

MEMORANDUM FOR: John Austin, Chief
Regulatory Branch
Division of Low-Level Waste Management
and Decommissioning, NMSS

OCT 22 1990

FROM: Timothy C. Johnson, Section Leader
Decommissioning Section
Regulatory Branch
Division of Low-Level Waste Management
and Decommissioning, NMSS

SUBJECT: WYMAN-GORDON MEETING TRIP REPORT

Enclosed is my trip report of the meeting I attended at the Wyman-Gordon Company facility in North Grafton, Massachusetts on September 27, 1990.

If you have any questions, please contact me at 20558.

Timothy C. Johnson, Section Leader
Decommissioning Section
Regulatory Branch
Division of Low-Level Waste Management
and Decommissioning, NMSS

Enclosure: As stated

- cc: L. Bykoski, LLRB/DS
- F. Cardile, LLRB/DS
- T. Huffert, LLRB/DS
- D. Martin, LLRB/DS
- L. Pittiglio, LLRB/DS
- Y. Young, LLRB/DS
- J. Thomas, LLRB/DS
- J. Kinneman, Region I
- R. Wilde, IMNS
- G. Sjoblom, IMNS
- R. Cunningham, IMNS
- C. Haughney, IMNS
- J. Parrott, LLTB

<u>Distribution:</u>	Central File#	NMSS r/f	LLRB r/f	TJohnson
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PDR YES NO Category: Proprietary ___ or CF Only ___
 ACNW YES NO

SUBJECT ABSTRACT:

OFC :LLRB : : : : : : : :
 NAME: TJohnson : : : : : : : :
 DATE: 10/22/90 : / /90 : / /90 : / /90 : / /90 : / /90 : / /90 : / /90 :

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Wyman-Gordan Company 20.304 Meeting

PURPOSE: The purpose of this meeting was to discuss State and Federal roles, responsibilities, and actions involving the previous disposals under 10 CFR 20.304 of magnesium-thorium alloy material at the North Grafton, MA site of the Wyman-Gordan Company.

ATTENDEES: See Attachment A.

DATE AND PLACE: September 27, 1990; North Grafton, MA

DISCUSSION: The Wyman-Gordan Company (WG) makes large titanium forgings for the aerospace industry. Between 1958 and 1970 WG had several NRC licenses for possession and use of magnesium-thorium alloys and uranium. The last of these licenses were terminated in 1971. At the North Grafton, MA site magnesium-thorium alloys containing between two and three percent thorium were disposed on-site under 10 CFR 20.304. The disposed material included scrap that had no recycle value and contaminated equipment such as grinders and other tools. Approximately 50,000 lbs. of the alloy material was disposed in an area in the northeast corner of the site. These disposals became a significant media issue when on September 23, 1990 an article appeared in the Worcester Telegram describing the disposals and 1983 and 1984 groundwater sampling issues.

In 1983 WG sampled on-site monitoring wells in the immediate vicinity of the disposal area. The results showed gross alpha, gross beta, and radium levels that exceeded EPA drinking water requirements. Because of a large amount of scatter in the data in 1983 and 1984 additional sampling was performed by WG and by the State of Massachusetts. The resampling results showed radioactivity levels to be well within the EPA requirements. Based on these results, both WG and the State considered that there was no threat to public health and safety. However, no formal analysis closing out this issue was documented by either WG or by the State. Further complicating the issue, an attorney for WG, without authorization from WG, transmitted a letter to the State requesting that the initial sampling data be held confidential until new sampling could be taken.

The newspaper article prompted local State Senator John Houston to call a meeting of State and Federal regulators and local Town Selectmen to discuss the roles and responsibilities of each agency.

At the meeting N. O'Leary from the Massachusetts Department of Environmental Protection (DEP) stated that their responsibility was to ensure safe public drinking water supplies. R. Watkins of the Massachusetts Department of Public Health (DPH) indicated their responsibility was in the area of radiologic safety. I explained the responsibility of the NRC to be protection of public health and safety from the commercial uses of nuclear materials. I also discussed the responsibilities of the EPA to develop generally applicable standards in the area of radiation protection that are implemented by the NRC

through more detailed regulations. I also stated that EPA has additional responsibilities for radiation safety under the Clean Air Act and Safe Drinking Water Act.

State Senator Houston requested the group to develop several short, crisp statements that could be made to the press following the meeting. The following summary statements were agreed to by the Group:

1. The State and the NRC would participate in a split sampling program of groundwater samples taken on-site and off-site.
2. The State DPH would take off-site samples from several public wells located in the vicinity of the disposal area.
3. After the sample analyses were obtained and evaluated, the Town Selectmen would call a public meeting and report on the results.

The Town Selectmen read the summary to J. Monahan, a reporter from the Worcester Telegram, and another reporter from WTAG, a local radio station. After reading the statement, J. Monahan questioned N. O'Leary, R. Watkins, and me. I was asked about NRC actions regarding the WG site. I indicated that NRC would perform an evaluation of the site and the groundwater sampling data and take whatever actions would be necessary to protect public health and safety. Monahan also asked about similar disposals at other sites. I indicated that the intent of 10 CFR 20.304 was to allow licensees to dispose of very small quantities of licensed material at their sites. I stated that beginning in the early 1980's these disposals were no longer allowed. I also stated that I did not know how many licensees had disposed of licensed material under these regulations, although I knew that many licensees had disposed of material under these requirements. I also indicated that the NRC has a program to review on-site burials made under these regulations and assess the public health and safety significance of them.

J. Monahan focused most of his questioning on the State for not documenting the close-out of their sampling program in 1984 after groundwater sampling indicated that concentrations of radioactive materials were well within the EPA drinking water limits. Since the State representatives at the meeting were not directly involved in the 1983 and 1984 testing, they did not know why the close-out had not been documented.

Following this meeting I met with G. Durfee (WG), R. Watkins (DPH), F. Haffey, the Grafton Hazardous Waste Coordinator, M. Pearson from the Grafton Water District, and F. Clark from GZA, an environmental consultant organization that had performed groundwater studies for WG for the purpose of RCRA compliance. F. Clark had been designated by WG to do the on-site sampling. I told him I would arrange for an NRC staff member to contact him to arrange the logistics of obtaining split samples for the NRC. I also indicated that I would also have an appropriate staff member contact R. Watkins to arrange for the transfer of off-site samples.

After this meeting I toured the disposal area and saw the wells that had been installed in the vicinity of the disposal area. Three wells located hydrologically downstream were located within 100 ft of the disposal area. Two of these wells (WGE-7 and WGE-8 on the map in Attachment B) are sampled annually by GZA and analyzed for hazardous chemical constituents. No radioactive assays have been performed since 1984. The third well (WGE-3), located between two smaller disposal locations within the disposal area, has not been maintained. However, an attempt would be made to sample this well. In addition, surface water in a brook that flows between WGE-3 and wells WGE-7 and WGE-8 would also be sampled if water ran through it. At the time of the tour this brook was dry.

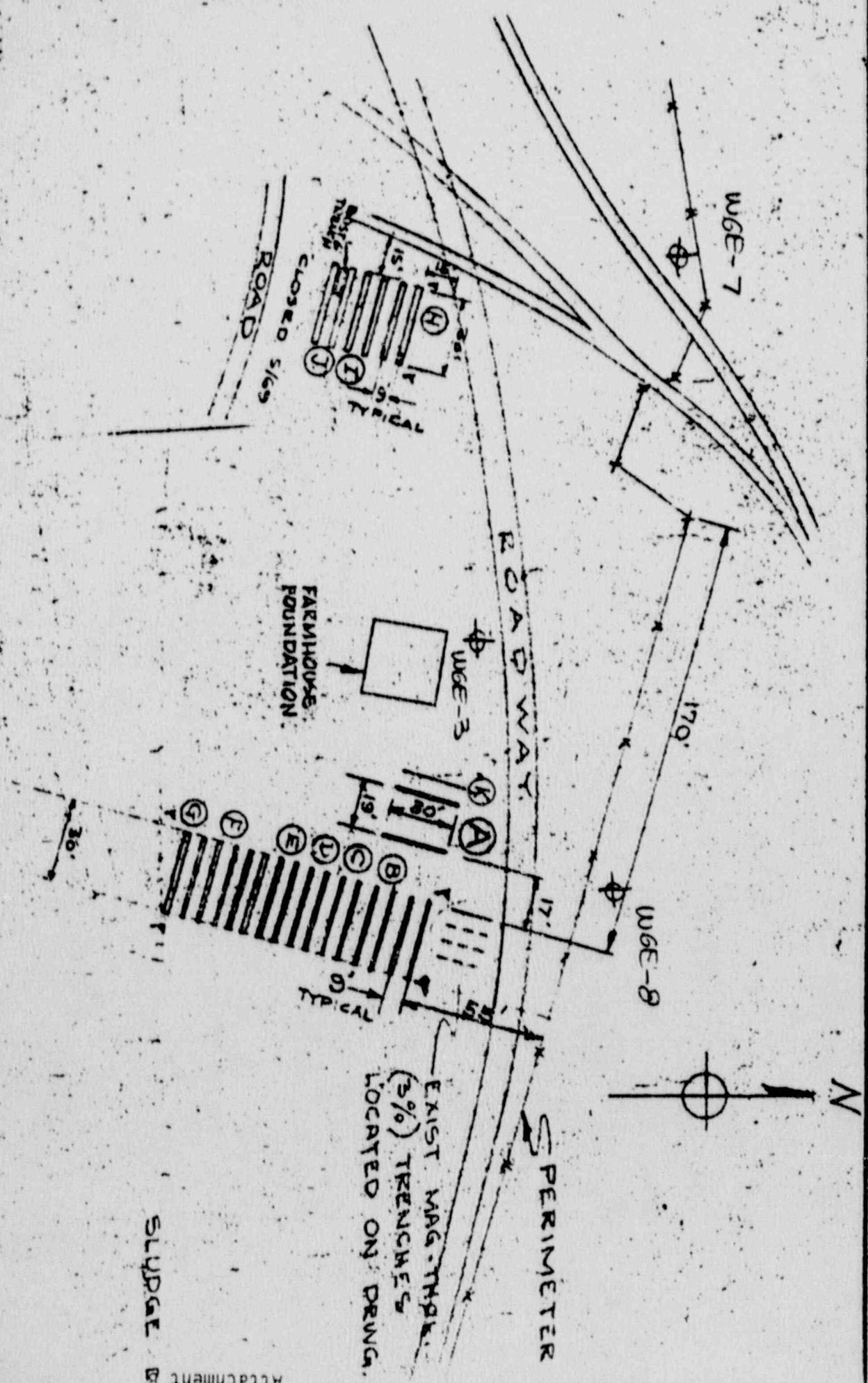
The GZA consultant firm had previously done a detailed hydrologic study of the WG site in support of submittals made by WG to the EPA for RCRA compliance. I requested a copy of this study. I also obtained copies of a groundwater map of the site, a map of the subsurface stratigraphy, and construction sketches of the monitoring wells. These documents are included in Attachment B.

9/27/90

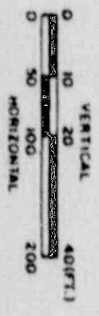
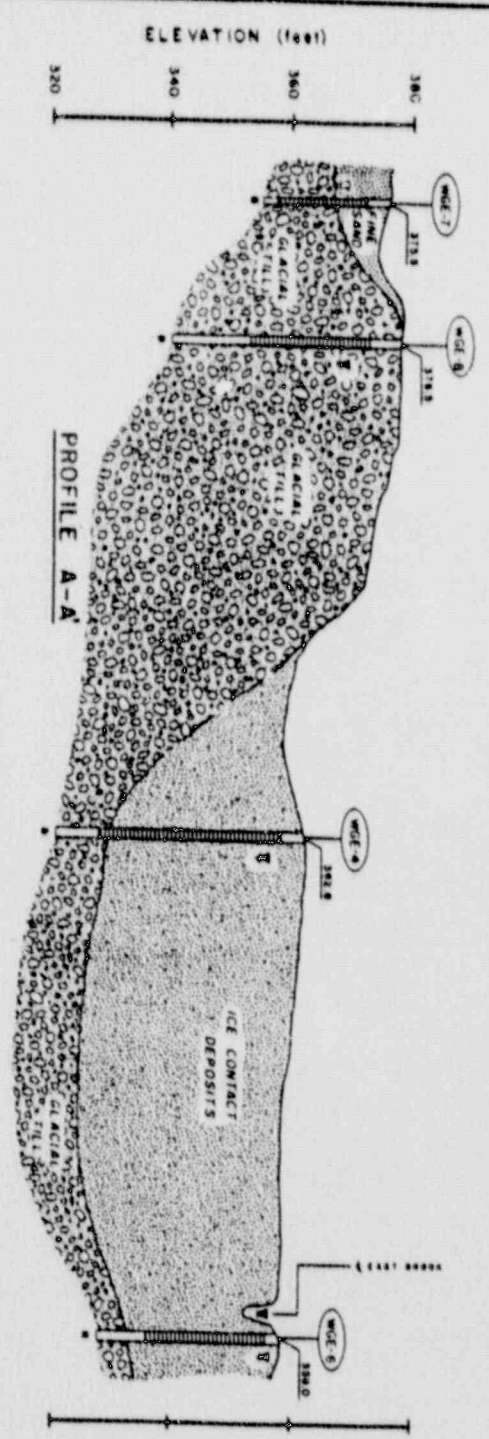
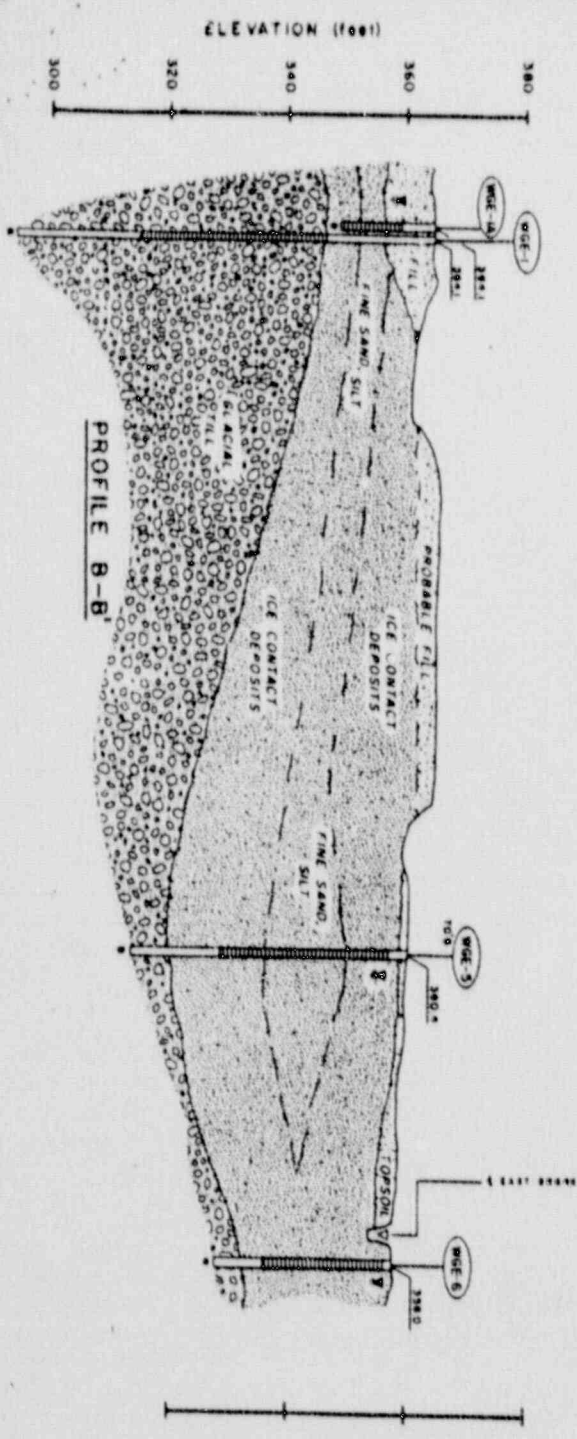
	Name	CO or Repr.	Position	Tel No.
1	George L. Durfee	Wyman - Gordon	Mgr of Mfg & Ind. Eng.	756-5111
2	Neil O'Leary	MASS DEP	Regional Director Central Region	792-7650
3	Mary Richards	MASS DEP	Envir. Liaison	792-7692
4	James Coyne	WG	V.P. - Cost Quality	756-5111
5	RAX MEAD	WG	Selectman Town of Grafton	839-5335
6	DANIEL MORGANO	Town of Grafton	Town Adm	839-5335
7	Sheila Ide	Town of Grafton	Selectman	839-5335
8	Robert T. Watkins	MASS. DEPT. of PUBLIC HLTH.	SR. RADIATION SCIENTIST	617-727-6214
9	TIMOTHY G. JOHNSON	US NRC	SECTION LEADER	301-492-0558
10	Jack Driscoll	LEGISLATOR	HOUSE	508-234-2000
11	John Houston	State Senator		508 792-6202

over.

- 12 FRED HOFFMAN Town of Grafton Ho 2. Was. Conn. 839-9040
- 13 MATTHEW PEARSON Grafton Water District 839-2302
14. Marianne Lara Sen. Houston's Off. 792-1485
- 15 J. ROGER CURRIER JR. BOARD OF HEALTH
TOWN OF GRAFTON 839-2550



Attachment B
SLUDGE



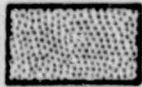
NOTES:

- 1) REFER TO FIGURE NO. 4 FOR LOCATION OF PROFILE LINES AND GENERAL NOTES.
- 2) THE STRATIFICATION LINES ARE BASED UPON INTERPOLATION BETWEEN WIDELY SPACED BORINGS AND THUS REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. ACTUAL CONDITIONS MAY VARY FROM THOSE SHOWN.
- 3) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE LOGS. THESE DATA HAVE BEEN REVIEWED AND INTERPRETATIONS MADE IN THE TEXT OF THE REPORT. HOWEVER, IT MUST BE NOTED THAT WATER LEVEL FLUCTUATIONS MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS.

SOIL DESCRIPTIONS:



FILL - BROWN OR DARK BROWN LOOSE TO MEDIUM DENSE FINE TO MEDIUM SAND, SOME FINE TO COARSE GRAVEL, TRACE TO LITTLE SILT, SOME PEAT; IN PLACES OVERLAIN BY THIN LAYER OF TOPSOIL.



FINE SAND - BROWN FINE SAND, TRACE GRAVEL AND SILT.



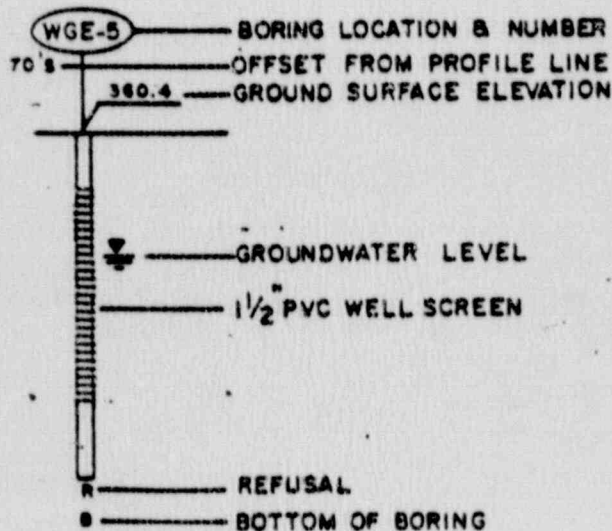
ICE CONTACT DEPOSITS - MEDIUM DENSE TO VERY DENSE BROWN AND GRAY FINE TO MEDIUM AND FINE TO COARSE SAND, TRACE TO SOME FINE TO COARSE GRAVEL, TRACE TO LITTLE SILT. OCCASIONAL LAYERS OF PREDOMINANTLY ONE OF THE FOLLOWING: SILT, FINE OR FINE TO MEDIUM SAND, OR FINE TO COARSE GRAVEL.

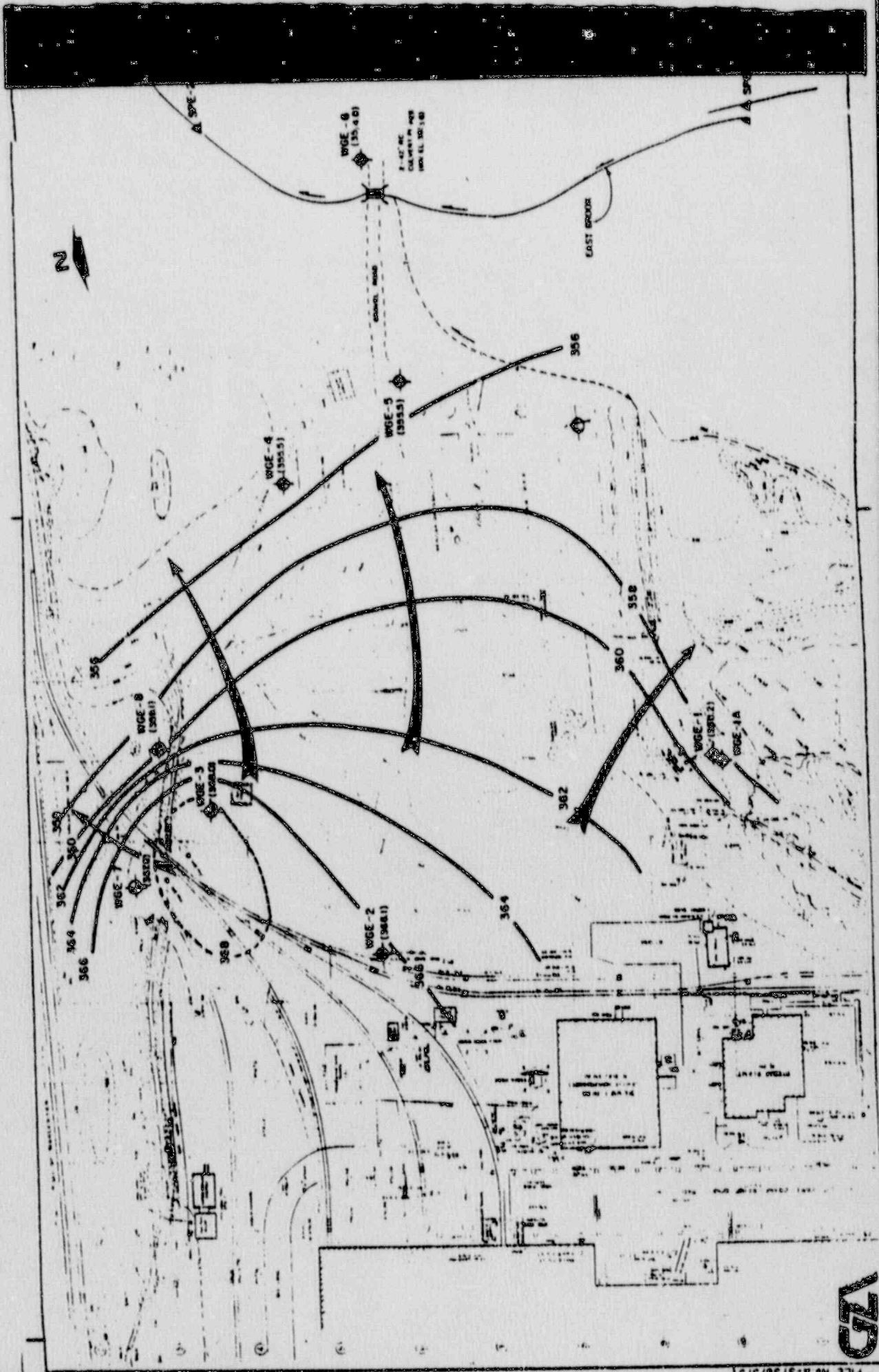


GLACIAL TILL - DENSE TO VERY DENSE BROWN AND GRAY FINE MEDIUM SAND, TRACE TO SOME FINE TO COARSE GRAVEL, SOME/AND SILT. OCCASIONAL BOULDERS AND COBBLES.



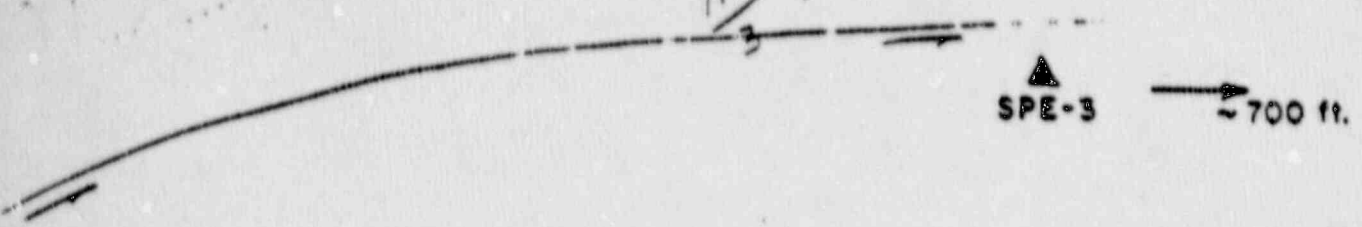
BEDROCK - LIGHT GREY SLIGHTLY TO MODERATELY FRACTURED SCHIST AND GNEISS.





GTA






$$\frac{170'}{3} = 60$$

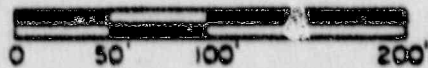


NOTES:

- 1) BASE MAP PREPARED FROM REDUCED DRAWING No. X-6622-2 DATED JAN. 12, 1982; EAST BROOK LOCATION FROM DRAWING No. X-4800.
- 2) BORING LOCATIONS WERE DETERMINED BY TAPING FROM EXISTING SURFICIAL FEATURES; ELEVATIONS WERE PROVIDED BY CHARLES A. PERKINS Co., INC. OF CLINTON, MA., USING OPTICAL SURVEYING TECHNIQUES.
- 3) THE ABOVE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

LEGEND:

- WGE-3  BORINGS PERFORMED BY GILD DRILLING INC. OF PROVIDENCE, R.I. AND IN AUG. 1983 AND OBSERVED AND LOGGED BY GZA PERSONNEL.
(355.5) WATER LEVEL ELEVATIONS FROM OBSERVATIONS IN SEPT. & NOV. 1983.
- WGE-2  PREVIOUS BORING AND WELL PERFORMED BY CARR-DEE TEST BORING IN 1981.
- SPE-1  SURFACE WATER SAMPLING STATION
-  364 CONTOURS OF GROUNDWATER ELEVATION. DASHED WHERE INFERRED
-  INFERRED DIRECTION OF GROUNDWATER FLOW



WYMAN-GORDON EAST
GEOHYDROLOGIC STUDY

GROUNDWATER CONTOURS
PLAN

SEPT. 1984

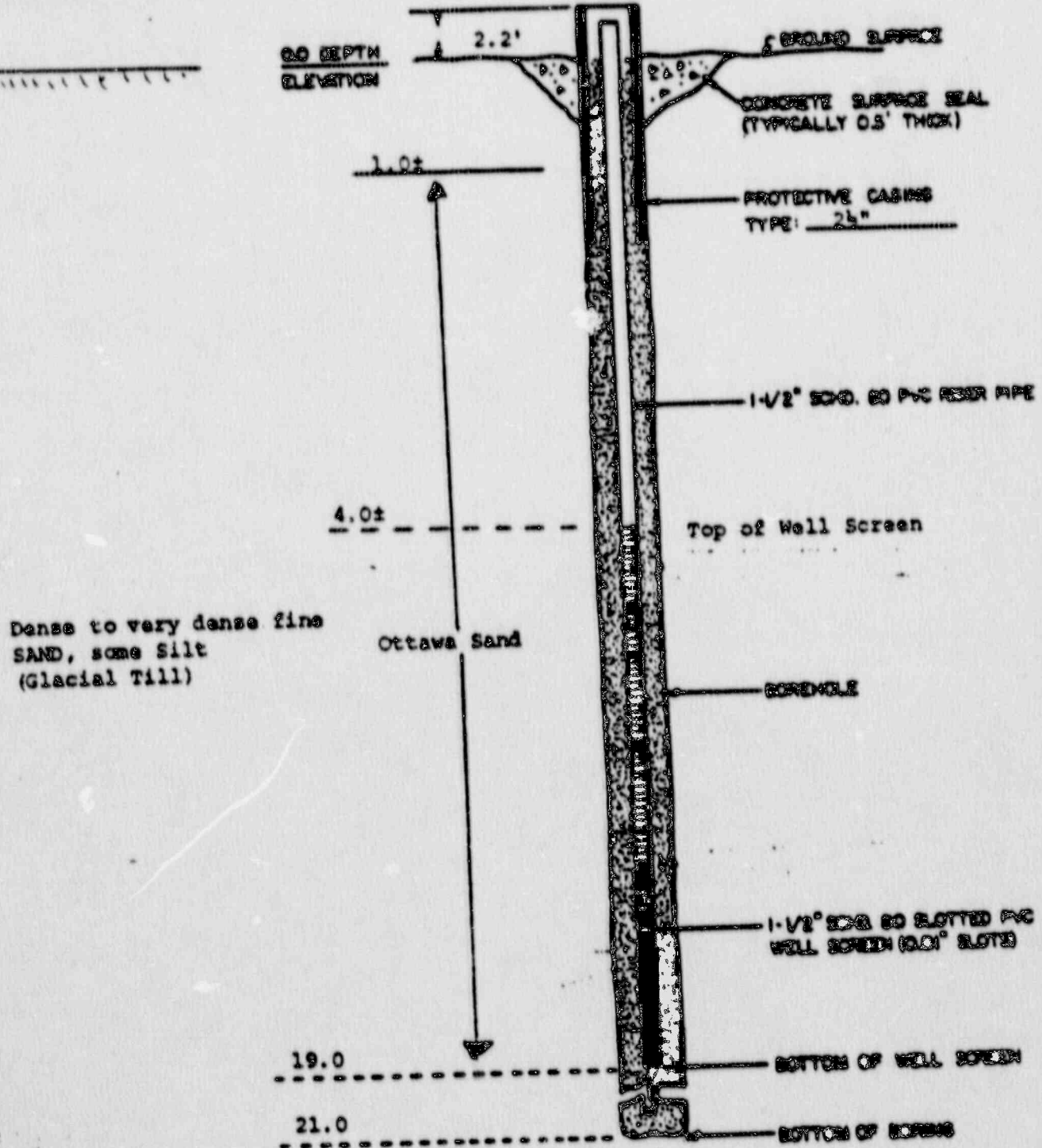
FIGURE No. 6

WELL No. WGE-7
 BORING No. BCE-7
 FILE No. A-3736

DATE INSTALLED 10/31/83
 PROJECT WYMAN-GORDON
 GZA ENGINEER P. CLARK
 WEATHER CONDITIONS 50's, clear
 REMARKS see attached boring log

LOCATION NORTH GRAFTON, MASSACHUSETTS
 CONTRACTOR GUILD DRILLING CO.
 DRILLER A. Whitaker

SUMMARY OF SUBSURFACE CONDITIONS



Dense to very dense fine SAND, some Silt (Glacial Till)

Ottawa Sand

DEPTH/ELEVATION BOTTOM OF BORING 21.0 / _____
 DEPTH/ELEVATION BOTTOM OF WELL POINT 19.0 / _____



GZA ENGINEERING & ASSOCIATES, INC.
 GEOTECHNICAL/GEOPHYSICAL CONSULTANTS

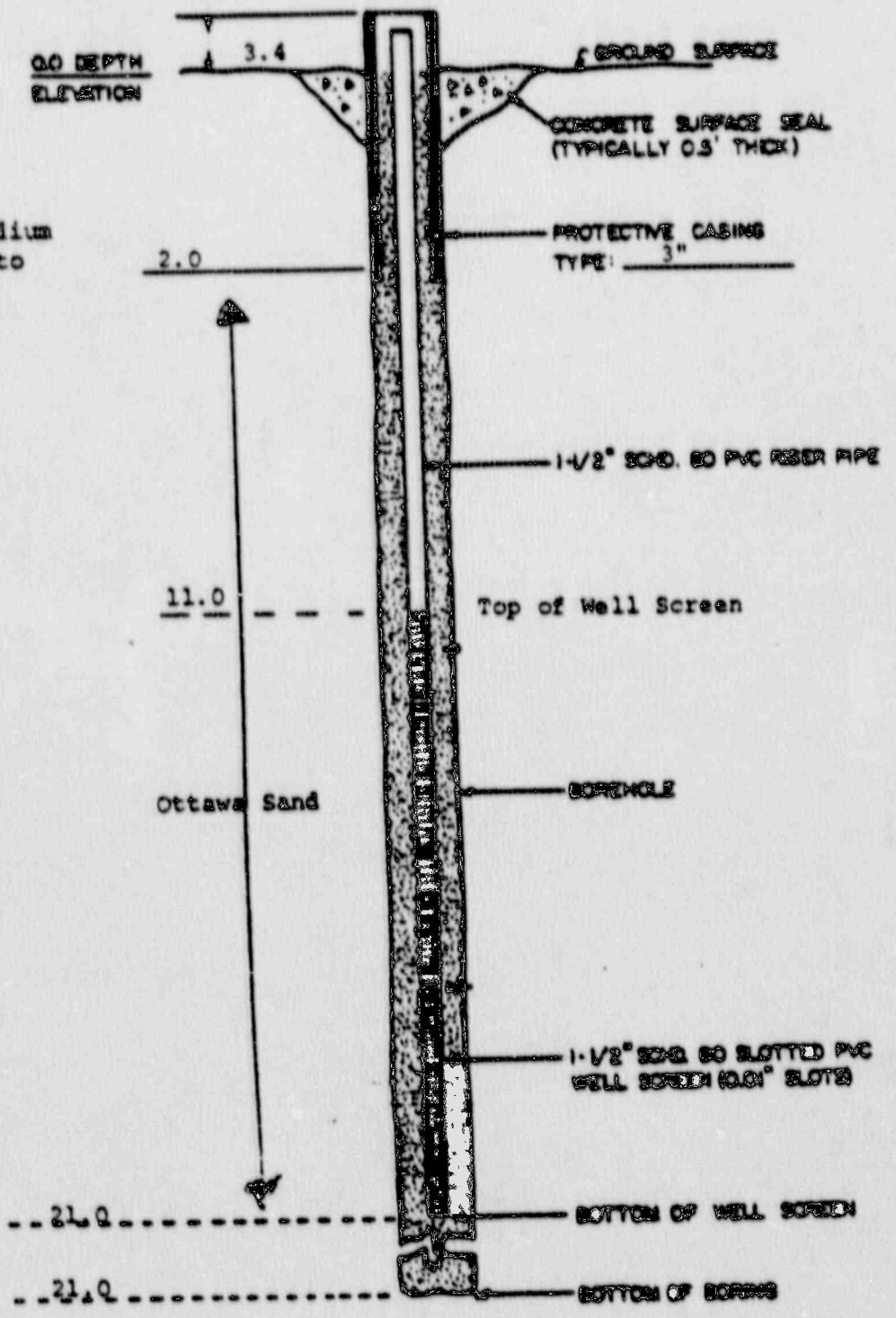
WELL No. WGE-8
 BORING No. WGE-8
 FILE No. A-3736

DATE INSTALLED 11/1/83
 PROJECT WOMAN-GORDON
 GZA ENGINEER S. HANNA
 WEATHER CONDITIONS 50's, SUNNY
 REMARKS See attached boring log

LOCATION NORTH GRAFTON, MASSACHUSETTS
 CONTRACTOR GUILD DRILLING CO.
 DRILLER A. Whitaker

SUMMARY OF SUBSURFACE CONDITIONS

Very dense fine to medium SAND and SILT, trace to little fine Gravel (Glacial Till)



NOTE: SEE TO CASE

DEPTH/ELEVATION BOTTOM OF BORING 21.0 /
 DEPTH/ELEVATION BOTTOM OF WELL POINT 21.0 /



GOLDBERG-ROBIN & ASSOCIATES, INC.
 GEOTECHNICAL-GEOPHYSCIOLOGICAL CONSULTANTS

J. DEBERG-ZOINO & ASSOCIATES, INC.
320 NEEDHAM ST., NEWTON UPPER FALLS, MA.

PROJECT

REPORT OF BORING No. WCE-7

GEOTECHNICAL/GEDHYDROLOGICAL CONSULTANTS

NYMAN-CORDON
NORTH CRAFTON, MASSACHUSETTS

SHEET 1 OF 1
FILE No. A-3736
CHKD. BY _____

BORING Co. Guild Drilling Company
FOREMAN A. Whittaker
GZA ENGINEER F. Clark

BORING LOCATION See location plan
GROUND SURFACE ELEVATION _____ DATUM _____
DATE START 10/31/83 DATE END 10/31/83

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 LB. HAMMER FALLING 30 IN.
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING 300 LB. HAMMER FALLING 24 IN.

GROUNDWATER READINGS			
DATE	TIME	DEPTH AT	STABILIZATION TIME
10/31		OW	1/4 hr.
10/31		OW	bailed well

CASING SIZE: _____ OTHER: _____

DEPTH (ft)	CASING (in/ft)	SAMPLE			SAMPLE DESCRIPTION	STRATUM DESCRIPTION	FIELD TESTING	
		No.	PER MIN	DEPTH (ft)			BLOWS/6"	CONDUCTIVITY
1	S-1	24/20	0-2	3-4-6-5	Loose brown loamy fine to medium SAND, trace Gravel, little Silt	LOAMY SAND 2'	24	5.7
4								
13								
27								
31	S-2	24/24	4-6	9-10-11-12	Medium dense brown fine SAND, trace fine Gravel, trace Silt	FINE SAND	33	5.9
46								
54								
51								
49								
15	S-3	24/20	9-11	23-19-23	Dense gray brown fine SAND, some (-) Silt, trace fine Gravel		34	6.3
27				-22				
35								
47								
58								
15	S-4	24/	14-16	28-30-31	Very dense gray brown fine SAND, some (-) Silt, little to some fine Gravel	2 GLACIAL TILL	41	6.9
				-37				
20	S-5	24/20	19-21	37-49-46	Very dense gray fine SAND, some Silt, little to some fine to coarse Gravel	3	34	6.8
				-81				
					Bottom of boring at 21.0 feet			

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY
0-4	V. LOOSE	< 2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
> 50	V. DENSE	15-30	V. STIFF
		> 30	HARD

REMARKS:

- Refer to test for description of field pH and conductivity testing procedures. Conductivity reported in umhos/cm at 25°C.
- Driller notes some cobbles/boulders encountered while drilling.
- Installed 1 1/2" PVC observation well, screened 4-19 ft.

GZA NOTES: 1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING No. WCE-7

GOLDBERG-ZOINO & ASSOCIATES, INC.
320 NEEDHAM ST, NEWTON UPPER FALLS, MA.

PROJECT
WYMAN-GORDON
NORTH GRAFTON, MASSACHUSETTS

REPORT OF BORING No. WGE-8
SHEET 1 OF 1
FILE No. A-3736
CHKD. BY _____

GEOTECHNICAL/GEOHYDROLOGICAL CONSULTANTS
BORING Co. Gullia Drilling Co.
FOREMAN A. Whitaker
GZA ENGINEER C. Hanna

BORING LOCATION See location plan
GROUND SURFACE ELEVATION _____ DATUM _____
DATE START 11/1/83 DATE END 11/1/83

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A
MOB HAMMER FALLING 30 IN.

CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING 300 LB. HAMMER FALLING 24 IN.

CASING SIZE: _____ OTHER: _____

GROUNDWATER READINGS

DATE	TIME	WATER AT	WATER AT	STABILIZATION TIME
11/1		13.2	15	20 mins.
11/1		13.2	OUT (RW)	CRMP.

DEPTH (ft)	CASING (in/ft)	SAMPLE			SAMPLE DESCRIPTION	STRATUM DESCRIPTION	FIELD TESTING		
		No.	REN. IN. REC.	DEPTH (ft)			BLOWS/ft	CLASSIFICATION	CONDUCTIVITY
5									
37									
64									
81	S-1	24/20	3-5	15-28-31-37	Very dense brown gray fine to medium SAND, little to some Silt, little fine to coarse Gravel	2	CLACIAL TILL	45	7.4
97									
127									
215									
310									
165	S-2	12/17	8-9	30-83	Very dense brown gray fine to medium SAND, some Silt, trace fine Gravel	3		36	7.2
71									
137									
215									
312									
416									
161	S-3	12/12	14-15	72-100	Very dense gray brown fine to medium SAND and SILT, little (-) fine to coarse Gravel			49	6.7
160									
159									
210									
249									
20	S-4	24/24	19-21	18-14-19-20	Dense gray brown fine to medium SAND and SILT, little (-) fine to coarse Gravel	4	21'	60	6.9
					Bottom of boring at 21.0 feet				
25									

GRANULAR SOILS		COHESIVE SOILS		REMARKS:
BLOWS/FT	DENSITY	BLOWS/FT	DENSITY	
0-4	V. LOOSE	< 2	V. SOFT	1) Refer to text for description of field pH and conductivity testing procedures. Conductivity reported in umhos/cm at 25°C. 2) Driller ahead of casing. 3) Driller notes cobbles. 4) Installed 1 1/2" PVC observation well, screened 11-21 feet, Ottawa sand 2-21 feet cement surface seal.
4-10	LOOSE	2-4	SOFT	
10-30	M. DENSE	4-8	M. STIFF	
30-60	DENSE	8-15	STIFF	
> 60	V. DENSE	15-30	V. STIFF	
> 90		> 30	HARD	

GZA NOTES: 1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
 2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THE BORING LOGS. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.
 BORING No. WGE-8