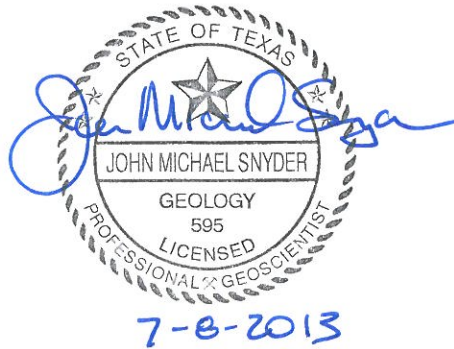


NEW BOSTON LANDFILL
APPENDIX F1

Groundwater Monitoring System F1-1
Monitoring Well Construction Detail F1-2
Monitoring Well Data Sheets MW-1 through MW-13 F1-3 through F1-19
Monitoring Well Plugging Reports F1-20 through F1-23



J:\101\05\112\Att\F\F1-1_GWSysDesign.dwg Layout: Layout 1 User: gwhite

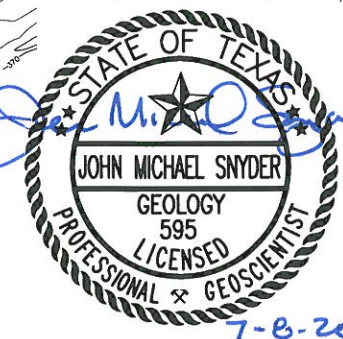


LEGEND

- PERMIT BOUNDARY
- LANDFILL FOOTPRINT
- 5' GROUNDWATER ELEVATION CONTOUR
- MW-1 MONITORING WELL
- MONITORING WELL TO BE INSTALLED
- LEACHATE SUMP
- SAND ABSENT
- SECTOR NUMBER
- TYPE I POC-EXPANSION AREA AND EXISTING
- TYPE IV POC-EXPANSION AREA

NOTES:

1. EXISTING CONTOURS COMPILED BY AIR SURVEY FROM AERIAL SURVEY DATED 3-2-11. SUPPLEMENTED WITH 2006 LIDAR DATA.
2. PERMIT BOUNDARY PROVIDED BY MTG ENGINEERS.
3. SITE BENCHMARK: N 11353.174
E 10193.997
EL 382.03
4. MONITORING WELL INSTALLATION FOR NORTH DISPOSAL AREA WILL PROCEED IN A PHASED APPROACH CONSISTENT WITH SECTOR PHASING AS SHOWN IN PART II FIGURES IIA.9 AND IIA.10. MONITORING WELLS MW-14 THROUGH MW-17 WILL BE INSTALLED PRIOR TO WASTE BEING ACCEPTED IN SECTOR 1. MONITORING WELLS MW-23 AND MW-24 WILL BE INSTALLED PRIOR TO WASTE BEING ACCEPTED IN SECTOR 2. REMAINING MONITORING WELLS WILL BE INSTALLED PRIOR TO WASTE ACCEPTANCE IN SECTOR 4. ALL MONITORING WELLS TO BE INSTALLED PRIOR TO ANY WASTE ACCEPTANCE FOR THE TYPE IV SOUTH DISPOSAL AREA.
5. POTENTIOMETRIC SURFACE CONTOURS GENERATED FROM WATER LEVELS TAKEN ON NOVEMBER 28, 2011.
6. MONITORING WELLS MW-25 THROUGH MW-30 WILL ONLY BE INSTALLED IF TYPE IV SOUTH DISPOSAL AREA IS DEVELOPED. ALL MONITORING WELLS WILL BE INSTALLED PRIOR TO ANY WASTE ACCEPTANCE FOR THE TYPE IV SOUTH DISPOSAL AREA.



ISSUED FOR PERMITTING PURPOSES ONLY

GROUNDWATER MONITORING PLAN
WASTE MANAGEMENT OF TEXAS, INC.
NEW BOSTON LANDFILL
PERMIT AMENDMENT APPLICATION

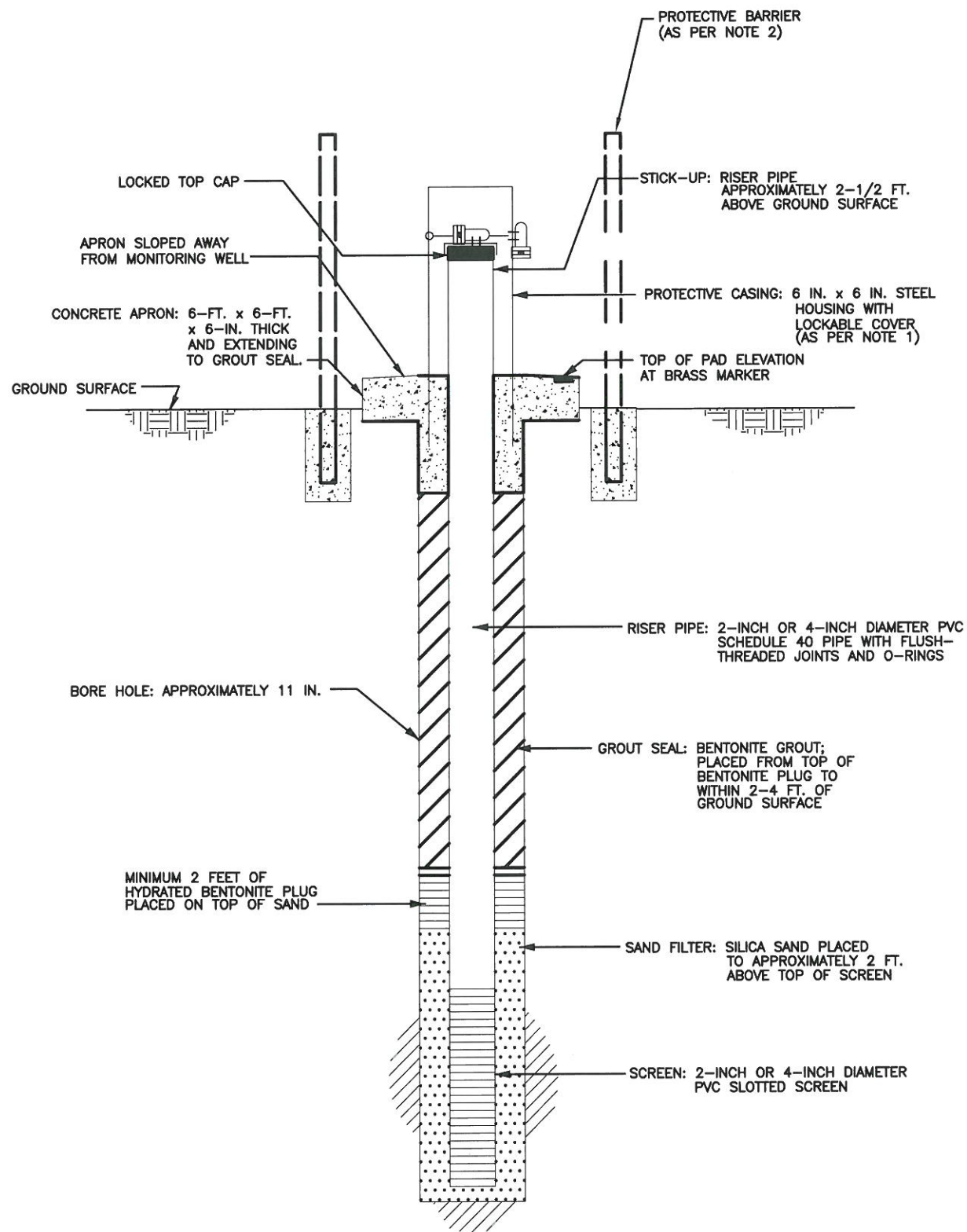


BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS
MANSFIELD
DALLAS • WICHITA FALLS
817-563-1144

REVISIONS					TBPE FIRM NO. F-256	TBPG FIRM NO. 50222
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

DSN. EAF	DATE : 03/12	DRAWING F1-1
DWN. SRC	SCALE : GRAPHIC	
CHK. JMS	DWG : F1-1_GWSysDesign.dwg	

TYPICAL MONITORING WELL DETAIL



MONITORING WELL NO.	NORTHING **	EASTING **	GROUND ELEVATION (ft msl)	TOTAL DEPTH (ft bgs)	* TOP OF CASING ELEVATION (ft msl)	GROUNDWATER ELEVATION (ft msl) ***	APPROX. DEPTH TO GROUND WATER	SCREENED INTERVAL (ft bgs)		FILTER PACK INTERVAL (ft bgs)	
								FROM	TO	FROM	TO
EXISTING MONITORING WELLS - WEST DISPOSAL AREA											
MW-1	12675	10338	378.60	73.00	379.61	356.28	23.33	58.00	72.50	50.00	73.00
MW-3R	11738	8103	372.46	64.00	374.07	349.59	24.48	54.00	64.00	51.00	64.00
MW-4	11014	8123	370.60	66.00	373.19	349.48	23.71	41.00	65.50	38.00	66.00
MW-5	10914	8512	373.27	68.10	377.36	349.46	27.32	52.06	67.06	49.56	68.10
MW-6R	10476	9314	359.12	50.00	362.16	345.83	16.33	39.00	49.00	31.00	49.00
MW-7	10141	10154	365.31	45.00	368.29	342.92	25.37	35.00	44.50	31.00	45.00
MW-8	10759	8761	360.19	42.50	363.04	346.93	16.11	30.00	42.00	28.00	42.50
MW-9	10273	9665	364.54	48.50	367.15	343.67	23.48	36.00	48.00	33.00	48.50
MW-10	11942	8529	383.64	78.00	386.51	349.79	36.72	67.50	77.50	64.50	78.00
MW-11	11365	8083	373.37	62.00	377.01	349.77	27.24	51.50	61.50	48.50	62.00
MW-12	10588	9078	361.12	53.00	363.33	345.37	17.96	42.50	52.50	39.50	53.00
MW-13	10403	10273	372.28	60.00	375.20	343.42	31.78	49.50	59.50	46.50	60.00
PROPOSED MONITORING WELLS - NORTH DISPOSAL AREA											
MW-14	11415	10738	386	75	388.5	-	-	65	75	63	75
MW-15	11384	11288	374	65	376.5	-	-	55	65	53	65
MW-16	11352	11837	378	65	380.5	-	-	55	65	53	65
MW-17	11321	12386	387	75	389.5	-	-	65	75	63	75
MW-18	11290	12935	383	75	385.5	-	-	65	75	63	75
MW-19	11422	13420	380	75	382.5	-	-	65	75	63	75
MW-20	11842	13775	382	74	384.5	-	-	64	74	62	74
MW-21	12268	13827	383	71	385.5	-	-	61	71	59	71
MW-22	12578	13463	386	74	388.5	-	-	64	74	62	74
MW-23	12604	12914	388	74	390.5	-	-	64	74	62	74
MW-24	12629	12365	389	78	391.5	-	-	69	78	67	78
PROPOSED MONITORING WELLS - SOUTH DISPOSAL AREA - TYPE IV ****											
MW-25	11446	10979	387	71	389.5	-	-	61	71	59	71
MW-26	11414	10430	375.5	70	378	-	-	60	70	57	70
MW-27	11912	10356	368	60	370.5	-	-	50	60	47	60
MW-28	12462	10328	368	60	370.5	-	-	50	60	47	60
MW-29	12812	10752	374.5	75	377	-	-	65	75	63	75
MW-30	13053	11044	378	75	380.5	-	-	65	75	63	75

* SURVEYOR ELEVATION - TOP OF CASING

** NORTHINGS AND EASTINGS BASED ON CURRENT SITE GRID. PREVIOUSLY SUBMITTED IN STATE PLANE COORDINATE SYSTEM.

*** ELEVATION OF GROUNDWATER FROM DECEMBER 2011.

**** MONITORING WELLS OF THE SOUTH DISPOSAL AREA (MW-25 THROUGH MW-30) WILL ONLY BE INSTALLED IF THAT AREA IS DEVELOPED AS A TYPE IV DISPOSAL UNIT AND THEN PRIOR TO WASTE BEING PLACED.

NOTES:

- PROTECTIVE COLLAR. A STEEL PROTECTIVE PIPE COLLAR SHALL BE PLACED AROUND THE CASING STICKUP TO PROTECT IT FROM DAMAGE AND UNWANTED ENTRY. THE COLLAR SHALL BE SET AT LEAST ONE FOOT INTO THE SURFACE PAD DURING ITS CONSTRUCTION AND SHOULD EXTEND AT LEAST 3 INCHES ABOVE THE TOP OF THE WELL CASING (AND TOP CAP, IF PRESENT). THE TOP OF THE COLLAR SHALL HAVE A LOCKABLE HINGED TOP FLAP OR COVER. A STURDY LOCK SHALL BE INSTALLED, MAINTAINED IN WORKING ORDER, AND KEPT LOCKED WHEN THE WELL IS NOT BEING BAILED/PURGED OR SAMPLED. THE WELL NUMBER OR OTHER DESIGNATION SHALL BE MARKED PERMANENTLY ON THE PROTECTIVE STEEL COLLAR; IT IS USEFUL TO MARK THE WELL DEPTH AND ITS ELEVATION ON THE COLLAR.
- PROTECTIVE BARRIER. AROUND EACH MONITORING WELL, A PROTECTIVE BARRIER SHALL BE INSTALLED. A TYPICAL BARRIER IS THREE TO FOUR 6- TO 12-INCH DIAMETER PIPES SET IN CONCRETE JUST OFF THE PROTECTIVE PAD. THE PIPES CAN BE JOINED BY PIPES WELDED BETWEEN THEM, BUT CONSIDERATION MUST BE GIVEN TO WELL ACCESS FOR SAMPLING AND OTHER ACTIVITIES. SEPARATION OF SUCH A PIPE BARRIER FROM THE PAD MEANS THAT THE BARRIER CAN BE DAMAGED WITHOUT RISK TO THE PAD AND WELL. THE EXECUTIVE DIRECTOR MAY APPROVE OTHER TYPES OF BARRIERS.
- LOCATIONS AND ELEVATIONS OF MW-10, 11, 12, AND 13 PROVIDED BY LANDTEC ENGINEERS, LLC.
- DEPTHS OF PROPOSED WELLS ARE ESTIMATES ONLY. ACTUAL TOTAL DEPTH, SCREEN INTERVAL, AND FILTER PACK DEPTH WILL BE DETERMINED DURING INSTALLATION BASED ON FIELD OBSERVATIONS.
- MONITORING WELLS WILL NOT BE INSTALLED IN PROPOSED LOCATIONS WHERE LAYER II SAND IS FOUND TO BE ABSENT DURING INSTALLATION.



MONITORING WELL DETAIL

**WASTE MANAGEMENT OF TEXAS, INC.
NEW BOSTON LANDFILL
PERMIT AMENDMENT APPLICATION**



**BIGGS & MATHEWS
ENVIRONMENTAL
CONSULTING ENGINEERS**
MANSFIELD
DALLAS • WICHITA FALLS
817-563-1144

REVISIONS						DATE	DESCRIPTION	APP BY	CHK BY	DES BY	DWN BY

DSN. ESF	DATE : 02/12	FIGURE
DWN. SRC	SCALE : GRAPHIC	F1-2
CHK. JMS	DWG : F1-2_MWDetail.dwg	

MONITOR WELL DATA SHEETS
MW-1 THROUGH MW-13

A. Monitor Well Data Sheet

Texas Department of Health
Division of Solid Waste Management
SE. 67 (3/1/89-B) *

Permittee or Site Name: New Boston Landfill

TDH Permit No.: 576

County: Bowie

Monitor Well I.D. No.: MW-1

Date of Monitor Well Installation: 09/06/90

Date of Monitor Well

Monitor Well: Latitude: 33°28'30.5" Longitude: 94°26'38.81"

Development: 09/18/90

Monitor Well Groundwater

Monitor Well Driller

Gradient: Upgradient X Downgradient

Name: S. Lauritson

NOTE:

License No.: 2680M

- (A) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- (B) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- (C) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- (D) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- (E) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: K. Jacob

Static Water Level Elevation (with respect to MSL) after Well Development: 355.80

Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock

Type of Casing Protection: 5"x5"x4' steel

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.

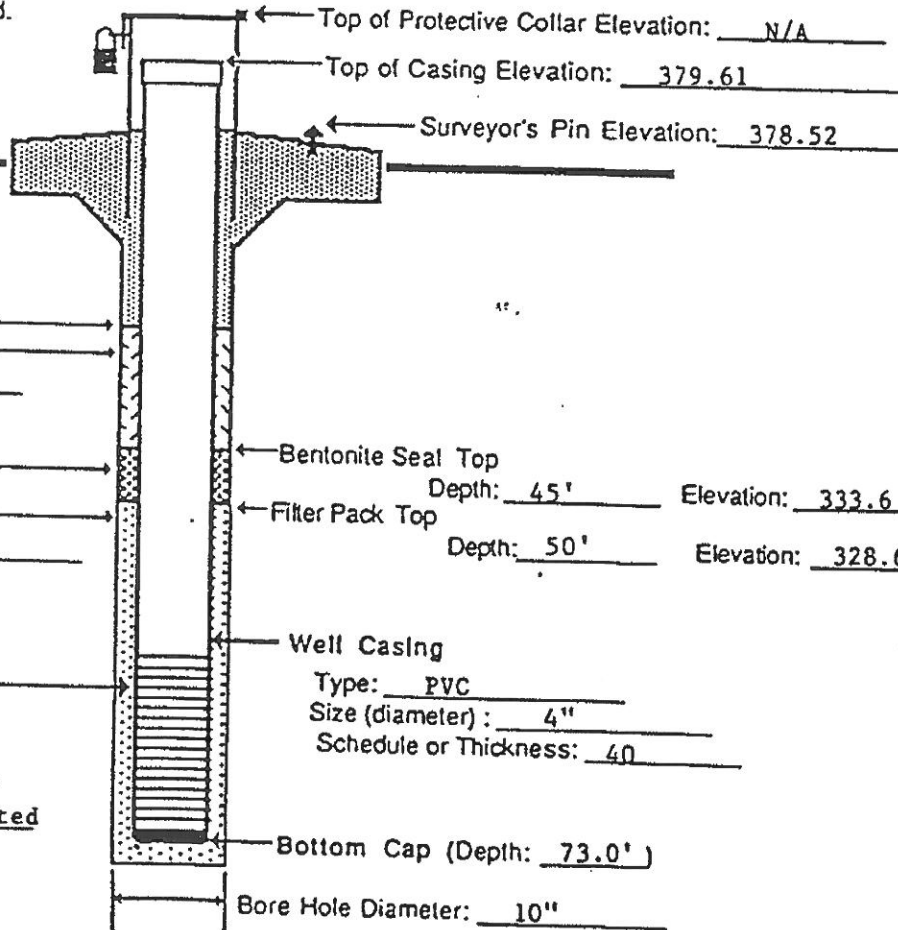
Surface Pad Dimensions: 3'x3'x4"

Surface Elevation: 378.6'

Top of Protective Collar Elevation: N/A

Top of Casing Elevation: 379.61

Surveyor's Pin Elevation: 378.52



Concrete Seal
Depth: 1'

Casing Seal (Backfill)
Material: Cement Grout

Bentonite Seal

Filter Pack
Filter Pack Material: Sand
Sterilized Sand or Glass Beads

Well Screen
Top Depth: 58'
Top Elevation: 320.6'
Type of Well Screen: slotted
Screen Opening Size: 0.010

Well Casing
Type: PVC
Size (diameter): 4"
Schedule or Thickness: 40

Bottom Cap (Depth: 73.0')

Bore Hole Diameter: 10"

A. Monitor Well Data Sheet

Texas Department of Health
Division of Solid Waste Management
SIL 67 (3/1/89-B)

Permittee or Site Name: New Boston Landfill

County: Bowie

Date of Monitor Well Installation: 09/12/90

Monitor Well: Latitude: 33°28'24.47" Longitude: 94°26'54.94"

Monitor Well Groundwater

Gradient: Upgradient Downgradient

TDH Permit No.: 576

Monitor Well I.D. No.: MW-2

Date of Monitor Well

Development: 09/19/90

Monitor Well Driller

Name: S. Lauritson

License No.: 2680M

NOTE:

- (A) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- (B) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- (C) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- (D) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- (E) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: K. Jacob

Static Water Level Elevation (with respect to MSL) after Well Development: 321.08'

Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock

Type of Casing Protection: 5"x5"x4' steel

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.

Surface Pad Dimensions: 3'x3'x4"

Surface Elevation: 385.7'

Top of Protective Collar Elevation: N/A

Top of Casing Elevation: 388.31'

Surveyor's Pin Elevation: 385.93'

Concrete Seal

Depth: 1'

Casing Seal (Backfill)

Material: Cement Grout

Bentonite Seal

Filter Pack

Filter Pack Material: Sand

Sterilized Sand or Glass Beads

Bentonite Seal Top

Depth: 50.5' Elevation: 335.2'

Filter Pack Top

Depth: 54.5' Elevation: 331.2'

Well Casing

Type: PVC

Size (diameter): 4"

Schedule or Thickness: sch 40

Well Screen

Top Depth: 57.0'

Top Elevation: 328.7

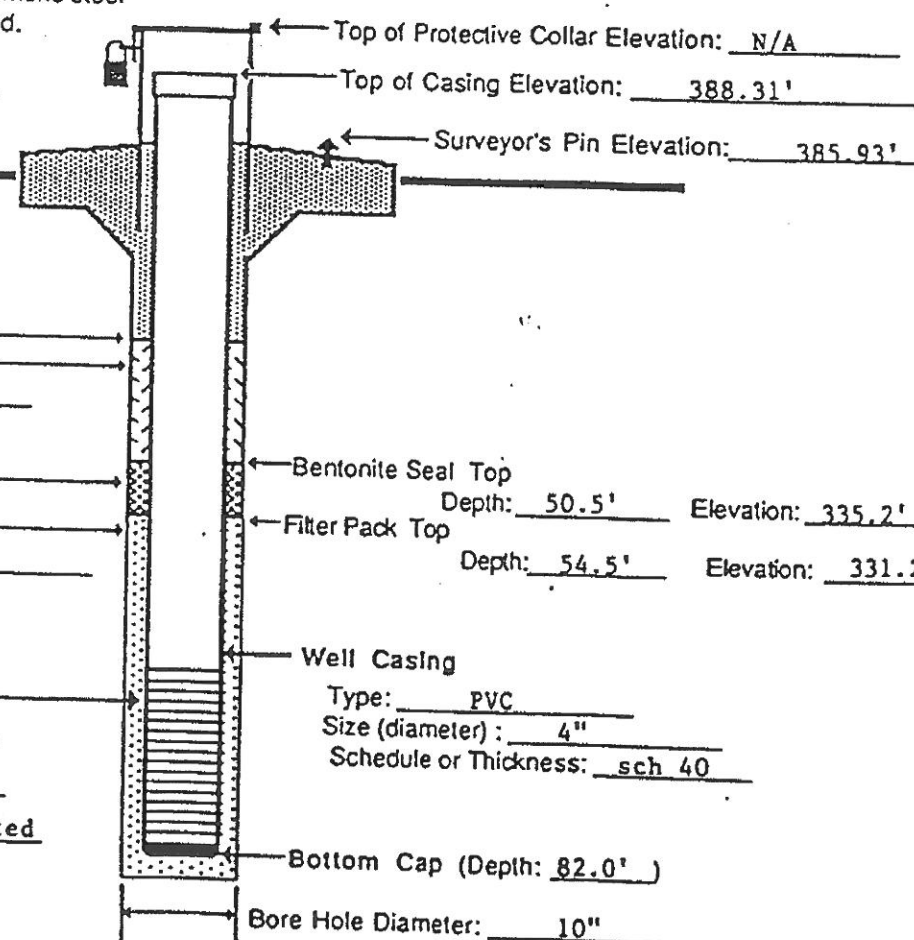
Type of Well Screen: slotted

Screen Opening Size:

0.010

Bottom Cap (Depth: 82.0')

Bore Hole Diameter: 10"



Monitor Well Data Sheet

Permittee or Site Name: Waste Management - New Boston Landfill
 County: Bowie
 Date of Monitor Well Installation: 11/24/99
 Monitor Well Latitude: 33°28'24.55" Longitude: 94°26'55.38"
 Monitor Well Groundwater Gradient Position:
 Upgradient _____ Downgradient X

MSW Permit No.: 576
 Monitor Well I.D. No.: MW-2R
 Date of Monitor Well Development: 12/3/99
 Monitor Well Driller Name: AECI
 License No.: _____

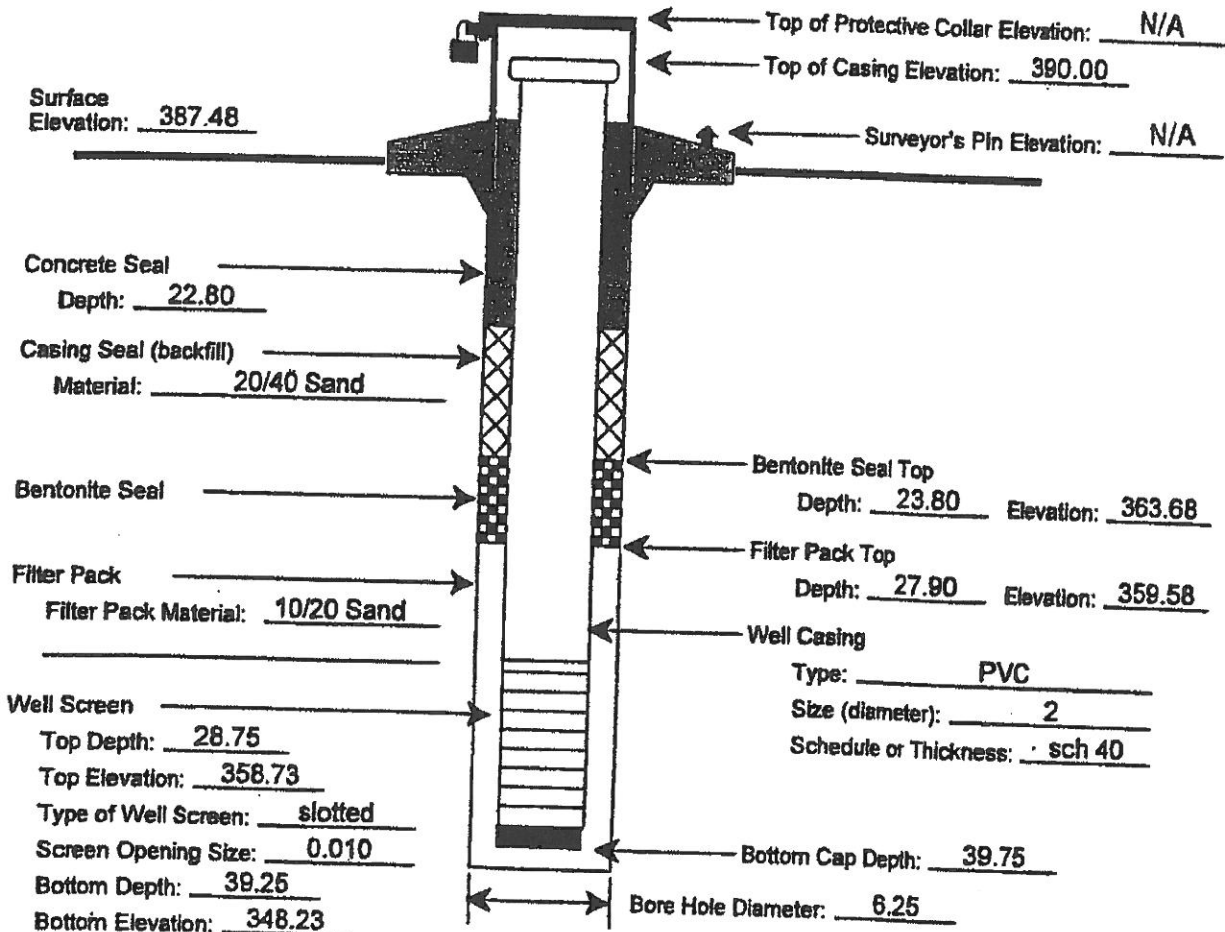
*Data from Genesis Environmental Consulting, Inc.

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: D.S.
 Static Water Level Elevation (with respect to MSL) after Well Development: 362.19
 Name of Geologic Formation(s) in which Well is completed: shallow discontinuous silts/sands of Layer IA

Type of Locking Device: Master Lock Type of Casing Protection: Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 5'x5'x6"



A. Monitor Well Data Sheet

Texas Department of Health
Division of Solid Waste Management
S.E. 67 (3/1/89-B)

Permittee or Site Name: New Boston Landfill

County: Bowie

Date of Monitor Well Installation: 09/15/90

Monitor Well: Latitude: 33°28'19.85" Longitude: 94°27'04.57"

Monitor Well Groundwater

Gradient: Upgradient Downgradient

TIDH Permit No.: 576

Monitor Well I.D. No.: MW-3

Date of Monitor Well

Development: 09/26/90

Monitor Well Driller

Name: S. Lauritson

License No.: 2680M

NOTE:

- (A) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- (B) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- (C) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- (D) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- (E) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: K. Jacob

Static Water Level Elevation (with respect to MSL) after Well Development: 326.65

Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock

Type of Casing Protection: 5"x5"x4' steel

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.

Surface Pad Dimensions: 3'x3'x4"

Surface Elevation: 370.8

Top of Protective Collar Elevation: N/A

Top of Casing Elevation: 373.43

Surveyor's Pin Elevation: 371.13

Concrete Seal
Depth: 1'
Casing Seal (Backfill)
Material: Cement Grout

Bentonite Seal
Filter Pack
Filter Pack Material: Sand
Sterilized Sand or Glass Beads

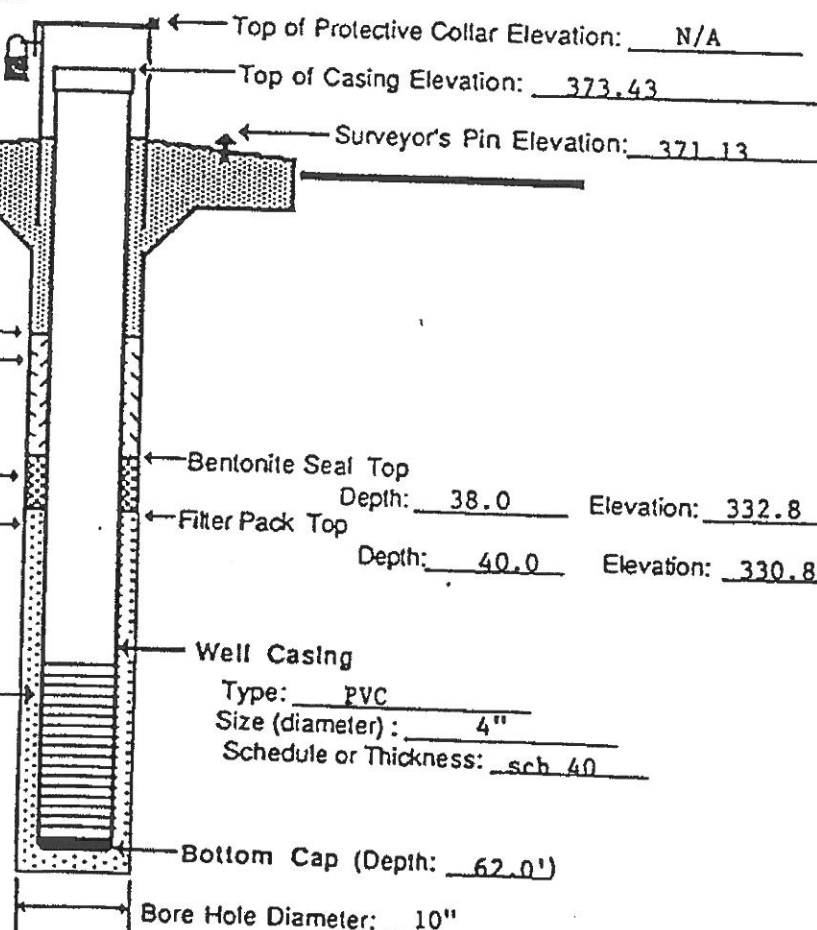
Bentonite Seal Top
Depth: 38.0 Elevation: 332.8
Filter Pack Top
Depth: 40.0 Elevation: 330.8

Well Screen
Top Depth: 42.0'
Top Elevation: 328.8
Type of Well Screen: slotted
Screen Opening Size: 0.010

Well Casing
Type: PVC
Size (diameter): 4"
Schedule or Thickness: sch 40

Bottom Cap (Depth: 62.0')

Bore Hole Diameter: 10"



Monitor Well Data Sheet

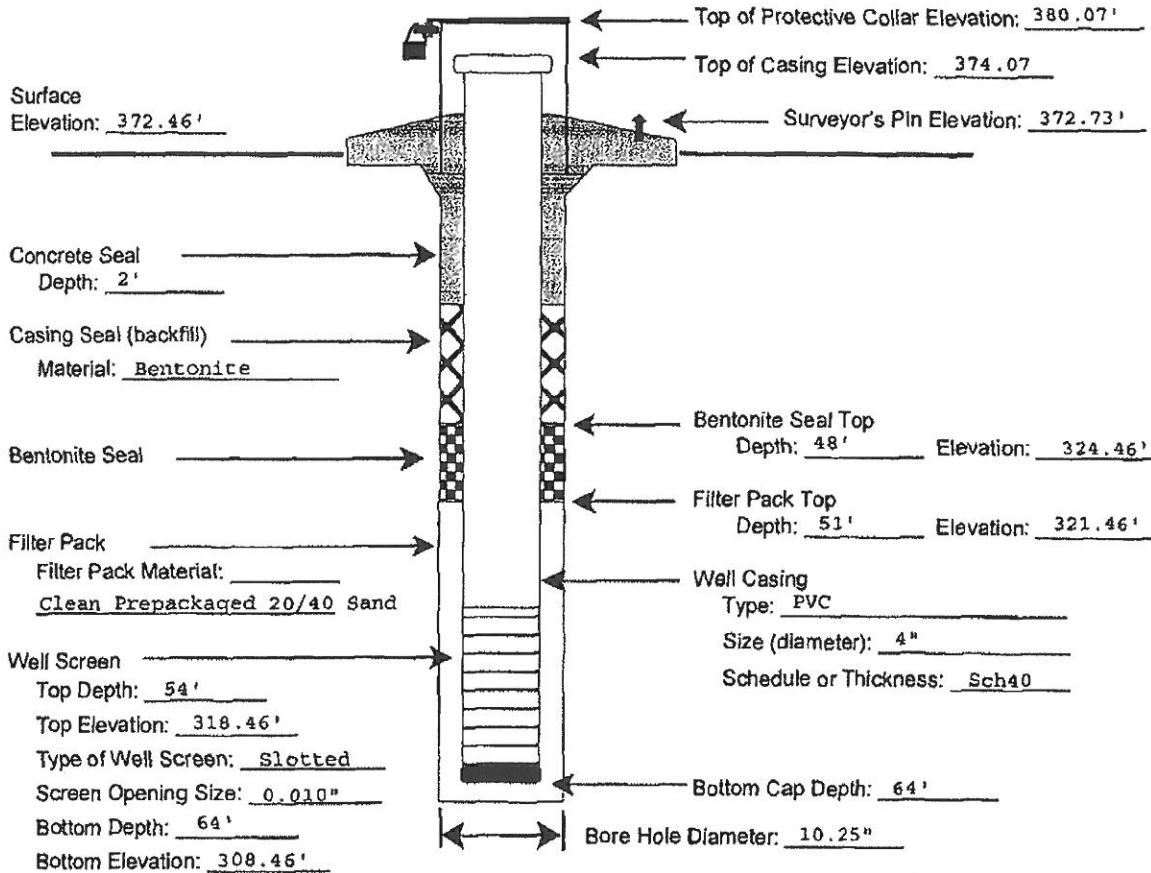
Permittee or Site Name: Waste Management New Boston Landfill MSW Permit No.: 576
 County: Bowie Monitor Well I.D. No.: MW-3R
 Date of Monitor Well Installation: 3/2/2009 Date of Monitor Well Development: 3/3/2009
 Monitor Well Latitude: 33° 28' 21.3" Longitude: W094° 27' 05.2" Monitor Well Driller Name: Sammy Smith
 Monitor Well Groundwater Gradient Position: Upgradient _____ Downgradient _____ License No.: 54658

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: John Tayntor
 Static Water Level Elevation (with respect to MSL) after Well Development: 339.91
 Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: padlock Type of Casing Protection: Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 6' x 6' x 6"



TCEQ-10308

A. Monitor Well Data Sheet

Texas Department of Health
Division of Solid Waste Management
SE. 67 (3/1/89-B)

Location or Site Name: New Boston Landfill
County: Bowie
Date of Monitor Well Installation: 09/17/90
Monitor Well: Latitude: 33°28'13.16" Longitude: 94°27'04.26"
Monitor Well Groundwater
Gradient: Upgradient Downgradient X

IDH Permit No.: 576
Monitor Well I.D. No.: MW-4
Date of Monitor Well
Development: 09/22/90
Monitor Well Driller
Name: S. Lauritson
License No.: 2680M

NOTE:

- 1) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- 2) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- 3) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- 4) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- 5) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: K. Jacob

Static Water Level Elevation (with respect to MSL) after Well Development: 318.45'

Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock Type of Casing Protection: 5"x5"x4' steel

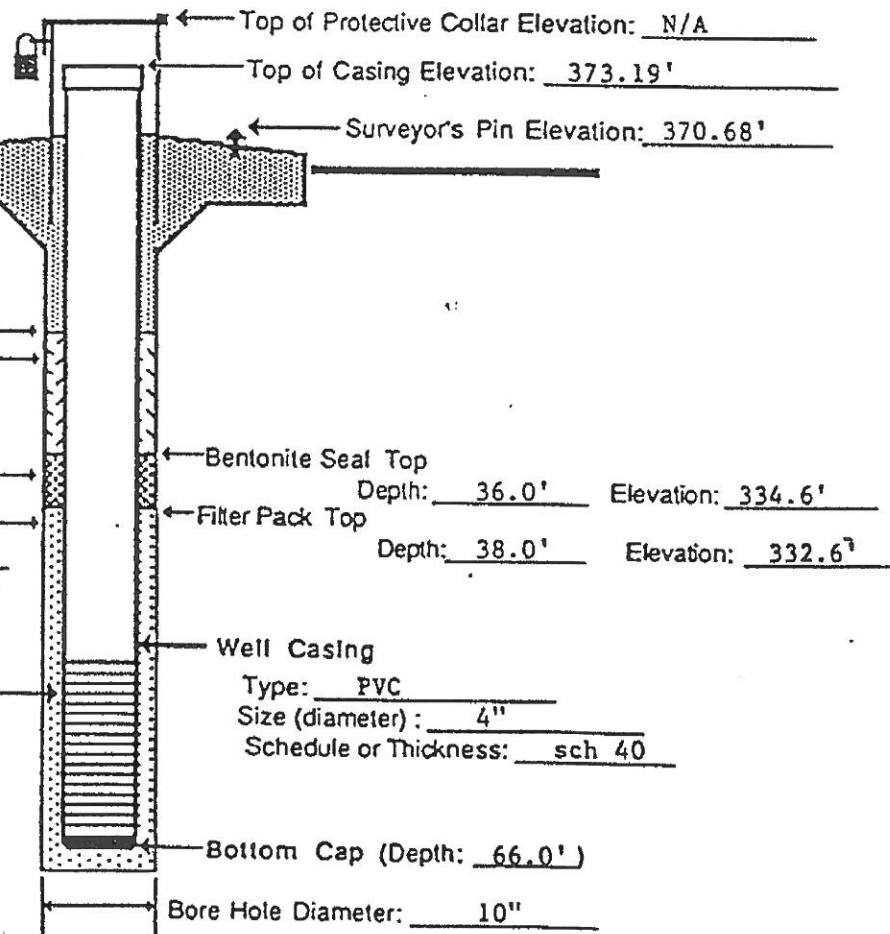
Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.
Surface Pad Dimensions: 3'x3'x4"

Surface Elevation: 370.6'

Concrete Seal
Depth: 1'
Casing Seal (Backfill)
Material: Cement Grout

Bentonite Seal
Filter Pack
Filter Pack Material: Sand
Sterilized Sand or Glass Beads

Well Screen
Top Depth: 41.0'
Top Elevation: 329.6
Type of Well Screen: slotted
Screen Opening Size: 0.010



Monitor Well Data Sheet

(Original installation 9/12/1990; Reconditioned 10/12/2005)

Permittee or Site Name: New Boston Landfill Expansion
 County: Bowie
 Date of Monitor Well Installation: 10/12/05
 Monitor Well Latitude: 33°28'12.33" Longitude: 94°26'59.63"
 Monitor Well Groundwater Gradient Position:
 Upgradient N/A Downgradient X "X"

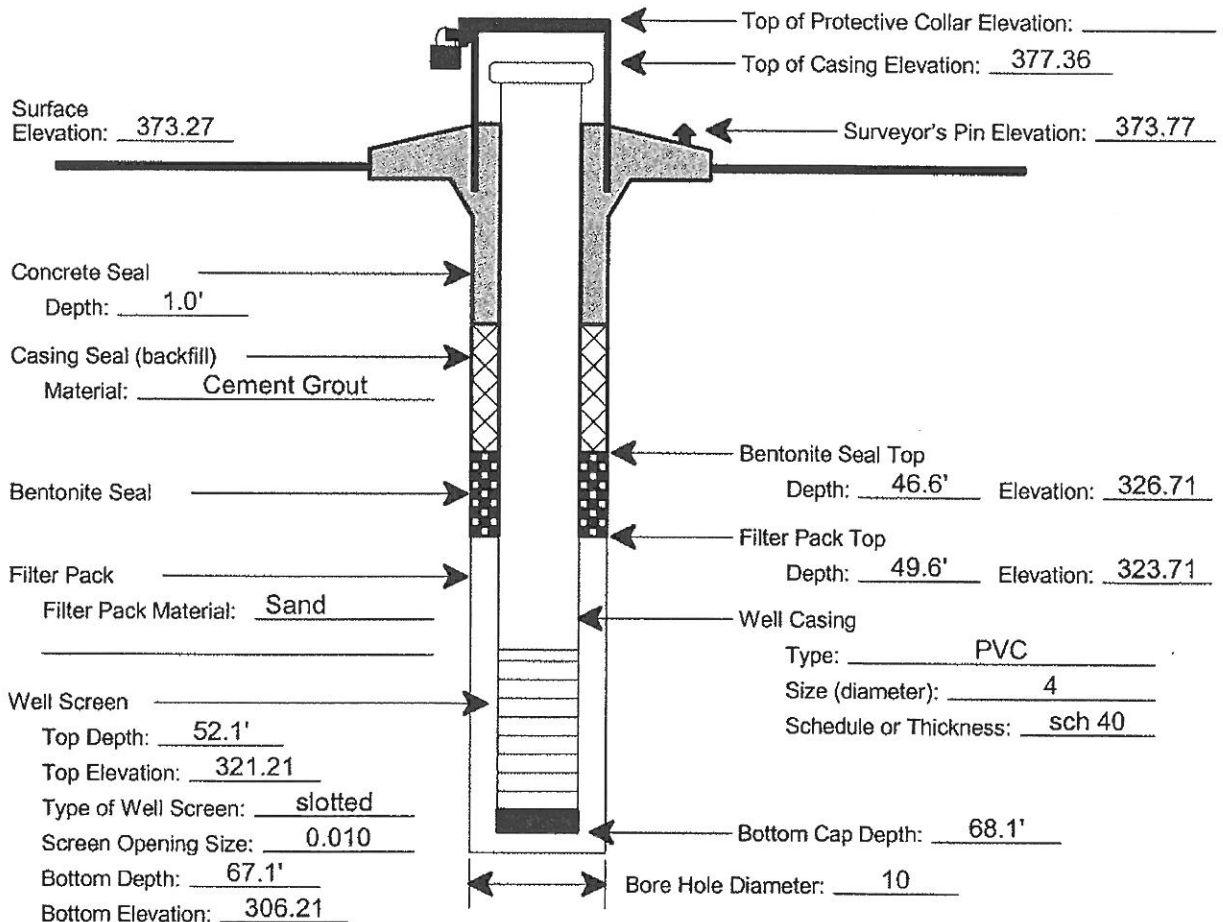
MSW Permit No.: 576
 Monitor Well I.D. No.: MW-05
 Date of Monitor Well Development: 9/24/90
 Monitor Well Driller Name: S. Lauritson
 License No.: 2680M

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: K. Jacob
 Static Water Level Elevation (with respect to MSL) after Well Development: 318.86
 Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock Type of Casing Protection: Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 4'x4'x6"



A. Monitor Well Data Sheet

Texas Department of Health
Division of Solid Waste Management
SE. 67 (3/1/89-H)

Permittee or Site Name: New Boston Landfill

County: Bowie

Date of Monitor Well Installation: 09/14/90

Monitor Well: Latitude 33°28'09.05" Longitude: 94°26'49.97"

Monitor Well Groundwater

Gradient: Upgradient Downgradient

TDH Permit No.: 576

Monitor Well I.D. No.: MW-6

Date of Monitor Well

Development: 09/26/90

Monitor Well Driller

Name: S. Lauritson

License No.: 2680M

NOTE:

- The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: K. Jacob

Static Water Level Elevation (with respect to MSL) after Well Development: 344.75

Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock

Type of Casing Protection: 5"x5"x4' steel

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.

Surface Pad Dimensions: 3'x3'x4"

Surface Elevation: 357.8

Top of Protective Collar Elevation: N/A

Top of Casing Elevation: 360.93

Surveyor's Pin Elevation: 358.00

Concrete Seal
Depth: 1'
Casing Seal (Backfill)
Material: Cement Grout

Bentonite Seal
Filter Pack

Filter Pack Material: Sand
Sterilized Sand or Glass Beads

Bentonite Seal Top
Depth: 33.5 Elevation: 324.3

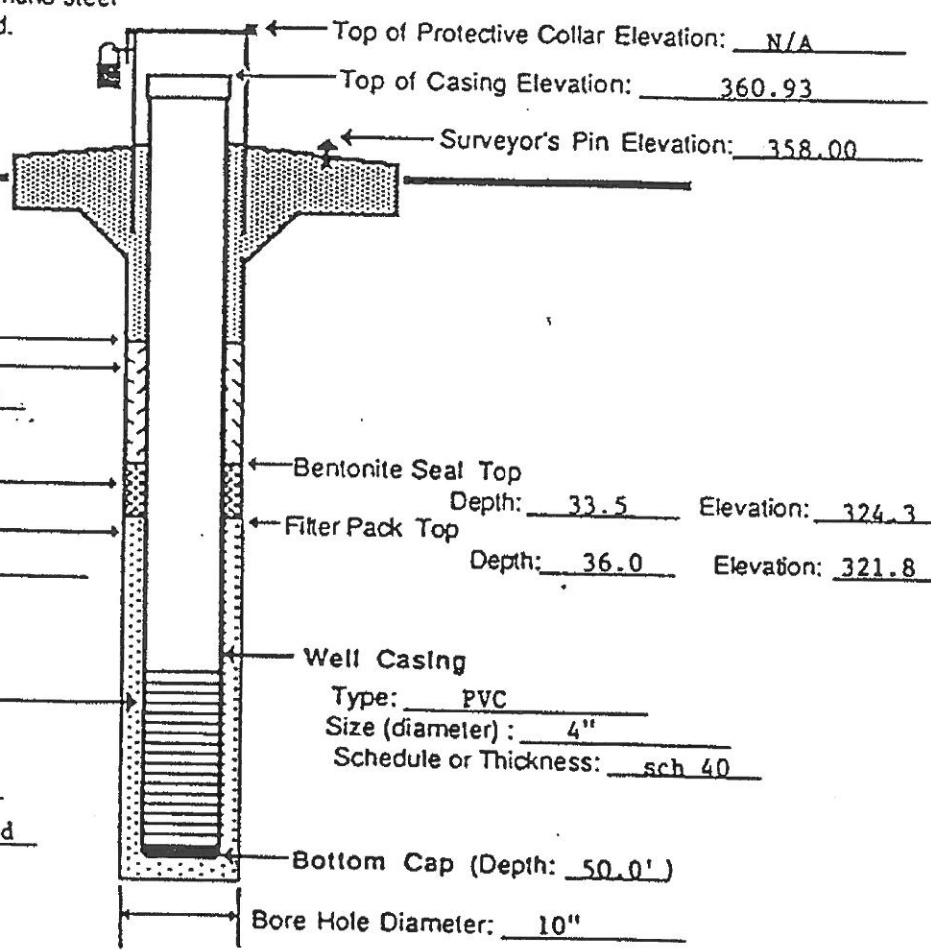
Filter Pack Top
Depth: 36.0 Elevation: 321.8

Well Screen
Top Depth: 40.0'
Top Elevation: 317.8
Type of Well Screen: slotted
Screen Opening Size: 0.010

Well Casing
Type: PVC
Size (diameter): 4"
Schedule or Thickness: sch 40

Bottom Cap (Depth: 50.0')

Bore Hole Diameter: 10"



Monitor Well Data Sheet

Permittee or Site Name: New Boston Landfill
 County: Bowie
 Date of Monitor Well Installation: 8/18/04
 Monitor Well Latitude: N33:28 10.5 Longitude: W094 26 49.9
 Monitor Well Groundwater Gradient Position:
 Upgradient XX Downgradient _____

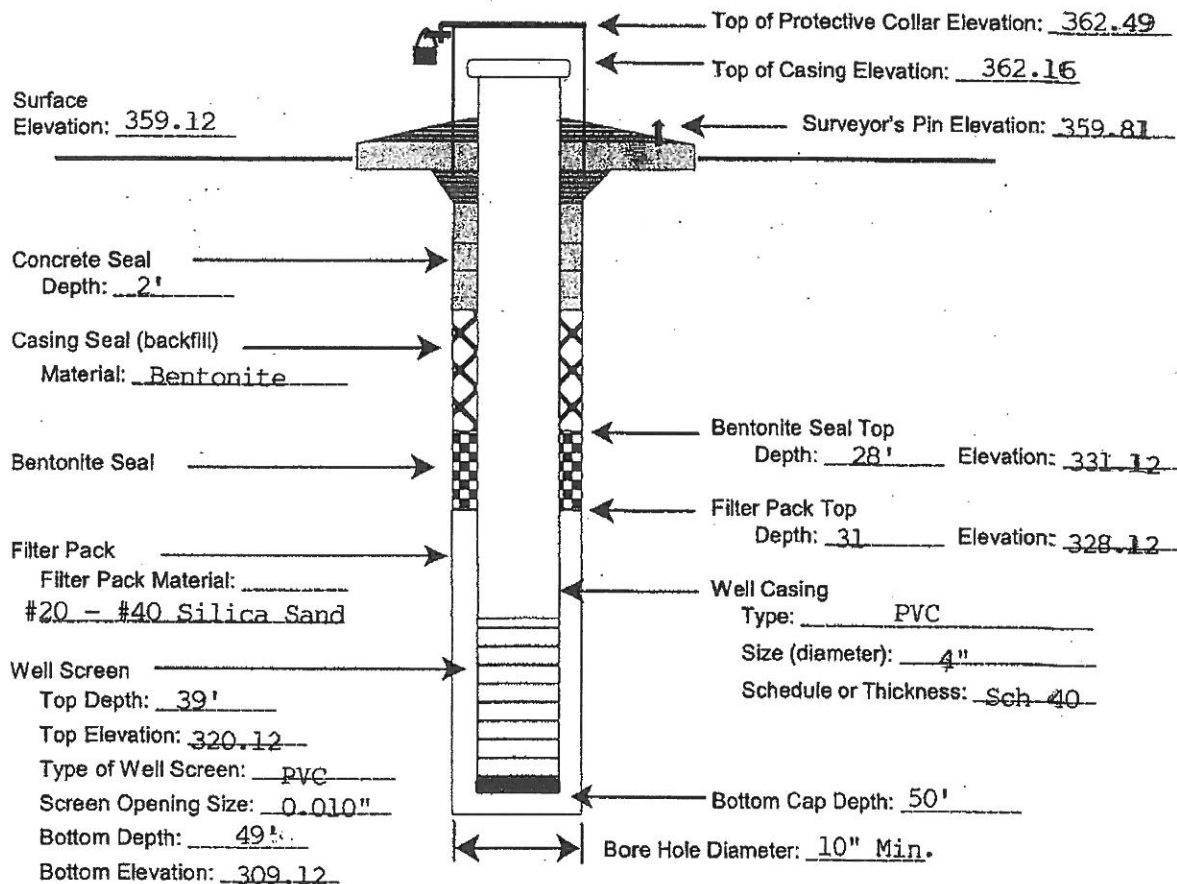
MSW Permit No.: 576B
 Monitor Well I.D. No.: MW-6R
 Date of Monitor Well Development: 8/27/04
 Monitor Well Driller Name: Jim Markle
 License No.: 54289-M

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: Timothy L. McDaniel
 Static Water Level Elevation (with respect to MSL) after Well Development: approx. 13'
 Name of Geologic Formation(s) in which Well is completed: Carrizo - Wilcox Outcrop

Type of Locking Device: Padlock Type of Casing Protection: 6" steel tube
 Concrete Surface Pad (with steel reinforcement) Dimensions: 6' x 6' square



A. Monitor Well Data Sheet

Texas Department of Health
Division of Solid Waste Management
SE. 67 (3/1/89-J1)

Permittee or Site Name: New Boston Landfill

TDH Permit No.: 576

County: Rowie

Monitor Well I.D. No.: MW-7

Date of Monitor Well Installation: 10/07/92

Date of Monitor Well

Monitor Well: Latitude: 33°28'6.5" Longitude: 94°26'40.2"

Development: 10/26/92

Monitor Well Groundwater

Monitor Well Driller

Gradient: Upgradient X Downgradient

Name: Terry Barritt

License No.: 03058M

NOTE:

- (A) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- (B) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- (C) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- (D) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- (E) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: Dan Boyles

Static Water Level Elevation (with respect to MSL) after Well Development: 339.37

Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Master Lock

Type of Casing Protection: 5"x5"x4" steel

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.

Surface Pad Dimensions:

2' x 2'

Surface

Elevation: 365.31

Top of Protective Collar Elevation: 368.47

Top of Casing Elevation: 368.29

Surveyor's Pin Elevation: 365.48

Concrete Seal

Depth: 1.5'

Casing Seal (Backfill)

Material: Cement Grout

Bentonite Seal

Filter Pack

Filter Pack Material: Sand

Sterilized Sand or Glass Beads

Bentonite Seal Top

Depth: 27' Elevation: 338.31

Filter Pack Top

Depth: 31' Elevation: 334.31

Well Screen

Top Depth: 35'

Top Elevation: 330.31

Type of Well Screen: slotted

Screen Opening Size:

0.010

Well Casing

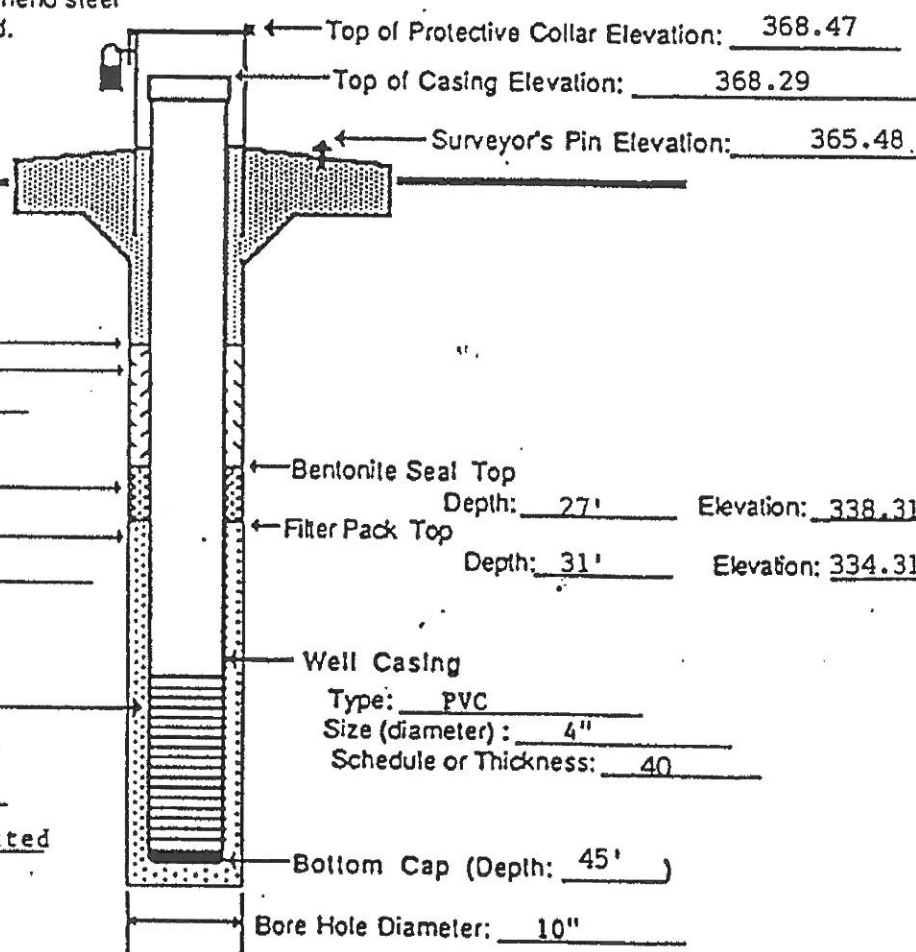
Type: PVC

Size (diameter): 4"

Schedule or Thickness: 40

Bottom Cap (Depth: 45')

Bore Hole Diameter: 10"



A. Monitor Well Data Sheet

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
MSWD-SE67

Permittee or Site Name: New Boston Landfill
 County: Bowie
 Date of Monitor Well Installation: 09/29/95
 Monitor Well: Latitude: 33° 28' 10.8" Longitude: 94° 26' 56.6"
 Monitor Well Groundwater
 Gradient: Upgradient _____ Downgradient: X

MSW PERMIT NO.: 576
 Monitor Well I.D. No.: MW-8
 Date of Monitor Well
 Development: 10/02/95
 Monitor Well Driller
 Name: Zane Ruffin
 License No.: 3188M

NOTE:

- (A) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- (B) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- (C) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- (D) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- (E) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: John Walters/Dan Boyles, P.E.
 Static Water Level (with respect to MSL) after Well Development: 333.31'
 Name of Geologic Formation(s) in which Well is completed: Midway
 Type of Locking Device: Pad Lock Type of Casing Protection: Steel Casing

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.
 Surface Pad Dimensions: 5' x 5' x 6"

Surface Elevation: 360.19

Top of Protective Collar Elevation: 363.41
 Top Casing Elevation: 363.04
 Surveyor's Pin Elevation: 360.69

Concrete Seal
 Depth: 2'
 Casing Seal (Backfill)
 Material: VOLCLAY Bentonite Grout

Bentonite Seal
 Filter Pack

Bentonite Seal Top
 Depth: 26' Elevation: 334.19'
 Filter Pack Top
 Depth: 28' Elevation: 332.19'

Filter Pack Material: Sand 20/40
 Sterilized Sand or Glass Beads

Well Screen

Top Depth: 30'
 Top Elevation: 330.19'

Well Casing

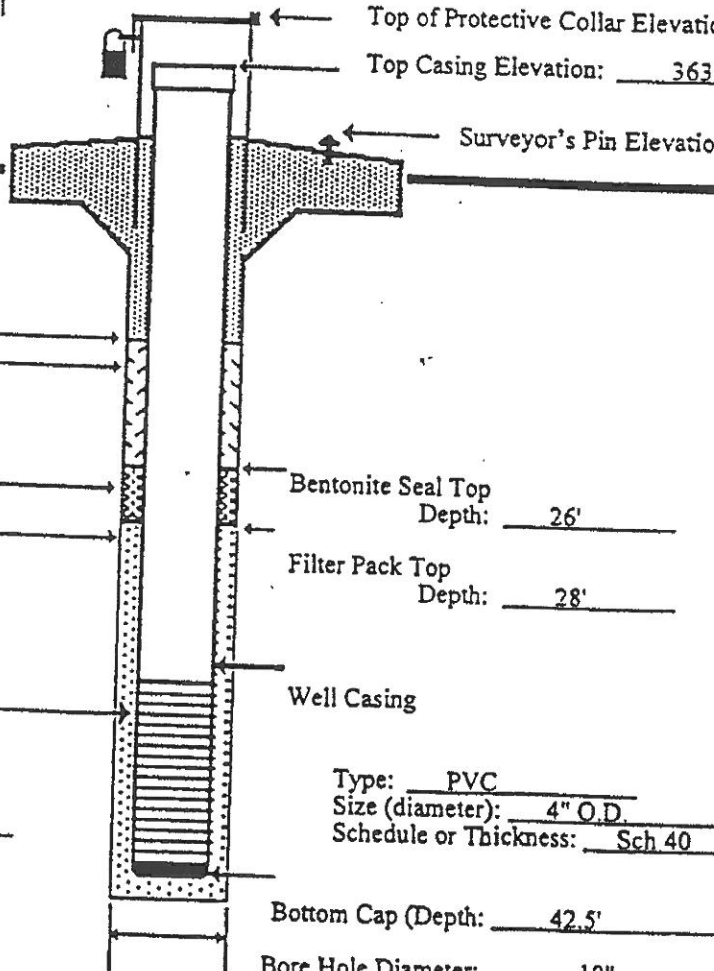
Type: PVC
 Size (diameter): 4" O.D.
 Schedule or Thickness: Sch 40

Type of Well Screen: Machine Slotted PVC Screen

Screen Opening Size:

0.010"

Bottom Cap (Depth: 42.5')
 Bore Hole Diameter: 10"



A. Monitor Well Data Sheet

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
MSWD-SE67

Permittee or Site Name: New Boston Landfill
 County: Bowie
 Date of Monitor Well Installation: 09/28/95
 Monitor Well: Latitude: 33° 28' 06.4" Longitude: 94° 26' 45.7"
 Monitor Well Groundwater
 Gradient: Upgradient _____ Downgradient: X

MSW PERMIT NO: 576
 Monitor Well I.D. No.: MW-9
 Date of Monitor Well
 Development: 10/02/95
 Monitor Well Driller
 Name: Zane Ruffin
 License No.: 3188M

NOTE:

- (A) The information shown in the sketch below should be considered the minimum required for an installed ground-water monitor well.
- (B) Report All Depths from Surface Elevation and all Elevations relative to Mean Sea Level.
- (C) The minimum distance between the inside wall of the Bore Hole and the outside of the Well Casing shall be 3".
- (D) Use Flush Screw Joint Casing only, 2" diameter or larger. Recommend 4" diameter minimum & Teflon Taping Casing Joints.
- (E) Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist or Engineer Supervising Well Installation: John Walters/Dan Boyles, P.E.
 Static Water Level (with respect to MSL) after Well Development: 343.80'
 Name of Geologic Formation(s) in which Well is completed: Midway
 Type of Locking Device: Pad Lock Type of Casing Protection: Steel Casing

Concrete Surface Pad - Recommend steel reinforcement in the Surface Pad.
 Surface Pad Dimensions: 5' x 5' x 6"

Surface Elevation: 364.54

Top of Protective Collar Elevation: 367.53

Top Casing Elevation: 367.15

Surveyor's Pin Elevation: 365.04

Concrete Seal
 Depth: 2'
 Casing Seal (Backfill)
 Material: VOLCLAY Bentonite
Grout

Bentonite Seal
 Filter Pack

Bentonite Seal Top
 Depth: 31' Elevation: 333.54'

Filter Pack Top
 Depth: 33' Elevation: 331.54'

Filter Pack Material: Sand 20/40
 Sterilized Sand or Glass Beads

Well Screen

Top Depth: 36'
 Top Elevation: 328.54'

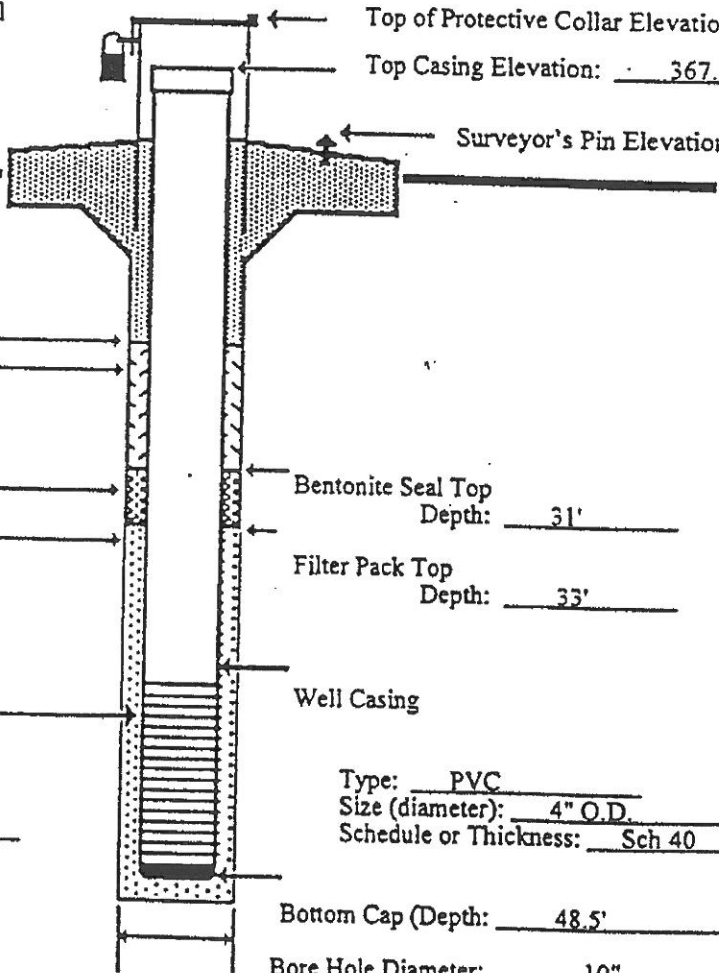
Type: PVC
 Size (diameter): 4" O.D.
 Schedule or Thickness: Sch 40

Type of Well Screen: Machine Slotted
PVC Screen

Screen Opening Size:

Bottom Cap (Depth: 48.5')
 Bore Hole Diameter: 10"

0.010"



Monitor Well Data Sheet

Permittee or Site Name: New Boston Landfill Monitoring Wells
 County: Bowie County, Texas
 Date of Monitor Well Installation: 4/7/11
 Monitor Well Latitude: 33°28'23N" Longitude: 94°27'01W"
 Monitor Well Groundwater Gradient Position:
 Upgradient _____ Downgradient X

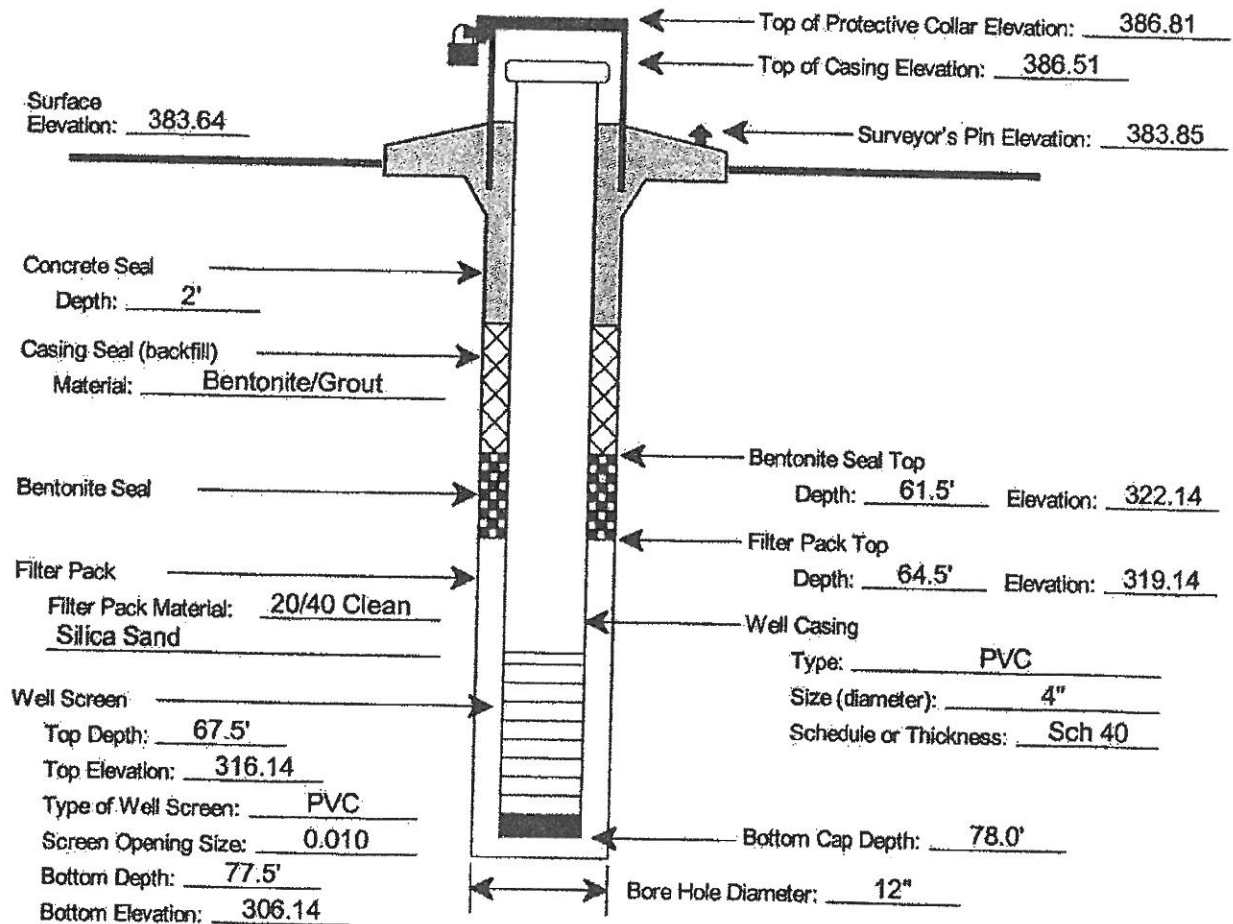
MSW Permit No.: 576B
 Monitor Well I.D. No.: MW-10
 Date of Monitor Well Development: 6/6/11
 Monitor Well Driller Name: Thomas D. Baker
 License No.: 3016M

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: Thomas D. Baker
 Static Water Level Elevation (with respect to MSL) after Well Development: 354.81
 Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Padlock Type of Casing Protection: 6" Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 6' x 6' x 6"



Monitor Well Data Sheet

Permittee or Site Name: New Boston Landfill Monitoring Wells
 County: Bowie County, Texas
 Date of Monitor Well Installation: 4/8/11
 Monitor Well Latitude: 33°28'28N" Longitude: 94°27'06W"
 Monitor Well Groundwater Gradient Position:
 Upgradient _____ Downgradient X

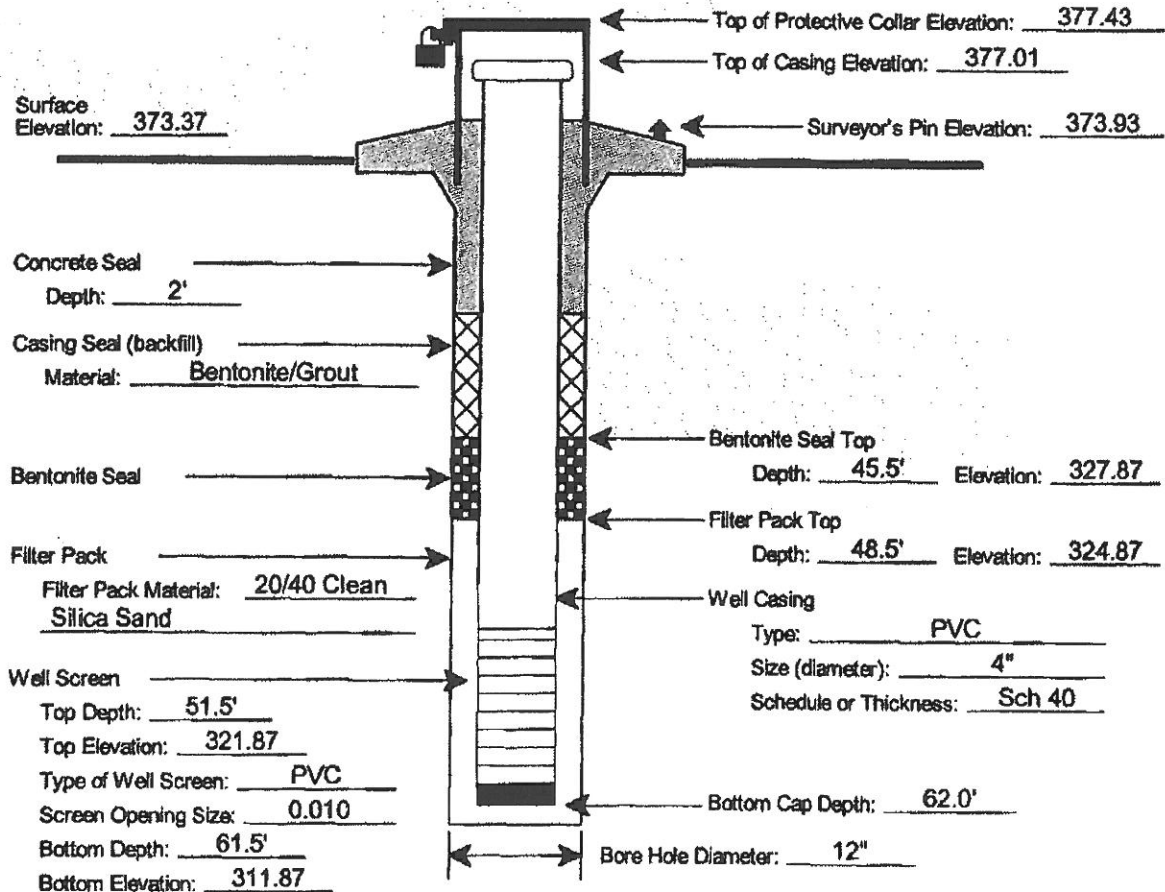
MSW Permit No.: 576B
 Monitor Well I.D. No.: MW-11
 Date of Monitor Well Development: 6/6/11
 Monitor Well Driller Name: Thomas D. Baker
 License No.: 3016M

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: Thomas D. Baker
 Static Water Level Elevation (with respect to MSL) after Well Development: 353.41
 Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Padlock Type of Casing Protection: 6" Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 6' x 6' x 6"



Monitor Well Data Sheet

Permittee or Site Name: New Boston Landfill Monitoring Wells
 County: Bowie County, Texas
 Date of Monitor Well Installation: 4/6/11
 Monitor Well Latitude: 33°28'11N" Longitude: 94°26'54W"
 Monitor Well Groundwater Gradient Position:
 Upgradient _____ Downgradient X

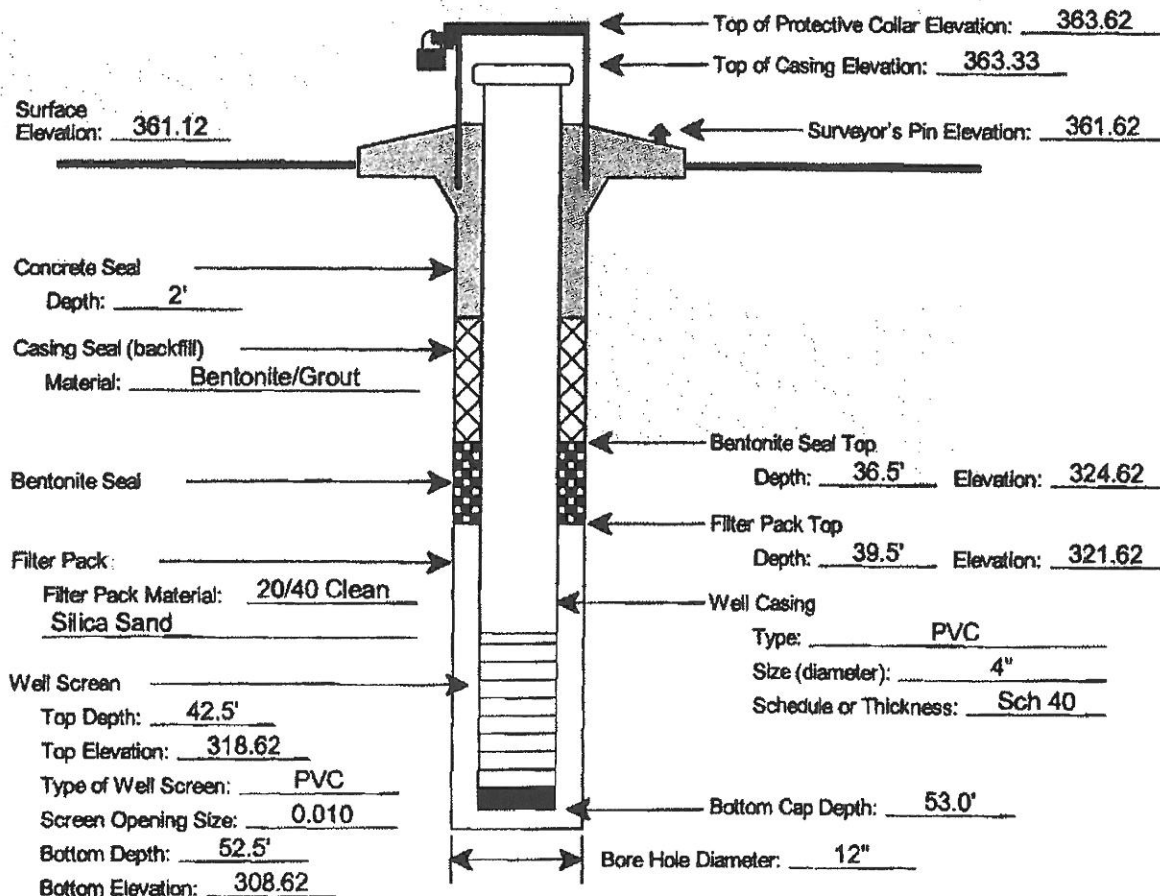
MSW Permit No.: 576B
 Monitor Well I.D. No.: MW-12
 Date of Monitor Well Development: 6/6/11
 Monitor Well Driller Name: Thomas D. Baker
 License No.: 3016M

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: Thomas D. Baker
 Static Water Level Elevation (with respect to MSL) after Well Development: 349.73
 Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Padlock Type of Casing Protection: 6" Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 6' x 6' x 6"



Monitor Well Data Sheet

Permittee or Site Name: New Boston Landfill Monitoring Wells
 County: Bowie County, Texas
 Date of Monitor Well Installation: 4/5/11
 Monitor Well Latitude: 33°28'10N" Longitude: 94°26'39W"
 Monitor Well Groundwater Gradient Position:
 Upgradient _____ Downgradient X

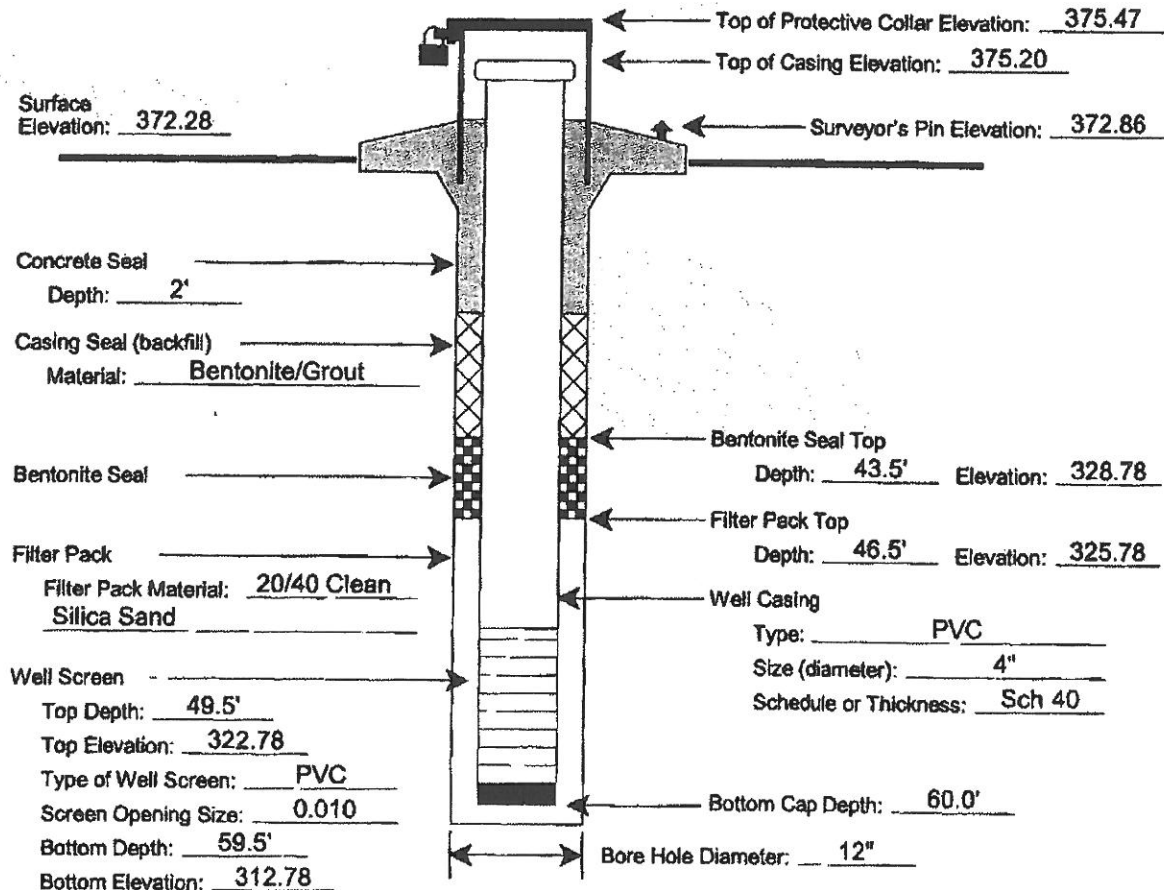
MSW Permit No.: 576B
 Monitor Well I.D. No.: MW-13
 Date of Monitor Well Development: 6/6/11
 Monitor Well Driller Name: Thomas D. Baker
 License No.: 3016M

NOTES:

- Report all depths from Surface Elevation and all Elevations relative to Mean Sea Level (MSL), to nearest hundredth of a foot.
- Diameter of boring should be at least 4 inches larger than diameter of well casing.
- Use flush screw joint casing only, 2-inch diameter or larger, with o-rings or PTFE tape in joints (4-inch diameter recommend).
- Well development should continue until water is clear, and pH and conductivity are stable.

Geologist, Hydrologist, or Engineer Supervising Well Installation: Thomas D. Baker
 Static Water Level Elevation (with respect to MSL) after Well Development: 347.20
 Name of Geologic Formation(s) in which Well is completed: Midway

Type of Locking Device: Padlock Type of Casing Protection: 6" Steel Upright
 Concrete Surface Pad (with steel reinforcement) Dimensions: 6' x 6' x 6"



PLUGGING REPORTS

STATE OF TEXAS PLUGGING REPORT for Tracking #55369

Owner:	Waste Management of Texas Inc	Owner Well #:	MW-3
Address:	1030 West US Hwy 82 New Boston, TX 75570	Grid #:	16-37-2
Well Location:	1030 West US Hwy 82 New Boston, TX 75570	Latitude:	33° 28' 20" N
Well County:	Bowie	Longitude:	094° 27' 04" W
		GPS Brand Used:	Garmin eTrex

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller: S. Lauritson

Driller's License Number of Original Well Driller: 2680

Date Well Drilled: 9/26/1990

Well Report Tracking Number: No Data

Diameter of Well: 10" inches

Total Depth of Well: 62' feet

Date Well Plugged: 2/19/2009

Person Actually Performing Plugging Operation: Sammy Smith

License Number of Plugging Operator: 54658

Plugging Method: Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet.

Plugging Variance #: No Data

Casing Left Data: 1st Interval: 4 inches diameter, From 21 ft to 62 ft
2nd Interval: No Data
3rd Interval: No Data

Cement/Bentonite Plugs Placed in Well: 1st Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 1-Cement
2nd Interval: From 2 ft to 62 ft; Sack(s)/type of cement used: 13-Bent/Cemt3-5%
3rd Interval: No Data
4th Interval: No Data
5th Interval: No Data

Certification Data: The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Apex Geoscience Inc
2120 Brandon Drive
Tyler, TX 75703

Plug Installer License Number: 54658
Licensed Plug Installer Signature: Sammy Smith
Registered Plug Installer Apprentice Signature: No Data
Apprentice Registration Number: No Data
Plugging Method Comments: No Data

Please include the plugging report's tracking number (Tracking #55369) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

Tracking# 19032

State of Texas
PLUGGING REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

OWNER: N. TX Mkt. Area Waste Mgmt. **ADDRESS:** P. O. Box 400 Ferris TX 75125
ADDRESS OF WELL: Hwy. 82 & I-30 New Boston TX 75570
County: Bowie **Latitude:** 332810 **Longitude:** 942650 **Brand/Model of GPS:** Garmin eTrex
OWNER'S WELL NO.: MW-6
WELL TYPE (Check) Water Monitor Injection De-Watering

B. HISTORICAL DATA ON WELL TO BE PLUGGED (if available)

Driller: J. Barr **License No.:**
Date Drilled: 9/14/1990 **State Well Report Tracking No.:**
Diameter of hole: 10 inches. **Total Depth of well:** 50 feet.

C. CURRENT PLUGGING DATA

Date well plugged: 8/17/2004 **Name of Driller/Pump Installer who actually performed the plugging operations:** Sammy Smith 54658W

Method of Plugging:

- Tremmie pipe cement from bottom to top
- Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet
- Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet
- Large diameter well filled with clay material from top to bottom
- Other, Explained in comments section

Plugging Variance No.

Casing and cementing data relative to the plugging operations:

Casing Left In Well:

Diameter (inches)	From (feet)	To (feet)
4	10	50

Materials Used for Plugging Well:

From (feet)	To (feet)	Sack(s) of Cement (or specify other) Used
2	50	Bentonite Hole Plug
0	2	1

Comments:

D. VALIDATION OF INFORMATION INCLUDED IN FORM

I certify that I plugged this well (or the well was plugged under my supervision) and that each and all of the statements herein are true and correct. I understand that failure to complete items 1 thru 13 will result in the report(s) being returned for completion and resubmittal.

Company or Individual's Name: Apex Geoscience, Inc.
Address: 2120 Brandon Tyler TX 75703

Signatures: Licensed Driller/Pump Installer **Trainee/Apprentice** **Apprentice Lic. No.**
 Lic# 54289 Jim Markle (As Signature) (As Signature)