

Kacy Murillo (adpce.ad)

Subject: RE: Work Plan for Well Installations, Eco-Vista Class 4 Landfill, Solid Waste Permit No. 0290-S4-R2, AFIN 72-00144

AFIN: 72-00144

PMT#: 0290-S4-R2

Received

By Kacy Murillo at 4:03 pm, May 10, 2023

DOC ID#: 83983

TO: BS>FILE <KM

From: Steve Jett [mailto:steve.jett@jettenviro.com]

Sent: Wednesday, May 10, 2023 2:16 PM

To: gwreports <gwreports@adeq.state.ar.us>

Cc: Conrad, David <dconrad@wm.com>; Reynolds, Jodi <jreyno10@wm.com>; Michael Caldwell <mcaldwell@wm.com>; Small, Blake <bsmall@wm.com>; Travis Doll <travis.doll@jettenviro.com>; Travis Atwood (adpce.ad) <travis.atwood@adeq.state.ar.us>

Subject: Work Plan for Well Installations, Eco-Vista Class 4 Landfill, Solid Waste Permit No. 0290-S4-R2, AFIN 72-00144

On behalf of Eco-Vista, LLC, Jett Environmental Consulting is submitting the attached Work Plan for Well Installations for the Eco-Vista Class 4 Landfill.

If you have any questions or comments regarding this submittal, please do not hesitate to contact us.

Sincerely,

Steve Jett, P.G.

Owner

Jett Environmental Consulting

18 Lexington Oaks Court

Foristell, MO 63348

314-496-4654

steve.jett@jettenviro.com

www.jettenviro.com



May 10, 2023

Submitted via Electronic Mail

Mr. Travis Atwood, Geologist
Arkansas Department of Energy and Environment
Division of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

**Re: Work Plan for Well Installations
Eco-Vista, LLC, Class 4 Landfill (Permit No. 0290-S4-R2)
AFIN: 72-00144**

Dear Mr. Atwood:

On behalf of Eco Vista, LLC, Jett Environmental Consulting is pleased to submit this Work Plan to the Arkansas Department of Energy and Environment, Division of Environmental Quality (ADEQ), for work to be conducted at the Eco-Vista Class 4 Landfill. The proposed work is for the installation of groundwater monitoring wells, as described below.

BACKGROUND

An updated Class 4 Landfill Permit was issued by ADEQ on March 17, 2023, which stated a Work Plan is required to be submitted to ADEQ within 60 days of the effective date of the Class 4 Landfill Permit. Therefore, this Work Plan is due to ADEQ on May 16, 2023.

Per Condition No. 16 of the Class 4 Landfill Permit, a Work Plan shall be submitted for ADEQ approval for the installation of four additional groundwater monitoring wells near the Class 4 Landfill. Two wells should be located between current monitoring wells MW-20 and MW-3N and two monitoring wells should be located to the north and northwest of the new Class 4 expansion area. **Figure 1** displays the proposed locations of the four additional groundwater monitoring wells (MW-22 through MW-25).

For reference, the boring logs and well construction diagrams for wells and piezometers in closest proximity to the proposed wells (MW-19, MW-2N, MW-20, MW-3N, NE-13, and piezometer C4-PZ-1) are included in **Attachment 1**.

INSTALLATION

The target zone for the screened interval of the monitoring wells is the epikarst zone at the top of the bedrock (if encountered). Based on boring logs of nearby existing wells, we suspect that MW-24/MW-25 may be installed in the epikarst with the bottom depth installed to the top of the bedrock. However, in the MW-22/MW-23 vicinity, nearby wells did not encounter an epikarst zone; therefore, wells MW-22/MW-23 may be installed in bedrock (approximately 15 feet into bedrock).

For the four new groundwater monitoring wells, it is estimated that the screened interval will be located at an approximate depth of 85 feet below ground surface (ft bgs) for wells MW-22/MW-23, and an approximate depth of 55 ft bgs for wells MW-24/MW-25. For the bedrock wells, the bottom of the 10-foot screen will be placed approximately 15 feet below the encountered depth to water (i.e., approximately 10-15 feet into the bedrock), to allow for sufficient water to be present for future sampling activities. Actual depths may vary depending on topography and local variations in depth to target the stratum encountered in the field.

Drilling and well installation/abandonment will be performed by an Arkansas-licensed driller. To install the wells, the driller will advance borings and install the monitoring wells using sonic (rotary vibratory), air rotary, or

hollow-stem auger drilling methods. Each boring will be continuously sampled using core barrels or hollow-stem augers. Soils will be logged and classified according to the Unified Soil Classification System by a qualified geologist contracted separately by the facility. The wells will be constructed and developed in general conformance with American Society for Testing and Materials (ASTM) D5092 construction protocols and in accordance with US Environmental Protection Agency (EPA) (160014-891034) and Arkansas Water Well Construction Commission (AWWCC) guidance documents.

The equipment to be used for well installation will be cleaned and decontaminated prior to the first boring and between drilling locations.

Each groundwater monitoring well will have the following design components:

- The well borings will be advanced using sonic core barrels, hollow stem augers, or air rotary utilizing a sufficient diameter to maintain a minimum of 2 inches of annular space between the well casing and borehole wall.
- The polyvinyl chloride (PVC) well casing at each well will have a locking cap, which is vented to allow equilibration of water levels with atmospheric pressure.
- The top of casing at each well will be permanently marked, or notched, for future use as a reference point for water-level measurements.
- Each monitoring well will be secured at the surface with a locking, protective steel or aluminum casing; concrete pad; and protective pipe bollards. A weep hole will be drilled in the protective casing approximately 6 inches above ground surface to allow for drainage.
- The monitoring well identifications will be clearly marked on the outside protective casings.
- Well casings and screens will be constructed of 2-inch-diameter, Schedule 40 PVC with flush-threaded casing; a 10-ft long, 10-slot (i.e., 0.010-inch) well screen; and a bottom end cap.
- A filter pack consisting of well-rounded, 10- to 20-silica sand will be placed in the annular space to a minimum distance of 3 ft above the top of the screen.
- The annular space above the filter pack will be completed with a sealant consisting of a minimum of 3 ft of bentonite pellets. The bentonite seal will be followed by a well-mixed bentonite cement grout filled to the ground surface and installed using a tremie pipe.

Slight adjustments to well construction may be required in the field based on the observed lithology at each well location. Any deviations from well design will conform to recommendations in the above-referenced guidance documents.

WELL DEVELOPMENT

The new groundwater monitoring wells will be developed to the degree necessary to restore formation hydraulic conductivity and to yield low-turbidity samples that are representative of formation groundwater quality. Each well will be developed by means of mechanical surging and over-pumping using a submersible pump and surge block. Groundwater will be monitored for depth to water and turbidity. Field readings will continue until the water removed is visibly free of silt and sand and turbidity readings are below 10 nephelometric turbidity units (NTUs), where practical.

WELL SURVEY

An Arkansas-licensed surveyor will survey the horizontal and vertical location of each new monitoring point. The vertical locations of each water-level-measurement reference point on the top of PVC casing will be surveyed to the nearest 0.01 ft, with the horizontal locations surveyed to the nearest 0.1 ft. The vertical locations of the top of concrete and nearest ground surface will be surveyed to the nearest 0.1 ft.

The survey report will include horizontal and vertical coordinates based on the landfill's site-referenced coordinate system, which is based on established site-specific benchmarks.

INSTALLATION REPORT

Within 60 calendar days of completion of the proposed field work, a report will be submitted documenting field activities. The report will be certified by the supervising professional per Regulation 22.1103(f) and will include the following:

- A site map that includes the surveyed locations of the newly installed monitoring points,
- Boring logs and construction diagrams for the new monitoring points,
- Well development records,
- Summary of work quality and methods, and
- The certified survey report from an Arkansas-licensed surveyor containing vertical and horizontal location coordinates for the newly installed monitoring points.

If you have any questions or comments, please contact me at steve.jett@jettenviro.com or 314-496-4654.

Sincerely,







Steve Jett, P.G. No. 1826
Owner

*Attachments: Figure 1 – Site Layout & Proposed Well Locations
Attachment 1 – Boring Logs & As-Builts*

*cc: Jodi Reynolds – WM (PDF via Email)
Dave Conrad – WM (PDF via Email)
Michael Caldwell – WM (PDF via Email)*

LEGEND

-  LGW-3R Existing Groundwater Monitoring Well
-  MW-22 Proposed Groundwater Monitoring Well
-  PZ-1D Existing Piezometer
-  Property Line Boundaries (Approximate)

Note: Base map provided by Waste Management.

0 200 400 600 1200
 Scale in Feet
 Graphic Scale: 1 inch = 600 feet

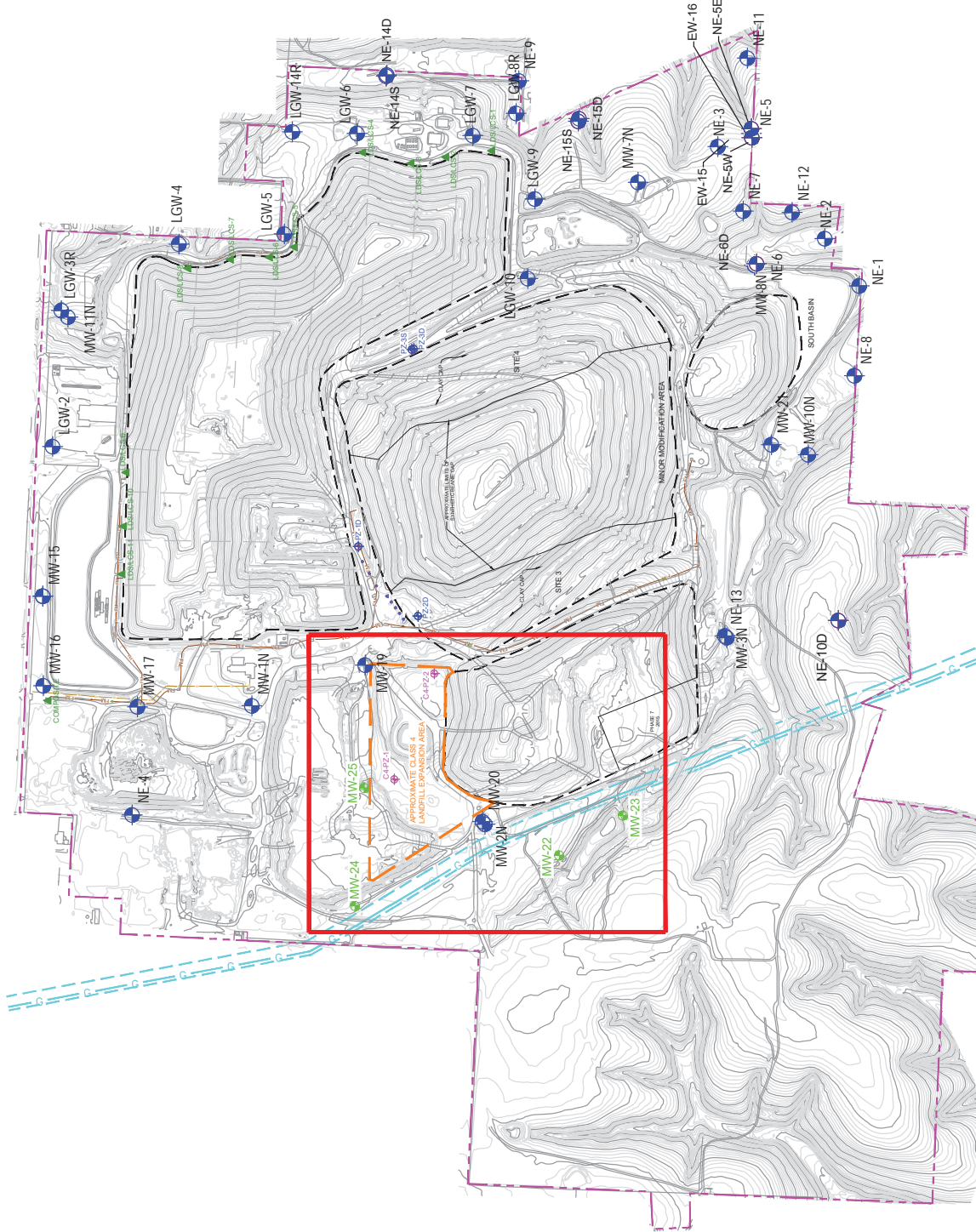


Figure 1
 Site Layout & New Well Locations
 Eco-Vista Landfill, Springdale, Arkansas

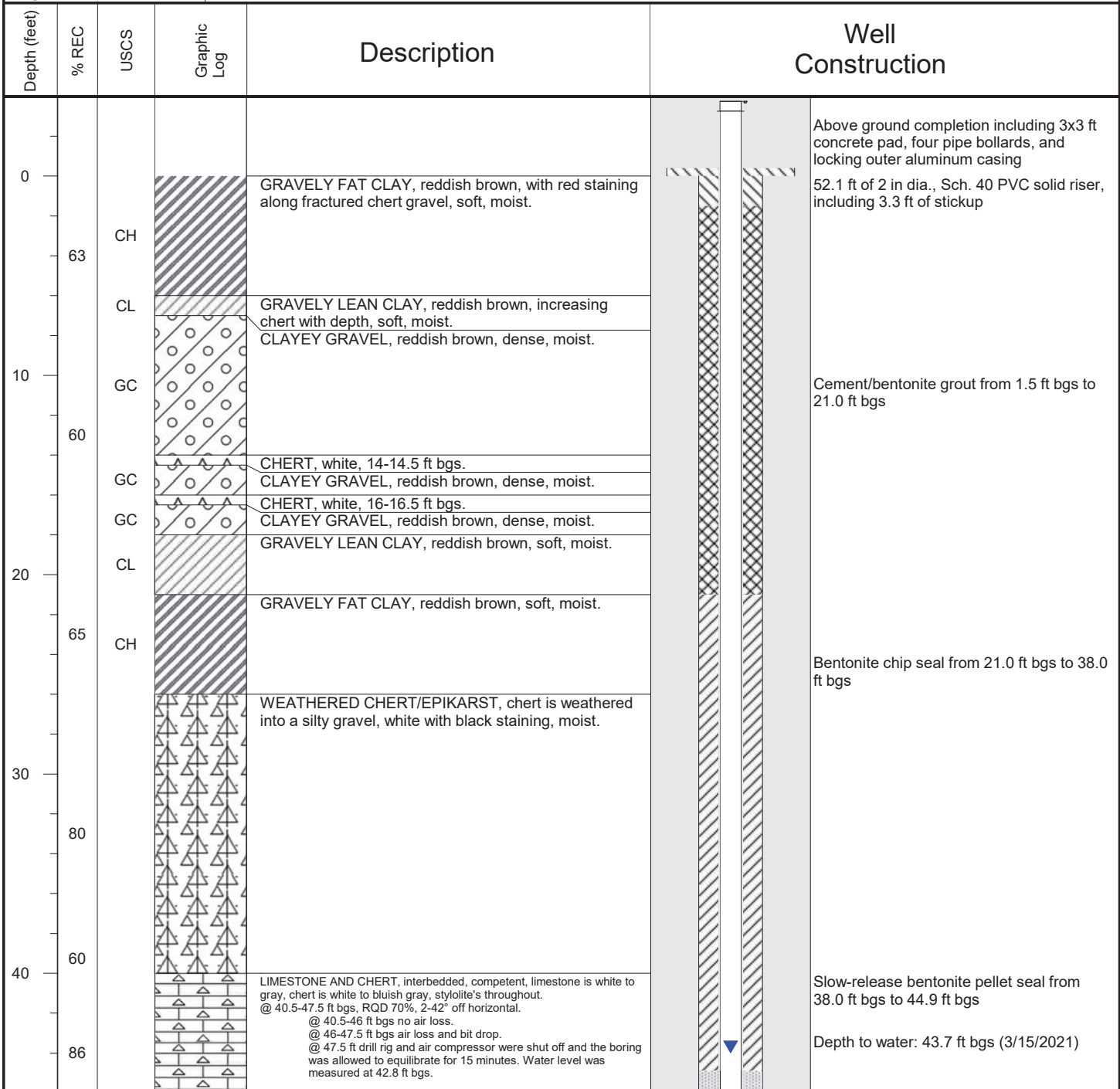
18 Livingston Oaks Court
 Fort Smith, AR 72434
 501.459.4454
 www.jettenviro.com





FTN Project #
R06820-0100-016

PROJECT: Eco-Vista, LLC Class 4 Landfill GHI	BORING ID: C4-PZ-1	WELL ID: C4-PZ-1
LOCATION: Eco-Vista, LLC Landfill, Tontitown, AR	NORTHING, FT SRC: 664704.9	EASTING, FT SRC: 644512.2
DRILLING CONTRACTOR: Walker-Hill Environmental, Inc.	GROUND SURFACE, FT SRE: 1269.4	TOC MP, FT SRE: 1272.68
DRILLING EQUIPMENT: Versa-Drill VersaSonic	WELL DEPTH, FT BELOW MP: 62.4	INSTALLATION DATES: 2/23-27/2021
DRILLING METHOD: Sonic with 4x6 in dia. core and case in soils and air rotary in bedrock		
LOGGED BY: AJP	SAMPLING METHOD: Continuous with 10 ft, 4 in dia. core barrel in soil and 10 ft HQ core barrel in bedrock	



NOTES: Horizontal and vertical data are based on the Mason Surveying & Consulting, Inc. report dated March 4, 2021. SRE=site referenced elevation, SRC=site referenced coordinates, TOC=top of casing, MP=surveyed measuring point on TOC.



FTN Project #
R06820-0100-016

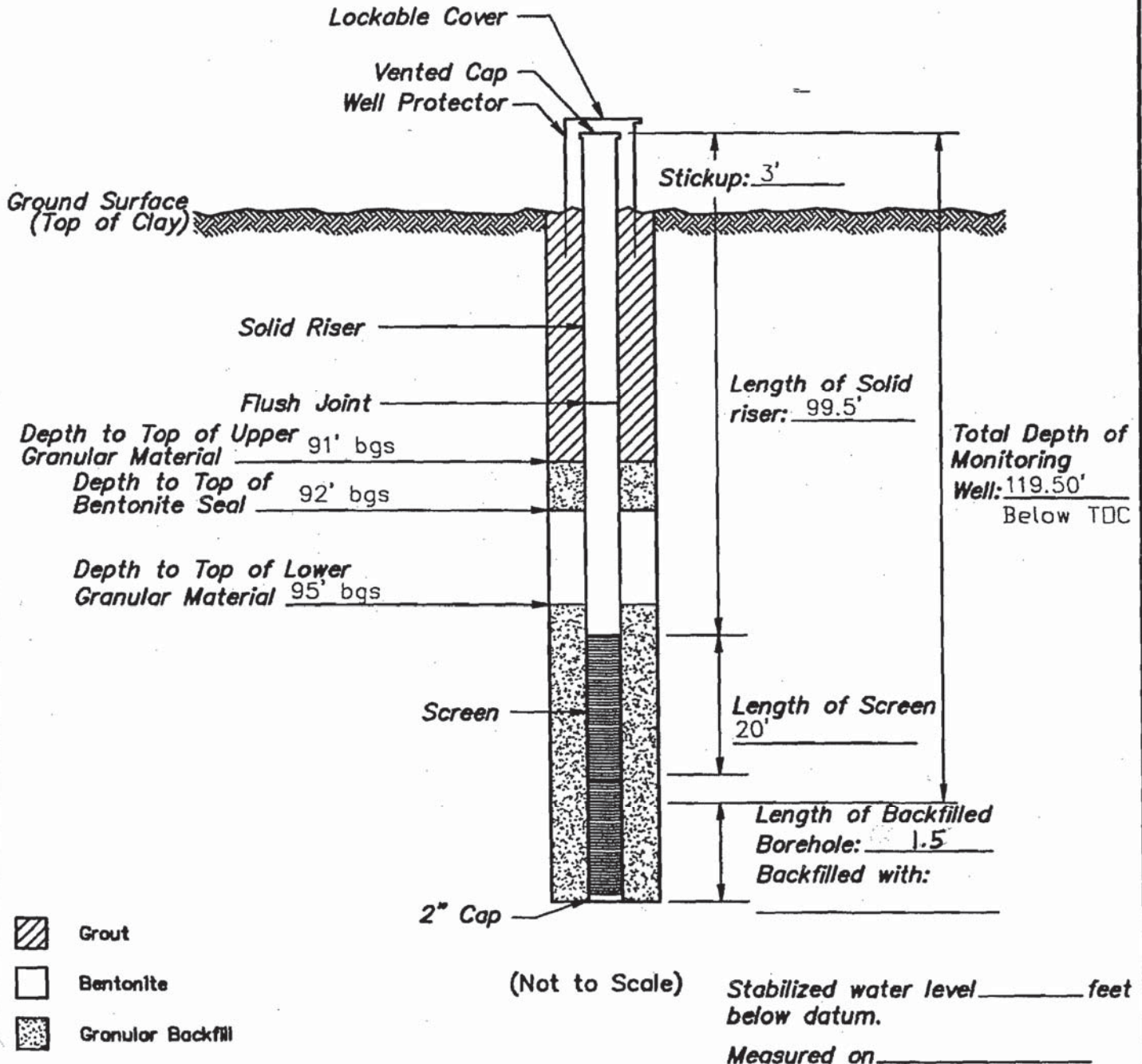
PROJECT: Eco-Vista, LLC Class 4 Landfill GHI	BORING ID: C4-PZ-1	WELL ID: C4-PZ-1
LOCATION: Eco-Vista, LLC Landfill, Tontitown, AR	NORTHING, FT SRC: 664704.9	EASTING, FT SRC: 644512.2
DRILLING CONTRACTOR: Walker-Hill Environmental, Inc.	GROUND SURFACE, FT SRE: 1269.4	TOC MP, FT SRE: 1272.68
DRILLING EQUIPMENT: Versa-Drill VersaSonic	WELL DEPTH, FT BELOW MP: 62.4	INSTALLATION DATES: 2/23-27/2021
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LOGGED BY: AJP	SAMPLING METHOD: Continuous with 10 ft, 4 in dia. core barrel in soil and 10 ft HQ core barrel in bedrock	

Depth (feet)	% REC	USCS	Graphic Log	Description	Well Construction
50	33			<p>@ 47.5-53.5 ft bgs, RQD 5.6% and should be considered questionable due to poor recovery.</p> <p>@ 47.5-49 ft bgs air loss and bit drop.</p> <p>@ 49-53.5 ft bgs air loss.</p> <p>@ 53.5 ft due to very slow drilling, the drill rig and air compressor were shut off and the sample core was pulled. Reddish brown clay was found inside the sampler and is thought to have prevented retrieval of a sample. The boring was allowed to equilibrate for 15 minutes. Water level was measured at 44.3 ft bgs.</p> <p>@ 53.5-59 ft bgs, RQD 87%, fractures 2-43° off horizontal.</p> <p>@ 53.5-59 ft bgs, air loss.</p> <p>@ 59 ft drill rig and air compressor were shut off and the boring was allowed to equilibrate for 15 minutes. Water level was measured at 44.2 ft bgs.</p>	<p>Silica size 20/40 filter pack from 44.9 ft bgs to 59.0 ft bgs</p> <p>10.0 ft of 2 in dia., 0.010 in slot, Sch. 40 PVC screen</p> <p>0.23 ft, 2 in dia., Sch. 40 PVC end cap Drilling terminated at 59.0 ft bgs</p>
60					
70					
80					
90					

NOTES: Horizontal and vertical data are based on the Mason Surveying & Consulting, Inc. report dated March 4, 2021. SRE=site referenced elevation, SRC=site referenced coordinates, TOC=top of casing, MP=surveyed measuring point on TOC.

MONITORING WELL INSTALLATION RECORD

Job Name Sunray/Tontitown Well Number MW-2N
 Job Number 9750 Installation Date 9/10/97 Location N-277.5690 E2391.4363
 Datum Elevation 1289.53 Surface Elevation 1286.53
 Datum for Water Level Measurement TOC
 Screen Diameter & Material 2" PVC Slot Size 0.010" 10 Slot
 Riser Diameter & Material 2" PVC Borehole Diameter 6.5 Nominal
 Granular Backfill Material GRANULAR GEC Representative DM/AS
 Drilling Method Air Rotary Drilling Contractor Anderson



GEC

GENESIS
ENVIRONMENTAL CONSULTING, INC.

11400 West Baseline Road
Little Rock, AR 72209

MONITORING WELL INSTALLATION RECORD

PROJECT NUMBER: 9750

WELL NUMBER: MW-2N

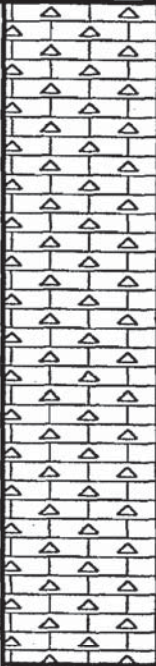
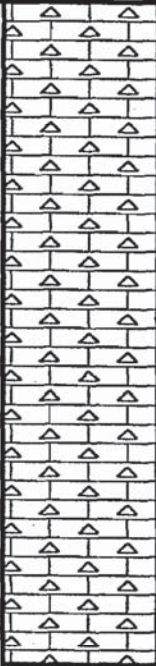
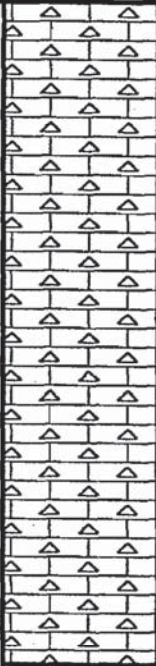
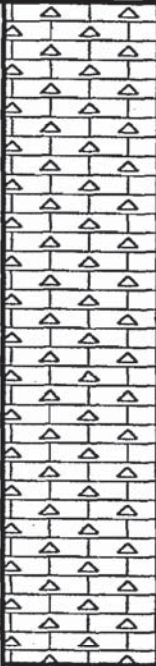
DRAWING NUMBER:

CHECKED BY: AES

Boring #: MW-2N	GEC // GENESIS ENVIRONMENTAL CONSULTING, INC. 11400 West Baseline Road Little Rock, AR 72209	Location: N -277.5690 E 2391.4363
Date: 9/15/97		Drilling Method: AIR ROTARY
Elevation: 1286.53		Driller: ANDERSON DEAN/GRAY
Job No.: 9750		Logged By: DM (pg.1)

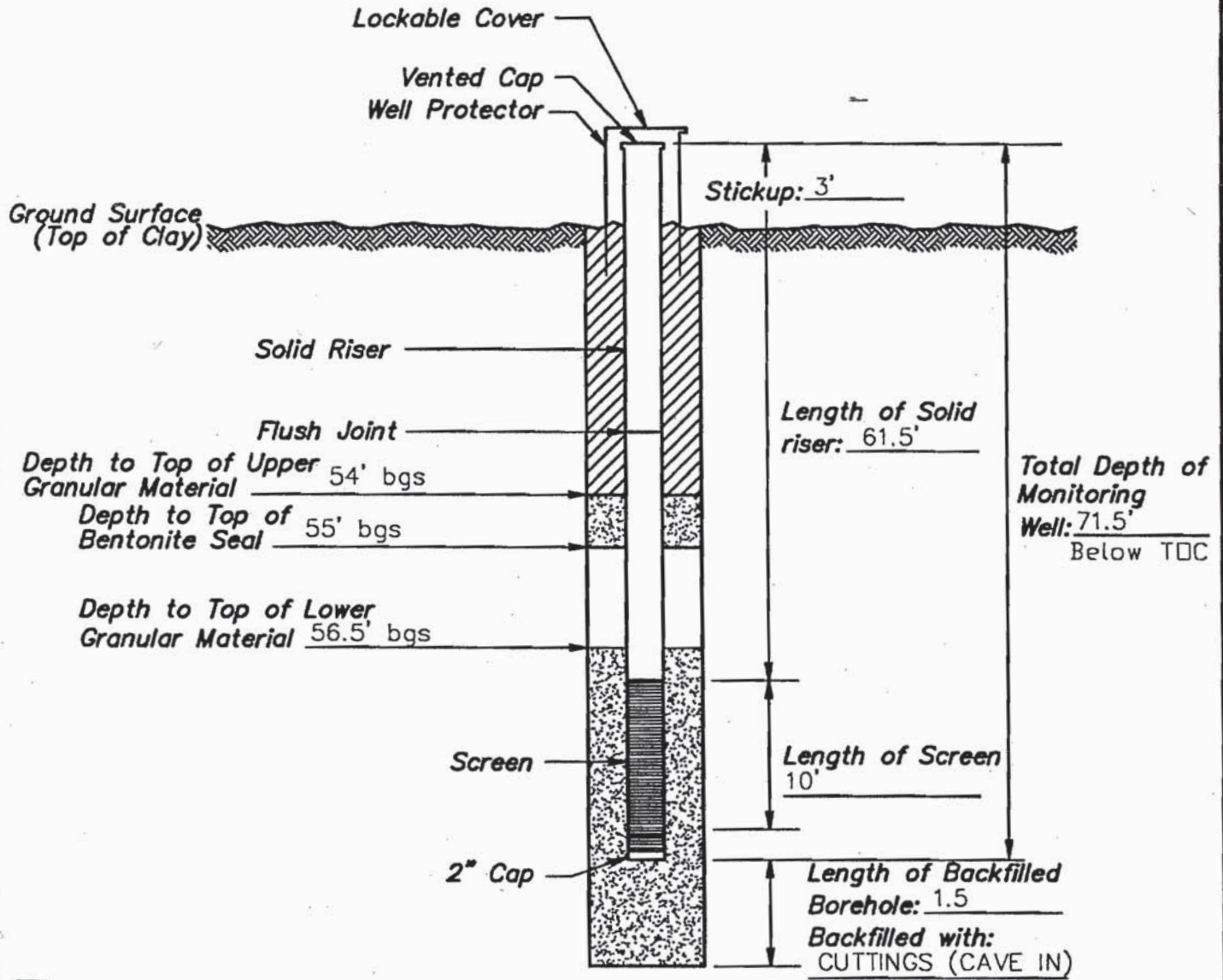
Elev.	Depth	Classification	Lithology	Sample or Box No.	Remarks		
	10	RED SILTY CLAY W/CHERT			AIR ROTARY TRI CONE BIT		
	20						
	30						
	40						
	50	LESS CHERT					
	60						
	70	69.5' BEDROCK					
	80	SOFT CHALKY LIMESTONE LITTLE CHERT DRY					
							AIR HAMMER

Boring #: MW-2N	GEC // GENESIS ENVIRONMENTAL CONSULTING, INC. 11400 West Baseline Road Little Rock, AR 72209	Location: N -277.5690 E 2391.4363
Date: 9/15/97		Drilling Method: AIR ROTARY
Elevation: 1286.53		Driller: ANDERSON DEAN/GRAY
Job No.: 9750		Logged By: DM (pg.2)

Elev.	Depth	Classification	Lithology	Sample or Box No.	Remarks
	90	HARD LIMESTONE CHERT INCREASE DRY			
	100	102'-108' SMALL FRACTURE SOME WATER			
	110				NEW BIT REAM HOLE TO 6 1/2"
	120	TD 118'			

MONITORING WELL INSTALLATION RECORD

Job Name Sunray/Tontitown Well Number MW-3N
 Job Number 9750 Installation Date 9/11/97 Location N1391.7507 E1927.1853
 Datum Elevation 1222.04 Surface Elevation 1219.04
 Datum for Water Level Measurement TOC
 Screen Diameter & Material 2" PVC Slot Size 0.010 10 Slot
 Riser Diameter & Material 2" PVC Borehole Diameter 6.5"
 Granular Backfill Material 10/20 Sand GEC Representative AS
 Drilling Method Air Rotary Drilling Contractor Anderson



- Grout
- Bentonite
- Granular Backfill

(Not to Scale)

Stabilized water level _____ feet below datum.

Measured on _____

GEC

GENESIS
ENVIRONMENTAL CONSULTING, INC.

11400 West Baseline Road
Little Rock, AR 72209

MONITORING WELL INSTALLATION RECORD

PROJECT NUMBER: 9750

WELL NUMBER: MW-3N

DRAWING NUMBER:

CHECKED BY: AES

Boring #: MW-3N	GEC // GENESIS ENVIRONMENTAL CONSULTING, INC. 11400 West Baseline Road Little Rock, AR 72209	Location: N 1391.7507 E 1927.1853
Date: 9/10/97		Drilling Method: AIR ROTARY
Elevation: 1219.04		Driller: ANDERSON
Job No.: 9750		Logged By: AS (pg.1)

Elev.	Depth	Classification	Lithology	Sample or Box No.	Remarks
	10	RED SILTY CLAY W/CHERT MED PLASTIC	△△△△△		
	20	MORE LIMESTONE (15'-18') WEATHERED, SOME CHERT DRY	△△△△△		
	30	26' CLAY BALLS, SOME CHERT, CLAY SILTY MED PLASTIC, MOIST	△△△△△		
	40	37' RED SILTY CLAY W/CHERT AND LS VERY MOIST	△△△△△		
	50		△△△△△		
	55'	1 FT LS/CHERTY	△△△△△		
	58'	BACK ONTO ROCK	△△△△△		
	60	61' HIT H2O, SOME PRODUCTION SMALL FRACTURES	△△△△△		
		65' INCREASED CHERT, SLOWER DRILLING GOOD H2O	△△△△△		
		68' CHERT STILL CAUSING SLOW DRILLING	△△△△△		
	70	68.5' VERY HARD CHERT TD 70'	△△△△△		

Field Boring Log

Boring No. : MW-19

Date Drilled: 5/7/2015



7529 Counts Massie Road " North Little Rock, Arkansas 72113
Phone (501) 812-4551 " www.chimrockconsulting.com

Client: Waste Management-EcoVista

Proj. No.: 14-045

Logged By: Mark Witherspoon

Total Depth: 80 ft below ground surface (bgs)

Drilling Method: 6" Air Rotary

Drilling Co. : Anderson Engineering

Sampling Method: cuttings

Driller: Jacob Summers

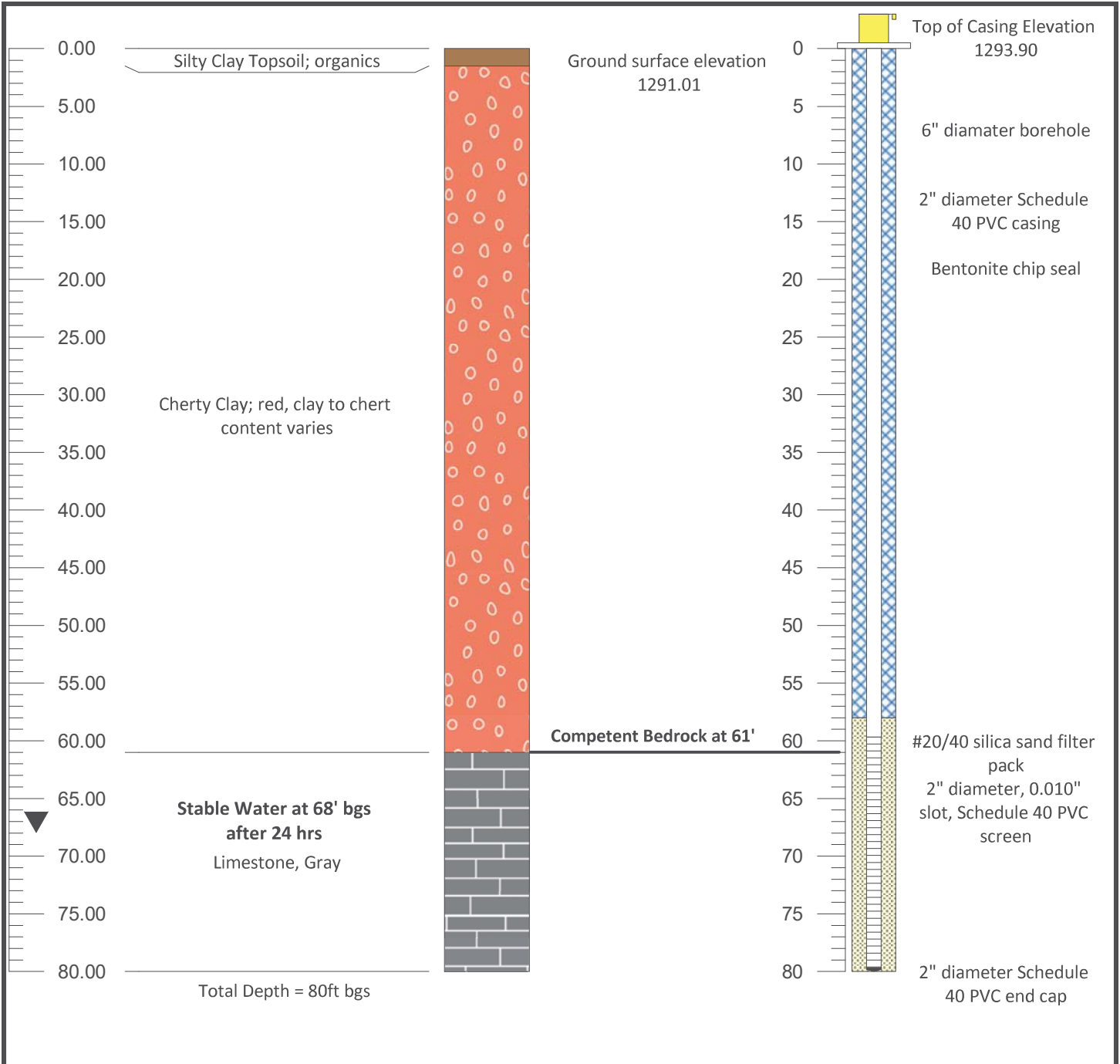
Location: Tontitown, AR


Rig Type: Ingersol Rand T3W

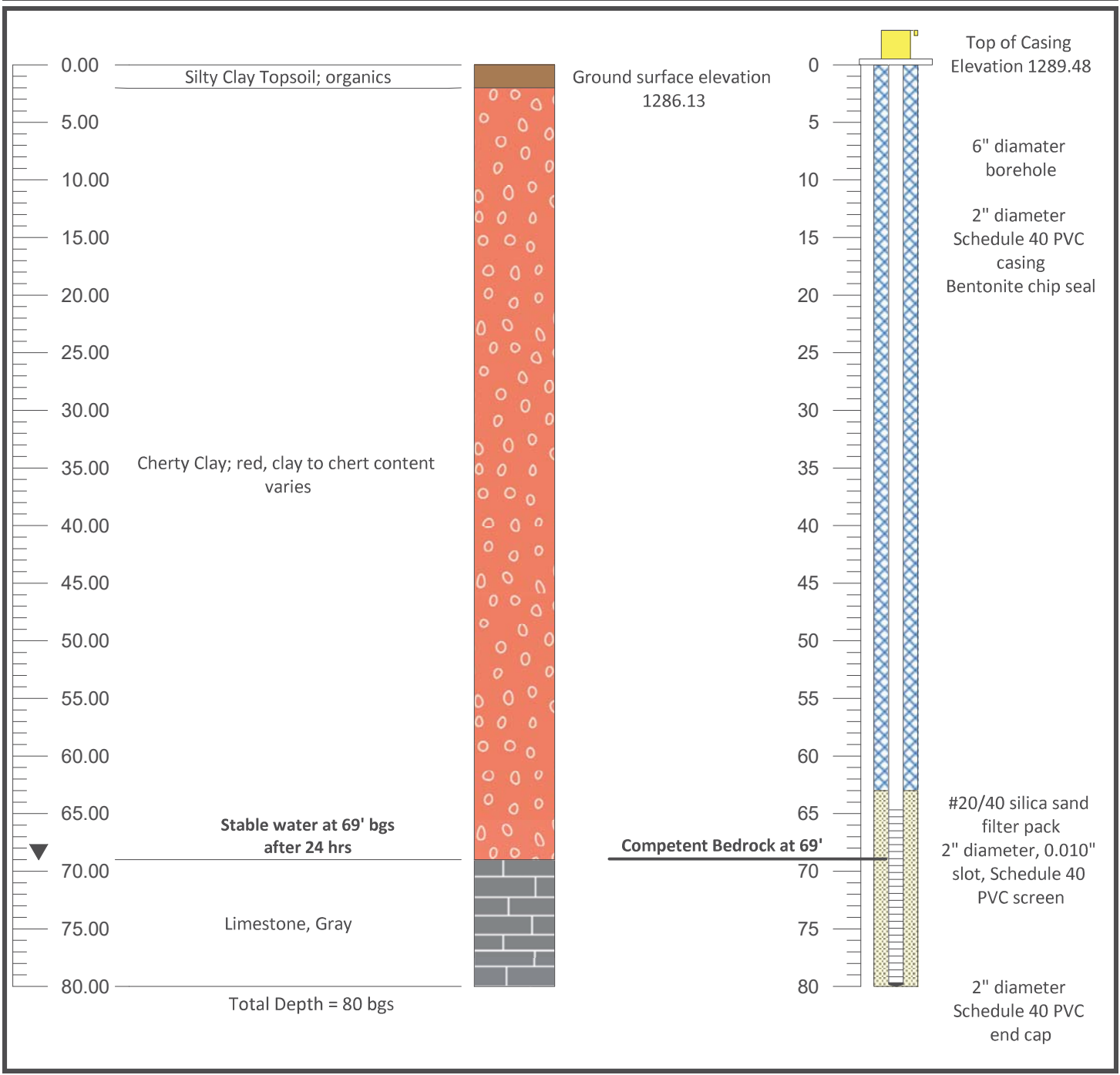
Northing: 664866.93 Easting: 645156.17 Elevation: 1291.01 (ground surface)

Page: 1

Depth bgs	Lithologic Description	Litho. Symbol	COMMENTS	WELL CONSTRUCTION DETAILS
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Field Boring Log	Boring No. : MW-20		 <p>7529 Counts Massie Road " North Little Rock, Arkansas 72113 Phone (501) 812-4551 " www.chimrockconsulting.com</p>
	Date Drilled: 5/7/2015		
Client: Waste Management-EcoVista	Proj. No.: 14-045		
Logged By: Mark Witherspoon			
Total Depth: 80 ft below ground surface (bgs)			
Drilling Method: 6" Air Rotary		Drilling Co. : Anderson Engineering	
Sampling Method: cuttings		Driller: Jacob Summers	
Location: Tontitown, AR		Rig Type: Ingersol Rand T3W	
Northing: 664200.97 Easting: 644267.35 Elevation: 1286.13 (ground surface)			Page: 1
Depth bgs	Lithologic Description	Litho. Symbol	COMMENTS
WELL CONSTRUCTION DETAILS			



11219 Richardson Drive
North Little Rock, AR

DRILLER: Gary Moyers

SURFACE ELEVATION: 1217.4 fmsl

DRILLING RIG: CME-55 Rig

TOC ELEVATION: 1220.2 fmsl

CLIENT: Waste Management

DRILLING METHOD: HSA

WELL DEPTH COMPLETION: 40.81 fbgs

PROJECT NAME: Eco Vista N&E Investigation

DRILLING CONTRACTOR: Anderson

LOCATION:

PROJECT NUMBER: 27216360.00

Engineering

NORTHING: 662826.62

PROJECT LOCATION: EcoVista Lanfill, Tontitown, AR

Consultants, Inc.

EASTING: 645321.31

GEOLOGIST: Robert Fowler

SAMPLING METHOD:

WATER LEVEL: NA fbgs

START DATE: 12/29/2016

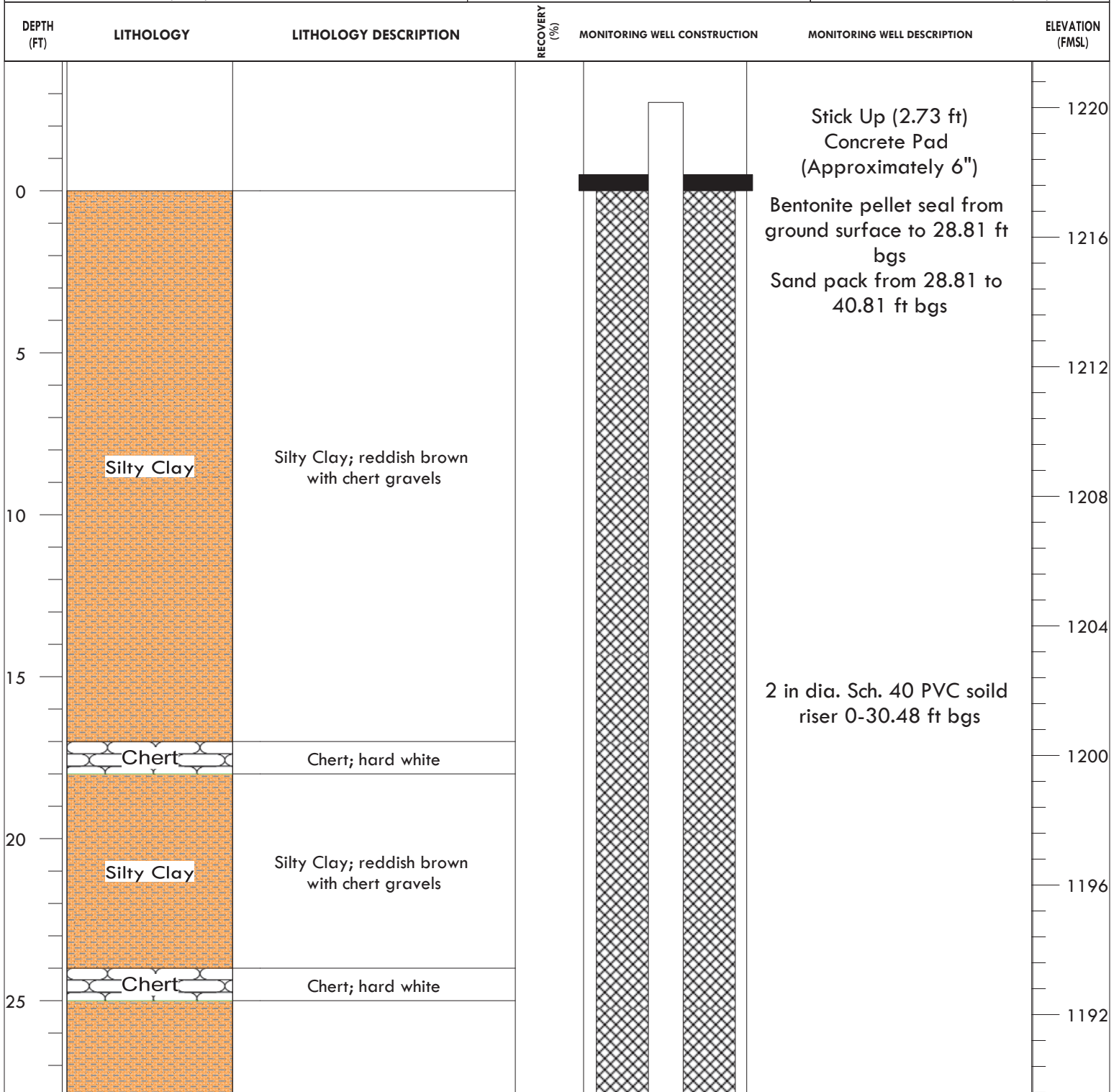
BORING DIAMETER: 8.25"

WATER ELEVATION: NA fmsl

FINISH DATE: 12/29/2016

WELL DIAMETER: 2"

WATER LEVEL DATE: 12/29/2016



THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: ACTUAL TRANSITIONS MAY BE GRADUAL

11219 Richardson Drive
North Little Rock, AR

DRILLER: Gary Moyers

SURFACE ELEVATION: 1217.4 fmsl

DRILLING RIG: CME-55 Rig

TOC ELEVATION: 1220.2 fmsl

CLIENT: Waste Management

DRILLING METHOD: HSA

WELL DEPTH COMPLETION: 40.81 fbgs

PROJECT NAME: Eco Vista N&E Investigation

DRILLING CONTRACTOR: Anderson

LOCATION:

PROJECT NUMBER: 27216360.00

Engineering

NORTHING: 662826.62

PROJECT LOCATION: EcoVista Lanfill, Tontitown, AR

Consultants, Inc.

EASTING: 645321.31

GEOLOGIST: Robert Fowler

SAMPLING METHOD: Cuttings

WATER LEVEL: NA fbgs

START DATE: 12/29/2016

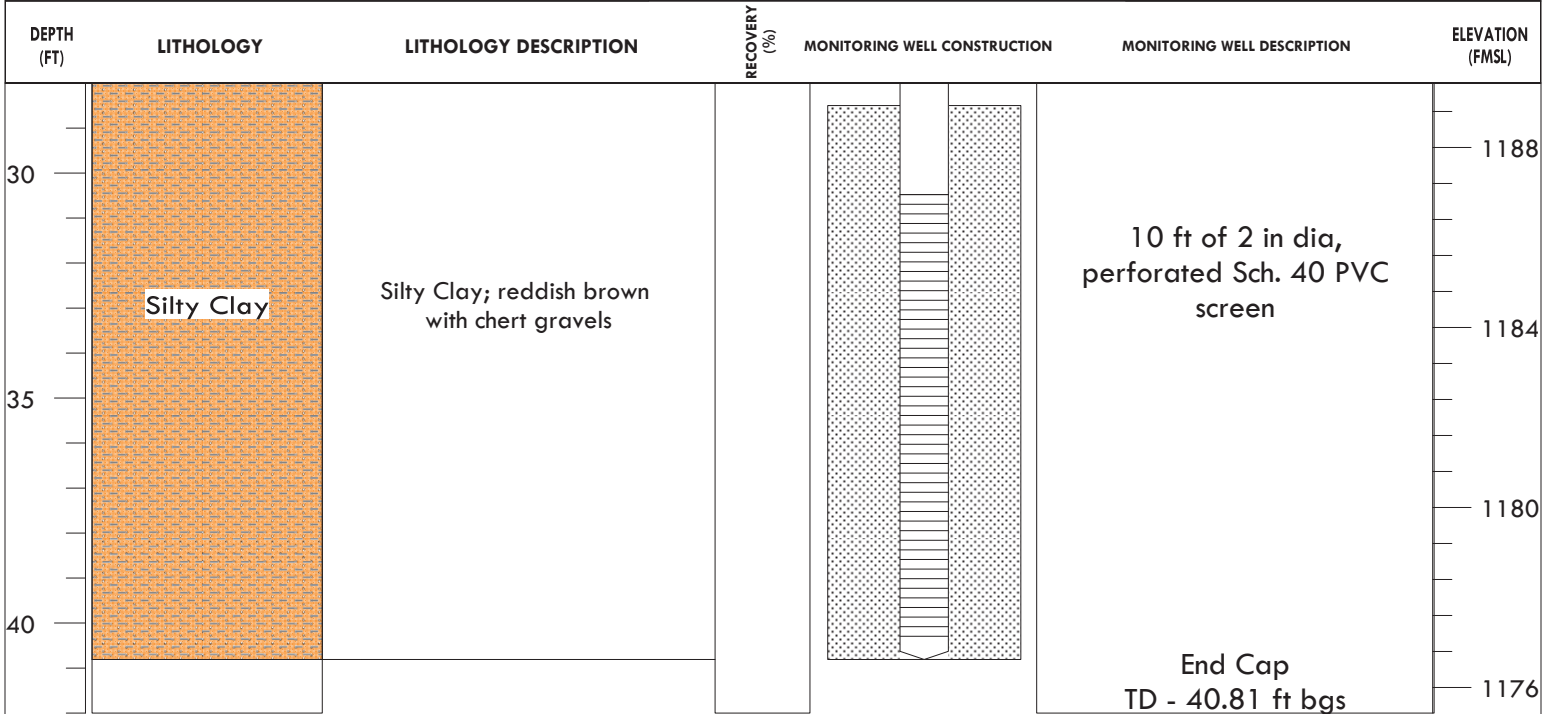
BORING DIAMETER: 8.25"

WATER ELEVATION: NA fmsl

FINISH DATE: 12/29/2016

WELL DIAMETER: 2"

WATER LEVEL DATE: 12/29/2016



THE STRATIFICATION LINES REPRESENT APPROXIMATE
BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: ACTUAL
TRANSITIONS MAY BE GRADUAL