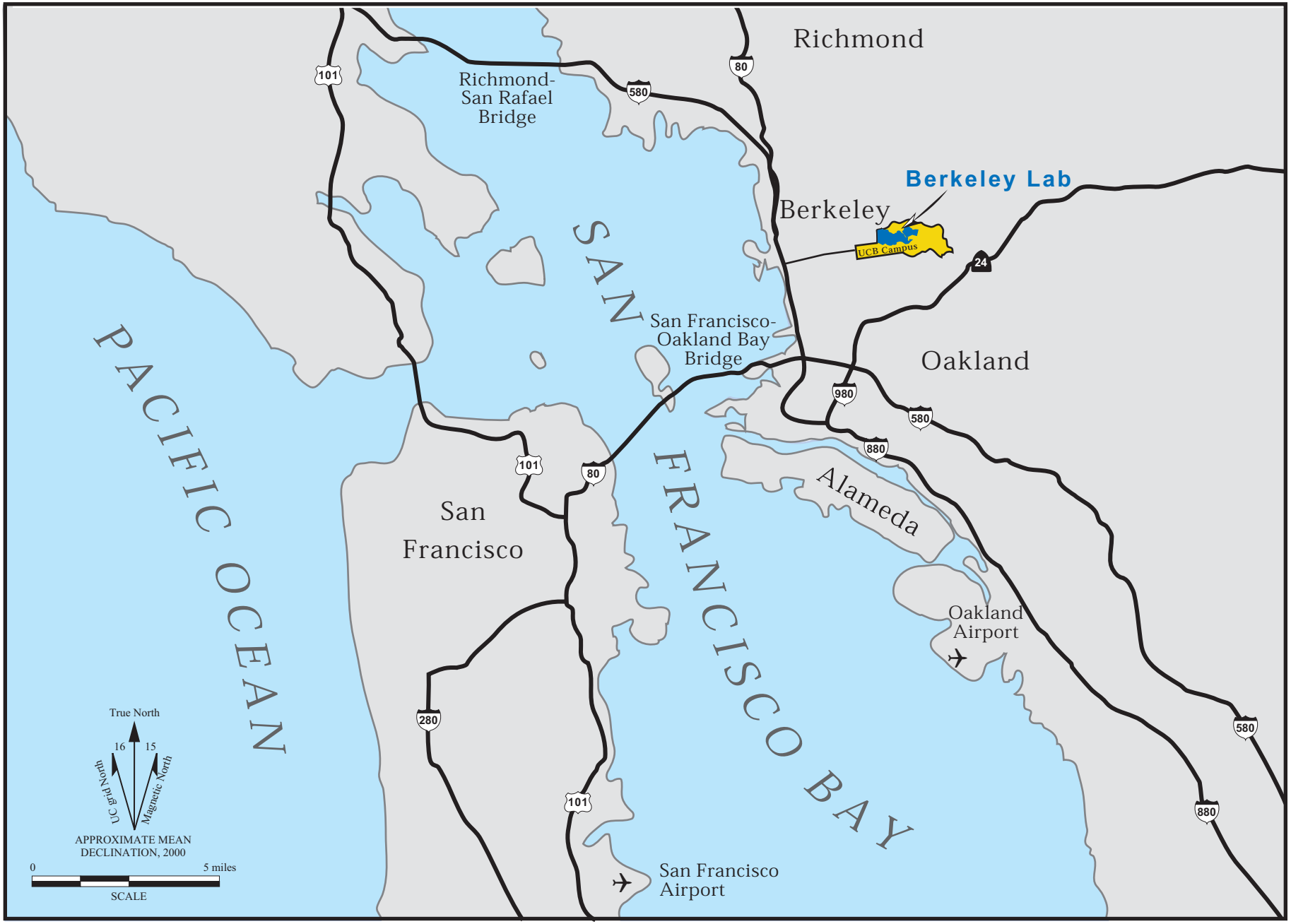
MW25-95-5	Groundwater monitoring well
MW90-6	Properly destroyed monitoring well
T SB76-97-3	Temporary groundwater sampling point
T SB64-98-16	Properly destroyed sampling point
EW EW	Groundwater extraction well
IW	Groundwater injection well
DP	Dual phase extraction well
SSW-31.63	Slope stability well
SI-3.63	Slope indicator well
71-95-10 or VZM-OT-1	Vadose zone monitoring well
	Shallow soil sampling location
	Soil boring
L-3	Vacuum lysimeter
PZ51-92-3	Piezometer
	Groundwater monitoring point
	Spring
700	Topographic contour line (elevation in ft above mean sea level)
700	Water level contour line (elevation in ft above mean sea level)
746	Water level elevation (ft above mean sea level)
	Area of groundwater contamination

ND	Not detected
51-01-10	Hydrauger
	Surface creek
A A'	Cross section
	LBNL site boundary
B 17	Surface structure (e.g. buildings, etc.)

NOTES:
All other symbols used are explained on the figures.

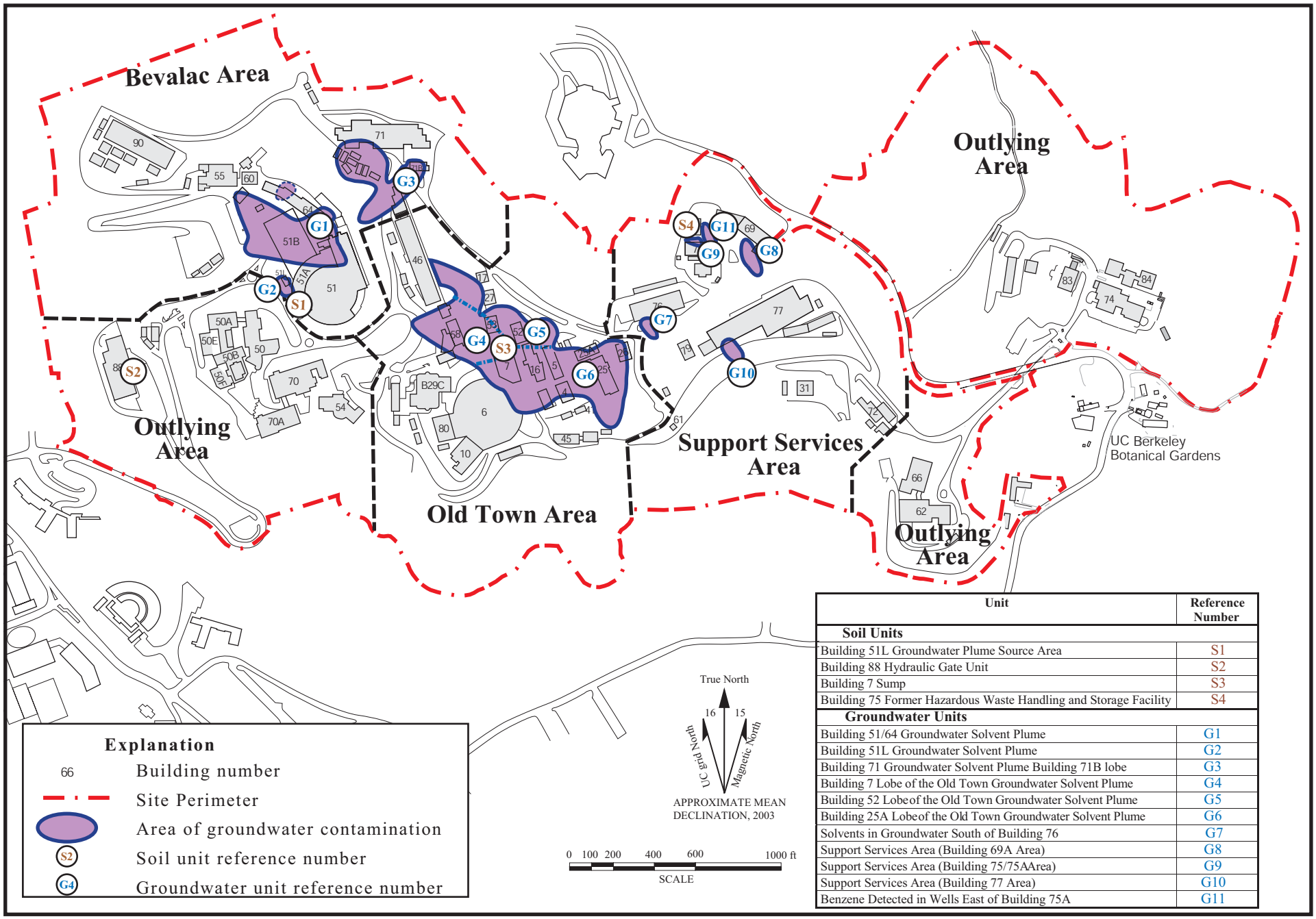
Symbols.ai
5/04

Key to Symbols Used on Figures.



f1.2-1regionalsetting.ai
4/04

Figure 1.2-1. Location of Lawrence Berkeley National Laboratory.



Unit	Reference Number
Soil Units	
Building 51L Groundwater Plume Source Area	S1
Building 88 Hydraulic Gate Unit	S2
Building 7 Sump	S3
Building 75 Former Hazardous Waste Handling and Storage Facility	S4
Groundwater Units	
Building 51/64 Groundwater Solvent Plume	G1
Building 51L Groundwater Solvent Plume	G2
Building 71 Groundwater Solvent Plume Building 71B lobe	G3
Building 7 Lobe of the Old Town Groundwater Solvent Plume	G4
Building 52 Lobeof the Old Town Groundwater Solvent Plume	G5
Building 25A Lobeof the Old Town Groundwater Solvent Plume	G6
Solvents in Groundwater South of Building 76	G7
Support Services Area (Building 69A Area)	G8
Support Services Area (Building 75/75AArea)	G9
Support Services Area (Building 77 Area)	G10
Benzene Detected in Wells East of Building 75A	G11

f1.3.4-1-units.ai
9/04

Figure 1.3.4-1. Locations of Soil and Groundwater Units Evaluated in the CMS Report, Lawrence Berkeley National Laboratory.

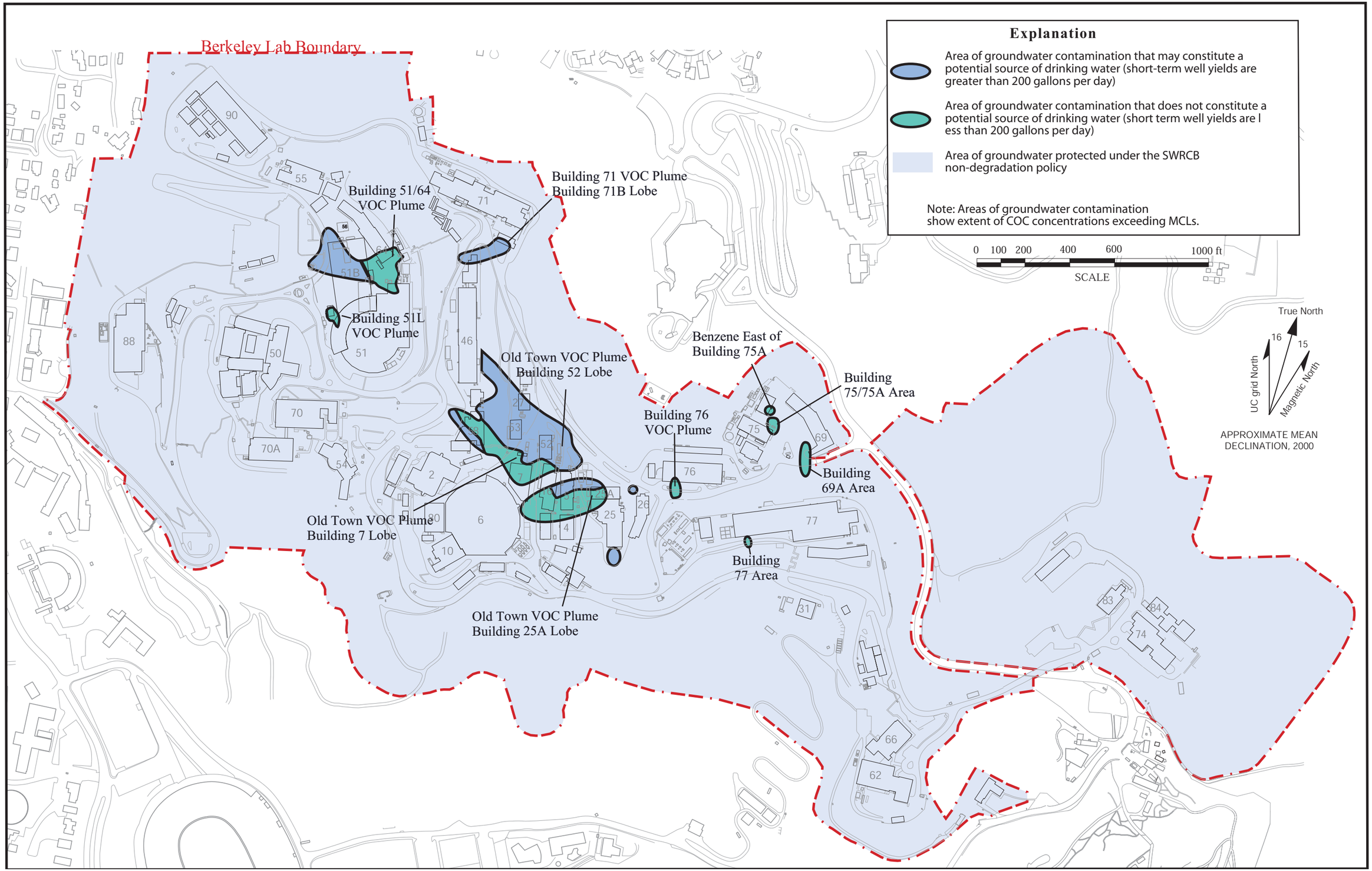


Figure 2.2-1. Areas of Groundwater Contamination Showing Subareas That May Constitute Potential Sources of Drinking Water.

2.2-1-MCLS-12-01-04rotr2.ai
12/04

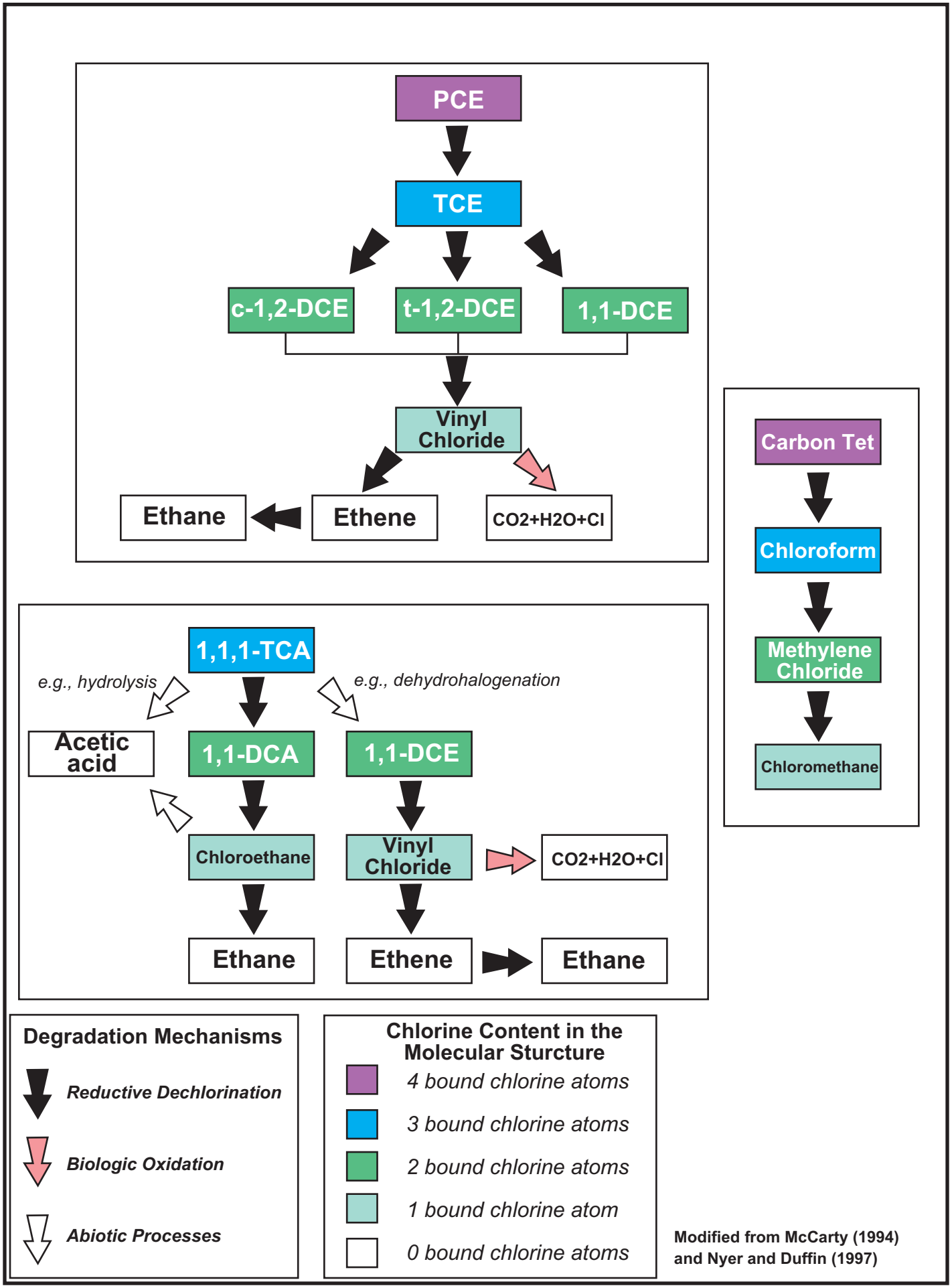


Figure 3.5-1. Generalized Degradation Pathways of Chlorinated Hydrocarbons.

3.5-1BioDegChart.ai
09/00

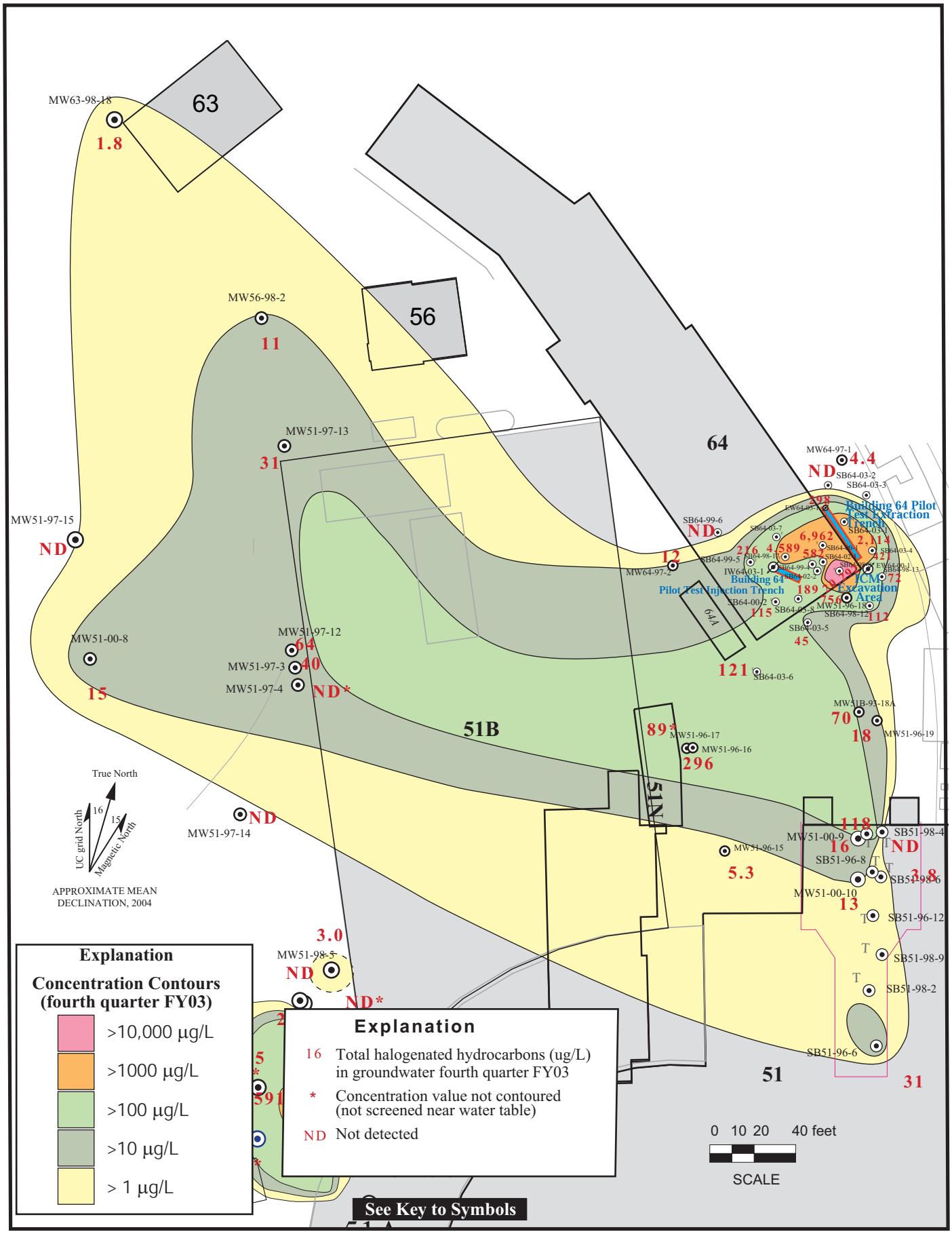


Figure 4.3.1-1. Total Halogenated Hydrocarbons in Groundwater (ug/L), Building 51/64 Groundwater Solvent Plume.

4.3.1-1, -2 B51-64 Plume.ai
4/04

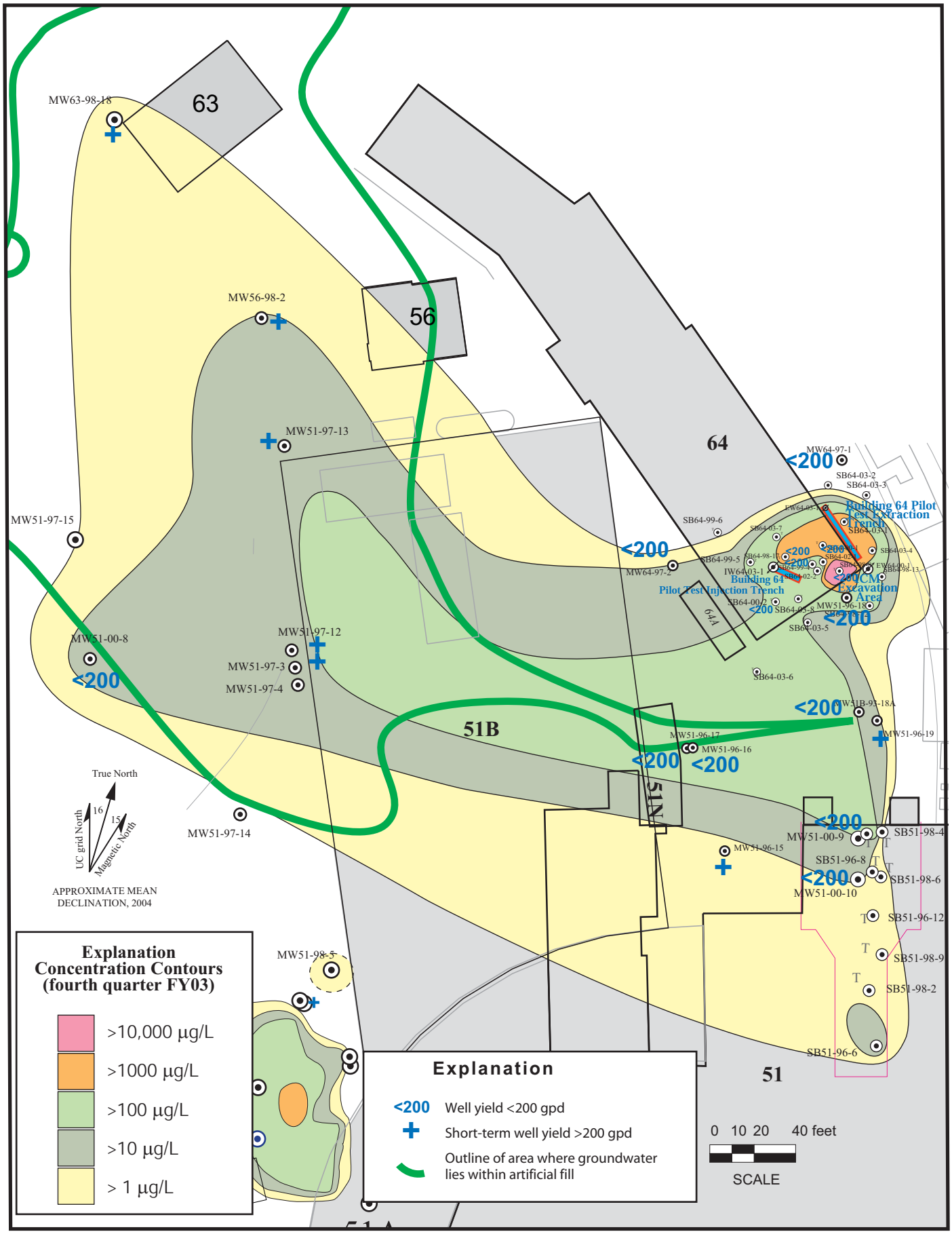


Figure 4.3.1-2. Estimated Well Yields, Building 51/64 Groundwater Solvent Plume.

4.3.1-1, -2 B51-64 Plume.ai
4/04

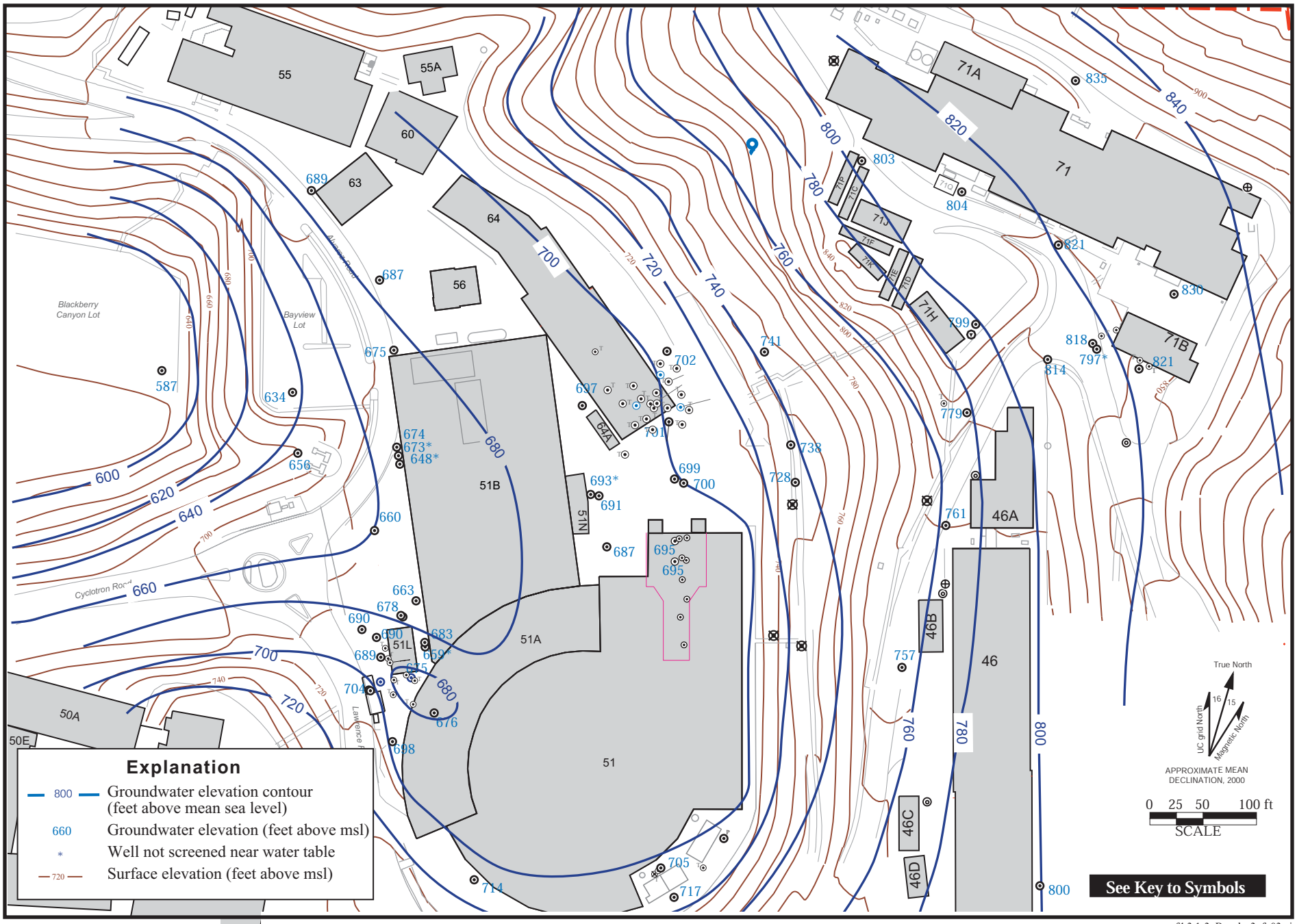


Figure 4.3.1-3. Water Level Elevation Map in the Bevalac Area, Fourth Quarter FY2003.

f4.3.1-3_Bevalac3qfy03.ai
4/04

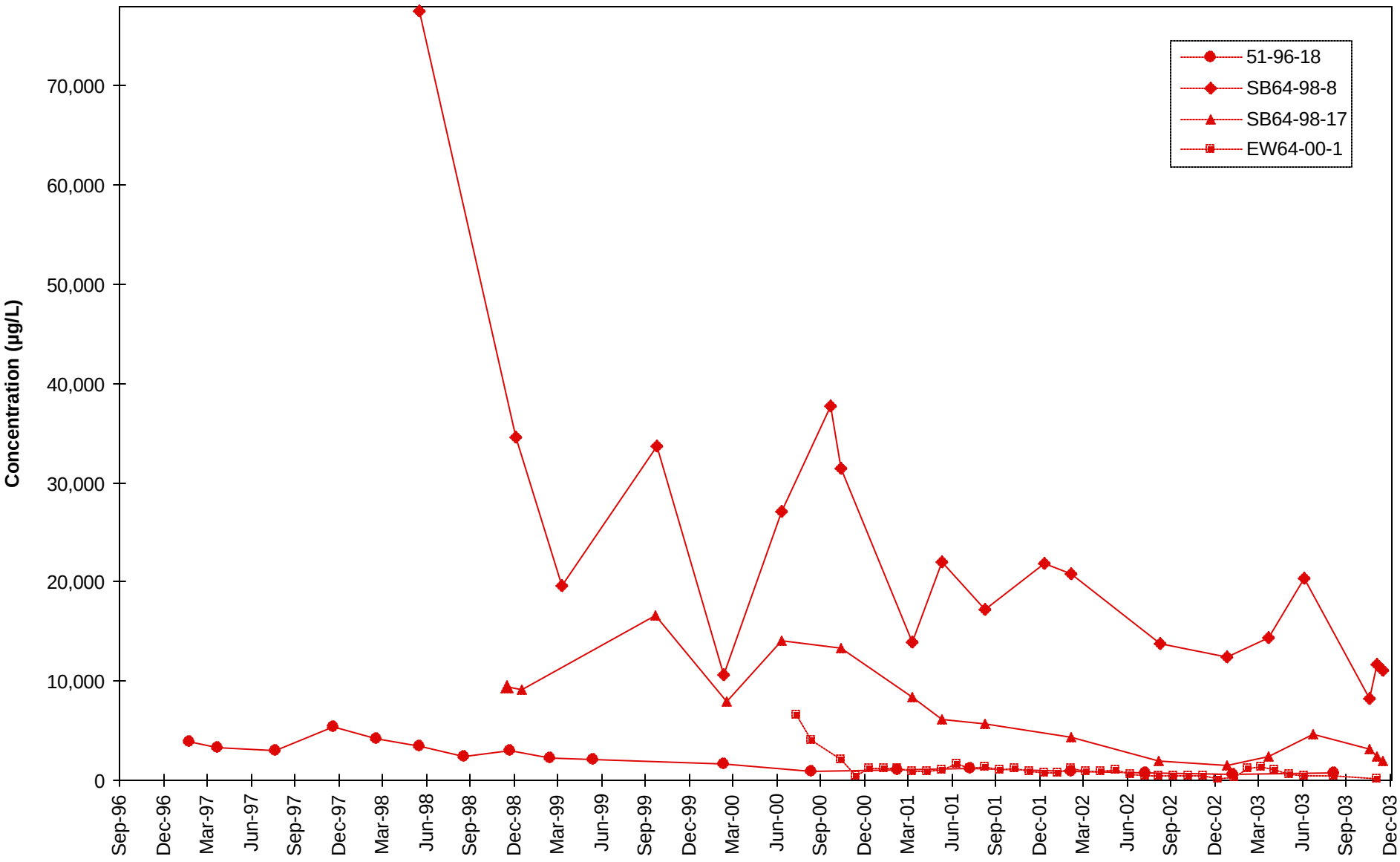


Figure 4.3.1-4a. Concentrations of Halogenated VOCs (excluding Freon compounds) in Selected Wells Monitoring the Source Area of the Building 51/64 Groundwater Solvent Plume

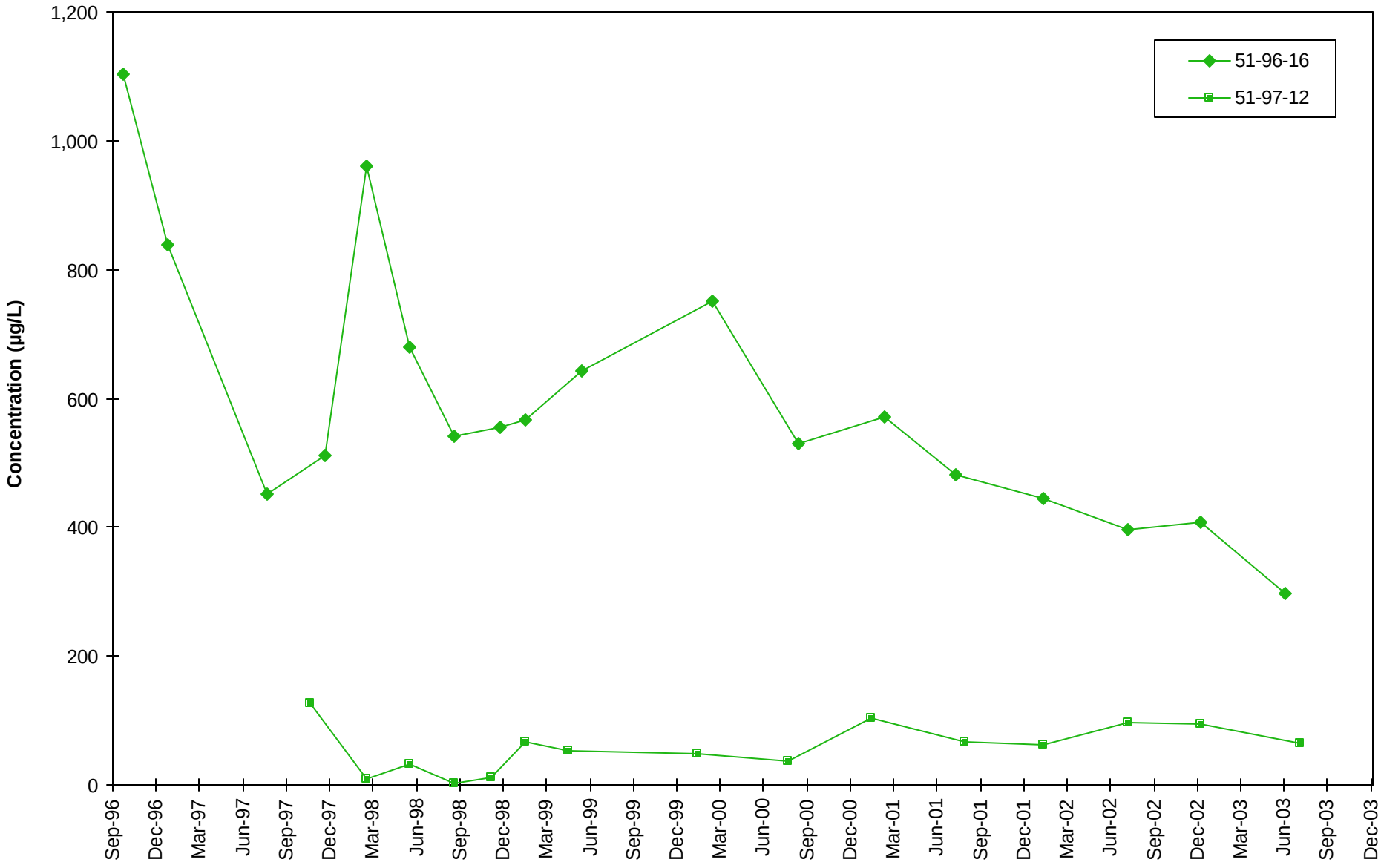


Figure 4.3.1-4b. Concentrations of Halogenated VOCs (excluding Freon compounds) in Selected Wells Monitoring the Core Area of the Building 51/64 Groundwater Solvent Plume

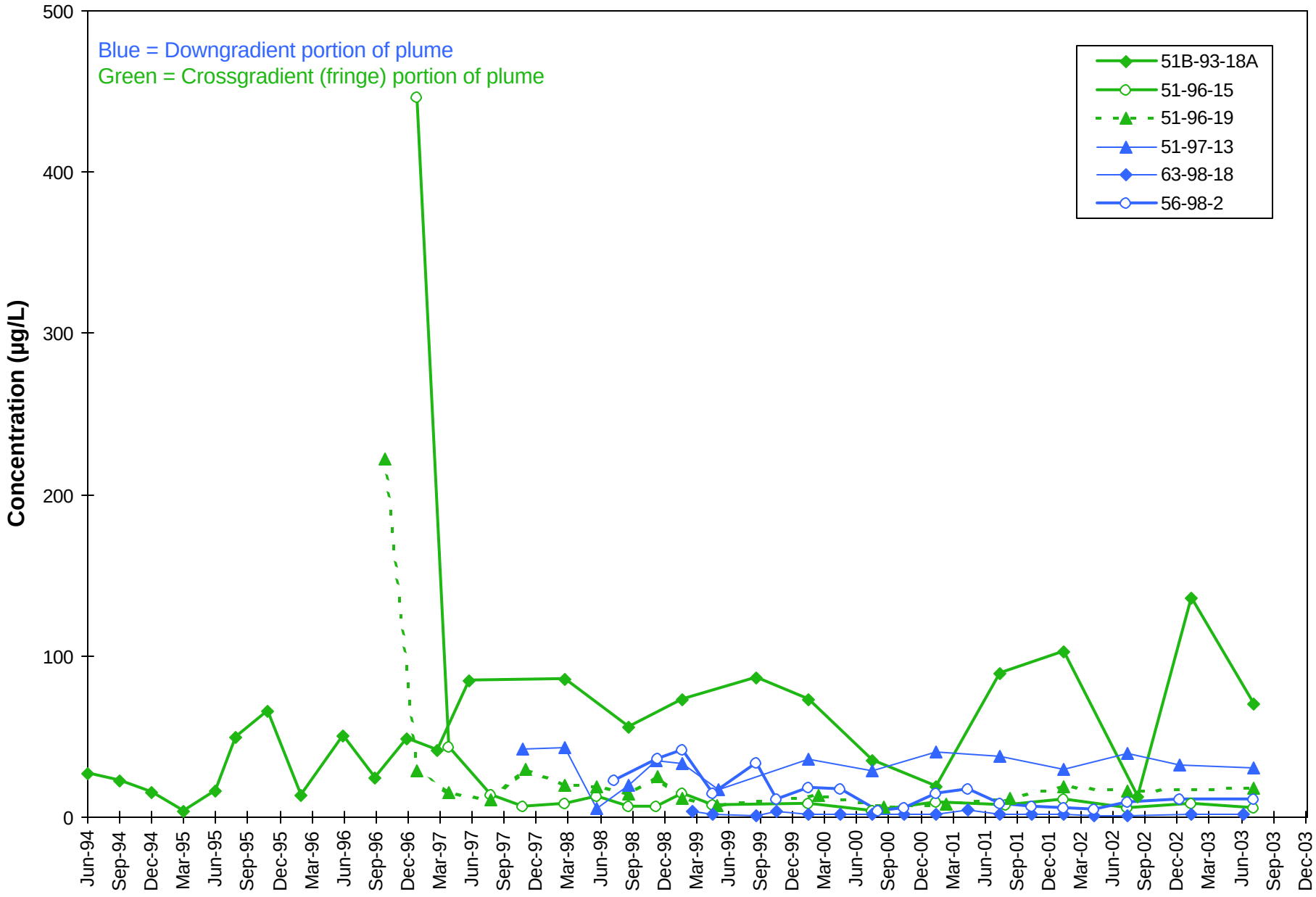


Figure 4.3.1-5. Concentrations of Halogenated VOCs (excluding Freon compounds) in Selected Wells Monitoring the Crossgradient and Downgradient Areas of the Building 51/64 Groundwater Solvent Plume

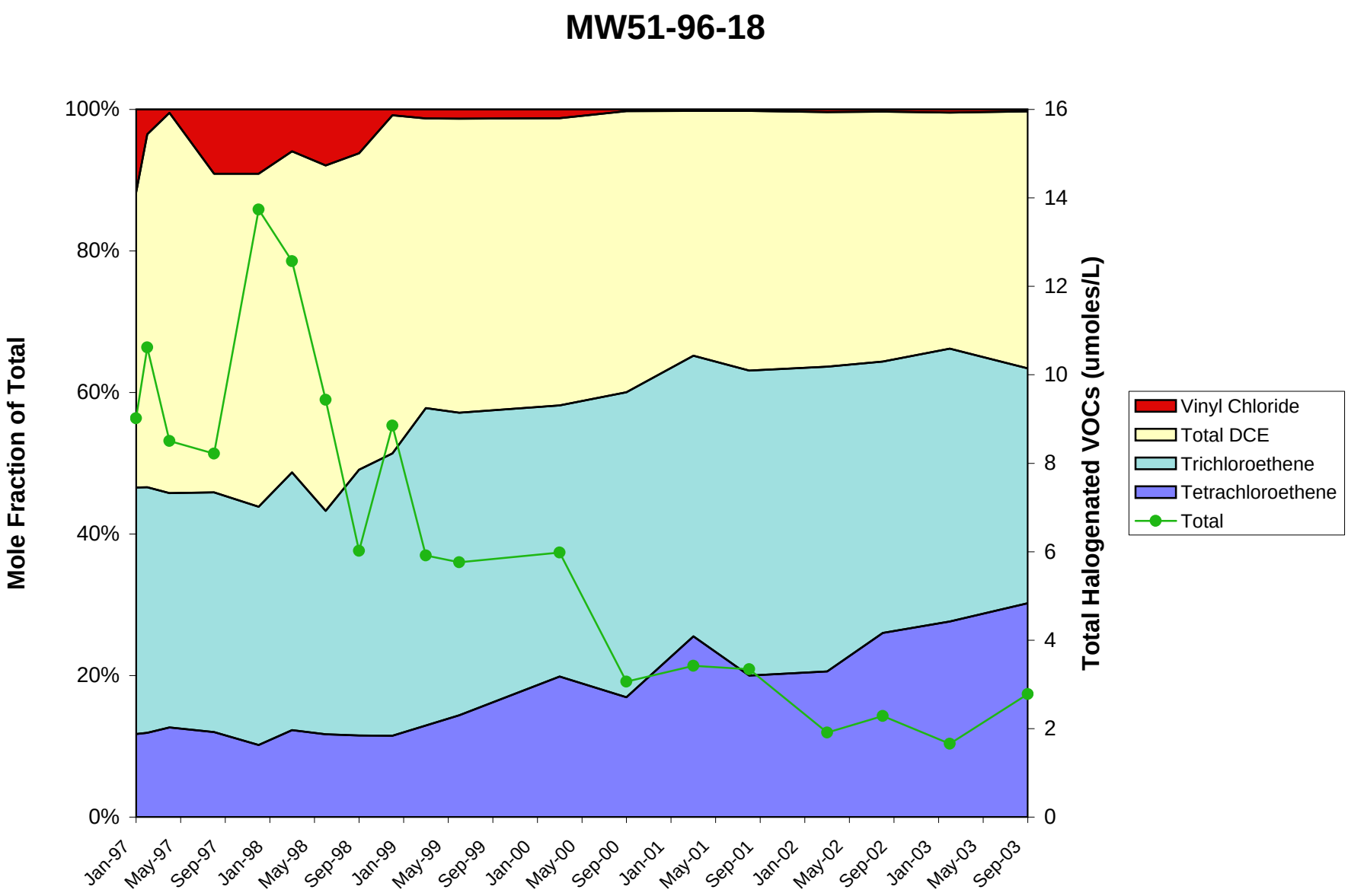


Figure 4.3.1-6. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW51-96-18, Plume Source Area, Building 51/64 Plume.

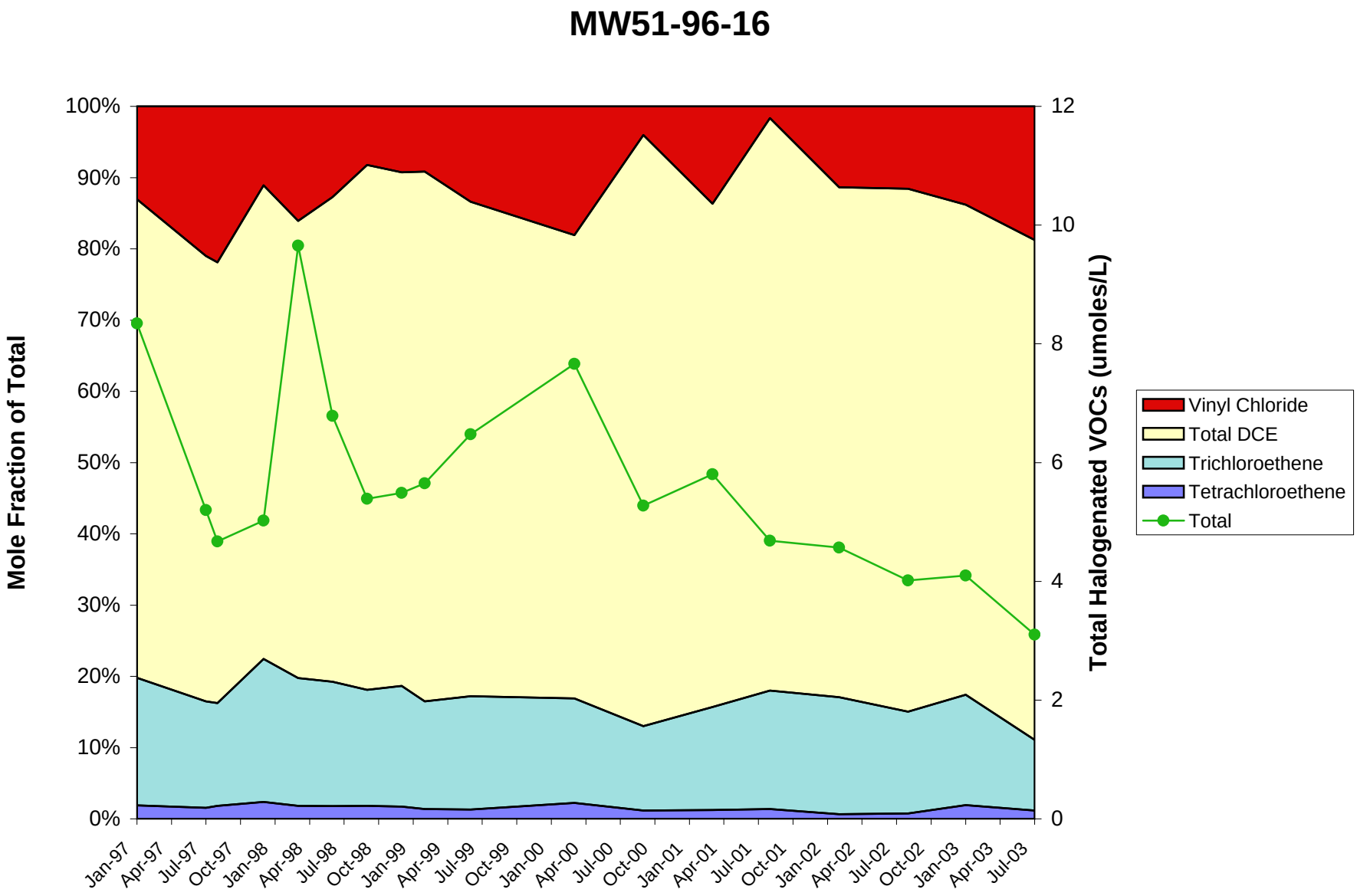


Figure 4.3.1-7. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW51-96-16, Midplume Area, Building 51/64 Plume.

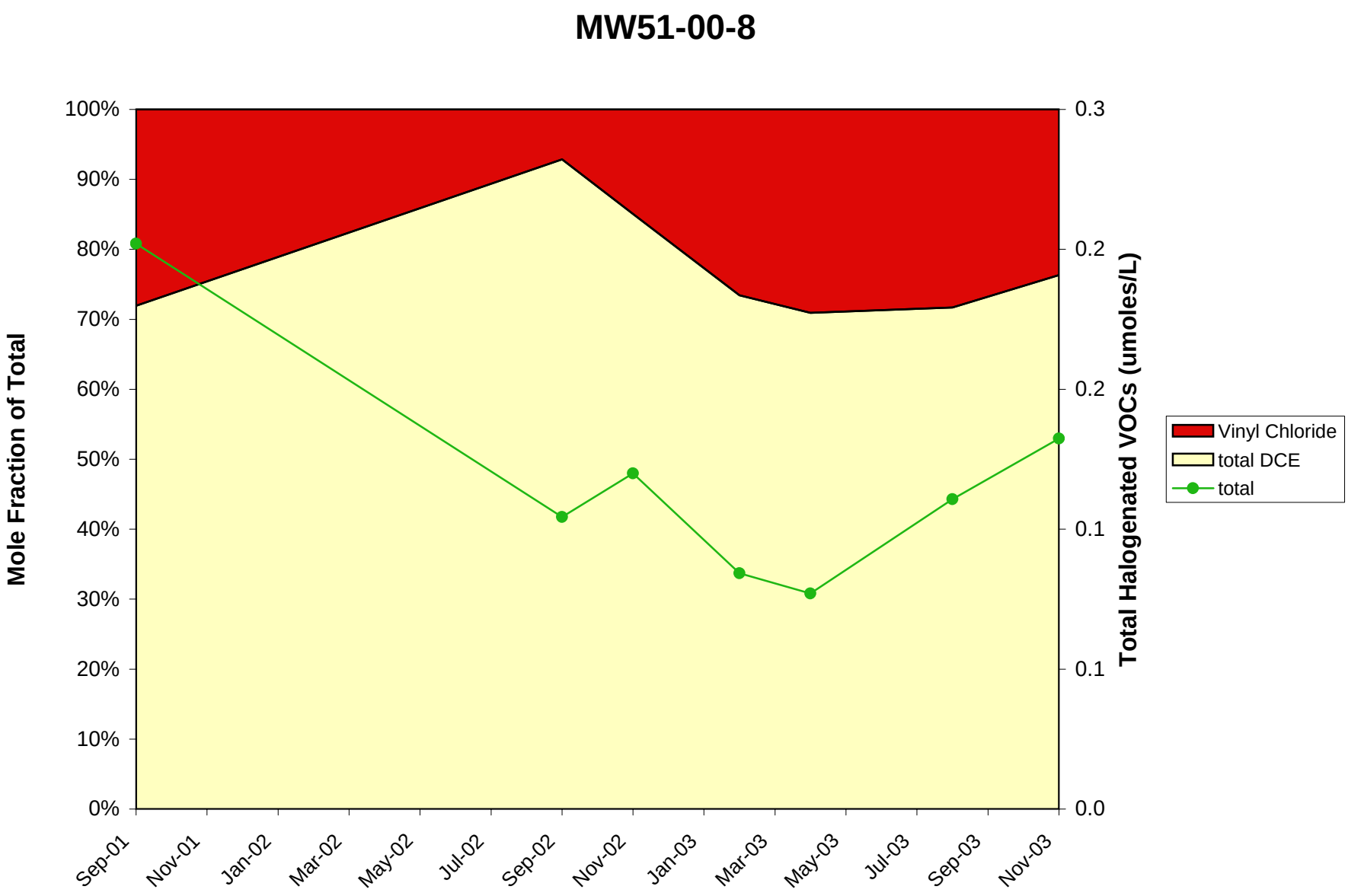


Figure 4.3.1-8. Temporaral Variations in Halogenated Non-aromatic VOCs in Well MW51-00-8, Downgradient Area, Building 51/64 Plume.

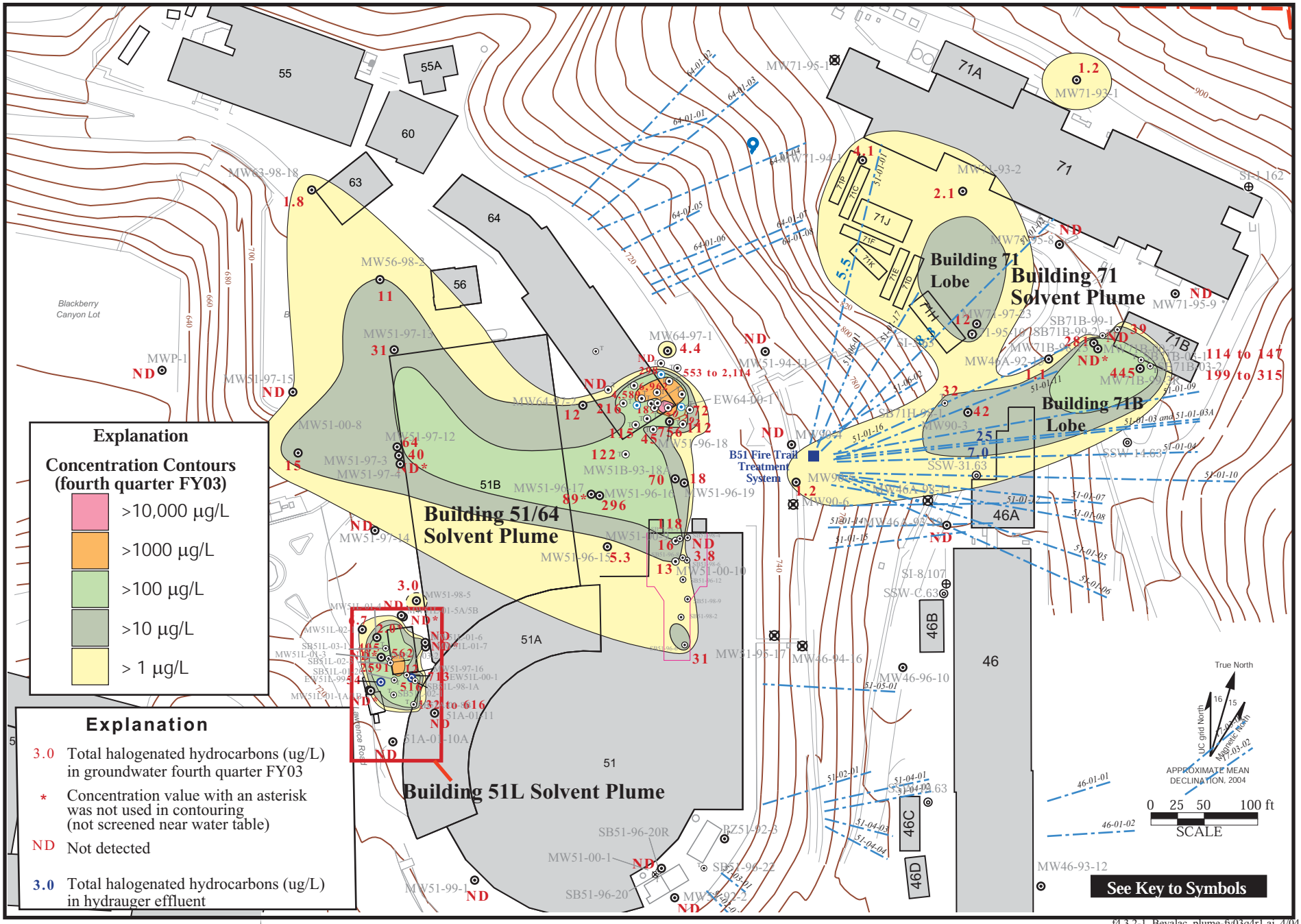


Figure 4.3.2-1. Total Halogenated Hydrocarbons in Groundwater (Excluding Freon) (ug/L), Bevalac Area.

f4.3.2-1_Bevalac_plume-fy03q4r1.ai 4/04

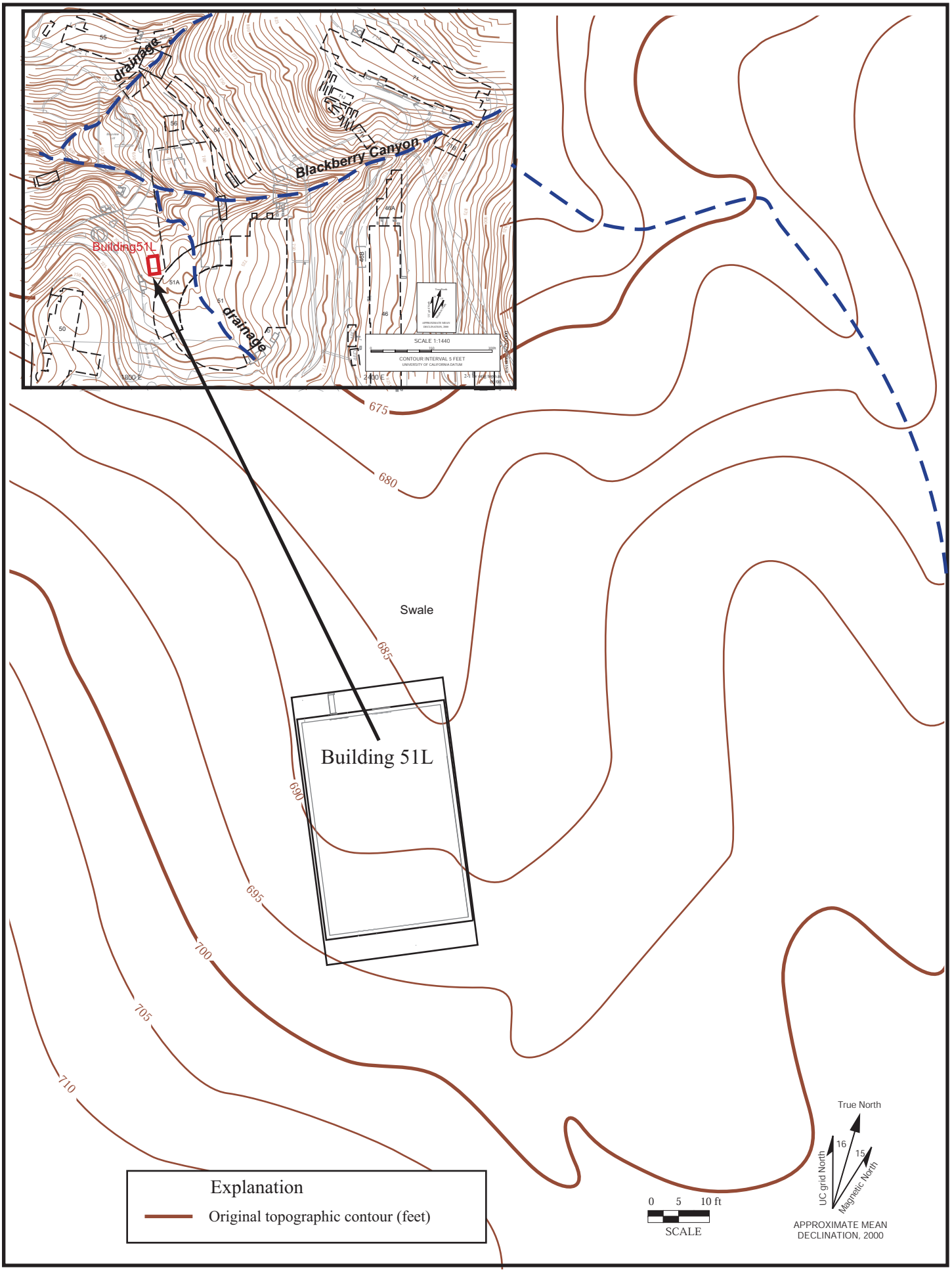


Figure 4.3.2-2. Original Topography Building 51L Area.

f4.3.2-2_originaltopo.ai
4/04

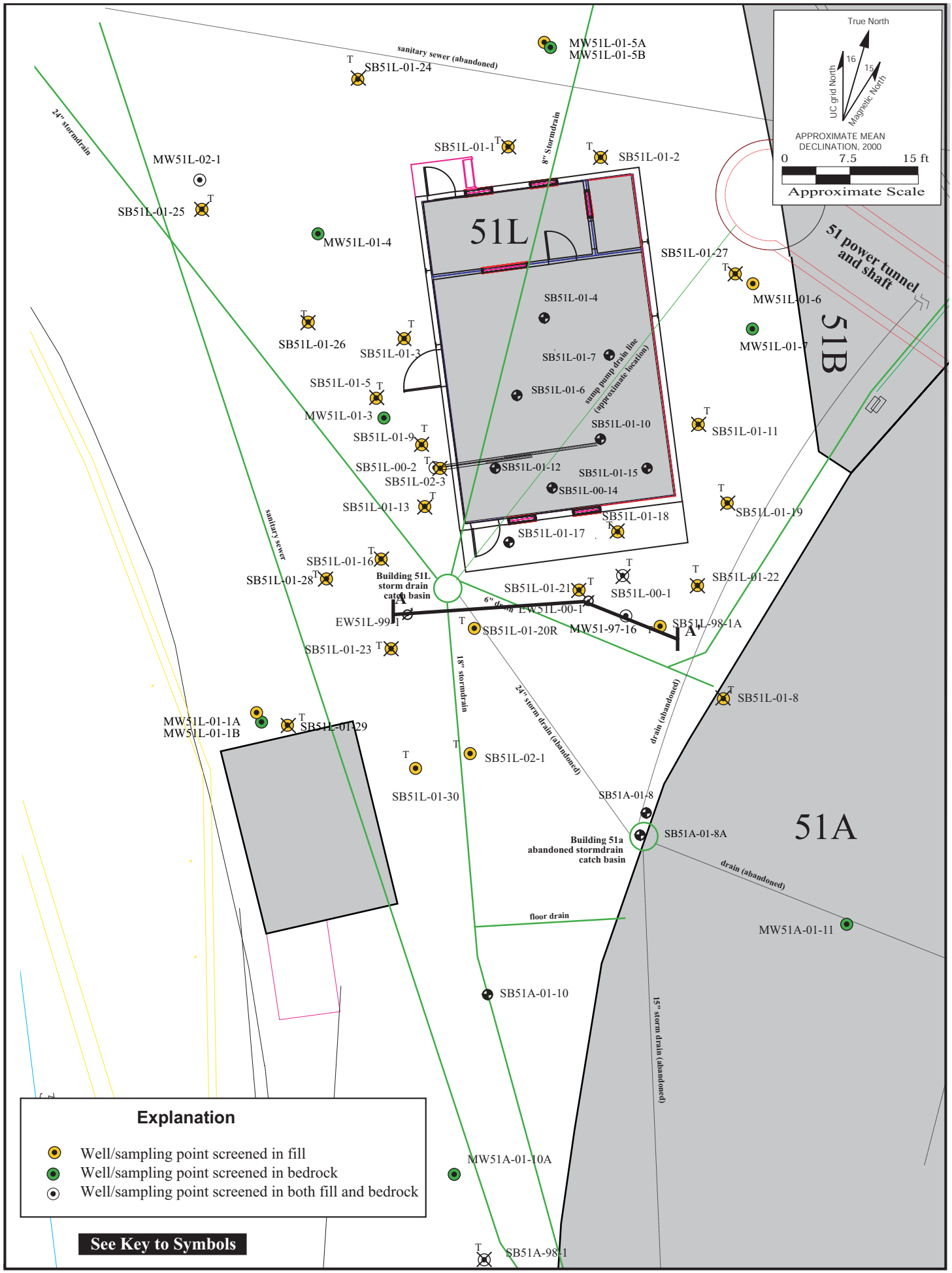


Figure 4.3.2-3. Detailed Site Map Building 51L Area.

f4.3.2-3_basemap51L.ai
4/04

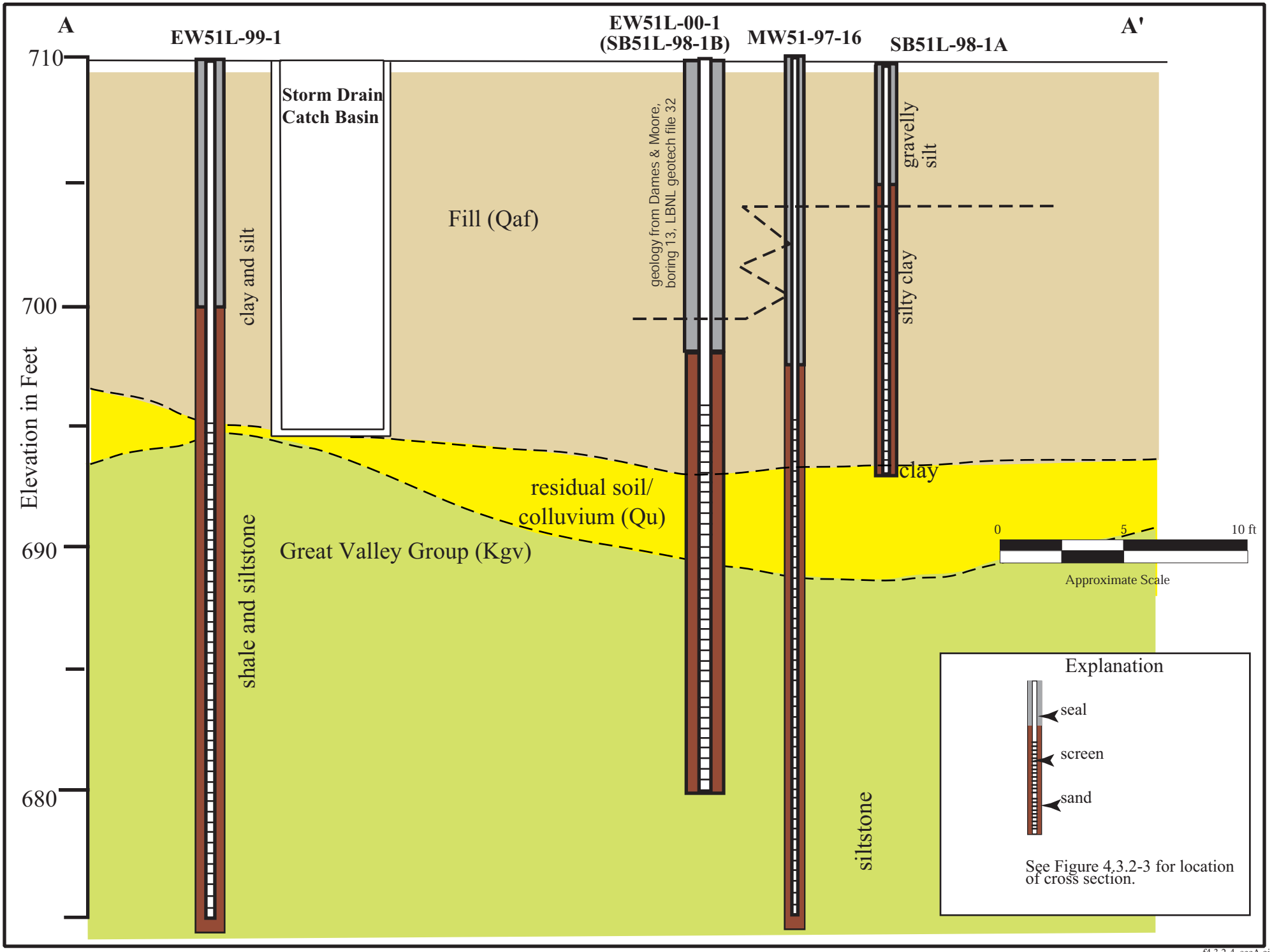
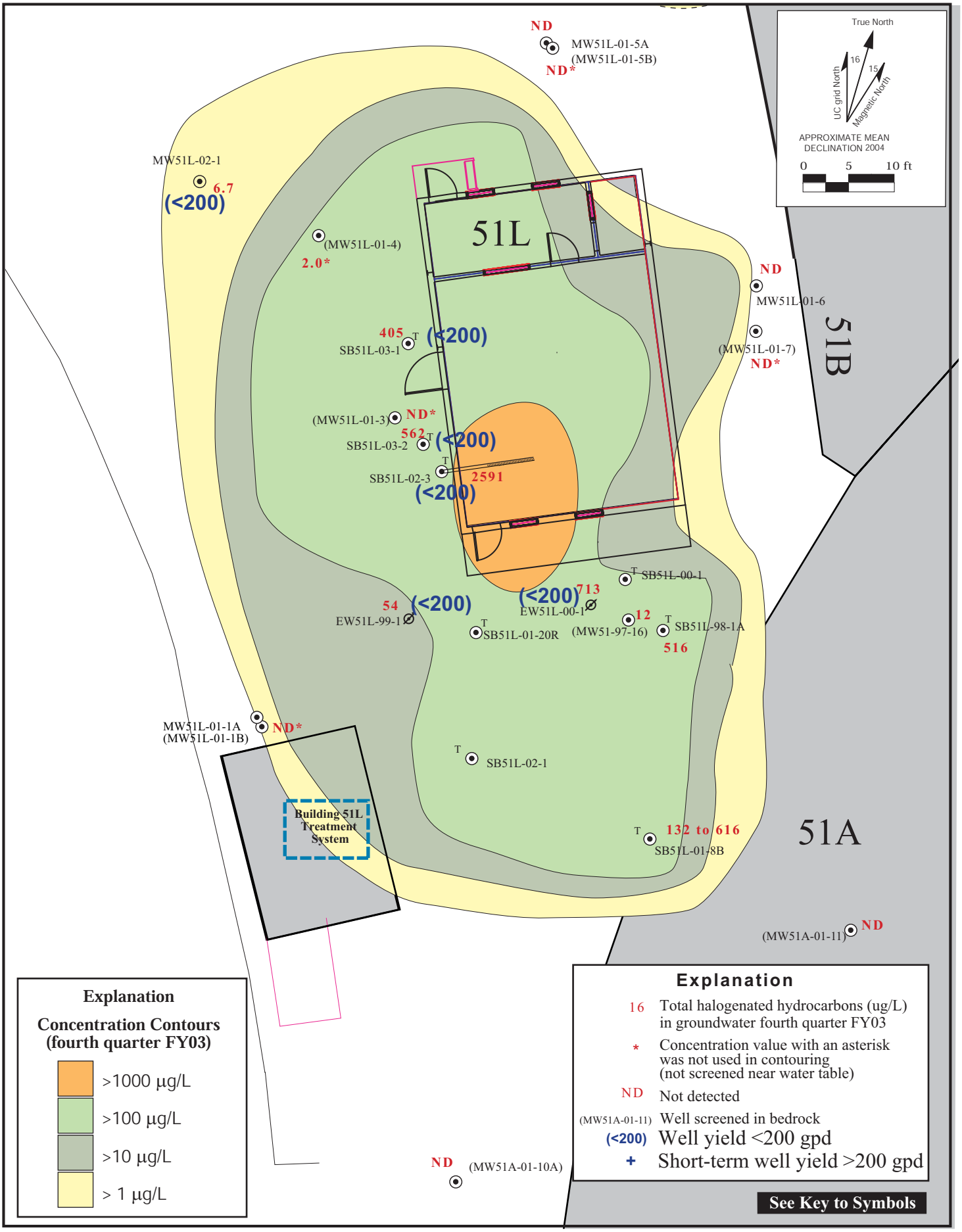


Figure 4.3.2-4. Geologic Cross Section Building 51L Area.

f4.3.2-4_secA.ai
4/04



f4.3.2-5_b51lltotlavocsfy03q4.ai 4/04

Figure 4.3.2-5. Total Halogenated Hydrocarbons in Groundwater in the Fill (ug/L) and Estimated Well Yields, Building 51L Groundwater Solvent Plume.

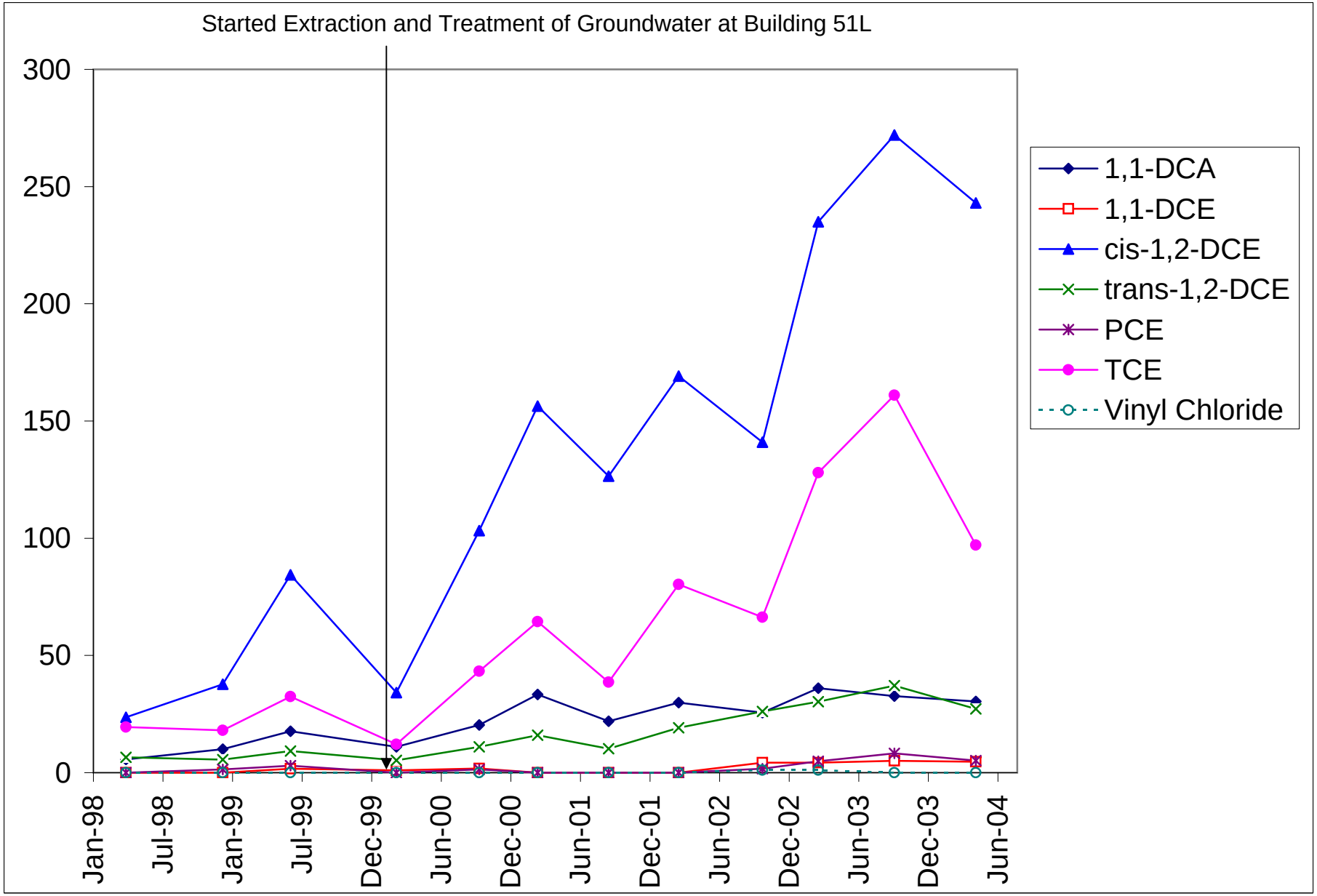


Figure 4.3.2-6. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well SB51L-98-1A, Midplume Area, Building 51L Groundwater Solvent Plume

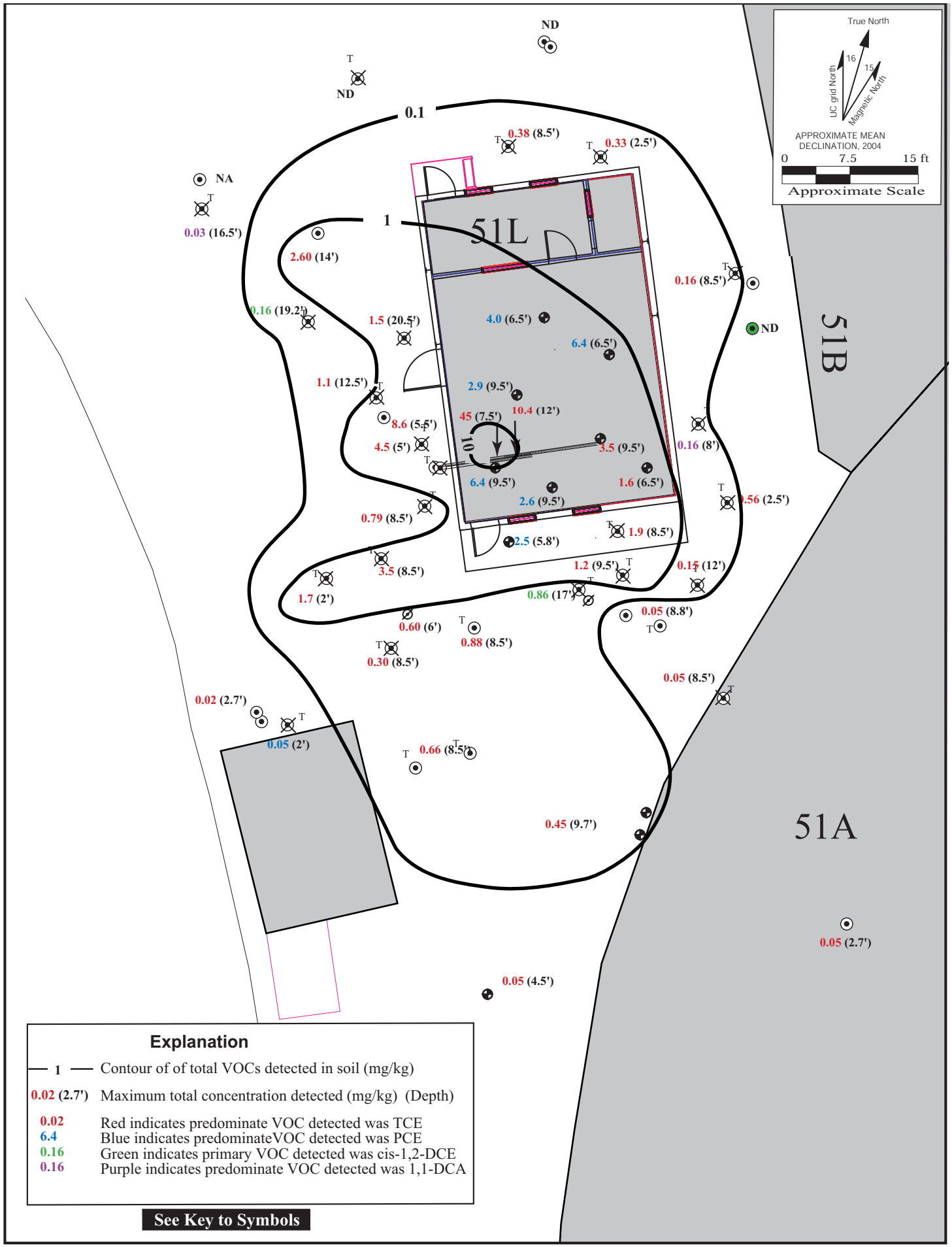


Figure 4.3.2-7. Maximum Concentrations of Total VOCs Detected in Soil Samples (mg/kg), Building 51L Area.

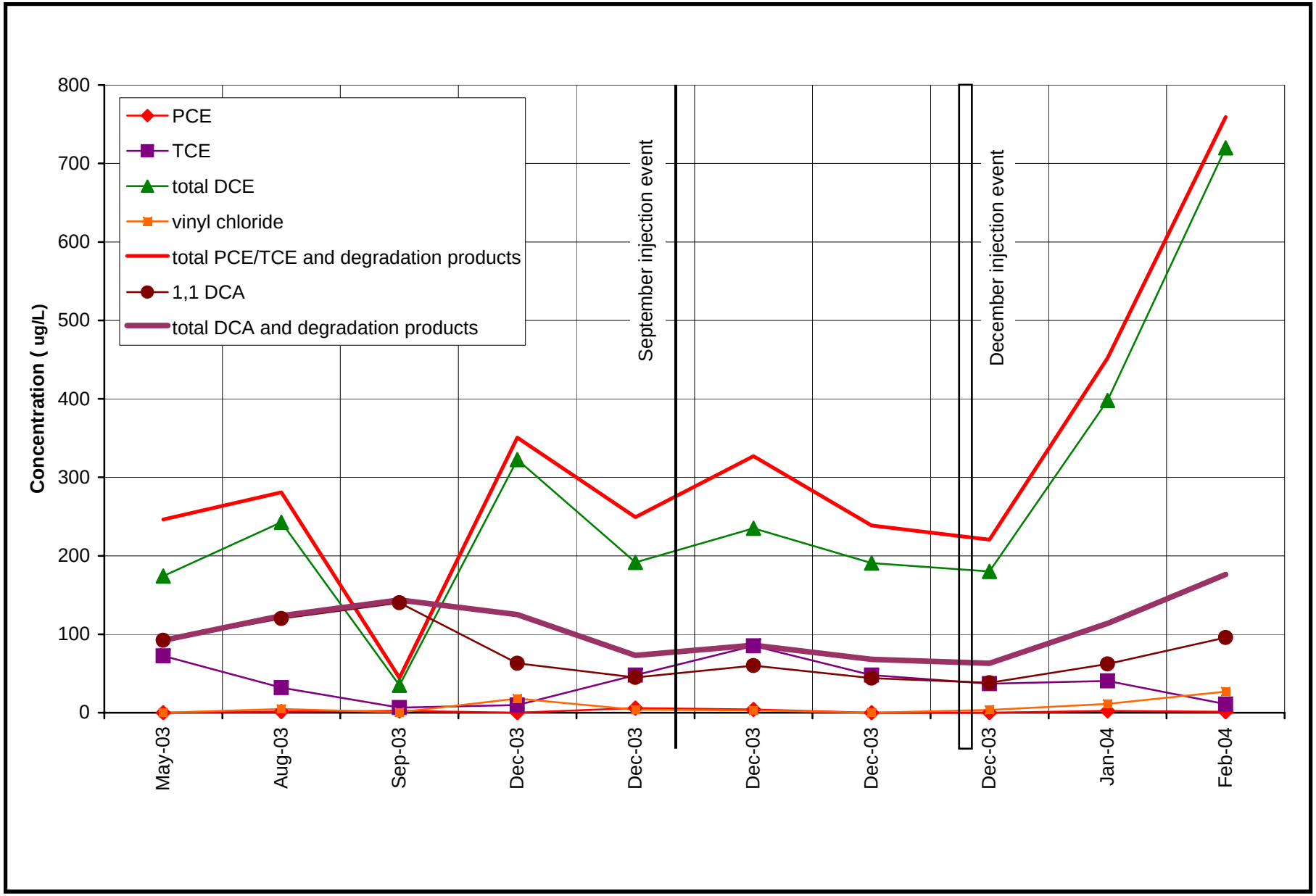


Figure 4.3.2-8. Concentration Trends for Halogenated VOCS in SB51L-03-1 Monitoring Chemical Oxidation Pilot Test at Building 51L.

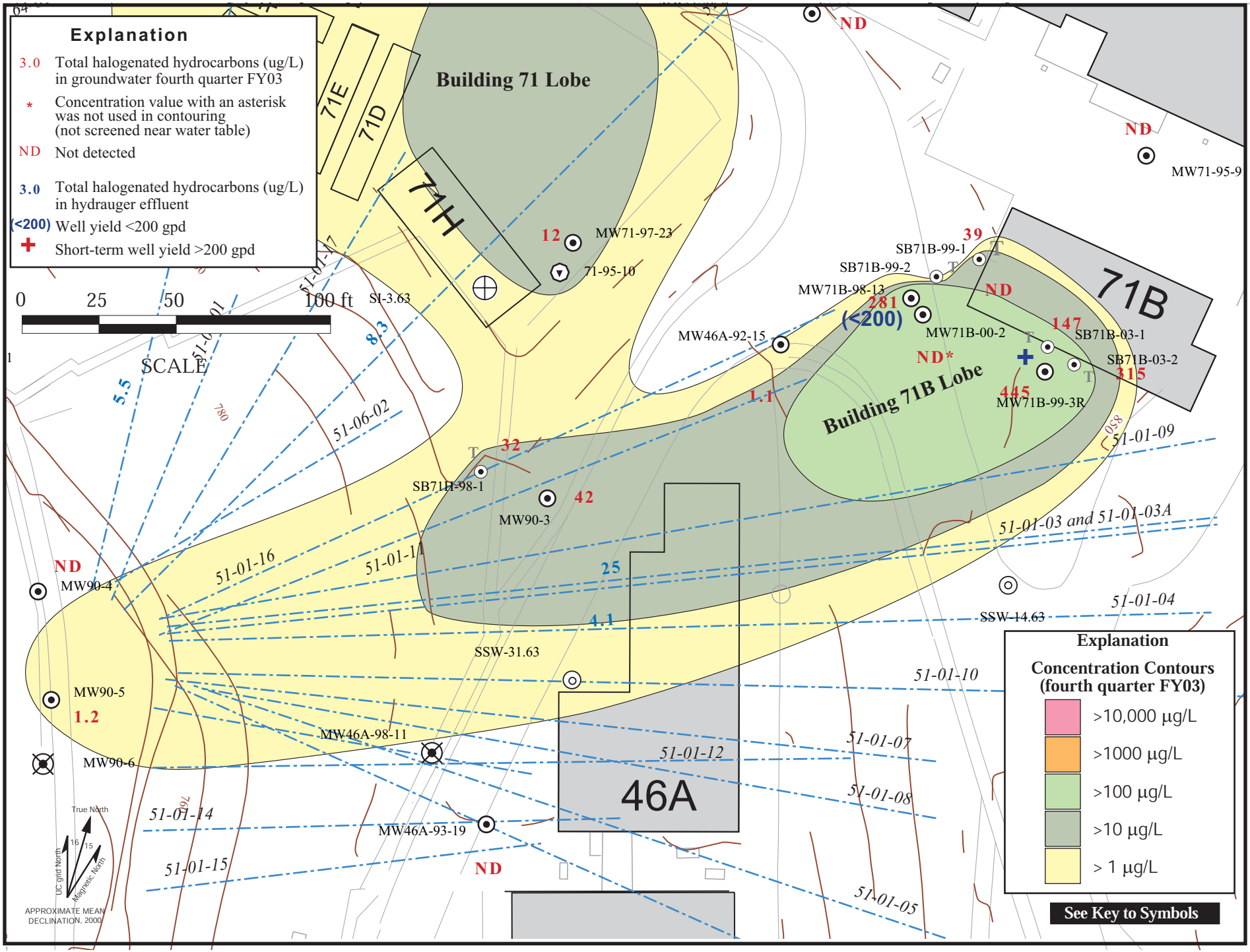


Figure 4.3.3-1. Total Halogenated Hydrocarbons in Groundwater (Excluding Freon) (ug/L) and Estimated Groundwater Yields, Building 71B Lobe Building 71 Groundwater Solvent Plume.

f4.3.3-1,-2 B71B Lobe fy03q4.ai
4/04

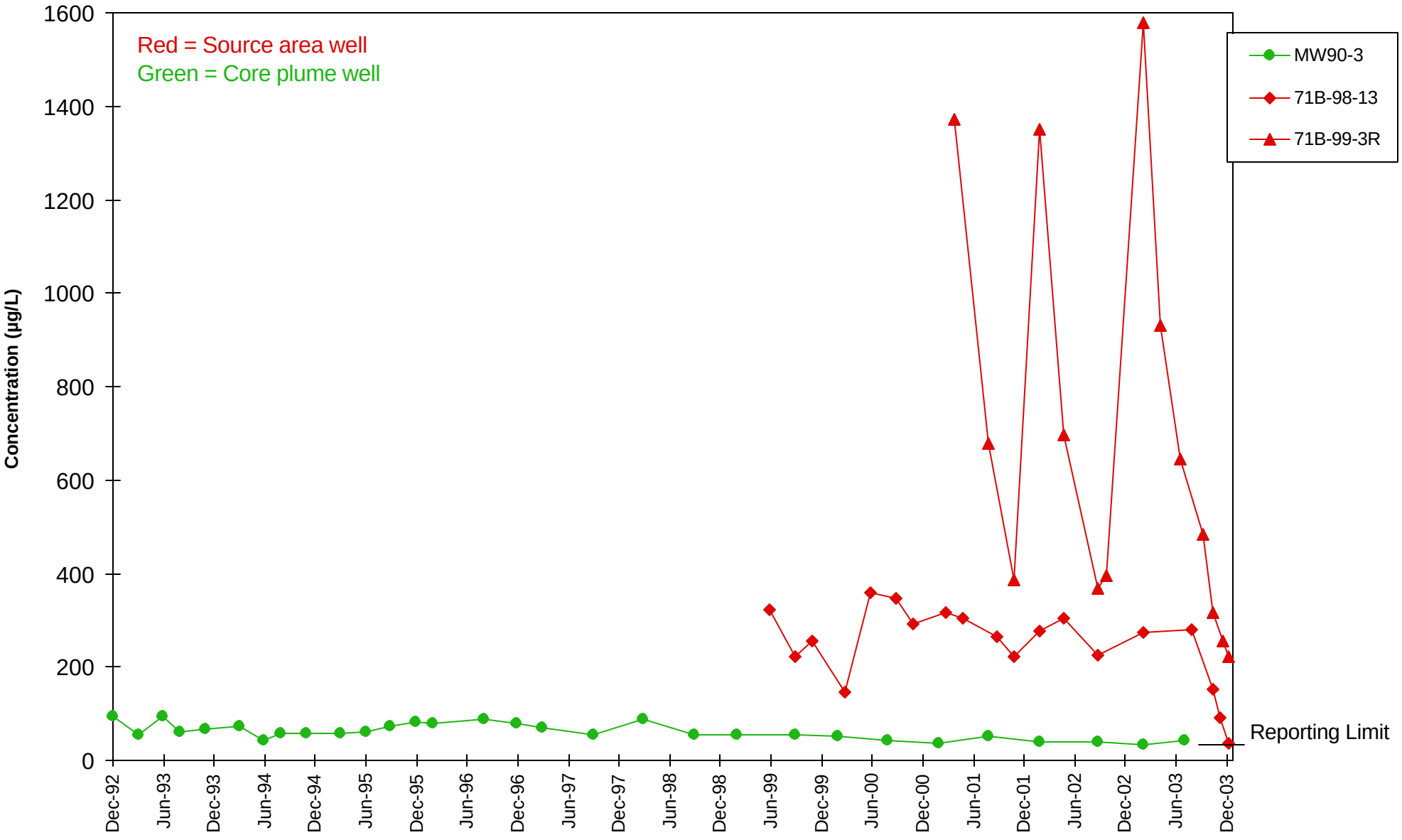


Figure 4.3.3-2a. Concentration Trends for Halogenated Non-Aromatic VOCs (excluding Freon compounds, Chloroform, and Bromodichloromethane) in Source and Core Area Wells Monitoring Building 71 Solvent Plume (Building 71B Lobe)

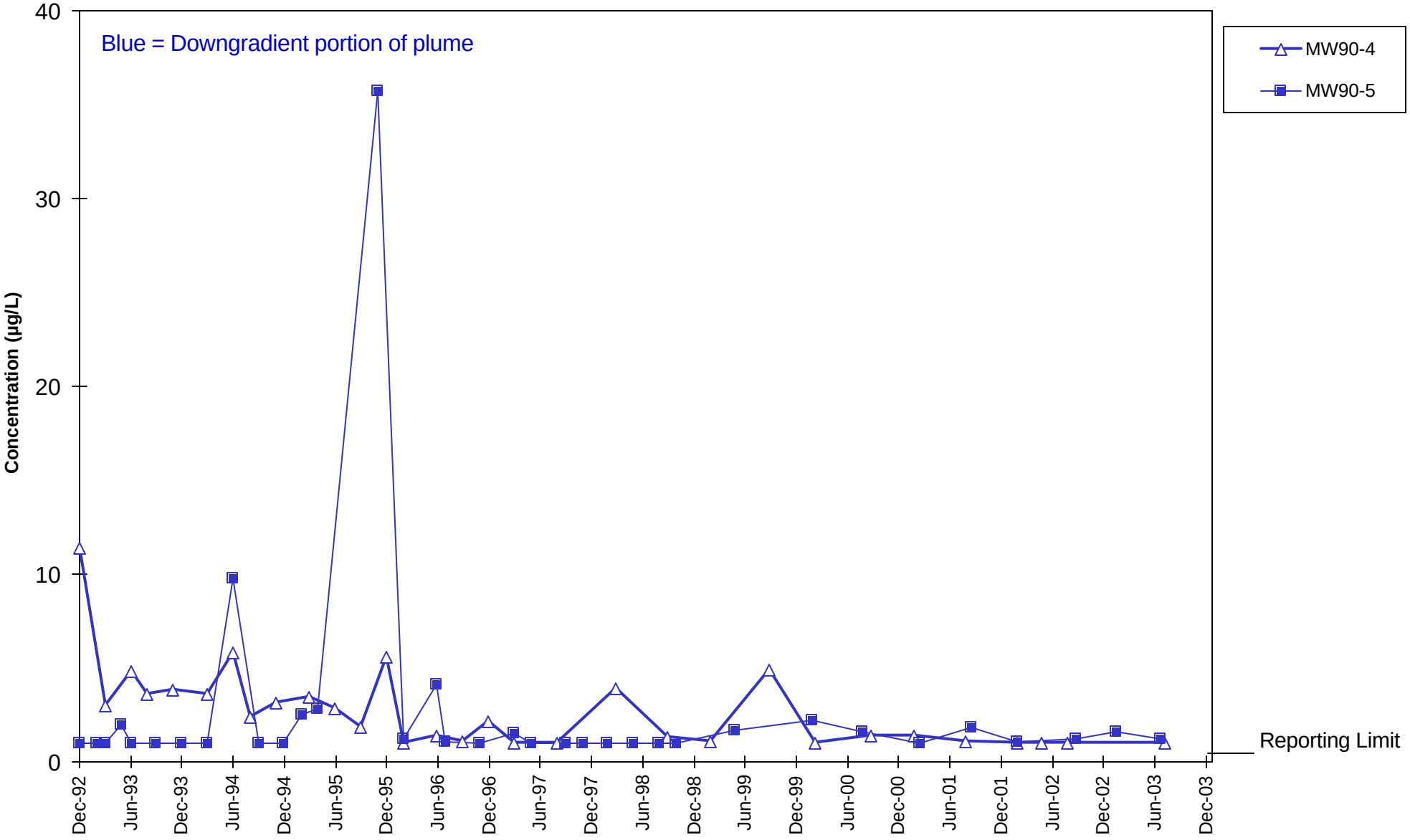


Figure 4.3.3-2b. Concentration Trends for Halogenated Non-Aromatic VOCs (excluding Freon compounds, Chloroform, and Bromodichloromethane) in Downgradient Wells Monitoring Building 71 Solvent Plume (Building 71B Lobe)

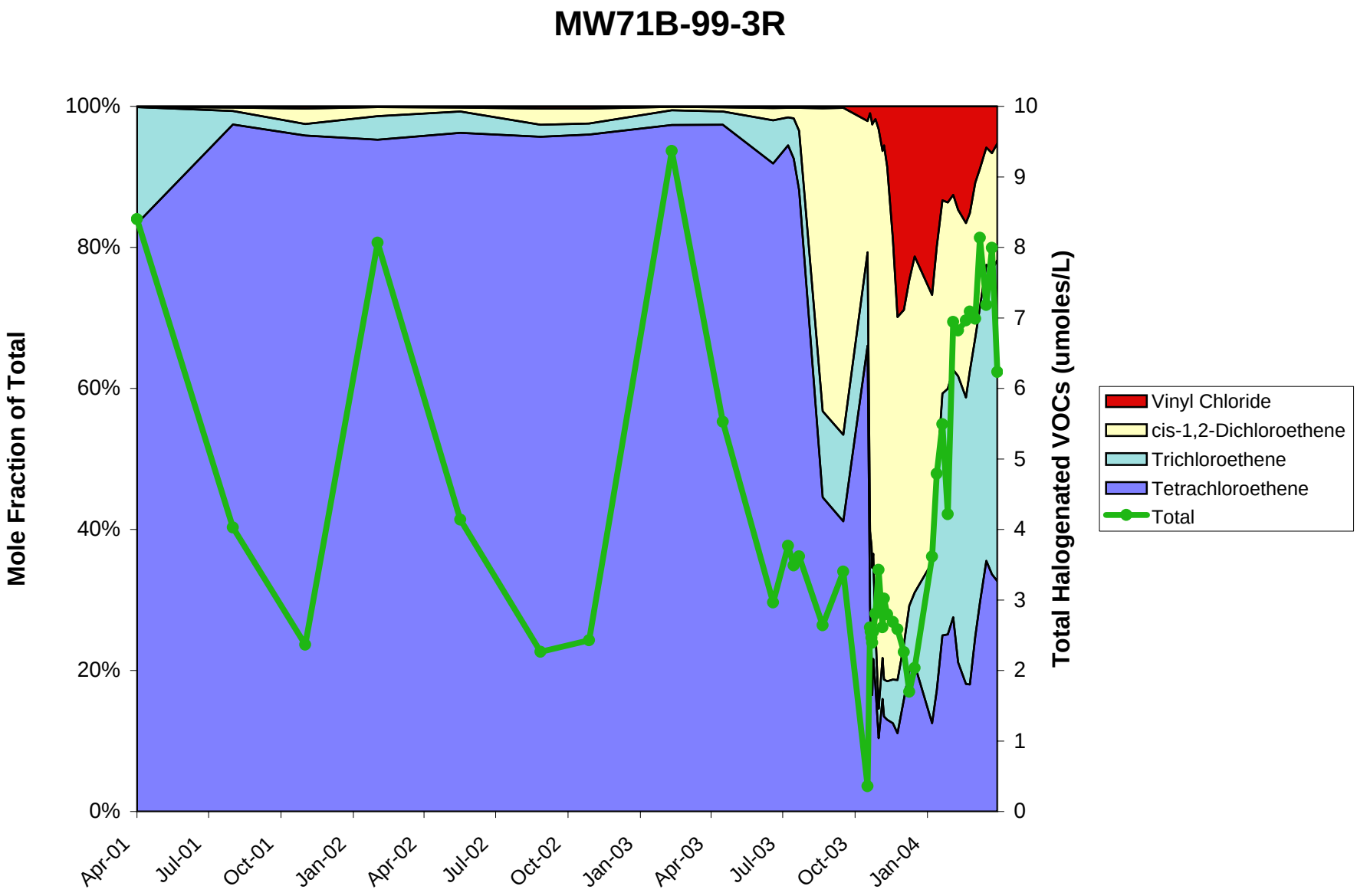


Figure 4.3.3-3. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW71B-99-3R, Upgradient Area, Building 71B Lobe.

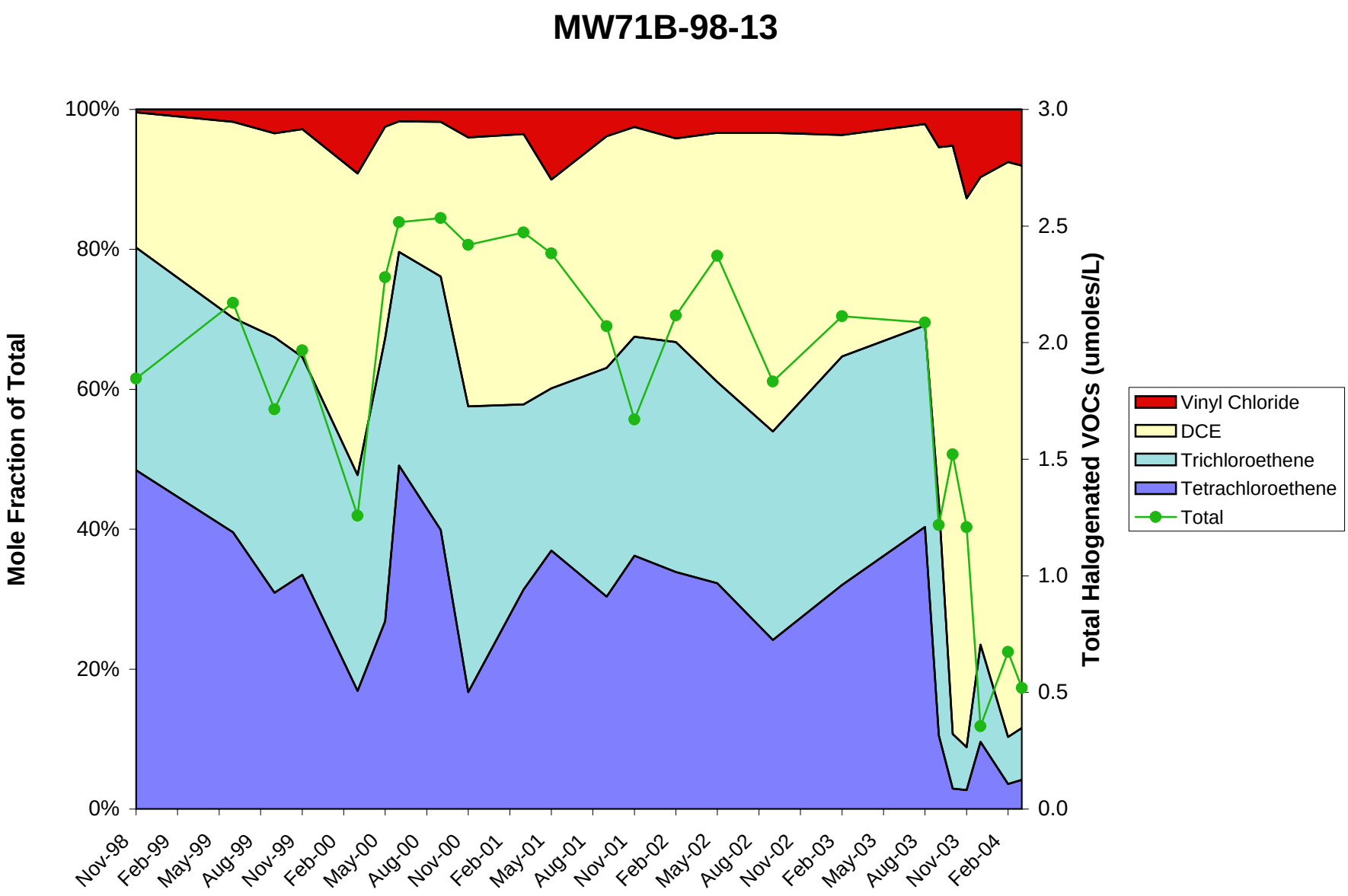


Figure 4.3.3-4. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW71B-98-13, Building 71B Lobe.

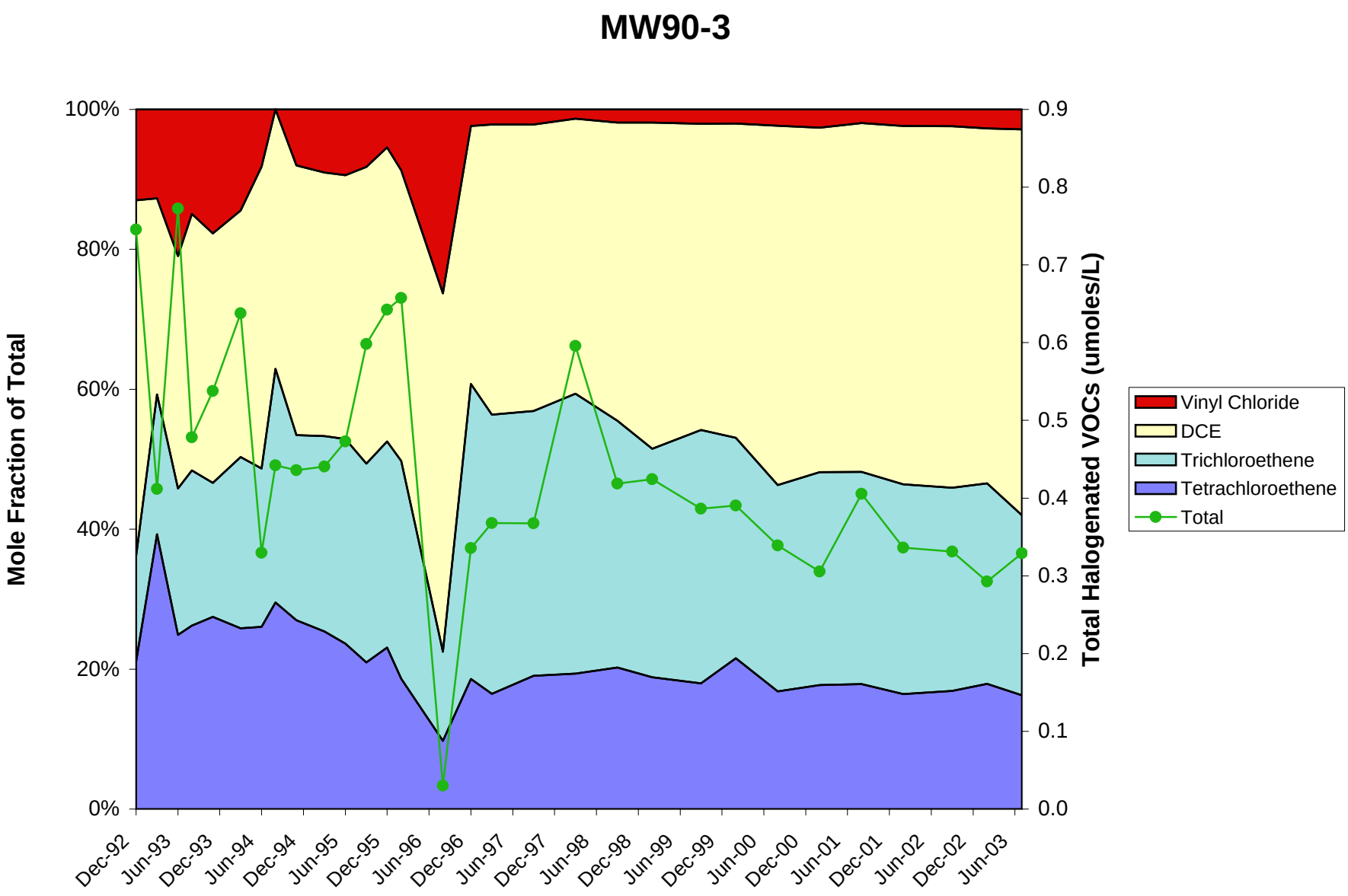


Figure 4.3.3-5. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW90-3, Downgradient Area, Building 71B Lobe.

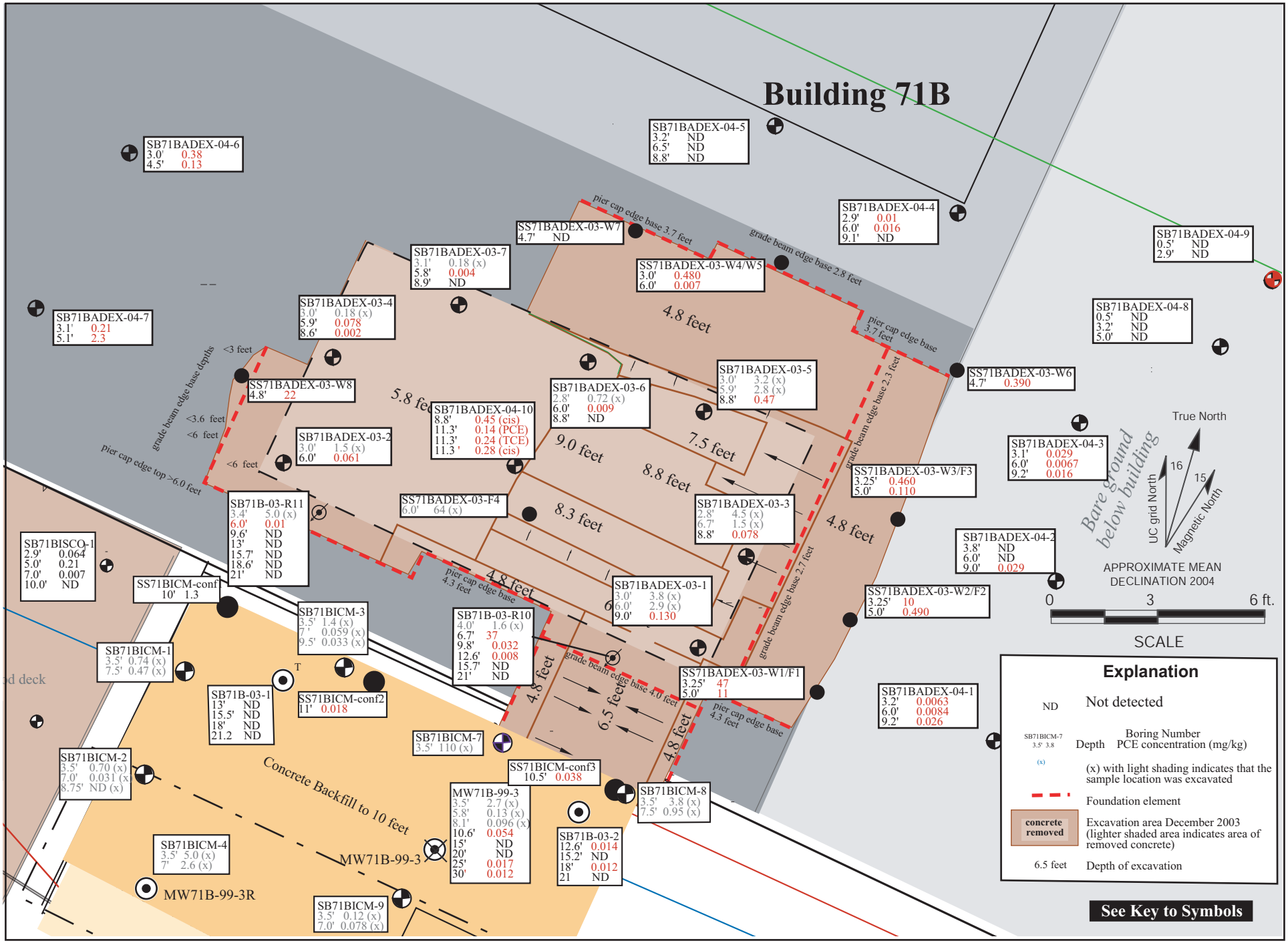
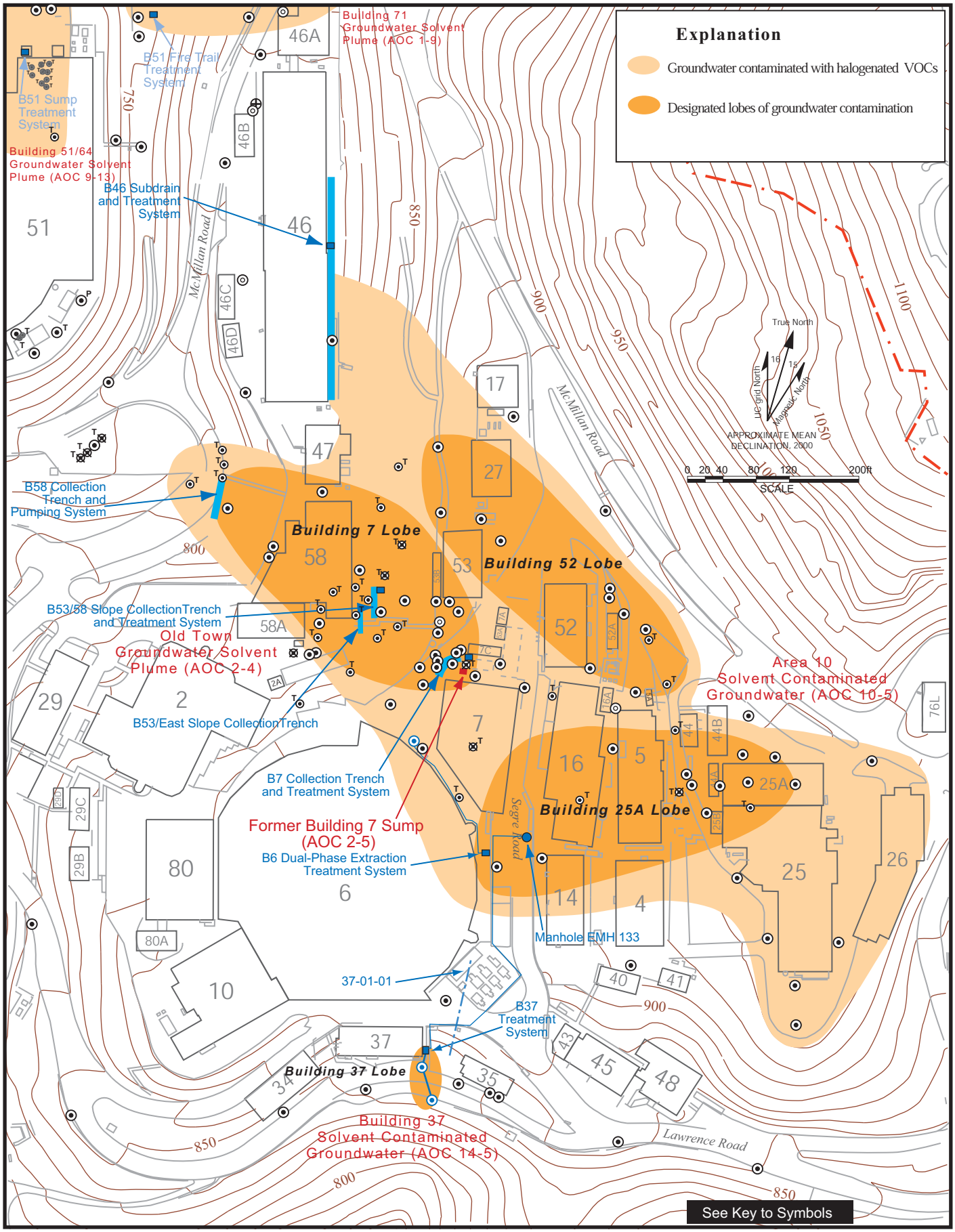


Figure 4.3.3-6. Concentrations of PCE Detected in Soil Samples, Building 71B Lobe Source Area.



4.3.4-1, 4.3.4-3 OldTown.ai
3/03

Figure 4.3.4-1. Location of Building 7 Sump and Building 7 Lobe.

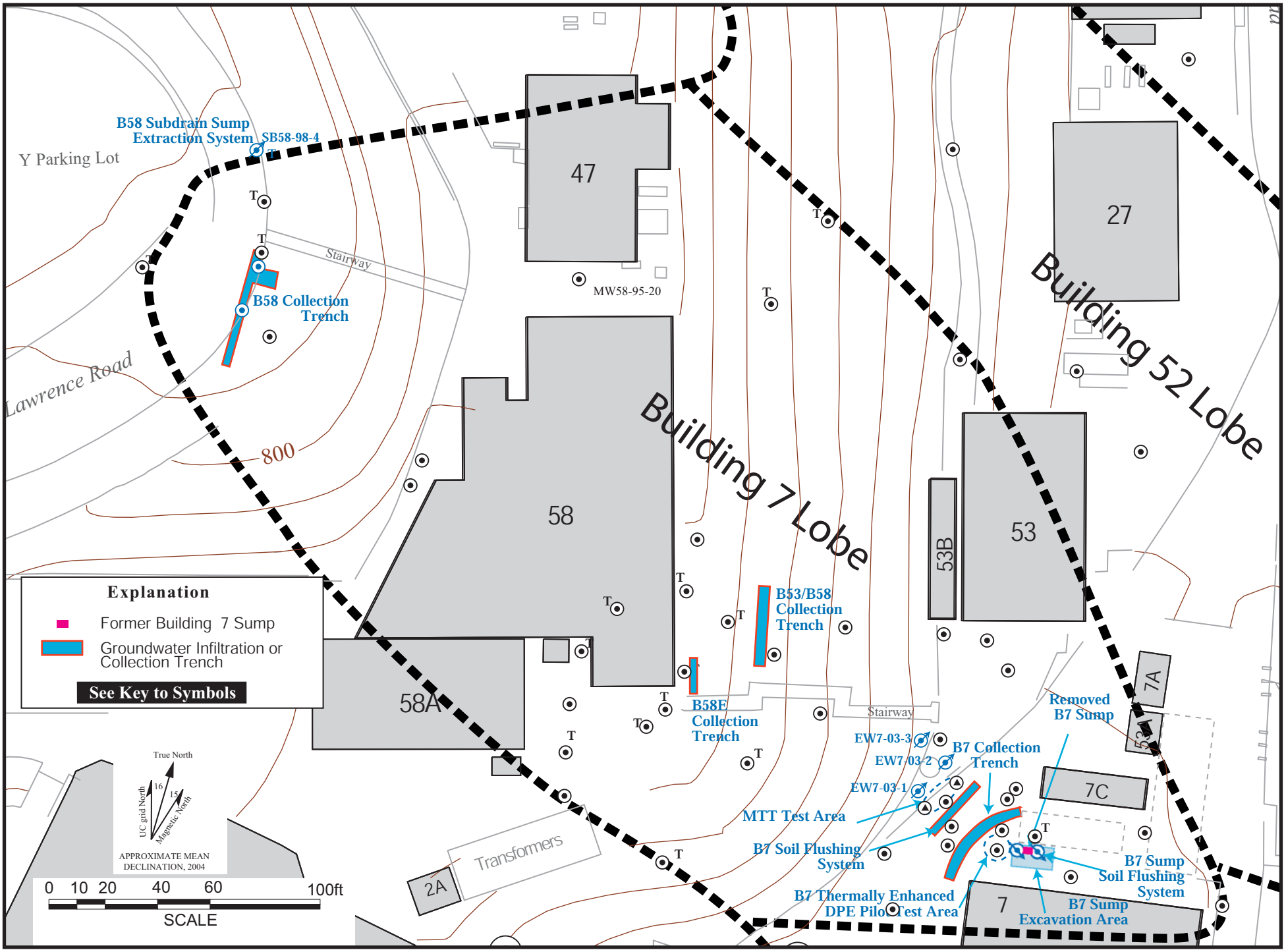


Figure 4.3.4-2. Pilot Tests and ICMs in the Building 7 Lobe Old Town Groundwater Solvent Plume Area.

4.3.4-2, -11a-19-Pilot tests, ICMs, zones.ai
8/03

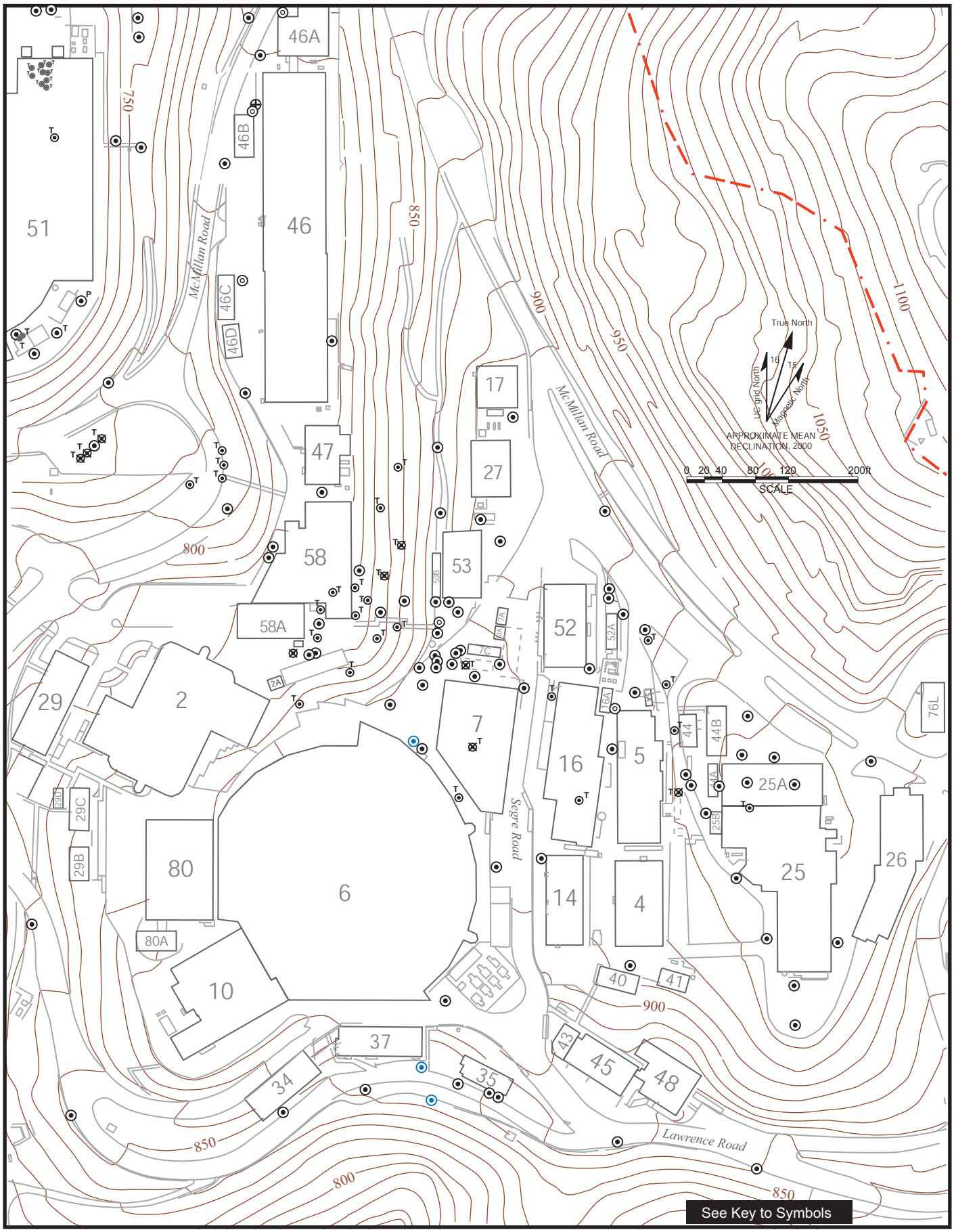


Figure 4.3.4-3. Topography of the Old Town Area.

4.3.4-1, 4.3.4-3 OldTown.ai
3/03

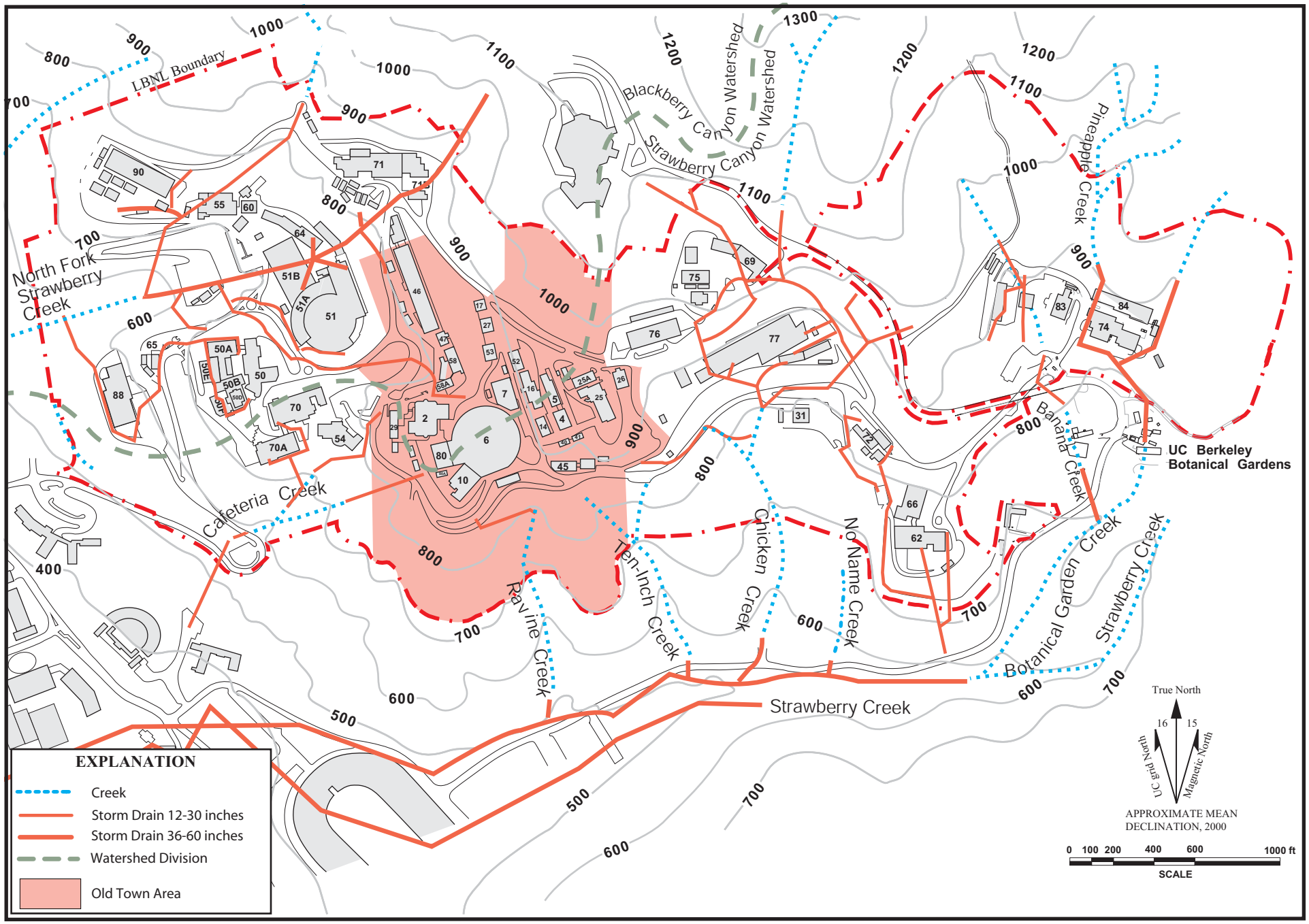
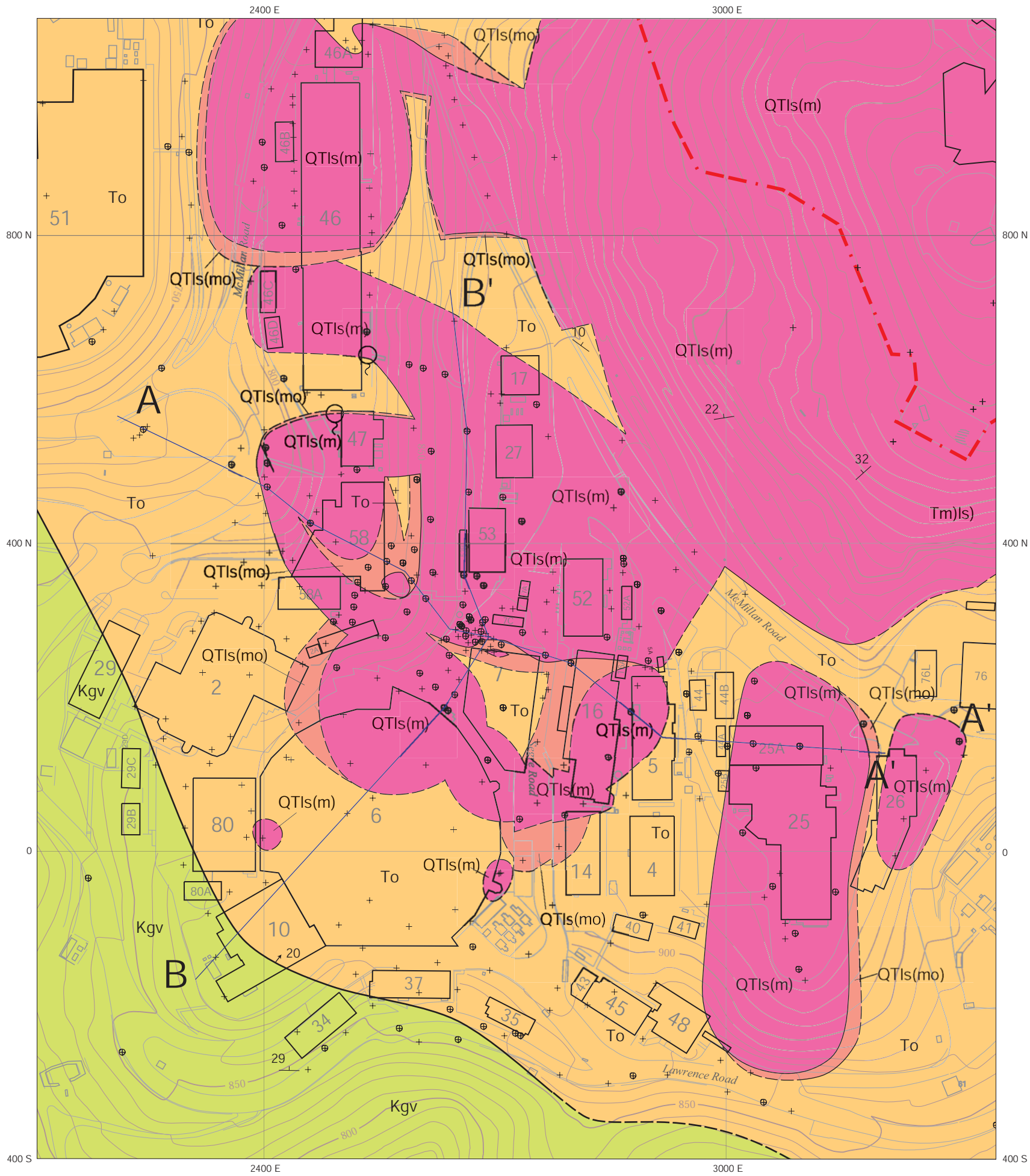


Figure 4.3.4-4. LBNL Surface Hydrology and Stormwater Drainage System.

4.3.4-4 drainage.ai
09/00



SCALE 1:1800

0 150 300ft

CONTOUR INTERVAL 10 FEET
UNIVERSITY OF CALIFORNIA DATUM

True North
UC grid North
Magnetic North
16
15
APPROXIMATE MEAN DECLINATION, 2000

QTls(m)	Paleolandslide Deposit Composed of Moraga Formation Rocks
QTls(mo)	Paleolandslide Deposit (Mixed Unit)
Tm	Moraga Formation
To	Orinda Formation
Tsp	San Pablo Group
Tc	Claremont Formation
Kgv	Great Valley Group
JKf	Franciscan Complex

tinted box indicates unit appears in figure

Boundary of Lawrence Berkeley National Laboratory

Environmental monitoring wells includes groundwater and soil gas wells and lysimeters

Soil borings includes slope indicators and slope stability wells

Historic springs (modified from Soule, 1875)

75
Contact, showing dip
dashed where approximately located; dotted where concealed by other map units

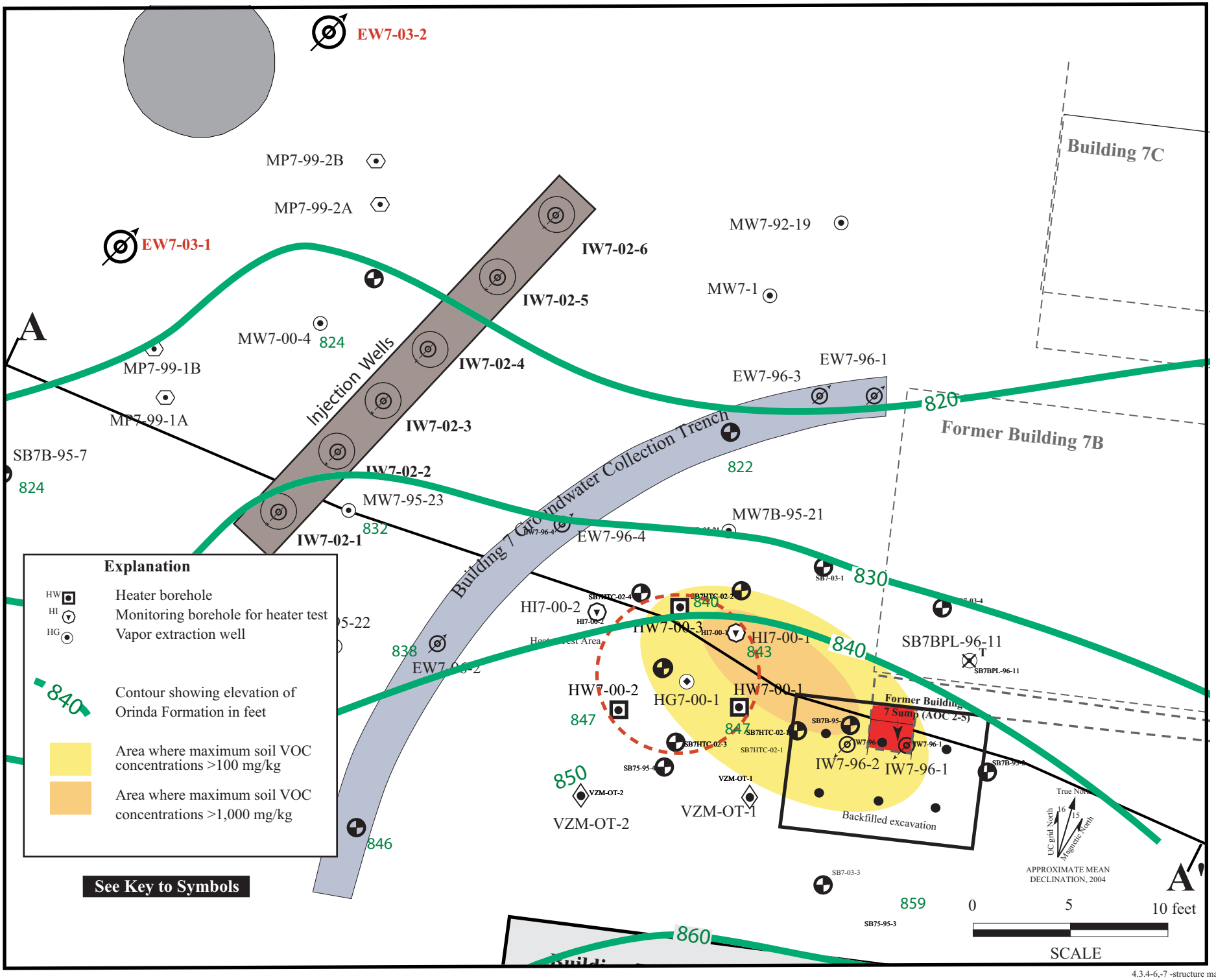
35
Fault, showing dip
dashed where approximately located; dotted where concealed; queried where inferred

60
Strike and dip of beds

Figure 4.3.4-5. Old Town Area Bedrock Geologic Map.

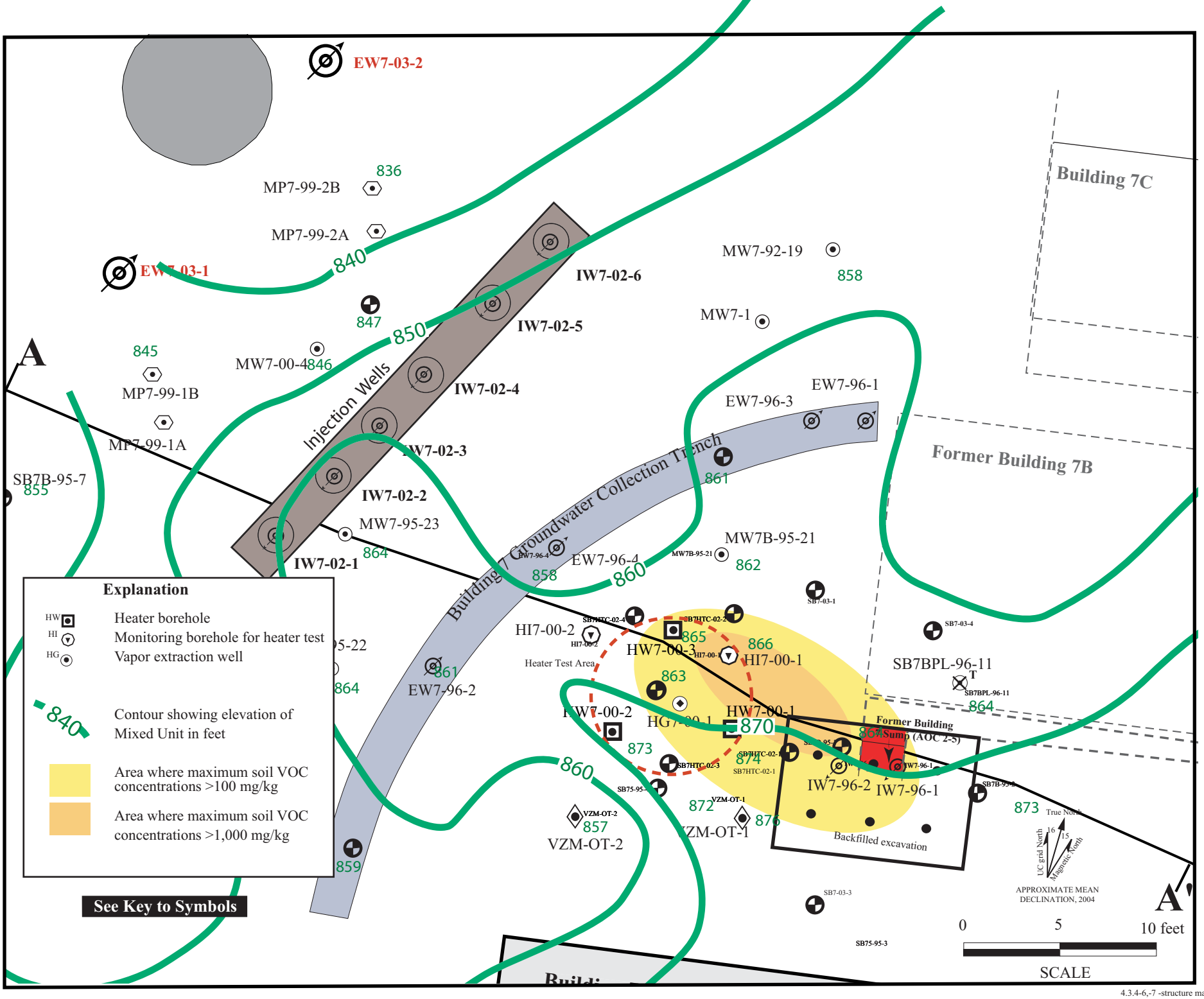
revision: 9/26/2000

4.3.4-5 ot br map.ai
09/00



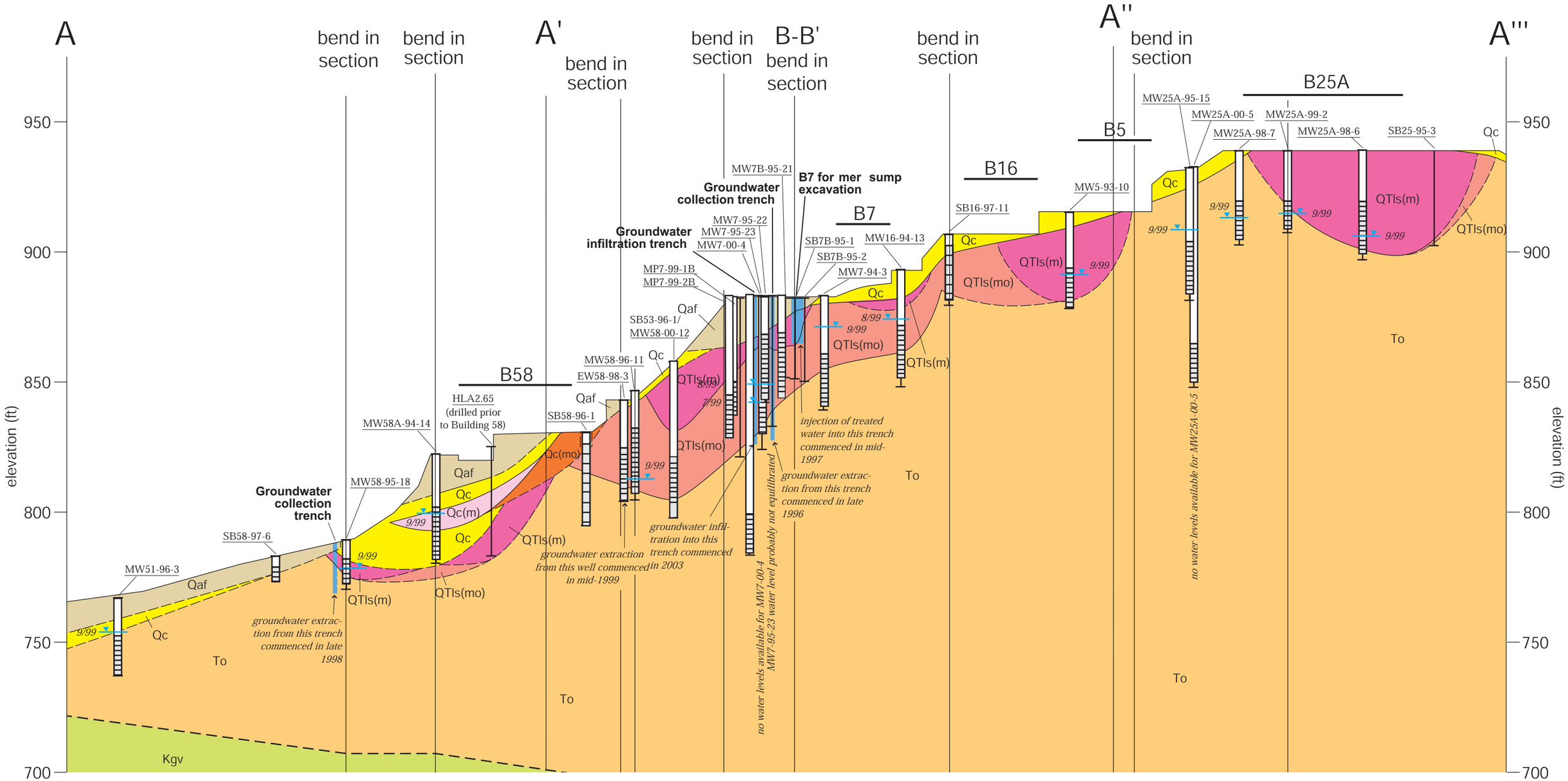
4.3.4-6,-7 -structure maps.ai
12/03

Figure 4.3.4-6. Elevation of Top of Orinda Formation.



4.3.4-6,-7 -structure maps.ai
12/03

Figure 4.3.4-7. Elevation of Top of Mixed Unit.



HORIZONTAL SCALE 1:900

0 100 200ft

2x vertical exaggeration
elevation from the UNIVERSITY OF CALIFORNIA DATUM

B58 — approximate horizontal location of buildings on or near section

tinted box indicates unit appears in section

Qaf	artificial fill	Qdb	debris flow deposits	To	Orinda Formation
Qc	colluvium (may locally include alluvium)	QTls(m)	paleolandslide deposit composed of Moraga Formation rocks	Tsp	San Pablo Group
Qc(m)	colluvium composed of Moraga Formation Rocks	QTls(mo)	paleolandslide deposit (Mixed Unit)	Tc	Claremont Formation
Qc(m)	colluvium composed of Mixed Unit Rocks	Tm	Moraga Formation	Kgv	Great Valley Group

Contact — dashed where approximately located

Fault — dashed where approximately located; queried where inferred

generalized apparent dip

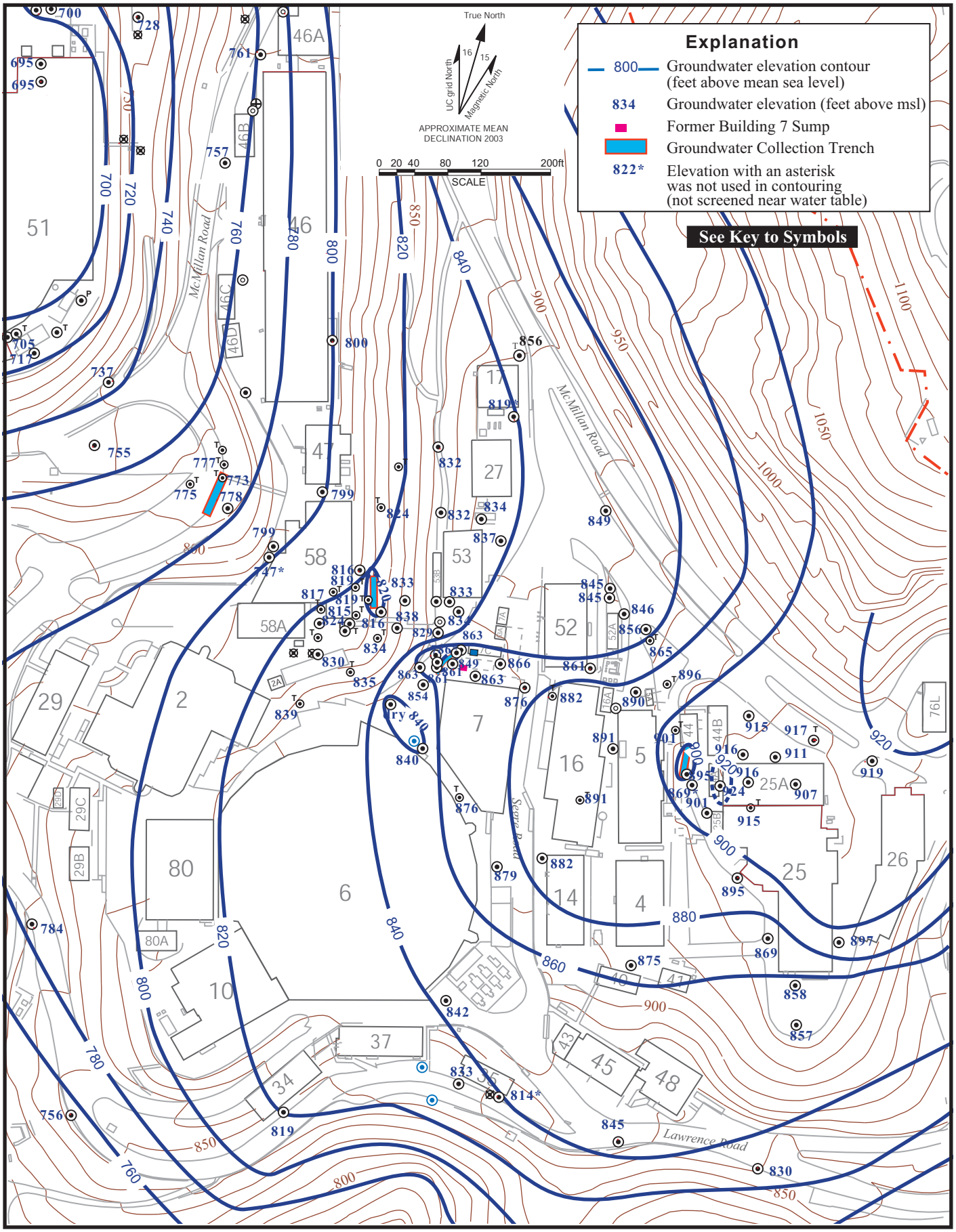
GROUNDWATER MONITORING WELL: MW58-93-3 — Well name; Well casing; Water level with month of measurement; Screened interval; Total boring depth; 9/99

TEMPORARY GROUNDWATER WELL: SB53-96-5 — Well name; Well casing; Water level with month of measurement; Screened interval; Total boring depth; 9/99

SOIL BORING: HLA9.172 — Boring name; Total boring depth

SOIL GAS MONITORING WELL — Well casing; Screened interval

Figure 4.3.4-8. Old Town Area Cross Section A-A'.



4.3.4-9-OldTown wl fy03q4.ai
11/03

Figure 4.3.4-9. Water Level Elevation Map of the Old Town Area, Fourth Quarter FY2003.

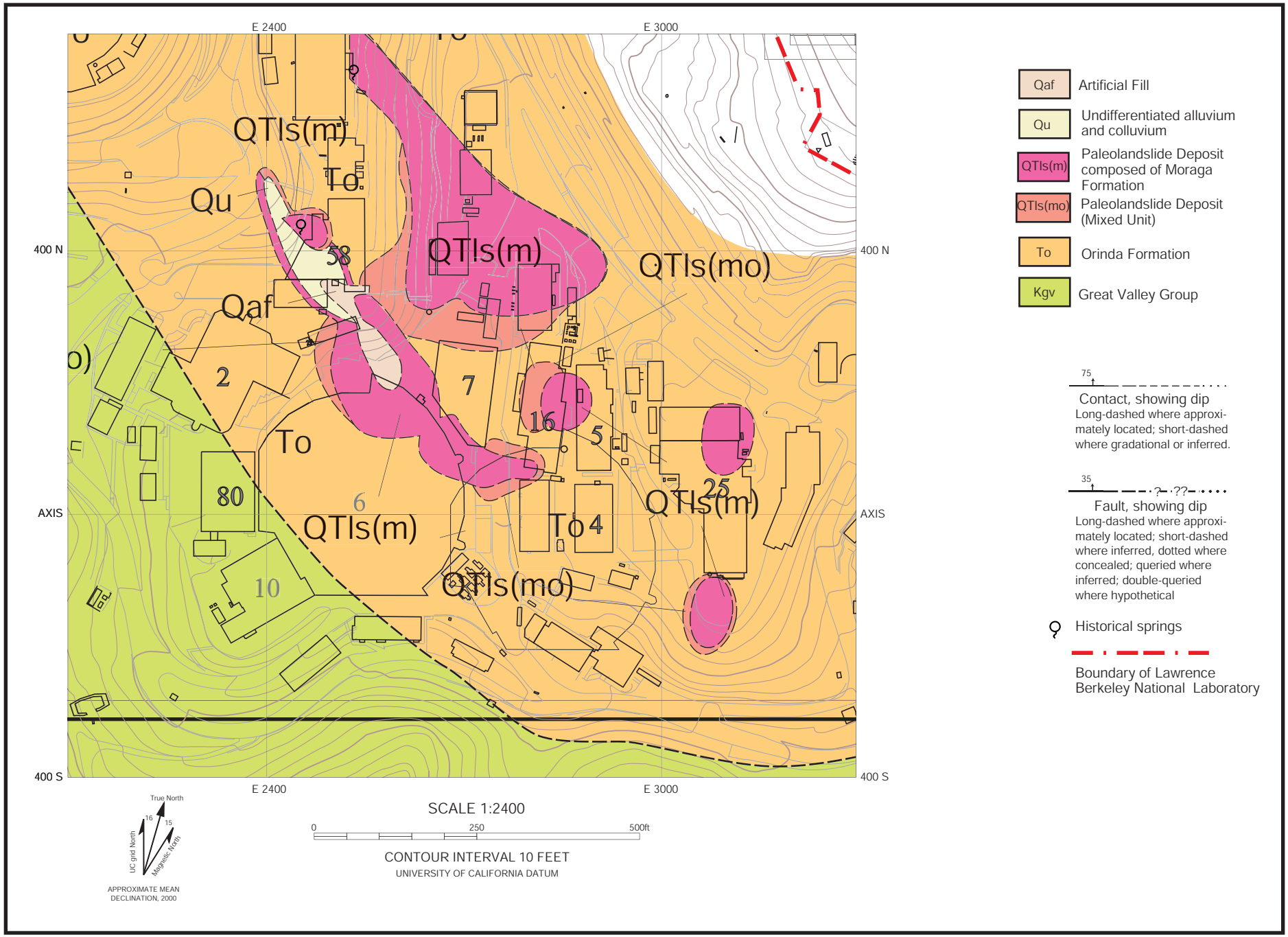


Figure 4.3.4-10. Water Table Geology in the Old Town Area.

4.3.4-10-wtgeology.ai
09/00

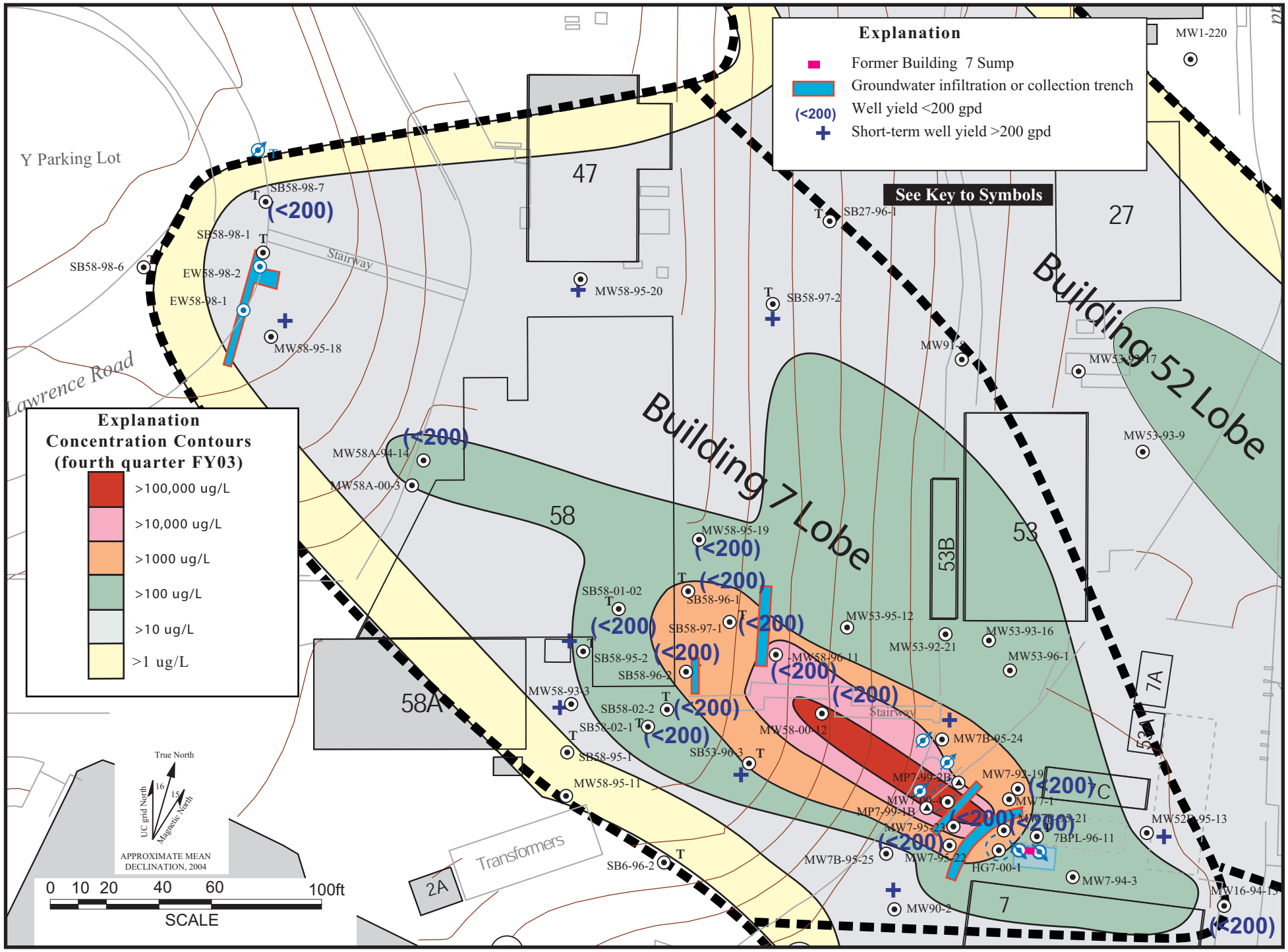


Figure 4.3.4-11a. Total Halogenated Hydrocarbons in Groundwater (ug/L) and Estimated Well Yields, Building 7 Lobe Old Town Groundwater Solvent Plume.

4.3.4-2, -11a-19-Pilot tests, ICMs, zones.ai
8/03

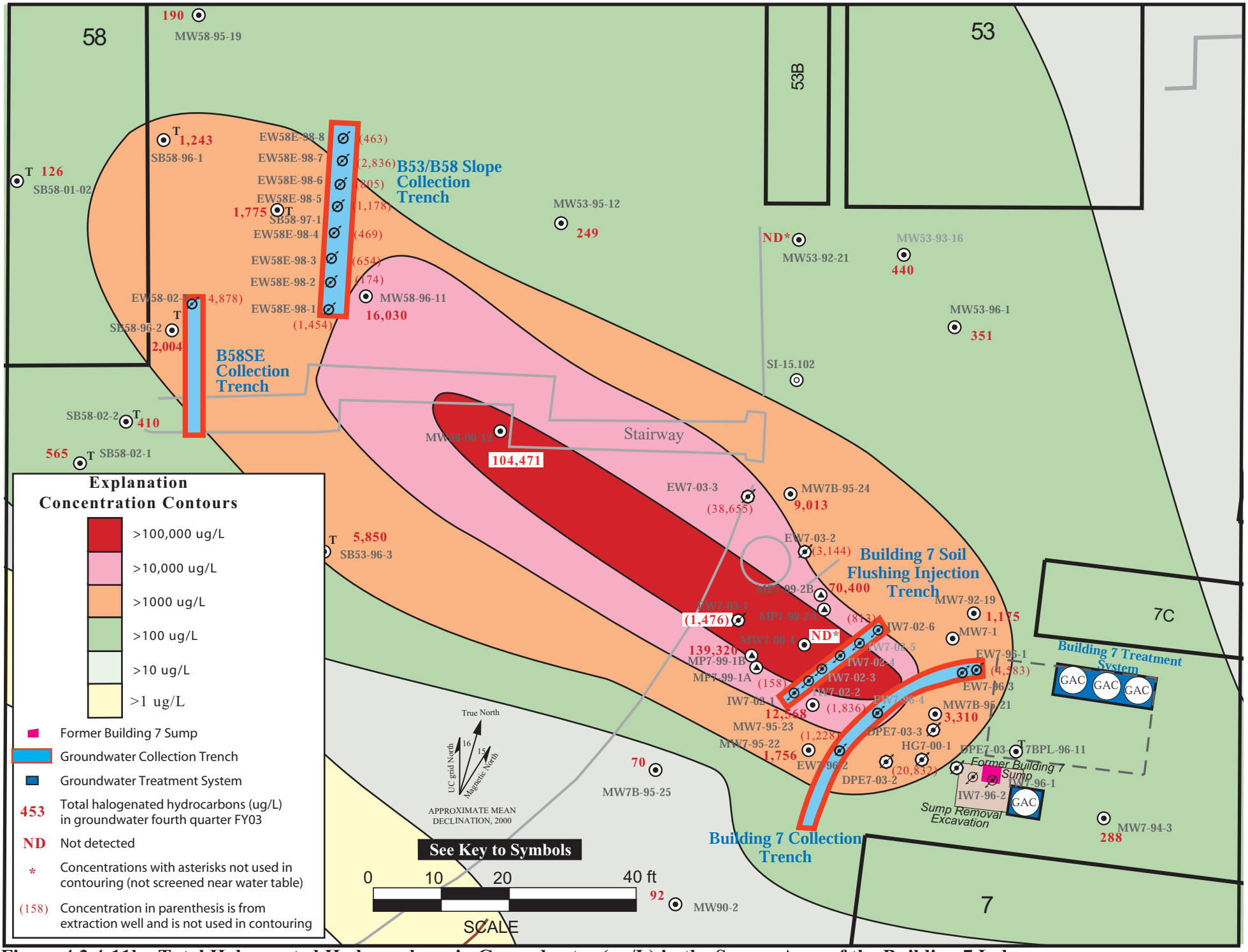


Figure 4.3.4-11b. Total Halogenated Hydrocarbons in Groundwater (ug/L) in the Source Area of the Building 7 Lobe Old Town Groundwater Solvent Plume.

f4.3.4-11b
4/04

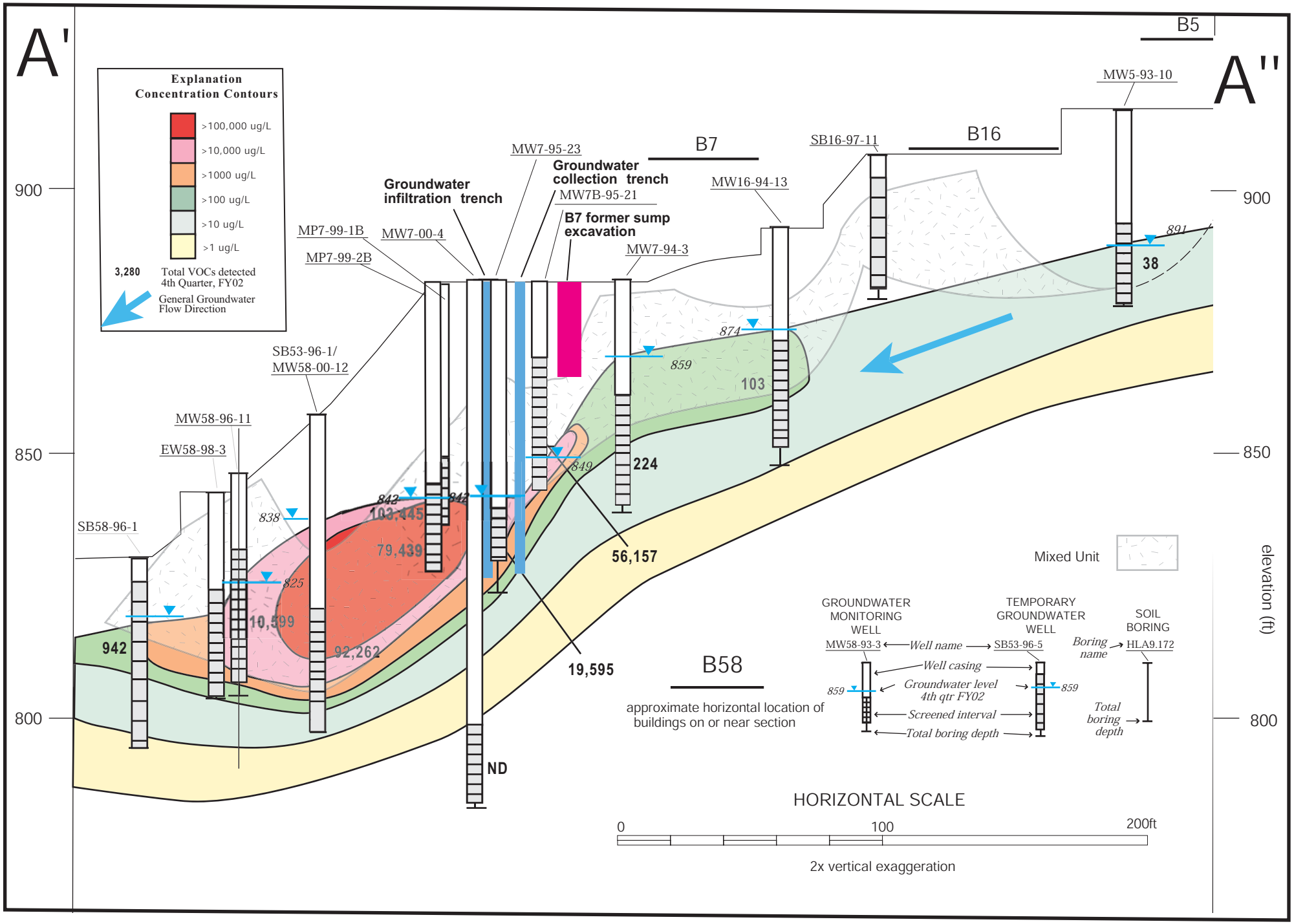


Figure 4.3.4-12. Geologic Cross Section Showing Total Halogenated Non-Aromatic VOC Concentrations, Building 7 Area.

4.3.4-12 voc gw cross section
08/03

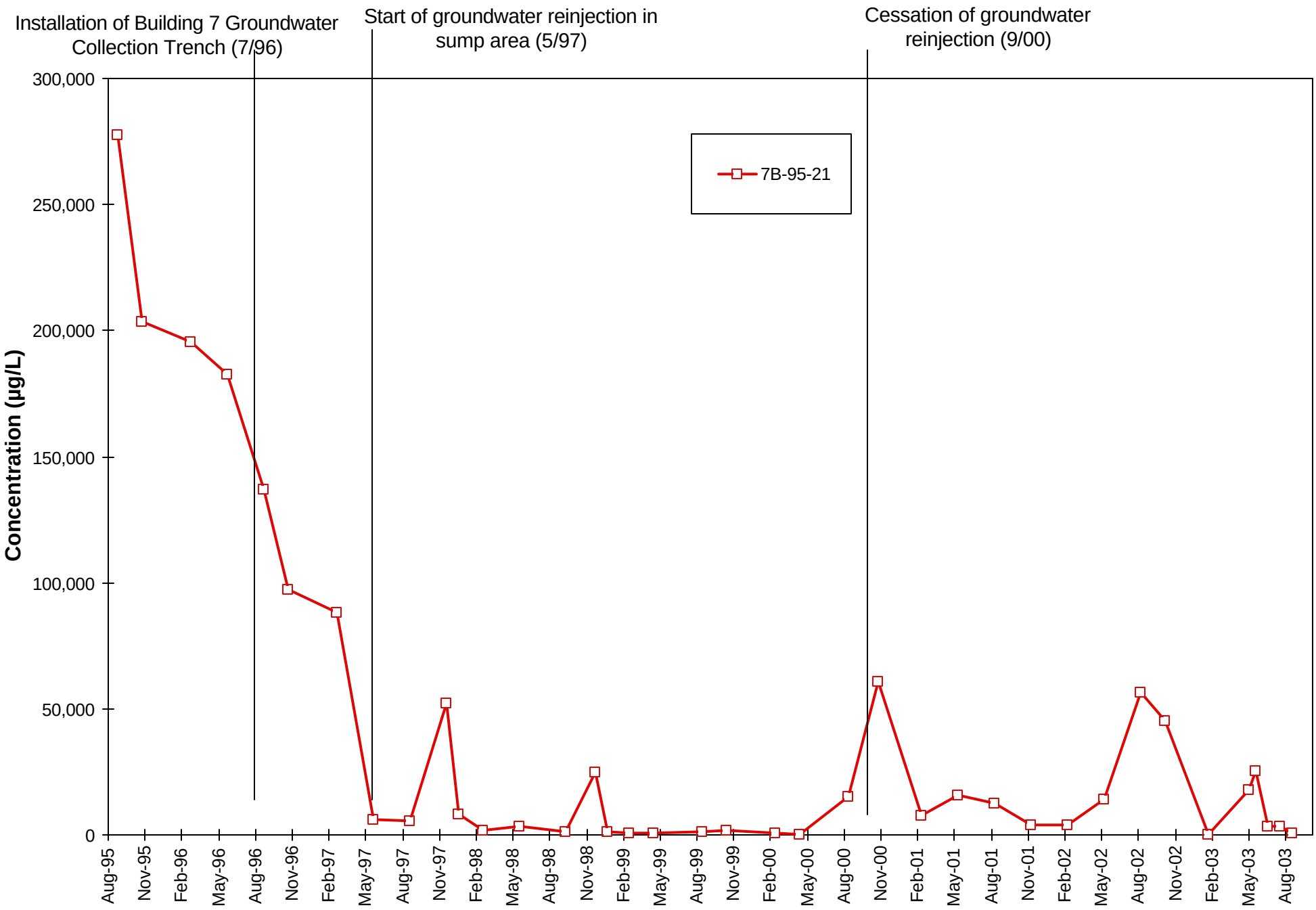


Figure 4.3.4-13a. Concentration Trends for Total Halogenated VOCs in Well 7B-95-21 Located Near Source of the Old Town Plume, (Building 7 Lobe)

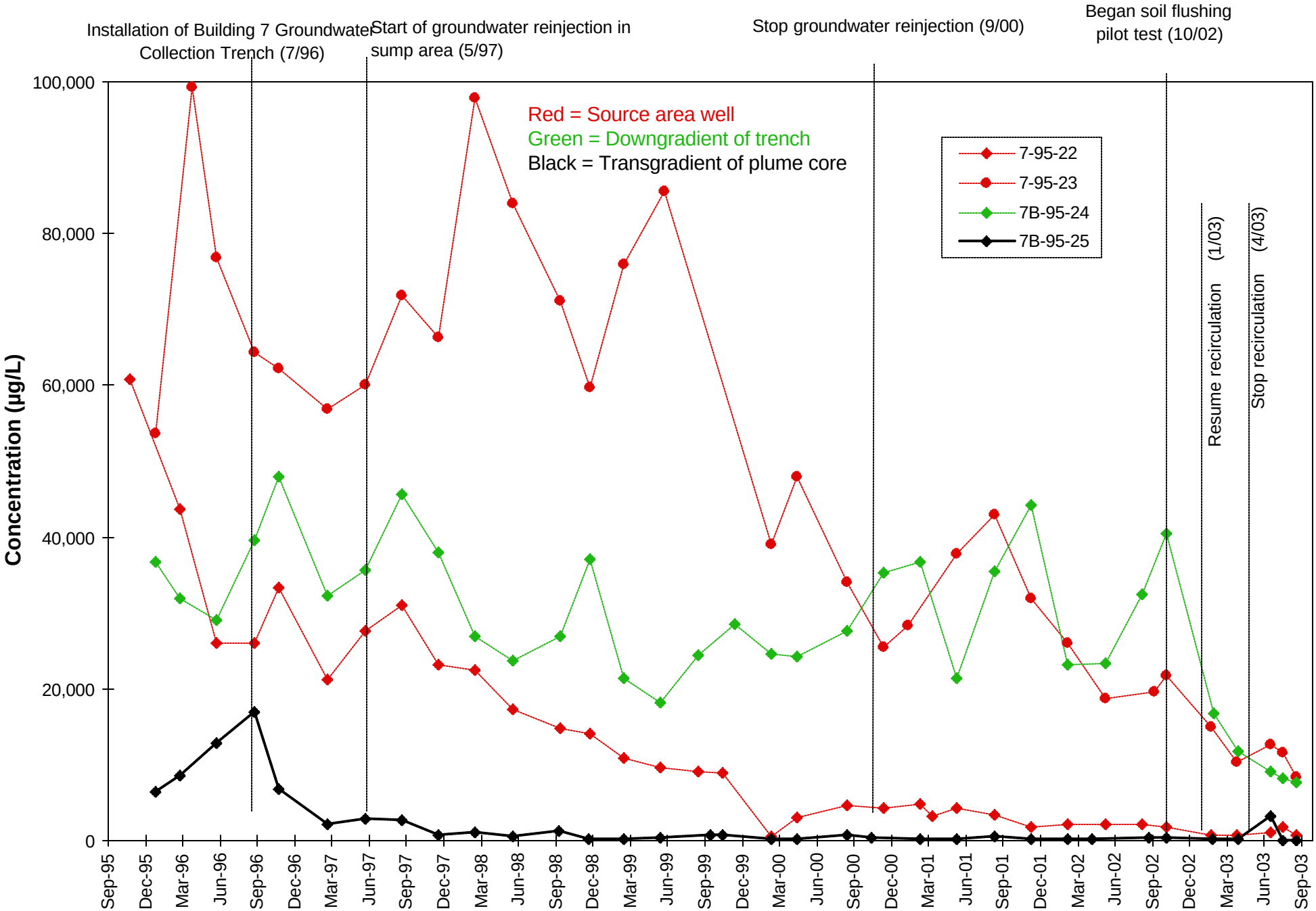


Figure 4.3.4-13b. Concentration Trends for Total Halogenated VOCs in Wells Located Near Source of the Old Town Plume, (Building 7 Lobe)

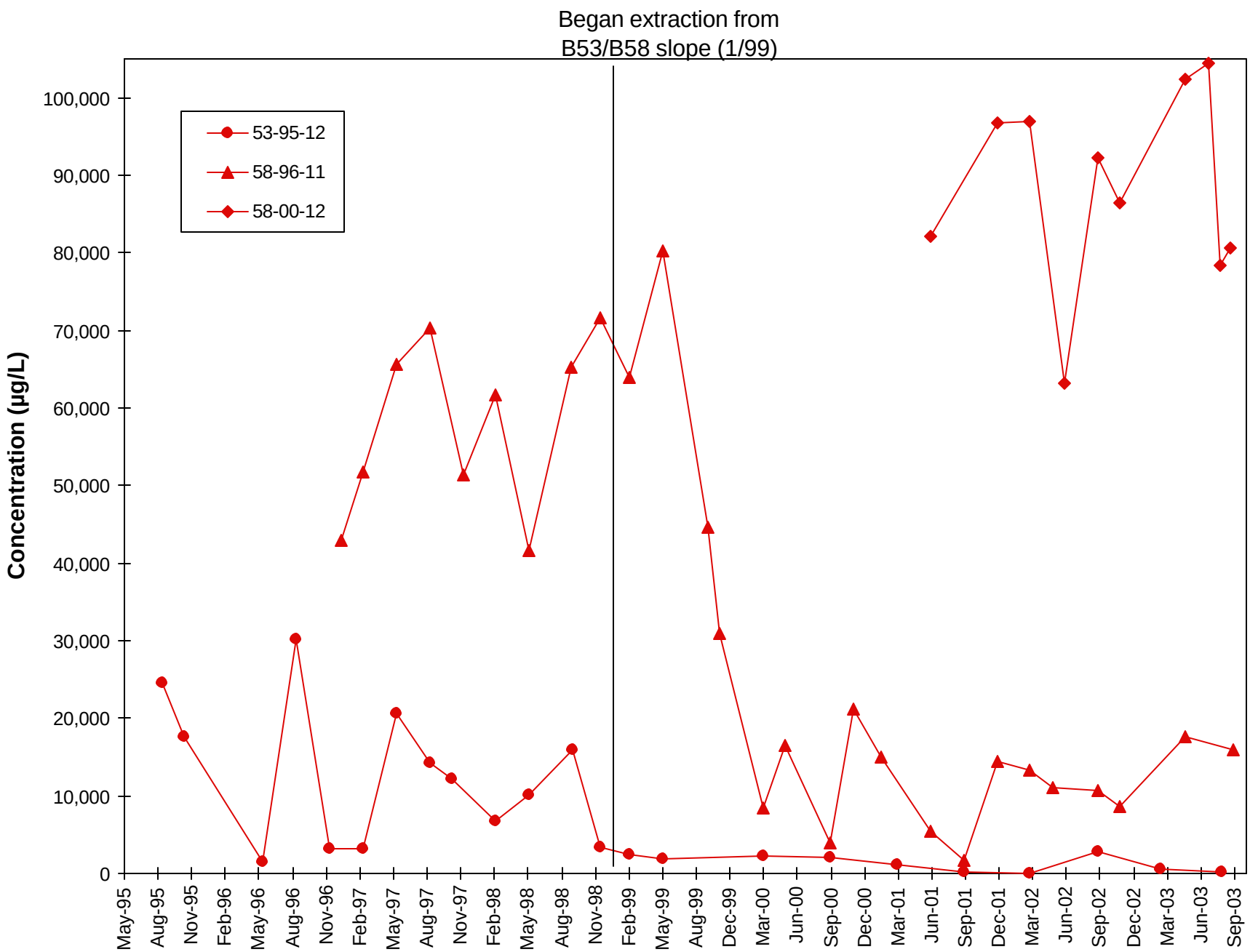


Figure 4.3.4-13c. Concentration Trends for Total Halogenated VOCs in Wells Located Within the Core of the Old Town Plume (Building 7 Lobe)

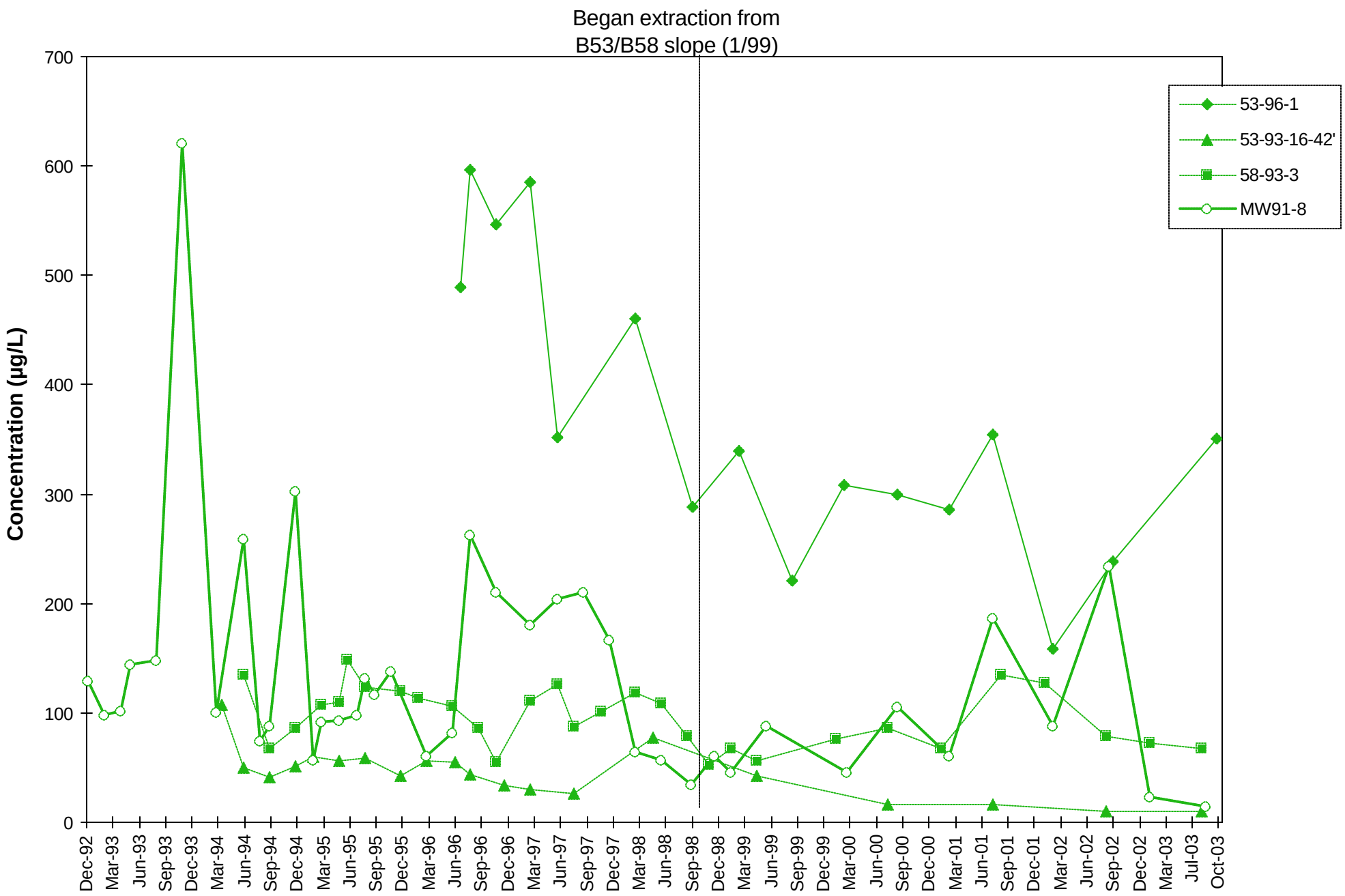


Figure 4.3.4-13d. Concentration Trends for Total Halogenated VOCs in Wells Located Crossgradient from the Core of the Old Town Plume (Building 7 Lobe)

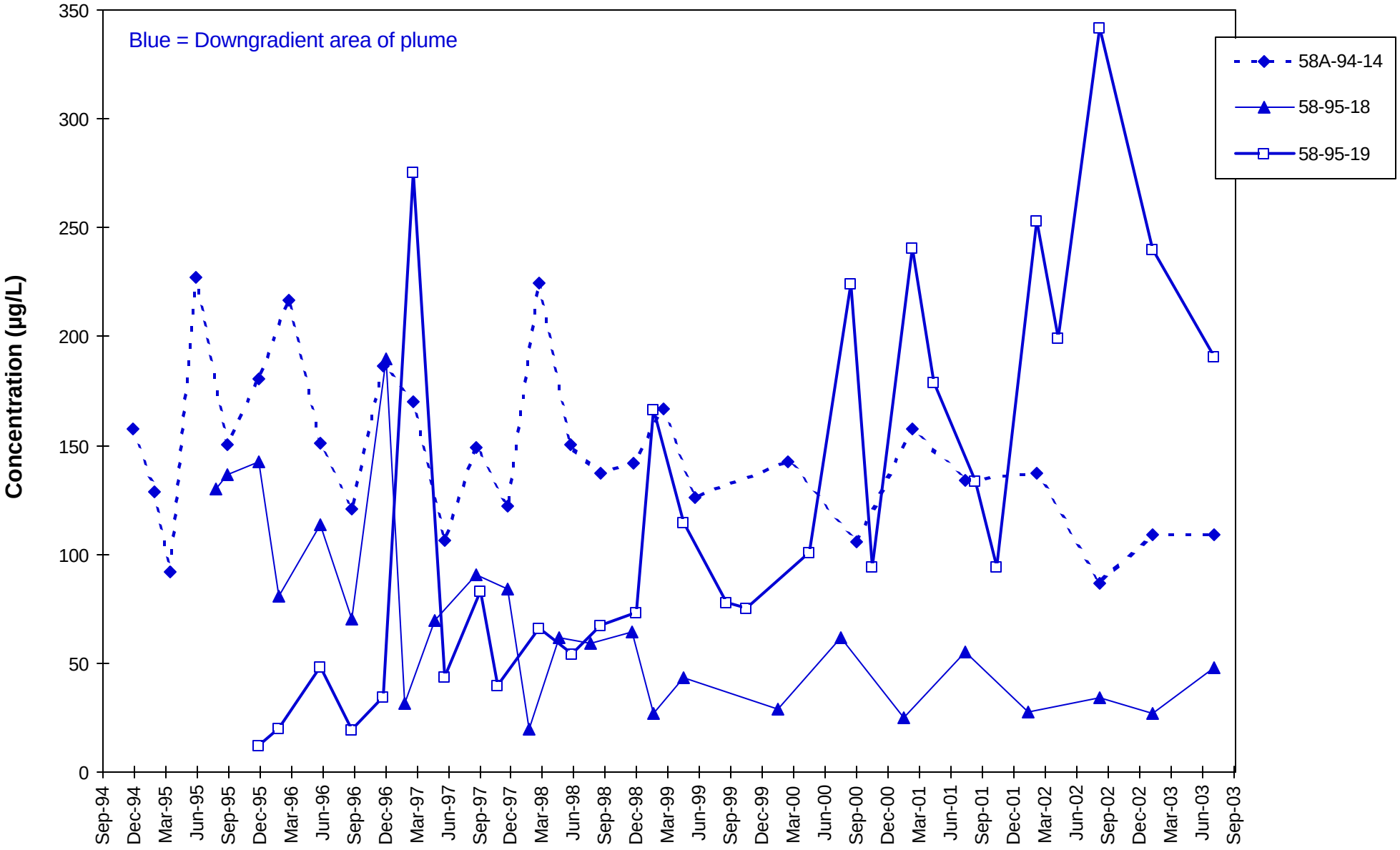


Figure 4.3.4-13e. Concentration Trends for Total Halogenated VOCs in Wells Located in the Downgradient Portion of the Old Town Plume (Building 7 Lobe)

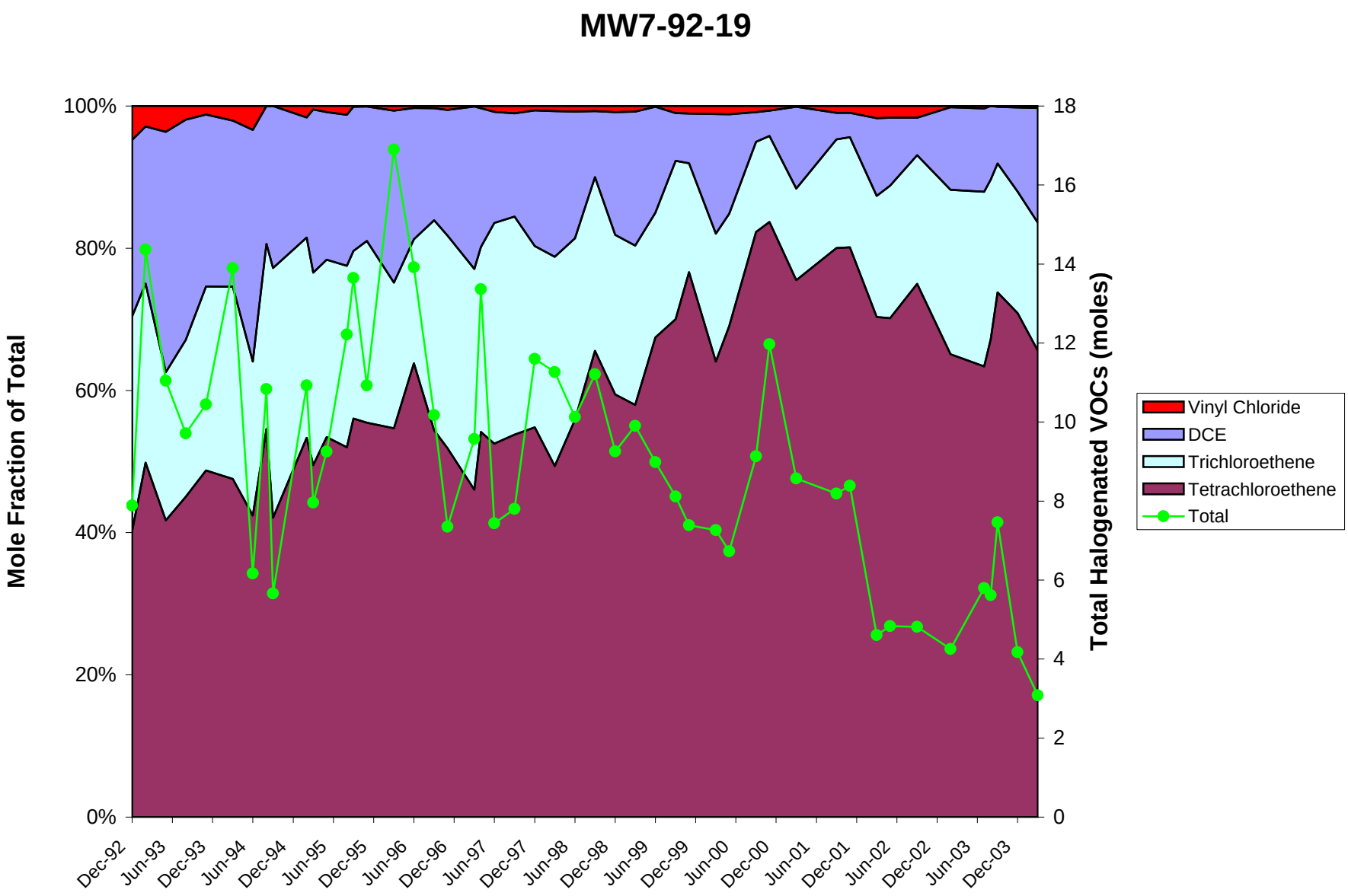


Figure 4.3.4-14a. Temporal Variations in Relative Proportions of Halogenated Non-aromatic VOCs, MW7-92-19

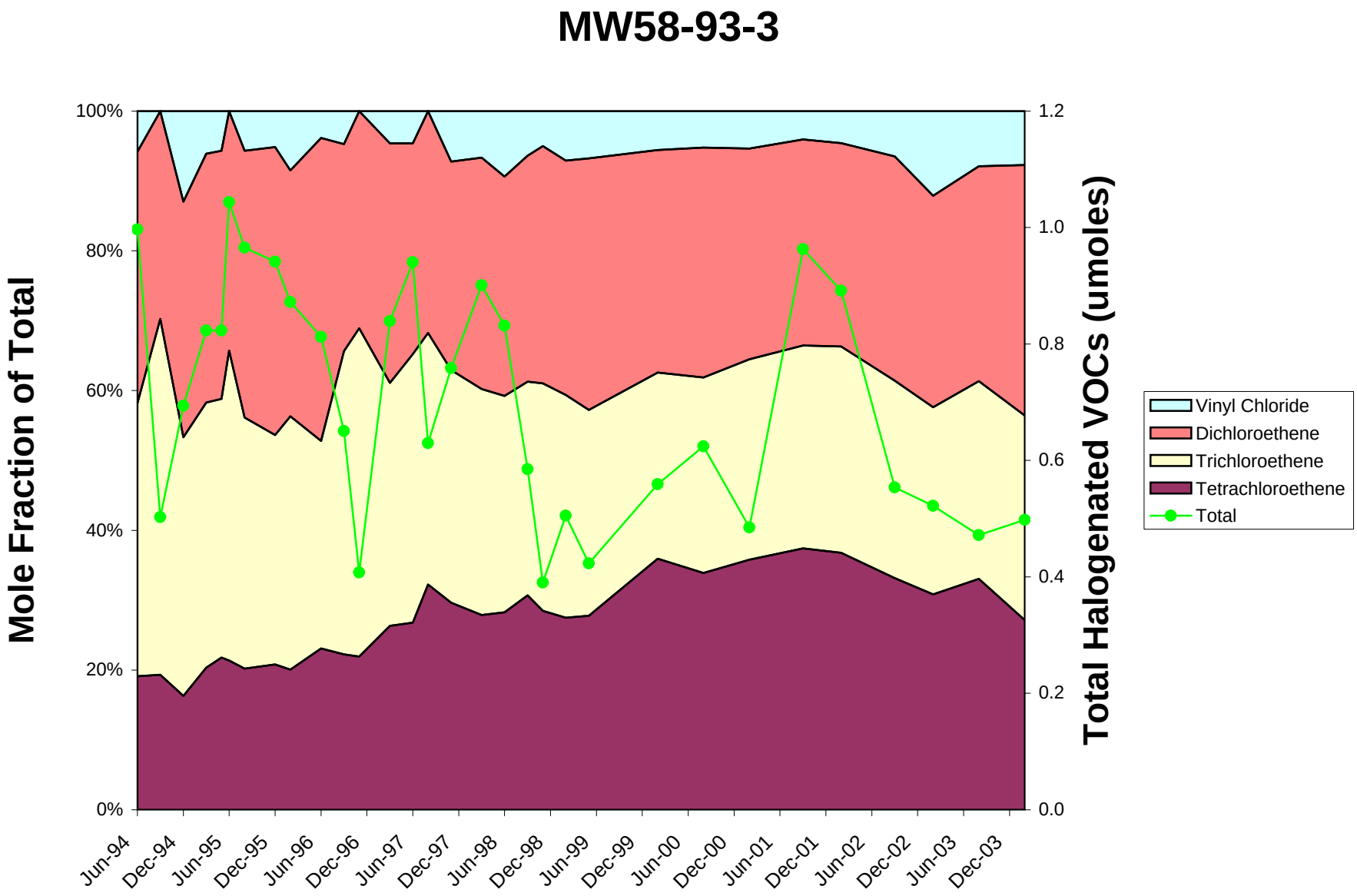


Figure 4.3.4-14b. Temporal Variations in Relative Proportions of Halogenated Non-aromatic VOCs in Well MW58-93-3, Periphery Area of Building 7 Lobe

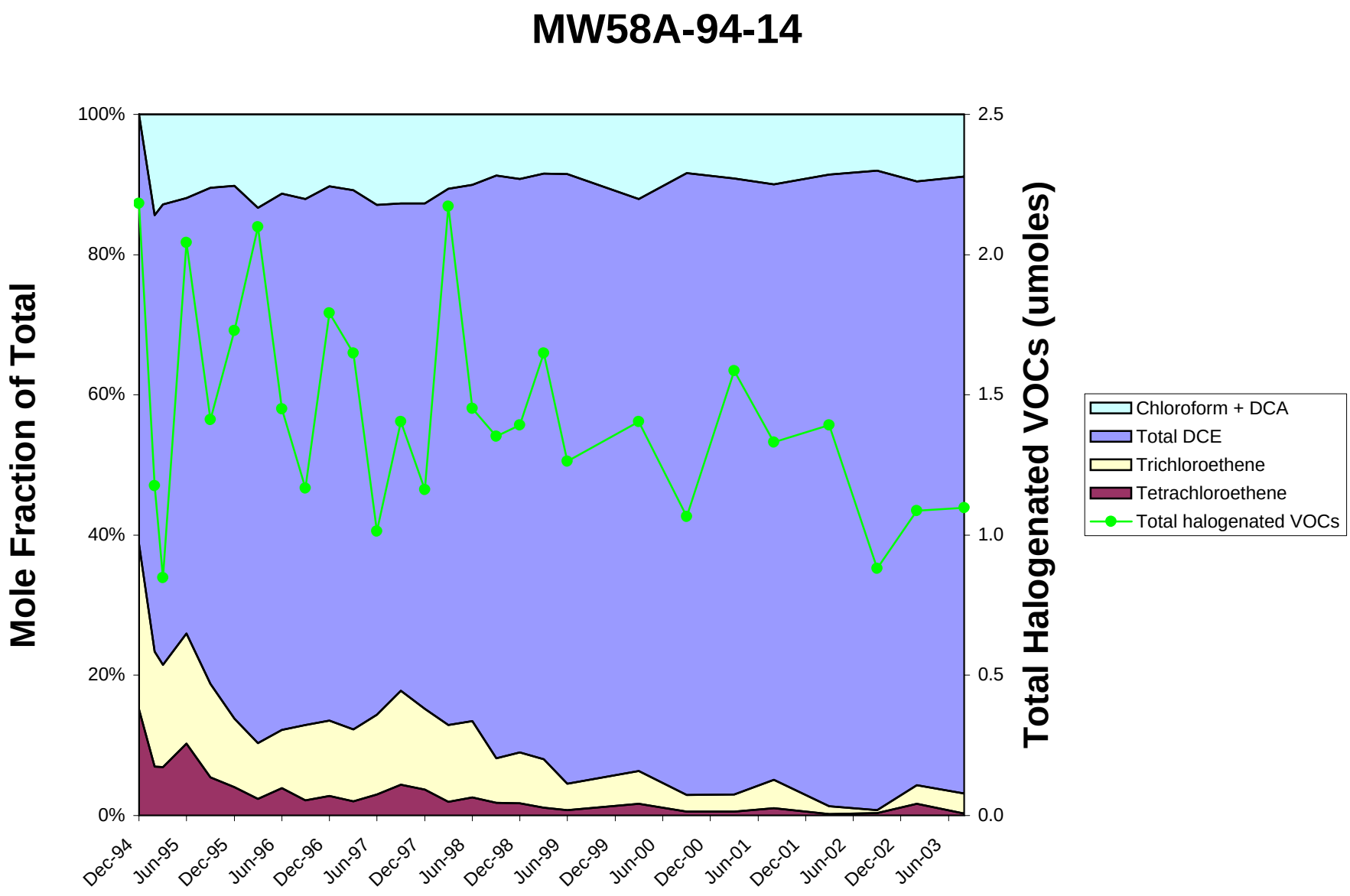
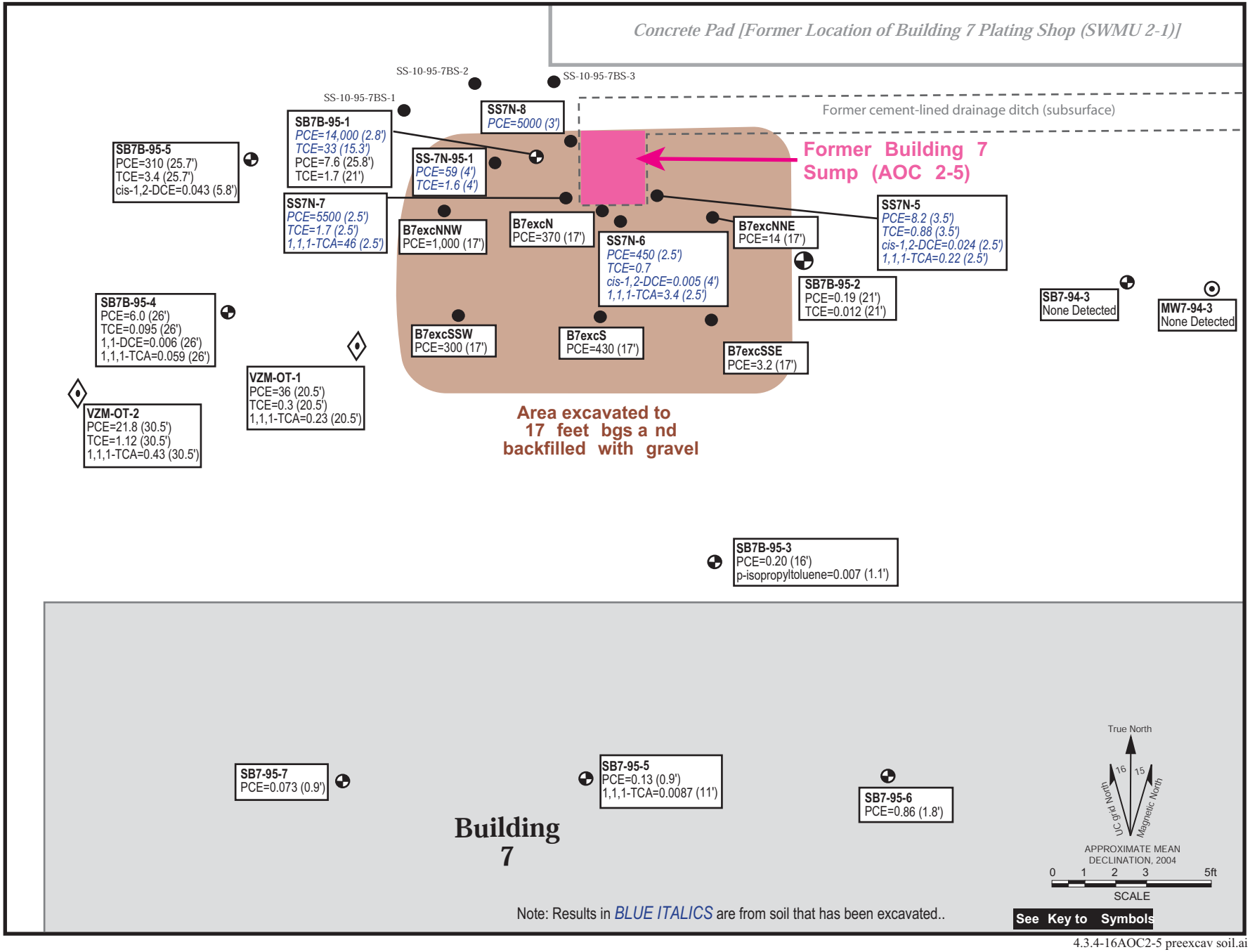


Figure 4.3.4-14c. Temporal Variations in Relative Proportions of Halogenated Non-aromatic VOCs in Well MW58A-94-14



4.3.4-16AOC2-5 preexcav soil.ai
09/00

Figure 4.3.4-15. Maximum Concentrations of VOCs Detected (mg/kg) in Soil Samples Prior to Soil Excavation Near Former Building 7 Sump (AOC 2-5).

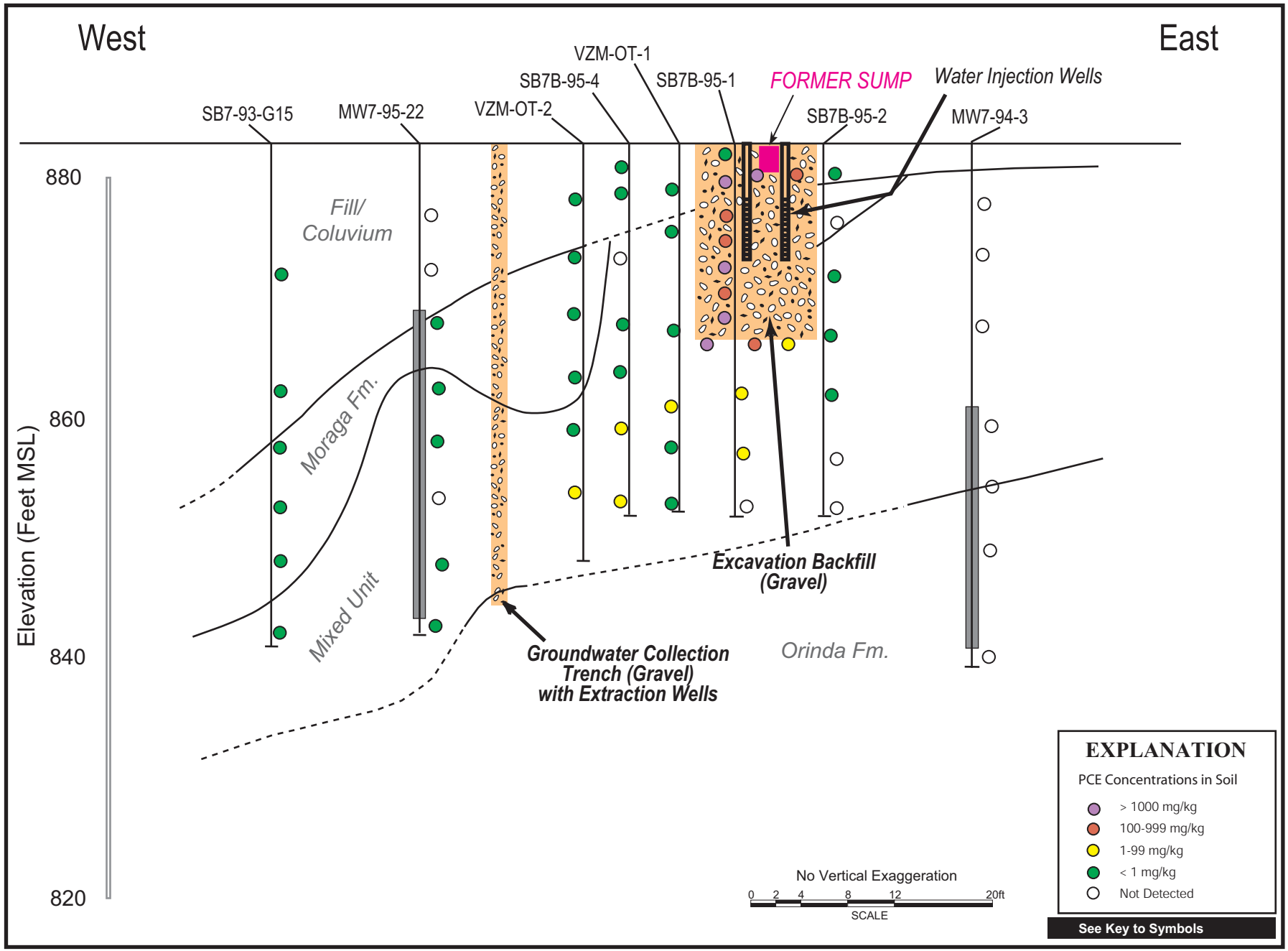


Figure 4.3.4-16. Geological Cross-Section Showing Concentrations of PCE Detected in Soil Samples Prior to Soil Excavation Near Former Building 7 Sump (AOC 2-5).

4.3.4-16AOC2-5 preexcav soil xsect.ai
8/04

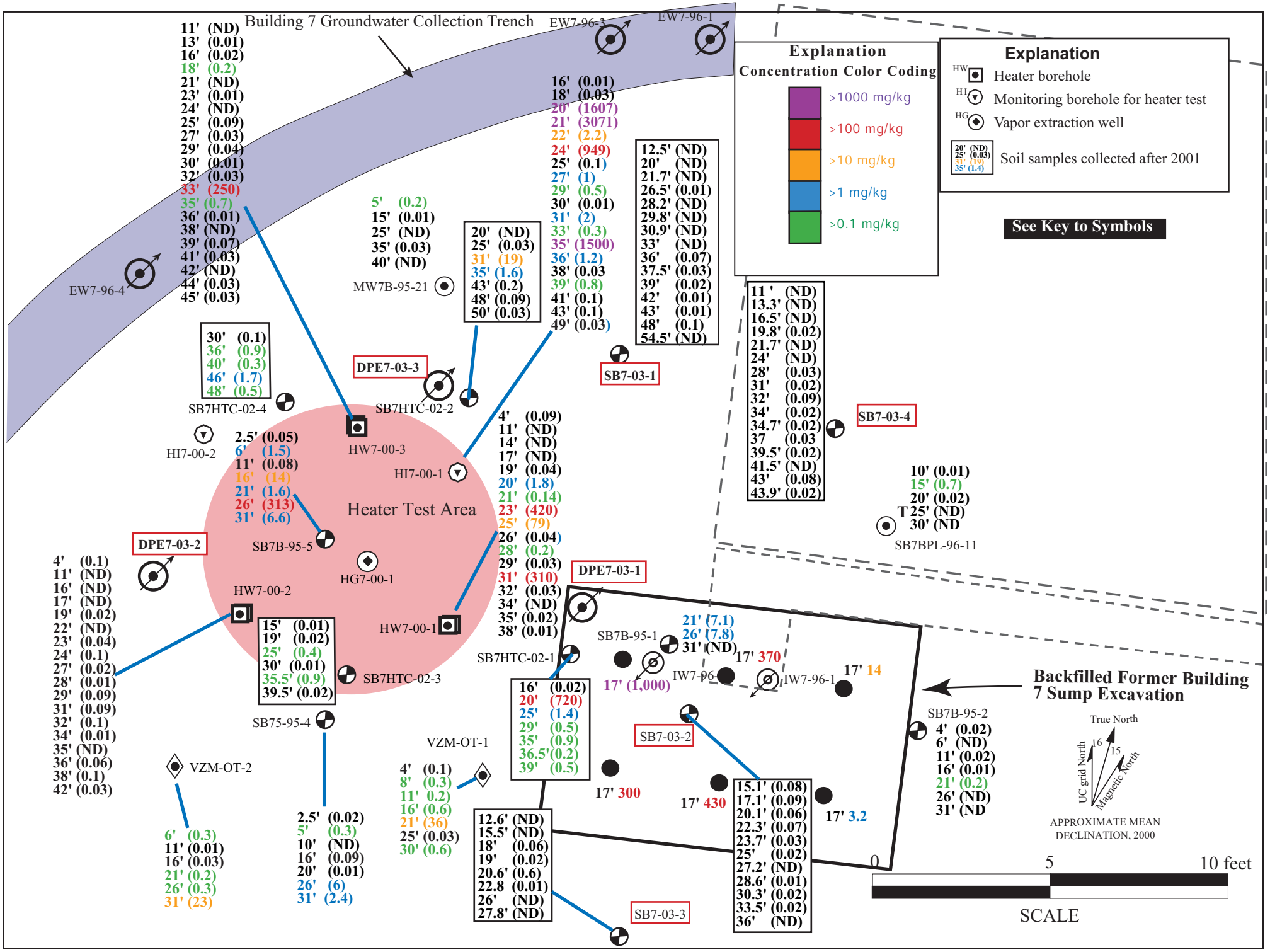


Figure 4.3.4-17. Concentrations of Total VOCs Detected (mg/kg) Former Building 7 Sump Area.

4.3.4-18 B7 residual soil results.ai
10-03

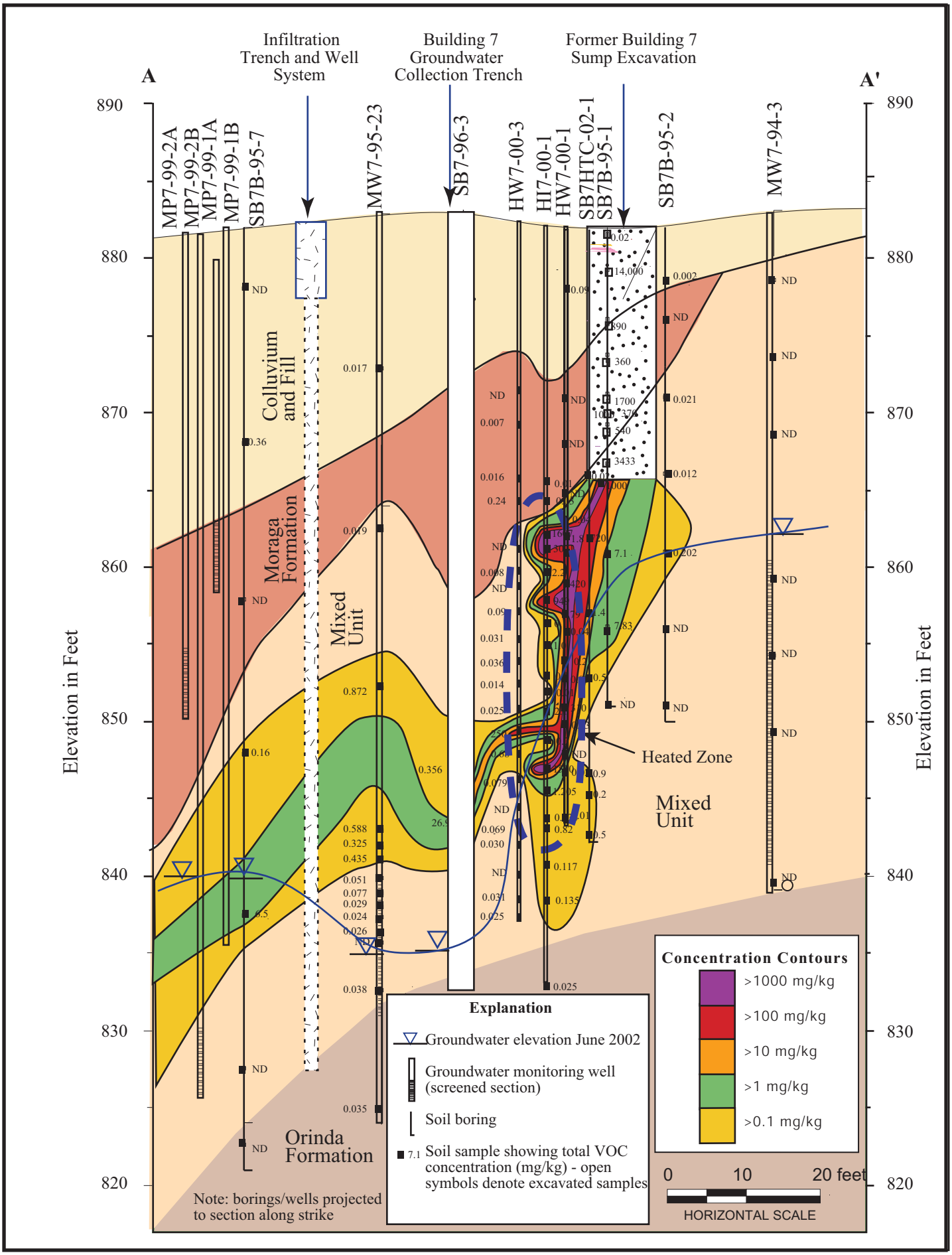


Figure 4.3.4-18. Geologic Cross Section A-A' Showing Soil Sample Results, Building 7 Area. 4.3.4-18 crosssec A-A'.ai 8/03

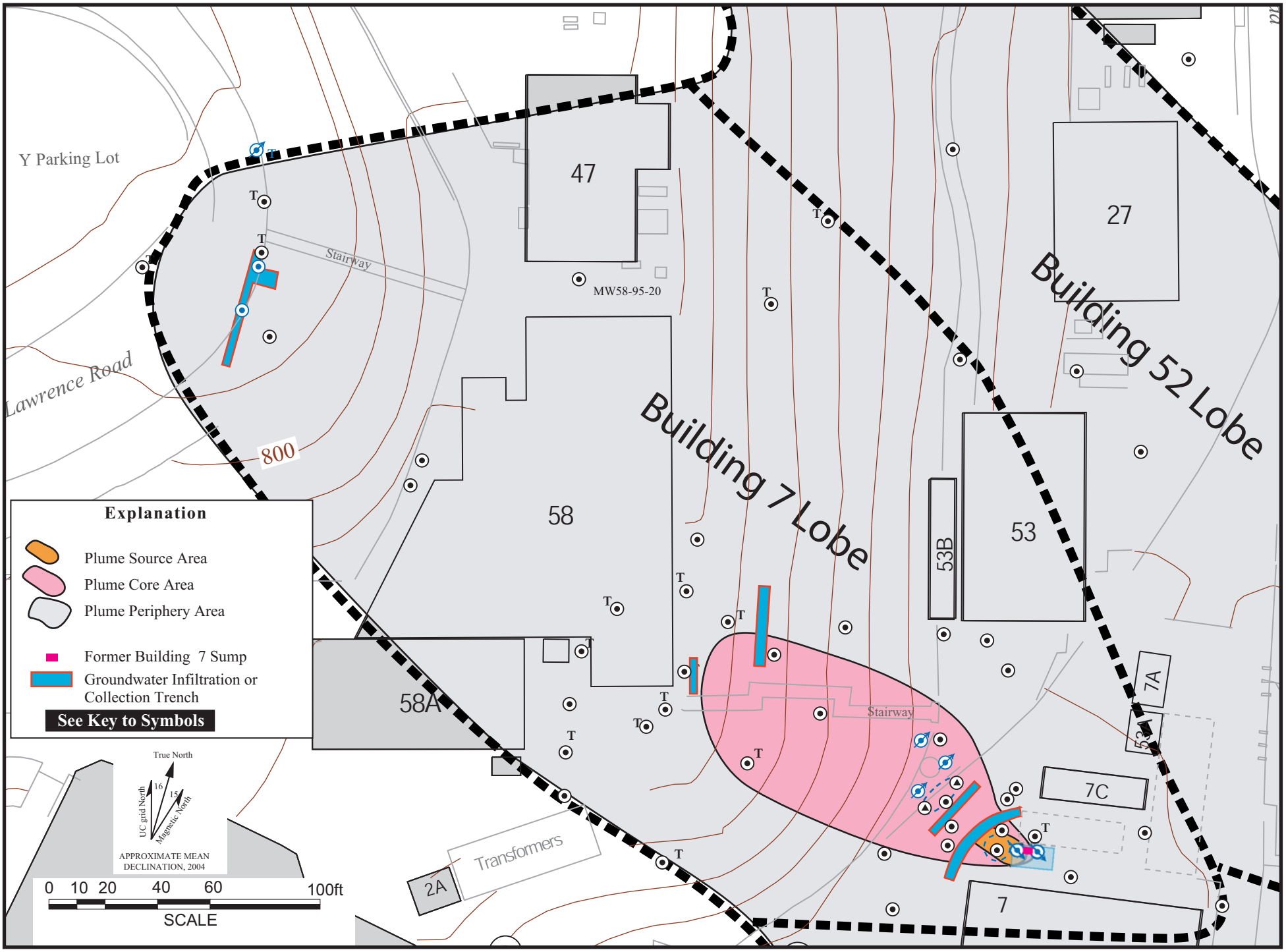


Figure 4.3.4-19. Location of Plume Source, Plume Core, and Plume Periphery Areas, Building 7 Lobe Old Town Groundwater Solvent Plume.

4.3.4-2, -11a-19-Pilot tests, ICMs, zones.ai
8/03

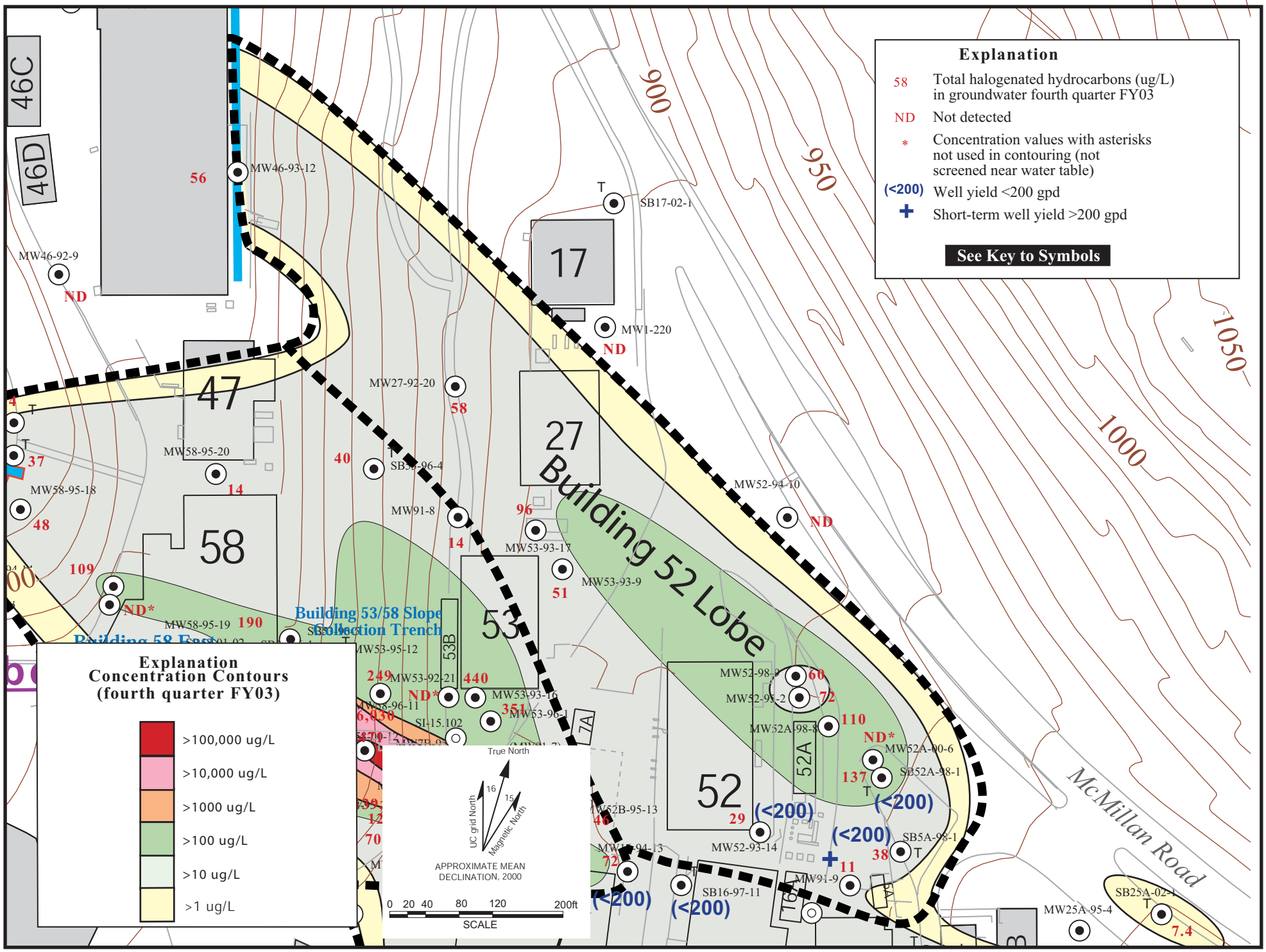


Figure 4.3.5-1. Total Halogenated Hydrocarbons in Groundwater (ug/L) and Estimated Well Yields, Building 52 Lobe Old Town Groundwater Solvent Plume.

4.3.5-1-3qfy03total_halogB52 Lobe.ai
1/04

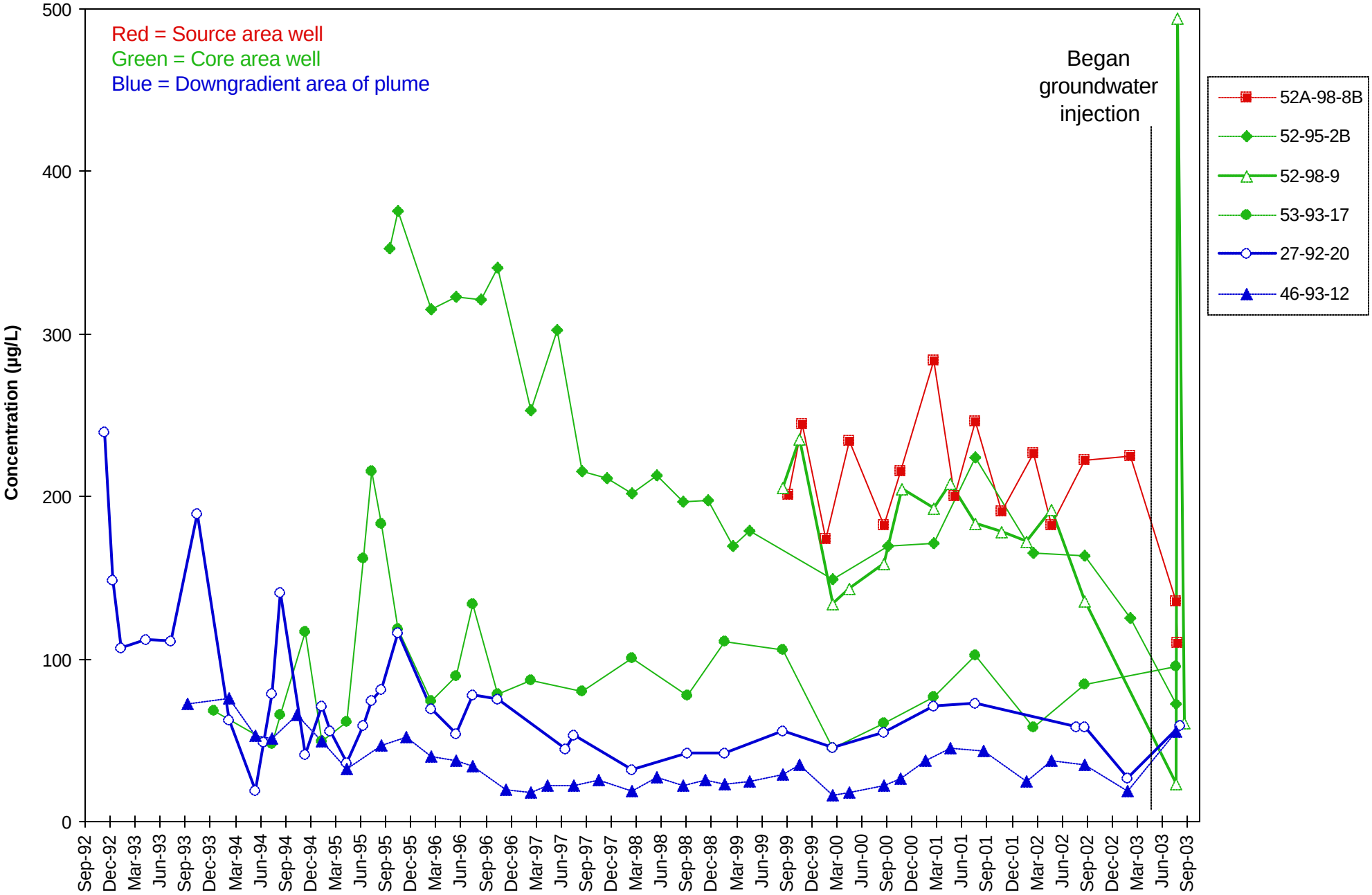


Figure 4.3.5-2. Total Halogenated Non-Aromatic VOC Concentrations in Wells Monitoring the Old Town Plume, B52 Lobe

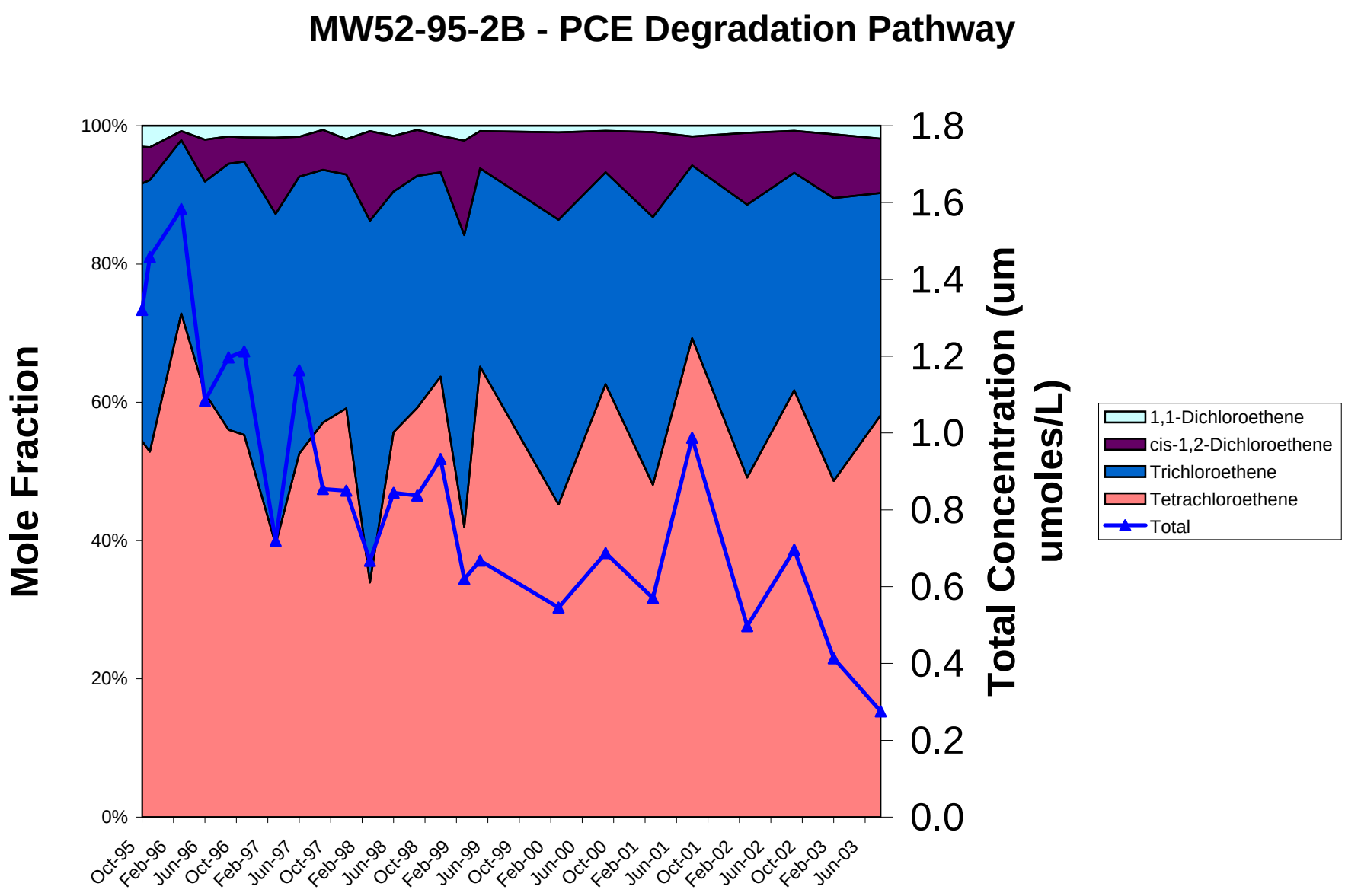


Figure 4.3.5-3. Temporal Variations of Halogenated Non-aromatic VOCs (PCE Degradation Pathway) for Well 52-95-2B, Core Area, Building 52 Lobe

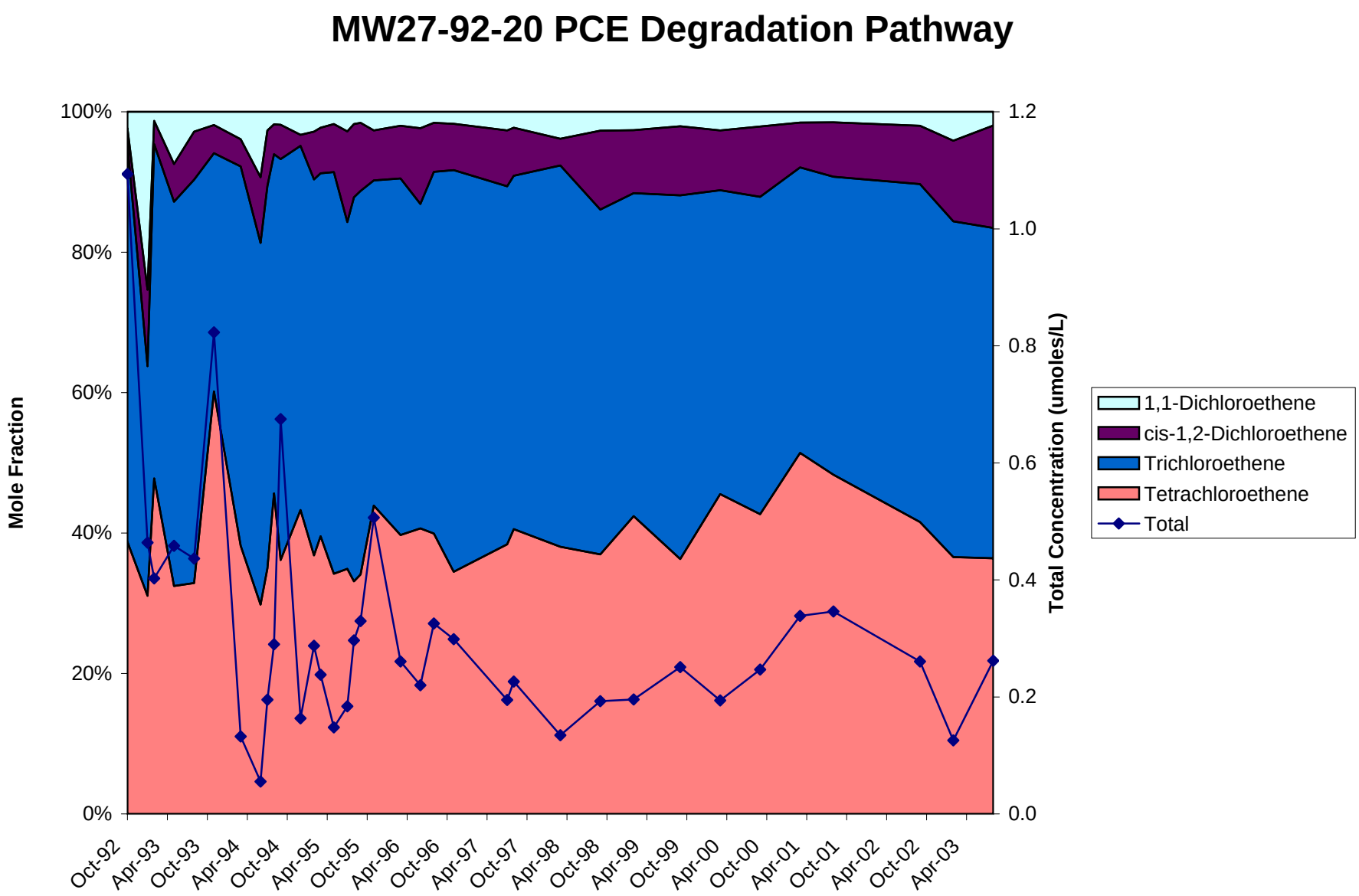


Figure 4.3.5-4. Temporal Variations of Halogenated Non-aromatic VOCs (PCE Degradation Pathway) in Well MW27-92-20, Periphery Area, Building 52 Lobe.

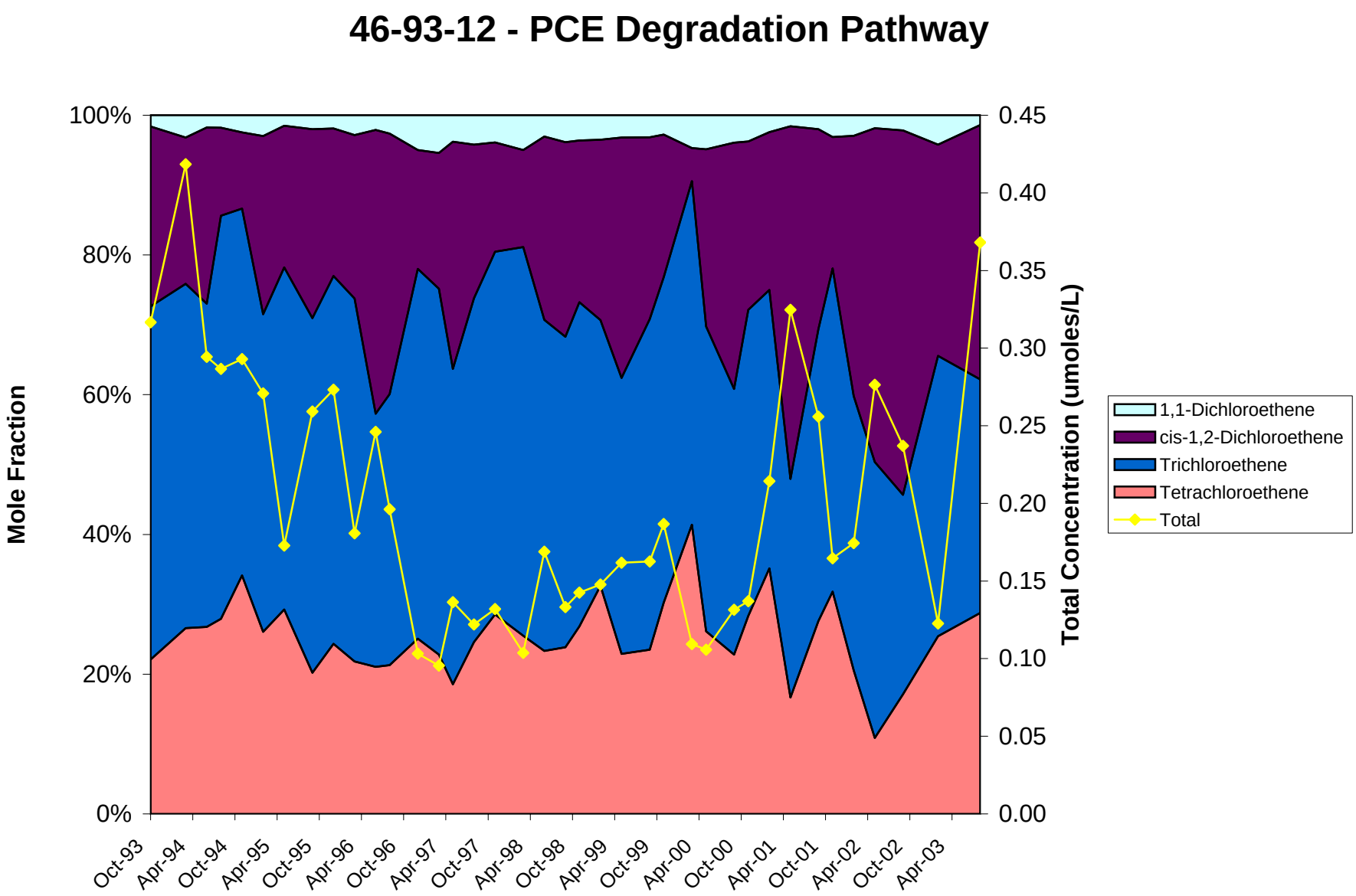


Figure 4.3.5-5. Temporal Variations of Halogenated Non-aromatic VOCs (PCE Degradation Pathway) in Well MW46-93-12, Downgradient Edge, Building 52 Lobe.

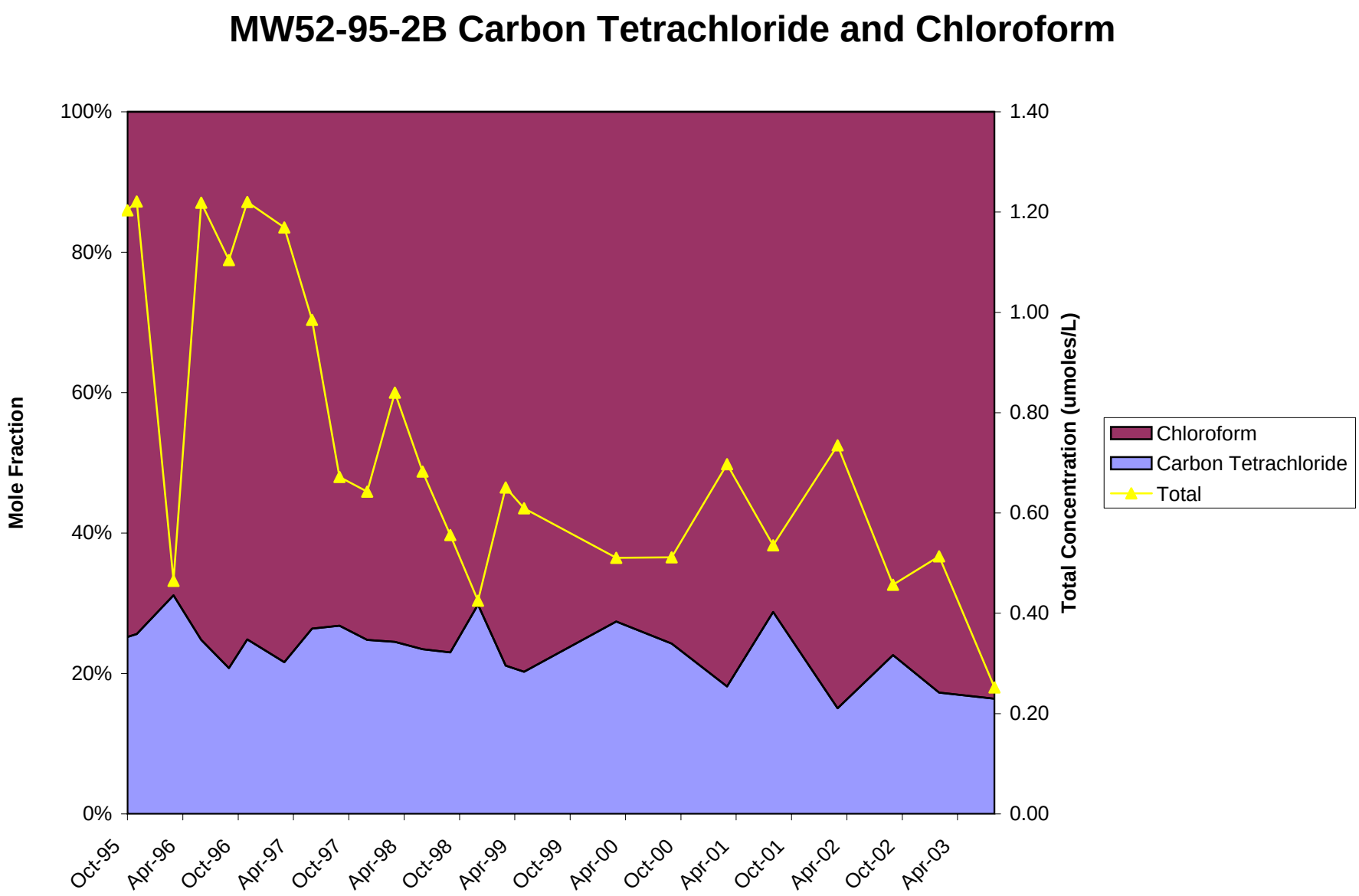


Figure 4.3.5-6. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW52-95-2B, Plume Core Area, Building 52 Lobe.

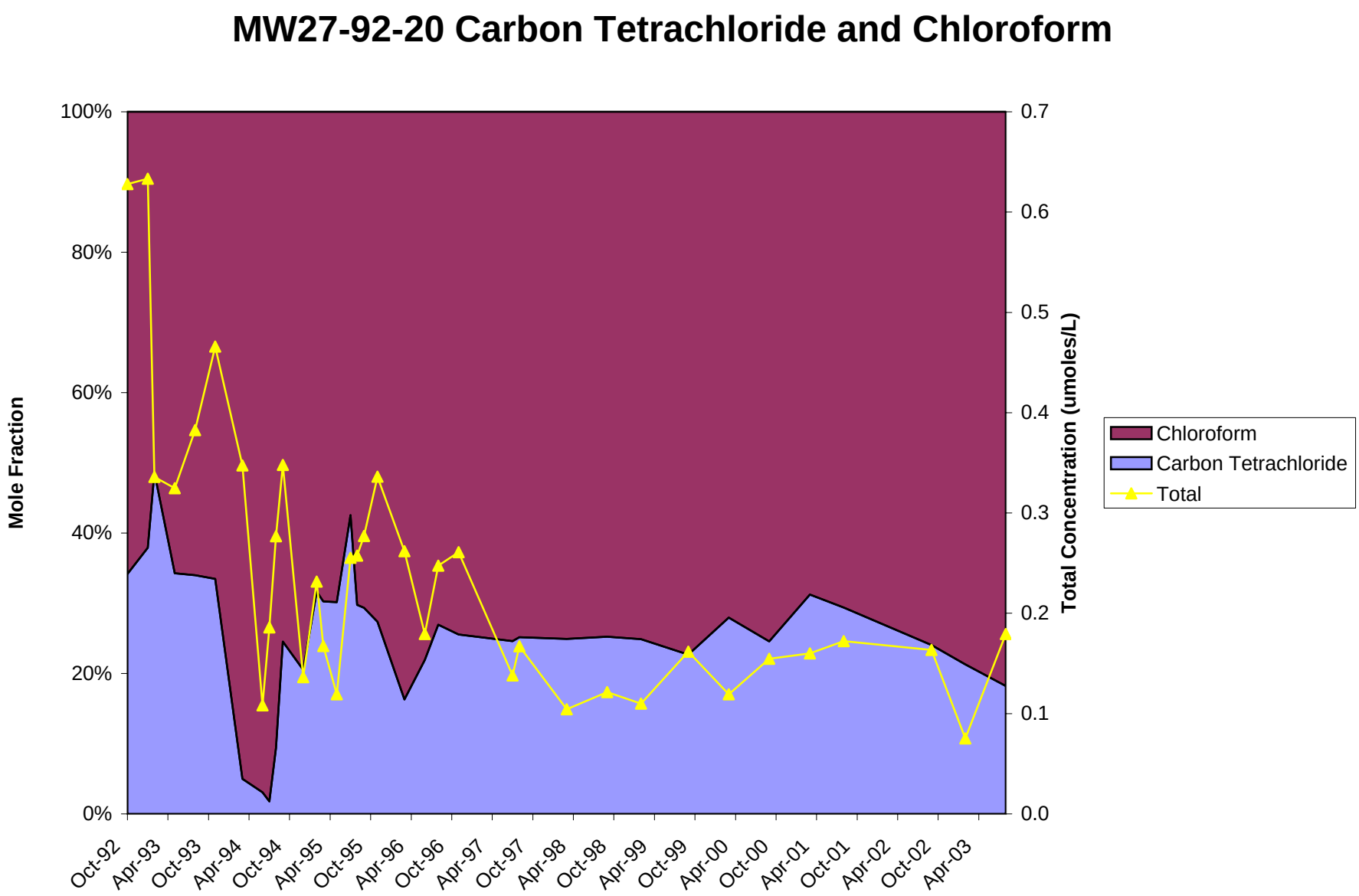


Figure 4.3.5-7. Temporal Variations of Halogenated Non-aromatic VOCs (Carbon Tetrachloride Degradation Pathway) for Well MW27-92-20, Building 52 Lobe.

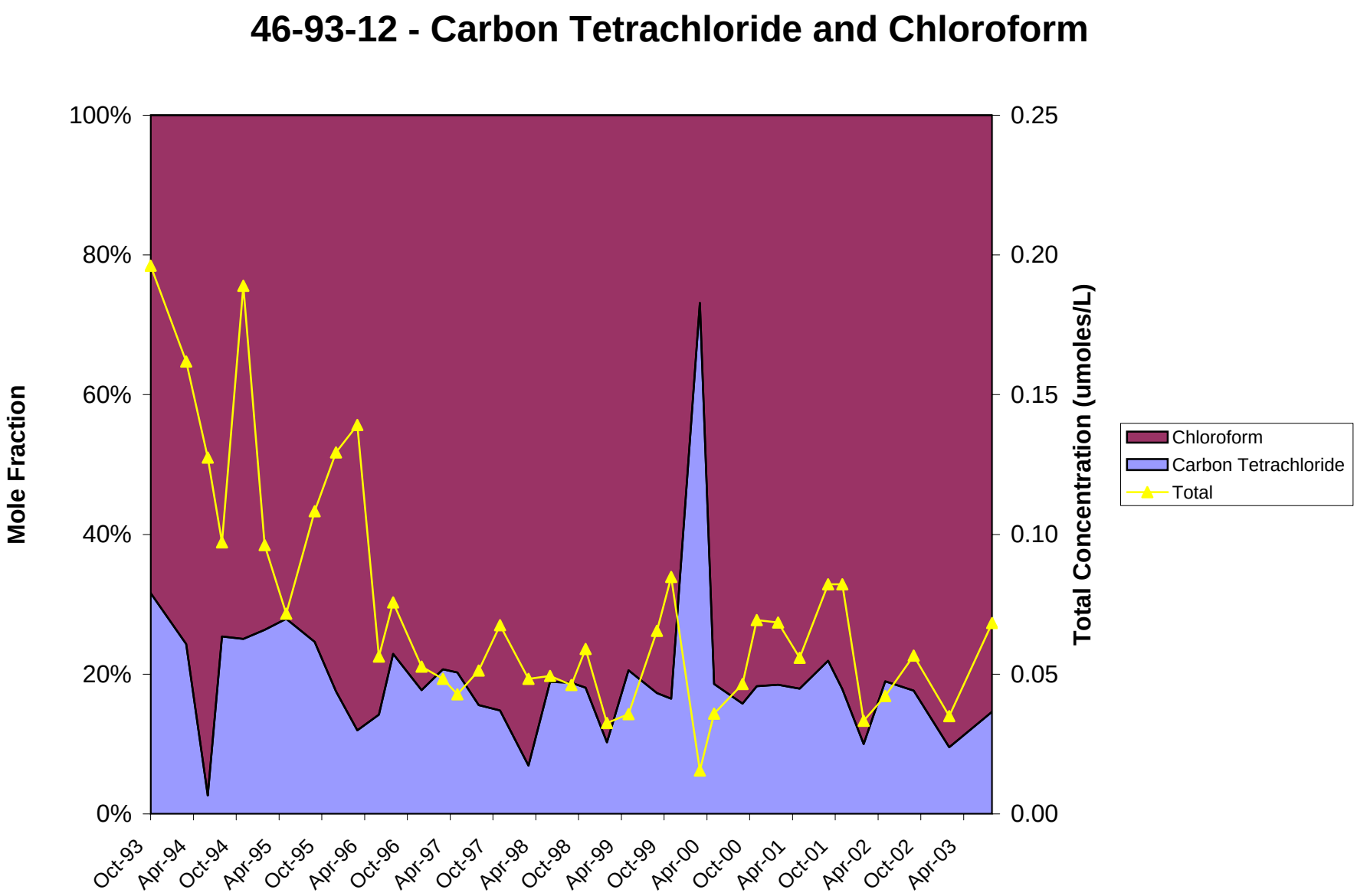


Figure 4.3.5-8. Temporal Variations of Halogenated Non-aromatic VOCs (Carbon Tetrachloride Degradation Pathway), Downgradient Edge, Building 52 Lobe.

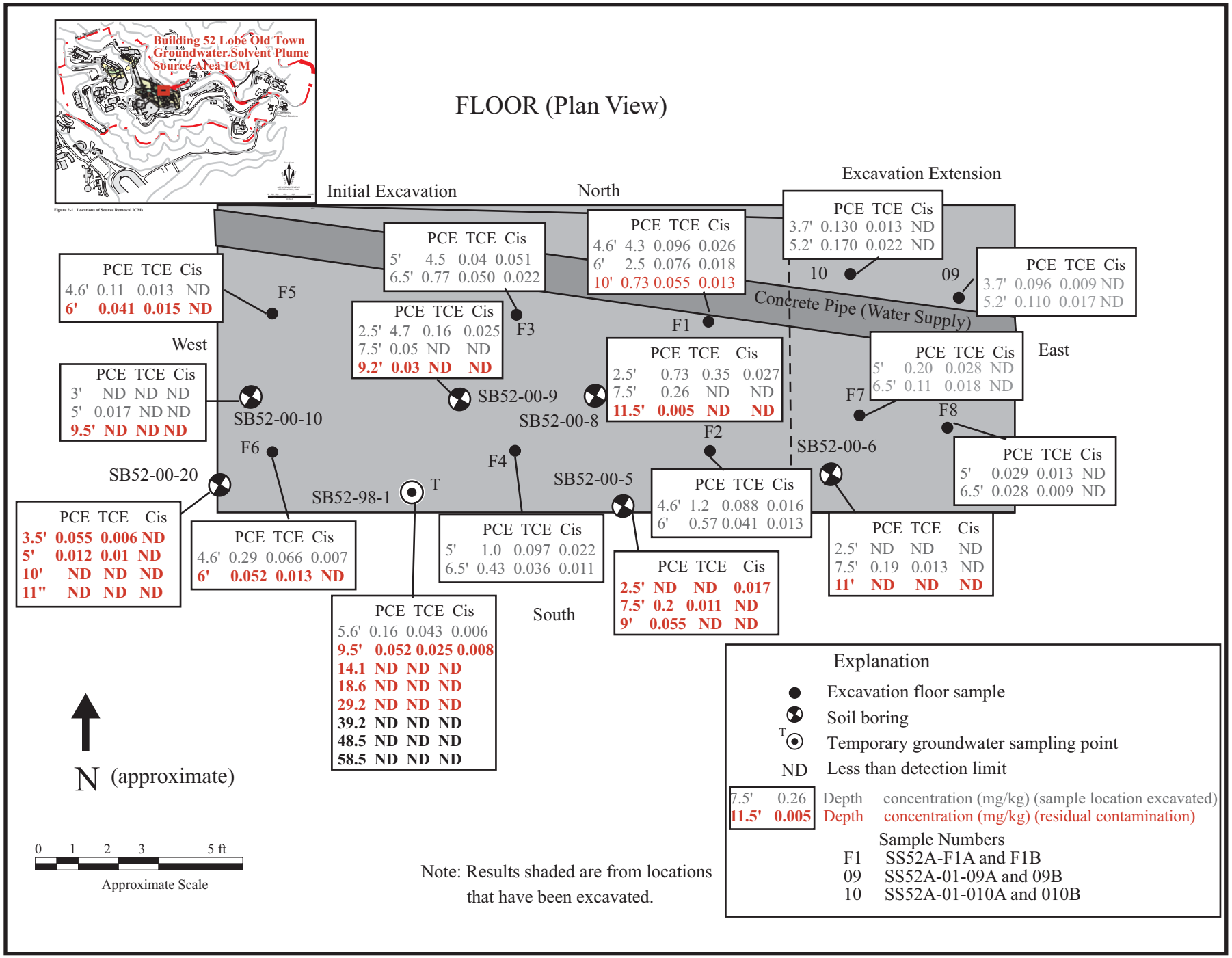


Figure 4.3.5-9a. Concentrations of PCE, TCE, and Cis-1,2-DCE Detected (mg/kg) in Floor Samples, Building 52A Source Area ICM.

f4.3.5-9a-b52ACMfloor.ai
4/04

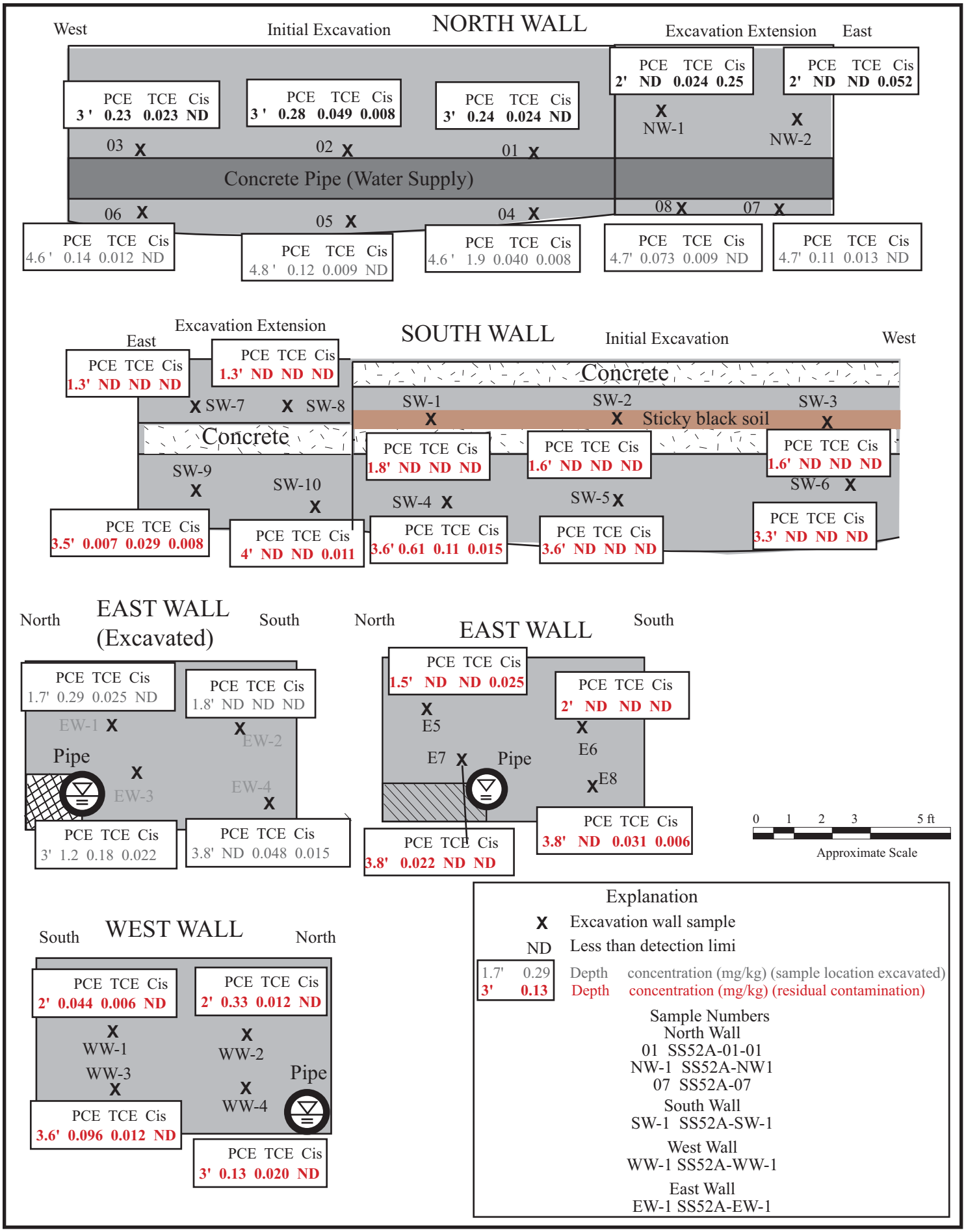


Figure 4.3.5-9b. Concentrations of PCE, TCE, and Cis-1,2-DCE Detected (mg/kg) in Wall Samples, Building 52A Source Area ICM

f4.3.5-9bb52ACMwalls.ai
4/04

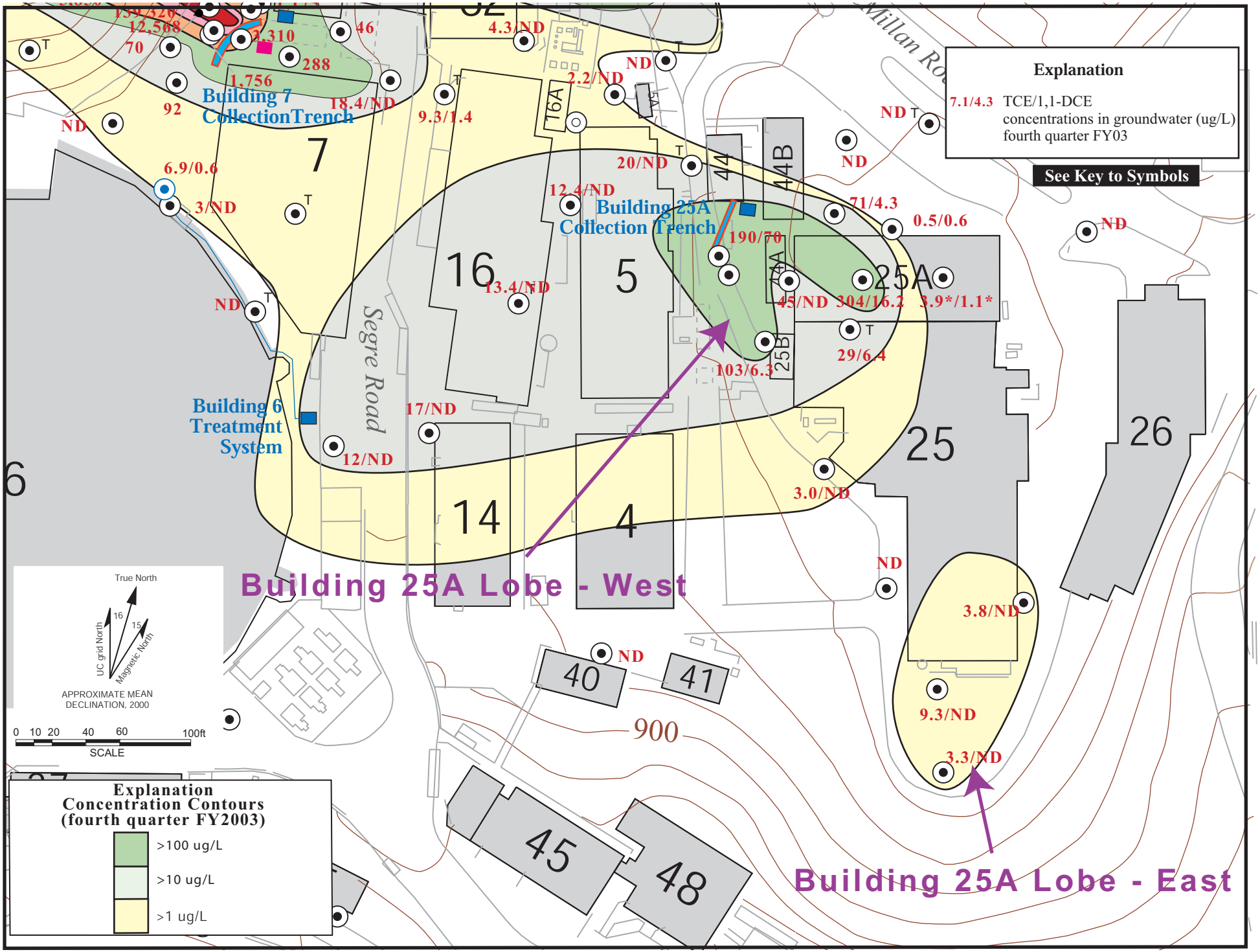


Figure 4.3.6-1. Concentrations of Trichloroethene and 1,1-Dichoroethene in Groundwater (ug/L), Building 25A Lobe Old Town Groundwater Solvent Plume.

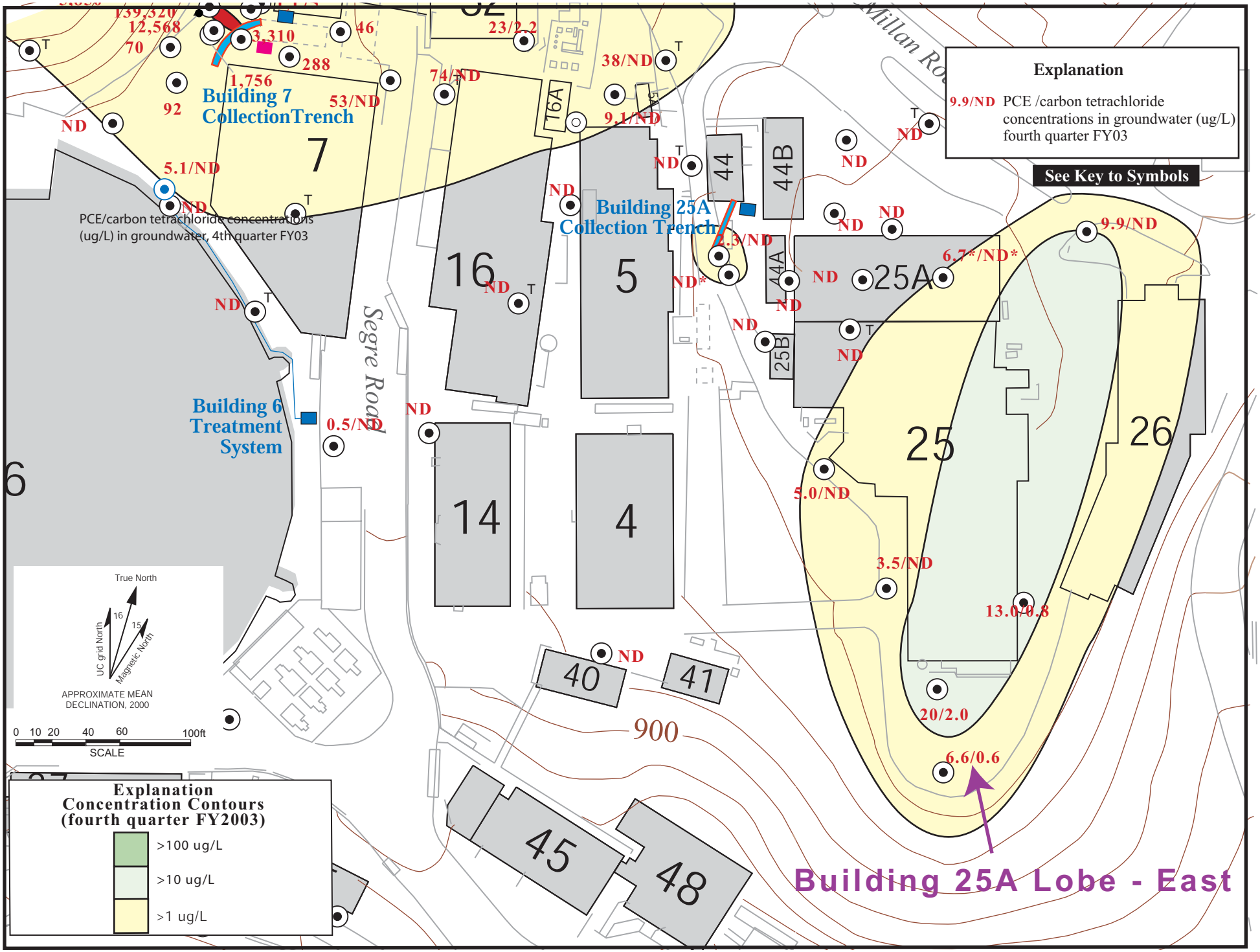


Figure 4.3.6-2. Concentrations of Tetrachloroethene and Carbon Tetrachloride in Groundwater (ug/L), Building 25A Lobe Old Town Groundwater Solvent Plume.

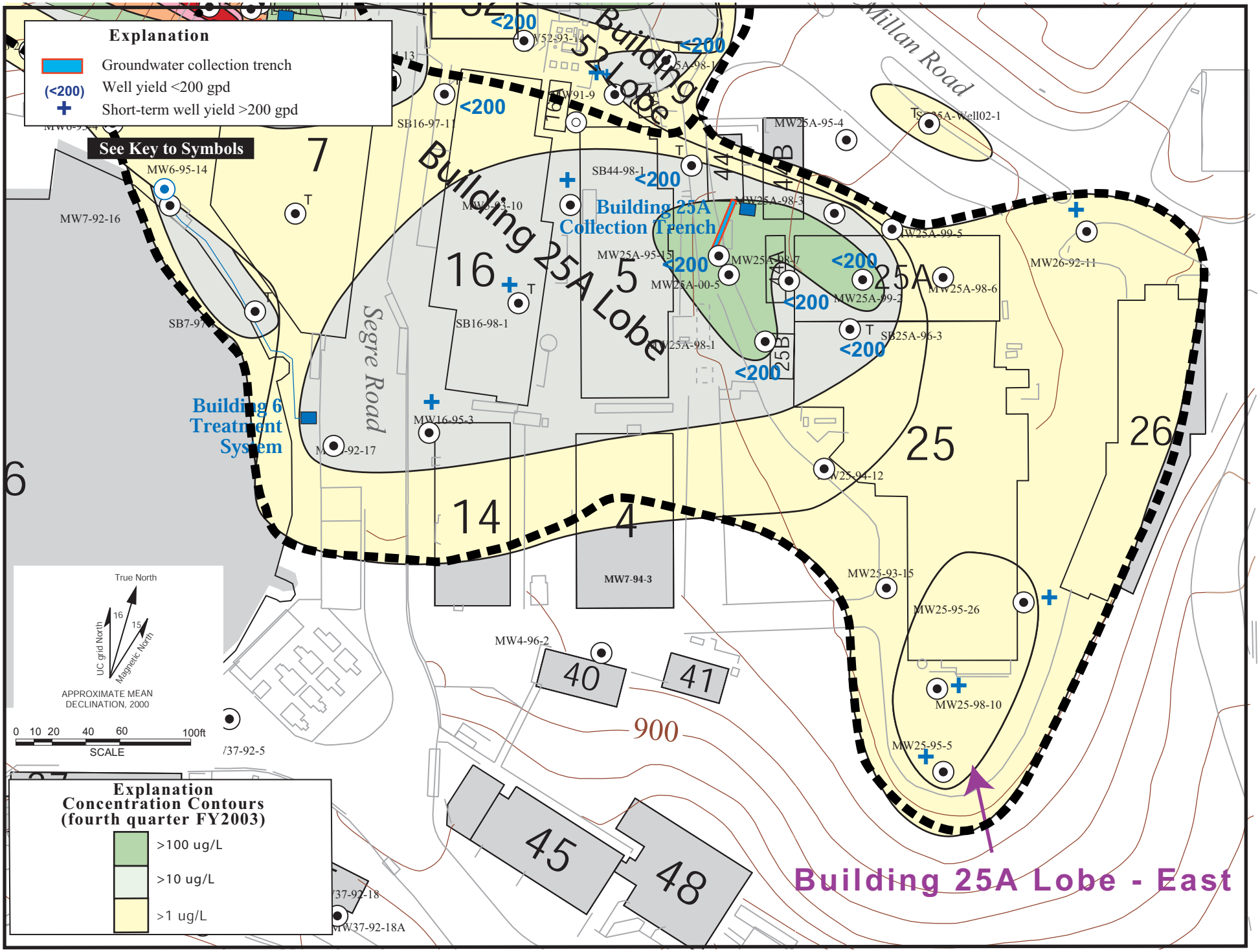


Figure 4.3.6-3. Total Halogenated Hydrocarbons in Groundwater (ug/L) and Estimated Well Yields, Building 25A Lobe Old Town Groundwater Solvent Plume.

4.3.6-1 to 3_halogOTb25alobe.ai
3/04

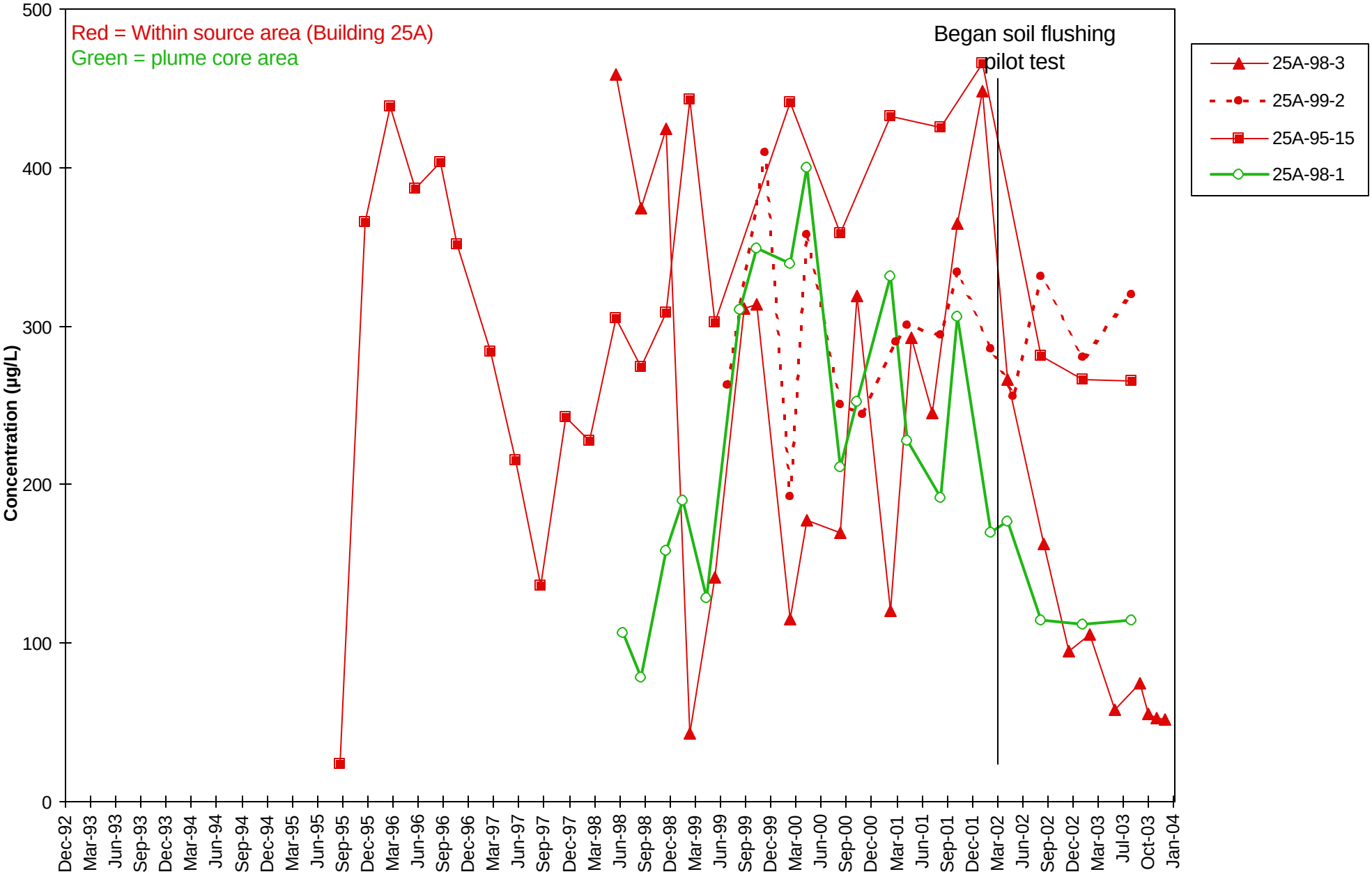


Figure 4.3.6-4a. Concentration Trends for Total Halogenated VOCs in Source and Core Area Wells Within the Old Town Solvent Plume (Building 25A Lobe)

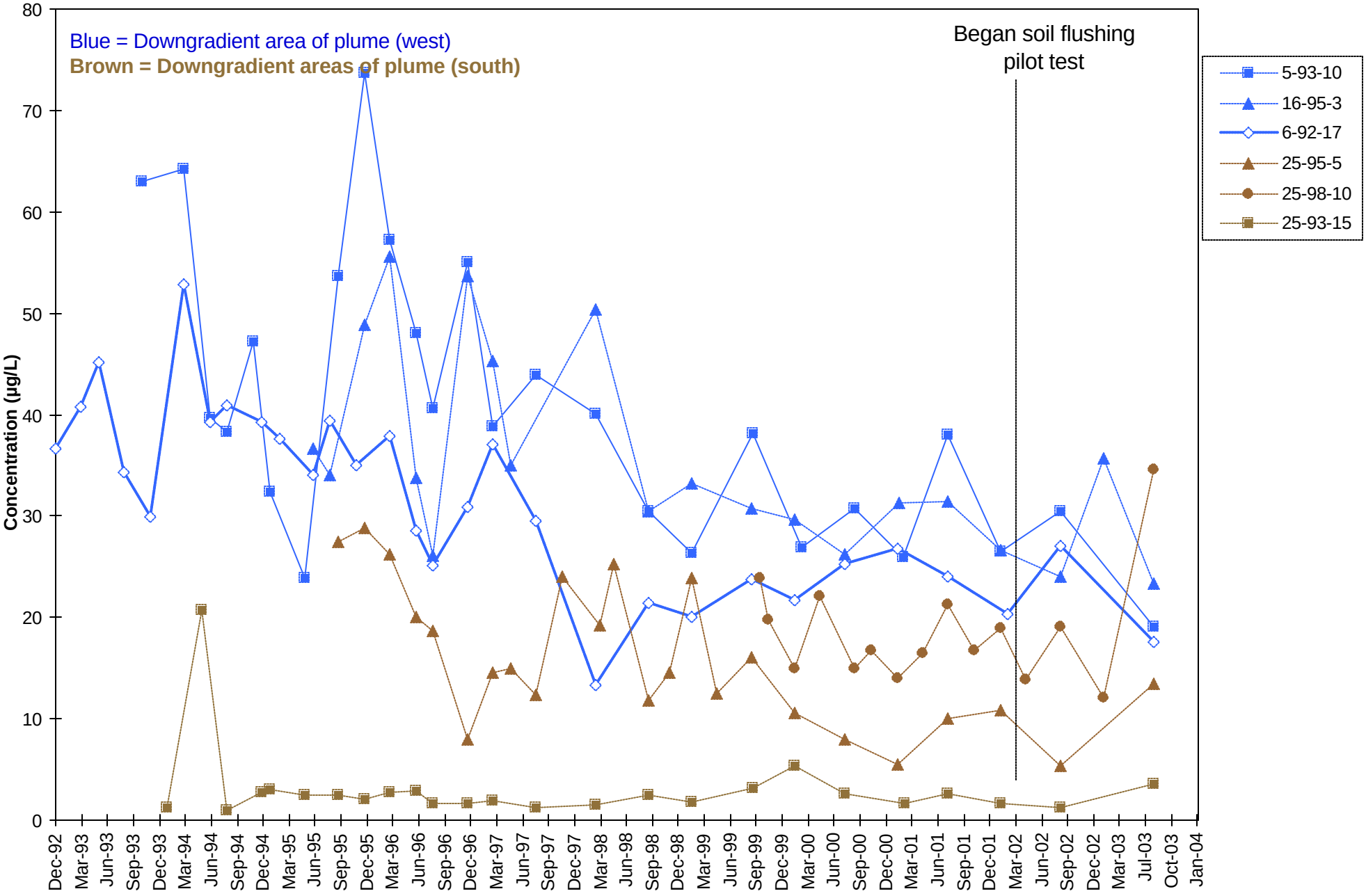


Figure 4.3.6-4b. Concentration Trends for Total Halogenated VOCs in Wells Within the Downgradient Portion of the Old Town Solvent Plume (Building 25A Lobe)

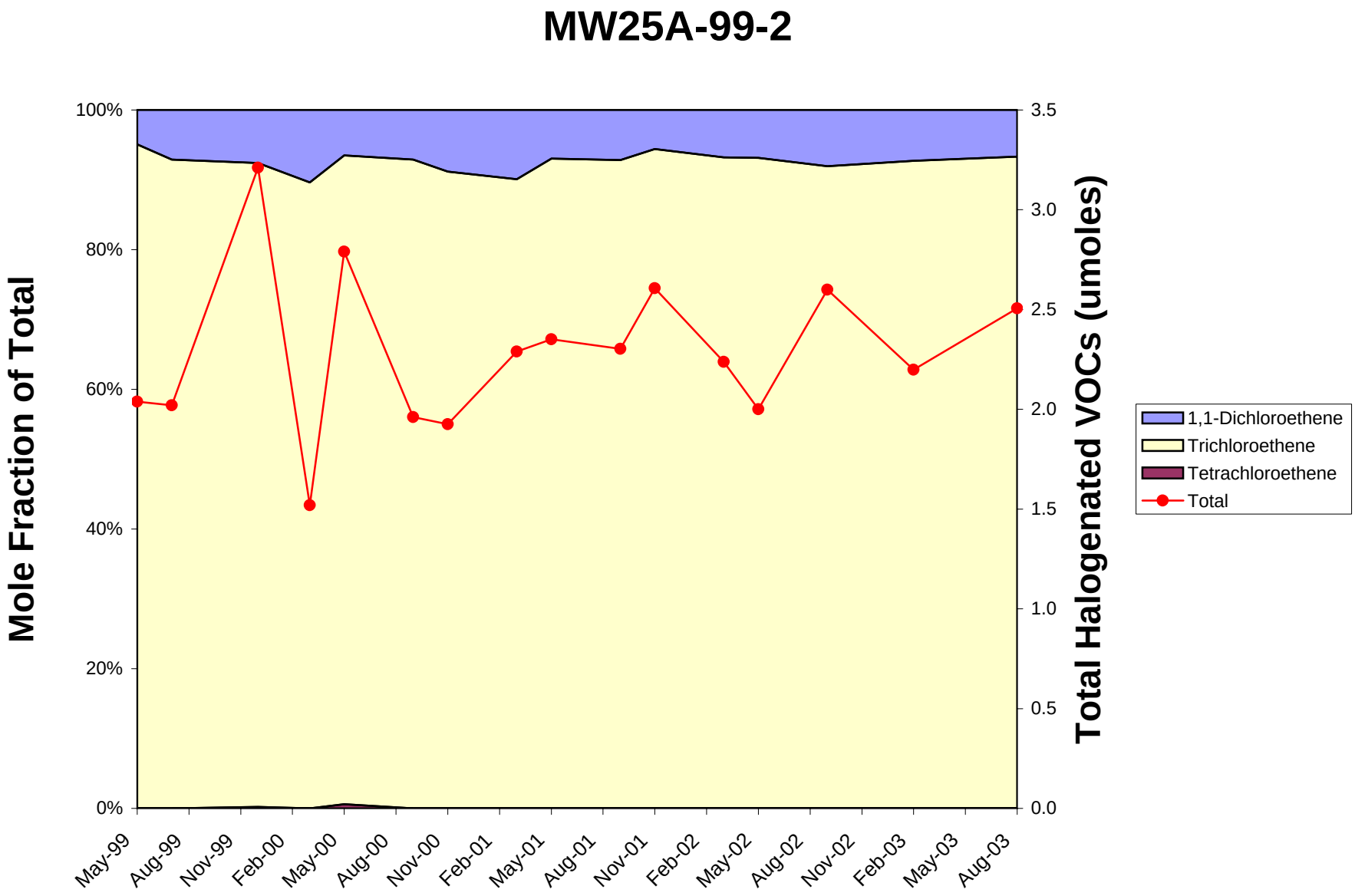


Figure 4.3.6-5. Temporal Variations in Halogenated Non-aromatic VOC Concentrations in Well MW25A-99-2, Building 25A Lobe

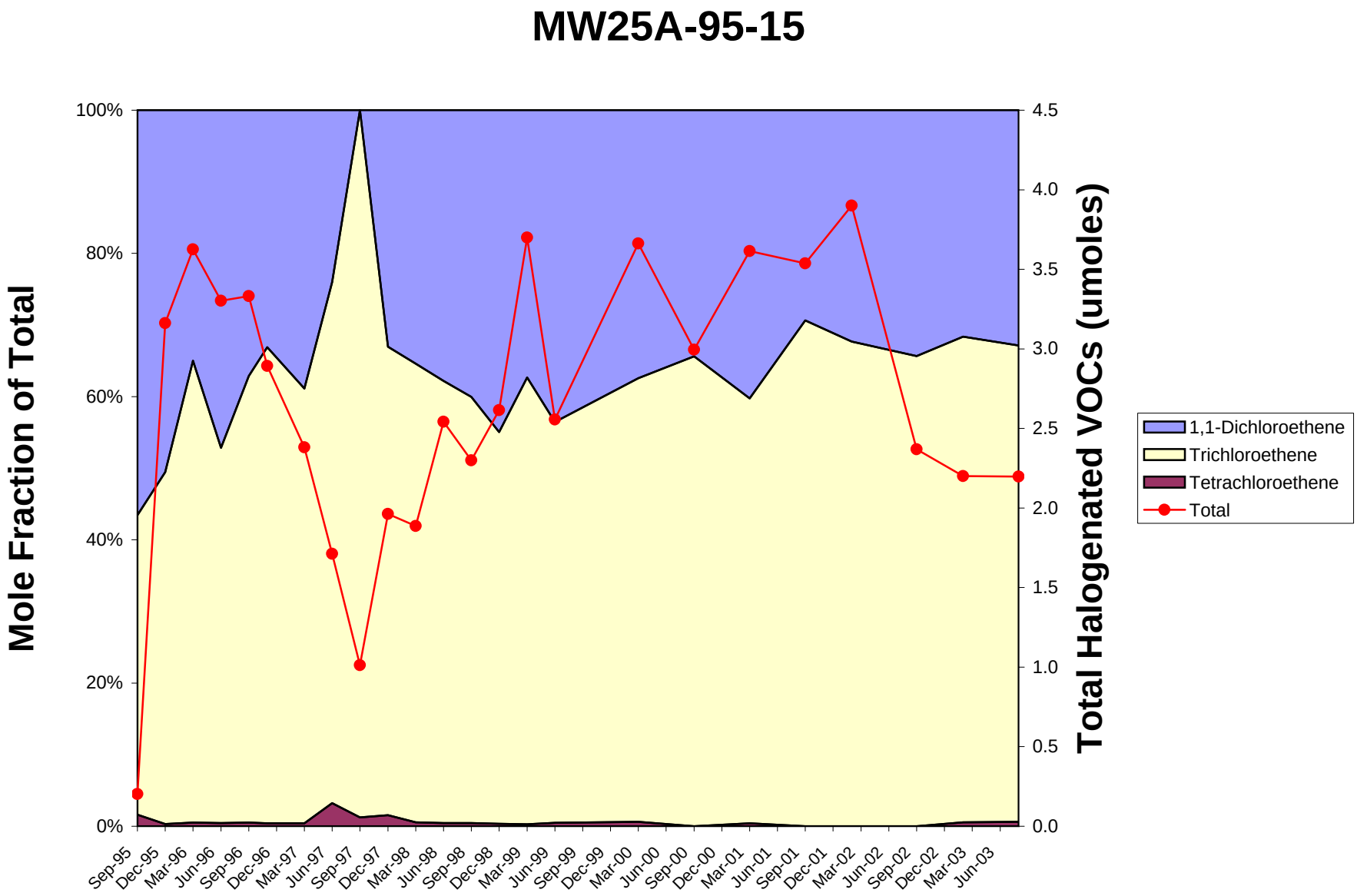
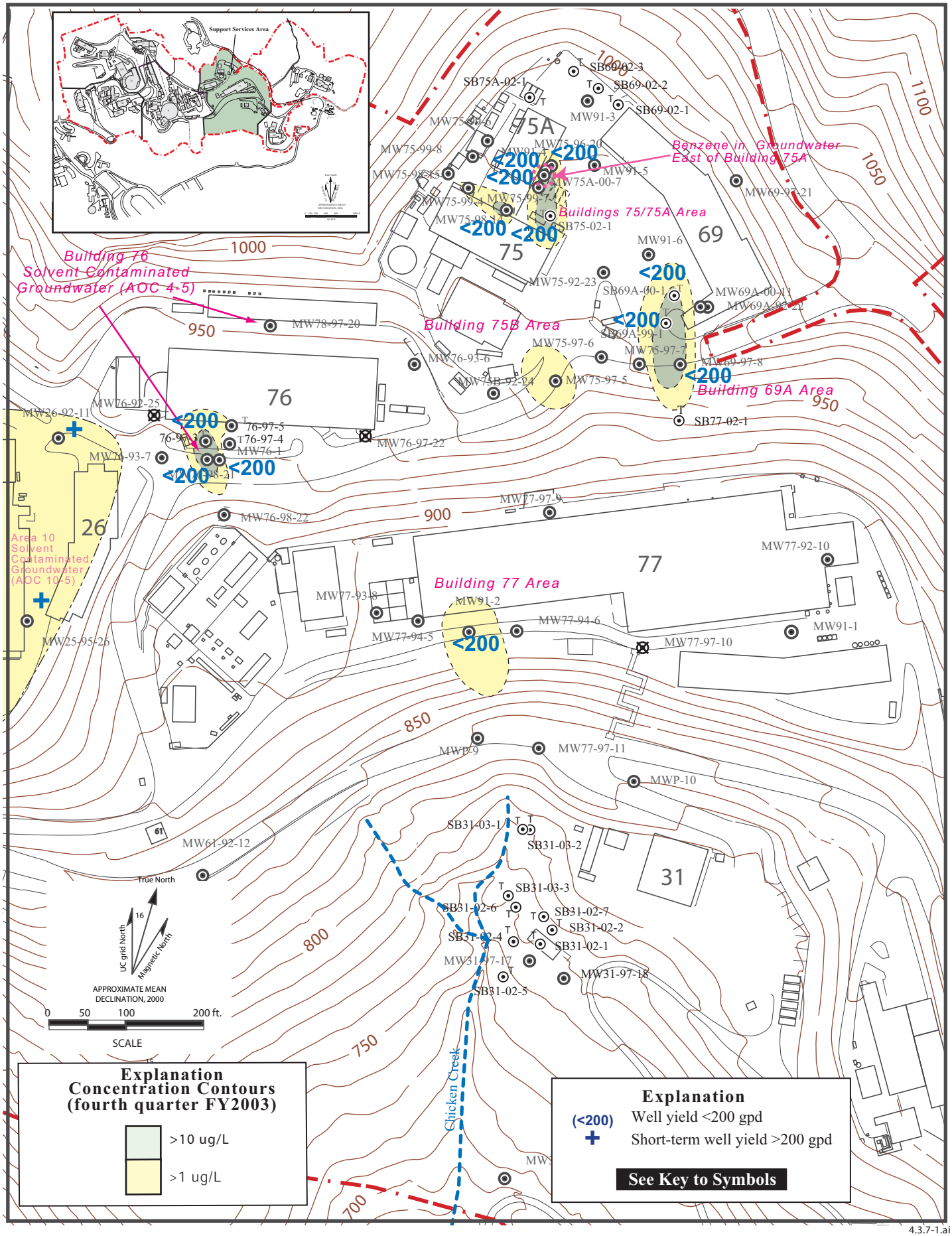


Figure 4.3.6-6. Temporal Variations in Halogenated Non-aromatic VOC concentrations in Well MW25A-95-15, Building 25A Lobe



4.3.7-1.ai
3/04

Figure 4.3.7-1. Total Halogenated Hydrocarbons in Groundwater and Estimated Well Yield in the Support Services Area.

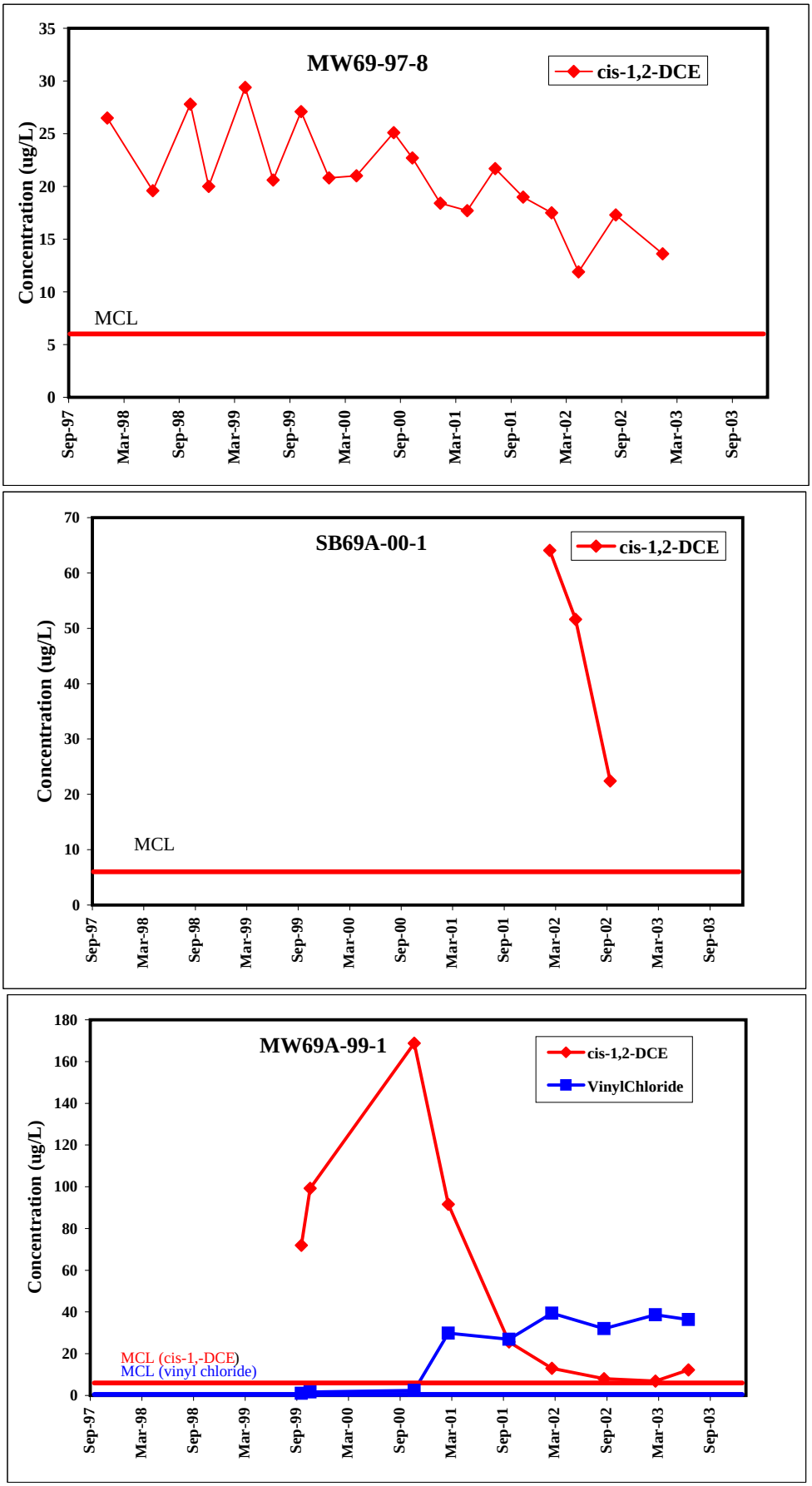


Figure 4.3.7-2. Variations in Concentrations of Halogenated Hydrocarbons Detected in MW69-97-8, MW69A-00-1, and MW69-99-1.

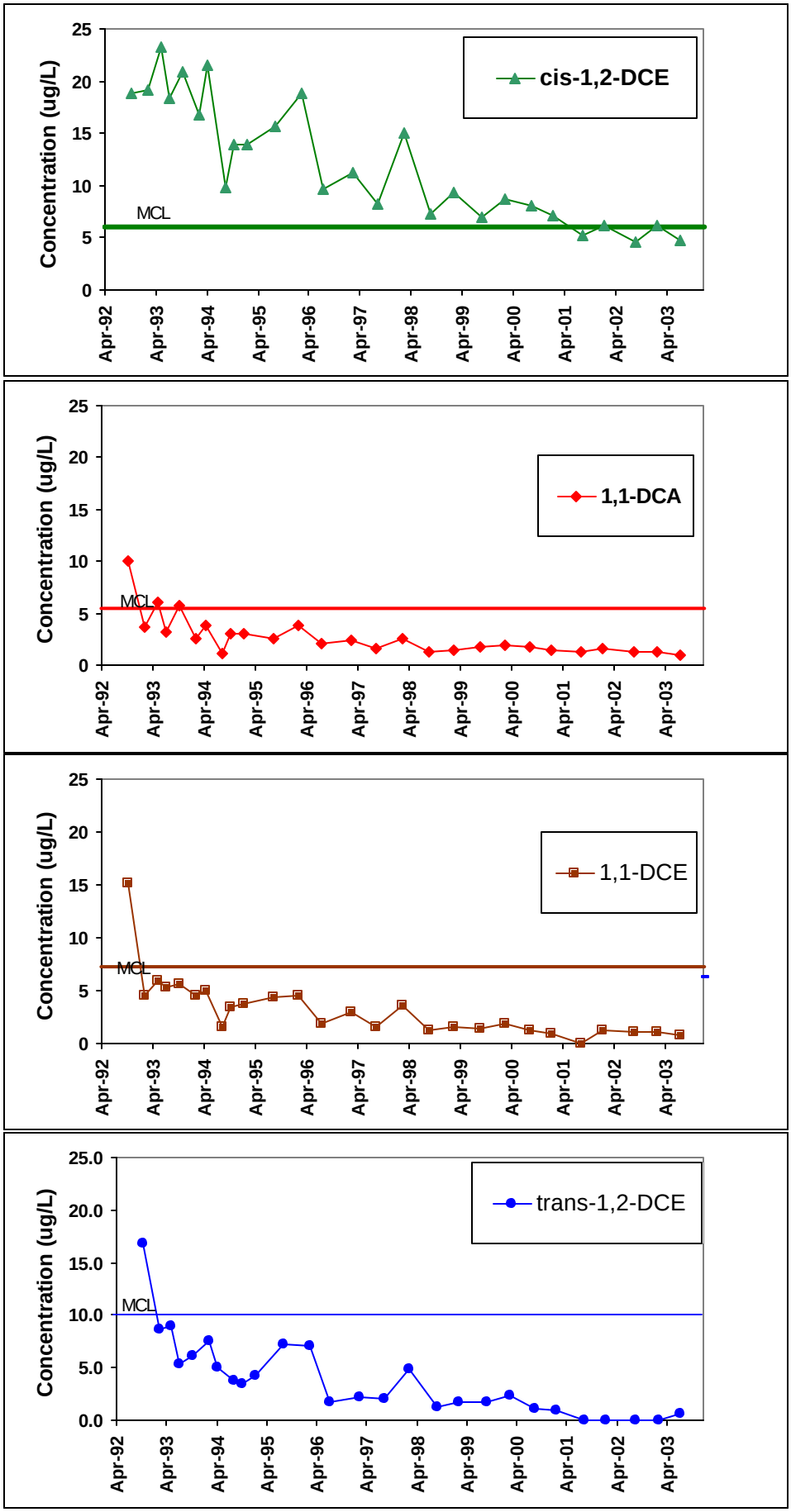
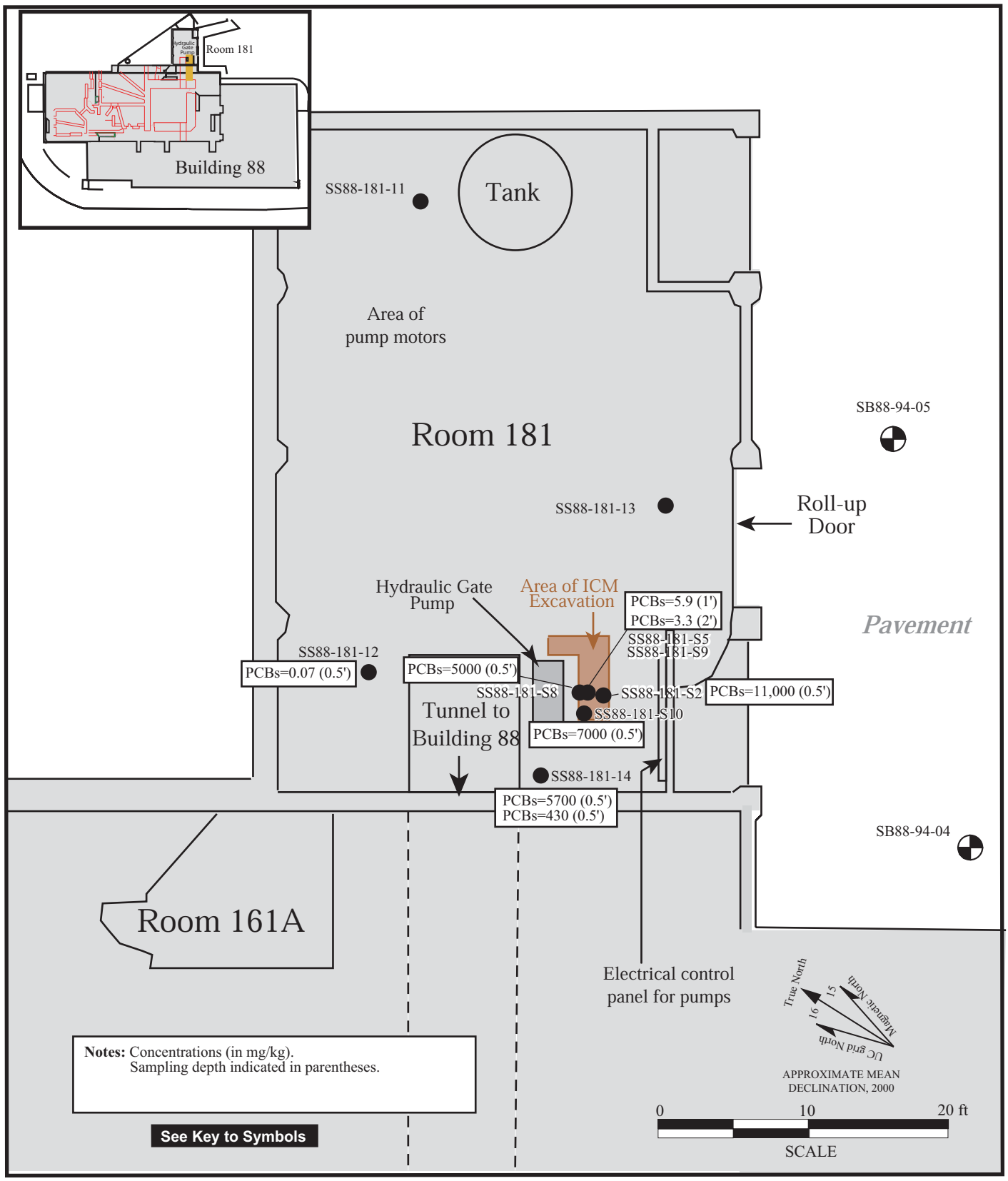


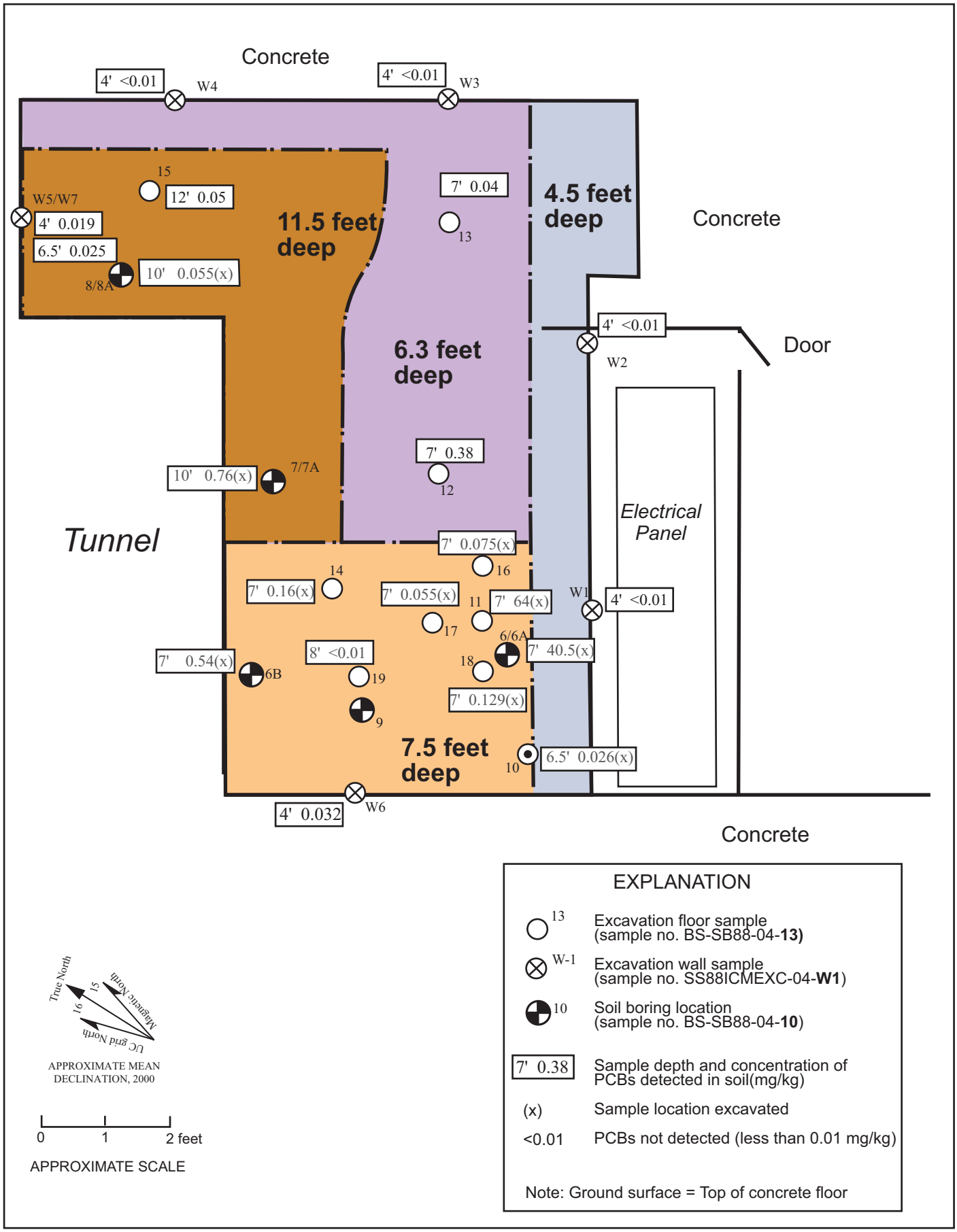
Figure 4.3.9-1. Variations in Concentrations of Halogenated Hydrocarbons Detected in MW91-2.

f4.3.9-1MW91-2.xls



f5.3-1aoc6-3.ai
4/04

Figure 5.3-1. Building 88 Hydraulic Gate Unit (AOC 6-3) Showing Residual Concentrations of PCBs in Soil after 1995 ICM.



F5.3-2_b88icm2.AI
7/04

Figure 5.3-2. Building 88 ICM Excavation, Confirmation Soil Sample Results.

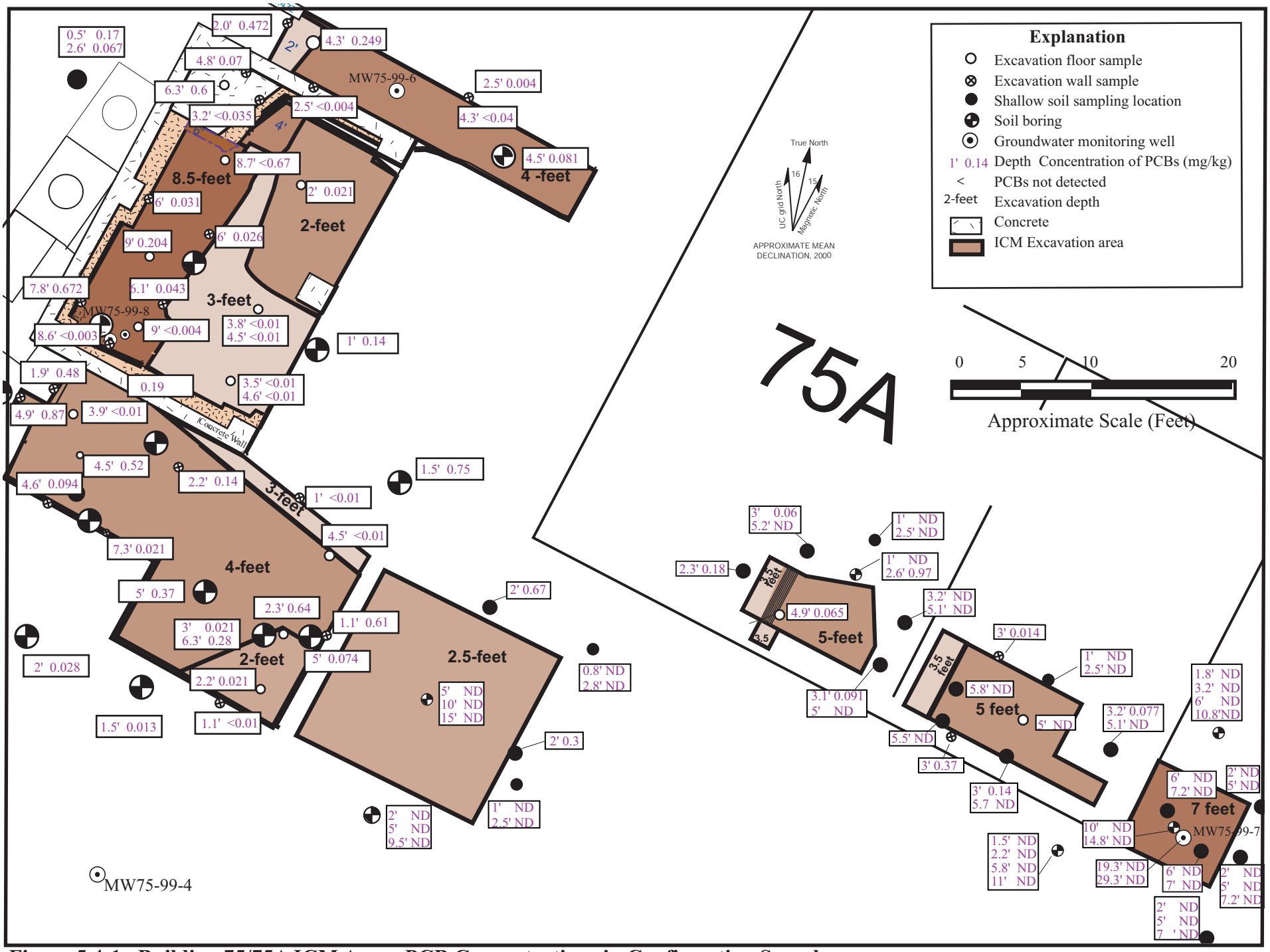
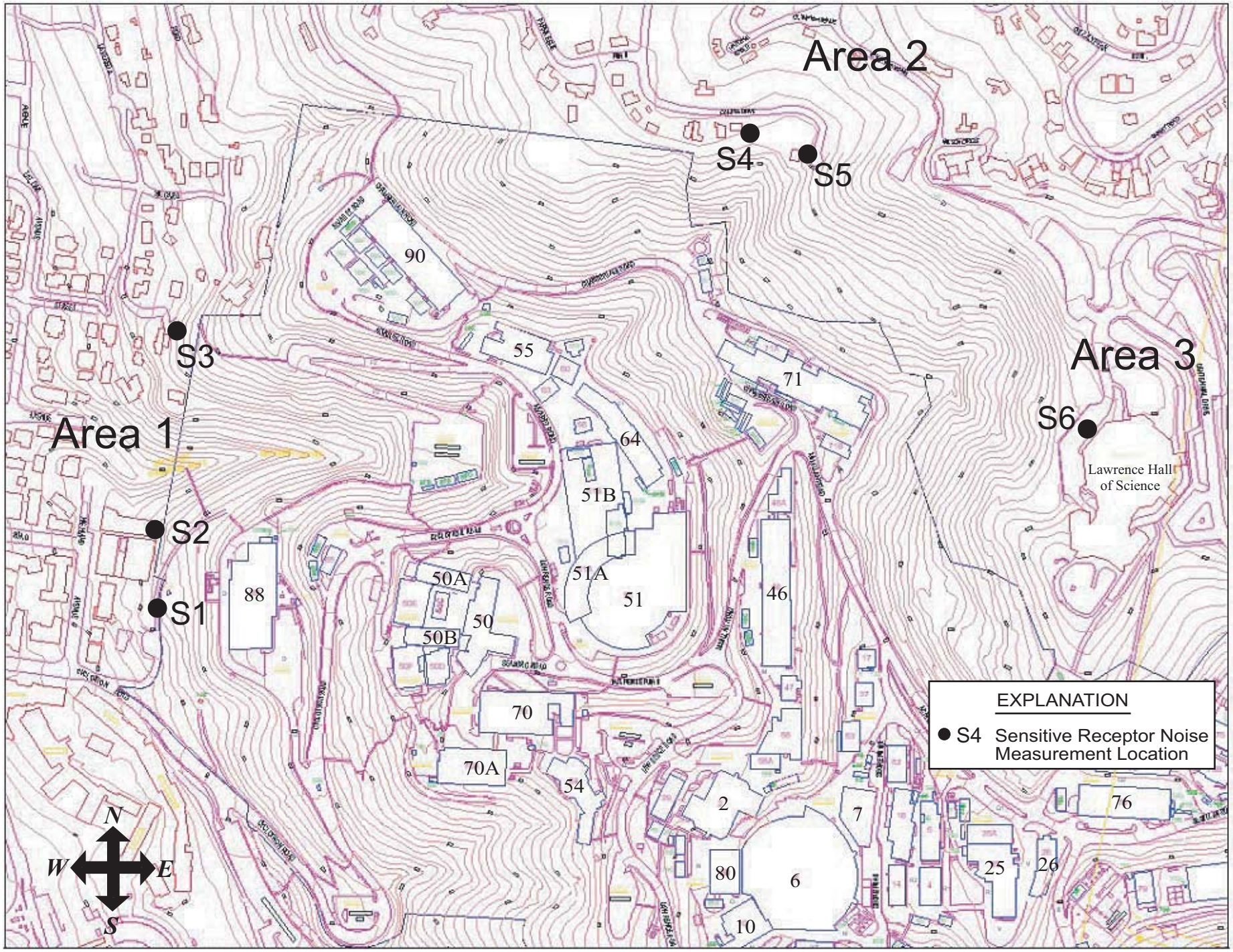


Figure 5.4-1. Building 75/75A ICM Area, PCB Concentrations in Confirmation Samples.

f5.4-1 b75a pcb.ai
7/04



2/05

Figure 7.4-1. Sensitive Receptor Locations