Report

3729.009

Plating Facility Hydrogeologic Assessment

Amphenol Corporation
Sidney, New York

March 1989

O'BRIEN & GERE

O'BRIEN & GERE

March 2, 1989

Mr. Henry Mitchell
Manager of Facilities Engineering
Amphenol Corporation
40-60 Delaware Avenue
Sidney, New York 13838-1395

Re: Plating Facility
Hydrogeologic Assessment

File: 3729.009.140

Dear Mr. Mitchell:

This letter report, presents the results of our Hydrogeologic Assessment conducted in and around the plating building at the Amphenol Corporation, Sidney, New York facility. The report details the methods employed in the assessment and data results and interpretations, in accordance with our proposed scope of services dated December 7, 1988.

Background

The Amphenol Corporation located in Sidney, New York is engaged in the production of electrical connector parts utilized in a variety of commercial and military applications. The production process involves the electroplating of a variety of elemental metals. Electroplating is performed in the plating building facility shown on Figure 1. Waste water from the plating process, which contains dissolved metals, cyanides and acidic materials are diverted via separate polypropylene lined concrete floor trenches to the on-site waste water facility (Figure 1). Leakage through cracks in the polypropylene liners in these trenches has resulted in the degradation of the concrete and leakage of waste water into the subgrade soils beneath the plating building. As the building is supported by pressure injected concrete footings (Figure 1), concerns were raised for both ground water quality issues and potential structural effects on the footings in the presence of the low pH waste water.

In order to address the concerns, the Amphenol Corporation retained O'Brien & Gere Engineers, Inc. to perform a hydrogeologic investigation to evaluate impacts, if any, to the ground water system beneath and around the plating building.

Objective and Scope

The primary objective of this investigation was to define the pH and specific conductivity of the ground water at various locations directly beneath, adjacent to, and around the perimeter of the plating building. Additionally, shallow ground water flow conditions and inorganic ground water chemistry were evaluated.

To accomplish these objectives, the following field investigations were completed:

1. Installation of seven shallow ground water monitoring wells adjacent and exterior to the plating building.

2. Installation of six shallow ground water monitoring wells within the plating building.

3. Collection of ground water elevations from the newly installed wells.

4. Collection of two rounds of ground water samples for laboratory analyses of selected indicator parameters, including pH, specific conductivity, and total metals.

This report presents data collected during the study and provides an assessment of localized hydrogeologic and ground water quality conditions around the plating building.

Ground Water Monitoring Well Installation

A total of thirteen (13) shallow ground water monitoring wells were installed on the site. Their locations are illustrated on Figure 1. Monitoring wells MW-1, MW-2, MW-3 and MW-4 were constructed of 2-inch I.D. PVC riser pipe and fitted with 10-foot sections of 0.020 inch slotted PVC well screen. These wells were installed using hollow-stem auger methods. Due to accessibility limitation, all remaining wells were constructed of 1¼ inch PVC pipe, fitted with 10-foot sections of 0.020 inch PVC slotted well screen. These wells were installed by advancing a dual-cone roller bit and 3-inch casing to the desired installation depth. Due to concurrent remedial construction in the vicinity of MW-10, this well was not installed. Well construction details for all the newly installed wells are summarized in Table 1, well design specifics are presented in Attachment A.

Subsequent to installation, the ground water monitoring wells were developed using a stainless steel bailer until the evacuated water became relatively clear of suspended fine-grained sediments. An instrument survey was also performed to locate the completed wells and determine their respective elevations. PVC well casing elevations and flush-mounted protective casing elevations were surveyed to 0.01 foot and tied into a USGS benchmark elevation station located approximately 600 feet west of the site. Well elevation data are presented in Table 1.

Ground Water Sampling

Ground water samples were collected from the thirteen (13) newly installed wells on 1/19/89 and 2/11/89. Prior to sampling, ground water elevations were measured in each well. An additional round of ground water elevations were collected on 2/20/89. Prior to sampling, a minimum of three well volumes of water was evacuated from each well. Ground water samples were collected using a stainless steel bailer attached to an appropriate length of polypropylene rope. Subsequent to sampling, the bailer was decontaminated by washing with Alconox and water followed by a distilled water rinse. A new clean length of polypropylene rope was used for each well sampled.

Appropriate chain of custody procedures and methods of sample preservation were maintained from time of collection to time of delivery to the laboratory. The ground water samples were analyzed by OBG Laboratories in Syracuse, New York. Submitted samples were analyzed for total metals (filtered in the field) as per EPA Method Series 200, cyanide using EPA Method 335.2 and pH and specific conductivity. Laboratory data results including QA/QC field duplicates, equipment blanks, and chain of custody forms are presented in Attachment B.

Site Geology/Hydrogeology

The Amphenol Corporation in Sidney, New York is located within the Susquehanna River Basin, approximately 2,400 feet south of the present river channel. Unconsolidated sediments beneath the site are primarily characterized by a variety of fill materials underlain by fine grained lacustrine silts, clays, and fine sand, with some coarser interbedded fluvial sands and gravels. The depth to bedrock beneath the site is approximately 110 feet.

Shallow unconsolidated sediments identified from split spoon samples collected during well borings in MW-1, MW-2, MW-3 and MW-4 (Figure 1) are summarized in the attached boring logs (Attachment A). From the surface, a 4 to 5-foot layer of dense compacted fill was encountered. Beneath the fill layer a thin layer of dark brown to black peat, underlain by interbedded silt, fine sand and gravel was observed.

The depth to ground water below ground level ranges from approximately 9.5 to 12.5 feet. These variations are essentially the result of surface topography. Ground water elevations collected on 1/18/89, 2/08/89 and 2/22/89 are presented in Table 1. Elevation data collected on 2/22/89 has been used to produce Figure 2, a generalized shallow ground water flow map. A review of Figure 2 reveals that in general the ground water table in the vicinity of the plating building flows to the east under a relatively low hydraulic gradient of approximately 0.0006 ft./ft., varying less than two-tenths of a foot across the site. Given the shallow ground water is unconfined (water table conditions), a flow pattern consistent with local and regional surface drainage patterns would be expected. The easterly flow pattern is contrary to local drainage patterns and may be the result of pumpage from the adjacent bedrock supply well (Amphenol West Well) shown on Figure 2. Additional ground water elevation monitoring could confirm this. If shallow ground water beneath and around the plating building is within the capture zone of the supply well, off-site ground water migration would be inhibited.

Ground Water Analytical Results

Laboratory analytical data for ground water samples collected on 1/18/89 and 2/8/89 are summarized on Table 2. Specific conductivity and pH results are illustrated on Figure 3 and Figure 4, representing data analyzed from the 1/18/89 and 2/8/89 sampling events, respectively.

A review of Figure 3 indicates that at the time of the 1/18/89 sampling event, plating previous waste losses through the degraded concrete floor trenches resulted in low pH and high specific conductivity of the ground water. It is also evident

that in areas where Amphenol maintenance personnel reported "holes" in the trenches, specifically in the vicinity of MW-8, MW-9 and MW-11, ground water affects are most noteworthy. These affects are primarily restricted to beneath the plating building. An exception is along the pipeline extending between MW-7 and MW-4 (Figure 1). The lower pH values and elevated specific conductivities measured in these wells suggest that migration of plating waste fluids has occurred along the pipeline and/or pipeline bedding materials.

A review of the total metal values presented in Table 2 indicates the presence of elevated concentrations of cadmium (Cd), chromium (Cr), copper (Cu) nickel (Ni), zinc (Zn) and cyanide (Cn), which are used in the plating operations. A direct correlation can be made in the wells exhibiting low pH and high specific conductivity values, with elevated metals concentrations.

A review of the data from ground water samples collected on 2/8/89 shows noticeable changes in all the parameters measured for all thirteen (13) monitoring wells. Figure 4 illustrates the changes in specific conductivity and pH measured during the 2/8/89 sampling event. The decrease in specific conductivity and increases in pH which occurred during the interim period between sampling events have most likely resulted from remedial measures undertaken by Amphenol. These remedial measures consisted primarily of grouting and relining the concrete floor trenches, specifically in areas where degradation was detected. As a result of these remedial measures only wells MW-7 and MW-11 continue to exhibit concentrations of cyanide in excess of the NYS Class GA Ground Water Standards of 0.2 mg/l at levels of 2.2 mg/l and 0.88 mg/l, respectively. MW-7 and MW-1 exceeded the NYS standard for cadmium (0.01 mg/l) which was detected at 1.9 mg/l 0.02 mg/l, respectively. MW-11 exceeded the NYS standard for copper (1.0 mg/l) and zinc (5.0 mg/l) which were detected at levels of 1.7 and 5.5 mg/l respectively.

Conclusions

Based on field observations and laboratory analyses, the following conclusions can be made:

1. Ground water flow in the vicinity of the plating building is to the east and apparently within the capture zone of the on-site bedrock supply well.

2. Ground water samples collected from the thirteen (13) newly installed wells indicated the ground water quality has been affected by the infiltration of plating waste water, through holes in the concrete floor trenches.

3. Lower pH and higher specific conductivity values were detected in areas adjacent to where holes in the floor trenches were discovered and in wells located adjacent to pipelines which allow migration of waste water through more permeable piping materials.

4. Elevated levels of cadmium, chromium, nickel, zinc and cyanide, in excess of the NYS Class Ground Water Standard have been detected in well MW-4, MW-7, and MW-11. The distribution of these parameters indicates that migration is occurring along pipeline routes. Elevated concentrations of

cadmium detected at MW-8 during the 1/18/89 sampling, dropped to below the detection limit during the 2/8/89 sampling event. Conversely, cadmium not previously detected was measured in MW-1 at a level of 0.02 mg/l during the 2/8/89 sampling event.

5. Remedial measures undertaken by Amphenol have resulted in the reduction of elevated parameters in all the wells monitored. Elevated constituent levels in the soil and ground water have been reduced, via mitigation of the source, soil adsorption and dilution.

Based on these conclusions, the following recommendations are made:

1. Ground water elevation, pH and specific conductivity measurements should be collected on a monthly basis for three months to monitor decreasing trend in these indicator parameters..

2. Ground water quality samples should be collected on a quarterly basis for a period of one year and submitted for laboratory analyses of cadmium, total chromium, nickel, zinc, total cyanides, pH and specific conductivity.

Respectfully submitted,

O'BRIEN & GERE ENGINEERS, INC.

James T. Mickam

James T. Mickam, CPG
Vice President

WJG:ers/59.23

cc: W.J. Gabriel

Table 1

Amphenol Corporation
Plating Building

Well Specifications and Ground Water Data

Well No.	Ground Elevation (feet)	Casing Elevation (feet)	Well Depth (feet)	Screened -Interval Elevation (feet)	Ground Water Elevation (feet) 1/18/89	2/8/89	2/22/89
MW-1	981.6	981.34	20.0	961.6 - 971.6	972.00	972.05	971.86
MW-2	981.8	981.53	20.0	961.8 - 971.8	972.14	972.22	971.87
MW-3	982.9	982.78	19.7	963.2 - 973.2	972.10	971.78	971.83
MW-4	984.6	984.37	20.5	963.9 - 973.9	972.16	971.95	971.78
MW-5	983.9	983.38	16.5	967.4 - 977.4	972.47	972.25	971.84
MW-6	984.5	984.27	17.0	967.5 - 977.5	972.14	971.94	971.80
MW-7	984.2	986.30	17.5	966.7 - 976.7	972.97	969.73	971.78
MW-8	984.6	984.38	18.0	966.6 - 976.6	971.95	971.95	971.81
MW-9	984.6	984.41	18.0	966.6 - 976.6	971.82	971.88	971.74
MW-11	984.7	984.45	18.0	966.7 - 976.7	971.88	971.90	971.72
MW-12	984.6	984.45	17.9	966.7 - 976.7	971.83	971.86	971.71
MW-13	984.6	984.47	17.7	966.9 - 976.9	971.79	971.82	971.73
MW-14	984.6	984.47	17.8	966.8 - 976.8	971.82	971.86	971.77

Table 2
Amphenol Corporation
Plating Building

Inorganic Analysis

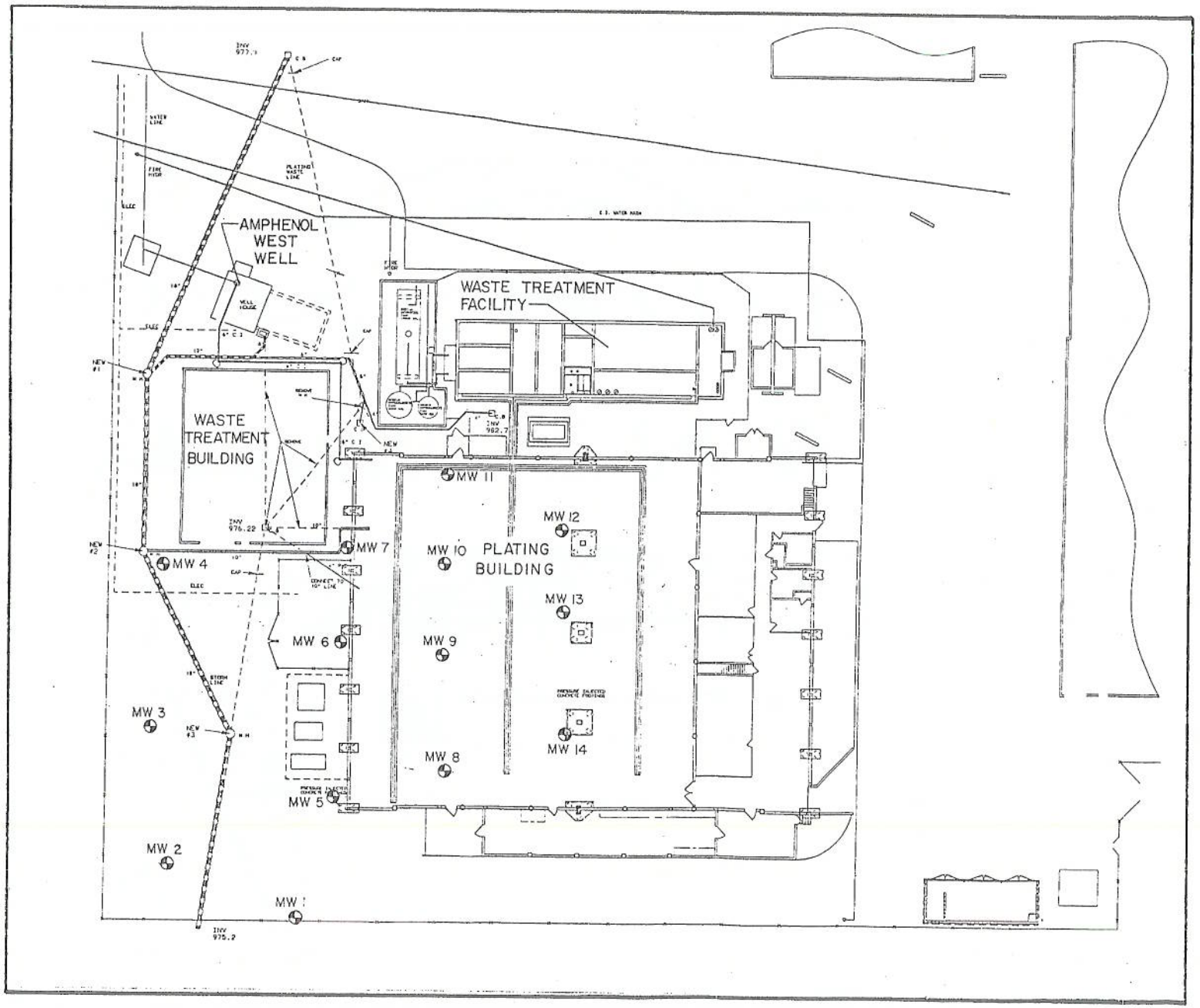
Well No.	Date	Ag (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cr (ppm)	Cu (ppm)	Hg (ppm)	Ni (ppm)	Pb (ppm)	Sb (ppm)	Se (ppm)	Tl (ppm)	Zn (ppm)	Cn (ppm)	pH	SpCond (umhos)
MW-1	1/18/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	<0.01	0.03	7.4	470
	2/8/89	<0.01	<0.005	<0.05	0.02	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	0.04	<0.01	7.5	360
MW-2	1/18/89	<0.01	<0.005	<0.05	0.03	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.01	<0.01	7.0	580
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.05	<0.01	7.7	700
MW-3	1/18/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.04	<0.01	7.0	660
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.02	<0.01	8.0	870
MW-4	1/18/89	<0.01	<0.005	<0.05	5.6	0.55	0.93	<0.0005	5.7	<0.05	<0.1	<0.05*	<1	2.8	0.04	5.9	960
	2/8/89	<0.01	<0.005	<0.05	<0.01	0.17	0.41	<0.0005	3.6	<0.05	<0.1	<0.05*	<1	1.7	0.03	6.3	1100
MW-5	1/18/89	<0.01	<0.005	<0.05	0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.03	0.01	6.7	350
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	0.05	<0.01	7.2	360
MW-6	1/18/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.01	0.02	7.1	1100
	2/9/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.06	<0.01	7.8	1500
MW-7	1/18/89	<0.01	<0.005	<0.05	3.5	0.06	0.51	<0.0005	6.8	<0.05	<0.1	<0.05*	<1	6.6	2.7	6.3	2700
	2/9/89	<0.01	<0.005	<0.05	1.9	<0.05	0.34	<0.0005	3.7	<0.05	<0.1	<0.05*	<1	2.6	2.2	7.0	2600
MW-8	1/18/89	<0.01	<0.005	<0.05	4.3	<0.05	0.04	<0.0005	1.3	<0.05	<0.1	<0.05*	<1	4.5	0.09	5.7	3200
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	0.17	<0.05	<0.1	<0.05*	<1	0.49	0.06	6.9	910
MW-9	1/18/89	<0.01	<0.005	<0.05	1.6	<0.05	0.03	<0.0005	2.0	<0.05	<0.1	<0.05*	<1	0.62	0.16	5.4	2900
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	0.05	<0.01	8.2	580
MW-11	1/18/89	<0.01	0.09	<0.05	21	15	12	0.0025	28.0	1.3	<0.1	<0.05*	<1	9.8	2.7	2.1	8300
	2/8/89	<0.01	<0.005	<0.05	<0.01	0.82	1.7	<0.0005	6.0	<0.05	<0.1	<0.05*	<1	5.5	0.88	5.0	2700
MW-12	1/18/89	<0.01	<0.005	<0.05	0.06	<0.05	0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.03	0.04	6.1	560
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	0.03	<0.01	7.4	570
MW-13	1/18/89	<0.01	<0.005	<0.05	0.44	<0.05	0.01	<0.0005	0.11	<0.05	<0.1	<0.05*	<1	0.04	0.02	6.3	1400
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	0.05	<0.01	8.3	460
MW-14	1/18/89	<0.01	<0.005	<0.05	0.42	<0.05	0.01	<0.0005	<0.05	<0.05	<0.1	<0.05*	<1	0.01	0.01	6.7	410
	2/8/89	<0.01	<0.005	<0.05	<0.01	<0.05	<0.01	<0.0005	<0.05	<0.05	<0.1	<0.005	<1	0.03	<0.01	7.2	330
NYS CLASS GA GROUND WATER STANDARD		0.10	0.025	NE	0.01	NE	1.0	0.002	NE	0.025	NE	0.02	NE	5.0	0.20	6.5-8.5	NE

* The detection limit has been raised due to the presence of matrix interference.
NE - Not Established

FIGURE 1

AMPHENOL CORPORATION
PLATING FACILITY

SITE MAP



LEGEND

⊕ MONITORING WELL

0 32 64

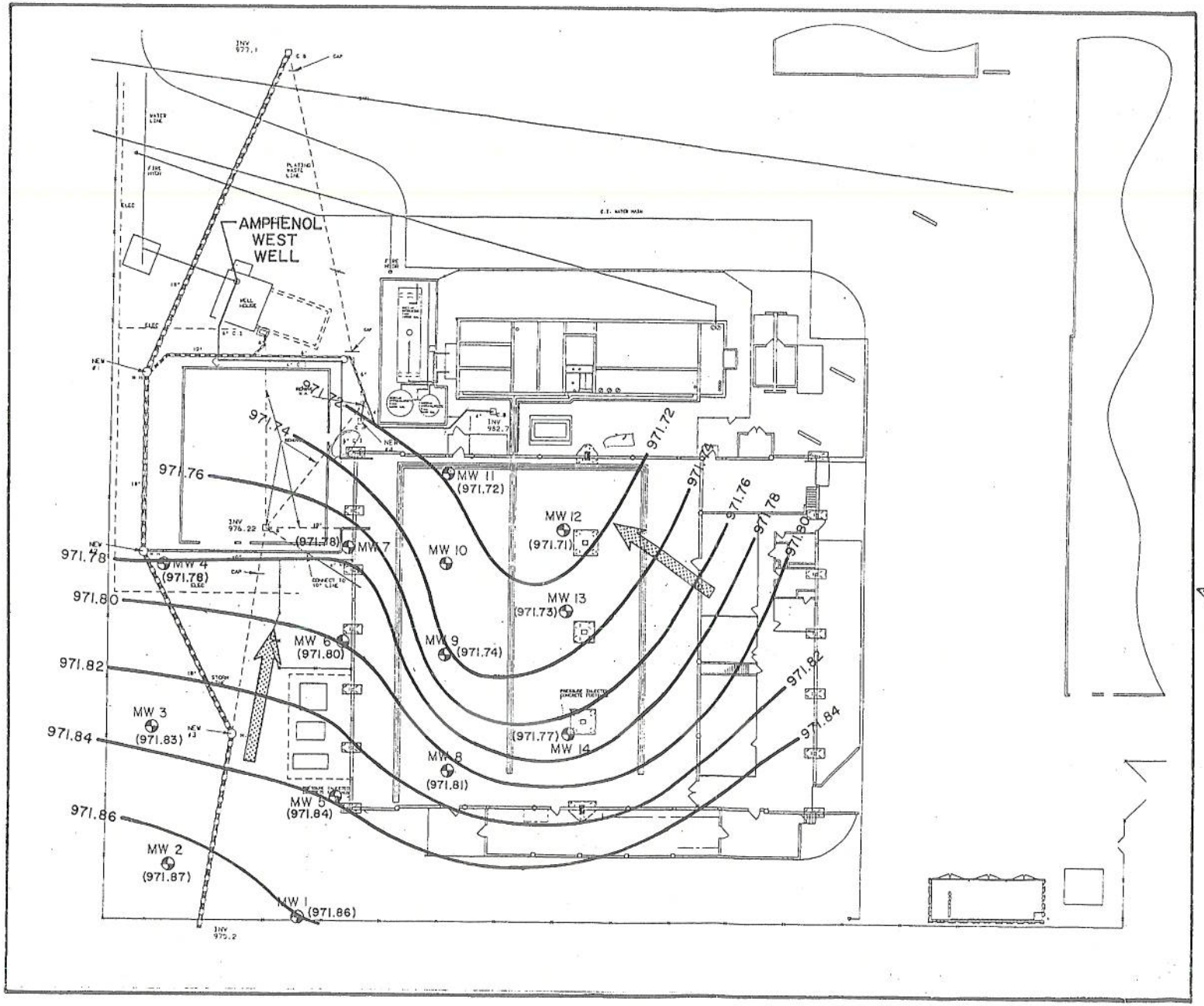
SCALE IN FEET

O'BRIEN & GERE

FIGURE 2

AMPHENOL CORPORATION
PLATING FACILITY

GROUND WATER
ELEVATION CONTOUR MAP
(2/22/89)



LEGEND

- MONITORING WELL
- 971.80 GROUND WATER ELEVATION CONTOUR
- GROUND WATER FLOW DIRECTION

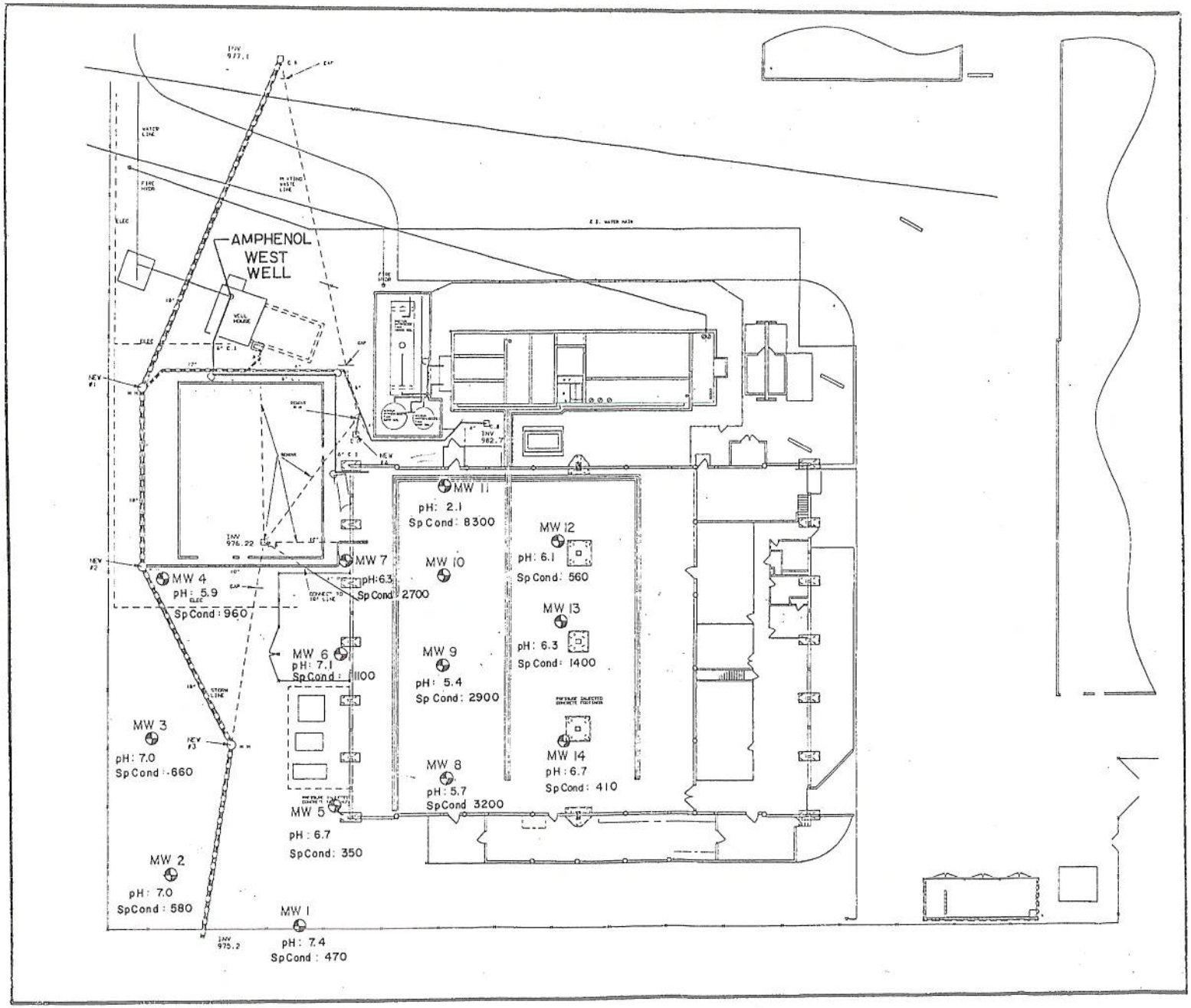
0 32 64
SCALE IN FEET

O'BRIEN & GERE

FIGURE 3

AMPHENOL CORPORATION
PLATING FACILITY

SELECTED INDICATOR
PARAMETERS
(1/18/89)



LEGEND

- MONITORING WELL
- 7.1 pH values (Ground Water)
- 560 Specific Conductivity (μmhos)

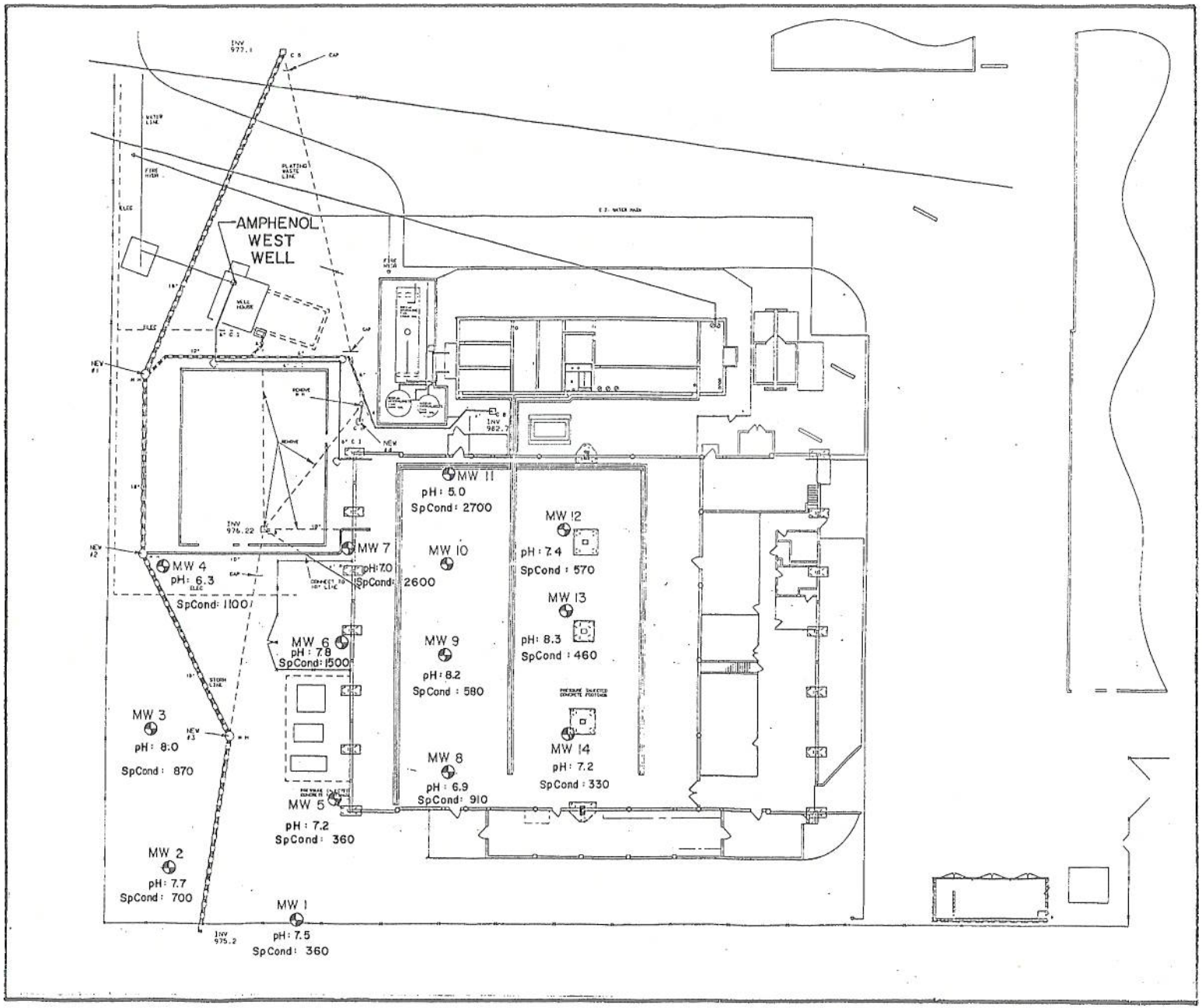
0 32 64
SCALE IN FEET

O'BRIEN & GERE

FIGURE 4

AMPHENOL CORPORATION
PLATING FACILITY

SELECTED INDICATOR
PARAMETERS
(2/8/89)



LEGEND

MONITORING WELL

7.4 pH values (Ground Water)

570 Specific Conductivity (Mmhos)

0 32 64

SCALE IN FEET

O'BRIEN & GERE

ATTACHMENT A

BORING LOGS AND WELL CONSTRUCTION DIAGRAMS

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-1 Sheet 1 of 1
Project Location: Amphenol Plating Building Client: Amphenol Corporation	SAMPLER Type: 2" Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.: 3729.009.130
Boring Co.: Parratt-Wolff, Inc. Foreman: OBG Geologist: James A. Moore	Boring Location: Ground Elevation: Dates: Started: 12/21/88	Ended:12/21/88

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Valve	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
0	1	0.5-1				0-2" Asphalt.						
5	2	5-6.5				Gray to brown, very moist, very soft, SILT, some clay, trace fine-medium sand (oil sheen).	7.0'					
							9.0'					
							▼ 9.5'					
10	3	10-11.5				Gray to reddish-brown, saturated fine-medium SAND and GRAVEL, some silt, little clay.	10.0'					
15	4	15-16.5				Gray to brown, saturated fine-medium SAND, some gravel and silt, little clay.						
20	5	20-21.5				TOTAL DEPTH 20 FT. Gray to brown saturated fine-medium SAND, some silt, little clay.	20.0					

0.020" slot screen 10 ft. to 20 ft.
Graded sandpack 9 ft. to 20 ft.
Betonite Pellets 7 ft. to 9 ft.
Portland/Bentonite grout surface to 7 ft.

— 2 inch PVC casing
— Water at 9.5 ft.

OBG1.KJK
2/24/89

O'BRIEN & GERE ENGINEERS, INC.

TEST BORING LOG

Report of Boring No. MW-2
Sheet 1 of 1

Project Location: Amphenol Plating Building
Client: Amphenol Corporation

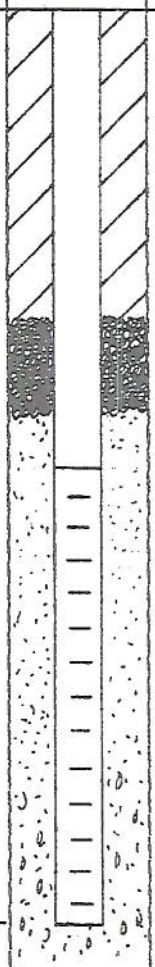
SAMPLER
Type: 2" Split Spoon
Hammer: 140 lbs. Fall: 30 inches

Ground Water Depth — Date
Depth — Date
File No.: 3729.009.130

Boring Co.: Parratt-Wolff Inc.
Foreman:
OBG Geologist: James A. Moore

Boring Location:
Ground Elevation:
Dates: Started: 12/21/88 Ended: 12/21/88

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Valve	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Sp Cond	HNU	Rmks*
0	1	0.5-1				Asphalt.						
5	2	5-6.5				Reddish-brown, black, gray, very moist SILT some clay, fine-medium sand.	7.0'					
10	3	10-11.5				Gray to black, very moist SILT, some clay, saturated fine-medium sand (oil sheen)	9.0' ▼ 9.65' 10.0'					
15	4	15-16.5				Blackish gray, saturated fine-medium SAND, some silt, little clay and gravel.						
20	5	20-21.5				TOTAL DEPTH 20 FT. Black to reddish-brown, saturated, fine-medium SAND and GRAVEL, some silt, little clay.	20.0'					



0.020" slot screen 10 ft. to 20 ft.
Graded sandpack 9 ft. to 20 ft.
Bentonite pellets 7 ft. to 9 ft. — 2 inch PVC casing
Portland/Bentonite grout surface to 7 ft. — Water at 9.5 ft.

OBG2.KJK
2/24/89

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	Report of Boring No. MW-3 Sheet 1 of 1
Project Location: Amphenol Plating Building Client: Amphenol Corporation	SAMPLER Type: 2" Split Spoon Hammer: 140 lbs. Fall: 30 inches	Ground Water Depth Date Depth Date File No.: 3729.009.130

Boring Co.: Parratt-Wolff Inc.
Foreman:
OBG Geologist: James A. Moore

Boring Location:
Ground Elevation:
Dates: Started: 12/22/88 Ended: 12/22/88

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Valve	Sample Description	Stratum Change General Descript	Equipment Installed	Field Testing pH	Field Testing Sp Cond	Field Testing HNU	Rmks*
0	1	0.5-1				Asphalt.						
5	2	5-6.5				Reddish-brown, very moist, SILT and GRAVEL, some clay, trace fine-medium sand.	6.7'					
							8.7'					
							9.7'					
10	3	10-11.5				Gray, saturated SILT, fine-medium sand.	▼ 10.95					
15	4	15-16.5				Gray, saturated, GRAVEL, fine-medium sand, silt.	19.7'					
20	5	20-21.5				Gray to brown, saturated GRAVEL, some fine-medium sand, little silt.						

0.020" slot screen 9.7 ft. to 19.7 ft.
Graded sandpack 8.7 ft. to 19.7 ft.
Bentonite pellets 6.7 ft. to 8.7 ft. — 2 inch PVC casing
Portland/Bentonite grout surface to 6.7 ft. — Water at 10.95 ft.

OBG3.KJK
2/24/89

O'BRIEN & GERE ENGINEERS, INC.

TEST BORING LOG

Report of Boring No. MW-4
Sheet 1 of 1

Project Location: Amphenol Plating Building
Client: Amphenol Corporation

SAMPLER
Type: 2" Split Spoon
Hammer: 140 lbs. Fall: 30 inches

Ground Water Depth
Depth
Date
Date
File No.: 3729.009.130

Boring Co.: Parratt-Wolff Inc.
Foreman:
OBG Geologist: James A. Moore

Boring Location:
Ground Elevation:
Dates: Started: 12/22/88 Ended:12/22/88

Depth	Sample No	Sample Depth	Blows /6"	Penetr/ Recovry	"N" Valve	Sample Description	Stratum Change General Descript
0	1	0.5-1				Asphalt.	
5	2	5-6.5				Brown, very hard, dry GRAVEL, fine-medium sand.	7.5'
							9.5'
							10.5'
10	3	10-11.5				Brown, saturated GRAVEL, trace fine-medium sand, little silt.	▽ 12.59'
15	4	15-16.5				Brown to green, uniformed, saturated, GRAVEL, trace fine-medium sand, silt.	
20	5	20-21.5				TOTAL DEPTH 20.5 FT. Grayish to brown, saturated GRAVEL, trace fine-medium sand, silt.	20.5'

Equipment Installed

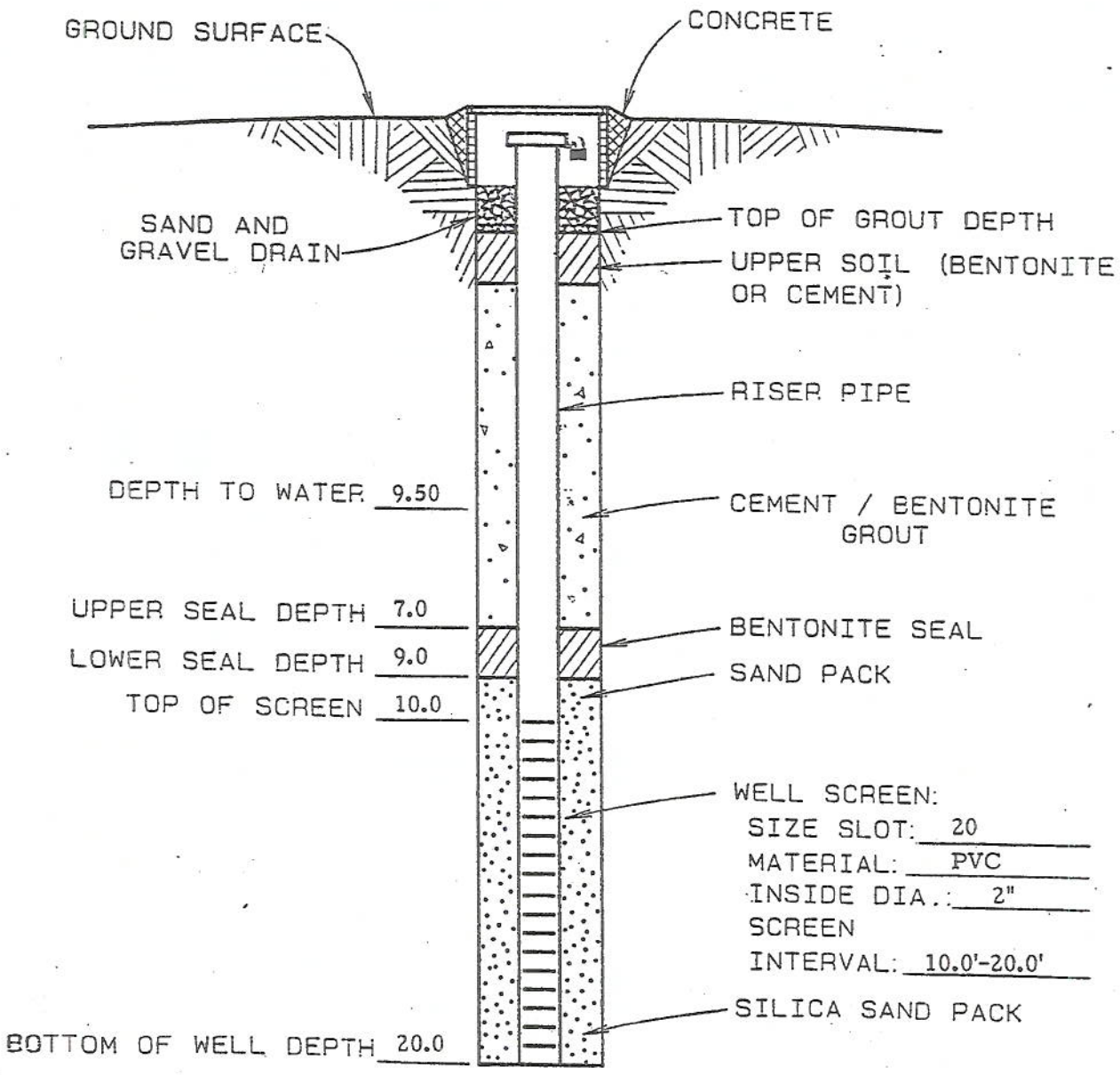
Field Testing: pH | Sp Cond | HNU

Rmks

0.020" slot screen 10.5 ft. to 20.5 ft.
Graded sandpack 9.5 ft. to 20.5 ft.
Bentonite pellets 7.5 ft. to 9.5 ft. — 2 inch PVC casing
Portland/Bentonite grout surface to 7.5 ft. — Water at 12.59 ft.

OBG4.KJK
2/24/89

MW-1

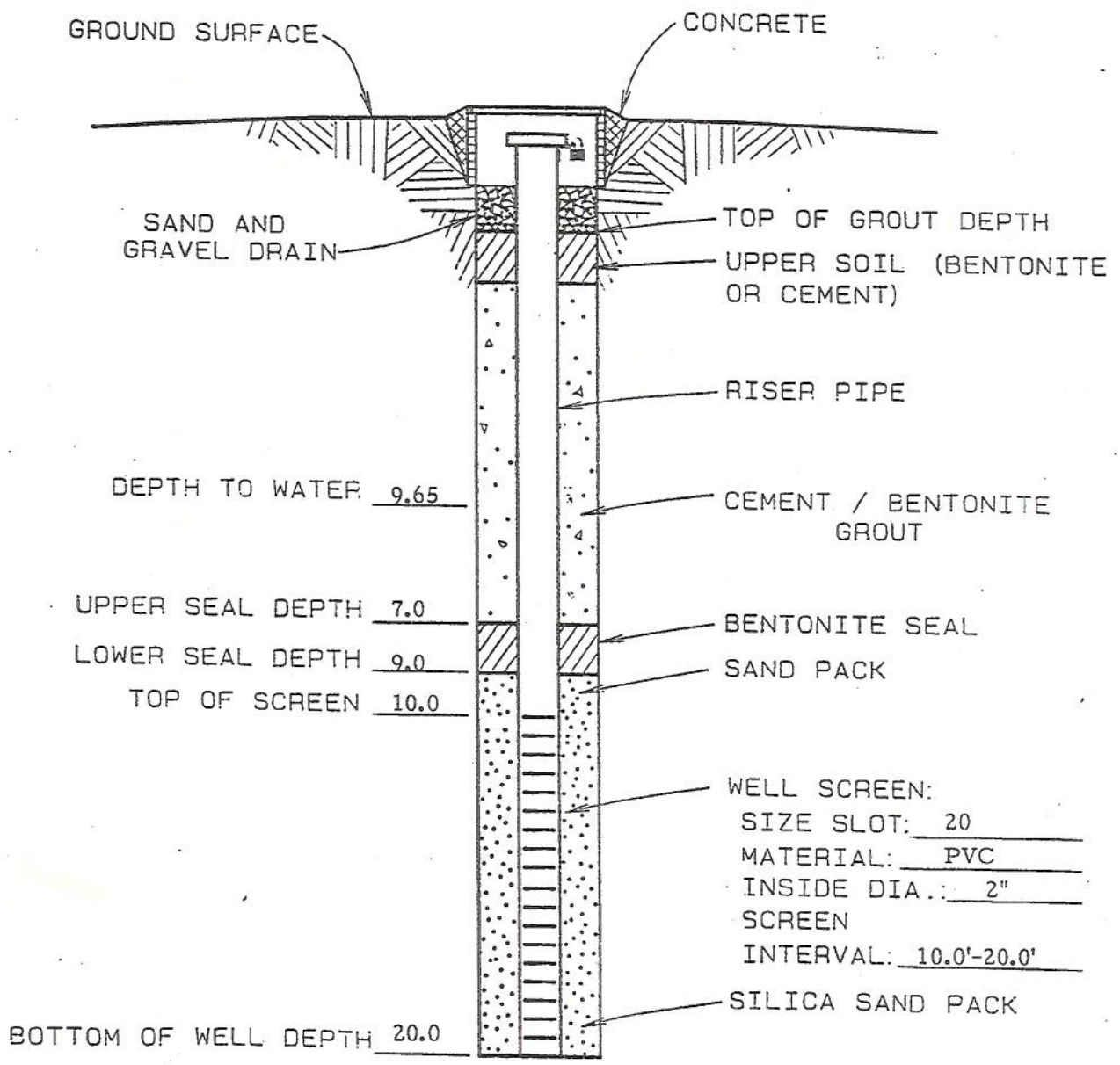


NOT TO SCALE

WELL01.96 R42 L1

O'BRIEN & GERE

MW-2

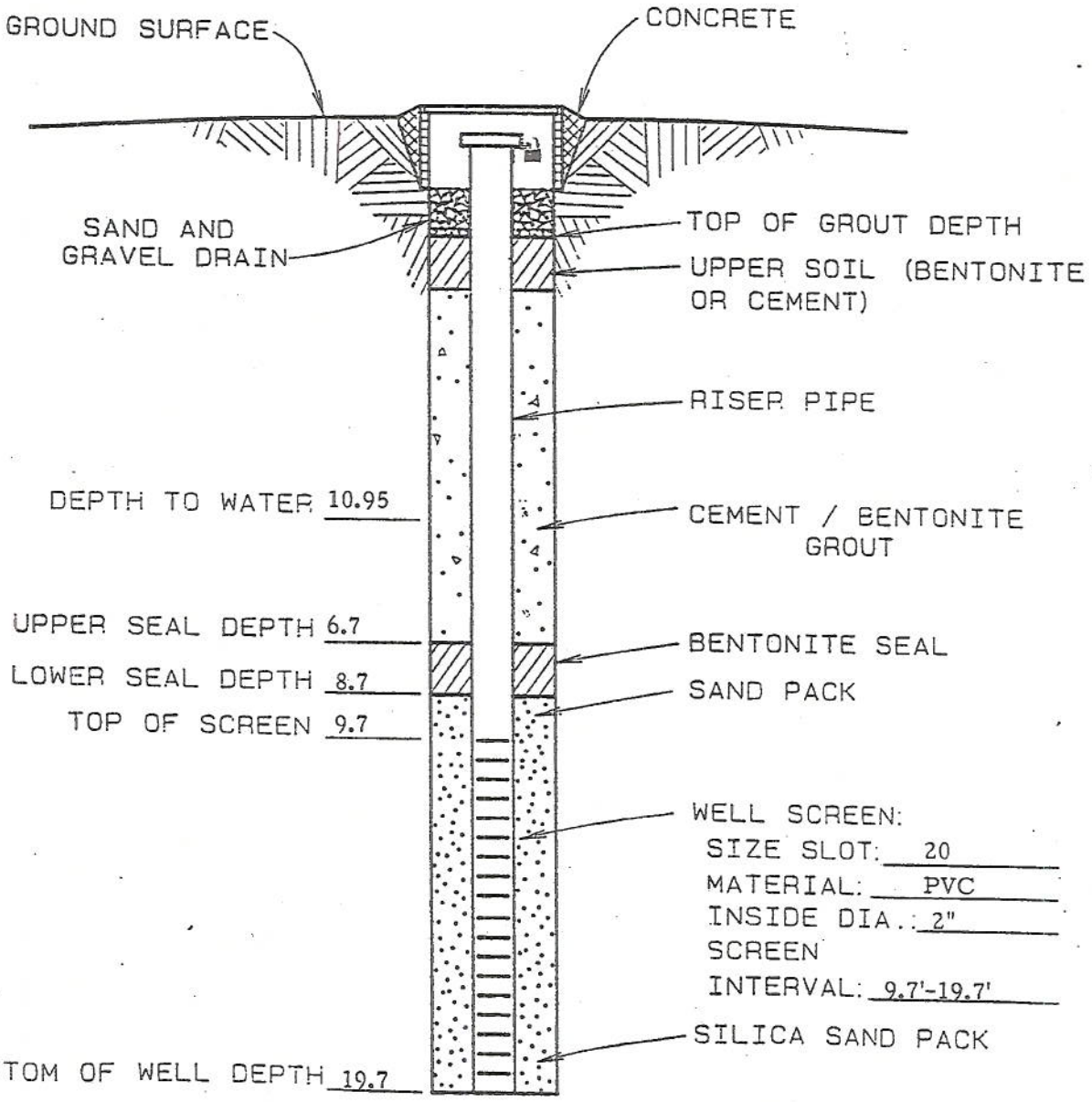


NOT TO SCALE

WELL0130 R42 L1

O'BRIEN & GERE

MW-3

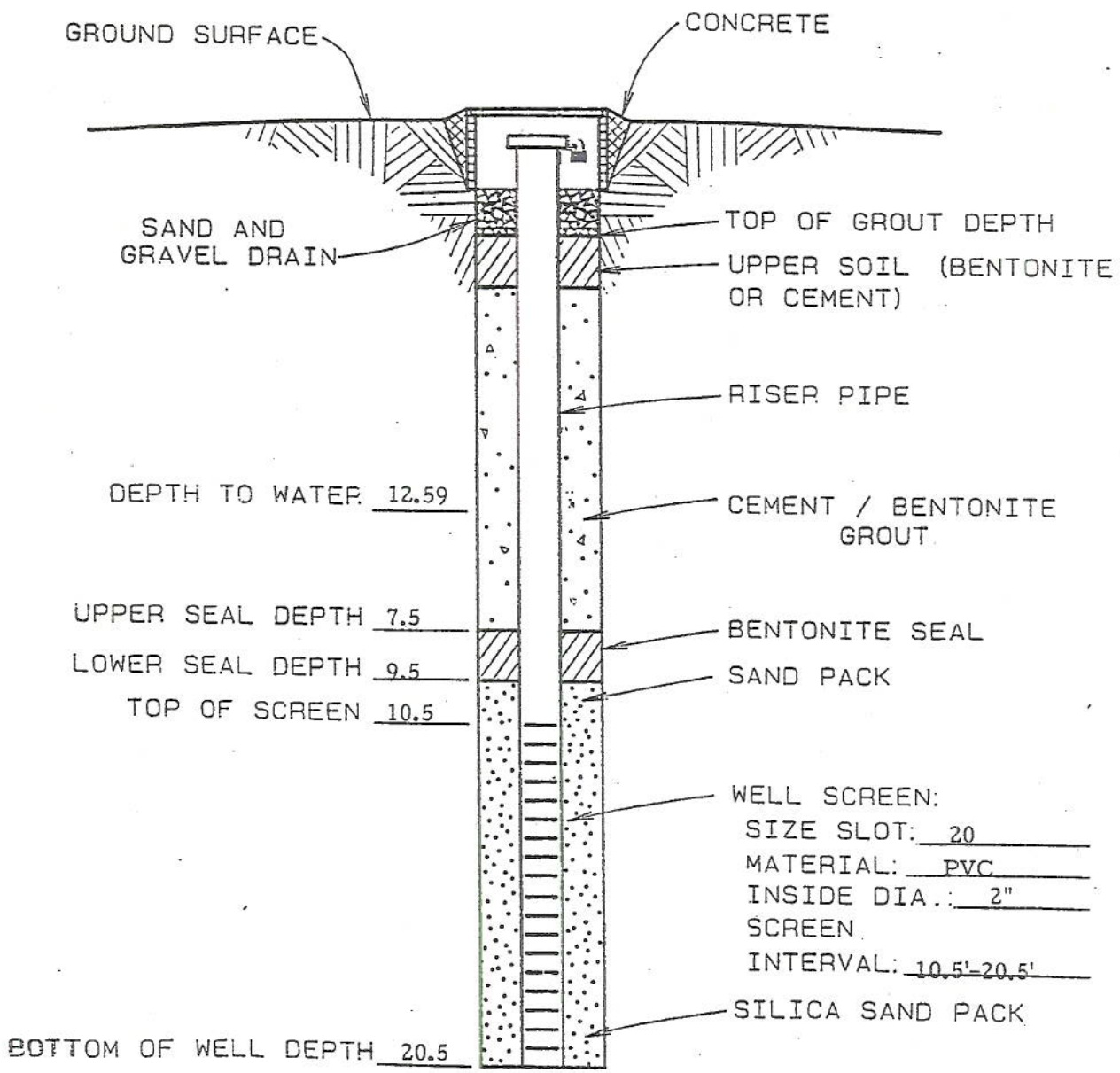


NOT TO SCALE

WELL013G R42 L1

OBRIEN & GERE

MW-4

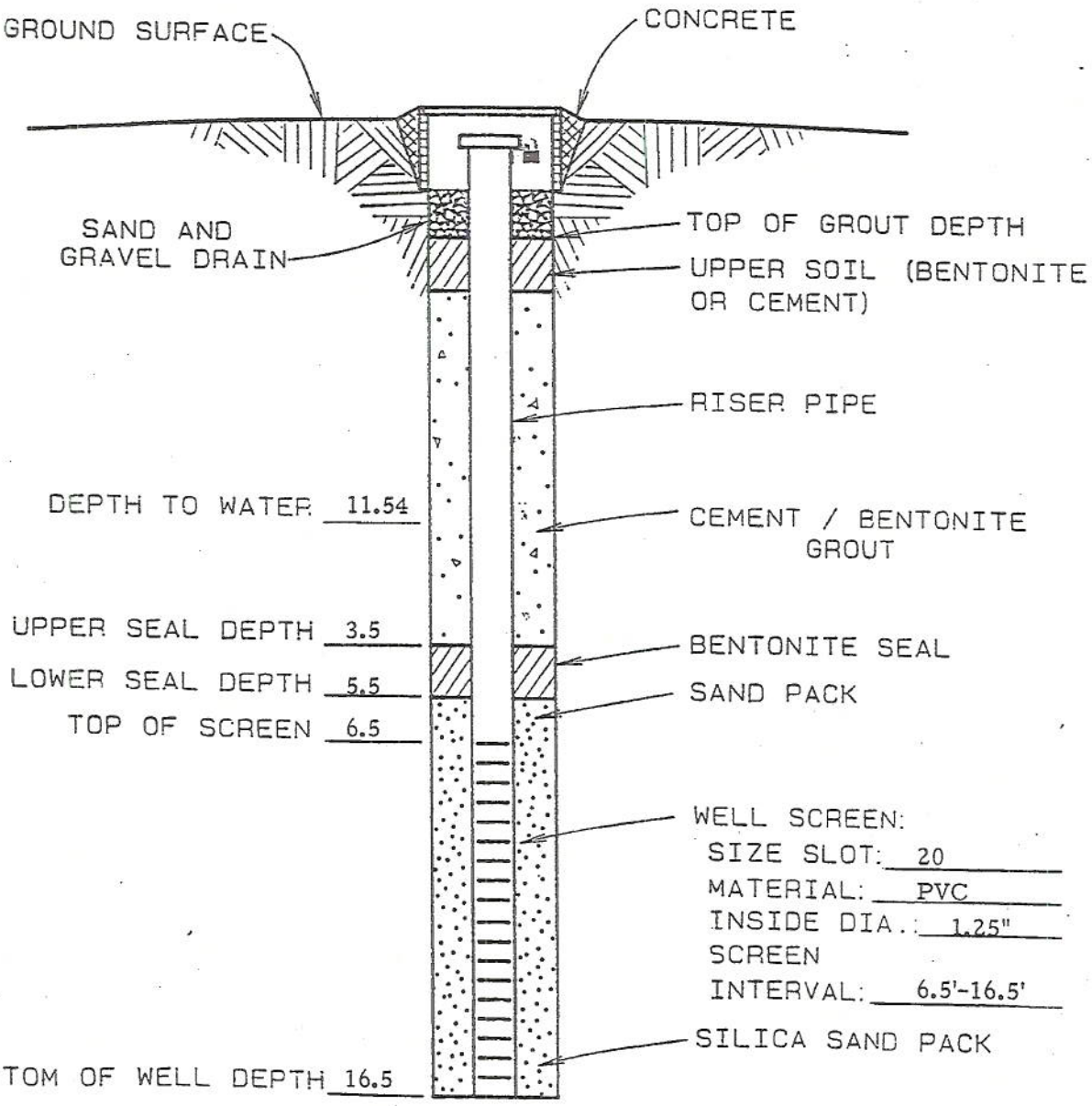


NOT TO SCALE

WELL013G A12 L1

O'BRIEN & GERE

MW-5

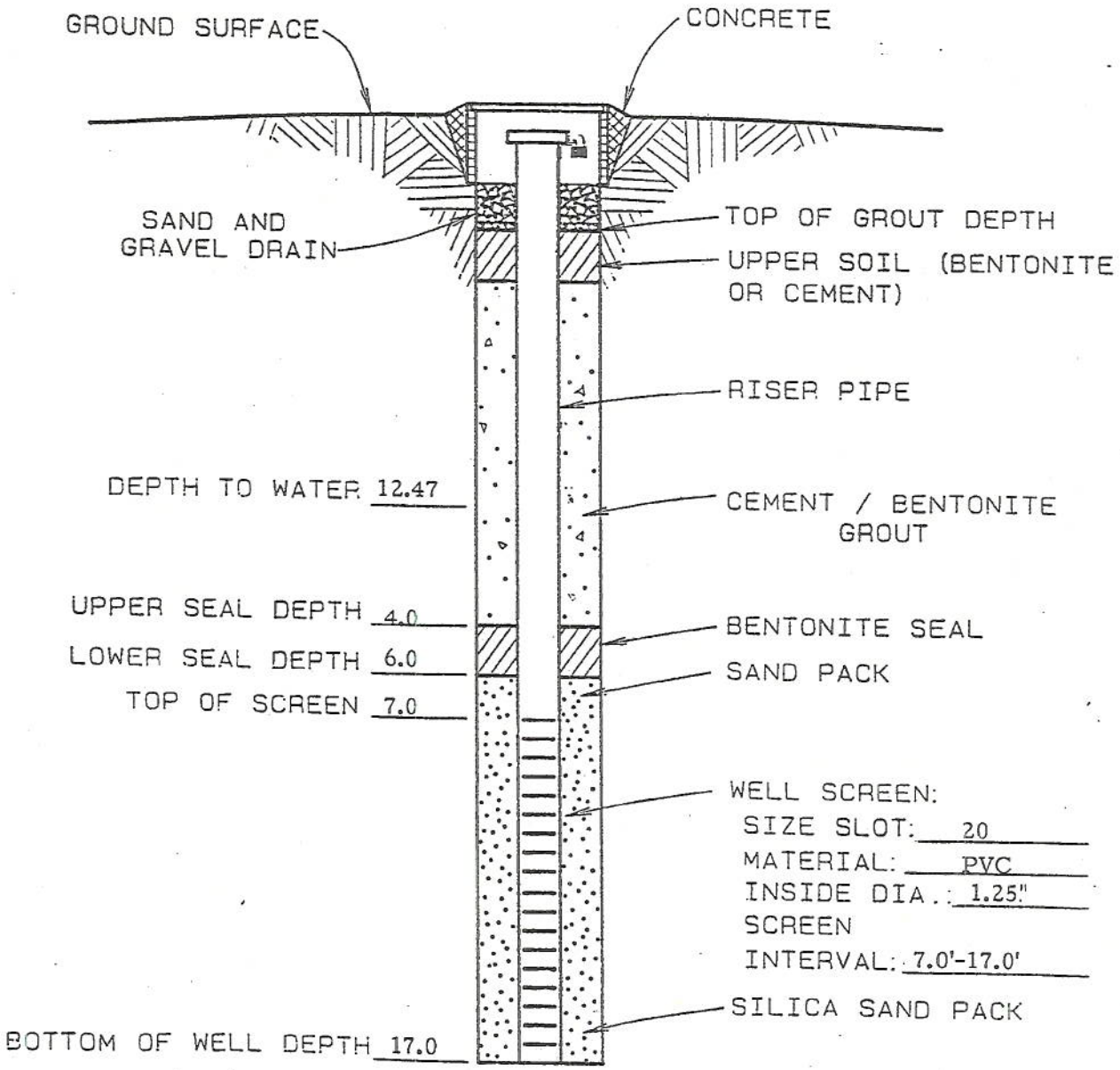


NOT TO SCALE

WELL013G R42 L1

O'BRIEN & GERE

MW-6

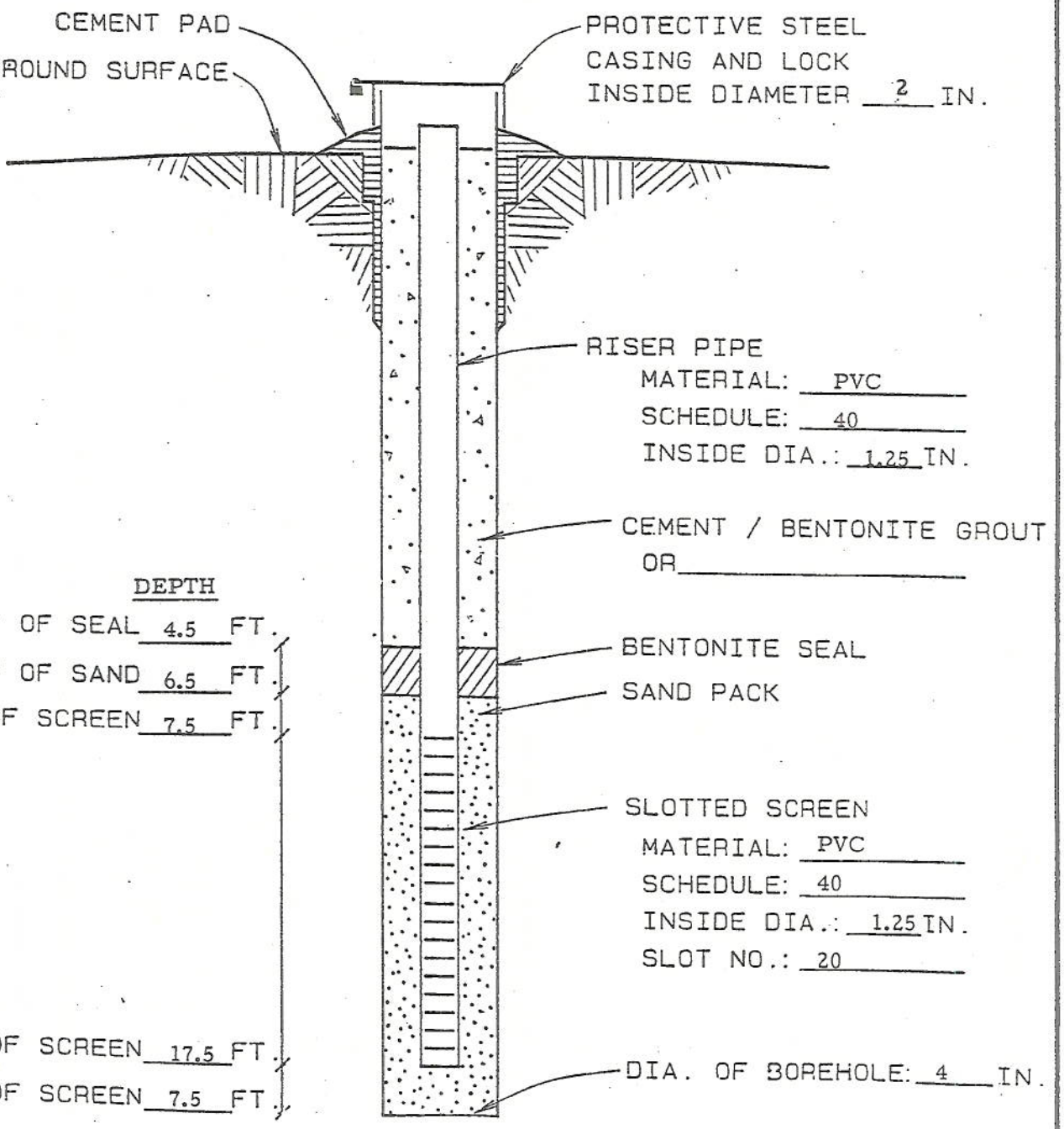


NOT TO SCALE

WELL0136 R42 L1

OBRIEN & GERE

MW-7

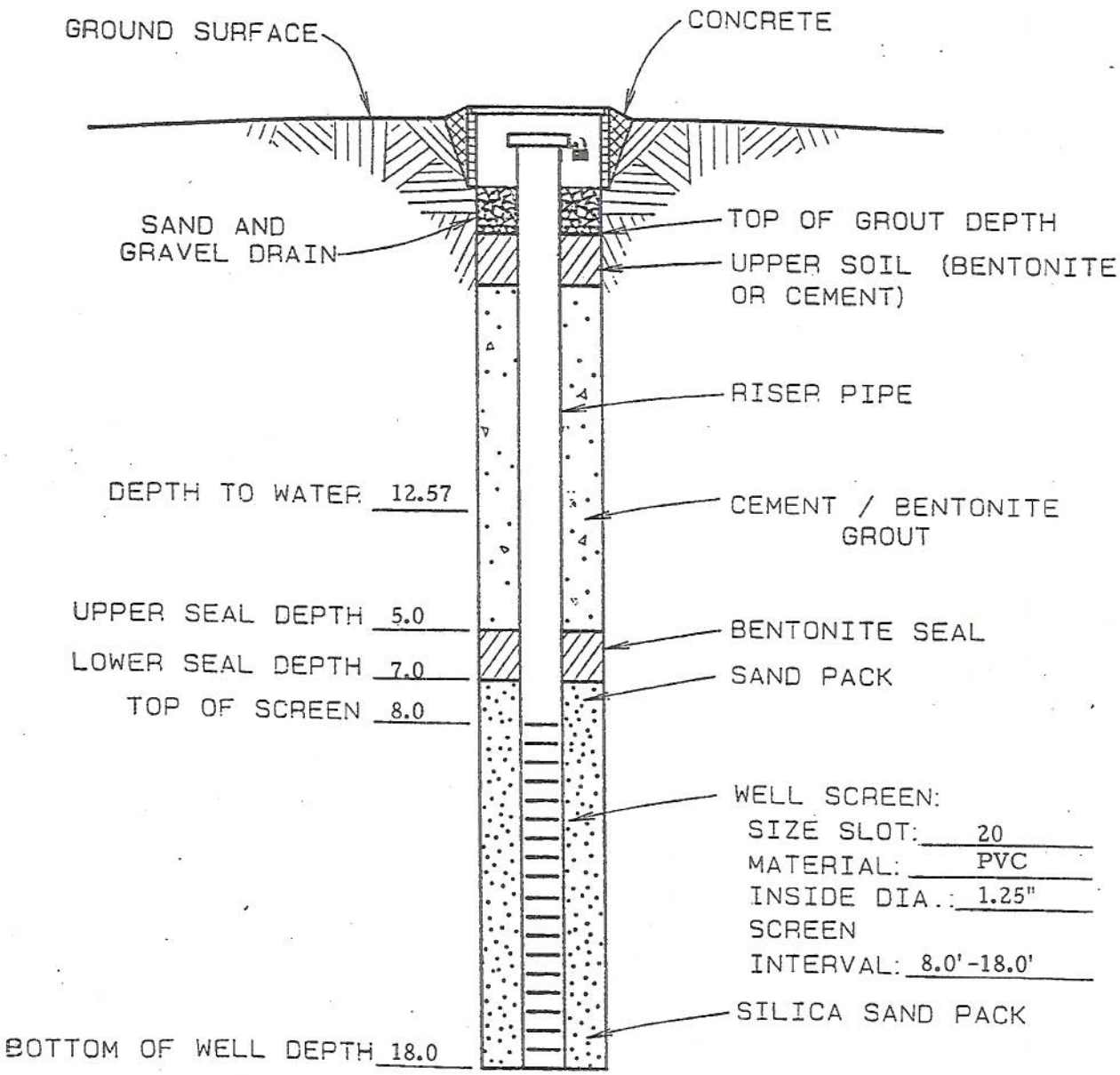


N.T.S.

WELL001G R42 L1

O'BRIEN & GERE

MW-8

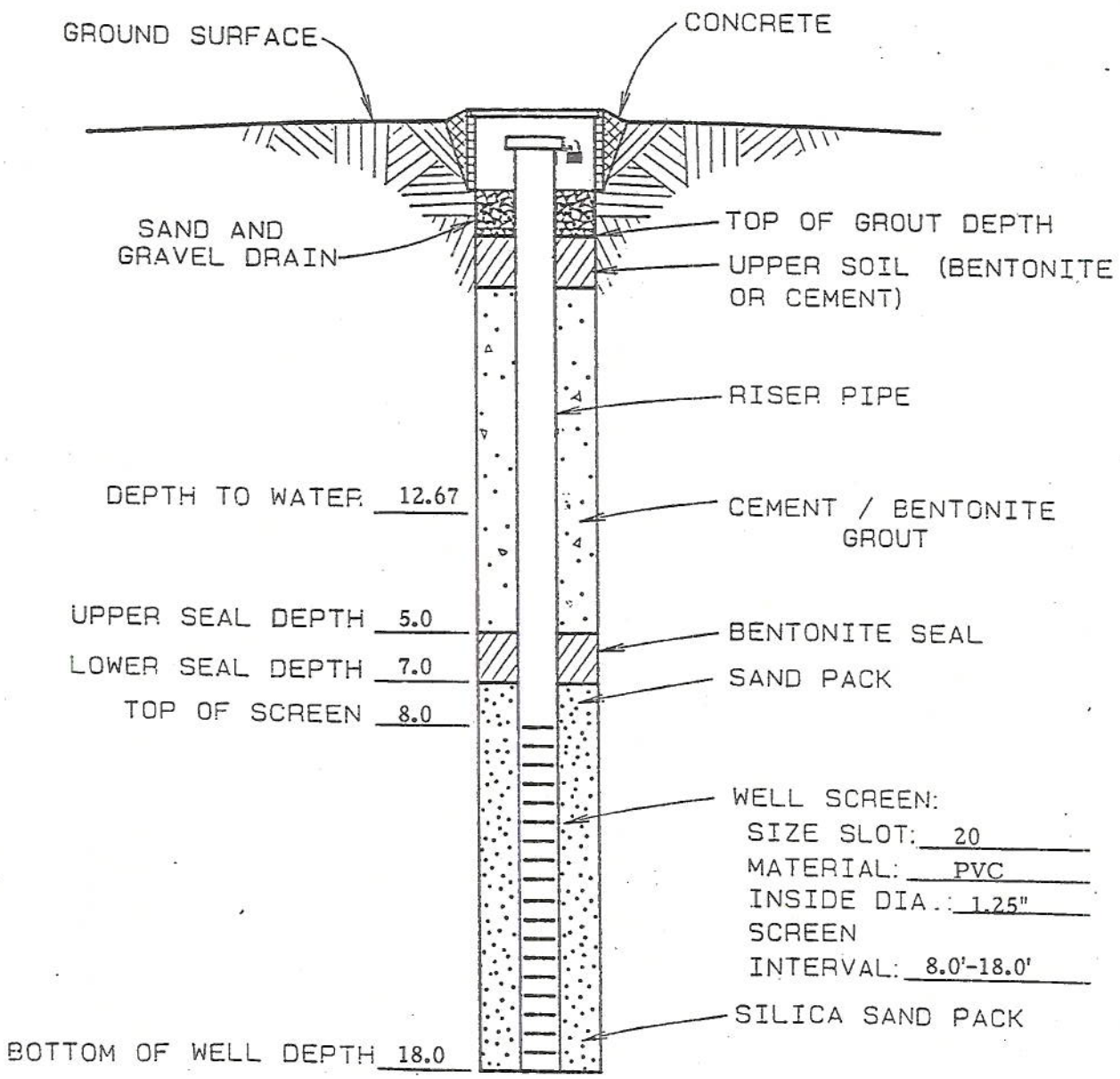


NOT TO SCALE

WELL0136 R42 L1

O'BRIEN & GERE

MW-9

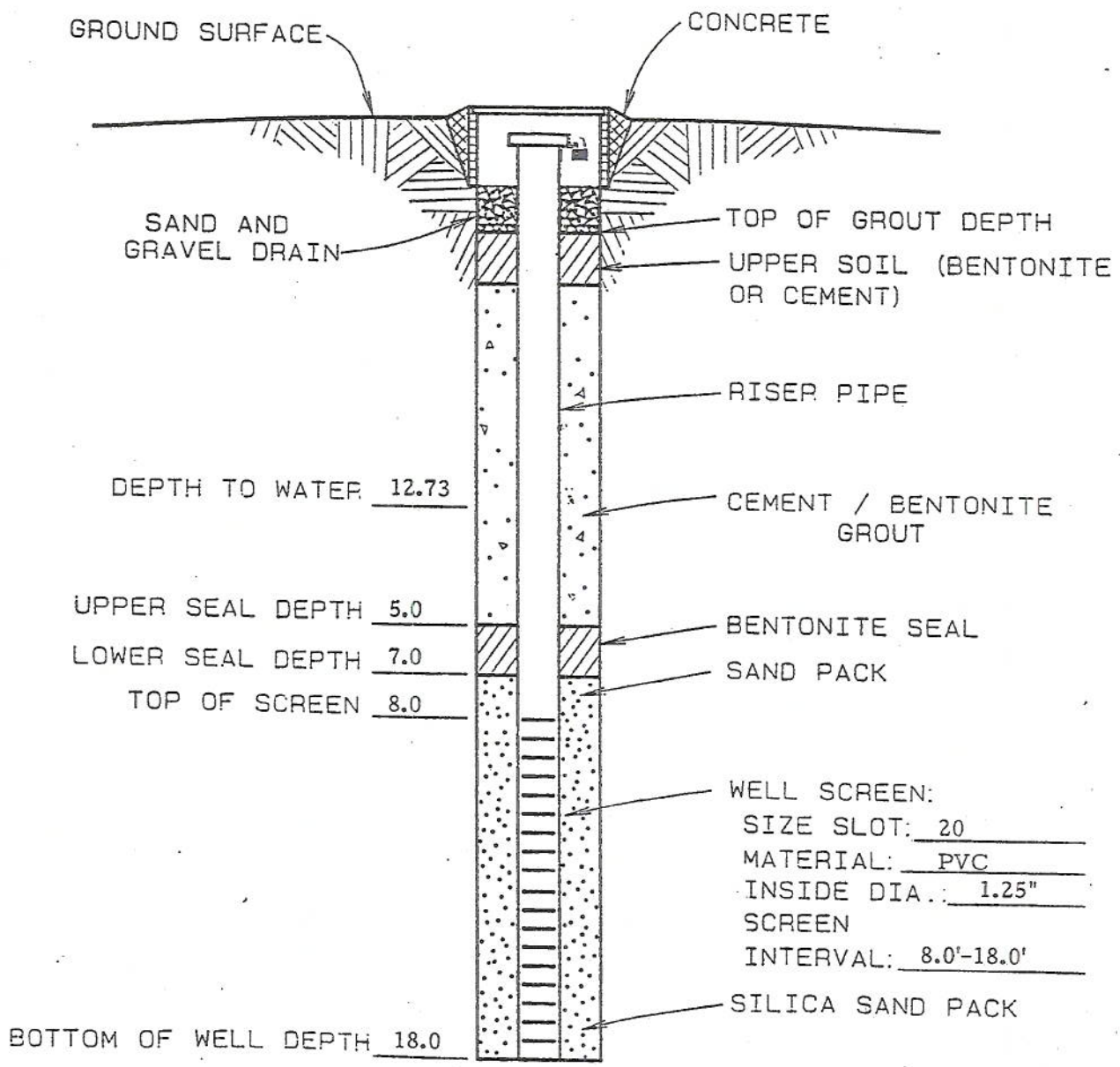


NOT TO SCALE

WELL013G R#2 L1

O'BRIEN & GERE

MW-11

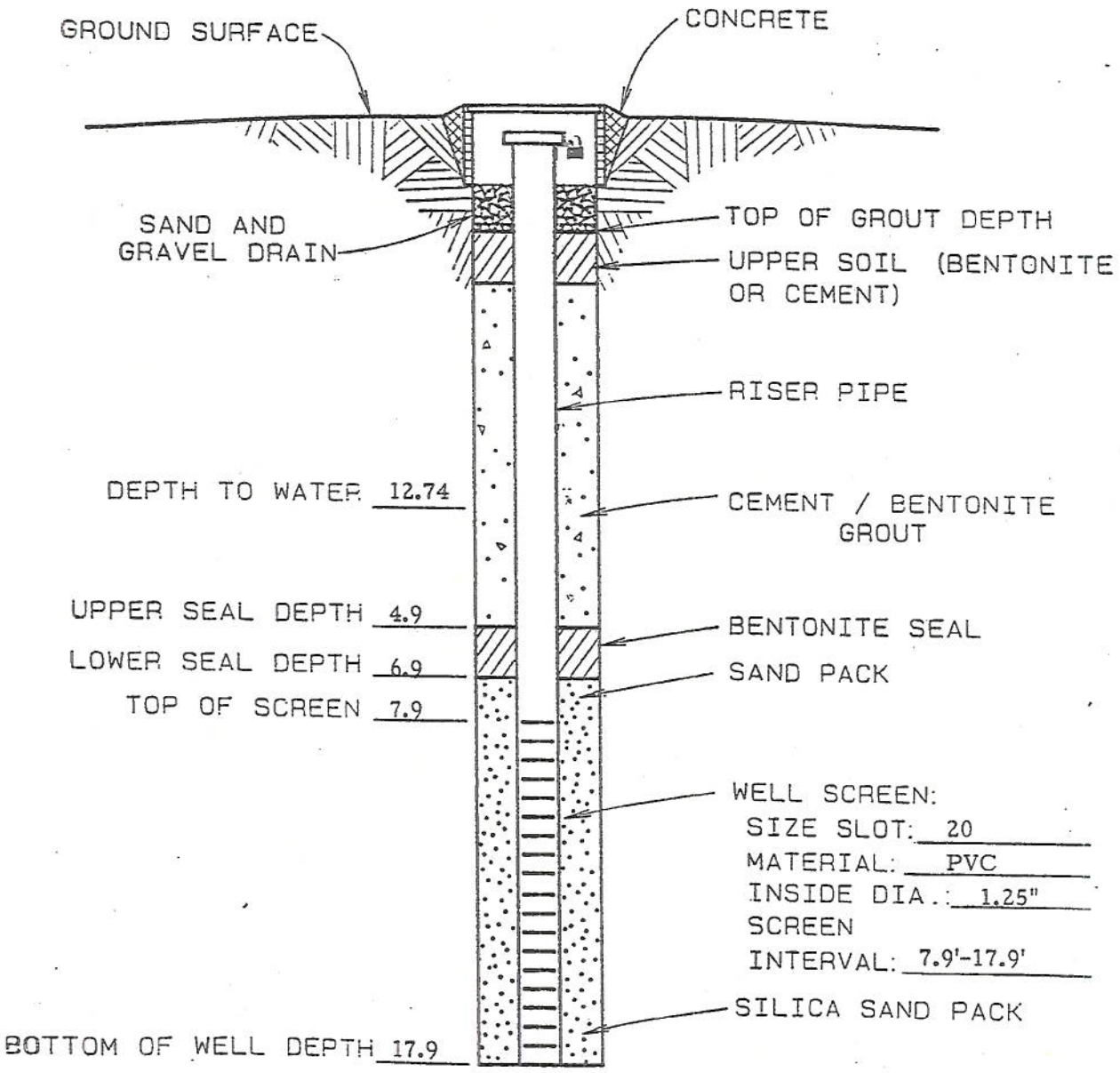


NOT TO SCALE

WELL013G R42 L1

O'BRIEN & GERE

MW-12

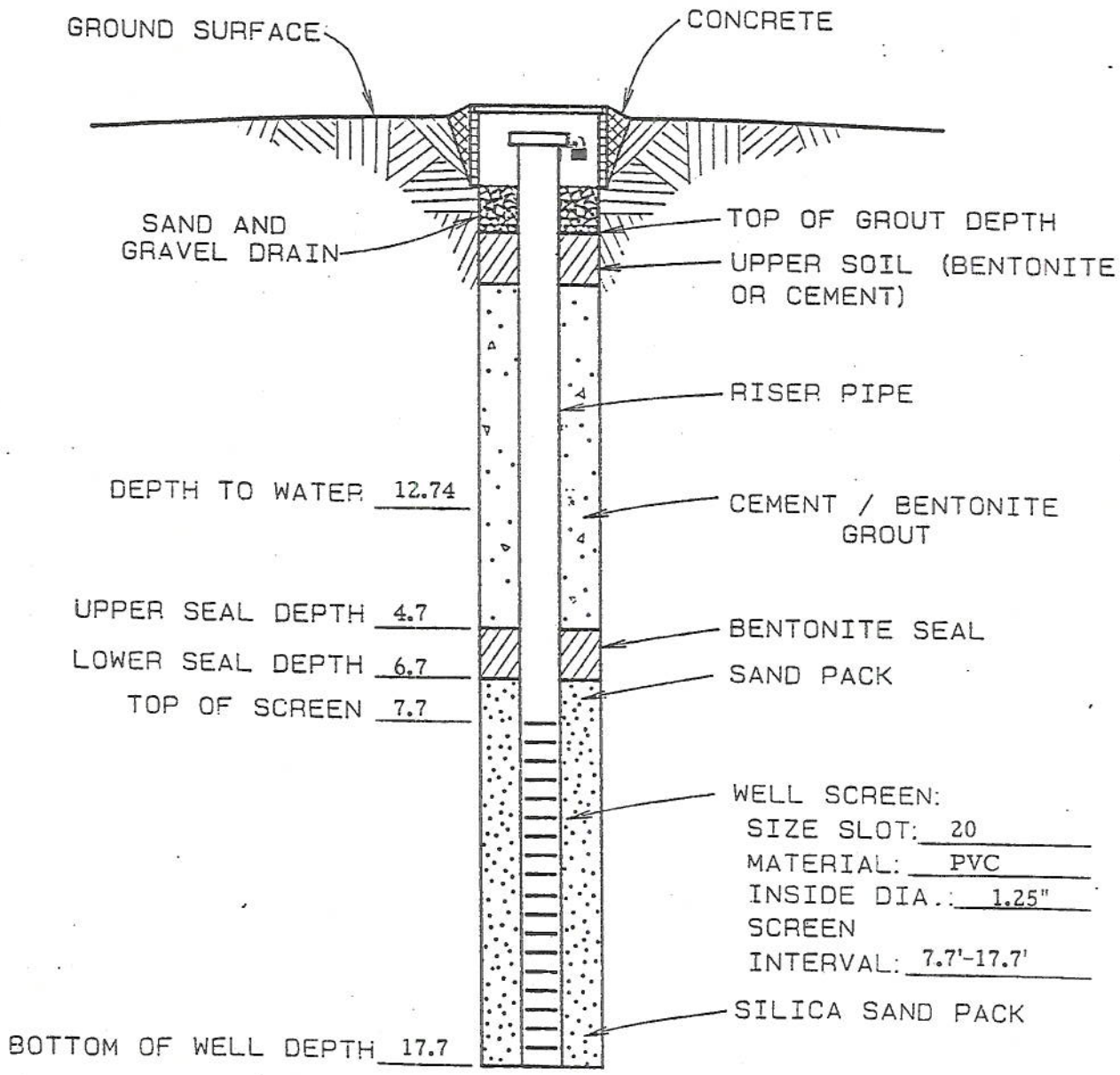


NOT TO SCALE

MELLO13G R42 L1

OBRIEN & GERE

MW-13

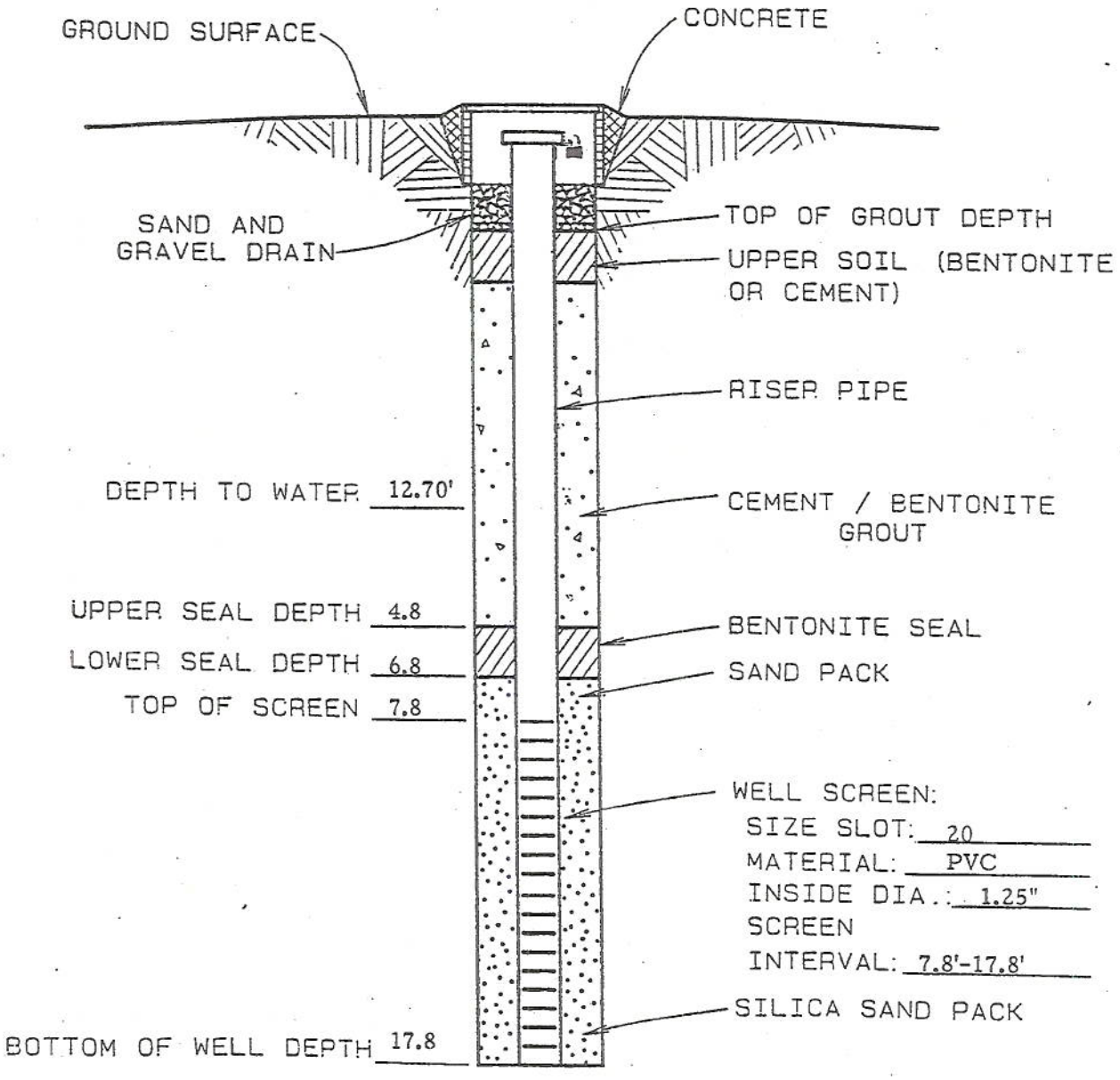


NOT TO SCALE

WELL0130 R42 L1

O'BRIEN & GERE

MW-14



NOT TO SCALE

WELL013G R42 L1

O'BRIEN & GERE

ATTACHMENT B

GROUND WATER QUALITY DATA

OBG LABORATORIES, INC.

Laboratory Report

CLIENT AMPHENOL JOB NO. 3729.003.517

DESCRIPTION Sidney, NY

DATE COLLECTED 1-18-89 DATE REC'D. 1-19-89 DATE ANALYZED

Description	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW 7	MW 3 Dup	Field Bailer Blank			
Sample #	I0097	I0098	I0099	I0100	I0101	I0102	I0103	I0104	I0105			
SILVER	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			
ARSENIC	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
BERYLLIUM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
CADMIUM	<0.01	0.03	<0.01	5.6	0.01	<0.01	3.5	<0.01	<0.01			
CHROMIUM	<0.05	<0.05	<0.05	0.55	<0.05	<0.05	0.06	<0.05	<0.05			
COPPER	<0.01	<0.01	<0.01	0.93	<0.01	<0.01	0.51	<0.01	<0.01			
MERCURY	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			
NICKEL	<0.05	<0.05	<0.05	5.7	<0.05	<0.05	6.8	<0.05	<0.05			
LEAD	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
ANTIMONY	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			
SELENIUM	<0.005	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*	<0.005			
THALLIUM	<1.	<1.	<1.	<1.	<1.	<1.	<1.	<1.	<1.			
ZINC	<0.01	0.01	0.04	2.8	0.03	0.01	6.6	0.04	<0.01			
CYANIDE	0.03	<0.01	<0.01	0.04	0.01	0.02	2.7	<0.01	<0.01			
pH	7.4	7.0	7.0	5.9	6.7	7.1	6.3	6.9	6.3			
SPECIFIC CONDUCTANCE	470.	580.	660.	960.	350.	1100.	2700.	650.	<1.			

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/l (ppm) unless otherwise noted

Comments: * The detection limit has been raised due to the presence of matrix interferences.

Authorized: D. A. Brandau

Date: February 9, 1989

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY / 13221 / (315) 457-1494

OBG LABORATORIES, INC.

Laboratory Report

CLIENT AMPHENOL JOB NO. 3729.003.517

DESCRIPTION Sidney, NY

DATE COLLECTED See Below DATE REC'D. 1-23-89 DATE ANALYZED

Description	MW 8 1-21-89	MW 11 1-21-89	MW 12 1-21-89	MW 13 1-21-89	MW 14 1-22-89	MW 9 1-22-89
Sample #	I0185	I0186	I0187	I0188	I0189	I0190
SILVER	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
ARSENIC	<0.005	0.09	<0.005	<0.005	<0.005	<0.005
BERYLLIUM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
CADMIUM	4.3	21.	0.06	0.44	0.42	1.6
CHROMIUM	<0.05	15.	<0.05	<0.05	<0.05	<0.05
COPPER	0.04	12.	0.01	0.01	<0.01	0.03
MERCURY	<0.0005	0.0025	<0.0005	<0.0005	<0.0005	<0.0005
NICKEL	1.3	28.	<0.05	0.11	<0.05	2.0
LEAD	<0.05	1.3	<0.05	<0.05	<0.05	<0.05
ANTIMONY	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SELENIUM	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*
THALLIUM	<1.	<1.	<1.	<1.	<1.	<1.
ZINC	4.5	9.8	0.03	0.04	0.01	0.62
CYANIDE	0.09	2.7	0.04	0.02	0.01	0.16
pH	5.7	2.1	6.1	6.3	6.7	5.4
SPECIFIC CONDUCTANCE	3200.	8300.	560.	1400.	410.	2900.

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/l (ppm) unless otherwise noted

Comments: * The detection limit has been raised due to the presence of matrix interferences.

Authorized: D. A. Brandon

Date: February 9, 1989

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY / 13221 / (315) 457-1494

OBG
LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

SURVEY: -IMPHENOL FACILITY

SAMPLERS: (Signature) James L. Moore

STATION NUMBER	STATION LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	SAMPLE TYPE: Water Grab.	SAMPLE TYPE: Air	SEQ. NO.	NO. OF CONTAINERS	ANALYSIS REQUIRED
MW-1	OUTSIDE FACILITY	1-16-89	12:30 PM		✓		1	3	TOTAL METALS & CYANIDE & pH, SP each.
MW-2	"	"	1:30 PM		✓			3	
MW-3	"	"	1:45 PM		✓			3	
MW-4	"	"	2:30 PM		✓			3	
MW-5	"	"	3:00 PM		✓			3	
MW-6	"	"	3:45 PM		✓			3	
MW-7	"	"	4:15 PM		✓			3	
DUP	"	"	2:00 PM		✓			3	
FIELD BLANK	"	"	1:00 PM		✓			3	

Relinquished by: (Signature) James L. Moore	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by Mobile Laboratory for field analysis: (Signature)	Date/Time
Dispatched by: (Signature) / Date/Time	Received for Laboratory by: [illegible]	Date/Time 1/16/89 8:10
Method of Shipment:		

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Road / Syracuse, New York 13221 / (315) 457-1494
Oakdale Medical Building / 700 Harry L. Drive / Johnson City, New York 13790

OBG
LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

SURVEY: AMHERST FACILITY, SIDNEY NY

SAMPLERS: (Signature) James A Moore

STATION NUMBER	STATION LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	SEQ. NO.	NO. OF CONTAINERS	ANALYSIS REQUIRED
MW-8		1-21-89	3:00pm		✓		1	3	
MW-11	"	"	3:50pm		✓		2	3	METALS
MW-12		"	5:00pm		✓		3	3	
MW-13		"	5:00pm		✓		4	3	
MW-14	"	1-22-89	9:00am		✓		5	3	
MW-9	"	"	9:45am		✓		6	3	
[illegible]	[illegible]	[illegible]							

Relinquished by: (Signature) James A Moore 1-22-89	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by Mobile Laboratory for field analysis: (Signature)	Date/Time
Dispatched by: (Signature) / Date/Time	Received for Laboratory by: Wendy Smith	Date/Time 1/23/89 07:25
Method of Shipment:		

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Road / Syracuse, New York 13221 / (315) 457-1494
Oakdale Medical Building / 700 Harry L. Drive / Johnson City, New York 13790

OBG LABORATORIES, INC.

Laboratory Report

CLIENT AMPHENOL CORPORATION JOB NO. 3729.003.517

DESCRIPTION Plating Facility Project, Sidney, NY

DATE COLLECTED 2-8-89 DATE REC'D. 2-10-89 DATE ANALYZED

Description	OBG-1	P-1	OBG-20	OBG-2	OBG-3
Sample #	I0907	I0908	I0909	I0910	I0911
SILVER	<0.01	<0.01	<0.01	<0.01	<0.01
ARSENIC	<0.005	<0.005	<0.005	<0.005	<0.005
BERYLLIUM	<0.05	<0.05	<0.05	<0.05	<0.05
CADMIUM	0.02	<0.01	<0.01	<0.01	<0.01
CHROMIUM	<0.05	<0.05	<0.05	<0.05	<0.05
COPPER	<0.01	<0.01	<0.01	<0.01	<0.01
MERCURY	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
NICKEL	<0.05	<0.05	<0.05	<0.05	<0.05
LEAD	<0.05	<0.05	<0.05	<0.05	<0.05
ANTIMONY	<0.1	<0.1	<0.1	<0.1	<0.1
SELENIUM	<0.005	<0.005	<0.005	<0.05*	<0.05*
THALLIUM	<1.	<1.	<1.	<1.	<1.
ZINC	0.04	0.04	0.04	0.05	0.02
PH, LABORATORY	7.5	8.0	7.7	7.7	8.0
SPECIFIC CONDUCTIVITY	360.	280.	290.	700.	870.
CYANIDE	<0.01	<0.01	<0.01	<0.01	<0.01

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/ℓ (ppm) unless otherwise noted

Comments: *The detection limit has been raised by a factor of ten due to the presence of matrix interferences.

Authorized: Michael V. Petterelli

Date: February 27, 1989

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY / 13221 / (315) 457-1494

OBG LABORATORIES, INC.

Laboratory Report

CLIENT AMPHENOL CORPORATION JOB NO. 3729.003.517

DESCRIPTION Plating Facility Project, Sidney, NY

DATE COLLECTED 2-8-89 DATE REC'D. 2-10-89 DATE ANALYZED

Description	OBG-4	OBG-5	OBG-8	OBG-9	OBG-11
Sample #	I0912	I0913	I0914	I0915	I0916
SILVER	<0.01	<0.01	<0.01	<0.01	<0.01
ARSENIC	<0.005	<0.005	<0.005	<0.005	<0.005
BERYLLIUM	<0.05	<0.05	<0.05	<0.05	<0.05
CADMIUM	<0.01	<0.01	<0.01	<0.01	<0.01
CHROMIUM	0.17	<0.05	<0.05	<0.05	0.82
COPPER	0.41	<0.01	<0.01	<0.01	1.7
MERCURY	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
NICKEL	3.6	<0.05	0.17	<0.05	6.0
LEAD	<0.05	<0.05	<0.05	<0.05	<0.05
ANTIMONY	<0.1	<0.1	<0.1	<0.1	<0.1
SELENIUM	<0.05*	<0.005	<0.05*	<0.005	<0.05*
THALLIUM	<1.	<1.	<1.	<1.	<1.
ZINC	1.7	0.05	0.49	0.05	5.5
PH, LABORATORY	6.3	7.2	6.9	8.2	5.0
SPECIFIC CONDUCTIVITY	1100.	360.	9.0	580.	2700.
CYANIDE	0.03	<0.01	0.06	<0.01	0.88

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/ℓ (ppm) unless otherwise noted

Comments: *The detection limit has been raised by a factor of ten due to the presence of matrix interferences.

Authorized: Michael D. Petterelli

Date: February 27, 1989

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY / 13221 / (315) 457-1494

OBG LABORATORIES, INC.

Laboratory Report

CLIENT AMPHENOL CORPORATION JOB NO. 3729.003.517

DESCRIPTION Plating Facility Project, Sidney, NY

DATE COLLECTED See Below DATE REC'D. 2-10-89 DATE ANALYZED

Description	OBG-12 2-8-89	OBG-13 2-8-89	OBG-14 2-8-89	OBG-6 2-9-89	OBG-7 2-9-89	Field Blank 2-8-89
Sample #	I0917	I0918	I0919	I0920	I0921	I0922
SILVER	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
ARSENIC	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
BERYLLIUM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
CADMIUM	<0.01	<0.01	<0.01	<0.01	1.9	<0.01
CHROMIUM	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
COPPER	<0.01	<0.01	<0.01	<0.01	0.34	<0.01
MERCURY	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
NICKEL	<0.05	<0.05	<0.05	<0.05	3.7	<0.05
LEAD	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ANTIMONY	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SELENIUM	<0.005	<0.005	<0.005	<0.05*	<0.05*	<0.05*
THALLIUM	<1.	<1.	<1.	<1.	<1.	<1.
ZINC	0.03	0.05	0.05	0.06	2.6	<0.01
PH, LABORATORY	7.4	8.3	7.2	7.8	7.0	6.8
SPECIFIC CONDUCTIVITY	570.	460.	330.	1500.	2600.	1.9
CYANIDE	<0.01	<0.01	<0.01	<0.01	2.2	<0.01

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/((ppm) unless otherwise noted

Comments: *The detection limit has been raised by a factor of ten due to the presence of matrix interferences.

Authorized: Michael W. Pettenati

Date: February 27, 1989

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Rd. / Syracuse, NY / 13221 / (315) 457-1494

OBG LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

SURVEY: AMPHENOL (FACILITY)

SAMPLERS: (Signature) James A. Moore

STATION NUMBER	STATION LOCATION	DATE	TIME	SAMPLE TYPE: Water / Comp. / Grab	SEQ. NO.	NO. OF CONTAINERS	ANALYSIS REQUIRED
BG 1	OUTSIDE FACILITY	2-8-89	9:00AM	✓	1	3	TOTAL METALS + CYANIDE + pH, SP COND.
P-1	"	"	10:15AM	✓	2	3	
OBG 20	"	"	10:15AM	✓	3	3	
OBG 2	"	"	11:00AM	✓	4	3	
OBG 3	"	"	11:30AM	✓	5	3	
FILLER BLANK	"	"	11:35AM	✓	6	3	
OBG 4	"	"	12:00PM	✓	7	3	
OBG 5	"	"	12:30PM	✓	8	3	
OBG 8	INSIDE FACILITY	"	1:00PM	✓	9	3	
OBG 9	"	"	1:30PM	✓	10	3	
OBG 11	"	"	2:00PM	✓	11	3	
OBG 12	"	"	2:30PM	✓	12	3	

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by Mobile Laboratory for field analysis: (Signature)	Date/Time
Dispatched by: (Signature) Date/Time	Received for Laboratory by: Wendy Smith	Date/Time 2/10/89 10:00

Method of Shipment:

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Road / Syracuse, New York 13221 / (315) 457-1494

OBG
LABORATORIES, INC.

CHAIN OF CUSTODY RECORD

SURVEY: AMPHENOL (FACILITY)

SAMPLERS: (Signature) James L. Moore

STATION NUMBER	STATION LOCATION	DATE	TIME	SAMPLE TYPE: Water Comp.	Water Grab.	Air	SEQ. NO.	NO. OF CONTAINERS	ANALYSIS REQUIRED
OBG 13	INSIDE FACILITY	2-6-89	3:00 PM		✓		13	3	TOX + TAL METALS
OBG 14	11	11	4:00 PM		✓		14	3	
OBG 6	OUTSIDE FACILITY	2-9-89	1:45 PM		✓		15	3	
OBG 7	OUTSIDE FACILITY	2-7-89	12:15 PM		✓		16	3	CYANIDE + TOX second TPH

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Received by Mobile Laboratory for field analysis: (Signature)	Date/Time
Dispatched by: (Signature) — Date/Time	Received for Laboratory by: Wendy Smith	Date/Time 2/10/89 10:00
Method of Shipment:		

OBG Laboratories, Inc.
Box 4942 / 1304 Buckley Road / Syracuse, New York 13221 / (315) 457-1494
Oakdale Medical Building / 700 Harry L. Drive / Johnson City, New York 13790