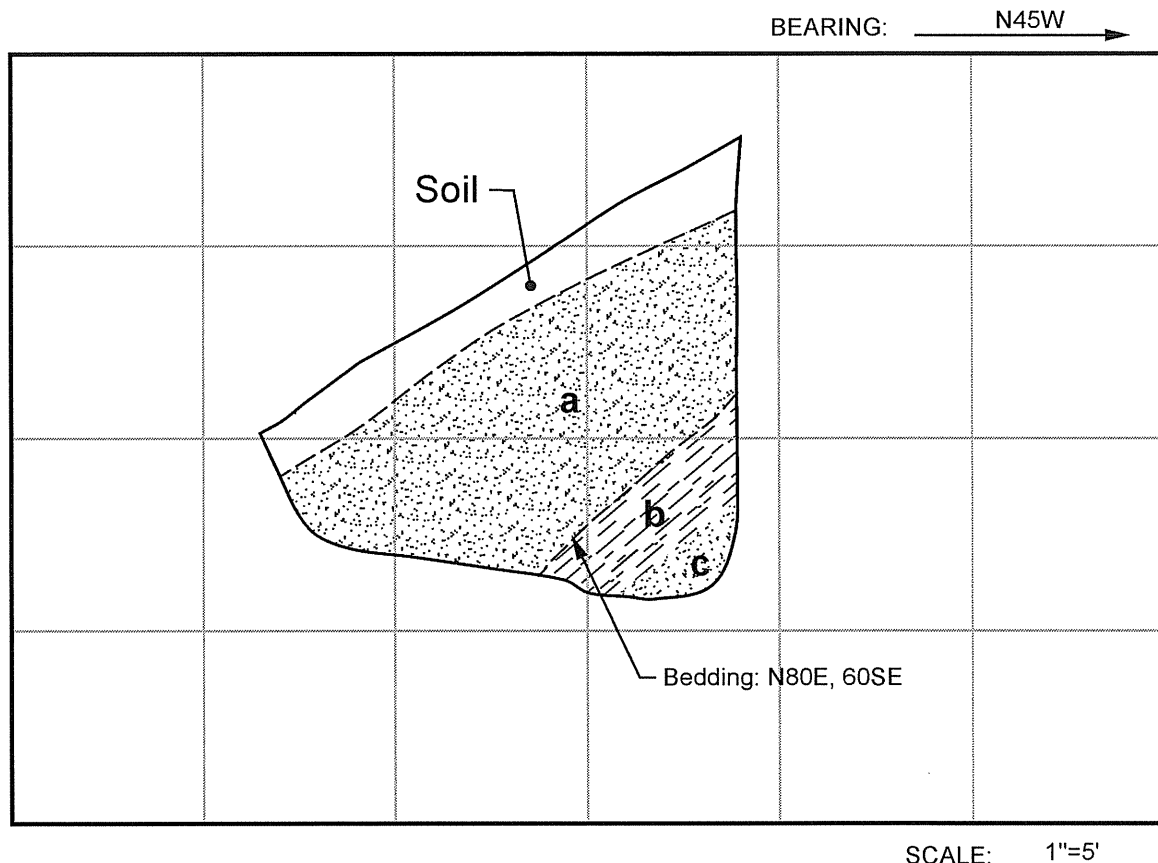
ELEVATION 1180

DATE LOGGED 9-29-03

0-1 ft. Soil

1-11.5 ft. Bedrock (QTs):

- a) fine grained sandstone, lght brownish gray (5YR 6/1), moderately hard, dry
- b) silty claystone, dark yellowish brown (10YR 4/2), stiff to hard, moist, hackly fractured
- c) silty sandstone, dark gray (N3), stiff to hard, moist, fractured



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-8

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

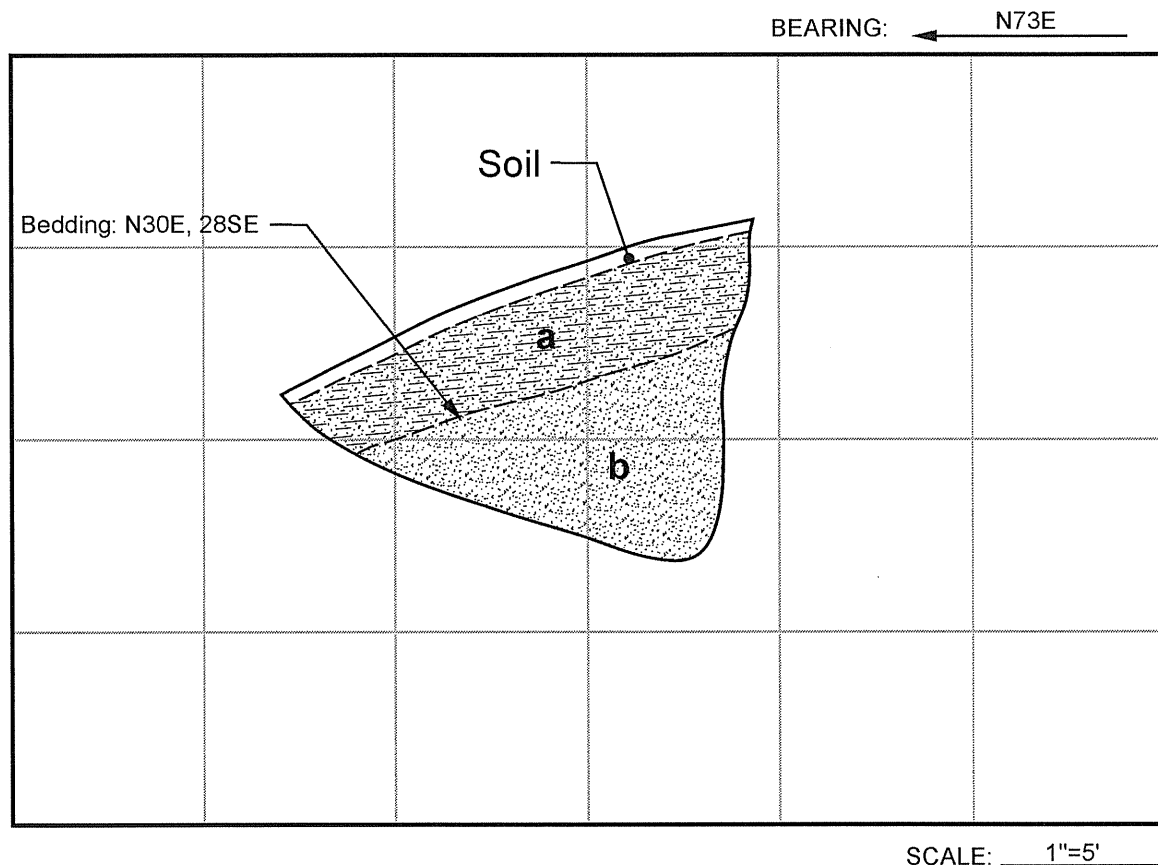
ELEVATION 1145

DATE LOGGED 9-29-03

0-0.5 ft. Soil

0.5-8.5 ft. Bedrock (QTs):

- a) fine to coarse grained clayey sandstone, pale yellowish brown (10YR 6/2), hard, moist
- b) fine to medium grained sandstone, pale yellowish brown (10YR 6/2), moderately hard to soft, dry



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-9

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1135

DATE LOGGED 9-29-03

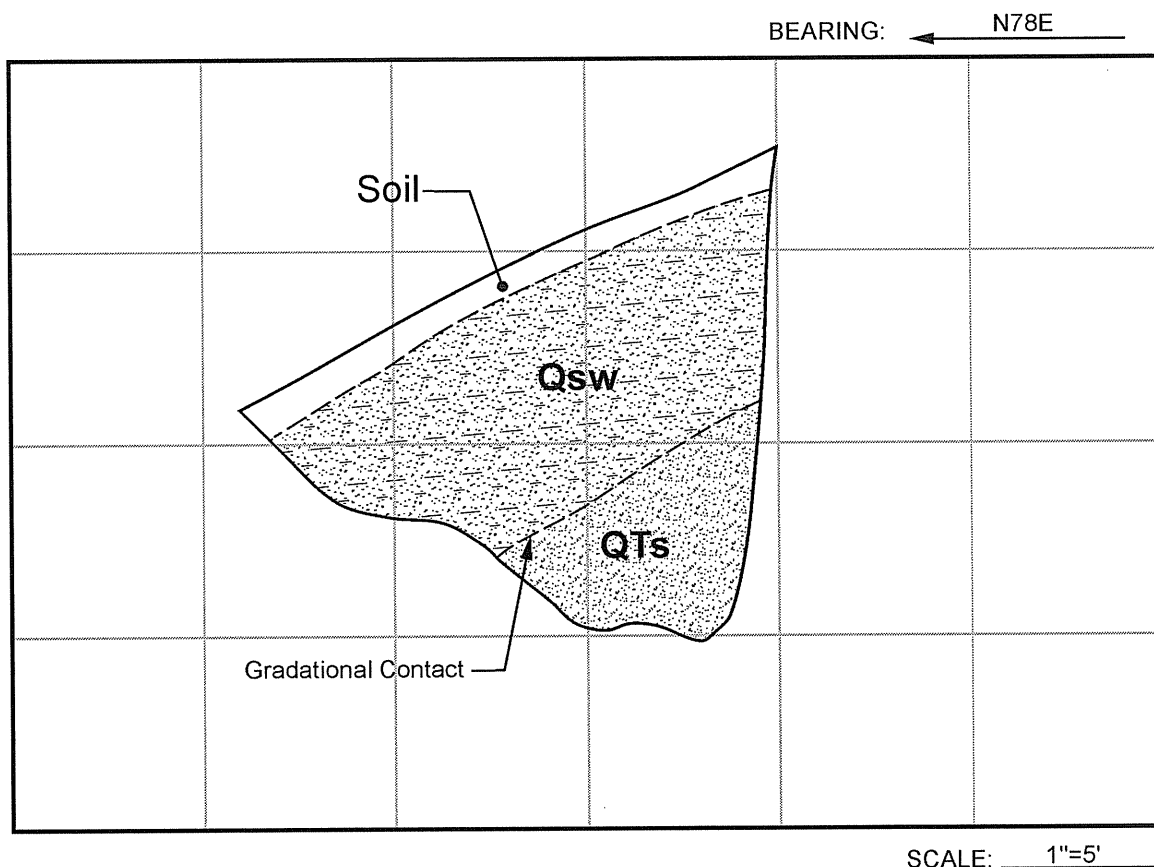
0-1 ft. Soil

1-7 ft. Slopewash (Qsw):

fine grained silty sand, pale yellowish brown (10YR 6/2), loose, dry, angular sandstone clasts

7-11.5 ft. Bedrock (QTs):

fine grained sandstone, pale yellowish brown (10YR 6/2), soft, dry, weathered



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-10

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1120

DATE LOGGED 9-29-03

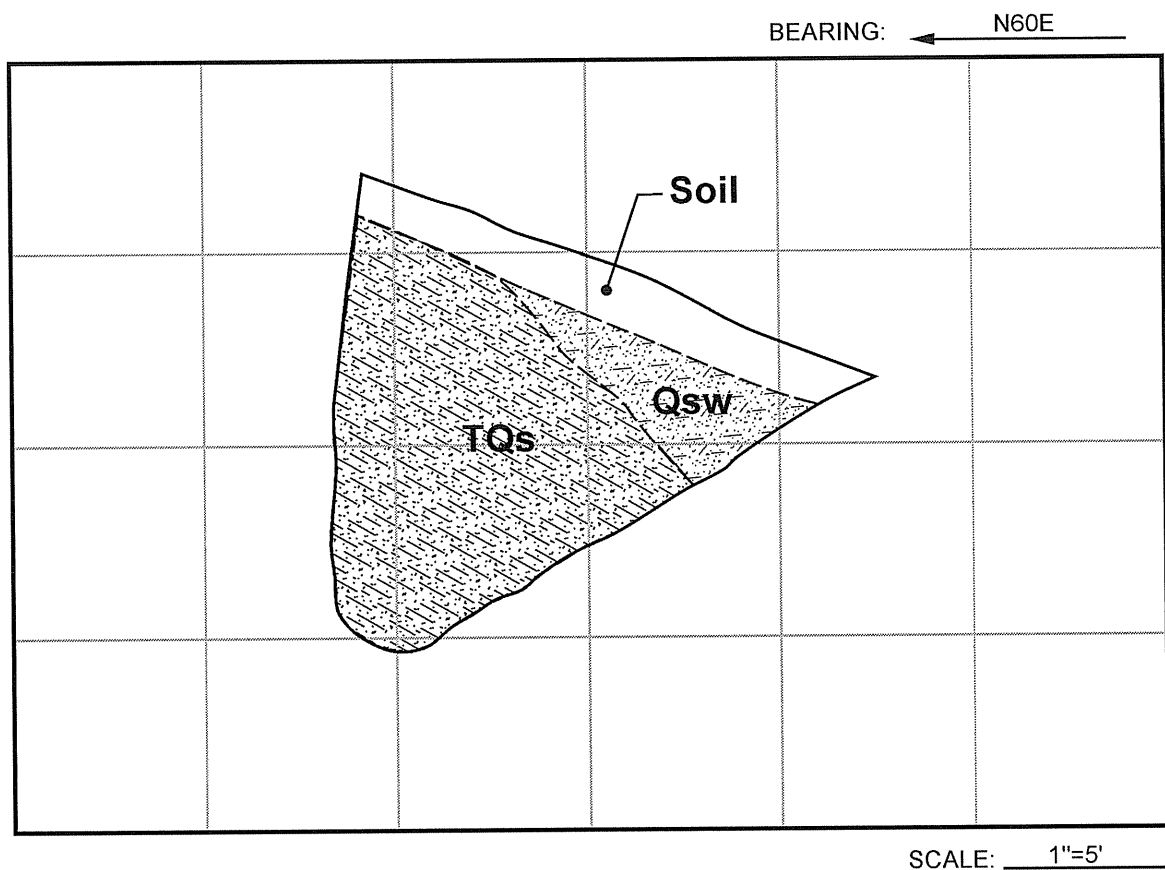
0-1.5 ft. Soil

1.5-3.0 ft. Slopewash (Qsw):

silt, light gray (N7), dry, loose

3.0-11.5 ft. Bedrock (QTs):

siltstone, greenish gray (5GY 6/1), hard, moist to dry, fractured, massive bedding



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

R.T. FRANKIAN & ASSOCIATES

LOG OF TEST PIT TP-11

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

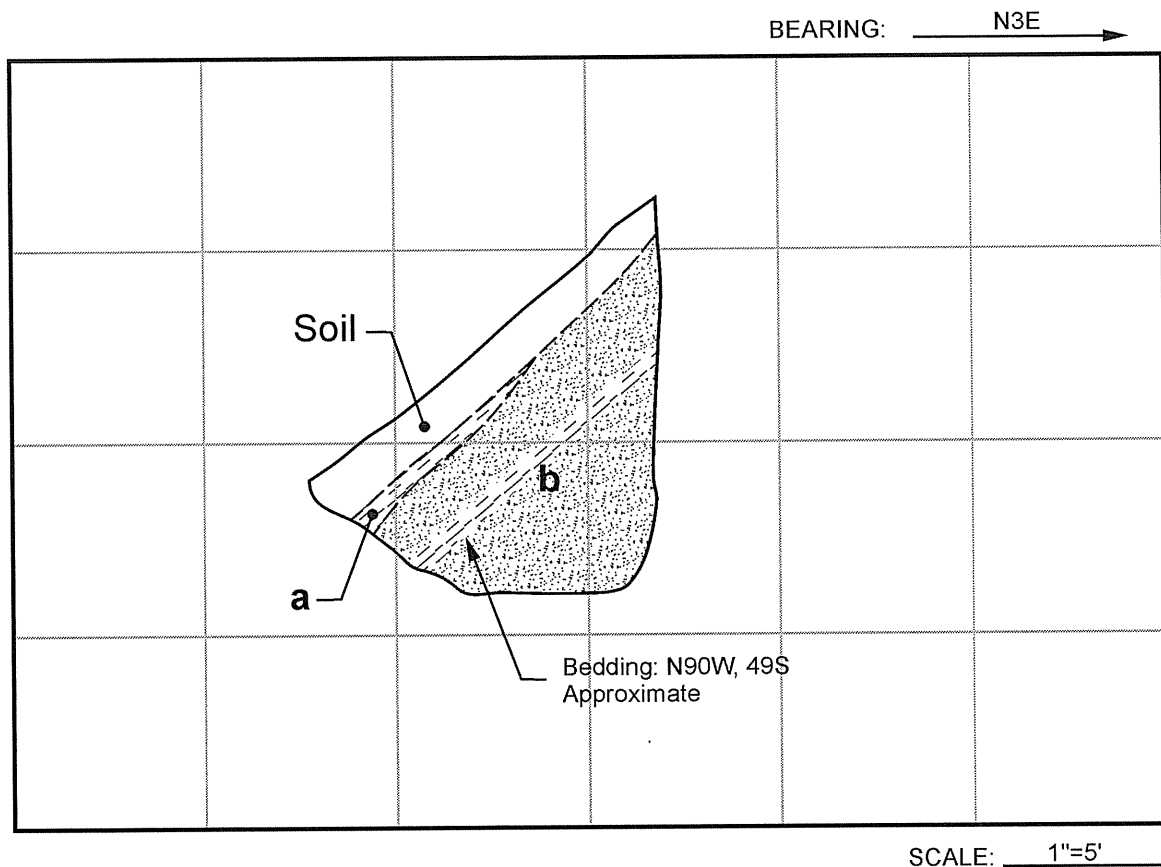
ELEVATION 1110

DATE LOGGED 9-30-03

0-1 ft. Soil

1-10.5 ft. Bedrock (QTs):

- a) siltstone, pale yellowish brown (10YR 6/2), hard, moist
- b) fine grained sandstone, pale yellowish brown (10YR 6/1), hard, moist



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-12

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

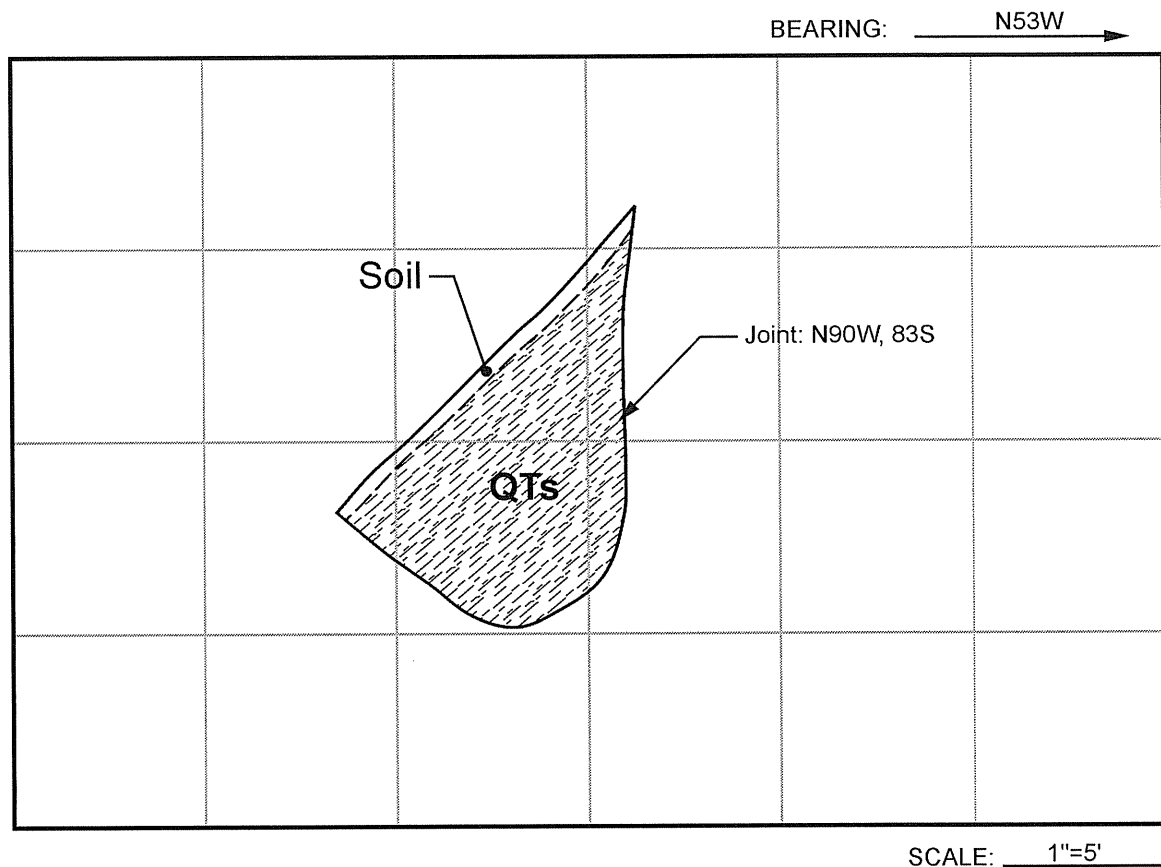
ELEVATION 1135

DATE LOGGED 9-30-03

0-0.5 ft. Soil

0.5-12 ft. Bedrock (QTs):

clayey siltstone, olive gray (5Y 3/2), hard, moist, massive bedding



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-13

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

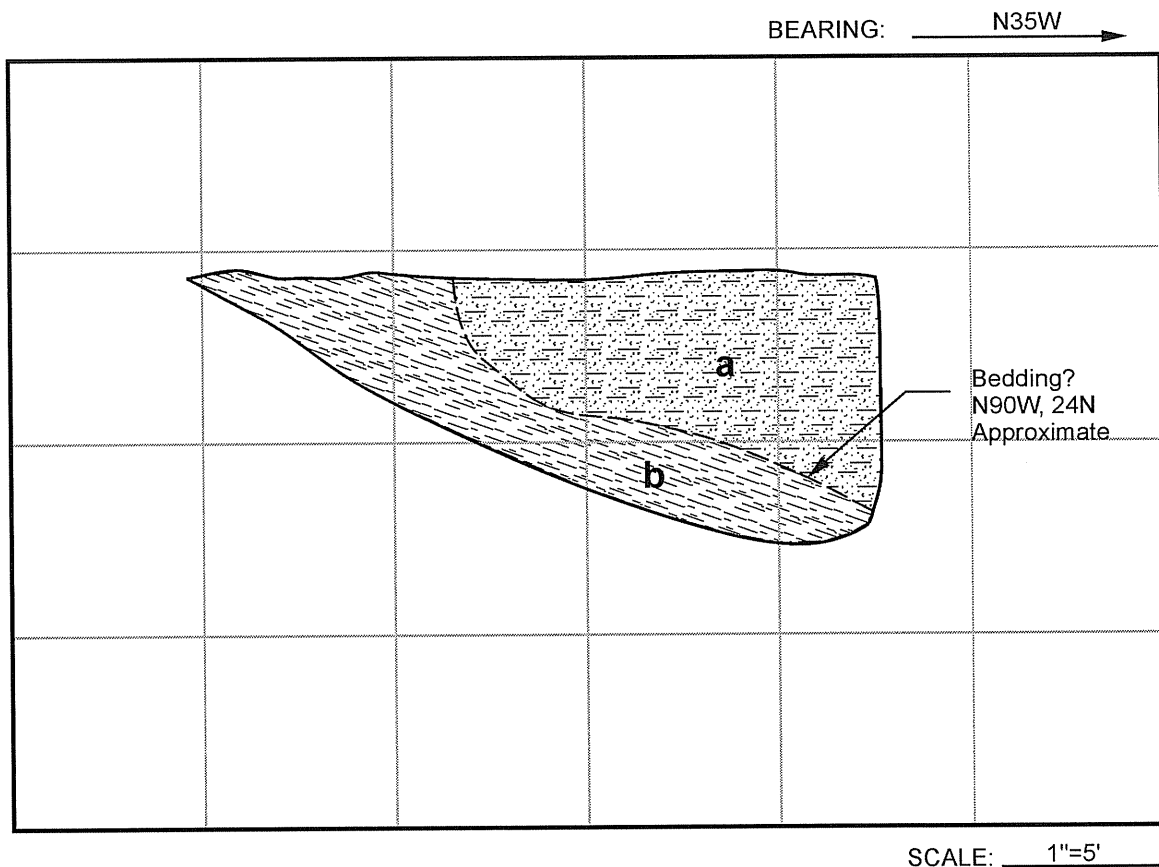
LOCATION Chiquita Canyon Landfill

ELEVATION 1168

DATE LOGGED 9-30-03

0-7 ft. Bedrock (QTs):

- a) sandy siltstone, pale yellowish brown to light gray (N7), moderately hard, moist, mottled
- b) silty claystone, grayish red (5R, 4/2), soft, moist, plastic



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-14

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

ELEVATION 1160

DATE LOGGED 9-30-03

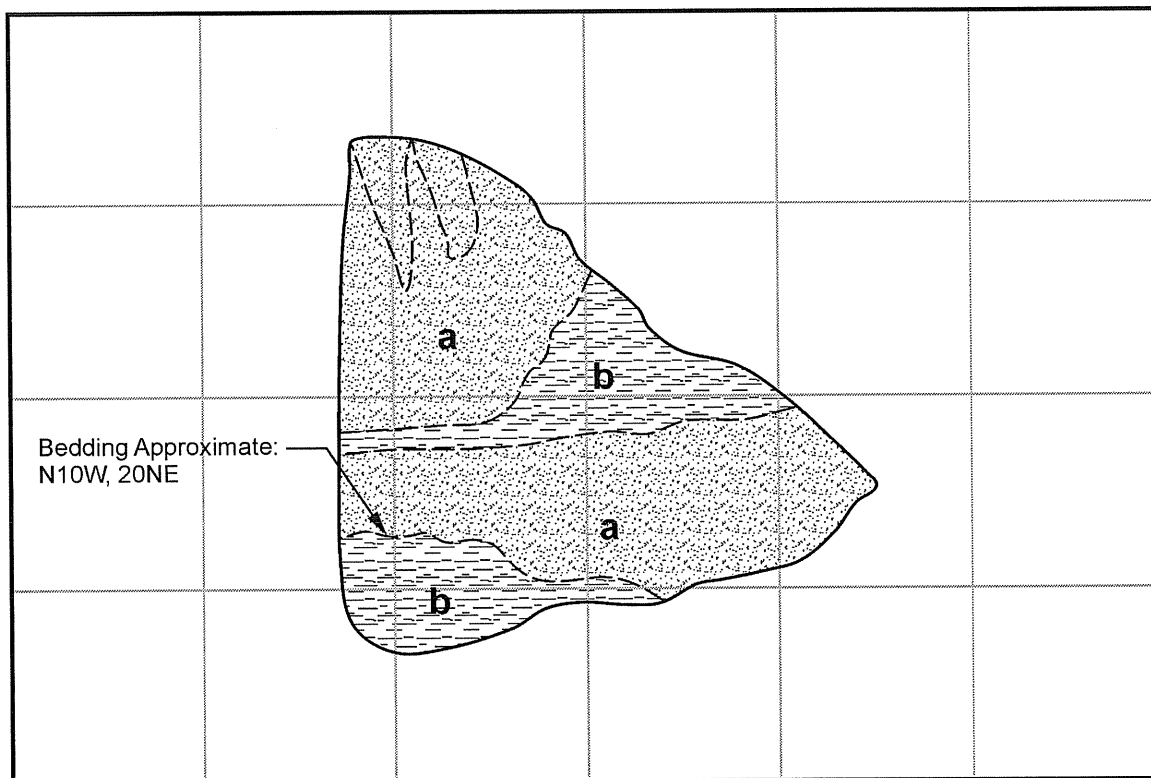
0-13.5 ft. Bedrock? (QTs):

- a) fine to coarse grained pebbly sandstone, light gray (N7), soft to moderately hard, dry
- b) clayey siltstone, grayish red (5R 4/2), moderately hard, moist

Note:

Rock in trench appears weathered and disturbed. Possible landslide or deformation related to folding.

BEARING: N24E



SCALE: 1"=5'

NOTE:

THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

R.T. FRANKIAN & ASSOCIATES

LOG OF TEST PIT TP-15

JOB NUMBER 2002-036-01

CLIENT Chiquita

LOGGED BY DGF

LOCATION Chiquita Canyon Landfill

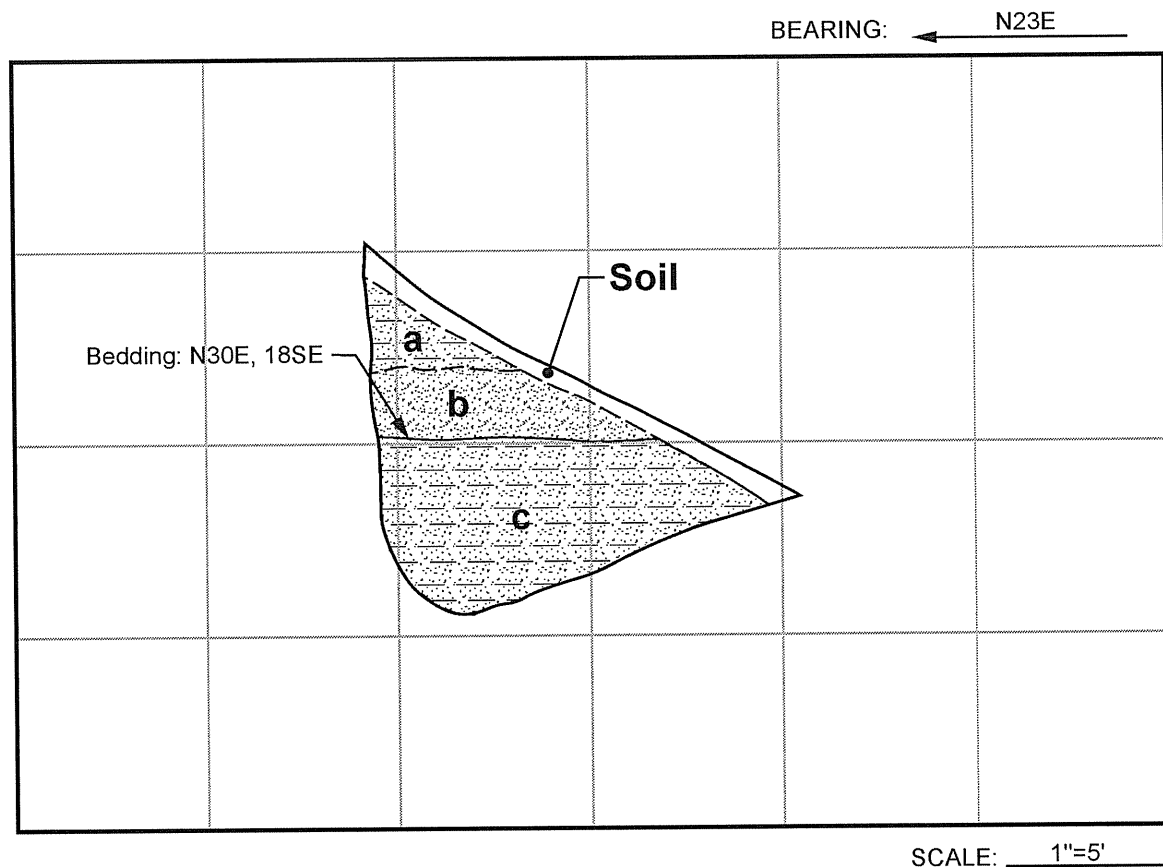
ELEVATION 1290

DATE LOGGED 9-30-03

0-0.5 ft. Soil

0.5-8 ft. Bedrock (QTs):

- a) siltstone, light gray (N7), moderately hard, dry
- b) fine grained sandstone, light gray (N7), moderately hard, dry
- c) clayey siltstone, grayish red (5R 4/2), hard, dry



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

R.T. FRANKIAN & ASSOCIATES

LOG OF TEST PIT TP-1

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

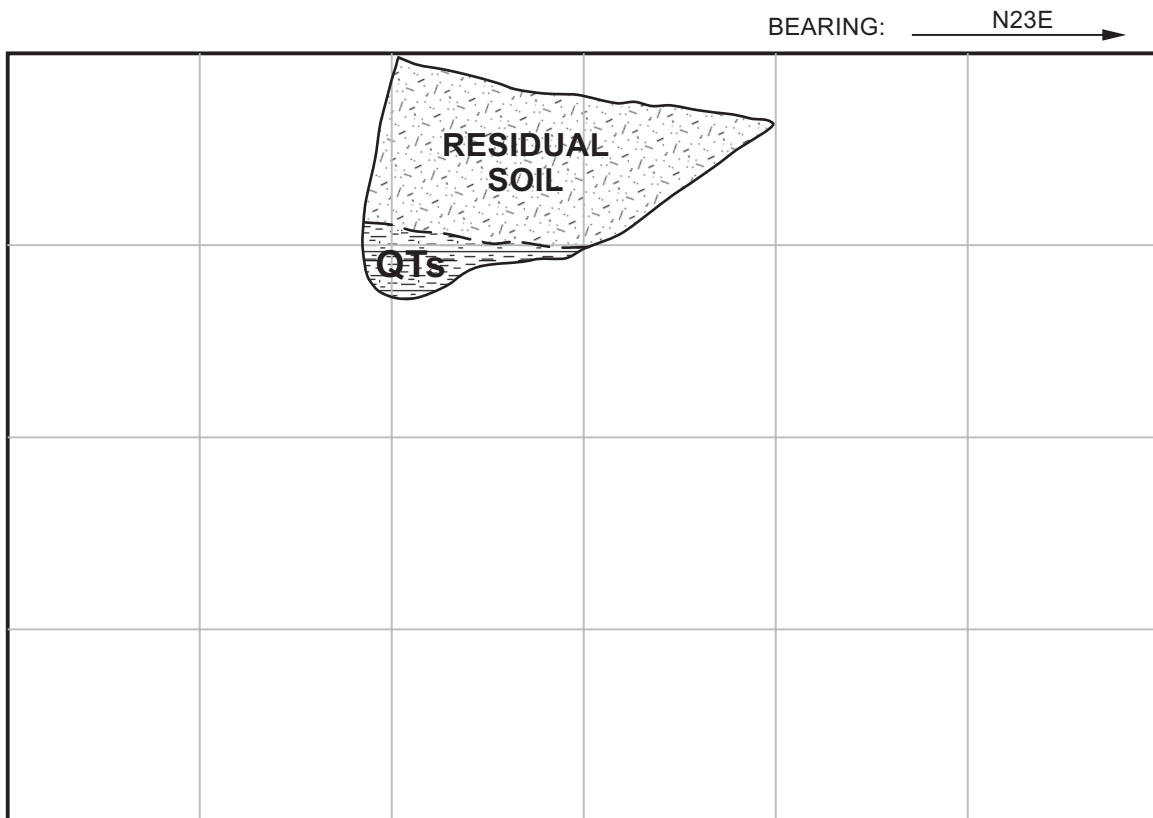
LOCATION Chiquita Canyon Landfill

ELEVATION 1185 feet

DATE LOGGED 6-30-09

0-4.5 feet: RESIDUAL SOIL - Sandy Silt (ML), very fine sand, brownish gray
dry, soft

4.5-6.5 feet: SAUGUS FORMATION (QTs) - Sandy Siltstone, very fine grained
sand, light gray, dry, low hardness, no discernible bedding, weathered



SCALE: 1"=5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-2

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

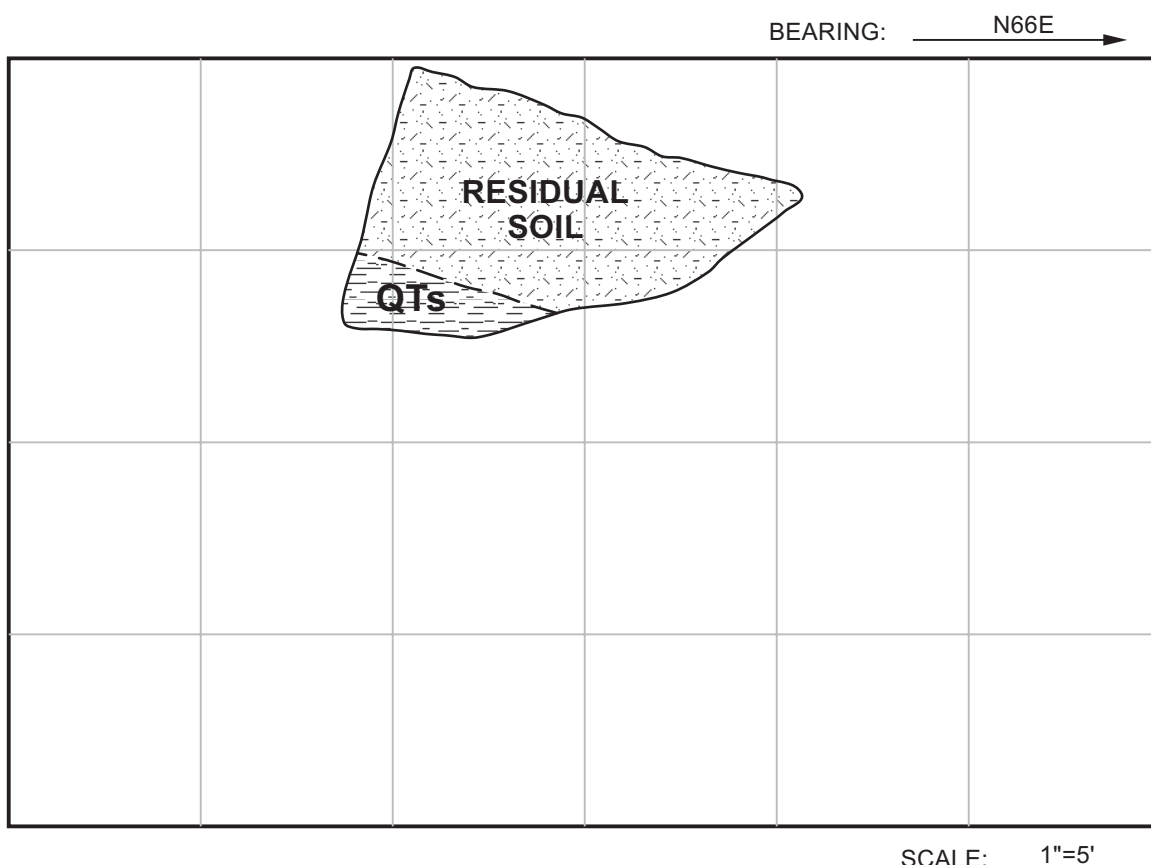
LOCATION Chiquita Canyon Landfill

ELEVATION 1125 feet

DATE LOGGED 6-30-09

0-5.0 feet: RESIDUAL SOIL - Sandy Silt (ML), very fine sand, brownish gray to light gray, dry, soft

5.0-7.0 feet: SAUGUS FORMATION (QTs) - Siltstone, gray, dry, low hardness; massive, weathered



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-3

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

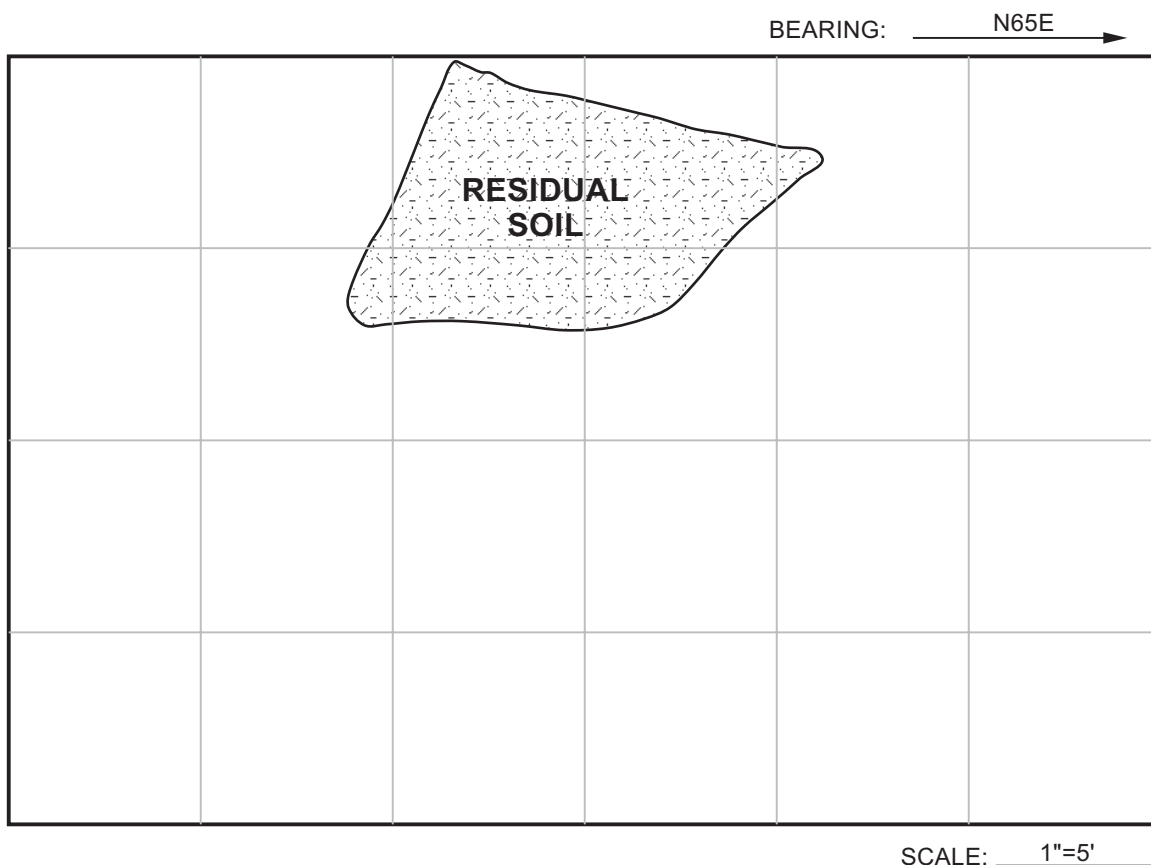
LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1125 feet

DATE LOGGED 6-30-09

0-7.0 feet: RESIDUAL SOIL - Sandy Silt (ML), very fine to fine sand,
light brownish gray, dry, soft



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-4

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1115 feet

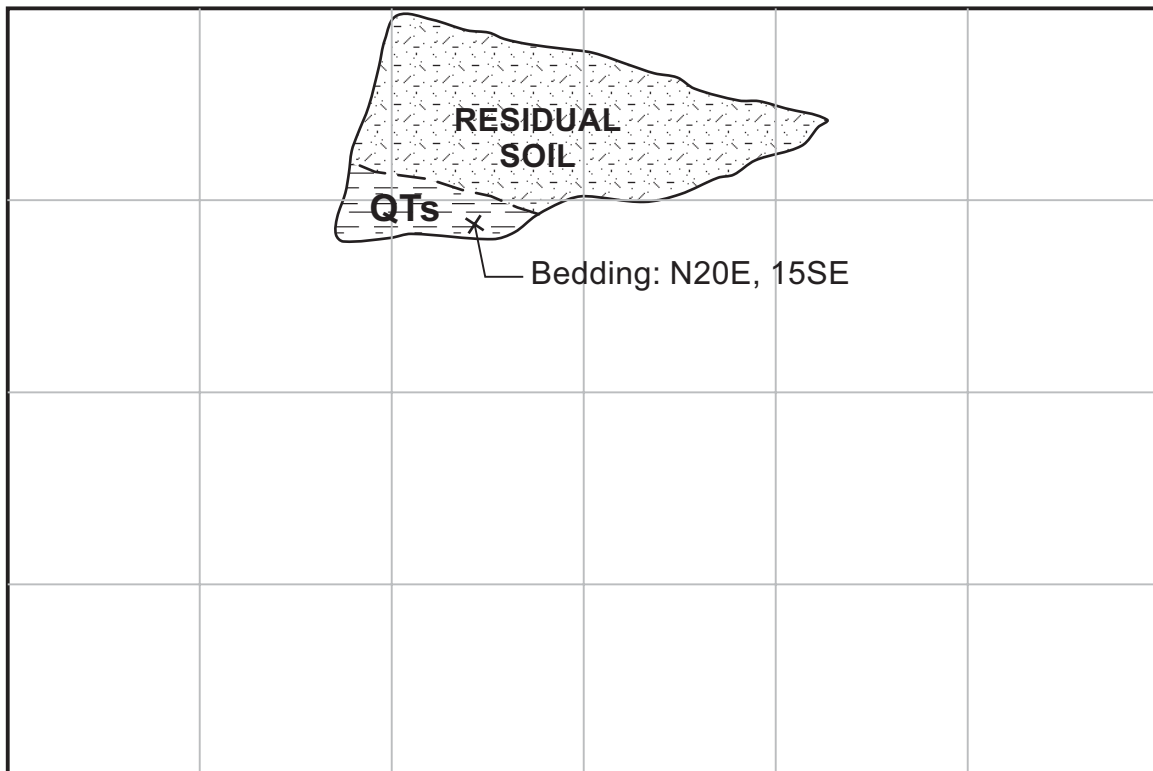
DATE LOGGED 6-30-09

0-4.0 feet: RESIDUAL SOIL - Silt (ML), light gray to light brownish gray, soft, dry

4.0-6.0 feet: SAUGUS FORMATION (QTs) - Siltstone, brown, low hardness, dry to slightly moist

Bedding @ 5.0 feet: N20E, 15SE

BEARING: N31E →



SCALE: 1"=5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-5

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1070 feet

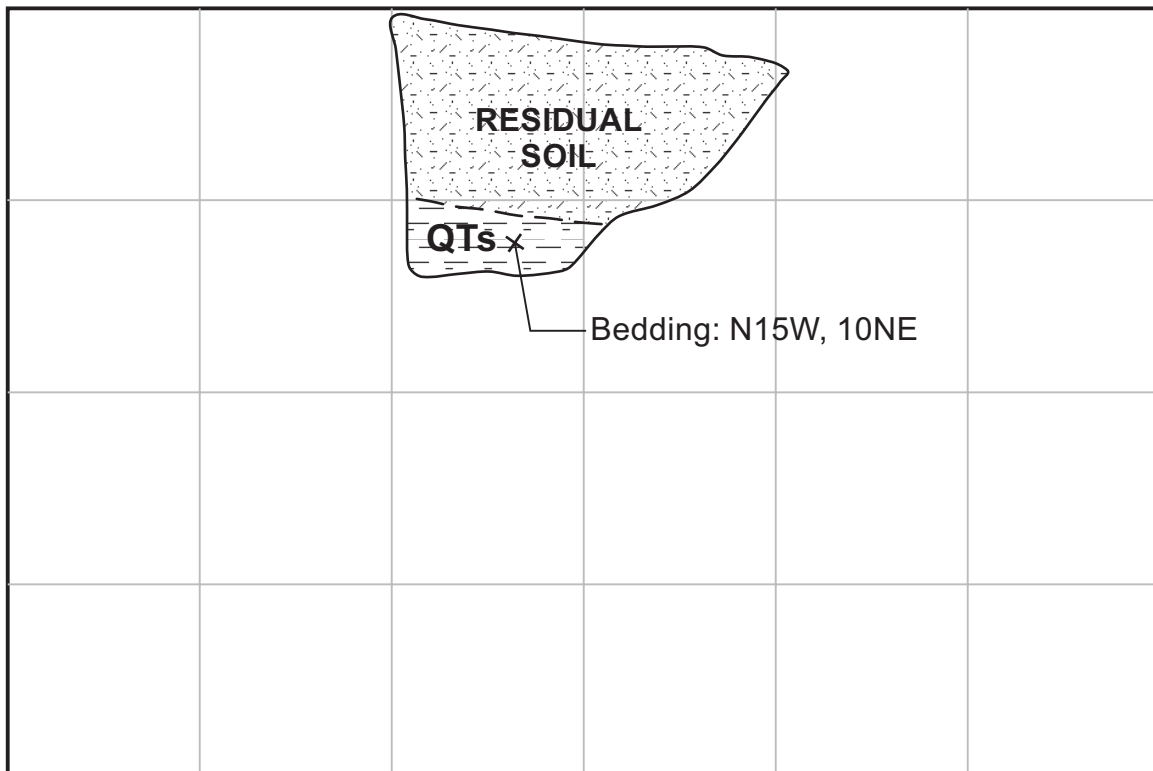
DATE LOGGED 6-30-09

0-5.0 feet: RESIDUAL SOIL - Silt (ML), light gray, soft, dry

5.0-7.0 feet: SAUGUS FORMATION (QTs) - Siltstone, brown, low hardness, slightly moist

Bedding @ 6.0 feet: N15W, 10NE

BEARING: N72E →



SCALE: 1"=5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-6

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1035 feet

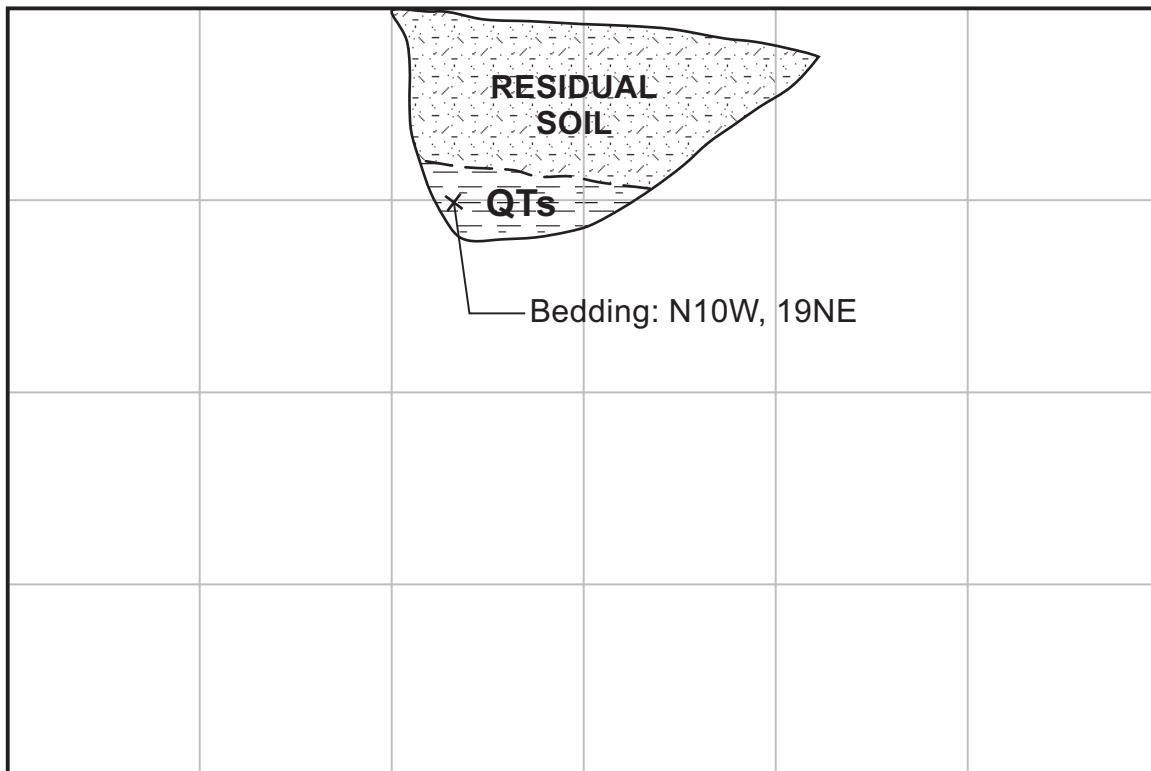
DATE LOGGED 6-30-09

0-4.0 feet: RESIDUAL SOIL - Sandy Silt (ML), very fine to fine sand, light grayish brown, soft, dry

4.0-6.0 feet: SAUGUS FORMATION (QTs) - Interbedded Siltstone and Sandstone, very fine grained sand, gray to light grayish brown, moderately well-developed bedding

Bedding @ 5.0 feet: N10W, 19NE

BEARING: N45E →



SCALE: 1"=5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-7

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1010 feet

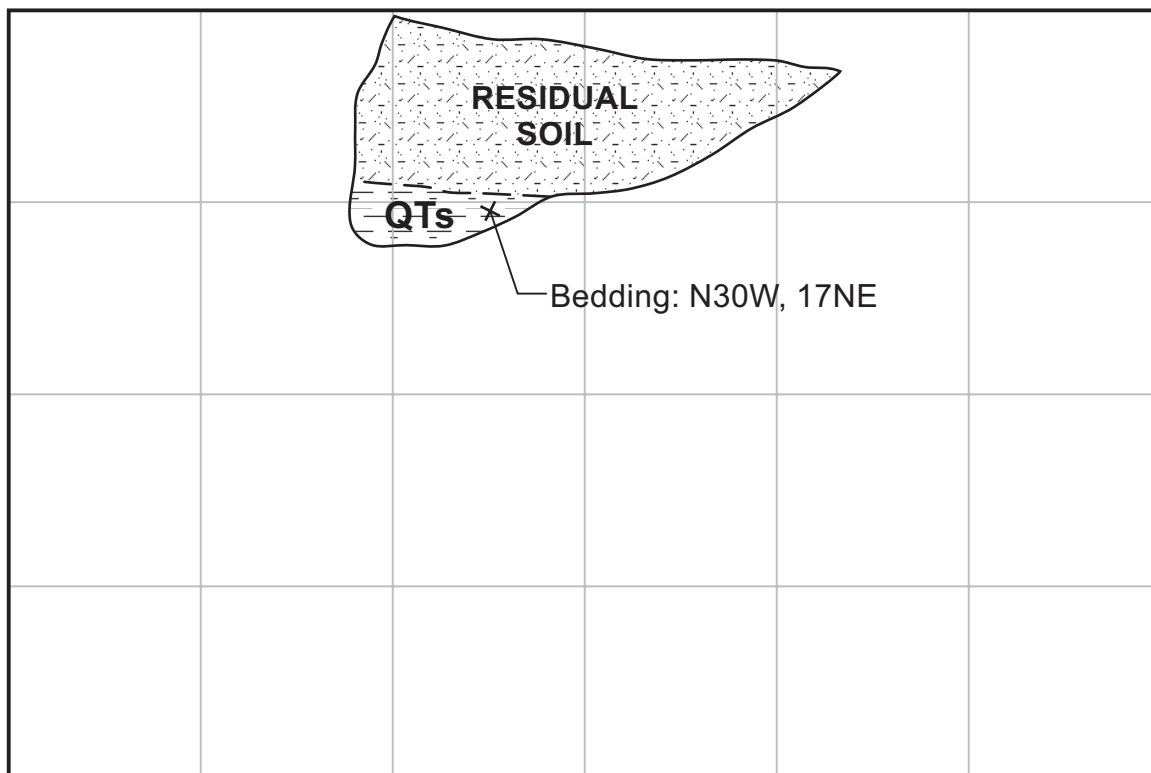
DATE LOGGED 6-30-09

0-4.5 feet: RESIDUAL SOIL - Silt (ML), gray, soft, dry

4.5-6.0 feet: SAUGUS FORMATION (QTs) - Siltstone, gray to grayish brown,
low hardness to moderately hard

Bedding @ 5.0 feet: N30W, 17NE

BEARING: N5E →



SCALE: 1"=5'

NOTE:
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TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-8

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

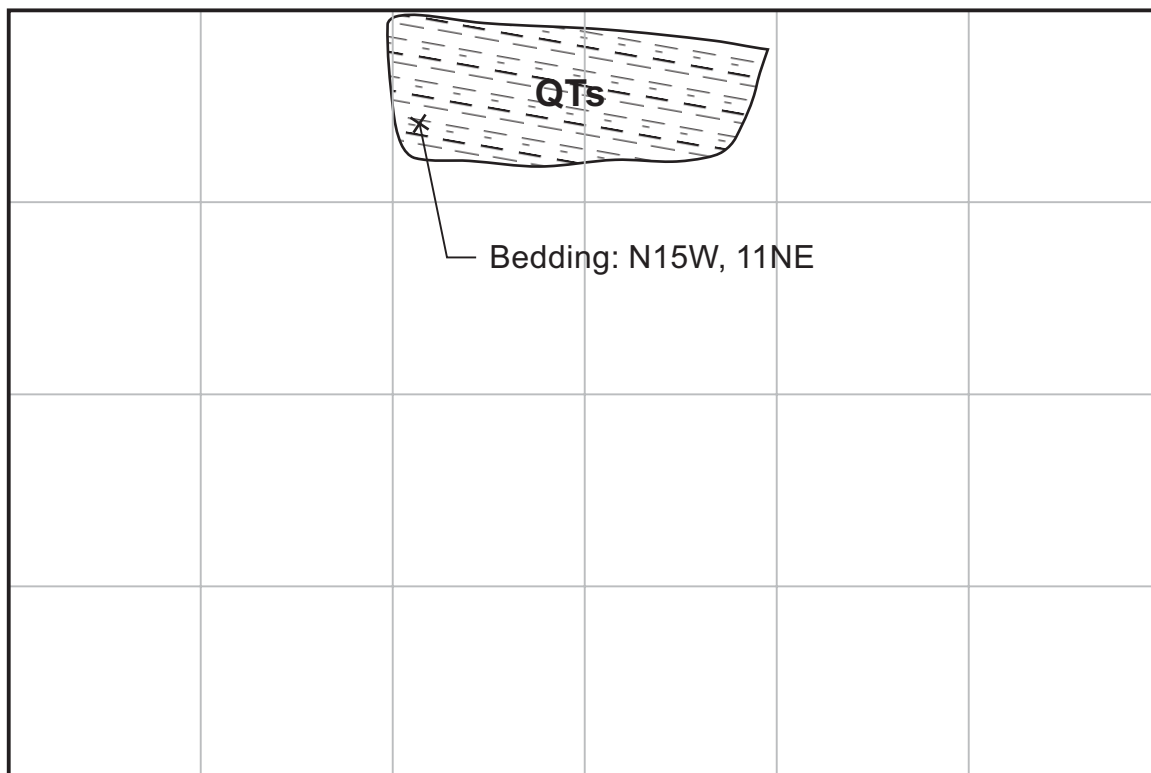
ELEVATION 1025 feet

DATE LOGGED 6-30-09

0-4.0 feet: SAUGUS FORMATION (QTs) - Siltstone, grayish brown, to brown, low hardness, dry to slightly moist

Bedding @ 3.0 feet: N15W, 11NE

BEARING: N80E →



SCALE: 1"=5'

NOTE:
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TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-9

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

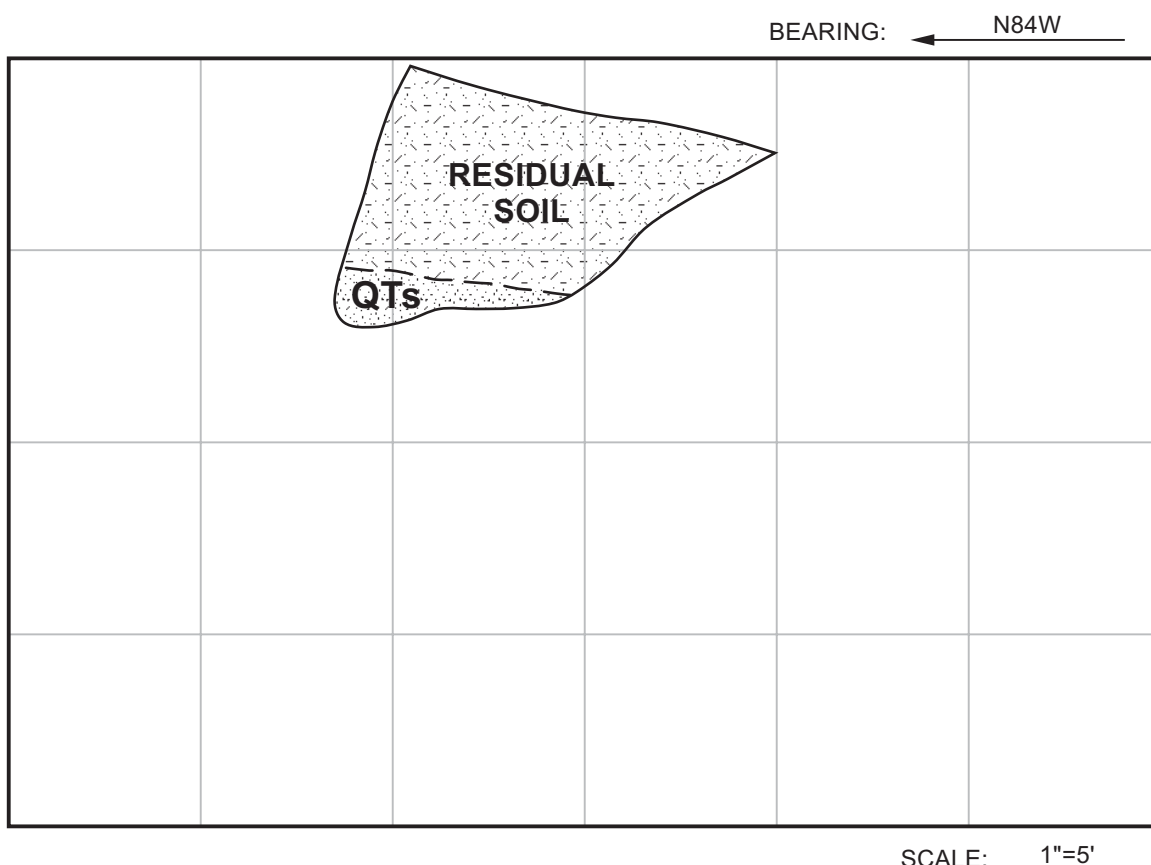
LOCATION Chiquita Canyon Landfill

ELEVATION 1040 feet

DATE LOGGED 6-30-09

0-5.5 feet: RESIDUAL SOIL - Silty Sand (SM), grayish brown, loose, dry

5.5-7.0 feet: SAUGUS FORMATION (QTs) - Sandstone, fine to coarse, light gray to grayish brown, low hardness, massive



NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-10

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

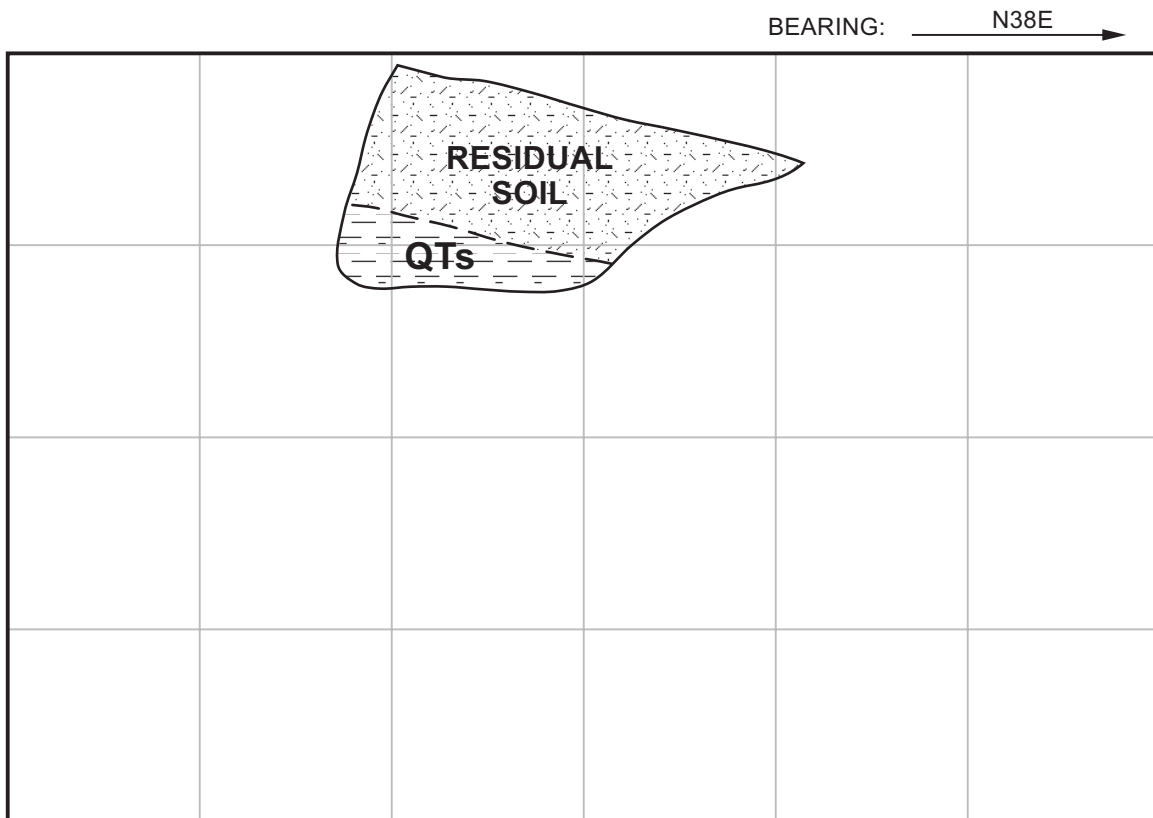
LOCATION Chiquita Canyon Landfill

ELEVATION 1007 feet

DATE LOGGED 6-30-09

0-4.0 feet: RESIDUAL SOIL - Sandy Silt (ML), gray, soft, dry

4.0-6.0 feet: SAUGUS FORMATION (QTs) - Sandy Siltstone, very fine grained, light gray, low hardness, dry, massive



SCALE: 1"=5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-11

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

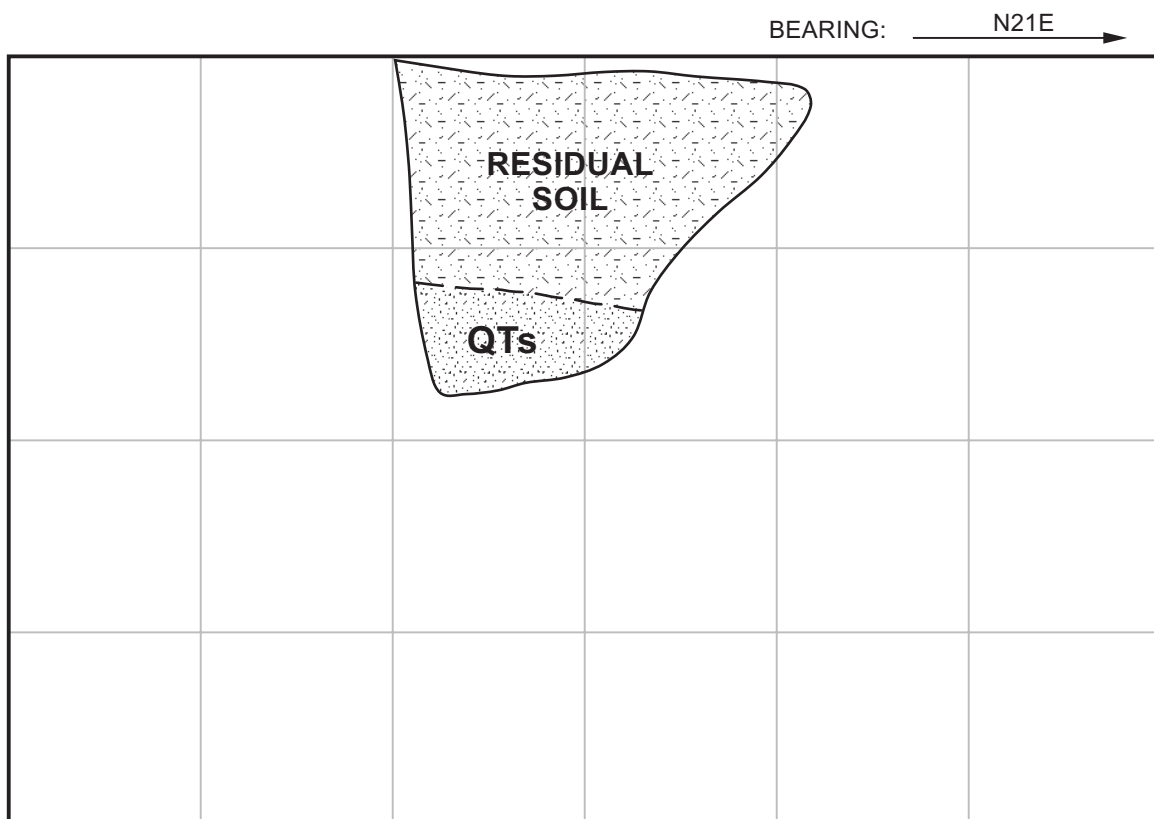
LOCATION Chiquita Canyon Landfill

ELEVATION 1023 feet

DATE LOGGED 6-30-09

0-6.0 feet: RESIDUAL SOIL - Silty Sand (SM), brownish gray, loose, dry

6.0-8.0 feet: SAUGUS FORMATION (QTs) - Sandstone, very fine to fine grained, light gray, weakly cemented, friable, no discernible bedding



SCALE: 1"=5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC
TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-12

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1085 feet

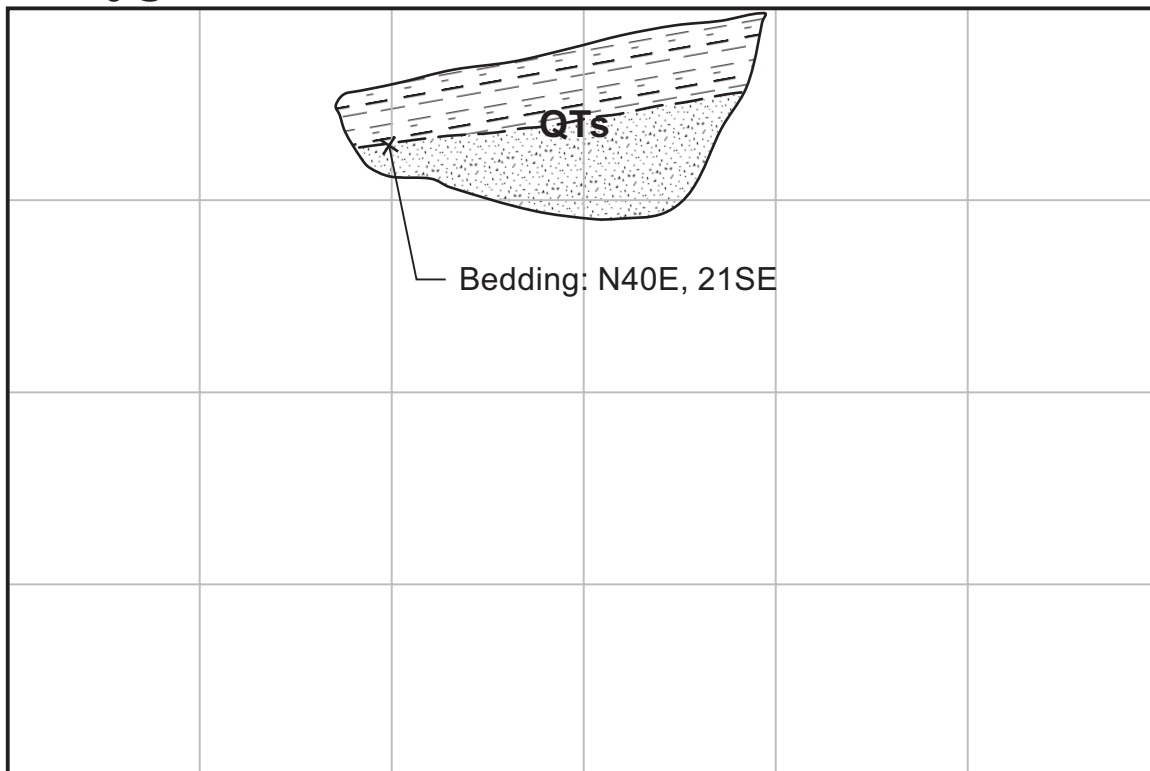
DATE LOGGED 6-30-09

0-3.5 feet: SAUGUS FORMATION (QTs) - Siltstone, brown, low hardness, highly fractured, weathered in upper 2 feet

3.5-5.5 feet: SAUGUS FORMATION (QTs) - Sandstone, fine to coarse, orangish brown to grayish brown, moderately hard

Bedding @ 3.5 feet: N40E, 21SE

BEARING: N23W



SCALE: 1"=5'

NOTE:
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TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-13

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

LOCATION Chiquita Canyon Landfill

ELEVATION 1105 feet

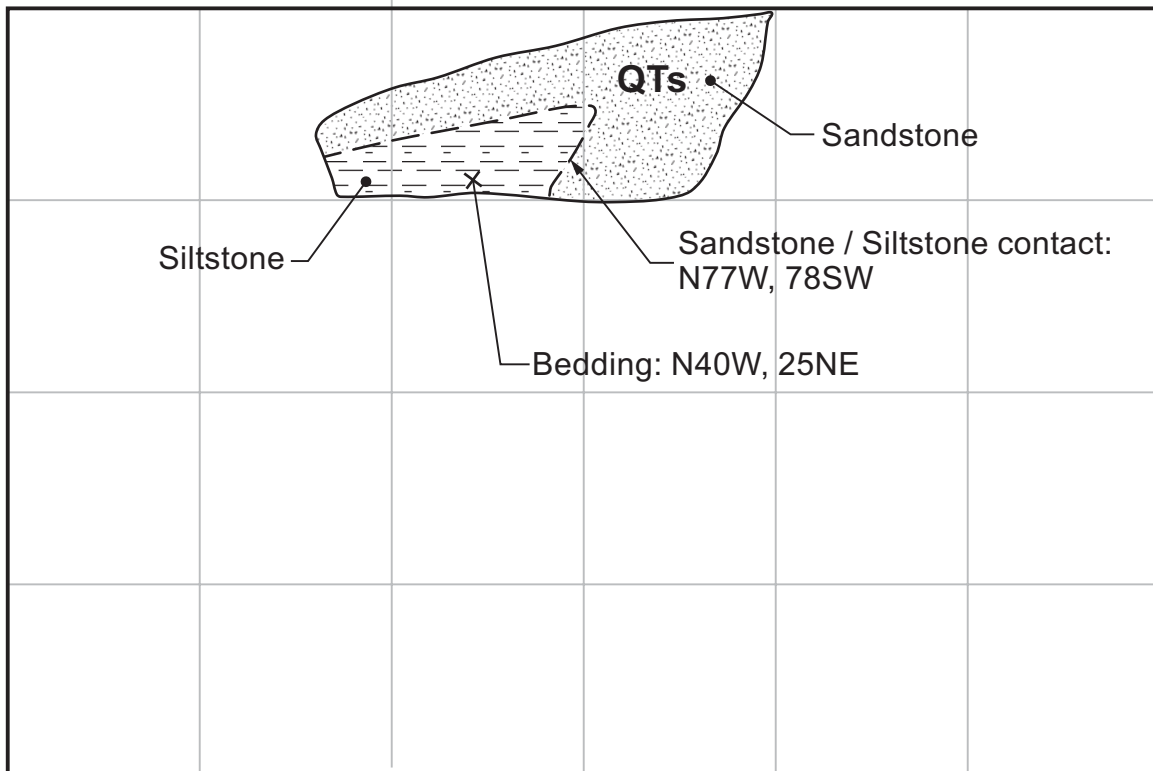
DATE LOGGED 6-30-09

0-5.0 feet: SAUGUS FORMATION (QTs) - Sandstone, fine to medium, light gray, friable, weakly cemented, with lenticular Siltstone below 2 feet dark brown to brownish gray, low hardness

Contact @ 4.0 feet: N77W, 78SW

Bedding @ 4.5 feet (in siltstone): N40W, 25NE

BEARING: N25W



SCALE: 1"=5'

NOTE:
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TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE
REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-14

JOB NUMBER 2002-036-03

CLIENT Chiquita Canyon Landfill

LOGGED BY TL

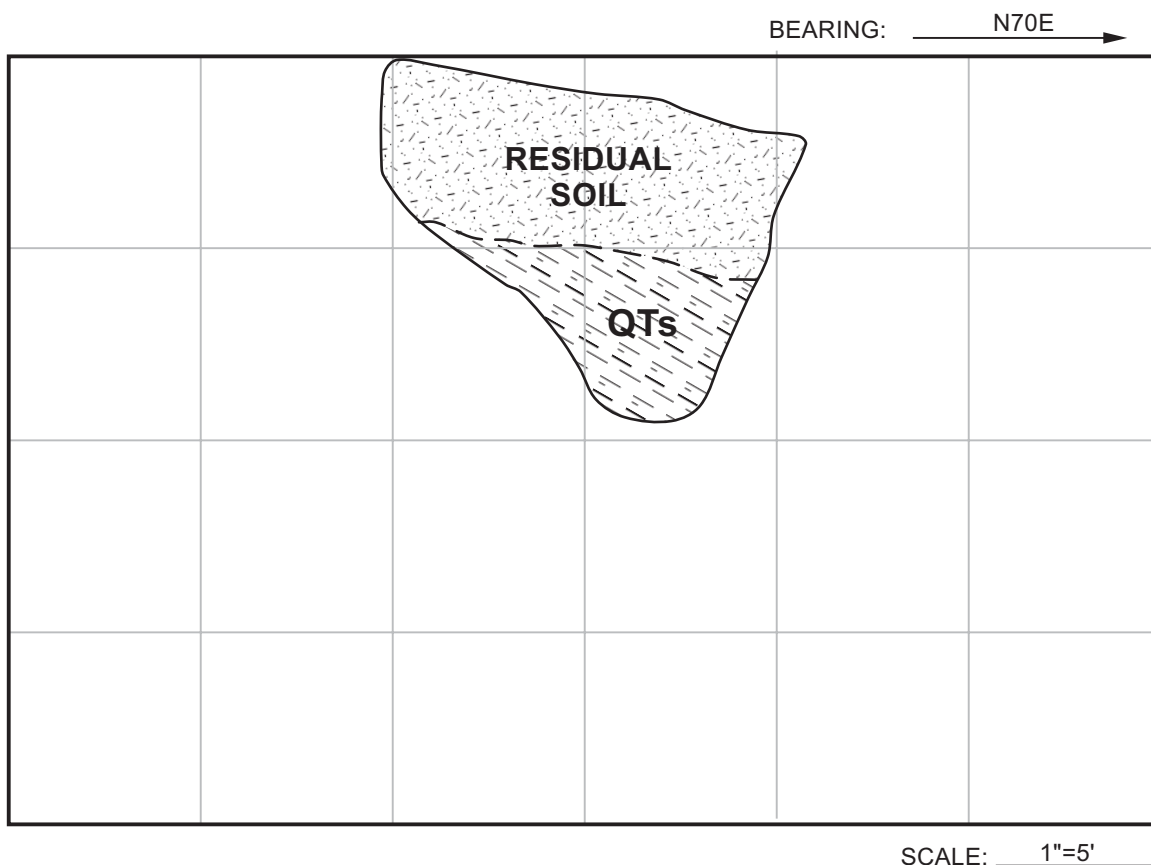
LOCATION Chiquita Canyon Landfill

ELEVATION 1112 feet

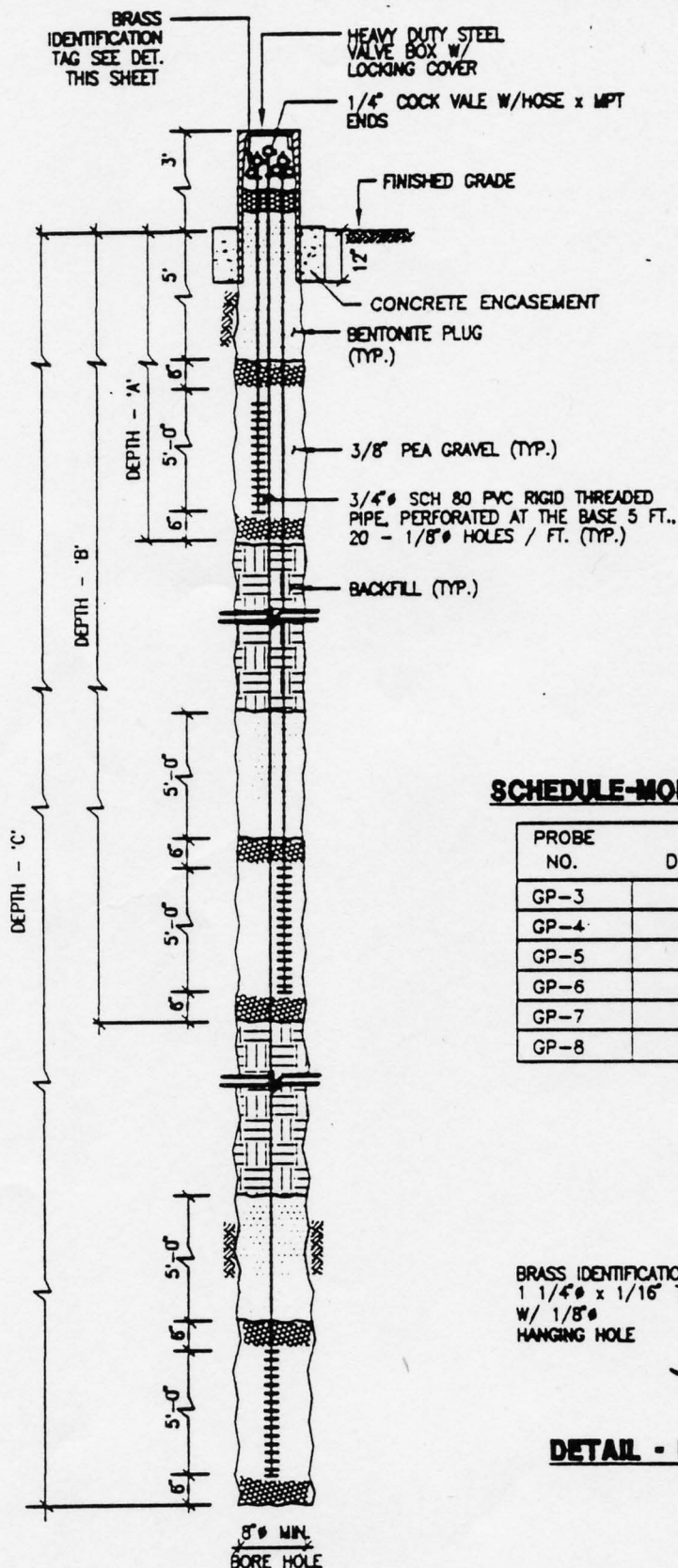
DATE LOGGED 6-30-09

0-4.5 feet: RESIDUAL SOIL - Sandy Silt (ML), gray, soft, dry

4.5-7.5 feet: SAUGUS FORMATION (QTs) - Siltstone, brown to reddish brown, soft, highly weathered and fractured, no discernible bedding



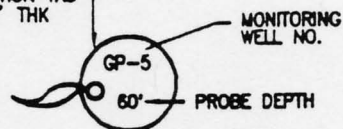
NOTE:
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REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



SCHEDULE-MONITORING PROBES AS-BUILT

PROBE NO.	TOTAL DEPTH(FT.)	PROBE DEPTH(FT.)		
		A	B	C
GP-3	25	10	25	NA
GP-4	20	10	20	NA
GP-5	93	10	45	93
GP-6	60	10	30	60
GP-7	60	10	30	60
GP-8	120	10	60	120

BRASS IDENTIFICATION TAG
1 1/4" x 1/16" THK
W/ 1/8" HANGING HOLE



DETAIL - IDENTIFICATION TAG

DETAIL - GAS MONITORING PROBE (TYP.)

NOT TO SCALE

Figure 1. Cross-Sectional View of a Typical Gas Monitoring Probe.

BORING LOG

**SCS
ENGINEERS**

Environmental Consultants

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Ninth Floor
Long Beach, CA
90807-3315

(310) 426-9544
FAX (310) 427-0805

PROJECT: PERIMETER PROBES

HOLE / WELL #: GP3

LOCATION: CHIQUITA CANYON LANDFILL

DIAMETER: 8"

JOB NUMBER: 0194204.00

TOTAL DEPTH: 25'

GEOLOGIST / ENGINEER: B. BENSON

DATE STARTED: APRIL 8, 1995

DRILLER: DISCOVERY DRILLING

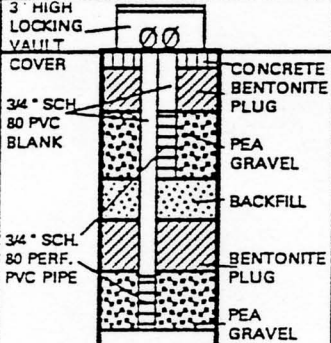
DATE COMPLETED: APRIL 8, 1995

DRILL RIG:

SAMPLING DEVICE:

DRILLING METHOD: AIR ROTARY

PAGE: 1 OF 1

DEPTH (FEET)	SAMPLE	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / 6 INCHES	USCS SYMBOL	DESCRIPTION
0						
10					C H	LIGHT GRAY SILT AND CLAY, GRAVELLY - 1/4" - 1/2" Ø ANGULAR MATERIAL, HIGH PLASTICITY
20					S M	17' - LATE BROWNISH GRAY SANDSTONE, FINE SAND
30						TD = 25'
40						
50						
60						
70						
80						
90						
100						
110						

BORING LOG

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PROJECT: PERIMETER PROBES

HOLE / WELL #: GP4

LOCATION: CHIQUITA CANYON LANDFILL

DIAMETER: 8"

JOB NUMBER: 0194204.00

TOTAL DEPTH: 20'

GEOLOGIST / ENGINEER: B. BENSON

DATE STARTED: APRIL 8, 1995

DRILLER: DISCOVERY DRILLING

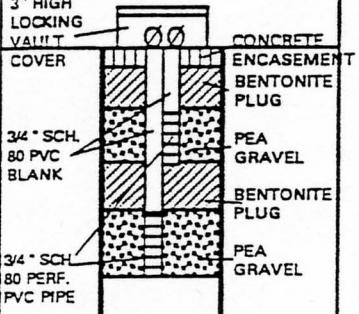
DATE COMPLETED: APRIL 8, 1995

DRILL RIG:

SAMPLING DEVICE:

DRILLING METHOD: AIR ROTARY

PAGE: 1 OF 1

DEPTH (FEET)	SAMPLE	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / 6 INCHES	USCS SYMBOL	DESCRIPTION
0						
10					OL	LIGHT BROWN FILL DIRT MATERIAL, MOIST
20					CH	GRAVELLY SILT AND CLAY 1/4" TO 1/2" Ø, ANGULAR MATERIAL
30					SM	LIGHT BROWNISH GRAY SANDSTONE, FINE SAND,
40						TD = 20'
50						
60						
70						
80						
90						
100						
110						

BORING LOG

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PROJECT: PERIMETER PROBES

HOLE / WELL #: GP5

LOCATION: CHIQUITA CANYON LANDFILL

DIAMETER: 8"

JOB NUMBER: 0194204.00

TOTAL DEPTH: 93'

GEOLOGIST / ENGINEER: B. BENSON

DATE STARTED: APRIL 4, 1995

DRILLER: DISCOVERY DRILLING

DATE COMPLETED: APRIL 6, 1995

DRILL RIG:

SAMPLING DEVICE:

DRILLING METHOD: AIR ROTARY

PAGE: 1 OF 1

DEPTH (FEET)	SAMPLE	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / 6 INCHES	USCS SYMBOL	DESCRIPTION
0		3' HIGH LOCKING VAULT COVER	000			
10		3/4" SCH. 80 PVC BLANK			S M	LIGHT GRAY SAND AND FINES
10		3/4" SCH. 80 PERFORATED PVC PIPE			M L	GREENISH GRAY SILTY SAND SANDSTONE
20		BACKFILL			S M	PREDOMINANTLY LIGHT GRAY FINE SAND, SAND STONE
30						LIGHT GRAY FINE SAND, MOIST FOR NEXT 5', SOFTER DRILLING, LIGHT GAS ODOR
40						
50		3/4" SCH. 80 PVC BLANK			S M	LIGHT BROWNISH GRAY SANDSTONE, PREDOMINANTLY FINE SANDS, SOME MEDIUM SANDS, DRY
60		3/4" SCH. 80 PERFORATED PVC PIPE				
70		BACKFILL			S M	72' - LIGHT GRAY SILTY SANDSTONE, HARD DRILLING
80		3/4" SCH. 80 PVC BLANK				
90		3/4" SCH. 80 PERFORATED PVC PIPE			S M	93' - FINAL DEPTH AFTER DRILLING TO 110', HOLE CAVED IN, BACKFILLING TO 93'
100		CAVED IN BACKFILL				
110					S M	110' - SANDSTONE, FINE SAND; BOREHOLE CAVING IN; DRILLING STOPPED; FINAL DRILLING DEPTH 120' NOT ATTAINED

BORING LOG

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PROJECT: PERIMETER PROBES

HOLE / WELL #: GP6

LOCATION: CHIQUITA CANYON LANDFILL

DIAMETER: 8"

JOB NUMBER: 0194204.00

TOTAL DEPTH: 60'

GEOLOGIST / ENGINEER: B. BENSON

DATE STARTED: APRIL 8, 1995

DRILLER: DISCOVERY DRILLING

DATE COMPLETED: APRIL 8, 1995

DRILL RIG:

SAMPLING DEVICE:

DRILLING METHOD: AIR ROTARY

PAGE: 1 OF 1

DEPTH (FEET)	SAMPLE	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / 6 INCHES	USCS SYMBOL	DESCRIPTION
0		3" HIGH LOCKING VAULT COVER				
10		3/4" SCH. 180 PVC BLANK			S M	LIGHT GRAY SILTS AND CLAY, MAJORITY FINE MATERIAL WITH SOME GRAVELLY PATCHES
20		BACKFILL			S M	LIGHT BROWNISH GRAY SANDSTONE, FINE SANDS
30		3/4" SCH. 80 PERF. PVC PIPE				
40		BACKFILL			S M	LIGHT BROWNISH GRAY SANDSTONE, FINE SAND WITH MEDIUM SAND
50		BENTONITE PLUG				
60		PEA GRAVEL			S M	60' - SANDSTONE, FINE SAND WITH SOME MEDIUM AND COARSE SAND TD = 60'
70						
80						
90						
100						
110						

BORING LOG

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PROJECT: PERIMETER PROBES

HOLE / WELL #: GP7

LOCATION: CHIQUITA CANYON LANDFILL

DIAMETER: 8"

JOB NUMBER: 0194204.00

TOTAL DEPTH: 60'

GEOLOGIST / ENGINEER: B. BENSON

DATE STARTED: APRIL 7, 1995

DRILLER: DISCOVERY DRILLING

DATE COMPLETED: APRIL 7, 1995

DRILL RIG:

SAMPLING DEVICE:

DRILLING METHOD: AIR ROTARY

PAGE: 1 OF 1

DEPTH (FEET)	SAMPLE	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / 6 INCHES	USCS SYMBOL	DESCRIPTION
0		3' HIGH LOCKING VAULT COVER				
		CONCRETE BENTONITE PLUG			C L	LIGHT BROWN SILTY CLAY, GRAVELLY < 1/4" Ø
10		3/4" SCH. 80 PVC BLANK			M L	LIGHT GRAY SILTY SANDSTONE, FINE SANDS, SOME MEDIUM SANDS
		PEA GRAVEL				
20		BACKFILL				
		BENTONITE PLUG				
30		3/4" SCH. 80 PERF. PVC PIPE				
		PEA GRAVEL				
40		BACKFILL				
50		BENTONITE PLUG				
60		PEA GRAVEL				60' - SANDSTONE, FINE SAND, TRACE MEDIUM AND COARSE SAND; BORING OVERDRILLED TO 62'
70						
80						
90						
100						
110						

BORING LOG

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Environmental Consultants

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Long Beach, CA
90807-3315

(310) 426-9544
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PROJECT: PERIMETER PROBES

HOLE / WELL #: GP8

LOCATION: CHIQUITA CANYON LANDFILL

DIAMETER: 8"

JOB NUMBER: 0194204.00

TOTAL DEPTH: 120'

GEOLOGIST / ENGINEER: B. BENSON

DATE STARTED: APRIL 8, 1995

DRILLER: DISCOVERY DRILLING

DATE COMPLETED: APRIL 8, 1995

DRILL RIG:

SAMPLING DEVICE:

DRILLING METHOD: AIR ROTARY

PAGE: 1 OF 1

DEPTH (FEET)	SAMPLE	COMPLETION DETAIL	SAMPLE #	BLOW COUNTS / 6 INCHES	USCS SYMBOL	DESCRIPTION
0		3" HIGH LOCKING VALVE COVER				
10		3/4" SCH. 80 PERF. PVC PIPE			CL	LIGHT BROWN SILTS AND CLAYS, SOFT DRILLING
20		3/4" SCH. 80 PVC BLANK			SM	LIGHT GRAY SILTY SANDSTONE
30		BACKFILL			SM	SAND STONE, FINE SANDS
40						
50		BENTONITE PLUG			SM	LIGHT GRAY SANDSTONE, FINE SAND WITH SOME MEDIUM SAND
60		PEA GRAVEL				
70		BACKFILL			GC	LIGHT GRAY SANDSTONE, FINE SAND WITH SOME MEDIUM AND COARSE SAND, HARD DRILLING
80		3/4" SCH. 80 PERF. PVC PIPE			GP	LIGHT GRAY SANDSTONE, FINE SAND WITH SOME MEDIUM AND COARSE SAND, 1/4" - 1/2" Ø ANGULAR MATERIAL
90						
100		BENTONITE PLUG			GC	SANDSTONE WITH SOME GRAVELS
110		PEA GRAVEL				
120						TD = 120'