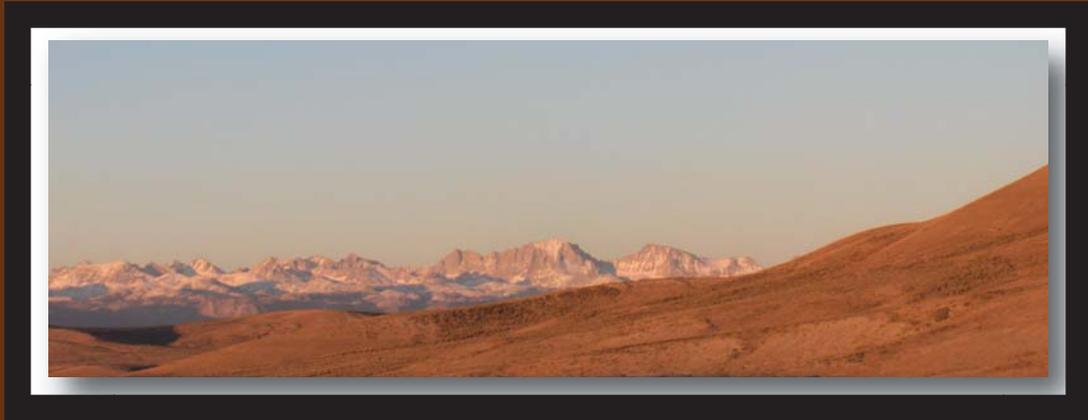


# APPENDIX D



**Study Well As-Built Logs**

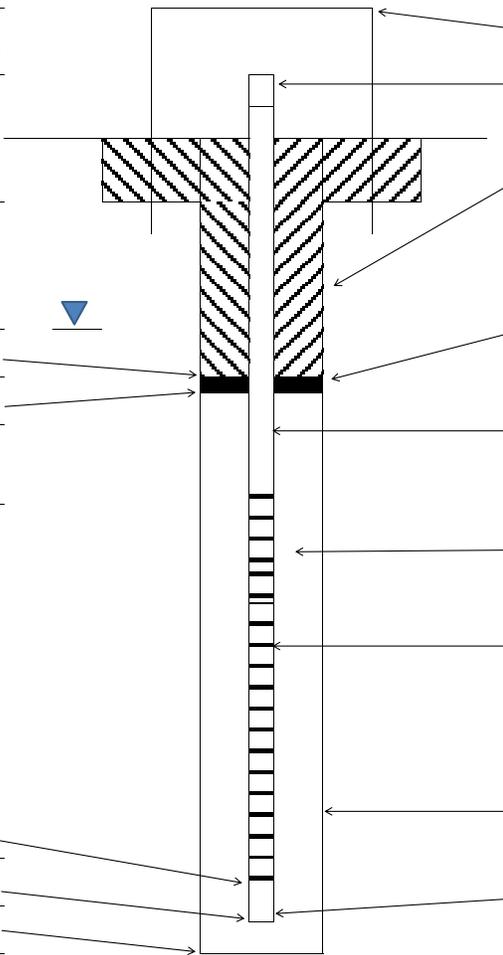


LOCATION Sublette County, Wyoming  
 OBSERVED BY Adam Johnson  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-1-SW (Sherlock Federal 15-8)  
 DATE 7/31/2010

SOIL TYPE DEPTH (ft)

+ 2.08  
 + 1.79  
 40  
 93.51  
 103  
 108  
 127  
 147  
 147.5  
 160



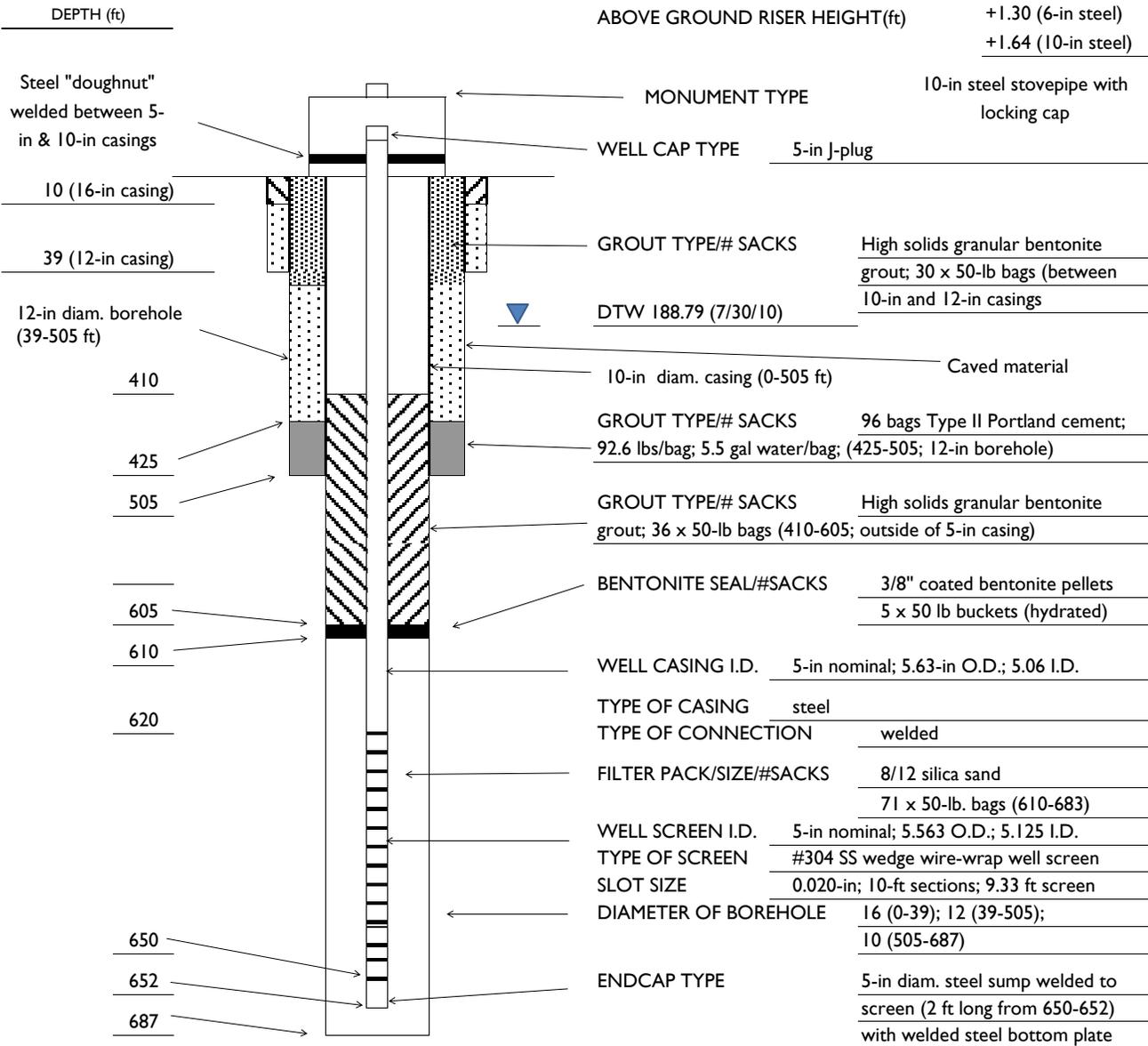
ABOVE GROUND RISER HEIGHT(ft) +1.79 (4-in PVC)  
+2.08 (8-in steel)

MONUMENT TYPE 8-in Steel stovepipe with locking cap  
 WELL CAP TYPE 4" J-plug  
 GROUT TYPE/# SACKS High solids granular bentonite grout (17 x 50-lb bags from ground surface to 103 feet)  
 BENTONITE SEAL/#SACKS 3/8" coated bentonite pellets 5 x 50 lb buckets  
 WELL CASING I.D. 4-in nominal; 3.75-in actual  
 TYPE OF CASING Schedule 80 PVC  
 TYPE OF CONNECTION flush-threaded  
 FILTER PACK/SIZE/#SACKS 8/12 silica sand 27 x 100-lb. bags  
 WELL SCREEN I.D. 4-in nominal; 3.75-in actual  
 TYPE OF SCREEN Schedule 80 PVC  
 SLOT SIZE 0.020-in (1/8-in spacing; 4 rows)  
 DIAMETER OF BOREHOLE 10-in (9 7/8-in diameter bit)  
 ENDCAP TYPE 4-in PVC flush-threaded cap

REMARKS 16-in borehole drilled to 40 feet; temporary 16-inch casing installed to approx. 7 feet; 10-inch surface casing installed to 40 feet; 18 bags Type II Portland cement from ground surface to 40 feet; centralizers placed at bottom of screen and ten feet above top of screen; annular materials installed via tremie pipe; see as-built diagram for T-1-RW for further details on materials; depth to water measured after well completion and prior to development;



LOCATION	Sublette County, Wyoming	PROJECT NO.	013655.006.0 Task 4
OBSERVED BY	Adam Johnson	PROJECT NAME	PAPA Hydro Data Gaps Study
DRILLER/INSTALLER	Thomas Drilling/Bob and Tyson Thomas	BORING/WELL I.D.	T-1-RW (Sherlock Federal 15-8)
		DATE	7/29/2010



REMARKS 16-in borehole drilled to 39 feet; 16-inch casing installed to approx. 10 feet; 12-inch surface casing installed to 39 feet; 12 bags Type II Portland cement (92.6 lbs per bag; 5.5 gal water per bag) from ground surface to 40 feet; centralizers placed at bottom and top of screen; annular materials installed via 1.5-in I.D. tremie pipe; depth to water measured after well completion and prior to development; caved material from 683-687;



AMEC Geomatrix, Inc.

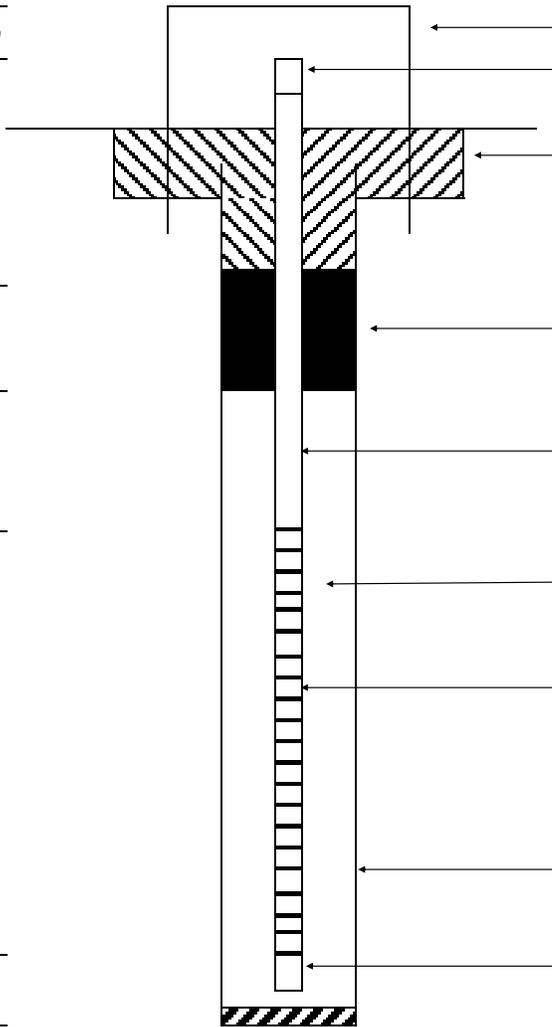
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY Tom McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-2-SW  
 DATE 6/29/2010

SOIL TYPE DEPTH (ft)

+1.74'  
 +1.49'  
 313'  
 320'  
 335'  
 375'  
 395'



ABOVE GROUND RISER HEIGHT(ft)  
 (IF APPLICABLE) +1.49'

MONUMENT TYPE (IF APPLICABLE) 10" steel

WELL CAP TYPE 4" J-plug

GROUT TYPE/# SACKS Bentonite grout/ 69-50 lb bags from 313' - 320'  
Cement 3'-0" / 5bags

BENTONITE SEAL/#SACKS 3/8" coated bentonite pellets 8-50 lb buckets

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Threaded

FILTER PACK/SIZE/#SACKS 8/12 silica sand 56-50 lb bags

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC

SLOT SIZE 0.020" Factory slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE 4" Threaded

REMARKS Hole caved from 395'-380' overnight  
5 centralizers installed, top and bottom of screen, then every 100'



AMEC Geomatrix, Inc.

**MONITORING WELL AS-BUILT REPORT**

LOCATION	Sublette County, Wyoming	PROJECT NO.	013655.006.0 Task 4
OBSERVED BY	Tom McManus	PROJECT NAME	PAPA Hydro Data Gaps Study
DRILLER/INSTALLER	Thomas Drilling/Bob Thomas	BORING/WELL I.D.	T-2-RW
		DATE	6/26/2010

SOIL TYPE DEPTH (ft)

+2.49'

+2.11'

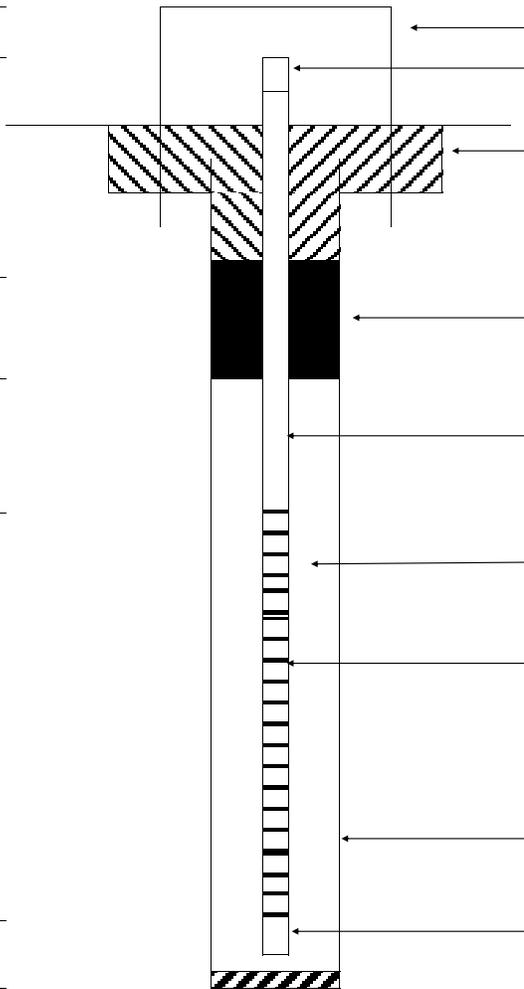
713'

720'

730'

770'

790'



ABOVE GROUND RISER HEIGHT (ft) (IF APPLICABLE)	+2.11'
MONUMENT TYPE (IF APPLICABLE)	10" steel
WELL CAP TYPE	5" J-plug
GROUT TYPE/# SACKS	Bentonite grout/ 143-50 lb bags from 713' - 3' 42 bags chips added later; 5 bags cement 3' -0'
BENTONITE SEAL/#SACKS	3/8" coated bentonite pellets 5-50 lb buckets
WELL CASING I.D.	5"
TYPE OF CASING	Steel
TYPE OF CONNECTION	Welded
FILTER PACK/SIZE/#SACKS	8/12 silica sand 37-100 lb bags
WELL SCREEN I.D.	5"
TYPE OF SCREEN	Stainless steel; wire wrap
SLOT SIZE	0.020" Factory Slotted
DIAMETER OF BOREHOLE	10"
ENDCAP TYPE	Steel sump; 24"; welded

REMARKS Centralizers installed top and bottom of screen, then every 100'.  
Well caved from 790-775' overnight, sandpack started at 775'. 10" casing cemented from surface to 413'bgs



AMEC Geomatrix, Inc.

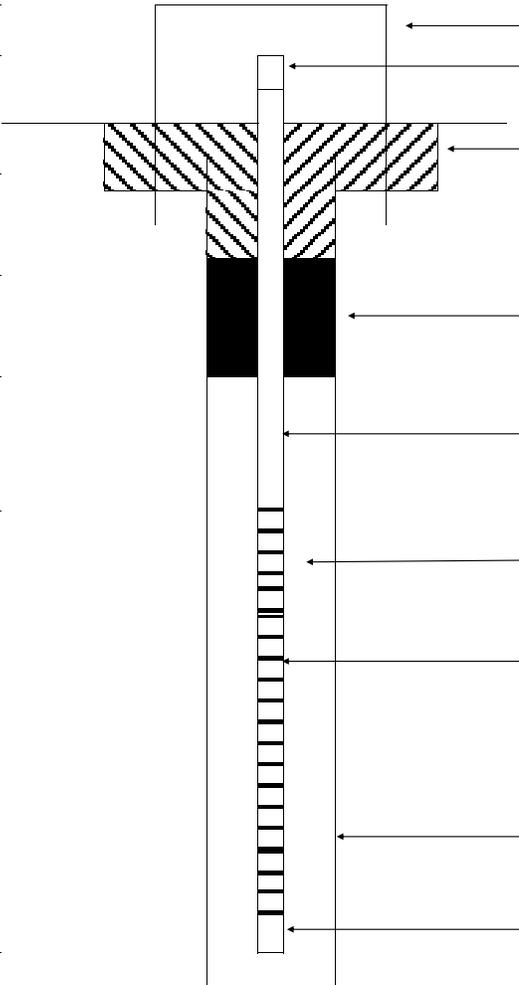
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY J.W. Dawson  
 DRILLER/INSTALLER White Mountain Operating, LLC / Roberto

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-2a-G  
 DATE 10/14/2009

SOIL TYPE DEPTH(ft)

	+1.45'
	+1.45'
TOPSOIL	1'
	2'
	7'
Glacial Till/ Outwash	8'
	16'
Shale	18'
	18'



ABOVE GROUND RISER HEIGHT(ft)  
(IF APPLICABLE) +1.45'

MONUMENT TYPE (IF APPLICABLE) 6" Steel

WELL CAP TYPE 4" Slip Cap

GROUT TYPE/# SACKS Concrete; 6-50# sacks (2'-0')

BENTONITE SEAL/#SACKS 4/ 50lbs bags

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush - Joint Threaded

FILTER PACK/SIZE/#SACKS 3/8" Pea Gravel

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 8"

ENDCAP TYPE Flush Joint Threaded

REMARKS

---



---



---



AMEC Geomatrix, Inc.

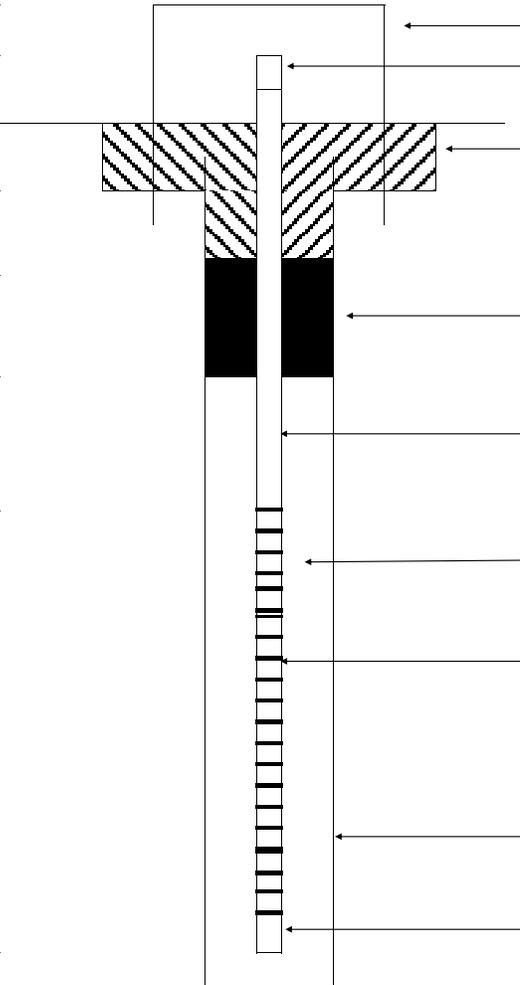
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY J.W. Dawson  
 DRILLER/INSTALLER White Mountain Operating, LLC / Roberto

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-2b-G  
 DATE 10/14/2009

SOIL TYPE DEPTH (ft)

	+1.46'
	+1.14'
Topsoil	1'
Glacier Till/ Outwash	2' 2"
	4' 2"
	5' 2"
14'	15' 2"
Shale	15' 2"



ABOVE GROUND RISER HEIGHT(ft)  
 (IF APPLICABLE) +1.14'

MONUMENT TYPE (IF APPLICABLE) 6" Steel

WELL CAP TYPE 4" Slip Cap

GROUT TYPE/# SACKS Concrete; 4-50# bags

BENTONITE SEAL/#SACKS 4 - 50# sacks

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush-Joint Threaded

FILTER PACK/SIZE/#SACKS 3/8" Pea Gravel

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 8"

ENDCAP TYPE Flush Joint Threaded

REMARKS

---



---



---



AMEC Geomatrix, Inc.

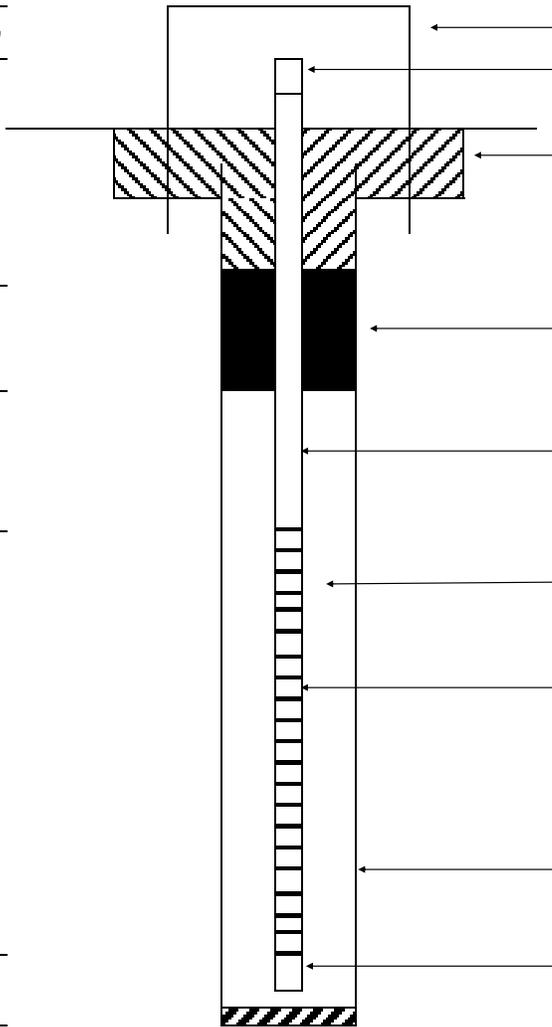
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY Levi McKay  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-3-SW  
 DATE 7/1/2010

SOIL TYPE DEPTH (ft)

+1.79'  
 +1.61'  
 398'  
 393'  
 405'  
 445'  
 460'



ABOVE GROUND RISER HEIGHT(ft)  
 (IF APPLICABLE) +1.61'

MONUMENT TYPE (IF APPLICABLE) 10" steel

WELL CAP TYPE 5" J-plug

GROUT TYPE/# SACKS Type II portland cement/ 24-92.6 lb bags from 60' - 0  
Bentonite grout/ 60-50 lb bags from 398' - 60'

BENTONITE SEAL/#SACKS 3/8" coated bentonite pellets  
5-50 lb buckets

WELL CASING I.D. 5"

TYPE OF CASING Steel

TYPE OF CONNECTION Welded

FILTER PACK/SIZE/#SACKS 8/12 silica sand  
27-100 lb bags

WELL SCREEN I.D. 5"

TYPE OF SCREEN Stainless steel; wire wrap

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE Steel sump; 16"; welded

REMARKS Centralizers place at bottom of screen, top of screen, and every 100 feet up to ground surface (6 total). Approximately 15' of sloughed cuttings on bottom of borehole.



AMEC Geomatrix, Inc.

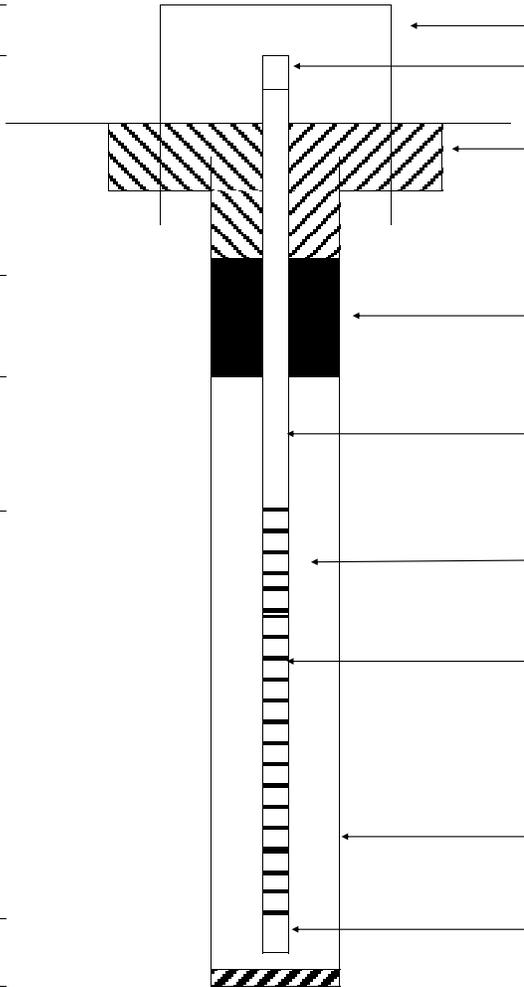
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY Levi McKay  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-3-RW  
 DATE 7/17/2010

SOIL TYPE DEPTH (ft)

+1.82'  
 +1.59'  
 667'  
 677'  
 705'  
 745'  
 770'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.59'

MONUMENT TYPE (IF APPLICABLE) 10" steel

WELL CAP TYPE 5" J-plug

GROUT TYPE/# SACKS Type II portland cement/ 55-92.6 lb bags from 140' - Bentonite grout/ 96-50 lb bags from 667' - 140'

BENTONITE SEAL/#SACKS 3/8" coated bentonite pellets 5-50 lb buckets

WELL CASING I.D. 5"

TYPE OF CASING Steel

TYPE OF CONNECTION Welded

FILTER PACK/SIZE/#SACKS 8/12 silica sand 33-100 lb bags

WELL SCREEN I.D. 5"

TYPE OF SCREEN Stainless steel; wire wrap

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE Steel sump; 24"; welded

REMARKS Centralizers placed at bottom of screen, top of screen, and every 100 feet up to ground surface (8 total). Filter pack exceeds screen by 30' because bentonite seal and grout were added the same day. Approximately 15' of sloughed cuttings.



LOCATION Sublette Co. Wyoming  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-4-SW (Antelope 11-10D)  
 DATE 5/18/10

SOIL TYPE DEPTH(ft)

+2.19'

+1.92'

3'

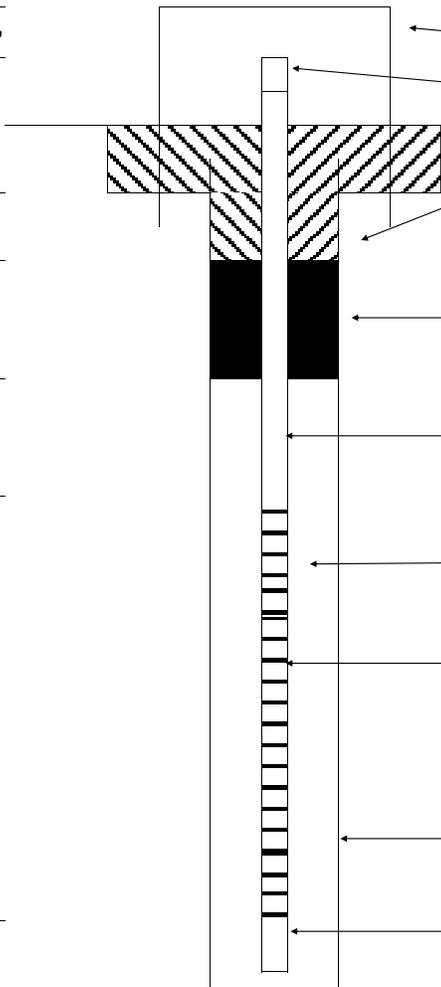
165'

170'

175'

190'

200'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.92'

MONUMENT TYPE (IF APPLICABLE) 10" Steel

WELL CAP TYPE 4" J-Plug

GROUT TYPE/# SACKS Cement/35 bags  
Cement grout from 165' to 3'

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Threaded

FILTER PACK/SIZE/#SACKS 8/12

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC Threaded

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 16" to 20'; 14" to 40'; 10" to 40' (cemented)

ENDCAP TYPE Threaded 4" Schedule 80

REMARKS All well materials were placed w/ tremie pipe; 3 bollards installed at this location.



LOCATION Sublette Co. Wyoming  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-4-RW-a (Antelope 11-10D)  
 DATE 5/28/10

SOIL TYPE DEPTH(ft)

+1.97'

+1.69'

210'

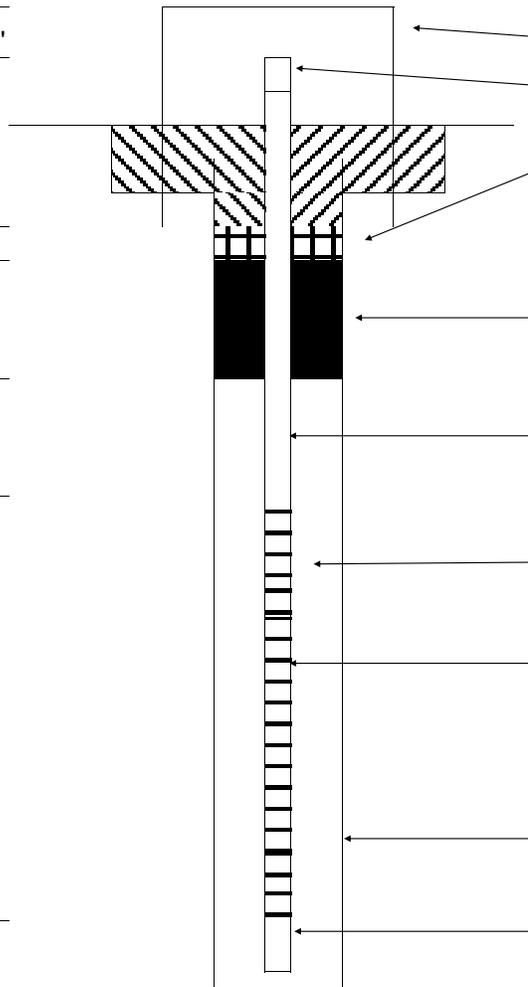
417'

417'

430'

460'

475'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.69'

MONUMENT TYPE (IF APPLICABLE) 10" steel

WELL CAP TYPE 5" J-Plug

GROUT TYPE/# SACKS 90 bags of Type II Portland cement; bentonite Hi-Solids grout/ 42 bags

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets

WELL CASING I.D. 5" nominal

TYPE OF CASING Steel

TYPE OF CONNECTION Welded

FILTER PACK/SIZE/#SACKS 8/12 silica sand/ 30 bags

WELL SCREEN I.D. 5" nominal

TYPE OF SCREEN S.S. screen

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE Welded flat end

REMARKS J-Plug is fit loose due to gas pressure having blown it off in previous attempts to tighten.



LOCATION Sublette County, Wyoming  
 OBSERVED BY Levi McKay/ Adam Johnson  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-4-RWb  
 DATE 7/28/2010

SOIL TYPE DEPTH(ft)

+1.97'

+1.69'

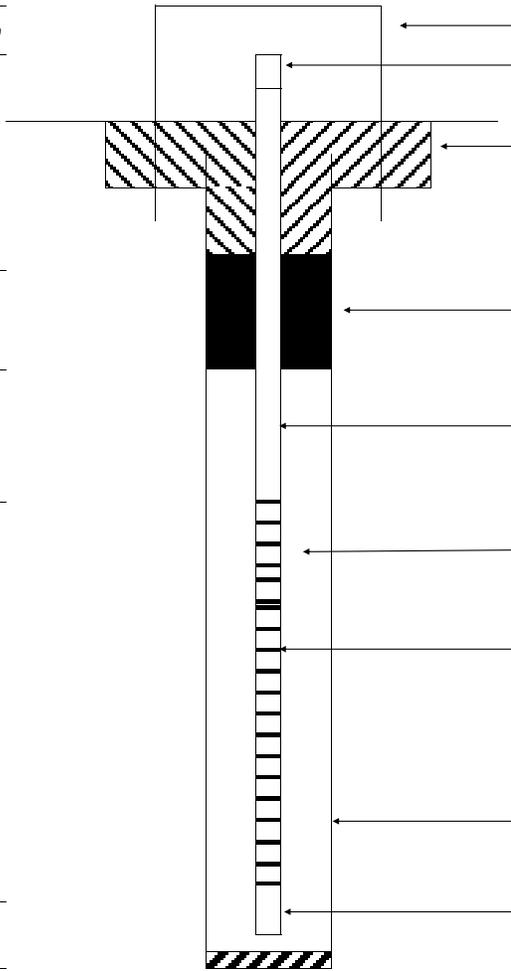
611'

616'

635'

655'

675'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.69'

MONUMENT TYPE (IF APPLICABLE) 10" Steel

WELL CAP TYPE 5" J-plug

GROUT TYPE/# SACKS Type II portland cement/ 48-92.6 lb bags from 120' - 611'  
Bentonite grout/ 93-50 lb bags from 611' - 120'

BENTONITE SEAL/#SACKS 3/8" coated bentonite pellets 5-50 lb buckets

WELL CASING I.D. 5" nominal

TYPE OF CASING Steel

TYPE OF CONNECTION Welded

FILTER PACK/SIZE/#SACKS 8/12 silica sand 23-100 lb bags

WELL SCREEN I.D. 5" nominal; 5-1/8" actual

TYPE OF SCREEN Stainless steel; wire wrap

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE Steel sump; 24"; welded

REMARKS Centralizers placed at bottom of screen, top of screen, and every 100 feet up to ground surface (6 total). Hole caved to 665; sand and seal material installed via tremie pipe.

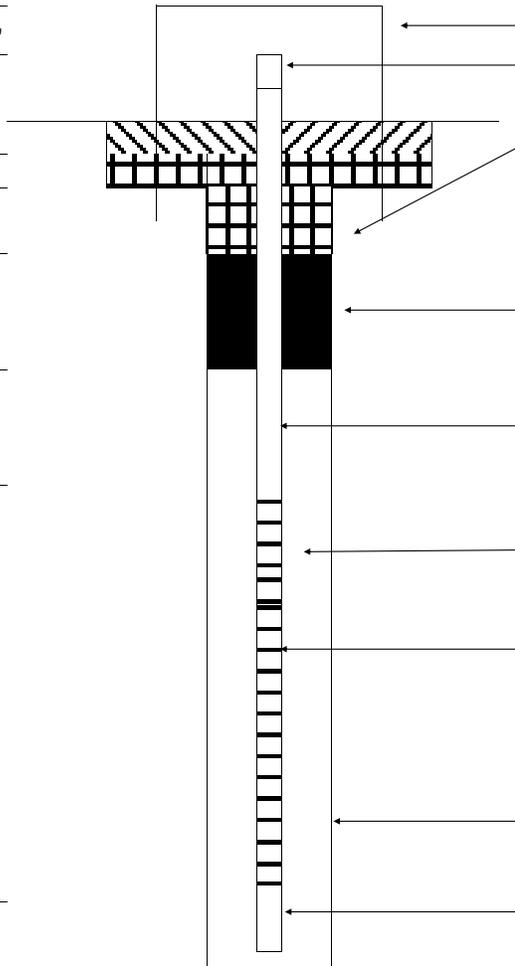


LOCATION Sec. 17; SE; BLM  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-5-RW  
 DATE 8/31/10

SOIL TYPE DEPTH (ft)

+1.82'  
 +1.49'  
 4'  
 20'  
 533'  
 540'  
 550'  
 590'  
 615'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.49'

MONUMENT TYPE (IF APPLICABLE) 8" Steel

WELL CAP TYPE 5" J-Plug

GROUT TYPE/# SACKS Hi-Solids grout/ 95-50 lb bags;  
 29 bags bentonite chips from  
 20' to 4'; 5 bags cement from 4'  
 to 0'

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb  
 buckets

WELL CASING I.D. 5"

TYPE OF CASING Steel

TYPE OF CONNECTION Welded

FILTER PACK/SIZE/#SACKS 8/12 sand pack/31-100 lb bags

WELL SCREEN I.D. 5"

TYPE OF SCREEN Stainless steel screen

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE 5" welded

REMARKS 12" surface casing cemented in from 0-20'



AMEC Geomatrix, Inc.

**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY J.W. Dawson  
 DRILLER/INSTALLER White Mountain Operating, LLC / Roberto

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-6-SW  
 DATE 11/2/2009

SOIL TYPE DEPTH(ft)

+1.90'

+1.70'

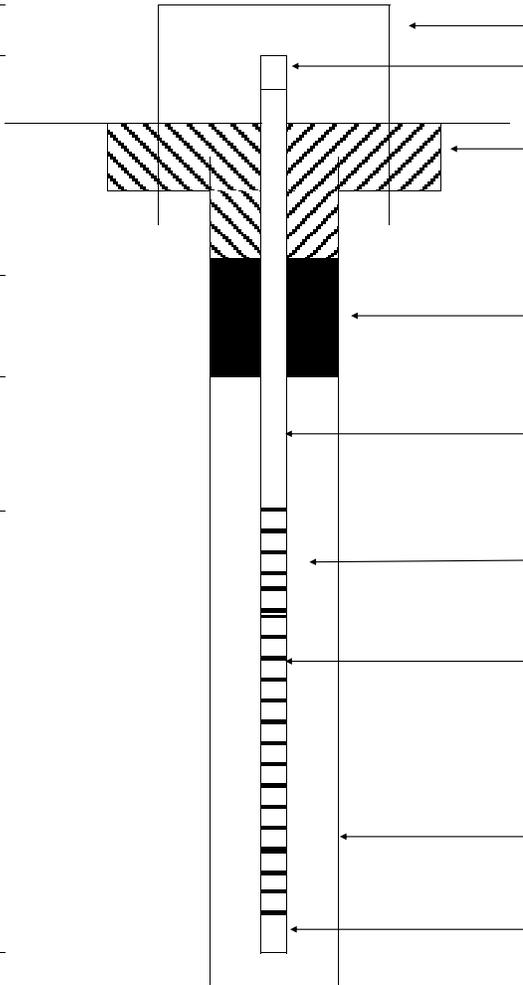
196'

206'

217'

257'

260'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.70'

MONUMENT TYPE (IF APPLICABLE) 6" Steel

WELL CAP TYPE 4" Slip Cap

GROUT TYPE/# SACKS Neat Cement; 105 bags

BENTONITE SEAL/#SACKS 8 - 50# bags

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush joint threaded

FILTER PACK/SIZE/#SACKS 3/8 Pea Gravel  
140 gal. ( ≈ 19 ft<sup>3</sup> )

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC

SLOT SIZE 0.020" factory slotted

DIAMETER OF BOREHOLE 11": 0 - 100'  
8 3/4": 100 - 260'

ENDCAP TYPE F.J.T.

REMARKS

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



AMEC Geomatrix, Inc.

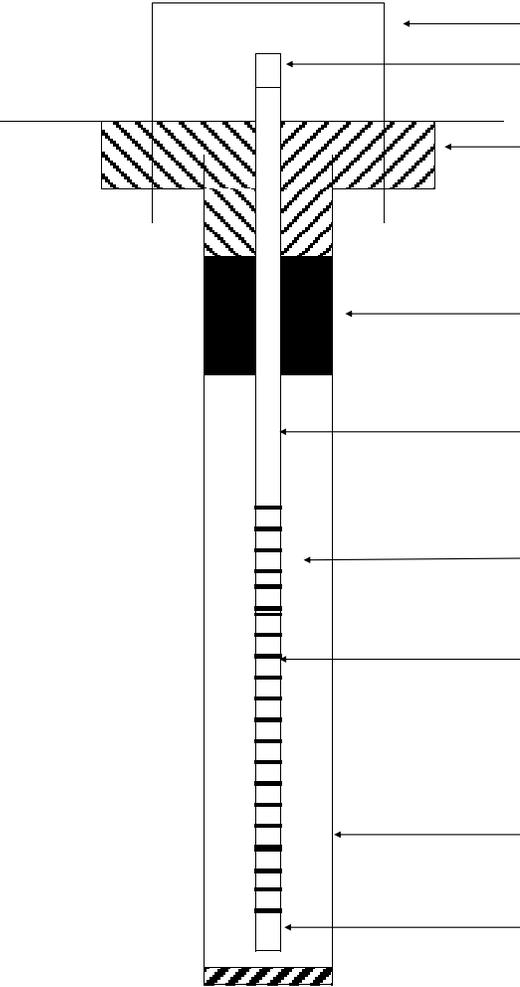
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY Levi McKay  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-6-RW  
 DATE 08/13/10

SOIL TYPE DEPTH(ft)

+2.33'  
 +2.07'  
 456'  
 454'  
 475'  
 495'  
 505'



ABOVE GROUND RISER HEIGHT (ft) (IF APPLICABLE) +2.07'  
 MONUMENT TYPE (IF APPLICABLE) 10" Steel  
 WELL CAP TYPE 5" J-plug  
 GROUT TYPE/# SACKS Type II portland cement/ 48-92.6 lb bags from 120' - 120'  
Bentonite grout/ 93-50 lb bags from 611' - 120'  
 BENTONITE SEAL/#SACKS 3/8" coated bentonite pellets 5-50 lb buckets  
 WELL CASING I.D. 5" nominal  
 TYPE OF CASING Steel  
 TYPE OF CONNECTION Welded  
 FILTER PACK/SIZE/#SACKS 8/12 silica sand 20-100 lb bags  
 WELL SCREEN I.D. 5" nominal; 5-1/8" actual  
 TYPE OF SCREEN Stainless steel; wire wrap  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 10"  
 ENDCAP TYPE Steel sump; 24"; welded

REMARKS Centralizers placed at bottom of screen, top of screen, and every 100 feet up to ground surface (5 total). Seven feet of sloughed cuttings reported by driller; sand, bentonite seal, and backfill material installed via tremie pipe.  
16" steel casing from 0-20'



AMEC Geomatrix, Inc.

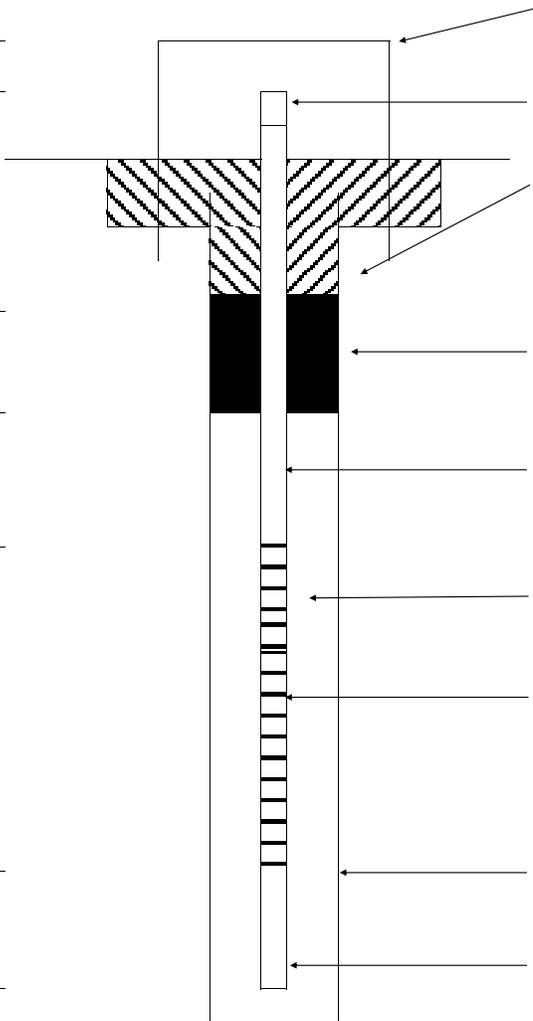
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY J.W. Dawson  
 DRILLER/INSTALLER White Mountain Operating, LLC / Roberto

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-7-SW  
 DATE 10/18/2009

SOIL TYPE DEPTH (ft)

	+1.94'
	+1.07'
	141'
	153'
	167'
	207'
	217'
	220'



ABOVE GROUND RISER HEIGHT (IF APPLICABLE) +1.94'  
 MONUMENT TYPE (IF APPLICABLE) 6" Steel  
 WELL CAP TYPE Slip Cap  
 GROUT TYPE/# SACKS Grout - 27; Cement  
 BENTONITE SEAL/#SACKS 5 - 50# sacks  
 WELL CASING I.D. 4" nominal (3.75" actual)  
 TYPE OF CASING Schedule 80 PVC  
 TYPE OF CONNECTION Flush Joint Threaded (FJT)  
 FILTER PACK/SIZE/#SACKS \_\_\_\_\_  
 WELL SCREEN I.D. 4" nominal (3.75" actual)  
 TYPE OF SCREEN Schedule 80 PVC  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 8"  
 ENDCAP TYPE F,J,T.

REMARKS

---



---



---



AMEC Geomatrix, Inc.

**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY J.W. Dawson  
 DRILLER/INSTALLER White Mountain Operating, LLC / Roberto

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-7-RW  
 DATE 10/29/2009

SOIL TYPE DEPTH (ft)

+2.11'

463'

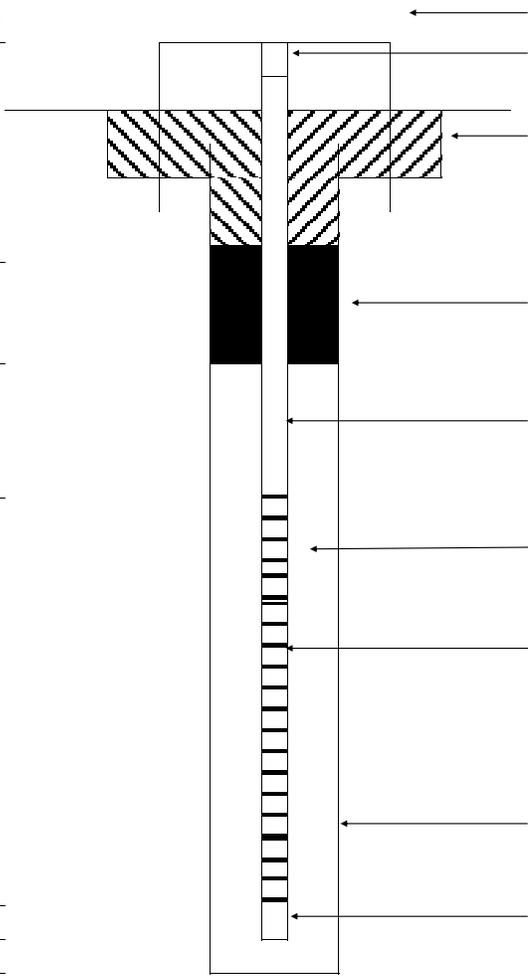
469'

470'

515'

518'

518'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +2.11'

MONUMENT TYPE (IF APPLICABLE) \_\_\_\_\_

WELL CAP TYPE Steel Locking

GROUT TYPE/# SACKS Neat Cement (196 ft<sup>3</sup>)

BENTONITE SEAL/#SACKS 4 - 50# sacks

WELL CASING I.D. 6"

TYPE OF CASING Steel

TYPE OF CONNECTION Welded

FILTER PACK/SIZE/#SACKS Pea Gravel

WELL SCREEN I.D. 6"

TYPE OF SCREEN Steel

SLOT SIZE \_\_\_\_\_

DIAMETER OF BOREHOLE 11"

ENDCAP TYPE Steel, Welded

REMARKS

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



AMEC Geomatrix, Inc.

**MONITORING WELL AS-BUILT REPORT**

LOCATION	Sublette County, Wyoming	PROJECT NO.	013655.006.0 Task 4
OBSERVED BY	L. McKay	PROJECT NAME	PAPA Hydro Data Gaps Study
DRILLER/INSTALLER	Thomas Drilling/ Tyson Thomas	BORING/WELL I.D.	T-8-A
		DATE	8/17/2010

SOIL TYPE DEPTH(ft)

+1.47'

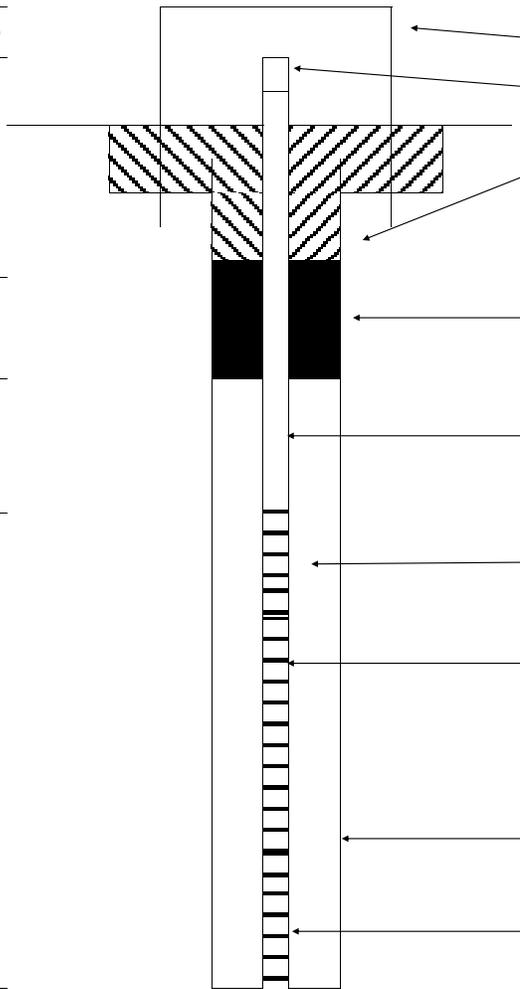
+1.17'

0.6'

4'

5'

15'



ABOVE GROUND RISER HEIGHT (IF APPLICABLE)	+1.17'
MONUMENT TYPE (IF APPLICABLE)	8" Steel
WELL CAP TYPE	4" J-Plug
GROUT TYPE/# SACKS	Type II Portland cement/2-100 lb bags
BENTONITE SEAL/#SACKS	Cetco medium/coarse chips/3-50 lb bags
WELL CASING I.D.	4" nominal
TYPE OF CASING	Schedule 80 PVC
TYPE OF CONNECTION	Flush Joint Threaded (FJT)
FILTER PACK/SIZE/#SACKS	8/12 silica sand/6.5-100 lb bags
WELL SCREEN I.D.	4" nominal (3.75" actual)
TYPE OF SCREEN	Schedule 80 PVC
SLOT SIZE	0.020" Factory Slotted
DIAMETER OF BOREHOLE	10"
ENDCAP TYPE	PVC slip cap

REMARKS Sand and bentonite added via tremie pipe; cement applied to top casing via grout pump.



AMEC Geomatrix, Inc.

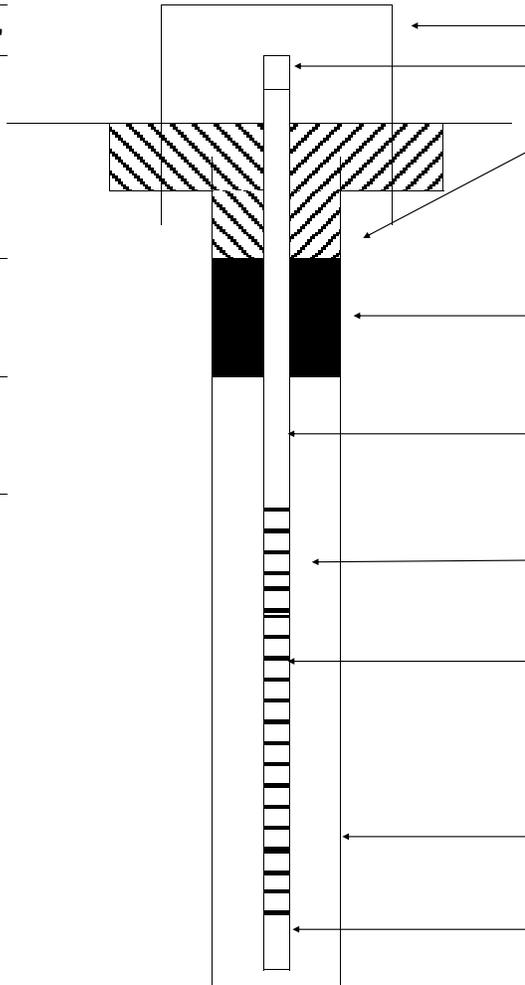
**MONITORING WELL AS-BUILT REPORT**

LOCATION Sublette County, Wyoming  
 OBSERVED BY L. McKay  
 DRILLER/INSTALLER Thomas Drilling/ Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-8-SW  
 DATE 8/18/10

SOIL TYPE DEPTH(ft)

+1.83'  
 +1.66'  
 195'  
 203'  
 208'  
 228'  
 230'



ABOVE GROUND RISER HEIGHT(ft)  
 (IF APPLICABLE) +1.66'

MONUMENT TYPE (IF APPLICABLE) 8" Steel

WELL CAP TYPE 4" J-Plug

GROUT TYPE/# SACKS Type II Portland cement/3-100 lb bags; Medium/coarse chips/ 39-50 lb bags;

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets

WELL CASING I.D. 4" nominal

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush Joint Threaded (FJT)

FILTER PACK/SIZE/#SACKS 8/12 silica sand/14-100 lb bags

WELL SCREEN I.D. 4" nominal (3.75" actual)

TYPE OF SCREEN Schedule 80 PVC

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE PVC slip cap

REMARKS Sand and bentonite chips/pellets added via tremie pipe; cement applied to top casing via grout pump.

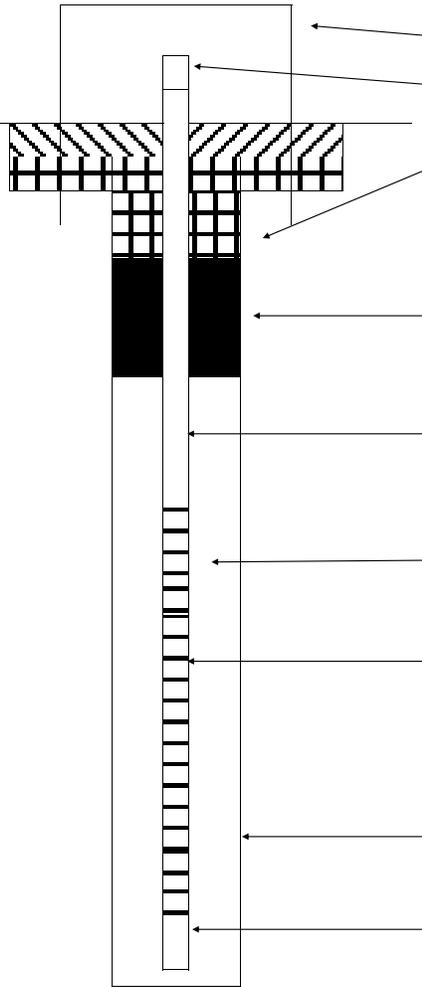


LOCATION BLM T-9 location  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. T-9-RW  
 DATE 6/8/10

SOIL TYPE DEPTH(ft)

+2.29'  
 +2.00'  
 3'  
 727'  
 733'  
 740'  
 780'  
 795'



ABOVE GROUND RISER HEIGHT (ft) (IF APPLICABLE) +2.00'  
 MONUMENT TYPE (IF APPLICABLE) Steel w/locking cap  
 WELL CAP TYPE 5" J-Plug  
 GROUT TYPE/# SACKS Hi-Solids grout/ 131-50 lb bags; cement/6 bags; 24 bags bentonite chips added 6/16/10  
 BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets  
 WELL CASING I.D. 5" Nominal  
 TYPE OF CASING Steel  
 TYPE OF CONNECTION Welded  
 FILTER PACK/SIZE/#SACKS 8/12 sand pack/26-100 lb bags  
 WELL SCREEN I.D. 5" Nominal  
 TYPE OF SCREEN Stainless steel screen  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 10"  
 ENDCAP TYPE 5" welded

REMARKS

---



---



---

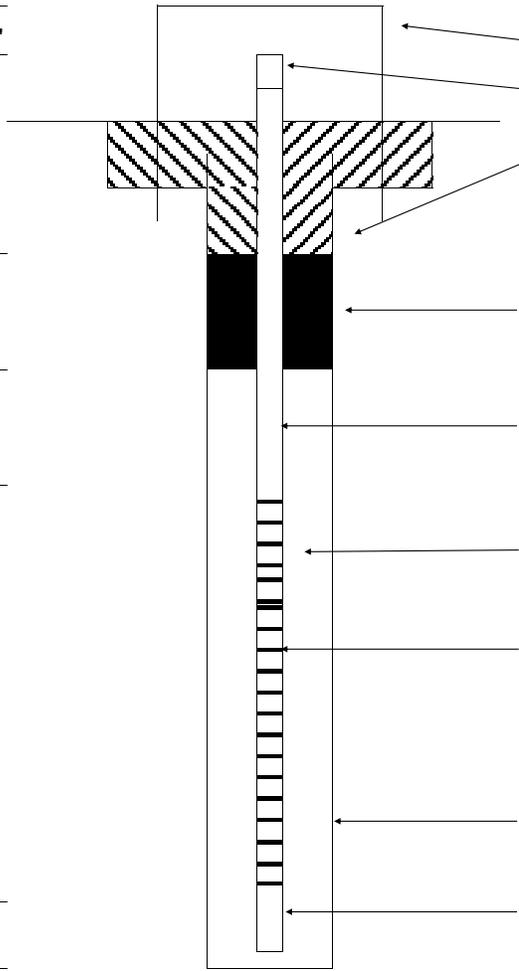


LOCATION West of Pinedale, near HWY 191  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-1-A  
 DATE 5/11/10

SOIL TYPE DEPTH(ft)

+2.01'  
 +1.69'  
 3'  
 7'  
 10'  
 30'  
 33'



ABOVE GROUND RISER HEIGHT (IF APPLICABLE) +1.69'  
 MONUMENT TYPE (IF APPLICABLE) 8" steel  
 WELL CAP TYPE 4" J-Plug  
 GROUT TYPE/# SACKS Cement/5 bags  
 BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets  
 WELL CASING I.D. 4"  
 TYPE OF CASING Schedule 80 PVC  
 TYPE OF CONNECTION Flush Joint Threaded  
 FILTER PACK/SIZE/#SACKS 8/12 sand pack/17-100 lb bags  
 WELL SCREEN I.D. 4"  
 TYPE OF SCREEN Schedule 80 PVC Threaded  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 8"  
 ENDCAP TYPE Threaded PVC

REMARKS Handheld GPS location: N 42° 82.033', W 109° 53.722'

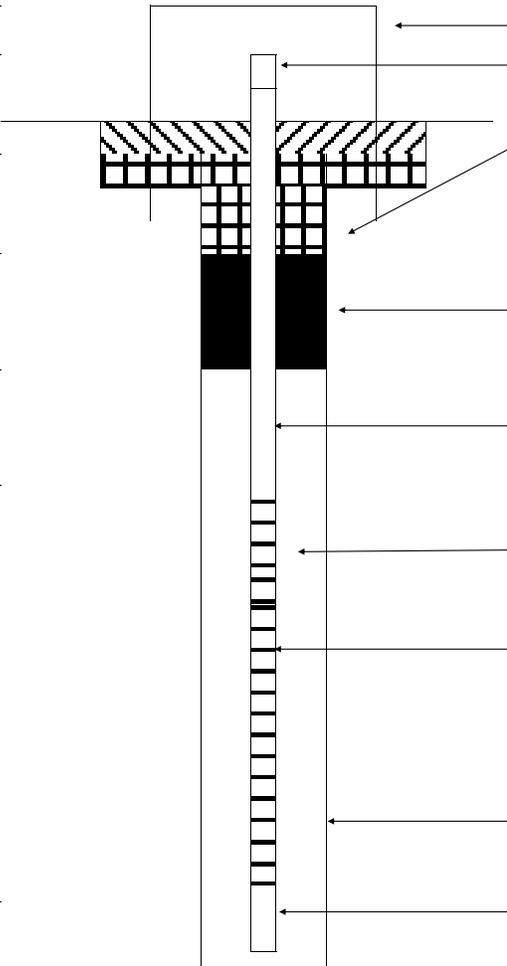


LOCATION West of Pinedale, near HWY 191  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-1-SW  
 DATE 5/12/10

SOIL TYPE DEPTH(ft)

+1.79'  
 +1.59'  
 3'  
 110'  
 115.9'  
 120.9'  
 150.9'  
 154.5'



ABOVE GROUND RISER HEIGHT (IF APPLICABLE) +1.59'  
 MONUMENT TYPE (IF APPLICABLE) 8" steel  
 WELL CAP TYPE 4" J-Plug  
 GROUT TYPE/# SACKS Cement/5 bags; cement grout/30 bags  
 BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets  
 WELL CASING I.D. 4"  
 TYPE OF CASING Schedule 80 PVC  
 TYPE OF CONNECTION Flush Joint Threaded  
 FILTER PACK/SIZE/#SACKS 8/12 sand pack /36 bags  
 WELL SCREEN I.D. 4"  
 TYPE OF SCREEN Schedule 80 PVC Threaded  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 9"  
 ENDCAP TYPE Threaded schedule 80 PVC

REMARKS Four centralizers installed at this location: top and bottom of screen and at 60' bgs and 30'bgs. Tremie pipe used for placement of sand, bentonite, and cement grout. Handheld GPS location: N 42° 53.031', W 109° 53.725'

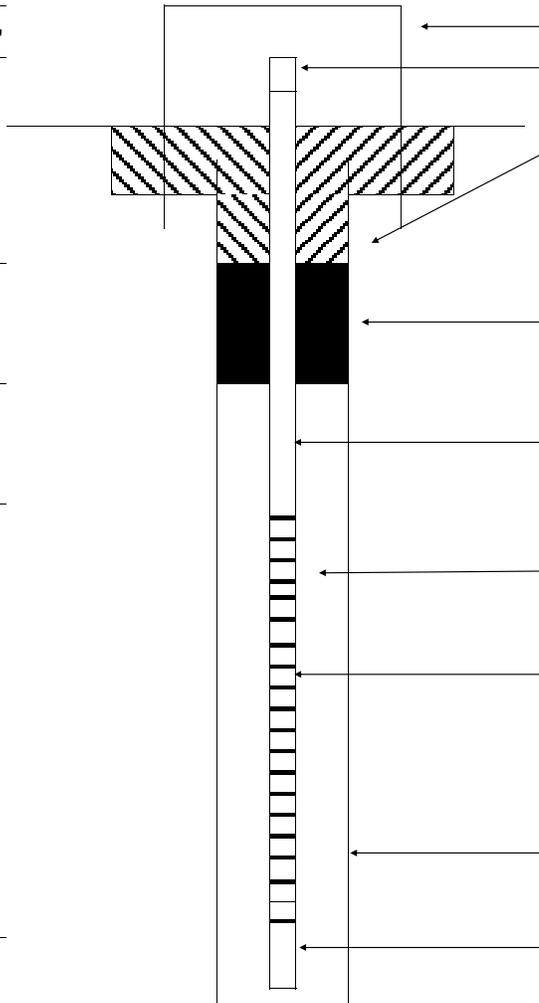


LOCATION Maytag Ranch (Questar)  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-2-A  
 DATE 5/14/10

SOIL TYPE DEPTH(ft)

+1.97'  
 +1.79'  
 3'  
 10'  
 15'  
 30'  
 40'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.79'

MONUMENT TYPE (IF APPLICABLE) 8" steel

WELL CAP TYPE 4" J-Plug

GROUT TYPE/# SACKS Cement/3 bags

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush Joint Threaded

FILTER PACK/SIZE/#SACKS 8/12 sand pack / 17 bags

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC Threaded

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 9"

ENDCAP TYPE Threaded schedule 80 PVC

REMARKS Handheld GPS location: N 42° 50.068', W 109° 51.130'

---



---



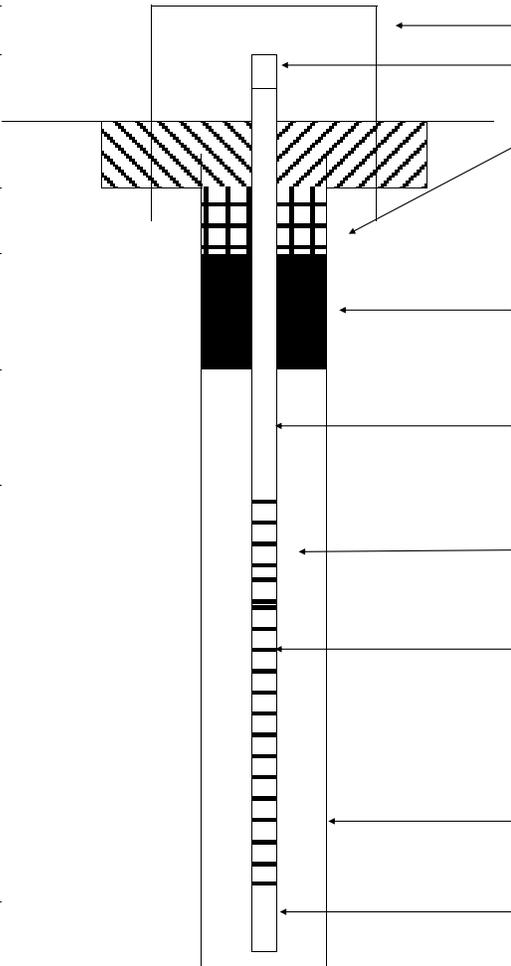
**MONITORING WELL AS-BUILT REPORT**

LOCATION Maytag Ranch (Questar)  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-2-SW  
 DATE 5/15/10

SOIL TYPE DEPTH (ft)

+2.10  
 +1.90  
 3'  
 100'  
 105'  
 110'  
 150'  
 151'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) + 1.90'

MONUMENT TYPE (IF APPLICABLE) 8" steel

WELL CAP TYPE 4" J-Plug

GROUT TYPE/# SACKS Cement/5 bags;  
Bentonite chips/11 bags;  
Cement grout/21 bags

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb  
buckets

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush Joint Threaded

FILTER PACK/SIZE/#SACKS 8/12 sand pack/45 bags

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC Threaded

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE Threaded schedule 80 PVC

REMARKS Four centralizers used at top and bottom of screen (~60' and 30' bgs); Handheld GPS location: N 42° 50.068', W 109° 51.125'



AMEC Geomatrix, Inc.

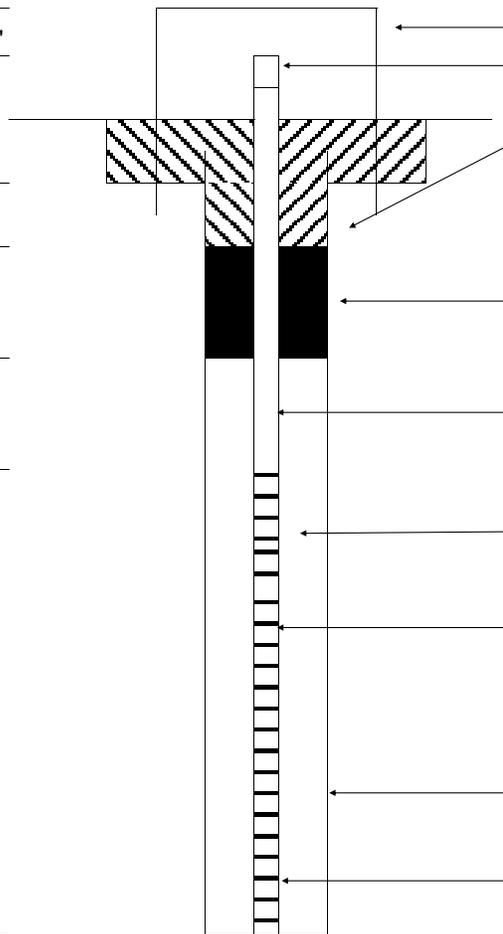
**MONITORING WELL AS-BUILT REPORT**

LOCATION North of Paradise Rd 1 mile west of HWY 191  
 OBSERVED BY L. McKay  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-3-A  
 DATE 8/14/10

SOIL TYPE DEPTH(ft)

+1.88'  
 +1.69'  
 3'  
 6.5'  
 13.8'  
 17.5'  
 37.5'



ABOVE GROUND RISER HEIGHT (ft) +1.69'  
 (IF APPLICABLE)  
 MONUMENT TYPE (IF APPLICABLE) 8" steel  
 WELL CAP TYPE 4" J-Plug  
 GROUT TYPE/# SACKS Type II Portland cement/2-100 lb bags; bentonite chips/7-50 lb bags  
 BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets  
 WELL CASING I.D. 4" nominal  
 TYPE OF CASING Schedule 80 PVC  
 TYPE OF CONNECTION Flush Joint Threaded  
 FILTER PACK/SIZE/#SACKS 8/12 sand/27-50 lb bags  
 WELL SCREEN I.D. 4" nominal  
 TYPE OF SCREEN Schedule 80 PVC Threaded  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 11.5" (diameter of drive shoe)  
 ENDCAP TYPE Threaded schedule 80 PVC

REMARKS Four centralizers used at top and bottom of screen (~60' and 30' bgs); Handheld GPS location: N 42° 50.068', W 109° 51.125'

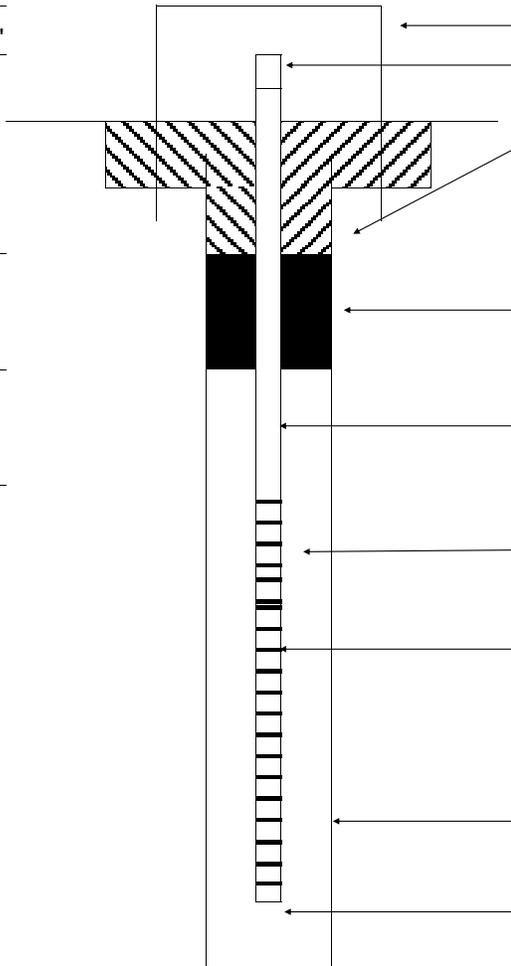


LOCATION North of Paradise Rd 1 mile west of HWY 191  
 OBSERVED BY L. McKay  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-3-SW  
 DATE 8/16/10

SOIL TYPE DEPTH(ft)

+1.91'  
 +1.81'  
 196'  
 204'  
 226'  
 246'  
 260'



ABOVE GROUND RISER HEIGHT (ft)  
 (IF APPLICABLE) +1.81'

MONUMENT TYPE (IF APPLICABLE) 8" steel

WELL CAP TYPE 4" J-Plug

GROUT TYPE/# SACKS Type II Portland cement/3-100 lb bags; medium bentonite chips/6-50 lb bags; bentonite grout/39-50 lb bags

BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb buckets

WELL CASING I.D. 4" nominal

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush Joint Threaded

FILTER PACK/SIZE/#SACKS 8/12 silica sand/26-50 lb bags

WELL SCREEN I.D. 4" nominal

TYPE OF SCREEN Schedule 80 PVC Threaded

SLOT SIZE 0.020" Factory Slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE F.J.T. PVC cap

REMARKS Four centralizers used at top and bottom of screen (~60' and 30' bgs); Handheld GPS location: N 42° 50.068', W 109° 51.125'



LOCATION	Shell Jensen II pad	PROJECT NO.	013655.006.0 Task 4
OBSERVED BY	D. Holman	PROJECT NAME	PAPA Hydro Data Gaps Study
DRILLER/INSTALLER	Thomas Drilling/Bob Thomas	BORING/WELL I.D.	X-4a-A
		DATE	7/14/10

SOIL TYPE DEPTH(ft)

+2.29'

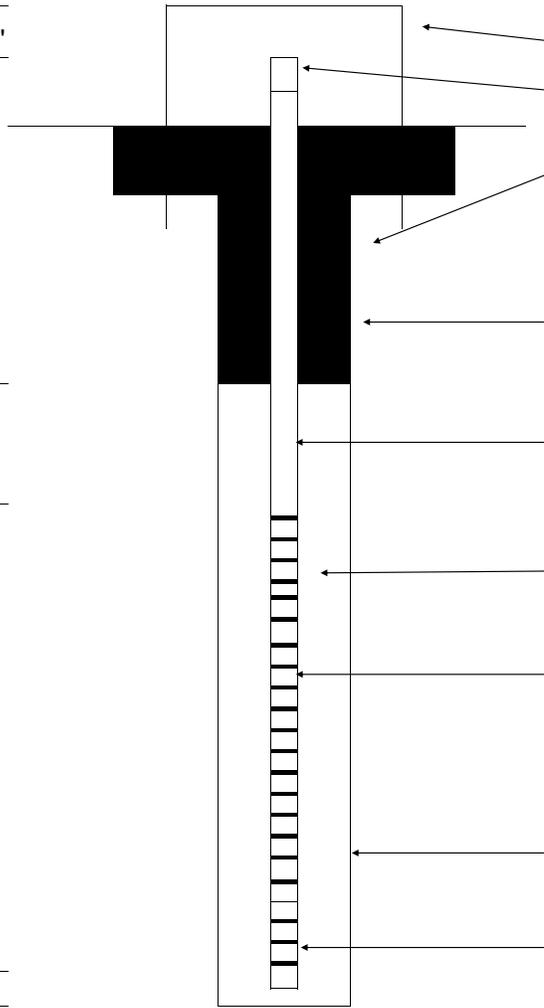
+1.92'

5'

8'

18'

20'



ABOVE GROUND RISER HEIGHT (IF APPLICABLE)	+1.92'
MONUMENT TYPE (IF APPLICABLE)	8" Steel
WELL CAP TYPE	4" J-Plug
GROUT TYPE/# SACKS	N/A
BENTONITE SEAL/#SACKS	Bentonite pellets 7/50lbs bags
WELL CASING I.D.	4"
TYPE OF CASING	Schedule 80 PVC
TYPE OF CONNECTION	Flush Joint Threaded
FILTER PACK/SIZE/#SACKS	8-12 silica sand/13 bags
WELL SCREEN I.D.	4"
TYPE OF SCREEN	Schedule 80 PVC Threaded
SLOT SIZE	0.010" factory slotted
DIAMETER OF BOREHOLE	10"
ENDCAP TYPE	Threaded PVC cap, 2"

REMARKS

---



---

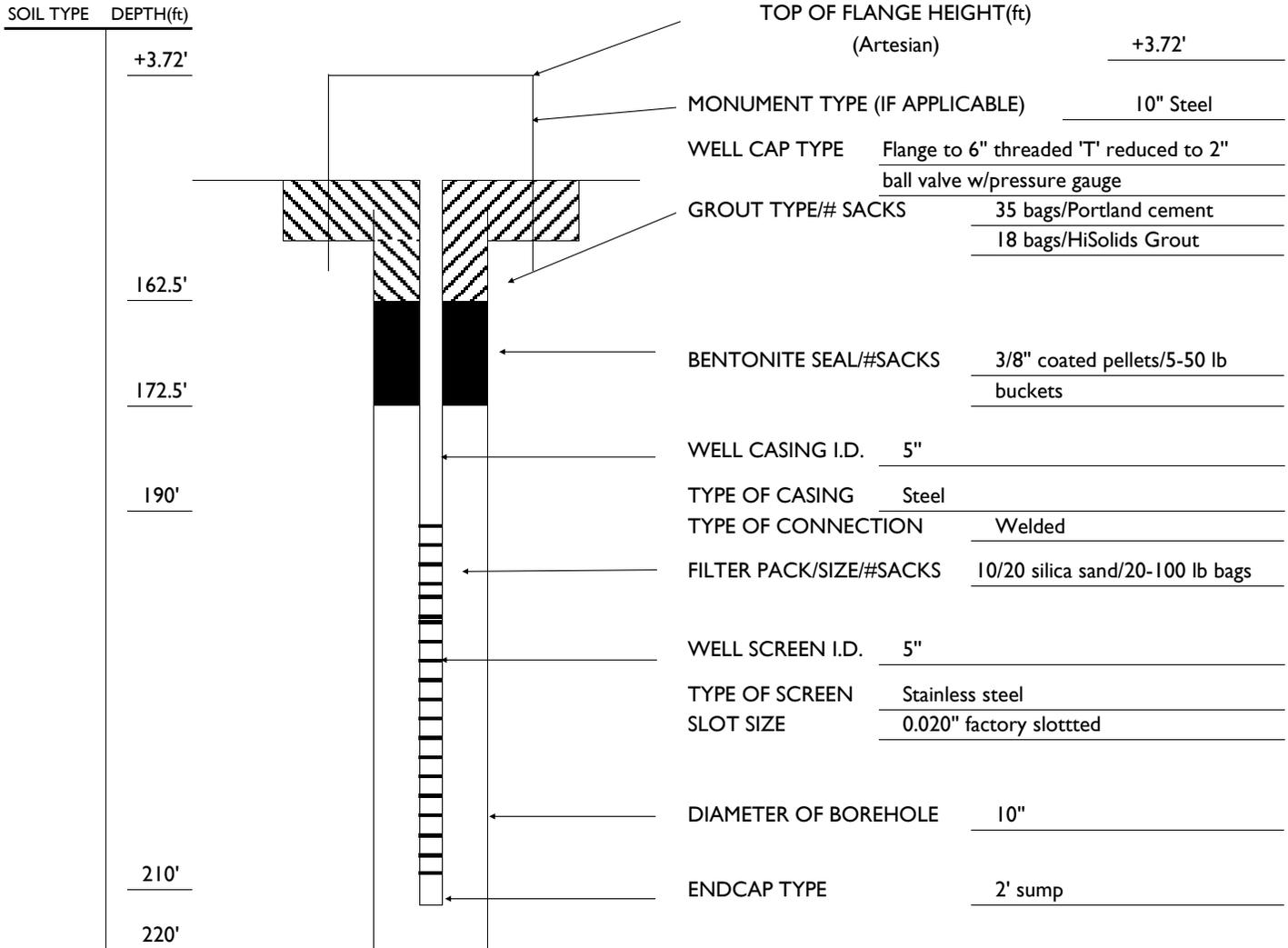


---



LOCATION Shell Jensen II pad  
 OBSERVED BY D. Holman  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-4-SW  
 DATE 7/13/10

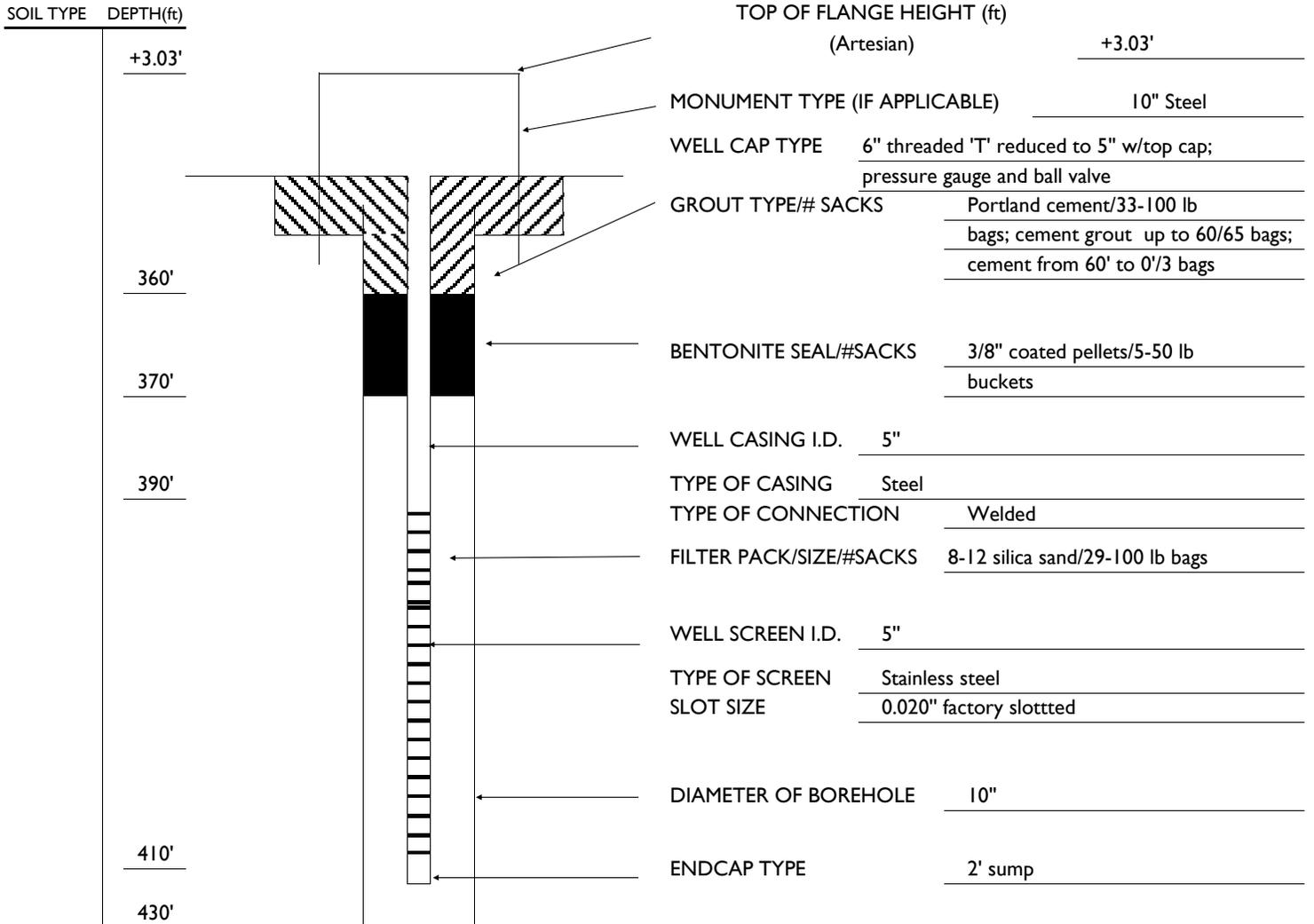


REMARKS Manifold capped due to artesian conditions.  
Three centralizers used at top and bottom of screen and at 90' bgs.



LOCATION Shell Jensen II pad  
 OBSERVED BY D. Holman  
 DRILLER/INSTALLER Thomas Drilling/Bob Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-4-RW  
 DATE 7/10/10



REMARKS Artesian monitoring well; 12 gpm flow; 20 psi on gauge. Monument type is threaded cap reduced to 2" ball valve. 12" steel surface casing to 40'; two centralizers used at top and bottom of screen.

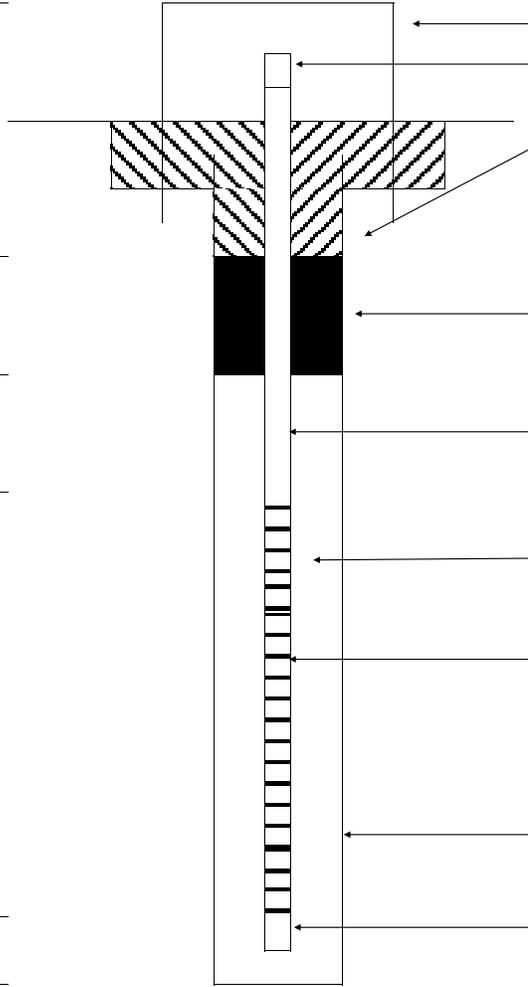


LOCATION S. of HWY 351 by NFR bridge  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-5-A  
 DATE 8/24/10

SOIL TYPE DEPTH(ft)

0'  
 1'  
 4'  
 6'  
 16'  
 22'



ABOVE GROUND RISER HEIGHT(ft)  
 (IF APPLICABLE) N/A

MONUMENT TYPE (IF APPLICABLE) N/A, flushmount

WELL CAP TYPE 4" J-Plug

GROUT TYPE/# SACKS 2 bags/Cement from 1' to ground surface.

BENTONITE SEAL/#SACKS Medium bentonite chips/6 bags

WELL CASING I.D. 4"

TYPE OF CASING Schedule 80 PVC

TYPE OF CONNECTION Flush Joint Threaded

FILTER PACK/SIZE/#SACKS 8/12 silica sand/10 bags

WELL SCREEN I.D. 4"

TYPE OF SCREEN Schedule 80 PVC

SLOT SIZE 0.020" Factory slotted

DIAMETER OF BOREHOLE 10"

ENDCAP TYPE 4" threaded endcap

REMARKS Flush-mount completed well. Surveyed ground surface elevation is 6812.86' and top of riser elevation is 6812.61'



AMEC Geomatrix, Inc.

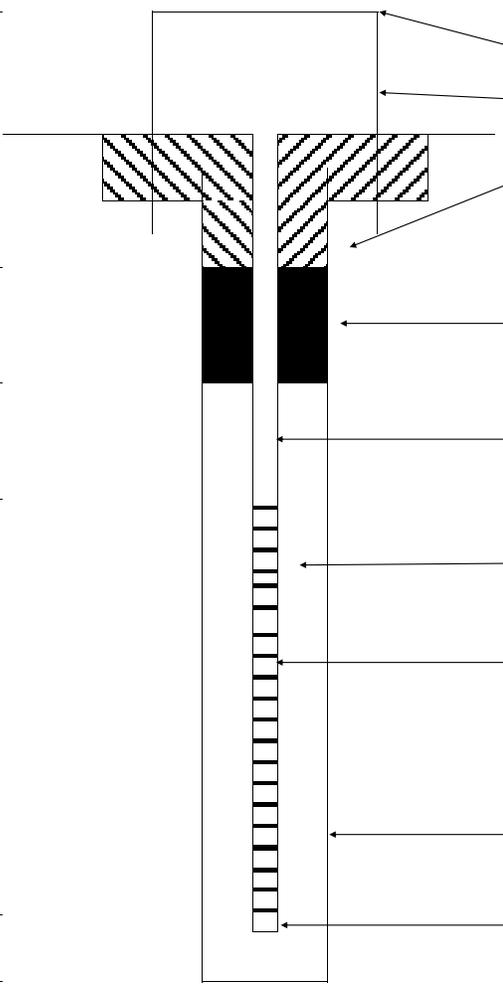
**MONITORING WELL AS-BUILT REPORT**

LOCATION S. of HWY 351 by NFR bridge  
 OBSERVED BY T. McManus  
 DRILLER/INSTALLER Thomas Drilling/Tyson Thomas

PROJECT NO. 013655.006.0 Task 4  
 PROJECT NAME PAPA Hydro Data Gaps Study  
 BORING/WELL I.D. X-5-SW  
 DATE 8/25/10

SOIL TYPE DEPTH(ft)

0'  
 140'  
 147'  
 160'  
 200'  
 210'



ABOVE GROUND RISER HEIGHT(ft)  
 (IF APPLICABLE) N/A  
 MONUMENT TYPE (IF APPLICABLE) Manhole cone/  
 Flush mount  
 WELL CAP TYPE Artesian/subgrade with Manifold and  
 ball value.  
 GROUT TYPE/# SACKS Portland cement/18 bags;  
 bentonite chips/9 bags  
 BENTONITE SEAL/#SACKS 3/8" coated pellets/5-50 lb  
 buckets  
 WELL CASING I.D. 4"  
 TYPE OF CASING Steel  
 TYPE OF CONNECTION Welded  
 FILTER PACK/SIZE/#SACKS 8/12 silica sand/30-100 lb bags  
 WELL SCREEN I.D. 4"  
 TYPE OF SCREEN Stainless steel wire wrap  
 SLOT SIZE 0.020" Factory Slotted  
 DIAMETER OF BOREHOLE 10"  
 ENDCAP TYPE Welded

REMARKS Artesian well, completion done subgrade within concrete manhole structure. Well is manifold capped with ball value release.  
 Ground surface elevation is 6812.91', and top of manifold elevation is 6812.16'.