ROUTE 93

ROUTE 128

UNIFIRST

W.R.GRACE

CUMMINGS PARK

FORMER LOCATION OF JOHNSON BROTHERS GREENHOUSES (WEST CUMMINGS PARK)

Olympia

NEP

FORMER DRUM DISPOSAL AREA

APPROXIMATE AREA WASTE DISPOSAL AT WILDWOOD

WILDWOOD

Former Location JJ Riley Tannery

SOUTHWEST PROPERTIES

0 100 200 400 600 800 Feet

All plotted data are maximum values

CONCENTRATION

High : 102000

Low : 600

INORGANIC SAMPLE SITES

SAMPLE SITES

WELLS G&H SITE BOUNDARY

WETLAND EXTENT

WELLS G&H

100 YEAR FLOODPLAIN

Date Range
1991 - 2002

N

Figure 19A
0 - 20 SULFATE
Groundwater Data
Wells G&H Superfund Site
OU-3
Woburn, MA

TRC

Boott Mills South
Foot of John Street
Lowell, MA 01852
(978)970-5600

TRC PROJ. NO.: 02136-0570-0146H

EPA CONTRACT NO.: 68-W6-0042

RAC SUBCONTRACT NO.: 107061

M&E Metcalf & Eddy

ROUTE 93

ROUTE 128

UNIFIRST

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CUMMINGS PARK

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FORMER LOCATION OF JOHNSON BROTHERS GREENHOUSES (WEST CUMMINGS PARK)

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FORMER DRUM DISPOSAL AREA

APPROXIMATE AREA OF WASTE DISPOSAL AT WILDWOOD

WILDWOOD

Former Location JJ Riley Tannery

SOUTHWEST PROPERTIES

0 100 200 400 600 800 Feet

All plotted data are maximum values

CONCENTRATION

High : 102000

Low : 600

INORGANIC SAMPLE SITES

SAMPLE SITES

WELLS G&H SITE BOUNDARY

WETLAND EXTENT

WELLS G&H

100 YEAR FLOODPLAIN

Date Range
1991 - 2002

N

Figure 19B
20 - 50 SULFATE
Groundwater Data
Wells G&H Superfund Site
OU-3
Woburn, MA

Metcalf & Eddy

TRC

Boott Mills South
Foot of John Street
Lowell, MA 01852
(978)970-5600

TRC PROJ. NO.: 02136-0570-0146H

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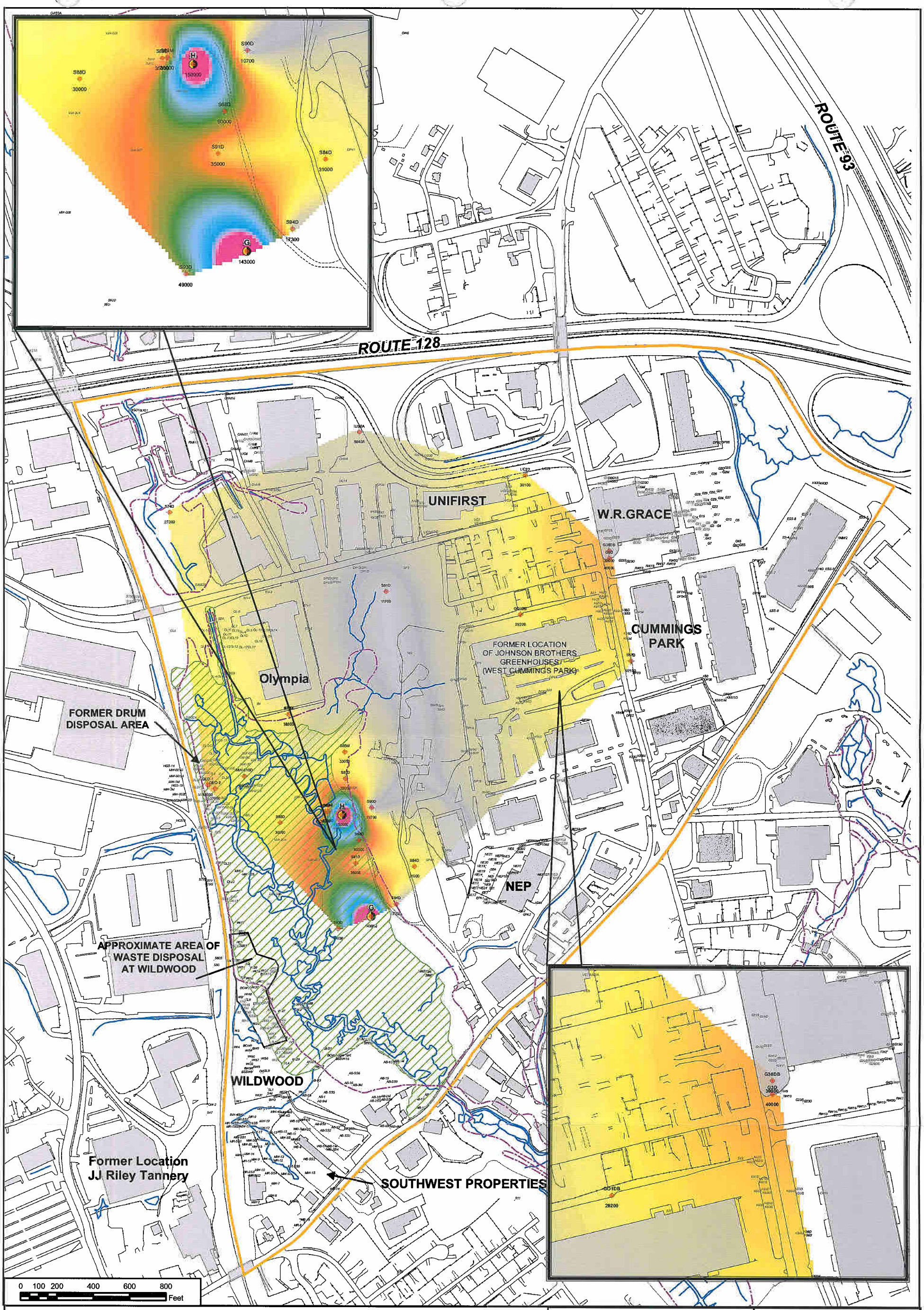
RAC SUBCONTRACT NO.: 107061



All plotted are maximum values

CONCENTRATION

High : 102000

Low : 600

- INORGANIC SAMPLE SITES
- SAMPLE SITES
- WELLS G&H SITE BOUNDARY
- WETLAND EXTENT
- WELLS G&H
- 100 YEAR FLOODPLAIN

Date Range
1991 - 2002

N

Figure 19C
>50 SULFATE
Groundwater Data
Wells G&H Superfund Site
OU-3
Woburn, MA

Metcalf & Eddy

TRC

Boott Mills South
Foot of John Street
Lowell, MA 01852
(978)970-5600

TRC PROJ. NO.: 02136-0570-0146H

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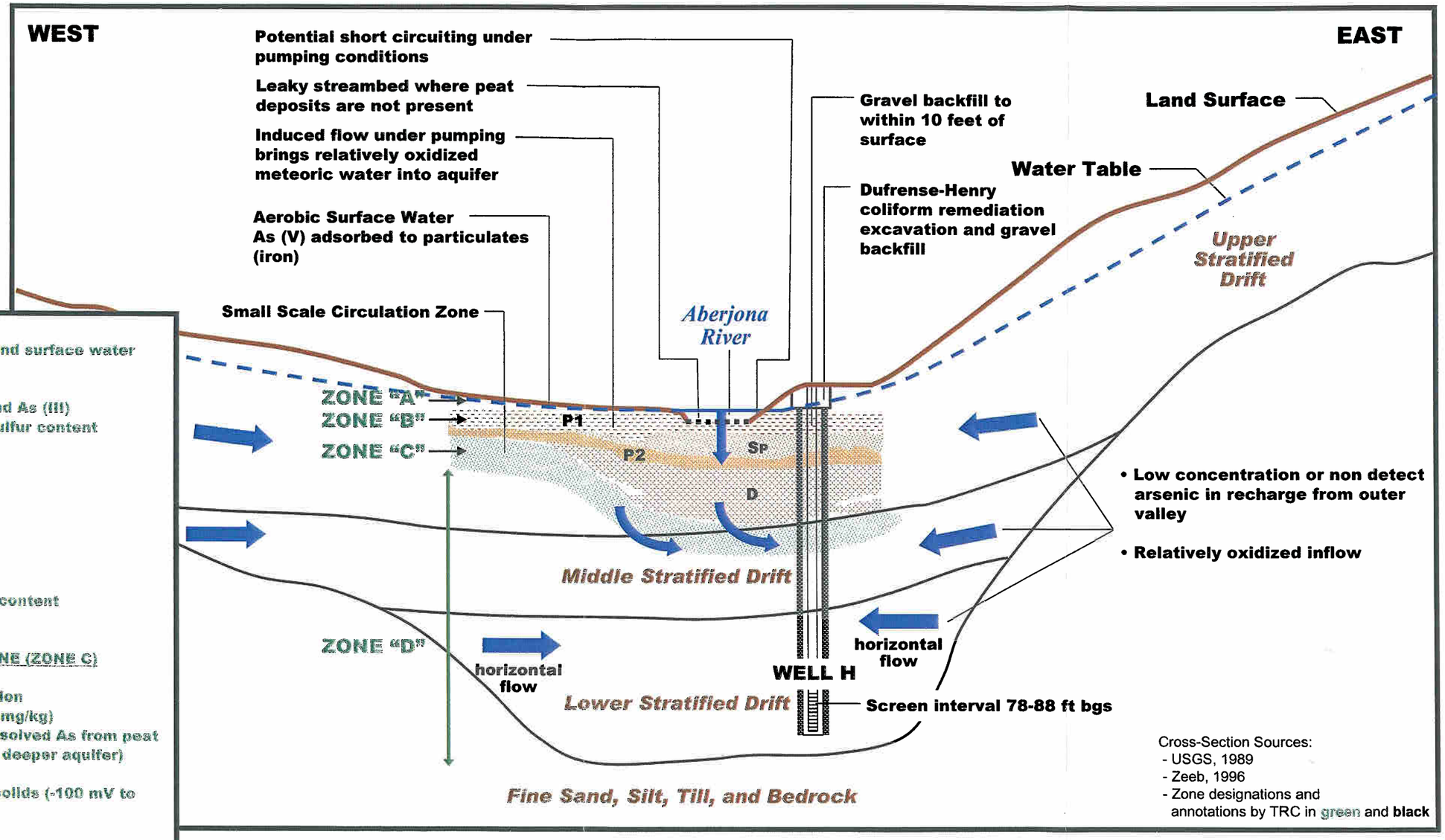
RAC SUBCONTRACT NO.: 107061



Cross-Section Sources:
- USGS, 1989
- Zeeb, 1996
- Zone designations and annotations by TRC in green and black

AEROBIC ZONE (ZONE A)
Upper 1-foot of peat sediments and surface water
- Aerobic conditions
- High microbial activities
- Equal predominance As (V) and As (III)
- High TOC, arsenic, iron and sulfur content
- Low hydraulic conductivity

REDUCTION ZONE (ZONE B)
1 foot to 5 feet bgs
- Highly reducing conditions
- High TOC (% levels)
- Highest microbial activities
- As (III) predominance
- High arsenic, iron, and sulfur content
- Low hydraulic conductivity

SMALL SCALE CIRCULATION ZONE (ZONE C)
- High iron concentration
- Relatively high As concentration
- Elevated TOC (2000 to 10000 mg/kg)
- Periodic influx of TOC and dissolved As from peat
- Elevated microbial activity (> deeper aquifer)
- Low sulfur content
- Eh-pH regime allows FeOOH solids (-100 mV to +400 mV)
- High hydraulic conductivity

MODERATELY REDUCING/LOW TOC ZONE (ZONE D)
- High Fe sand/gravel
- Moderate reducing conditions (-95mV to -150mV)
- Low concentration As
- Low TOC (130 to 430 mg/kg)
- Low microbial activity
- Eh-pH regime allows FeOOH solids
- Low sulfur content
- High hydraulic conductivity

LEGEND

	Direction of ground water flow
	Small scale circulation zone
P1	Peat 1
SP	Sand layers within peat and diatomaceous silt
P2	Peat 2
D	Diatomaceous silt

FIGURE 20
CONCEPTUAL MODEL CROSS-SECTION AND FLOW SCHEMATIC UNDER PUMPING CONDITIONS
WELLS G&H
OU-3
WOBURN, MASSACHUSETTS

Metcalf & Eddy

TRC
Boott Mills South
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Lowell, MA 01852
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EPA CONTRACT NO.: 68-W6-0042

RAC SUBCONTRACT NO.: 107061

02136\WELLS G&H\OU-3\CROSS SECT

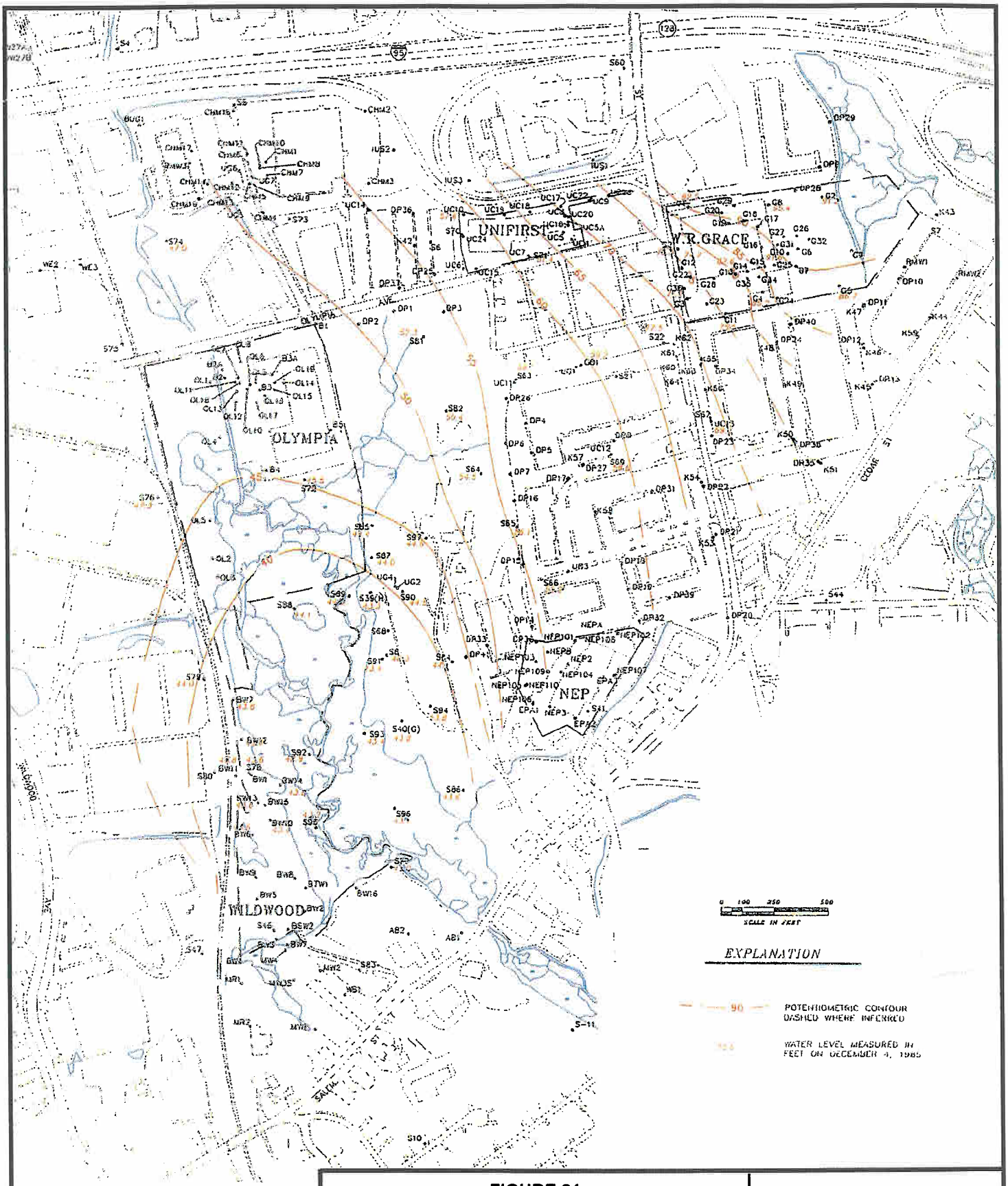

FIGURE 21
ESTIMATED WATER TABLE MAP
DERIVED FROM GEOTRANS 1994

WELLS G&H
SUPERFUND SITE
WOBURN, MASSACHUSETTS

TRC

Boott Mills South
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02136/WELLS G&H/OU-3/WATER TABLE