

APPENDIX B

Drillers' Well Construction Report

BOART LONGYEAR

Well Construction Report

Job Name Big Bay, MI
 Job Number 34070131
 Location Fagle

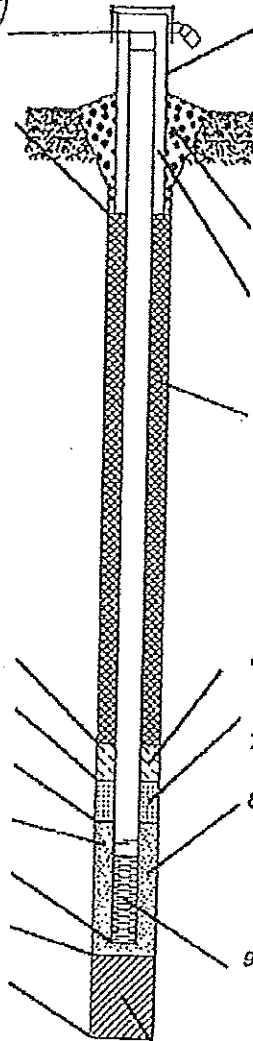
Well Name QAL02&D
 Driller Joe Tidwell
 Helper Danielle Mckeachie
 Date Installed 3/20/08

Type of Well:

- Water Table Observation
 Piezometer
 Other Monitoring

- A. Height of Well Casing above ground 3 ft.
 B. Diameter of Well Casing 2.5 in.
 C. Surface Seal Bottom 64 ft.
 D. Well Casing: Flush Threaded PVC
 Schedule 40
 Schedule 80
 Other _____

- E. Bentonite Seal Top 64 ft.
 F. Fine Sand Top 66 ft.
 G. Filter Pack Top 68 ft.
 H. Screen Joint Top 70 ft.
 I. Well Bottom 80 ft.
 J. Filter Pack Bottom 80 ft.
 K. Borehole Bottom 80 ft.



1. Locking Cap? Yes No
 2. Protective Cover: a. Inside diam. 4 in.
 b. Length 4 ft.
 c. Material Steel Other _____
 d. Bumper Post _____ qty _____ 3" _____ 4"
 3. Surface Seal: Bentonite Concrete Other _____
 4. Material between Casing and Protop: Bentonite Other Sand
 5. Annular Space Seal:
 Granular Bentonite
 Bentonite Slurry
 Cement-Bentonite Grout
 Other _____
 How Installed:
 Gravity Tremie Pumped
 6. Bentonite Seal: Granules Pellets
 7. Type of Fine Sand: #7 Sand
 8. Type of Filter Pack: #5 Sand
 9. Screen Material:
 Type: Factory Cut Continuous Slot
 Slot Size: 20 in.
 Length: 10 ft.
 10. Backfill Material: (Below filter pack)
 None Other _____

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BOART LONGYEAR

Well Construction Report

Job Name Bis Bay, MI
 Job Number 39020181
 Location Eagle

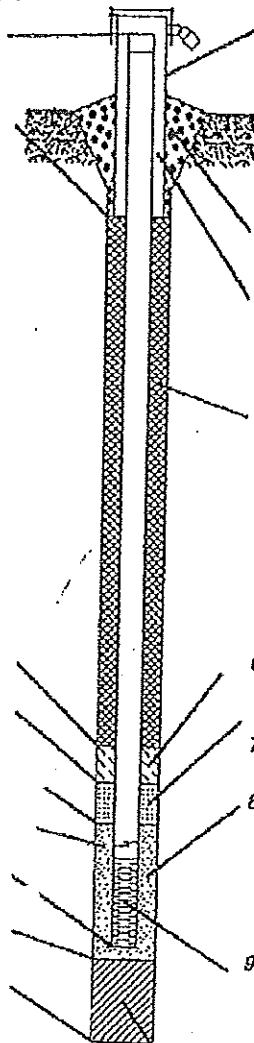
Well Name QAL 21026E
 Driller Joe Tickell
 Helper Danielle McNamee
 Date Installed 3/19/08

Type of Well:

- Water Table Observation
 Piezometer
 Other Monitoring/Observation

- A. Height of Well Casing above ground 3 ft.
 B. Diameter of Well Casing 2.5 in.
 C. Surface Seal Bottom 104 ft.
 D. Well Casing: Flush Threaded PVC
 Schedule 40
 Schedule 80
 Other _____

- E. Bentonite Seal Top 104 ft.
 F. Fine Sand Top 106 ft.
 G. Filter Pack Top 108 ft.
 H. Screen Joint Top 110 ft.
 I. Well Bottom 115 ft.
 J. Filter Pack Bottom 116.5 ft.
 K. Borehole Bottom 116.5 ft.



1. Locking Cap? Yes No
 2. Protective Cover: a. Inside diam. 4 in.
 b. Length 4 ft.
 c. Material Steel Other _____
 d. Bumper Post _____ qty
 _____ 3" _____ 4"
 3. Surface Seal: Bentonite Concrete Other _____
 4. Material between Casing and Protop: Bentonite Other Sand
 5. Annular Space Seal: Granular Bentonite Bentonite Slurry Cement-Bentonite Grout Other _____
 How Installed: Gravity Tremie Pumped
 6. Bentonite Seal: Granules Pellets
 7. Type of Fine Sand: #20
 8. Type of Filter Pack: #35
 9. Screen Material: Type: Factory Cut Continuous Slot
 Slot Size: 10 in. Length: 5 ft.
 10. Backfill Material: (Below filter pack) None Other Sand

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BOART LONGYEAR

Well Construction Report

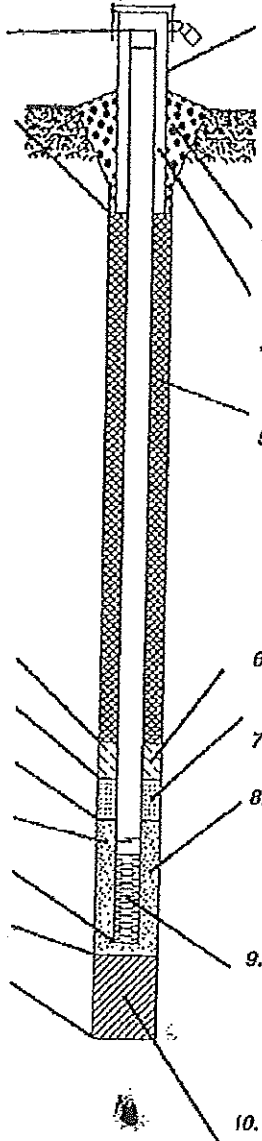
Job Name Big Bay, MT
 Job Number 34070131
 Location _____

Well Name QALOSO
 Driller Joe Tidwell
 Helper Danielle McKirchie
 Date Installed 3/28/08

Type of Well:
 Water Table Observation
 Piezometer
 Other _____

A. Height of Well Casing above ground 3 ft.
 B. Diameter of Well Casing 2.5 in.
 C. Surface Seal Bottom 0 ft.
 D. Well Casing: Flush Threaded PVC
 Schedule 40
 Schedule 80
 Other _____

E. Bentonite Seal Top 94 ft.
 F. Fine Sand Top 102 ft.
 G. Filter Pack Top 105 ft.
 H. Screen Joint Top 107 ft.
 I. Well Bottom 117 ft.
 J. Filter Pack Bottom 117 ft.
 K. Borehole Bottom 117 ft.



1. Locking Cap? Yes No
2. Protective Cover:
 - a. Inside diam. 4 in.
 - b. Length 5 ft.
 - c. Material Steel Other _____
 - d. Bumper Post _____ qty _____ 3" _____ 4"
3. Surface Seal: Bentonite Concrete Other _____
4. Material between Casing and Protop: Bentonite Other None
5. Annular Space Seal:
 - Granular Bentonite
 - Bentonite Slurry
 - Cement-Bentonite Grout
 - Other _____
 How Installed: Gravity Tremie Pumped
6. Bentonite Seal: Granules Pellets
7. Type of Fine Sand: #7
8. Type of Filter Pack: #5
9. Screen Material:

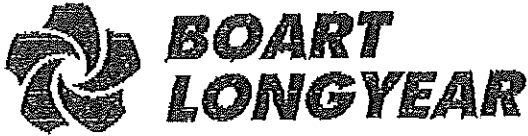
Type: Factory Cut Continuous Slot

Slot Size: 20 in.

Length: 10 ft.
10. Backfill Material: (Below filter pack) None Other Sand

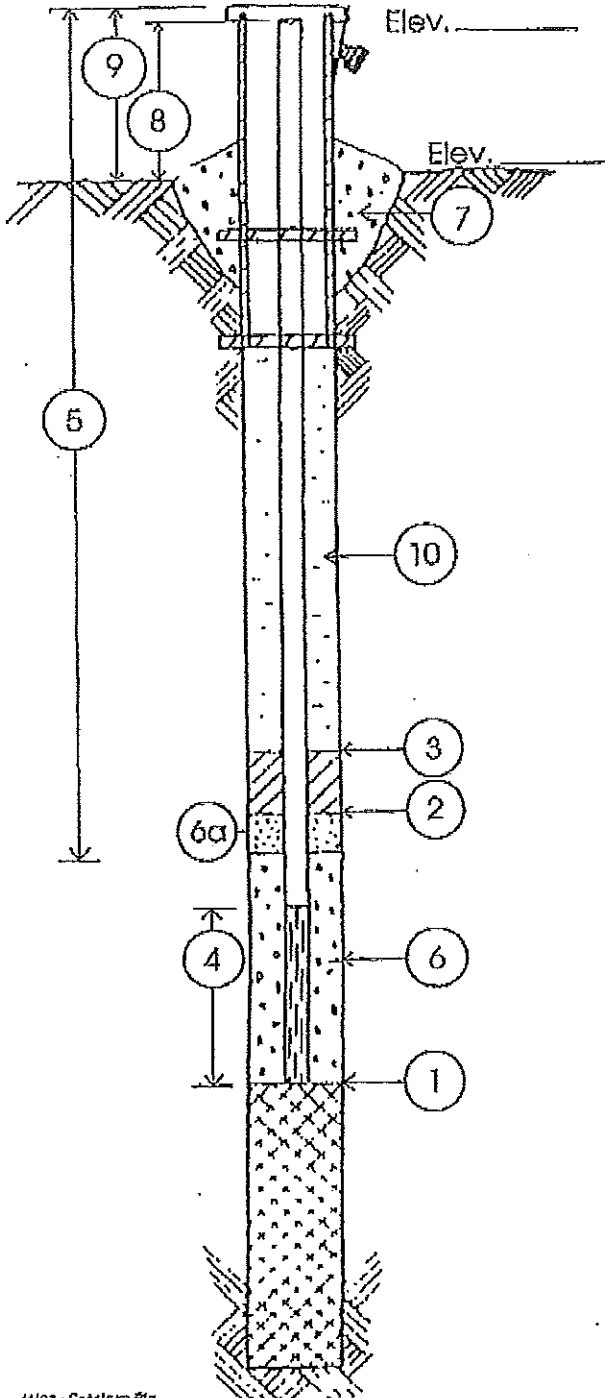
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WELL DETAIL INFORMATION SHEET



JOB NO. 3411-0217
 BORING NO. QAL051A
 DATE 3/26/08
 CHIEF Dennis
 LOCATION Big Bay

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.



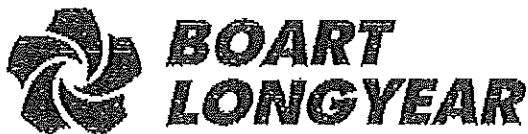
- ① DEPTH TO BOTTOM OF WELL, POINT OR SLOTTED PIPE 105 FEET.
- ② DEPTH OF BOTTOM OF SEAL (IF INSTALLED) 93 FEET.
- ③ DEPTH TO TOP OF SEAL (IF INSTALLED) 91 FEET.
- ④ LENGTH OF WELL SCREEN PVC WELL SCREEN (Sch 40 Sch 80) OR STAINLESS STEEL 10 FEET. (Circle One)
- ⑤ TOTAL LENGTH OF PIPE 97 1/2 FEET @ 2 1/2 IN. DIAMETER.
- ⑥ TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE Sand
- ⑥a LENGTH OF FINE SAND 2' FEET.
- ⑦ CONCRETE CAP, YES NO (Circle One)
- ⑧ HEIGHT OF WELL CASING ABOVE GROUND 2 1/2 FEET.
- ⑨ PROTECTIVE CASING? YES NO (Circle One)
 HEIGHT ABOVE GROUND 3 FEET.
 LOCKING CAP? YES NO (Circle One)
 BUMPER POST? YES NO (Circle One)
- ⑩ TYPE OF BACKFILL: Beutarite Grout

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

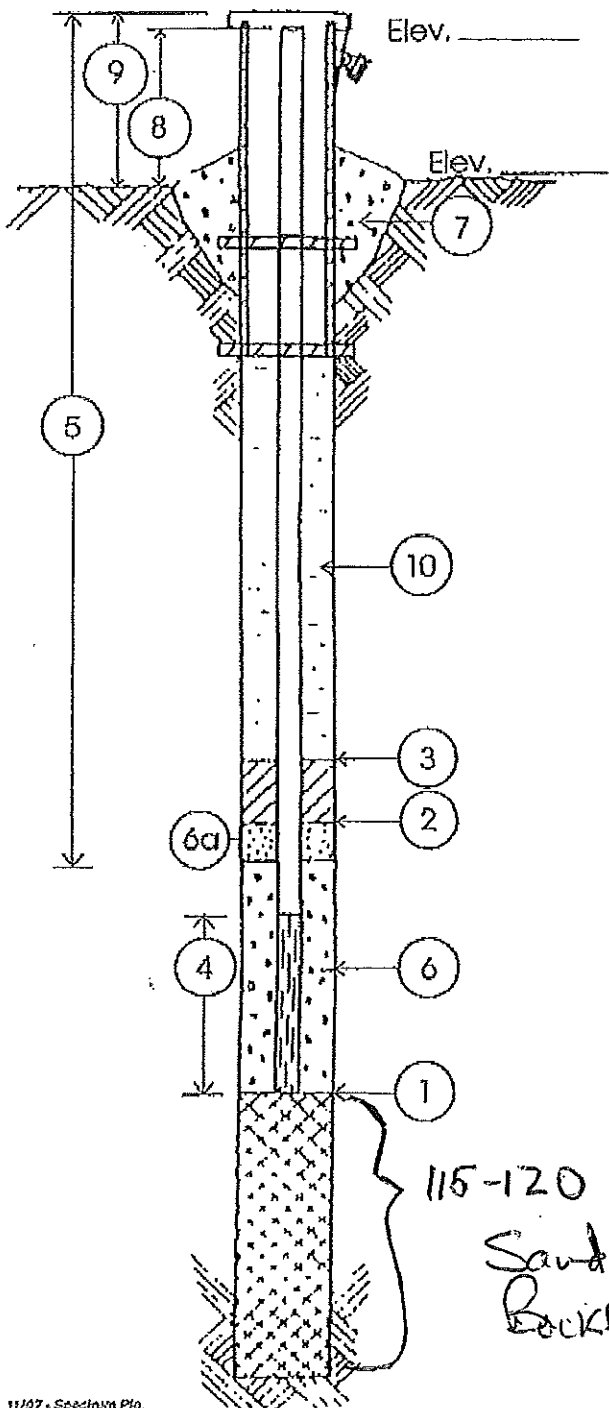
BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

WELL DETAIL INFORMATION SHEET



JOB NO. 3411-0217
 BORING NO. 02AL0510
 DATE 3-25-08
 CHIEF Donna S
 LOCATION By Bay MF

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.



- ① DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 115 FEET.
- ② DEPTH OF BOTTOM OF SEAL (IF INSTALLED) 108 FEET.
- ③ DEPTH TO TOP OF SEAL (IF INSTALLED) 104 FEET.
- ④ LENGTH OF WELL SCREEN PVC WELL SCREEN (Sch 40/Sch 80) OR STAINLESS STEEL SST 10.501 FEET. (Circle One)
- ⑤ TOTAL LENGTH OF PIPE 112.5 FEET @ 2 1/2 in IN. DIAMETER.
- ⑥ TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE Sand
- ⑥a LENGTH OF FINE SAND 2.5 FEET.
- ⑦ CONCRETE CAP, YES NO (Circle One)
- ⑧ HEIGHT OF WELL CASING ABOVE GROUND 2 1/2 FEET.
- ⑨ PROTECTIVE CASING? YES NO (Circle One)
 HEIGHT ABOVE GROUND SST FEET.
 LOCKING CAP? YES NO (Circle One)
 BUMPER POST? YES NO (Circle One)
- ⑩ TYPE OF BACKFILL: Bentonite Grout

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

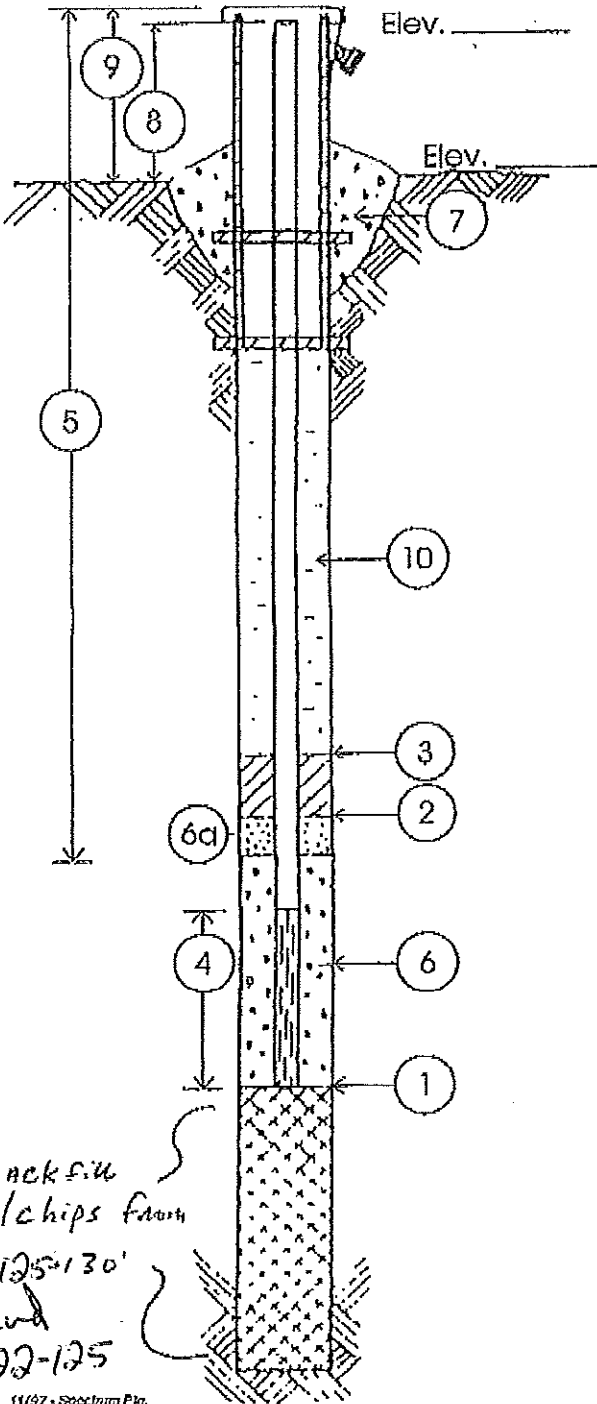
BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

WELL DETAIL INFORMATION SHEET



JOB NO. 3411-0217
 BORING NO. QAL-052 A
 DATE 3.20.08
 CHIEF D.D.
 LOCATION Big Bay, Mich.

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.



- ① DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 122' FEET.
- ② DEPTH OF BOTTOM OF SEAL (IF INSTALLED) 103 FEET.
- ③ DEPTH TO TOP OF SEAL (IF INSTALLED) 106 FEET.
- ④ LENGTH OF WELL SCREEN RVC WELL SCREEN (Std 4079 n. 80) OR STAINLESS STEEL 10 FEET. (Circle One)
- ⑤ TOTAL LENGTH OF PIPE 114' FEET @ 2.5 IN. DIAMETER.
- ⑥ TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE sand
- ⑥a LENGTH OF FINE SAND - FEET.
- ⑦ CONCRETE CAP, YES NO (Circle One)
- ⑧ HEIGHT OF WELL CASING ABOVE GROUND 2.5' FEET.
- ⑨ PROTECTIVE CASING? YES NO (Circle One)
 HEIGHT ABOVE GROUND 2.5 FEET.
 LOCKING CAP? YES NO (Circle One)
 BUMPER POST? YES NO (Circle One)
- ⑩ TYPE OF BACKFILL: Bentonite Grout

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

BOART LONGYEAR

Well Construction Report

Job Name Big Bay
 Job Number 39070151
 Location _____

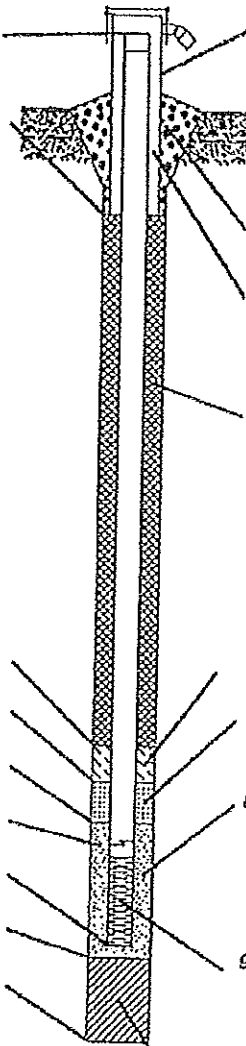
Well Name QAL053A
 Driller Joe Tidwell
 Helper Danielle McKeachie
 Date Installed 3/25/02

Type of Well:

- Water Table Observation
 Piezometer
 Other _____

- A. Height of Well Casing above ground 3 ft.
 B. Diameter of Well Casing 2.5 in.
 C. Surface Seal Bottom 3 ft.
 D. Well Casing: Flush Threaded PVC
 Schedule 40
 Schedule 80
 Other _____

- E. Bentonite Seal Top 68 ft.
 F. Fine Sand Top 76 ft.
 G. Filter Pack Top 78 ft.
 H. Screen Joint Top 80 ft.
 I. Well Bottom 90 ft.
 J. Filter Pack Bottom 90 ft.
 K. Borehole Bottom 95 ft.



1. Locking Cap? Yes No
 2. Protective Cover: a. Inside diam. 4 in.
 b. Length 4 ft.
 c. Material Steel Other _____
 d. Bumper Post _____ qty
 _____ 3" _____ 4"
3. Surface Seal: Bentonite
 Concrete
 Other _____

4. Material between Casing and Protop:
 Bentonite
 Other Sand
5. Annular Space Seal:
 Granular Bentonite
 Bentonite Slurry
 Cement-Bentonite Grout
 Other _____

- How Installed:
 Gravity
 Tremie Pumped

6. Bentonite Seal: Granules Pellets
 7. Type of Fine Sand: #7
 8. Type of Filter Pack: #5

9. Screen Material:
 Type: Factory Cut Continuous Slot
 Slot Size: 20 in.
 Length: 10 ft.

10. Backfill Material: (Below filter pack)
 None
 Other Bentonite Chip

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BOART LONGYEAR

Well Construction Report

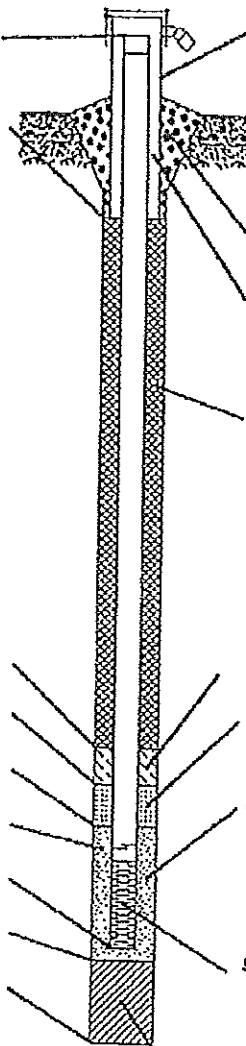
Job Name Big Bay, MI
 Job Number 39070131
 Location _____

Well Name QAL 000 55A
 Driller Joe Tidwell
 Helper Danielle McKerchie
 Date Installed 3/27/08

Type of Well:
 Water Table Observation
 Piezometer
 Other _____

- A. Height of Well Casing above ground 4 ft.
- B. Diameter of Well Casing 2.5 in.
- C. Surface Seal Bottom 2 ft.
- D. Well Casing: Flush Threaded PVC
 Schedule 40
 Schedule 80
 Other _____

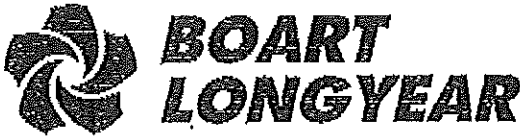
- E. Bentonite Seal Top 85 ft.
- F. Fine Sand Top 98.5 ft.
- G. Filter Pack Top 100.5 ft.
- H. Screen Joint Top 102 ft.
- I. Well Bottom 112 ft.
- J. Filter Pack Bottom 112 ft.
- K. Borehole Bottom 117 ft.



- 1. Locking Cap? Yes No
- 2. Protective Cover:
 - a. Inside diam. 4 in.
 - b. Length 5 ft.
 - c. Material Steel Other _____
 - d. Bumper Post _____ qty
 3" 4"
- 3. Surface Seal: Bentonite Concrete Other _____
- 4. Material between Casing and Protop: Bentonite Other Sand
- 5. Annular Space Seal:
 - Granular Bentonite
 - Bentonite Slurry
 - Cement-Bentonite Grout
 - Other _____
 How Installed: Gravity Tremie Pumped
- 6. Bentonite Seal: Granules Pellets
- 7. Type of Fine Sand: #7
- 8. Type of Filter Pack: #5
- 9. Screen Material:
 - Type: Factory Cut Continuous Slot
 - Slot Size: 20 in.
 - Length: 10 ft.
- 10. Backfill Material: (Below filter pack)
 - None
 - Other Bentonite chip

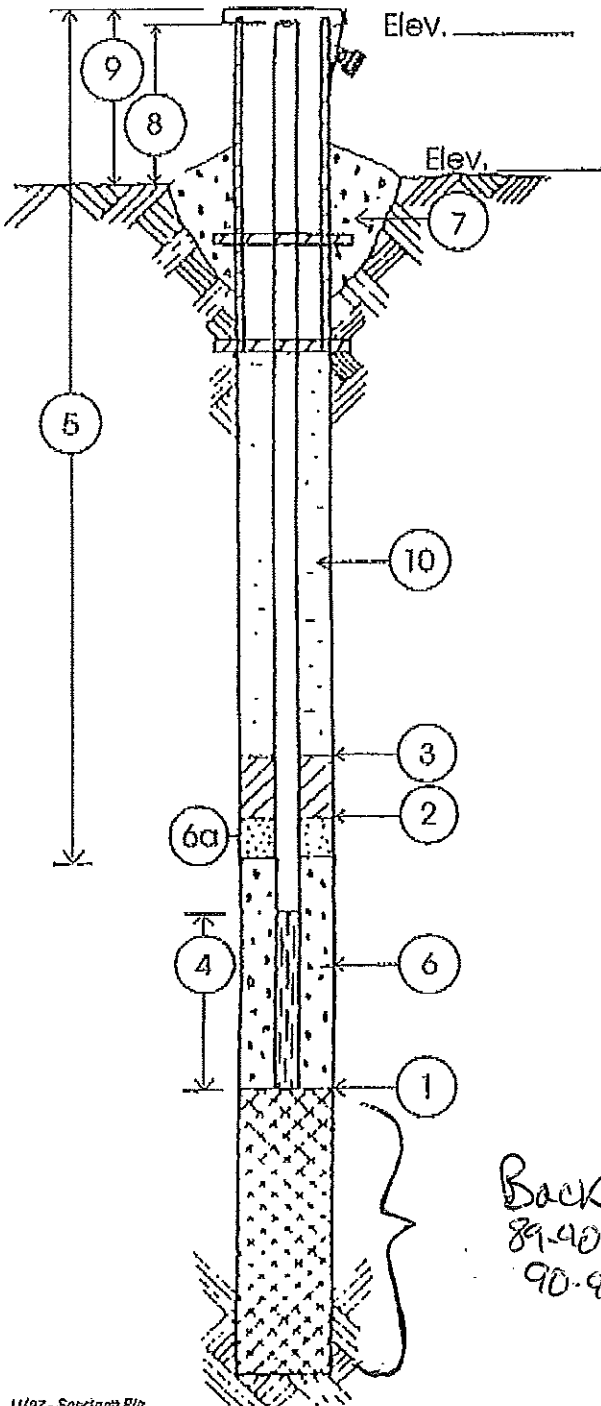
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WELL DETAIL INFORMATION SHEET



JOB NO. 3411-0217
 BORING NO. QAL-056A
 DATE 3-19-08
 CHIEF D.D.
 LOCATION Big Bag, Wash.

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.



- ① DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 89 FEET.
- ② DEPTH OF BOTTOM OF SEAL (IF INSTALLED) 78 FEET.
- ③ DEPTH TO TOP OF SEAL (IF INSTALLED) 75 FEET.
- ④ LENGTH OF WELL SCREEN ~~BY~~ WELL SCREEN (Sch 40/Sch 80) OR STAINLESS STEEL 10 FEET. (Circle One)
- ⑤ TOTAL LENGTH OF PIPE 82.5 FEET @ 2.5 IN. DIAMETER.
- ⑥ TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE sand
- ⑥a LENGTH OF FINE SAND 2 FEET.
- ⑦ CONCRETE CAP, YES NO (Circle One)
- ⑧ HEIGHT OF WELL CASING ABOVE GROUND 2.5 FEET.
- ⑨ PROTECTIVE CASING? YES NO (Circle One)
 HEIGHT ABOVE GROUND 2.5 FEET.
 LOCKING CAP? YES NO (Circle One)
 BUMPER POST? YES NO (Circle One)
- ⑩ TYPE OF BACKFILL: Bentonite Grout

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

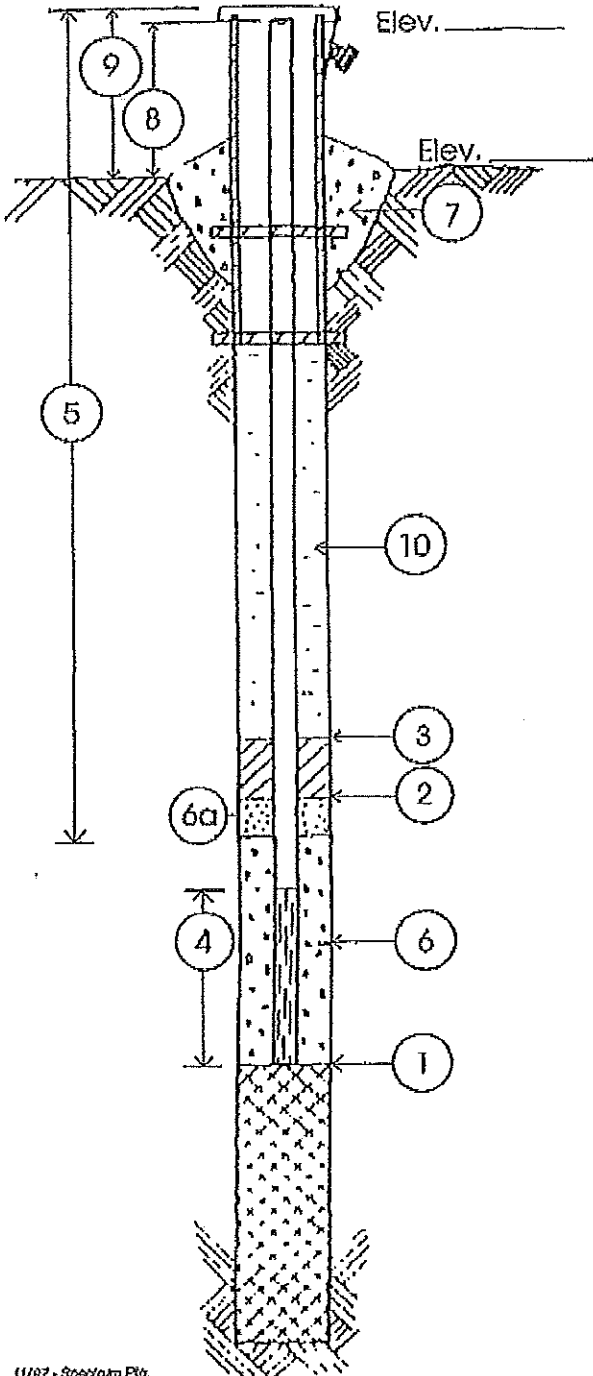
*Backfill
 89-90 sand
 90-95 Bentonite
 chips*

WELL DETAIL INFORMATION SHEET



JOB NO. 3411-0217
 BORING NO. QAL-057A
 DATE 3-28-08
 CHIEF Dennis
 LOCATION Big Bay MF

All depth measurements of well detail assumed to be from ground surface unless otherwise indicated.



- ① DEPTH TO BOTTOM OF WELL POINT OR SLOTTED PIPE 11.5' FEET.
- ② DEPTH OF BOTTOM OF SEAL (IF INSTALLED) 101 FEET.
- ③ DEPTH TO TOP OF SEAL (IF INSTALLED) 99 FEET.
- ④ LENGTH OF WELL SCREEN PVC WELL SCREEN (Sch 40/Sch 80), OR STAINLESS STEEL 20.5105 FEET. (Circle One)
- ⑤ TOTAL LENGTH OF PIPE 108 FEET @ 2 1/2" IN. DIAMETER.
- ⑥ TYPE OF FILTER MATERIAL AROUND WELL POINT OR SLOTTED PIPE Sand
- ⑥a LENGTH OF FINE SAND 2 FT FEET.
- ⑦ CONCRETE CAP, YES NO (Circle One)
- ⑧ HEIGHT OF WELL CASING ABOVE GROUND 3 FT FEET.
- ⑨ PROTECTIVE CASING? YES NO (Circle One)
 HEIGHT ABOVE GROUND 3 FT FEET.
 LOCKING CAP? YES NO (Circle One)
 BUMPER POST? YES NO (Circle One)
- ⑩ TYPE OF BACKFILL: Cement Bentonite

WATER LEVEL CHECKS

*From top of casing, if protective casing higher, take measurement from top of protective casing.

BORING #	DATE	TIME	DEPTH TO WATER	REMARKS

