M67001.AR.004456
MCB CAMP LEJEUNE
5090.3a

Baker

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

(412) 269-6000
FAX (412) 269-2002

June 28, 1995
(Revised)

Commander
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street (Bldg. N-26)
Norfolk, VA 23511-2699

Attention: Ms. Linda Saksvig
Code 18231

Subject: Contract N62470-89-D-4814
Navy Clean, District III
Contract Task Order (CTO) 0312
Operable Unit No. 9 (Sites 65 and 73)
Pump Test - Site 73
MCB, Camp Lejeune, North Carolina

Dear Ms. Saksvig:

Baker Environmental, Inc. (Baker) is submitting the enclosed information as background for the planned telephone conference call on July 5, 1995.

Based upon previous investigations at Site 73, which are summarized in the RI/FS Work Plan, Baker anticipated that the shallow geology would be "primarily loose to dense, fine- to coarse- grained sand with some clay and traces of silt." The depth of this sand layer was expected to extend 30 to 40 feet below ground surface (bgs). Below the shallow sand unit, a sand/silty sand marker layer was encountered during previous investigations. This marker layer was at the top of the Castle Hayne Aquifer. Borings drilled in the western half of Site 73 during the remedial investigation in 1995 generally intercepted a clay layer at 10 to 17 feet bgs. Deeper borings, which cased off the shallow aquifer, indicated that a five to twelve foot thick clay layer separates the shallow aquifer into upper and lower portions. The marker layer at the top of the Castle Hayne does not indicate a lithology which would have confining/semi-confining properties. Groundwater elevations, as shown on the cross-sections, for the intermediate and deep wells are generally the same. Trichloroethene (TCE) was detected in the deeper wells, indicating that the marker layer is not inhibiting vertical migration from the shallow to deeper zones.

Preliminary cross-sections showing subsurface lithologies are enclosed. Only elevation survey data for the wells was received on June 20, 1995, so the cross-sections are very preliminary until we receive surveyed coordinates and have completed our quality control process.

As a result of finding this clay layer, five additional monitoring wells have been installed with screened intervals between the top of the Castle Hayne marker layer and the bottom of the clay layer. In this letter, these wells are identified as intermediate wells (MW-xxB) and wells screened in the Castle Hayne are identified as deep wells (DW-xx). Intermediate wells are located at MW-01B, MW-02B, MW-06B, MW-11B, and MW-15B. Deep wells installed during the RI were DW-01, DW-02, DW-03, DW-04, and DW-05.

Comments on the RI/FS Work Plan expressed LANTDIV's interest in obtaining pump test results during the RI process. Baker submitted a modification request to LANTDIV on April 13, 1995, to perform a pump test on the shallow aquifer. The letter identifies a central area of Site 73 as a possible location for the pump test. A central location was originally thought to be most representative, until the edge of the clay layer was found to run through the central portion of the site. Because of this new geologic finding and the nearly constant activity of amphibious vehicles in the central portion of the site, Baker considered other possible locations. Wells along the western edge of the site did not produce much water during development. The field logs for MW-26 and MW-11 show that they are in a geology that is typical of the western portion of the site. MW-11 produced three to five gallons per minute of water for two hours during development with little drop in piezometric elevation. Also the area around MW-11 is more easily accessed and has adequate space to perform the pump test without interfering with the nearby military activities. The above information was transmitted to Mr. William Mullen in a letter, dated May 5, 1995, and several telephone discussions were held concerning the preferred location of the pump test well. To minimize drilling costs, a recovery well was installed near MW-11 on May 6, 1995. On May 8, 1995, Mr. Mullen notified Baker to delay the pump test until additional chemical analytical data is available.

Several tables and figures are attached to this letter as follows:

- Table 1 - Groundwater Levels
- Table 2 - Summary of TPH in Soil Results
- Figure 1 - RI Sampling Locations and Cross Section Map
- Figure 2 - Cross Section A-A'
- Figure 3 - Cross Section B-B'
- Figure 4 - Cross Section C-C'
- Figure 5 - TPH and Oil and Grease Concentrations in Soil
- Figure 6 - TCE Concentrations in Groundwater

The enclosed figures provide a very preliminary perspective on the geology and contaminant locations at Site 73 - Court House Bay. As can be seen from this data, there is petroleum hydrocarbon contamination in the shallow soils throughout most of the site. There is also trichloroethylene in the groundwater in an elongated north-south area at concentrations that increase with depth.

Baker personnel would like to discuss this data with LANTDIV and Activity personnel as part of a conference call planned for July 5, 1995, at 2 p.m., so that a pump test may still be performed during July.

Baker appreciates the opportunity to serve LANTDIV on this project. If there are questions or comments, please call me at (219) 736-0263 or Mr. Matthew Bartman at (412) 269-2053.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Malcolm Petroccia
Project Manager

MWP/lq

Enclosures

cc: Mr. William Mullen, P.G. (w/ attachments)
Mr. Neal Paul, MCB, Camp Lejeune (w/ attachments)
Mr. Patrick Watters, NC DEHNR (w/ attachments)
Ms. Gena Townsend, US EPA (w/ attachments)
Mr. Jim Dunn, OHM (w/ attachments)

TABLE 2
SUMMARY OF TPH SOIL SAMPLE RESULTS
SITE 73
REMEDIAL INVESTIGATION, CTO-0312

Sample ID	Date Shipped	Turnaround Time (days)	TPH LBP (gasoline)	TPH HBP (diesel)	TPH Motor Oil	Oil & Grease
73-AC2-MW22-00	4/7/95		12 U	126 +	130 +	
73-AC3-MW02-00	4/8/95		11 U	11 +		540 U
73-AC3-MW02-01	4/8/95		12 U	12 U		580 U
73-AC3-MW03-00	4/8/95		12 U	12 U		610 U
73-AC3-MW03-01	4/8/95		11 U	20 +	110 +	570 U
73-AC3-MW03-01D	4/8/95		11 U	19 +		560 U
73-AC3-MW23-00	4/6/95		13 U	17 +		600 U
73-AC3-MW23-01	4/6/95		13 U	13 U		630 U
73-AC3-SB01-00	4/18/95	7	11 U	61 +		2700 +
73-AC3-SB01-01	4/18/95	7	13 U	710		2000 +
73-AC4-MW18-00	4/5/95		14 U	94 +		720 U
73-AC4-MW18-00D	4/5/95		14 U	87 +		720 U
73-AC4-MW19-00	4/5/95		12 U	19 +	160 +	620 U
73-AC4-MW19-02	4/5/95		12 U	12 U		620 U
73-AC4-MW24-00	4/5/95		15 U	23 +		760 U
73-AC4-MW24-01	4/5/95		14 U	13 U		650 U
73-AC4-SB13-00	4/10/95		11 U	11 U		540 U
73-AC4-SB13-01	4/10/95		11 U	11 U	27 +	550 U
73-AC4-SB13-01D	4/10/95		11 U	11 U		560 U
73-AC4-SB14-00	4/10/95		14 U	14 U		710 U
73-AC4-SB14-01	4/10/95		12 U	12 U		600 U
73-AC5-MW20-00	4/10/95		18 U	58 +	150 +	1600 +
73-AC5-MW20-00D	4/10/95		18 U	60 +		1800 +
73-AC5-MW21-00	4/6/95		11 U	11 U		540 U
73-AC5-MW21-03	4/6/95		11 U	15 U		730 U
73-AC5-SB08-00	4/10/95		11 U	11 U		540 U
73-AC5-SB08-01	4/10/95		11 U	11 U		570 U
73-AC5-SB09-00	4/20/95	7	12 U	15 +		600 U
73-AC5-SB09-00D	4/20/95		10 U	22 +		520 U
73-AC5-SB10-00	4/20/95	7	11 U	22 +		580 U
73-AC5-SB10-03	4/20/95	7	12 U	15 +		620 U
73-AC5-SB11-00	4/10/95		11 U	11 U		500 U
73-AC5-SB11-02	4/10/95		12 U	12 U		600 U
73-AC5-SB12-00	4/10/95		12 U	12 U		610 U
73-AC5-SB12-01	4/10/95		12 U	12 U		600 U
73-AC6-SB07-00	4/24/95	7	11 U	93		730 +
73-AC6-SB07-00D	4/24/95	7	11 U	89		820 +
73-AC6-SB07-01	4/24/95	7	11 U	1900		6800 +
73-BB-DW01-00	4/10/95					
73-BB-DW01-01	4/10/95					

LBP - Low Boiling Point
HBP - High Boiling Point
All units are in mg/KG (milligram per kilogram)

TABLE 2
SUMMARY OF TPH SOIL SAMPLE RESULTS
SITE 73
REMEDIAL INVESTIGATION, CTO-0312

Sample ID	Date Shipped	Turnaround Time (days)	TPH LBP (gasoline)	TPH HBP (diesel)	TPH Motor Oil	Oil & Grease
73-AC1-DW03-00	4/24/95	7	11 U	190		1100 +
73-AC1-DW03-00D	4/24/95	7	11 U	180		1200 +
73-AC1-DW03-01	4/24/95	7	11 U	110		860 +
73-AC1-DW04-00	4/20/95	7	11 U	17 +		560 U
73-AC1-MW04-00	4/20/95	7	11 U	11 U		530 U
73-AC1-MW04-01	4/20/95	7	12 U	12 U		600 U
73-AC1-MW04-01D	4/20/95	7	11 U	11 U		570 U
73-AC1-MW08-00	4/20/95	7	11 U	81 +		
73-AC1-MW08-01	4/20/95	7	12 U	12 U		
73-AC1-MW09-00	4/20/95	7	11 U	11 U		
73-AC1-MW09-00D	4/20/95	7				
73-AC1-MW10-00	4/20/95	7	11 U	11 U		540 U
73-AC1-MW10-01	4/20/95	7	11 U	11 U		540 U
73-AC1-MW11-00	4/10/95		12 U	21 +		
73-AC1-MW11-01	4/18/95	7	12 U	12 U		
73-AC1-MW14-00	4/22/95	7	11 U	1400		2900 +
73-AC1-MW14-01	4/26/95	7				
73-AC1-MW14-02	4/22/95	7	11 U	650		3800 +
73-AC1-MW15IW-01	4/22/95	7	11 U	180		1100 +
73-AC1-MW15IW-01D	4/22/95	7	11 U	170		800 +
73-AC1-MW16-00	4/24/95	7	12 U	12 U		
73-AC1-MW17-00	4/22/95	7	11 U	71		
73-AC1-MW25-00	4/20/95	7	12 U	12 U		
73-AC1-MW25-01	4/20/95	7	12 U	12 U		
73-AC1-MW26-00	4/10/95		10 U	10 U		
73-AC1-MW26-01	4/18/95	7	11 U	720		
73-AC1-MW27-00	4/24/95	7	11 U	14		
73-AC1-MW27-02	4/24/95	7	12 U	12 U		
73-AC1-MW27-02D	4/24/95	7	12 U	12 U		
73-AC1-MW28-00	4/20/95	7	10 U	190		7200 +
73-AC1-MW28-01	4/20/95	7	11 U	1000		13800 +
73-AC1-MW29-00	4/25/95	7	11 U	11 U		560 U
73-AC1-SB02-00	4/20/95	7	16 +	10 U		
73-AC1-SB02-01	4/20/95	7	12 U	12 U		
73-AC1-SB03-00	4/20/95	7	11 U	17 +		560 U
73-AC1-SB03-01	4/20/95	7	11 U	11 U		4060 +
73-AC1-SB04-00	4/24/95	7	11 U	11 U		1100 U
73-AC1-SB04-01	4/24/95	7	12 U	38		570 U
73-AC1-SB04-01D	4/24/95	7	12 U	20		590 U
73-AC1-SB05-00	4/24/95	7	13 U	22		640 U
73-AC1-SB05-01	4/24/95	7	11 U	23		570 U
73-AC1-SB06-00	4/24/95	7	11 U	26		550 U
73-AC1-SB06-01	4/24/95	7	11 U	21		970 +
73-AC2-MW05-00	4/8/95		12 U	12 U		
73-AC2-MW05-01	4/8/95		11 U	11 U		
73-AC2-MW05-01D	4/8/95		11 U	11 U		
73-AC2-MW06-00	4/7/95		10 U	13 +		
73-AC2-MW06-01	4/7/95		10 U	32 +	250 +	
73-AC2-MW06-01	4/7/95					
73-AC2-MW07-00	4/6/95		12 U	12 U		
73-AC2-MW07-03	4/6/95		11 U	11 U		

LBP - Low Boiling Point
HBP - High Boiling Point
All units are in mg/KG (milligram per kilogram)

TABLE 1
GROUNDWATER LEVELS
SITE 73
REMEDIAL INVESTIGATION, CT0-0312

Well Number	ROUND 1					ROUND 2					Elevation Difference (ft)
	Date	Time	Water Depth Below PVC (ft)	Water Elevation (msl)	Tide	Date	Time	Water Depth Below PVC (ft)	Water Elevation (msl)	Tide	
73-DW04	5/9/95	0828	2.66	**2.02**	m	5/20/95	1659	2.42	**2.26**	m	0.24
73-DW05	5/9/95	0834	4.95	**2.37**	m	5/21/95	1731	3.64	**3.68**	m	1.31
Exisitng Wells											
73-GW2	5/9/95	0814	5.96	**7.17**	m	5/20/95	1537	5.32	**7.81**	m	0.64
73-GW3	-	-	-	-	-	5/21/95	1500	7.12	**3.92**	h	-
73-GW5	5/9/95	0741	5.92	**4.33**	m	5/20/95	1626	5.24	**5.01**	m	0.68
MW-8	5/9/95	0838	8.22	**4.76**	l	5/21/95	1617	7.06	**5.92**	m	1.16
MW-9	5/9/95	0847	5.95	**8.97**	l	5/20/95	1605	5.97	**8.95**	m	-0.02
MW-13	5/9/95	0845	5.02	**7.35**	l	5/21/95	1633	4.82	**7.55**	m	0.2
MW16	5/9/95	0840	7.21	**4.94**	l	–	–	-	–	–	–
MW-18	5/9/95	0842	8.26	**5.92**	l	5/21/95	1623	7.56	**6.62**	m	0.7
DW-2	5/9/95	0844	12.78	**5.22**	l	5/21/95	1627	12.45	**5.55**	m	0.33
A47/3-8	5/9/95	0930	4.26	**2.61**	l	5/21/95	1546	4.33	**2.54**	m	-0.07
A47/3-9	5/9/95	0925	4	**3.15**	l	5/21/95	1556	4.04	**3.11**	m	-0.04
A47/3-11	5/9/95	0830	6.76	**1.34**	m	5/21/95	1510	5.99	**2.11**	h	0.77
A47/3-13	5/9/95	0933	5.02	**3.52**	l	-	-	-	-	-	-
A47/3-16	5/9/95	0833	5.97	**1.78**	m	5/21/95	1515	5.44	**2.31**	h	0.53
A47/3-22	5/9/95	0832	8	**2.45**	m	5/21/95	1518	7.53	**2.92**	h	0.47

Published Tide Table for Morehead, NC

Date	High Tides		Low Tides	
5/9/95	0318	1554	0936	2212
5/20/95	0056	1332	0719	1939
5/21/95	0157	1435	0816	2046
5/22/95	0259	1536	0913	2151

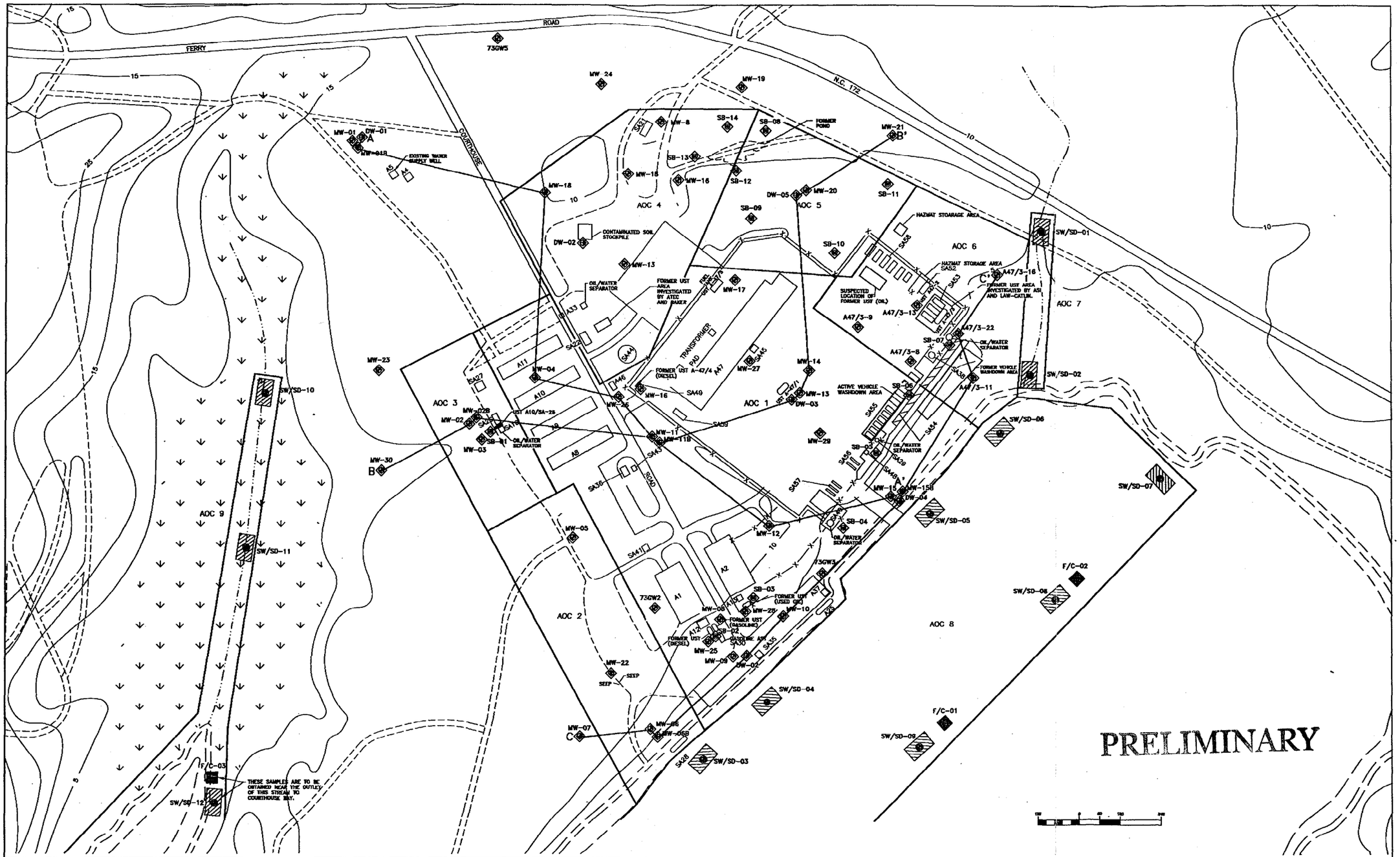
(-10 minute time difference for New River Inlet)

l = Within 1 Hour of Low Tide
m = 1 to 3 Hours from Either Low or High Tide
h = Within 1 Hour of High Tide
NS = Not Surveyed

TABLE 1
GROUNDWATER LEVELS
SITE 73
REMEDIAL INVESTIGATION, CT0-0312

Well Number	ROUND 1					ROUND 2					Elevation Difference (ft)
	Date	Time	Water Depth Below PVC (ft)	Water Elevation (msl)	Tide	Date	Time	Water Depth Below PVC (ft)	Water Elevation (msl)	Tide	
Shallow Wells - New											
73-MW01	5/9/95	0747	6.98	**8.37**	m	5/20/95	1639	6.96	**8.39**	m	0.02
73-MW02	5/9/95	0802	5.66	**9**	m	5/20/95	1612	5.72	**8.94**	m	-0.06
73-MW03	-	-	-	-	-	5/20/95	1609	4.54	**11.79**	m	-
73-MW04	5/9/95	0849	3.46	**9.4**	l	5/20/95	1601	3.34	**9.52**	m	0.12
73-MW05	5/9/95	0803	6.89	**8.89**	m	5/20/95	1515	6.47	**9.31**	m	0.42
73-MW06	5/9/95	0811	6.62	**0.7**	m	5/20/95	1507	6.24	**1.08**	m	0.38
73-MW07	5/9/95	0808	9.05	**4.89**	m	5/20/95	1504	8.87	**5.07**	m	0.18
73-MW08	5/9/95	0821	5.45	**5.53**	m	5/20/95	1522	4.82	**6.16**	m	0.63
73-MW09	5/9/95	0819	3.43	**3.51**	m	5/20/95	1540	3.02	**3.92**	m	0.41
73-MW10	5/9/95	0824	2.71	**3.83**	m	5/20/95	1546	2.5	**4.04**	m	0.21
73-MW11	5/9/95	0853	5.2	**7.94**	l	5/20/95	1552	4.59	**8.55**	m	0.61
73-MW12	5/9/95	0856	4.47	**5.29**	l	5/21/95	1445	4.13	**5.63**	h	0.34
73-MW13	5/9/95	0915	3.64	**4.79**	l	5/20/95	1719	3.44	**4.99**	m	0.2
73-MW14	5/9/95	0938	3.96	**4.52**	l	5/20/95	1729	3.82	**4.66**	m	0.14
73-MW15	5/9/95	0826	3.68	**1.32**	m	5/20/95	1657	3.44	**1.56**	m	0.24
73-MW16	5/9/95	0902	3.26	**7.87**	l	5/20/95	1705	3.04	**8.09**	m	0.22
73-MW17	5/9/95	0904	6.01	**4.68**	l	5/20/95	1709	5.87	**4.82**	m	0.14
73-MW18	5/9/95	0743	5.25	**6.94**	m	5/21/95	1655	4.67	**7.52**	m	0.58
73-MW19	5/9/95	0836	7.84	**4.89**	l	5/21/95	1725	7.28	**5.45**	m	0.56
73-MW20	5/9/95	0834	4.18	**3.52**	m	-	-	-	-	-	-
73-MW21	5/9/95	0736	4.83	**2.43**	m	5/21/95	1711	4.24	**3.02**	m	0.59
73-MW22	5/9/95	0805	4.05	**6.06**	m	5/20/95	1500	3.56	**6.55**	m	0.49
73-MW23	5/9/95	0753	5.46	**6.21**	m	5/20/95	1619	4.59	**7.08**	m	0.87
73-MW24	5/9/95	0739	4.24	**2.35**	m	5/21/95	1704	3.45	**3.14**	m	0.79
73-MW25	5/9/95	0816	5.27	**5.82**	m	5/20/95	1534	4.5	**6.59**	m	0.77
73-MW26	5/9/95	0901	7.63	**8.41**	l	5/20/95	1558	7.39	**8.65**	m	0.24
73-MW27	5/9/95	0908	4.2	**5.3**	l	5/20/95	1713	4.05	**5.45**	m	0.15
73-MW28	5/9/95	0822	6.51	**5.44**	l	5/20/95	1519	5.98	**5.97**	m	0.53
73-MW29	5/9/95	0912	3.54	**NS**	l	-	-	-	-	-	-
73-MW30	5/9/95	0756	5.1	**4.03**	l	5/20/95	1614	3.8	**5.33**	m	1.3
Intermediate Wells - New											
73-MW01B	5/9/95	0749	13.34	**2.52**	l	5/20/95	1640	13.08	**2.78**	m	0.26
73-MW02B	5/9/95	0800	12.1	**2.29**	m	5/20/95	1611	11.86	**2.53**	m	0.24
73-MW06B	5/9/95	0810	5.09	**1.77**	m	5/20/95	1510	4.76	**2.1**	m	0.33
73-MW11B	5/9/95	0854	10.67	**2.54**	l	5/20/95	1553	10.44	**2.77**	m	0.23
73-MW15B	5/9/95	0827	2.72	**1.96**	m	5/20/95	1658	2.39	**2.29**	m	0.33
Deep Wells - New											
73-DW01	5/9/95	0751	13.43	**2.47**	m	5/20/95	1641	13.17	**2.73**	m	0.26
73-DW02	5/9/95	0818	5.68	**1.06**	m	5/20/95	1541	4.78	**1.96**	m	0.9
73-DW03	5/9/95	0916	5.98	**2.3**	l	5/20/95	1718	5.71	**2.57**	m	0.27

l = Within 1 Hour of Low Tide
m = 1 to 3 Hours from Either Low or High Tide
h = Within 1 Hour of High Tide
NS = Not Surveyed



LEGEND

- PROPOSED SURFACE WATER/SEDIMENT/BENTHIC SAMPLING LOCATION
- PROPOSED FISH AND CRAB SAMPLING LOCATION
- PROPOSED SHALLOW DEPTH (15 ft.) MONITORING WELL
- PROPOSED INTERMEDIATE DEPTH (40 ft.) MONITORING WELL
- PROPOSED DEEP DEPTH (80 ft.) MONITORING WELL
- PROPOSED SOIL BORING

DATE	JUNE 1995
SCALE	
DRAWN	REL
REVIEWED	DLB
S.O.#	62470-312-0000-09000
CADD#	312XSECT

NORTH

SITE 73
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

BAKER ENVIRONMENTAL, Inc.
Coraopolis, Pennsylvania

Baker
Baker Environmental, Inc.

RI SAMPLING LOCATIONS & CROSS SECTION LOCATION MAP

SCALE

DATE JUNE 1995

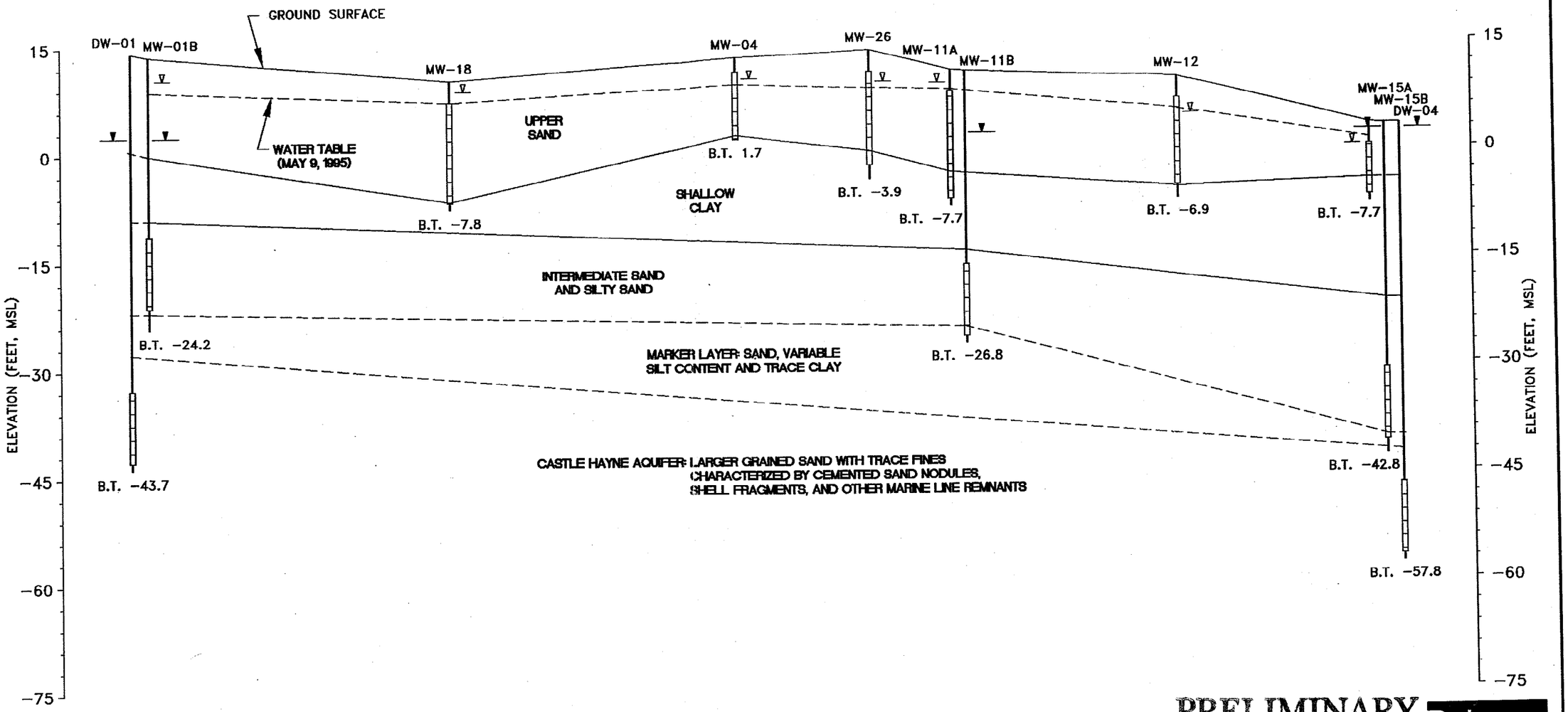
FIGURE No. 1

02426VB1Z

SEC-A

A
NORTHWEST

A'
SOUTHEAST



PRELIMINARY

Baker
Baker Environmental, Inc.

LEGEND

- GROUNDWATER ELEVATION (5/9/95)
- GROUNDWATER ENCOUNTERED DURING DRILLING
- B.T. -43.7 BORING TERMINATED, ELEVATION MSL
- WELL SCREEN INTERVAL
- ESTIMATED
- PROJECTED

200 0 100 200 400
Horizontal Scale: 1 inch = 200 ft.

15 0 7.5 15 30
Vertical Scale: 1 inch = 15 ft.

THE SOIL BORING INFORMATION IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. SUBSURFACE CONDITIONS INTERPOLATED BETWEEN BORINGS ARE ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND GEOLOGIC JUDGEMENT.

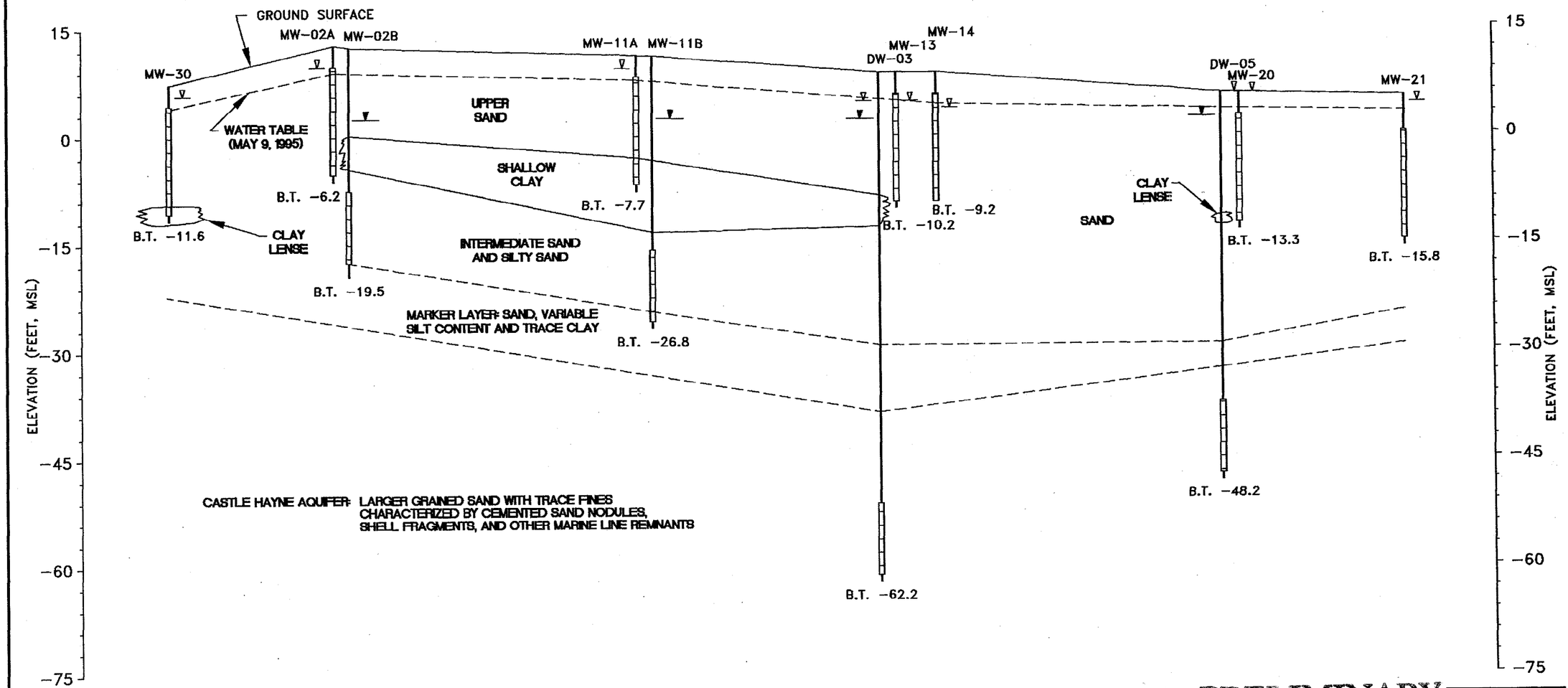
FIGURE 2
HYDROGEOLOGIC CROSS-SECTION A-A'
WITH SOIL AND GROUNDWATER ANALYTICAL RESULTS
SITE 73 -
REMEDIAL INVESTIGATION CTO-0312

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

SEC-B

B
WEST

B'
NORTHEAST



PRELIMINARY

Baker
Baker Environmental, Inc.

LEGEND

- GROUNDWATER ELEVATION (5/9/95)
- GROUNDWATER ENCOUNTERED DURING DRILLING
- B.T. -11.5 BORING TERMINATED, ELEVATION MSL
- WELL SCREEN INTERVAL
- ESTIMATED
- PROJECTED

190 0 95 190 380
Horizontal Scale: 1 inch = 190 ft.

15 0 7.5 15 30
Vertical Scale: 1 inch = 15 ft.

THE SOIL BORING INFORMATION IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. SUBSURFACE CONDITIONS INTERPOLATED BETWEEN BORINGS ARE ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND GEOLOGIC JUDGEMENT.

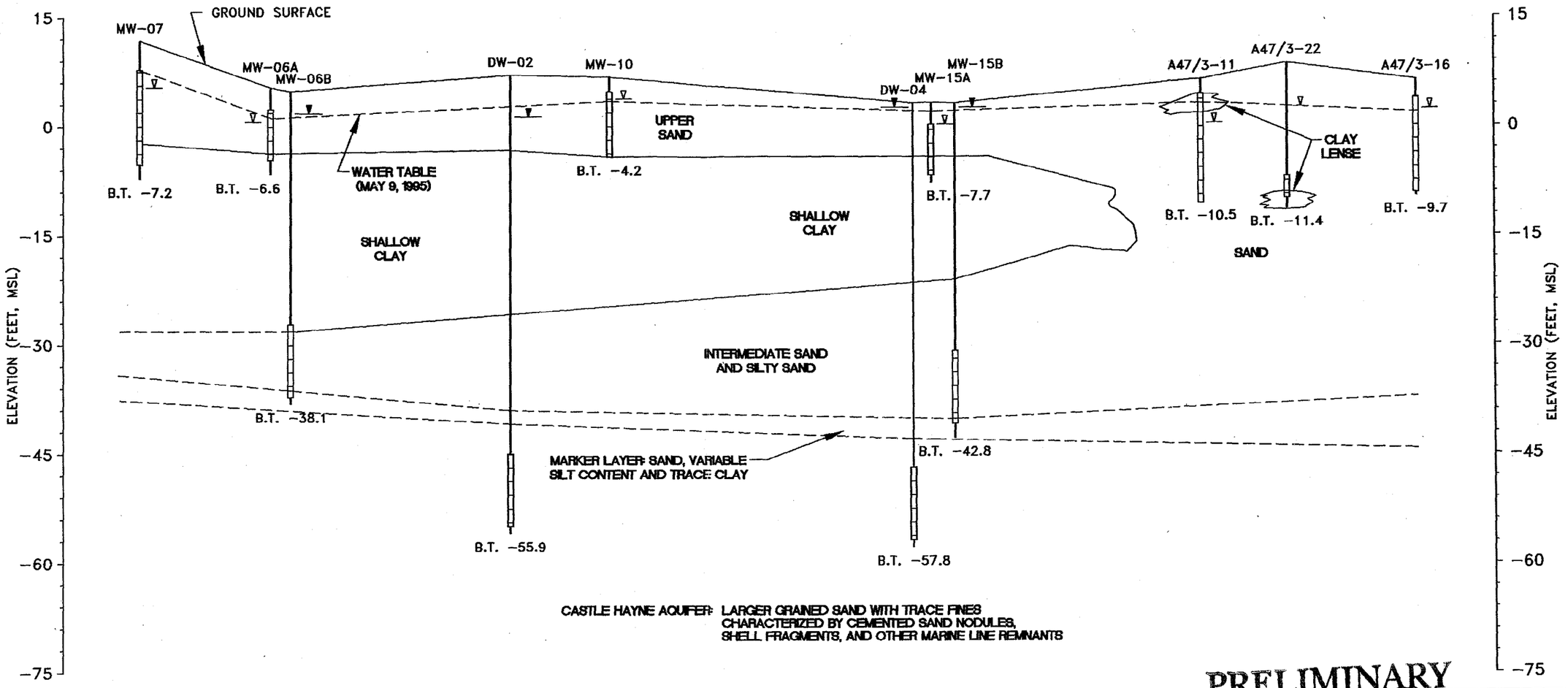
FIGURE 3
HYDROGEOLOGIC CROSS-SECTION B-B'
WITH SOIL AND GROUNDWATER ANALYTICAL RESULTS
SITE 73 -
REMEDIAL INVESTIGATION CTO-0312

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

SEC-C

C
SOUTH

C'
EAST



CASTLE HAYNE AQUIFER: LARGER GRAINED SAND WITH TRACE FINES CHARACTERIZED BY CEMENTED SAND NODULES, SHELL FRAGMENTS, AND OTHER MARINE LINE REMNANTS

PRELIMINARY

Baker
Baker Environmental, Inc.

LEGEND

- GROUNDWATER ELEVATION (5/9/95)
- GROUNDWATER ENCOUNTERED DURING DRILLING
- B.T. -7.2 BORING TERMINATED, ELEVATION MSL
- WELL SCREEN INTERVAL
- ESTIMATED
- PROJECTED

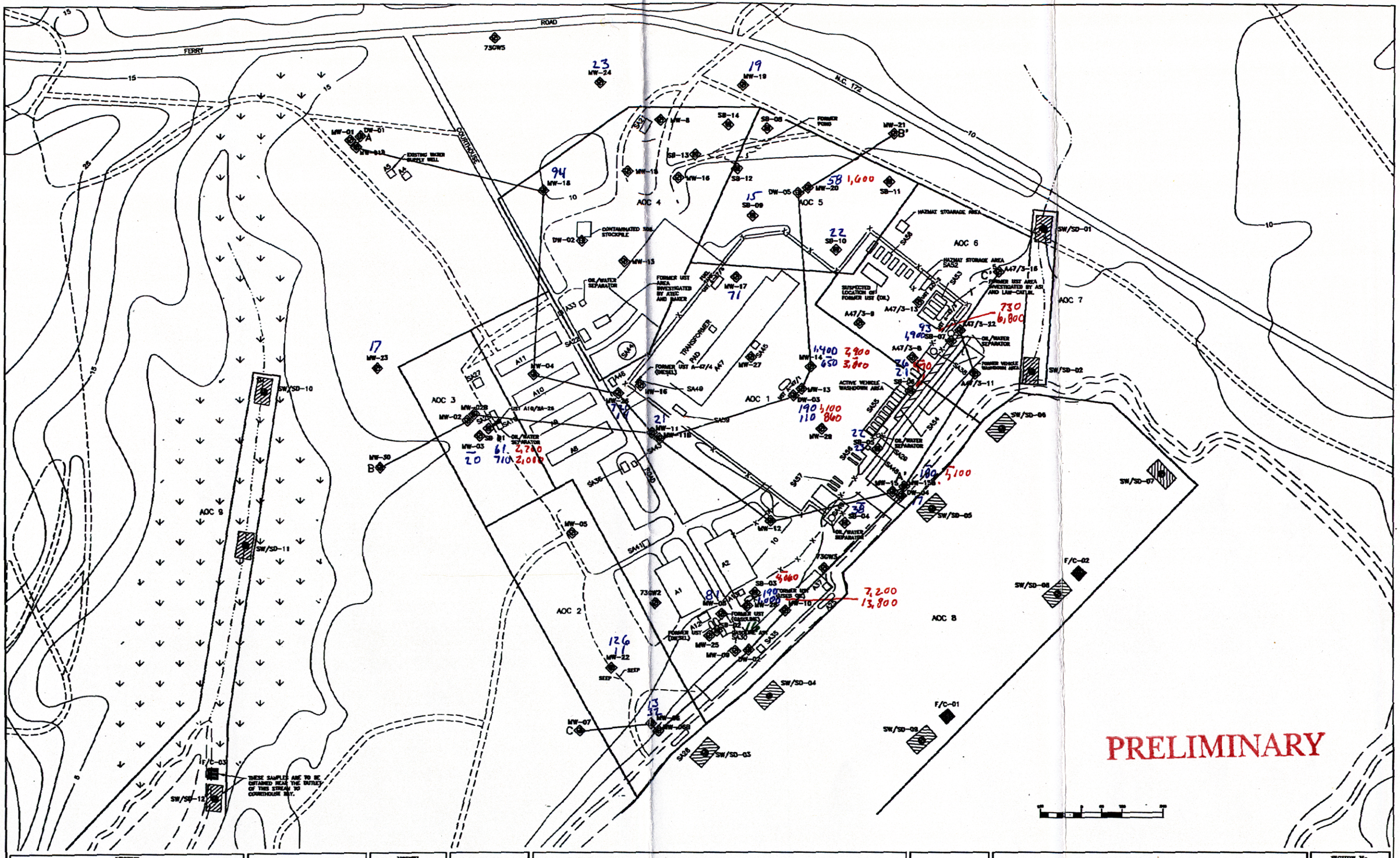
170 0 85 170 340
Horizontal Scale: 1 inch = 170 ft.

15 0 7.5 15 30
Vertical Scale: 1 inch = 15 ft.

THE SOIL BORING INFORMATION IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. SUBSURFACE CONDITIONS INTERPOLATED BETWEEN BORINGS ARE ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND GEOLOGIC JUDGEMENT.

FIGURE 4
HYDROGEOLOGIC CROSS-SECTION C-C'
WITH SOIL AND GROUNDWATER ANALYTICAL RESULTS
SITE 73 -
REMEDIAL INVESTIGATION CTO-0312

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA



LEGEND

- PROPOSED SURFACE WATER/SEDIMENT/BENTHIC SAMPLING LOCATION
- PROPOSED FISH AND CRAB SAMPLING LOCATION
- PROPOSED SHALLOW DEPTH (15 ft.) MONITORING WELL
- PROPOSED INTERMEDIATE DEPTH (40 ft.) MONITORING WELL
- PROPOSED DEEP DEPTH (80 ft.) MONITORING WELL
- PROPOSED SOIL BORING

DATE	JUNE 1995
SCALE	
DRAWN	REL
REVIEWED	DLB
S.O.#	62470-312-0000-09000
CADD#	312XSECT

NORTH

SITE 73
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

BAKER ENVIRONMENTAL, Inc.
Coraopolis, Pennsylvania

Baker
Baker Environmental, Inc.

RI SAMPLING LOCATIONS & CROSS SECTION LOCATION MAP

SCALE

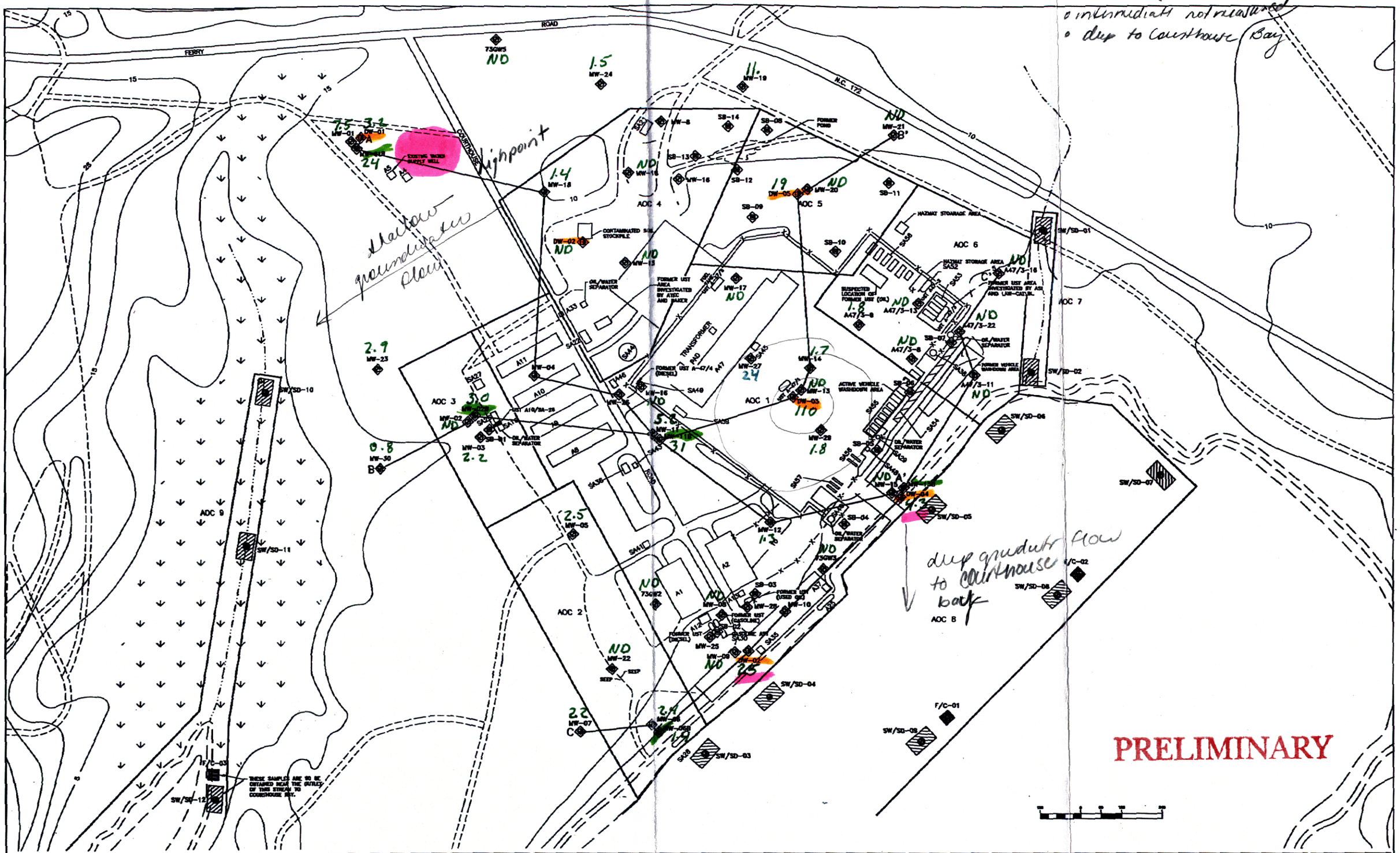
DATE JUNE 1995

FIGURE No. 5

TPH (gasoline range) is in green. TPH (diesel range) is in blue. Oil + Grease is in red. All concentrations are of soil in mg/kg.

02426VB2Y

- Radial Shallow groudtr flow
- intermediate not measured
- dup to Courthouse Bay



LEGEND
- PROPOSED SURFACE WATER/SEDIMENT/BENTHIC SAMPLING LOCATION
- PROPOSED FISH AND CRAB SAMPLING LOCATION
- PROPOSED SHALLOW DEPTH (15 ft.) MONITORING WELL
- PROPOSED INTERMEDIATE DEPTH (40 ft.) MONITORING WELL
- PROPOSED DEEP DEPTH (60 ft.) MONITORING WELL
- PROPOSED SOIL BORING

DATE	JUNE 1995
SCALE	
DRAWN	REL
REVIEWED	DLB
S.O.#	62470-312-0000-09000
CADD#	312CSECT

NORTH

SITE 73
MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

BAKER ENVIRONMENTAL, Inc.
Coraopolis, Pennsylvania

Baker
Baker Environmental, Inc.

RI SAMPLING LOCATIONS & CROSS SECTION LOCATION MAP

SCALE

DATE JUNE 1995

FIGURE No. 6

GW TCE Concentration (ppb) is in green.