

DOPHE 136
HAZARDOUS MATERIALS

SW_1.6._2549



BOX#

108

Phantom Landfill/PH3

10/1/2010

FRM

Solid Waste - Correspondence - Enforcement - Response to Letter,
Request Status Update for Compliance Order on Consent #08-08-15-01,
September 17, 2010

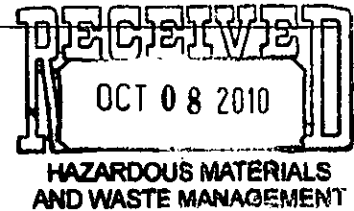
SW/1.6./2549



SW/1.6./1594

KRW CONSULTING, INC.

October 1, 2010



Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, Colorado

Attention: Mr. Jerry Henderson

Subject: Response to letter "Request Status Update for Compliance Order on Consent #08-08-15-01", September 17, 2010
KRW Project No.: 9110-03

Dear Jerry:

We are in receipt of your letter dated September 17, 2010 which requests a status update on issues related to the Compliance Order #08-08-15-01. On behalf of Twin Landfill Corp. KRW has prepared the following response. Please find the CDPHE comments, presented in bold italics and our response to each comment presented below.

1. **Submittal of proposed assessment plan for the detailed hydrogeologic investigation necessary to modify the groundwater monitoring plan, with location and design of additional groundwater monitoring wells appropriate to the solidification basin, subject to Division review and approval (paragraph 32 of the Order).**

TWIN has performed a detailed analysis of the hydrogeologic conditions in the vicinity of the solidification basin and will implement changes in the Groundwater monitoring plan as appropriate. The hydrologic conditions beneath the solidification basin, as indicated by the nearest boreholes at the site, TH-9 and TH-20, indicate that there is no unconfined groundwater beneath the basin. The first aquifer to be encountered beneath the facility is the Greenhorn Limestone. Water was encountered in well TH-9 at a depth of approximately 91 feet and effectively screened in the uppermost water bearing zone between 90 and 105 feet below ground surface (BGS). Subsequent water level measurements in this well indicate a water level of less than 65 feet BGS. Water was encountered in well TH-20 at a depth of approximately 100 feet and effectively screened in the uppermost water bearing zone between 101 and 137 feet BGS. Subsequent water level measurements in this well indicate a water level of less than 50 feet BGS. Since this is clearly a confined aquifer, the aquifer is not a potential target for contamination from the facility. The site plan/geologic map (Figure 1) and well logs for TH-9 and TH-20 are included as attachments to this letter.

Twin therefore proposes to install two additional monitor wells at the facility down-slope of the solidification basin, at locations as shown on the attached geologic map. It should be noted that one of these wells is located adjacent to the solidification basin sump. The wells, which will function as wet-dry wells, will be at least 2-inches in diameter to allow for sampling if water is encountered in the wells. The wells will be installed to depths below the base of the solidification basin sump and into un-weathered bedrock. The wells will be screened for nearly their entire length, from bottom to near surface, to intercept any fluid flow in weathered bedrock. A detail of the construction of the proposed wells is shown as attached Figure 2. Given the location and construction of these wells, they will serve as leak detection wells to detect any potential release from the solidification basin to allow for corrective action prior to any potential environmental impact. Please note that previous attempts were made to install

angled monitor wells beneath the low point of the solidification basin. However, these borings collapsed, because site soils are not conducive to angle drilling.

Both of the proposed wells will be checked for moisture on a weekly basis. The monitoring of these wells on a weekly schedule, as well as sampling for Appendix 1A and 1B parameters if water is encountered, will be included as a revision to the existing groundwater monitoring plan (Section 5.5 of the facility Design and Operations Plan). Twin will commence installation of these wells within 30 days of receiving approval from CDPHE.

2. Installation of two new ground water monitoring wells, once approved (paragraph 33 of the Order).

TWIN agrees to install the wells as described in Item #1 above and reiterates the inappropriateness of completing another monitoring well in the confined aquifer beneath the solidification basin.

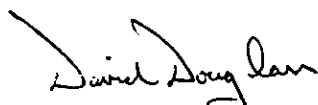
3. Further revisions to the engineering design and operation plan necessitated by the Order (paragraphs 26 and 31 of the Order). These should be separated from the certificate of designation amendments so that they can be implemented independent of that process.

Twin currently conducts a weekly inspection of the solidification basin sump riser pipe. If the liquid level ever exceeds a depth of six inches, the sump is pumped to remove all liquid. Twin is currently in the process of preparing a Solidification Basin Design and Operations Plan (D & O plan) amendment and this D & O plan amendment will specify these monitoring and pumping activities.

Twin utilizes an operation log, attached. The D & O plan amendment will append this operation log.

If you have any questions regarding this letter, please feel free to call me.

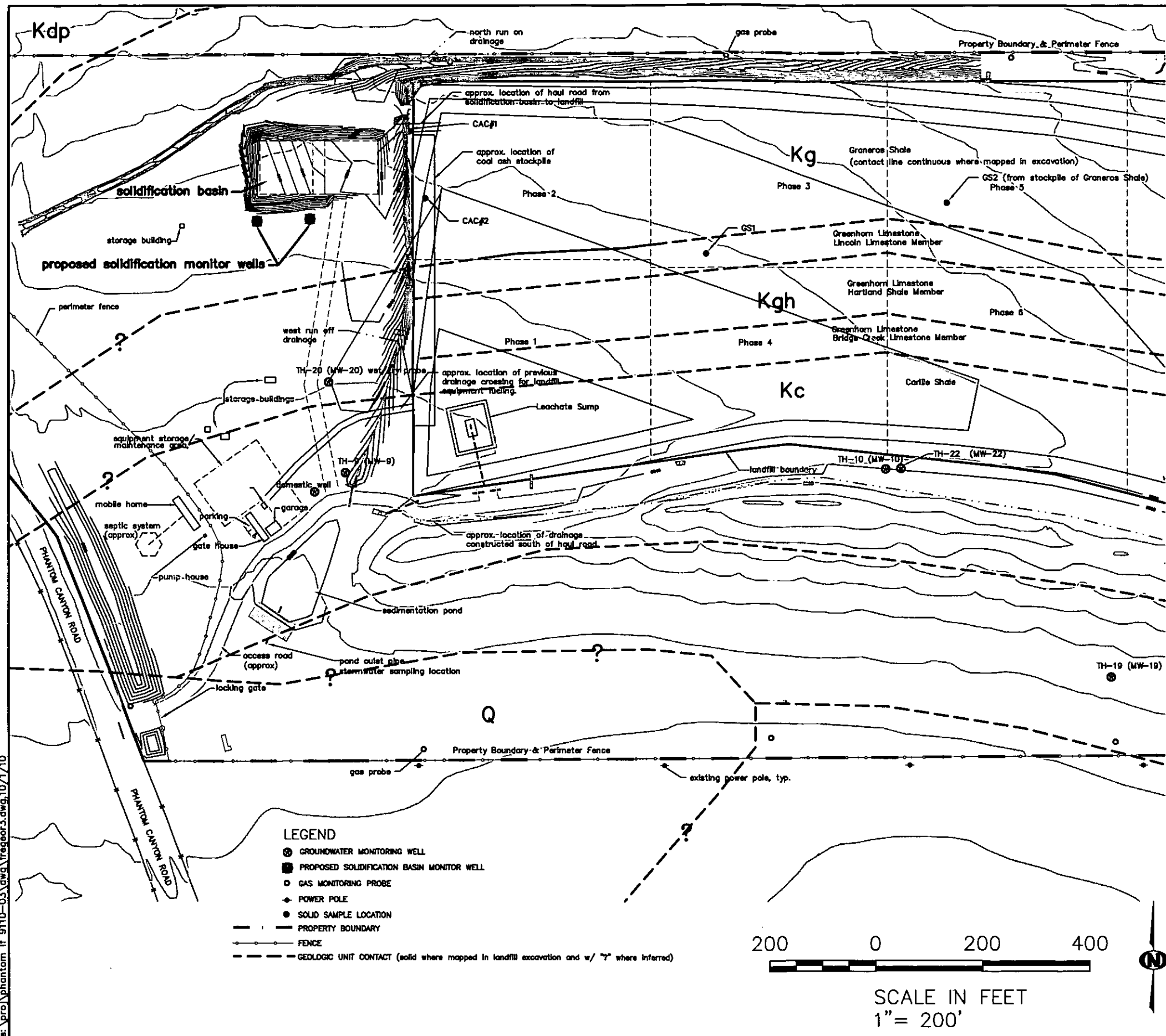
Sincerely,
KRW Consulting, Inc.



David Douglass, P.E.
V.P. Engineering

Attachments: Figure 1, Site Plan and Geology map
Well Logs; TH-9 & TH-20
Figure 2, Solidification Basin Leak Detection (Monitoring) Well detail
Solidification Basin Operation Log

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GEOLOGIC MAP LEGEND

--- Approximate location of bedrock contact; shown as --- where insufficient data available.

Q - Alluvium - Reddish-brown, poorly sorted cobbly sand and gravel. Thickness unknown.

Niobrara Formation (Upper Cretaceous)

Kns - Smoky Hill Shale Member - Contains seven slightly fossiliferous units which, from top to bottom are the dark yellowish-orange upper chalk (ledge former), pale yellowish-brown upper chalky shale, yellowish-gray middle chalk (ledge former), yellowish-gray middle shale, gray lower limestone, yellowish-brown lower shale, and gray shale and limestone. Total thickness is about 570 feet.

Knf - Fort Hays Limestone Member - Gray hard fossiliferous limestone layers and thin shale interbeds totaling about 40 feet in thickness. Forms persistent ledge.

Benton Formation (Upper Cretaceous)

Kc - Carlile Shale

Juana Lopez Member consisting of brown calcarenite (limestone composed of sand-like calcareous fragments) about 2.5 feet thick.

Codell Sandstone Member - Consisting of yellowish-gray sandstone about 30 feet thick.

Blue Hill Shale Member - Dark-gray noncalcareous shale about 100 feet thick.

Fairport Chalky Shale Member - Pale yellowish brown calcareous shale about 100 feet thick.

Kgh - Greenhorn Limestone

Bridge Creek Limestone Member - Gray hard limestone layers and thick shale interbeds about 40 feet thick.

Hartland Shale Member - dark-gray calcareous shale about 60 feet thick.

Lincoln Limestone Member - dark-gray calcareous shale and calcarenite about 40 feet thick.

Kg - Graneros Shale - Dark-gray fissile noncalcareous clayey shale and shaly siltstone about 115 feet thick.

Kdp - Dakota Sandstone/Purgatoire Formation (Lower Cretaceous)

Dakota Sandstone - Yellowish-brown crossbedded fine-grained sandstone about 110 feet thick.

Purgatoire Formation

Glencalm Shale Member - Olive-brown thin-bedded sandstone, gray and black shale and clay about 80 feet thick.

Lytle Sandstone Member - white fine to coarse-grained sandstone, variegated clay, and pebble beds about 33 feet thick.

Source of Bedrock Descriptions: Scott, G.R., 1977, USGS Map MF-892

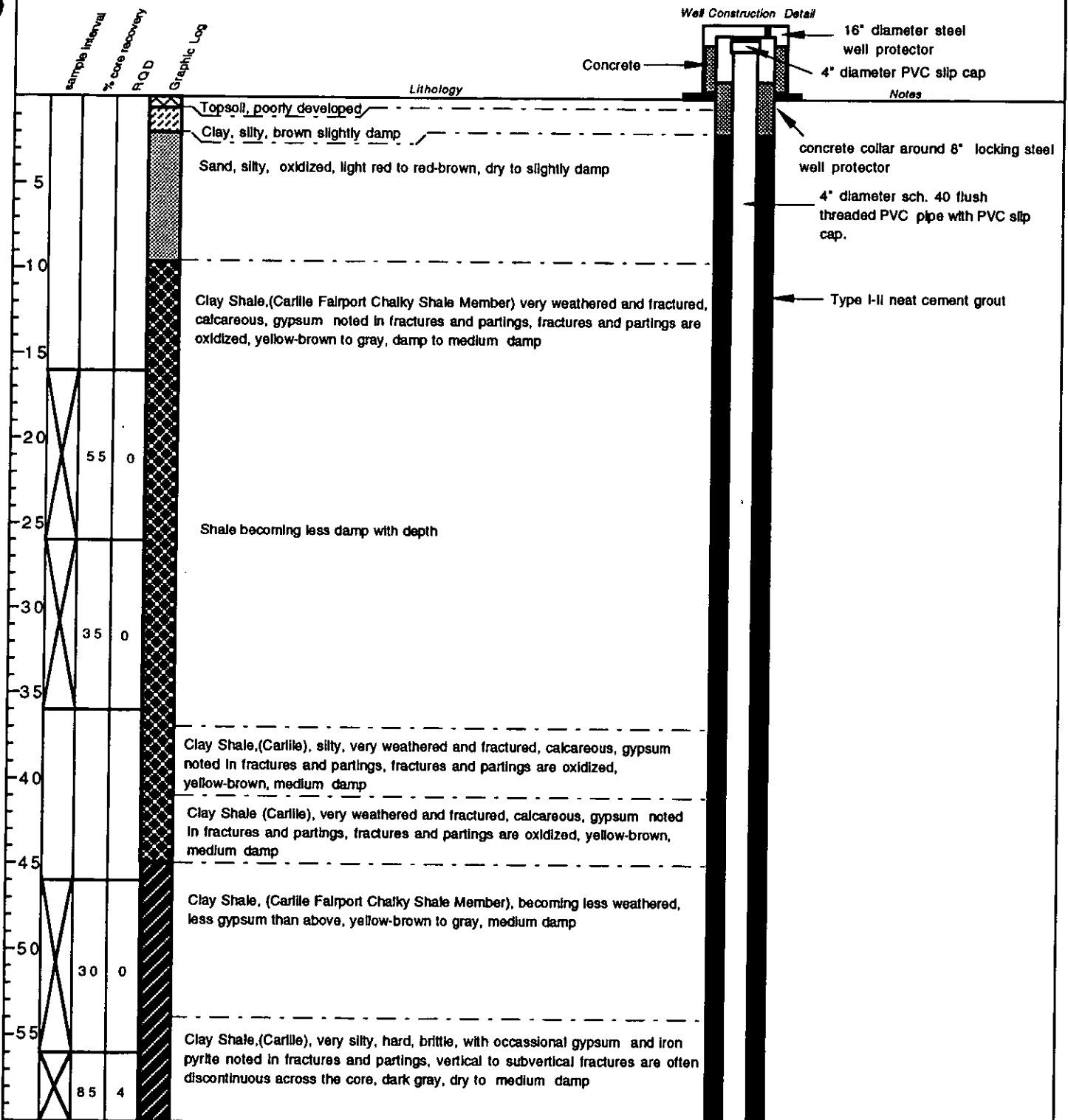
KRW CONSULTING, INC.
LAKEWOOD, COLORADO

PHANTOM LANDFILL SITE PLAN AND GEOLOGY
PREPARED FOR: TWIN LANDFILL CORPORATION OF FREMONT COUNTY

| | | | | | |
|-------------|---------|-----------|-----|---------|----|
| DATE | 7/93 | DESIGNED | KRW | CHECKED | DD |
| DATE | 7/93 | DRAWN | JKH | | |
| FILE NAME | regior3 | | | | |
| PROJECT NO. | 9110-03 | | | | |
| SCALE | SHOWN | SHEET NO. | NA | | |

Project Name: Phantom Landfill
Project No.: 9110-03

Boring No.: TH-9
Logged By: K. White
Date: 2/11/93



Drilling Method: Air Rotary

Location Coordinates: 9492.60N, 3034.75E

Hole Diameter/Core Size: 7.88/NC

Rig Type: Failing 1500

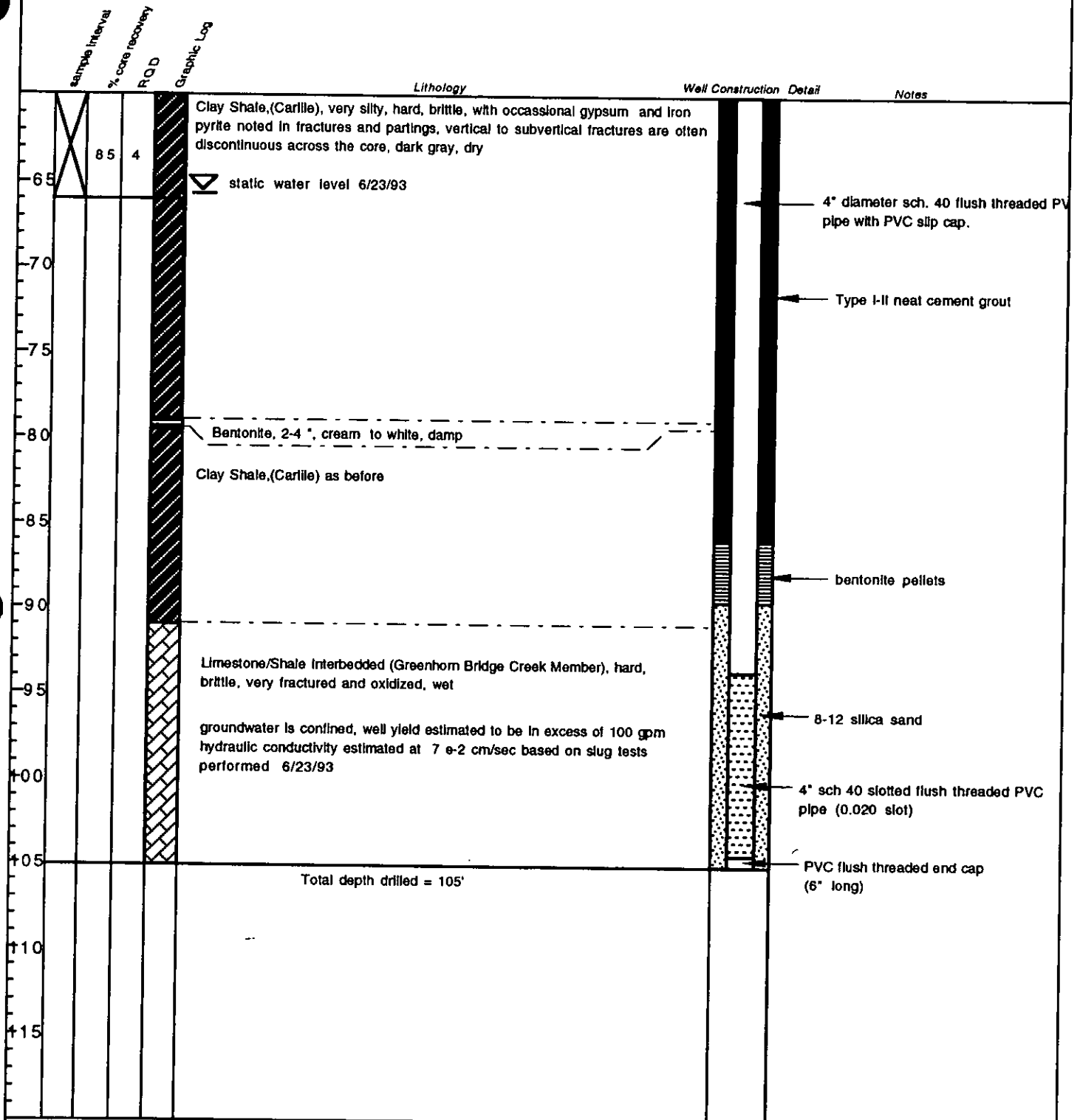
Test Boring Elevation: Ground 5624.89
Top of locking steel casing 5628.07

Sheet: 1 of 2

KRW CONSULTING, INC.

Project Name: Phantom Landfill
Project No.: 9110-03

Boring No.: TH-9 cont.
Logged By: K. White
Date: 2/11/93



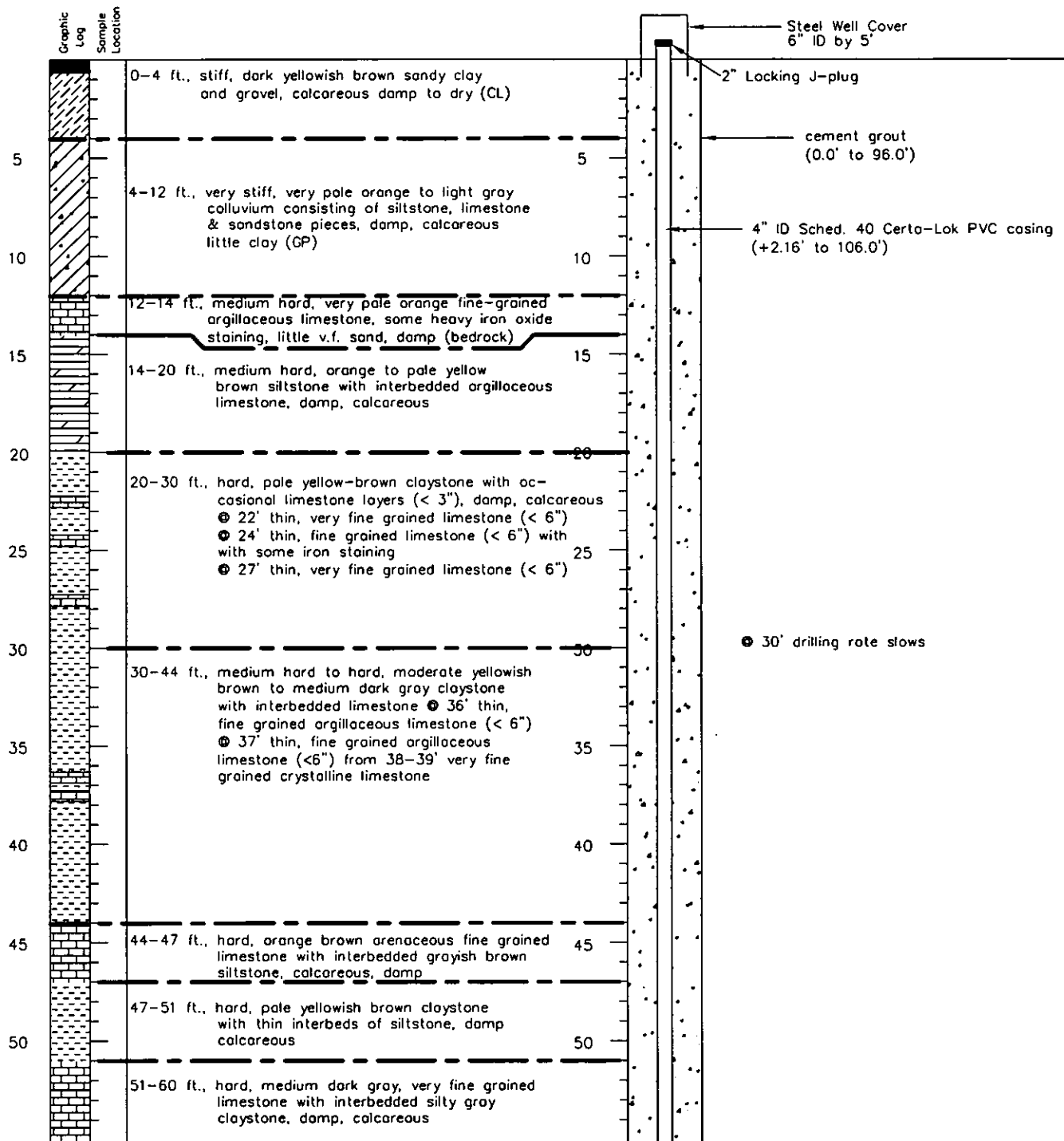
Drilling Method: Air Rotary
Hole Diameter/Core Size: 7.88/NC
Rig Type: Failing 1500
Test Boring Elevation: Ground 5624.89
Top of locking steel casing 5628.07
Sheet: 2 of 2

Location Coordinates: 9492.60N, 3034.75E

KRW CONSULTING, INC.

Project Name: Phantom Landfill
Project Address: Fremont County, CO
Date: November 19-21, 1998

Boring No.: TH-20
Logged By: B. Tilton
Sheet: 1 of 5

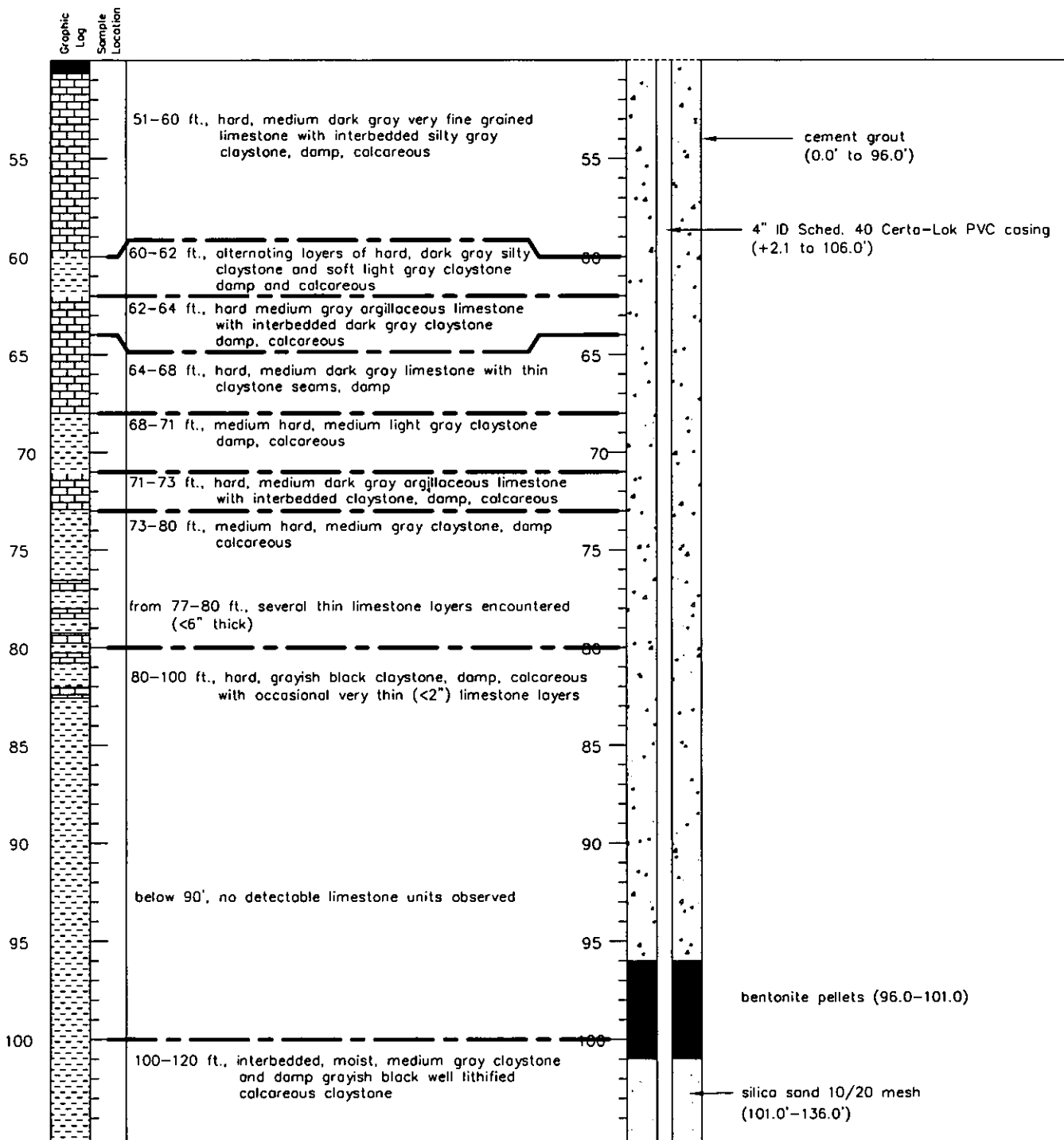


Drilling Method: air rotary
Hole Diameter: 8.625" (0-20'), 7.875" (20-260')
Rig Type: Porta Drill 524
Test Boring Elevation: Grd=5631.81', TOPVC=5633.97', TOC=5634.51'
Sample Method: sieve

KRW CONSULTING, INC.
7717-J West 6th Avenue
Lakewood, CO. 80215
(303)239-9011
Project No. 9110-03

Project Name: Phantom Landfill
Project Address: Fremont County, CO
Date: November 19-21, 1998

Boring No.: TH-20
Logged By: B. Tilton
Sheet: 2 of 5

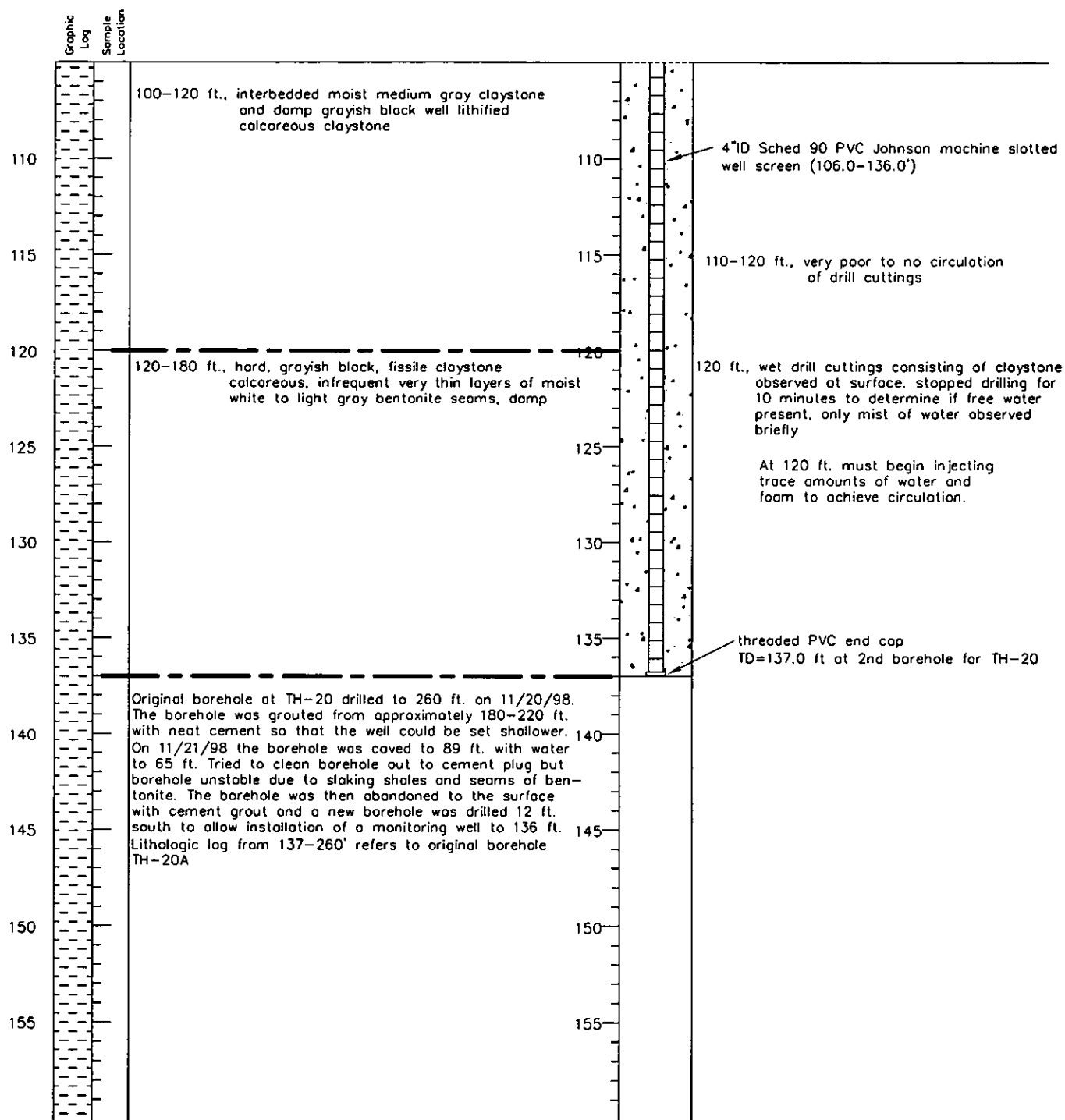


Drilling Method: air rotary
Hole Diameter: 7.875"
Rig Type: Porta Drill 524
Test Boring Elevation: Grd=5631.81', TOPVC=5633.97', TOC=5634.51'
Sample Method: sieve

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(303)239-9011
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Project Name: Phantom Landfill
Project Address: Fremont County, CO
Date: November 19-21, 1998

Boring No.: TH-20
Logged By: B. Tilton
Sheet: 3 of 5

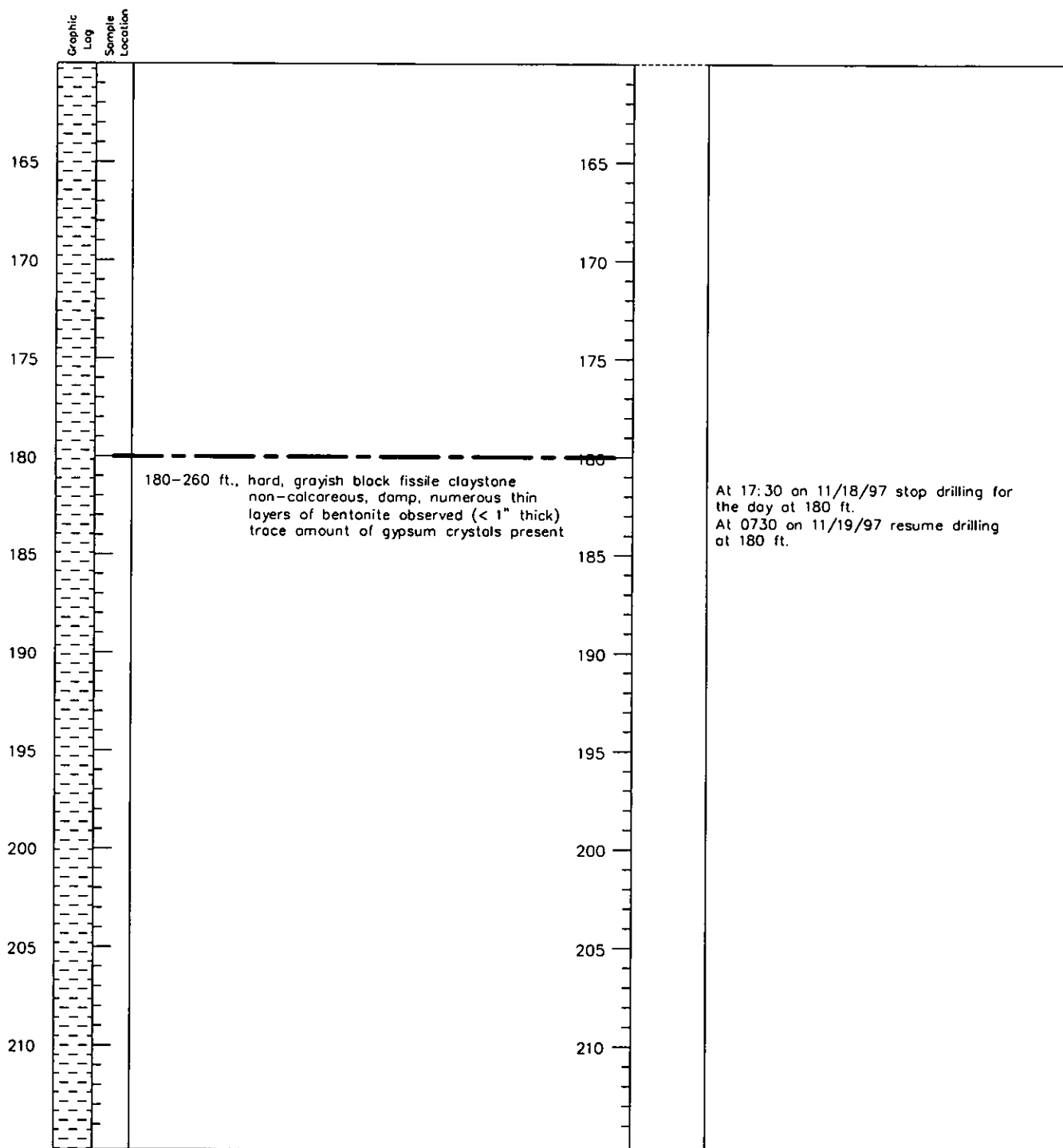


Drilling Method: air rotary
Hole Diameter: 7.875"
Rig Type: Porta Drill 524
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Sample Method: sieve

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(303)239-9011
Project No. 9110-03

Project Name: Phantom Landfill
Project Address: Fremont County, CO
Date: November 19-21, 1998

Boring No.: TH-20
Logged By: B. Tilton
Sheet: 4 of 5

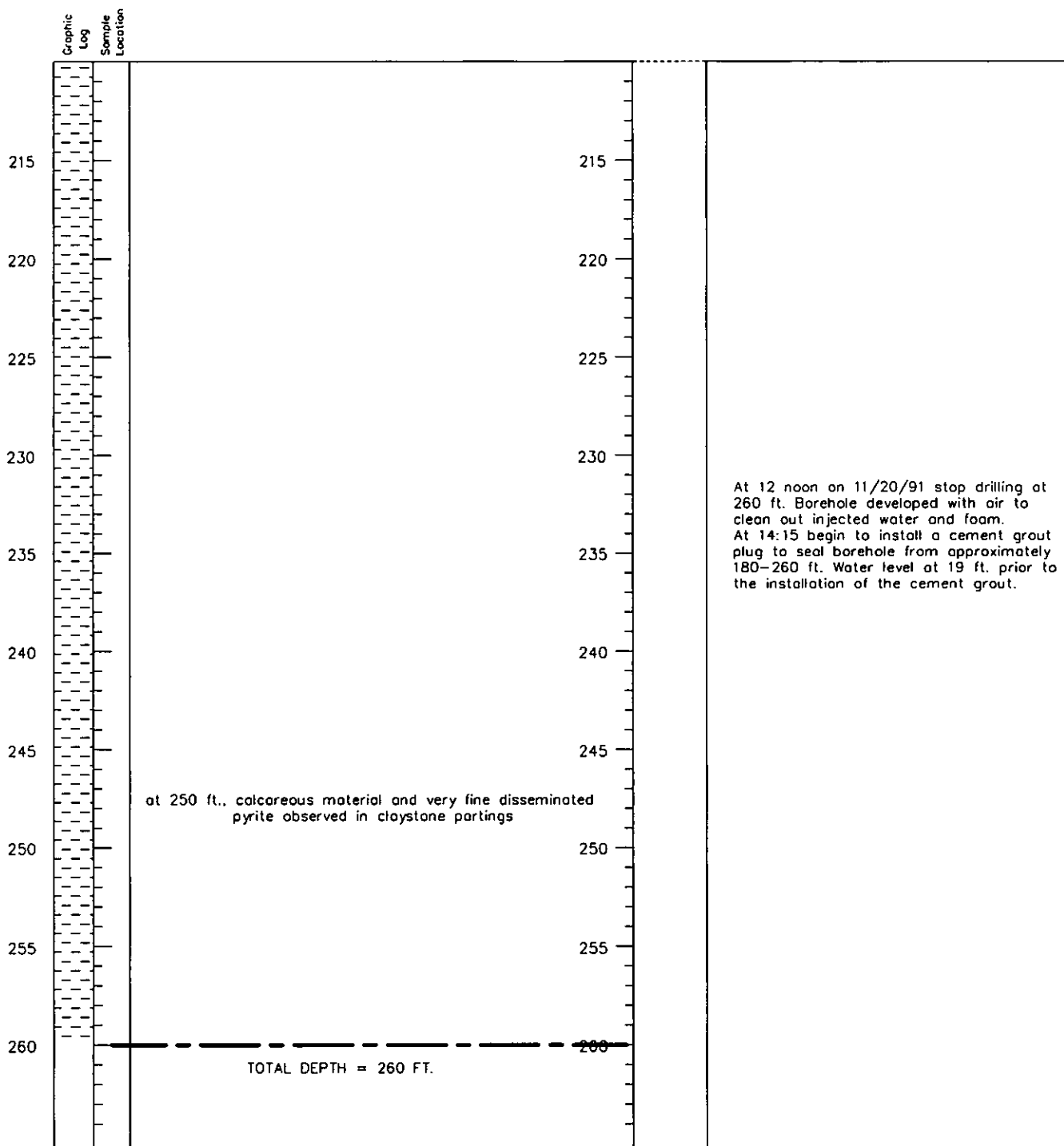


Drilling Method: air rotary
Hole Diameter: 7.875"
Rig Type: Porta Drill 524
Test Boring Elevation: Grd=5631.81', TOPVC=5633.97', TOC=5634.51'
Sample Method: sieve

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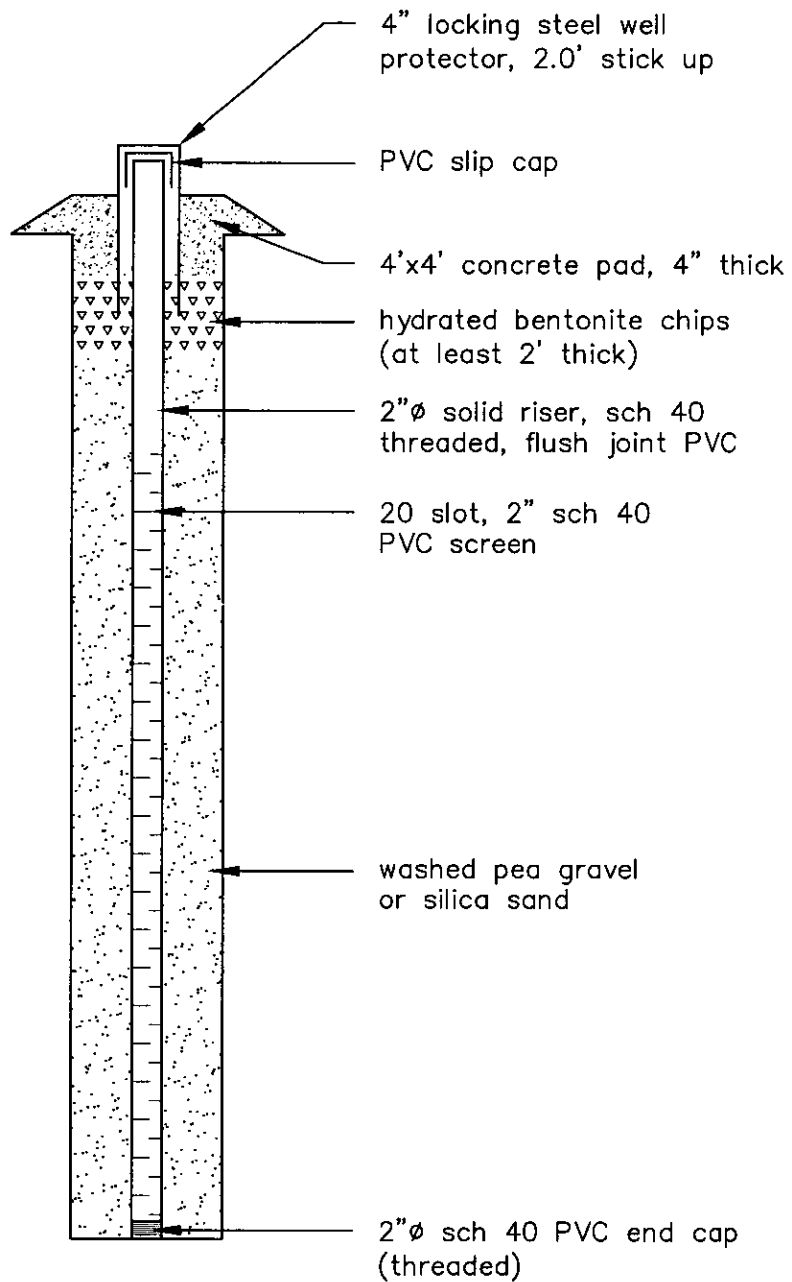
Project Name: Phantom Landfill
Project Address: Fremont County, CO
Date: November 19-21, 1998

Boring No.: TH-20
Logged By: B. Tilton
Sheet: 5 of 5



Drilling Method: air rotary
Hole Diameter: 7.875"
Rig Type: Porta Drill 524
Test Boring Elevation: Grd=5631.81', TOPVC=5633.97', TOC=5634.51'
Sample Method: sieve

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(303)239-9011
Project No. 9110-03



Note: Total Depth will vary based on site conditions.

6"Ø borehole

LEAK DETECTION WELL DETAIL PHANTOM LANDFILL

PREPARED FOR: TWIN LANDFILL CORP

| DATE | REVISIONS | DESIGNED: GK | CHECKED: GK | FIGURE |
|------|-----------|-------------------------------|---------------------|--------|
| | | DATE: 9/30/10 | DRW: DRF | 2 |
| | | FILE NAME: well log design | SHEET NO. 2 of 2 | |
| | | PROJECT NO. 9110-03 | SCALE: NTS | |

KRW CONSULTING, INC.
8000 W. 14TH AVENUE, SUITE 200
LAKEWOOD, COLORADO
(303) 239-9011

Month/Year

[illegible]