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T	SB16-94-11	Temporary groundwater sampling point	LT	Less than reporting limit
	MW76-93-7	Groundwater monitoring well	ND (or <)	Not detected
	SB76-94-01	Soil boring	NS	Not sampled
	SB76-94-04	Angled soil boring	NA	Not analyzed
	SS51-97-1	Shallow soil sample location		
	SG-76W-7	Soil-gas probe		Surface structure (e.g., buildings, etc.)
		Shallow soil-gas sampling location	A ——— A'	Cross section
	7-95-1	Soil-gas monitoring well		Sanitary sewer line
	VZM-OT-1	Vadose zone monitoring well		Abandoned sanitary sewer
	L-3	Vacuum lysimeter		Storm drain line
P	PZ 51-92-3	Piezometer		LBNL site boundary
	SSW-C.63	Slope stability well		Water level elevation contour line (feet)
	SI-8.107	Slope indicator well		Topographic contour line (feet)
	EW 7B-96-1	Extraction well		Hydrauger
T	SB16-94-11	Properly destroyed groundwater monitoring well or temporary groundwater sampling point		Solid Waste Management Unit
	MW76-93-7			Area of Concern
		Soil sampling location (in soil borings)		
		Sample location was excavated		

NOTE: Other symbols used are explained on the figures.

Figure D-1. Key to Symbols Used on Figures.

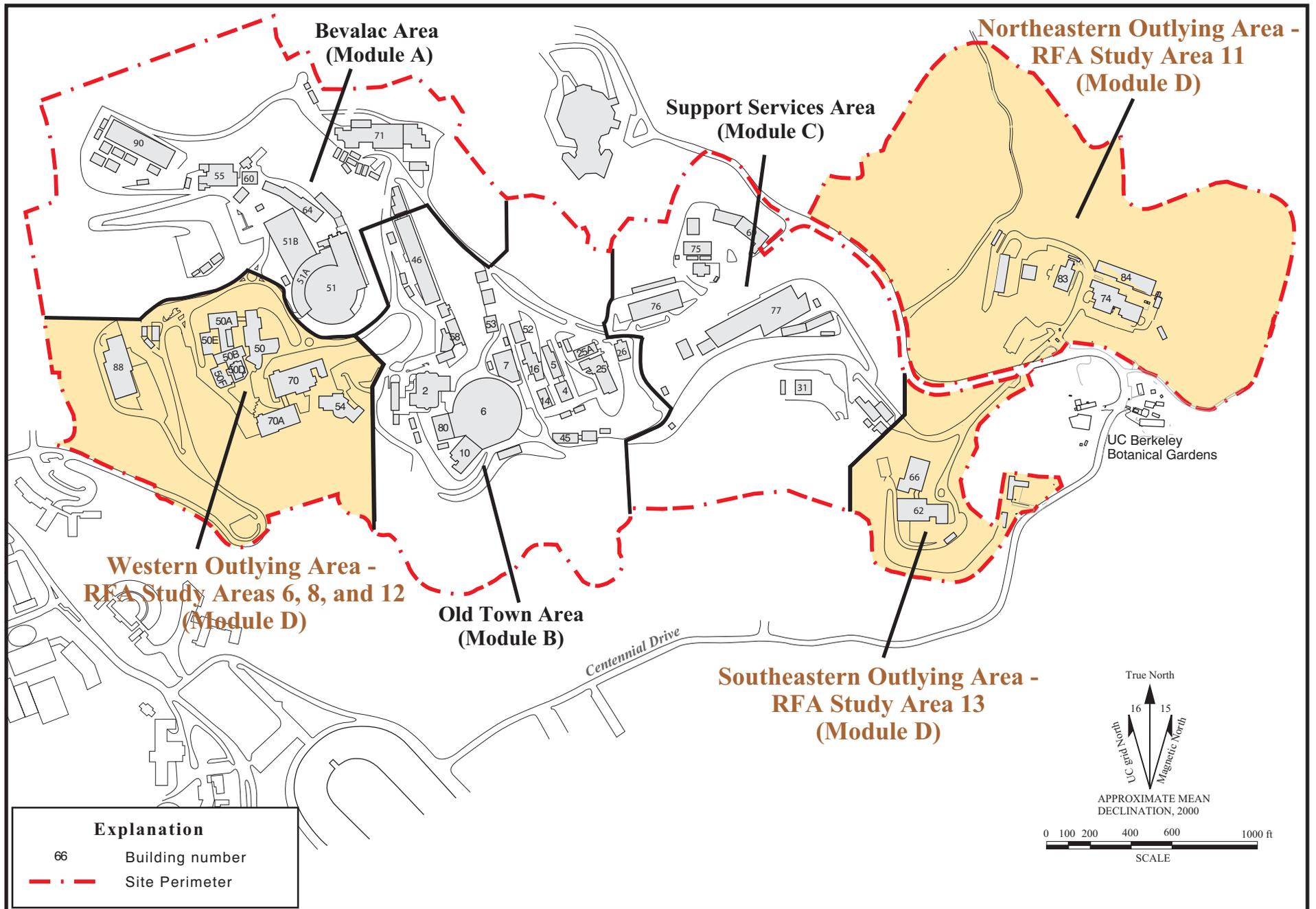


Figure D-2. Location of Outlying Areas, Lawrence Berkeley National Laboratory.

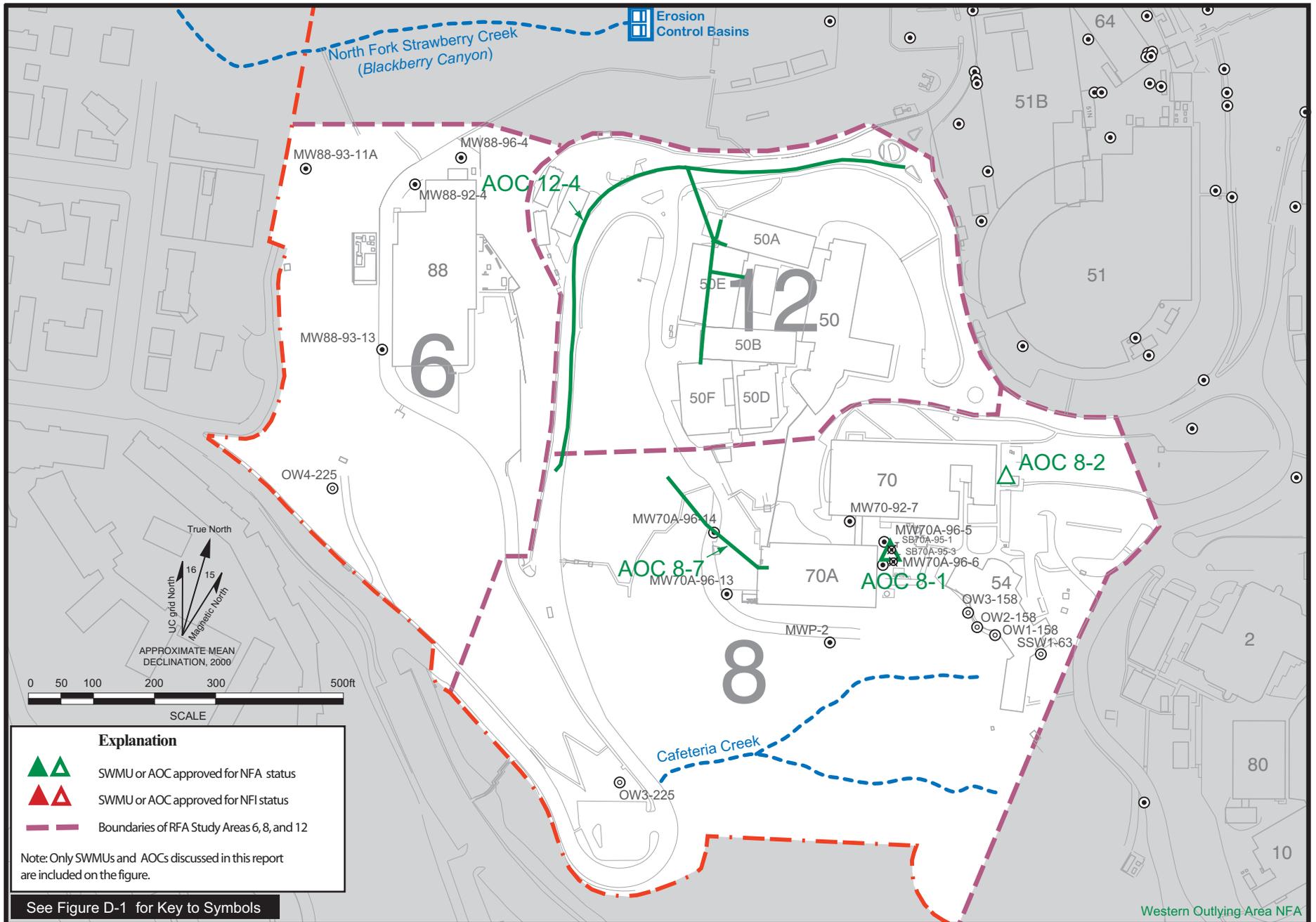


Figure D-3a. Locations of SWMUs and AOCs in Western Outlying Area (RFA Study Areas 6, 8, and 12) Discussed in Module D.

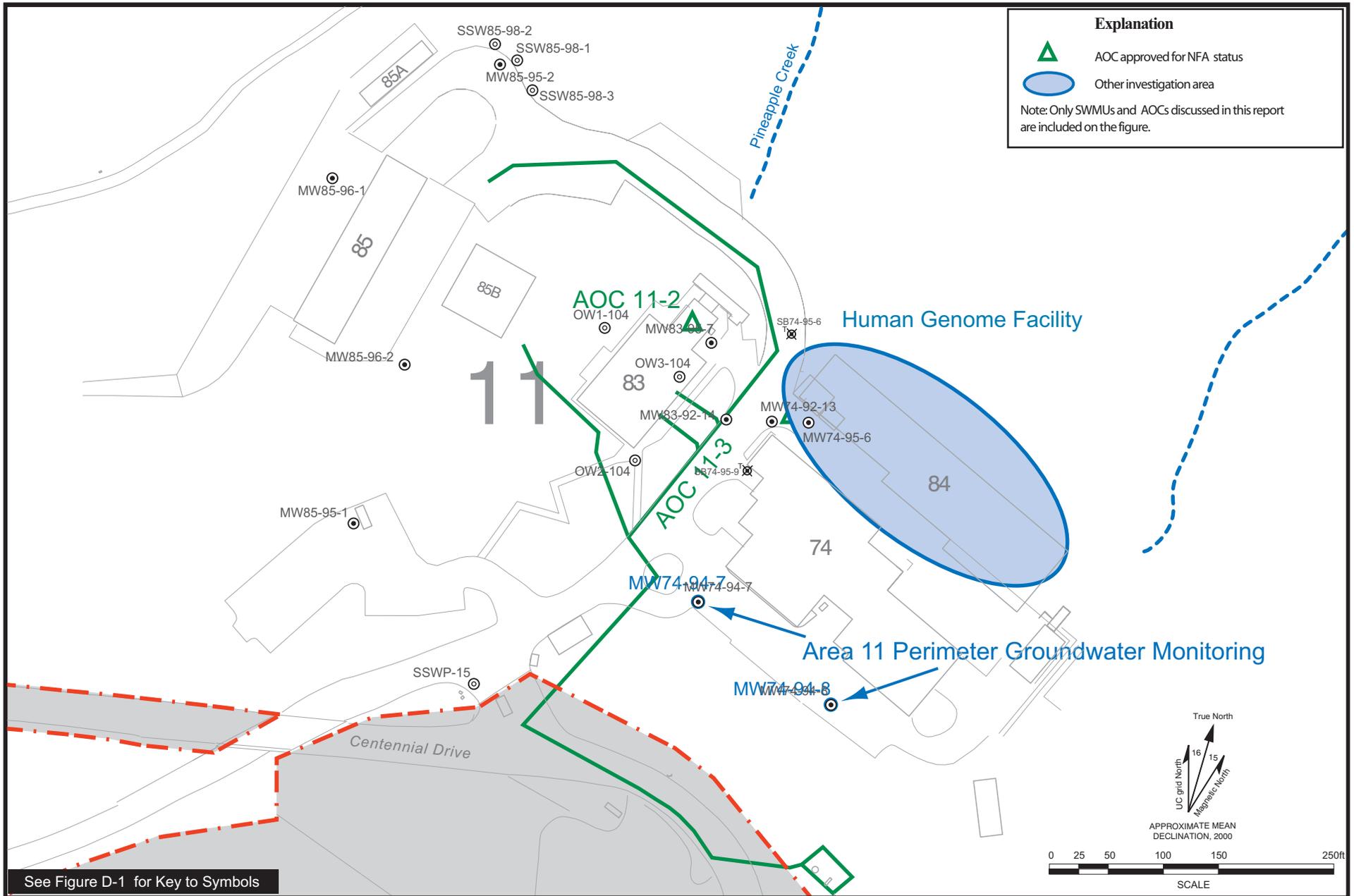


Figure D-3b. Locations of AOCs and Other Investigation Areas in Northeastern Outlying Area (RFA Study Area 11 - Life Sciences Area) Discussed in Module D.

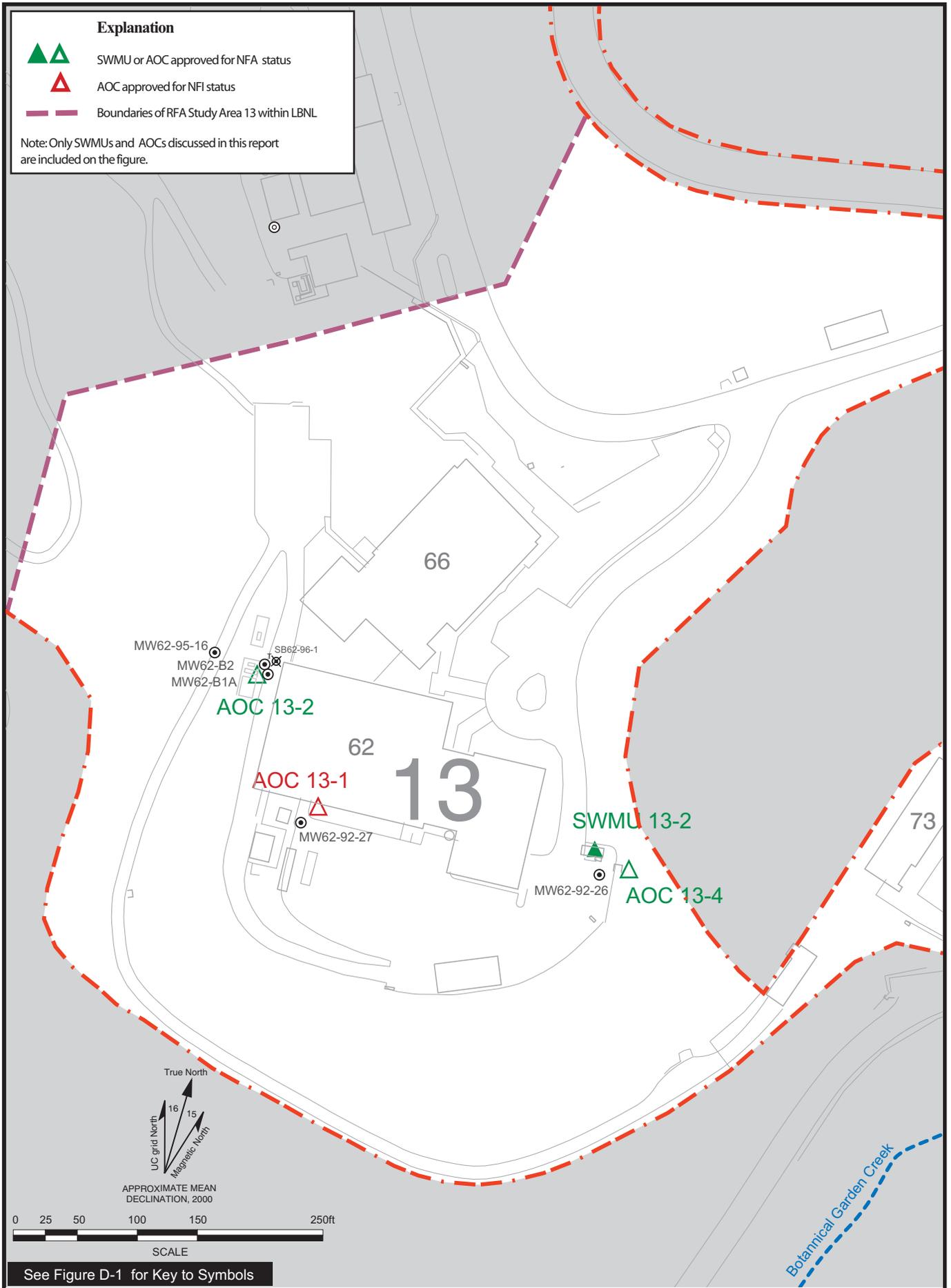


Figure D-3c. Locations of SWMUs and AOCs in Southeastern Outlying Area (RFA Study Area 13) Discussed in Module D.

Age	Formation	Description
Quaternary	Artificial fill	Generally engineered fill consisting of fine-grained material. Older fills include vegetative and other debris.
	Colluvium	Predominantly clayey silt.
	Debris flows	Boulders and gravels of basalt, chert, and porcelenite in a silty clay matrix.
	Landslides	Translational/rotational slide masses incorporating bedrock. Occur at the Moraga/Orinda Formation contact.

		WEST OF HAYWARD FAULT	EAST OF HAYWARD FAULT					
			<i>West of Life Sciences Area Main Canyon Landslide Deposit</i>			<i>East of Life Sciences Area Main Canyon Landslide Deposit</i>		
Age	Group		Formation	Description	Group	Formation	Description	
Tertiary			Contra Costa	Moraga	Andesitic flows, breccias, and agglomerates with minor amounts of basaltic flows and interbedded volcaniclastic sandstone and conglomerate.	San Pablo (?)	Neroly	Fossiliferous, shallow marine, fine grained sandstones with minor amounts of siltstone.
		Orinda		Alluvial sedimentary deposits consisting primarily of claystone and siltstone with lenticular to linear beds of sandstone and conglomerate.	Briones		Fossiliferous, shallow marine, fine grained sandstones with minor amounts of siltstone.	
					Monterey	Claremont	Chert and shale with minor amounts of sandstone.	
Cretaceous		Great Valley		Marine mudstones, shales, and sandstones.				
Jurassic	Franciscan Complex							

Figure D2.1-1. Stratigraphic Correlation Chart, Lawrence Berkeley National Laboratory.

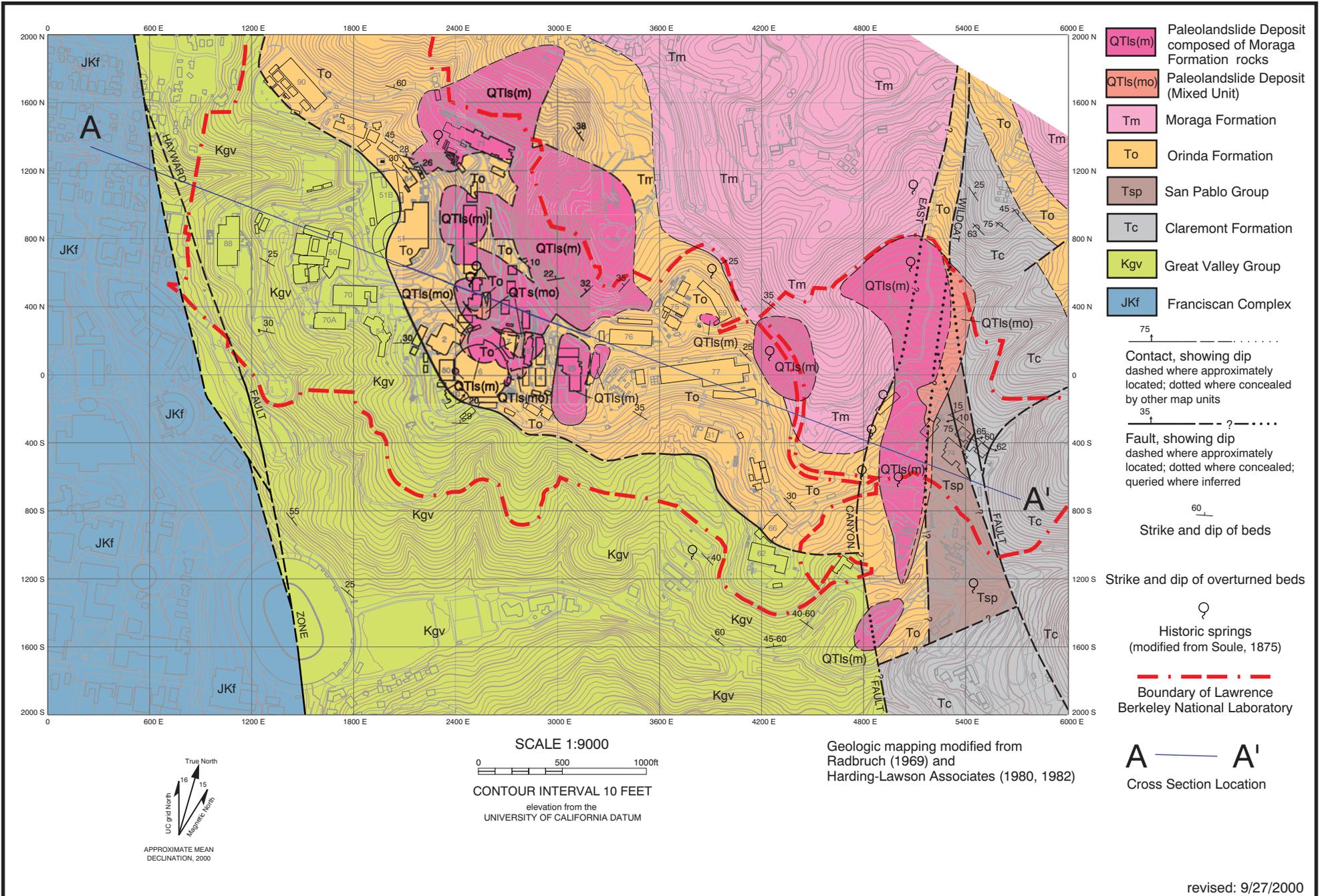


Figure D2.1-2. Bedrock Geologic Map, Lawrence Berkeley National Laboratory.

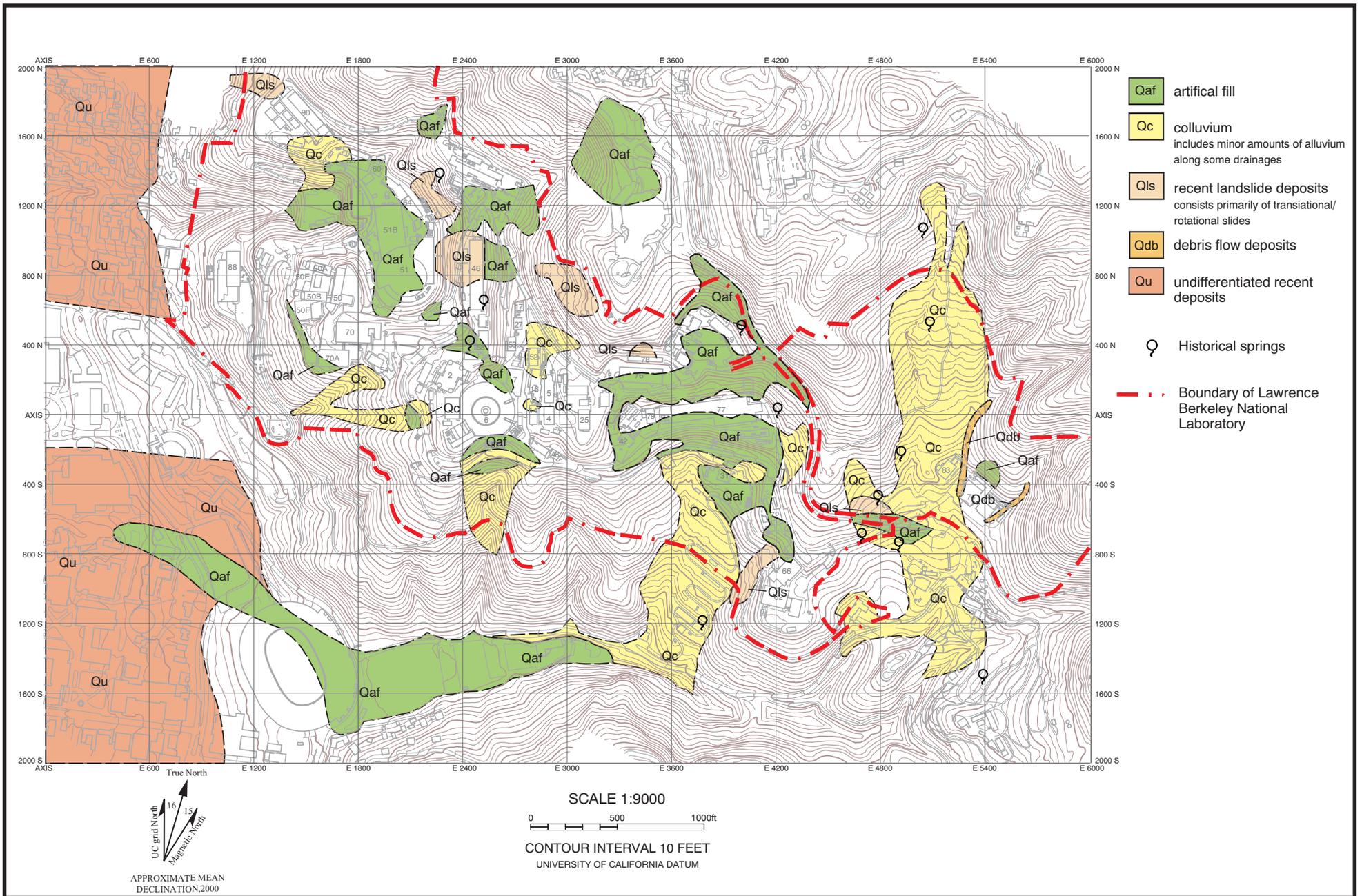


Figure D2.1-3 Surficial Geologic Map (modified from Harding-Lawson Associates, 1982), Lawrence Berkeley National Laboratory.

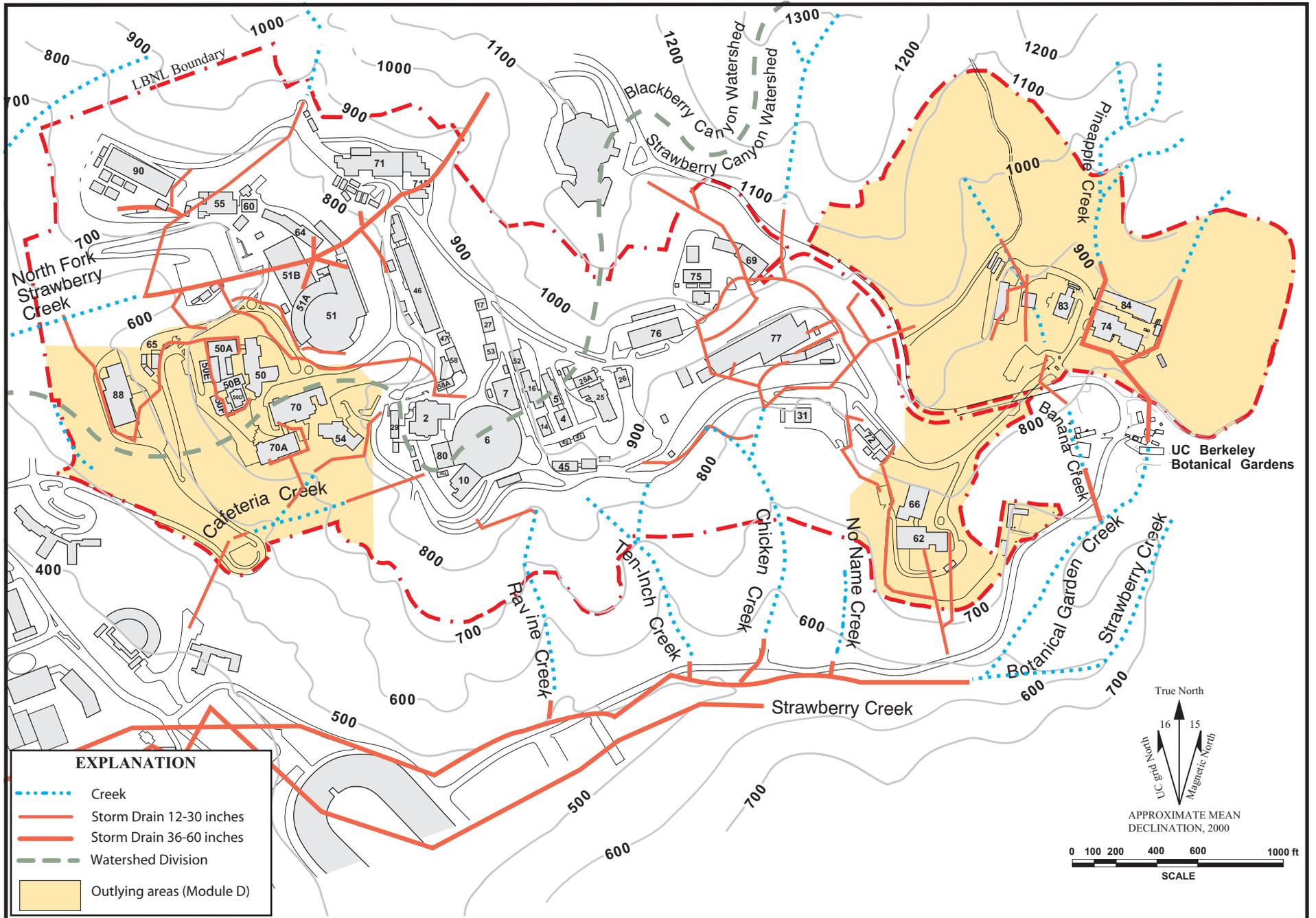


Figure D2.1-4. LBNL Surface Hydrology and Stormwater Drainage System.

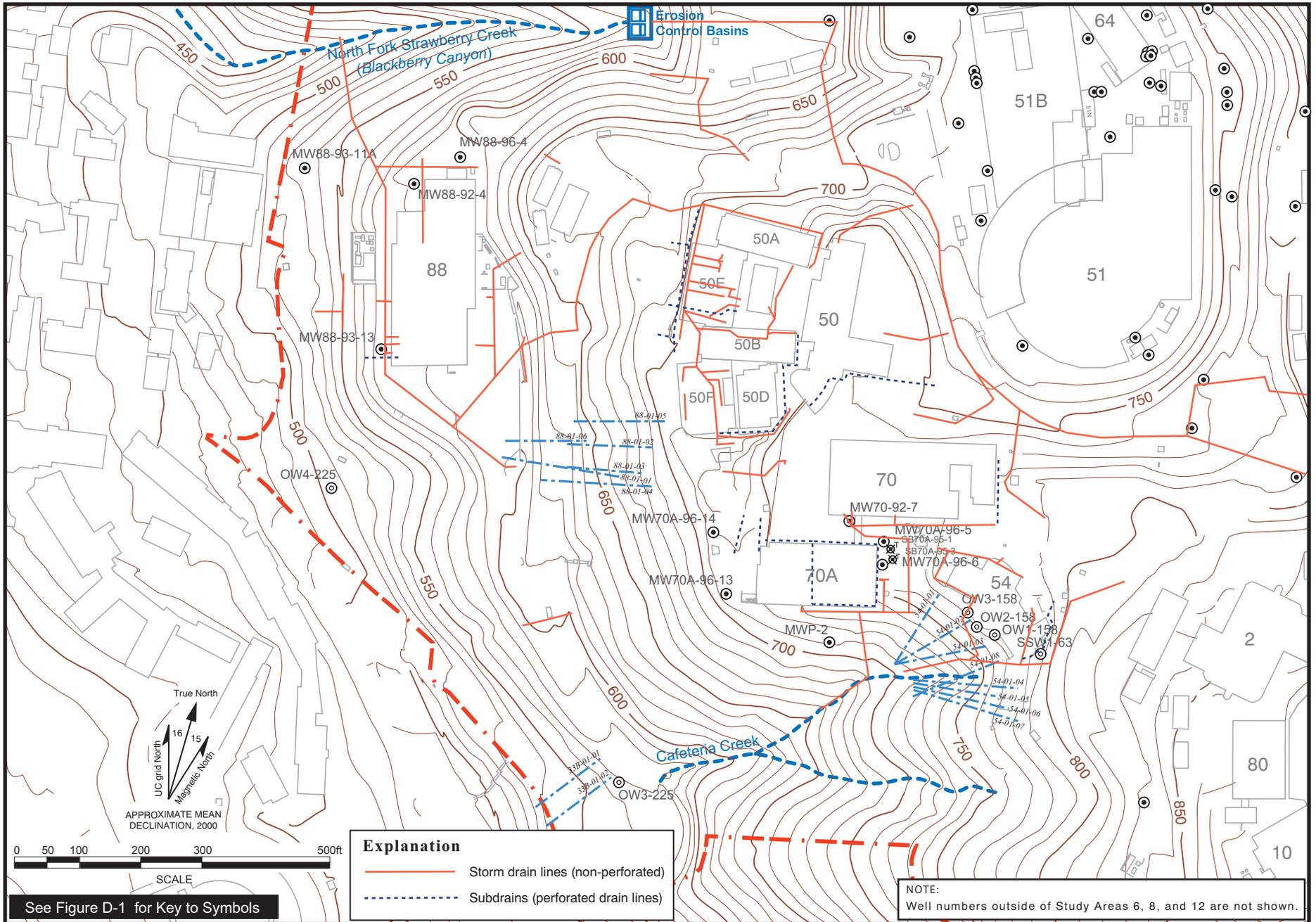
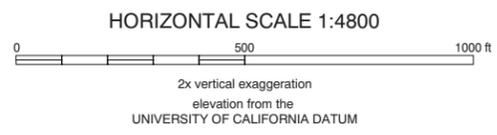
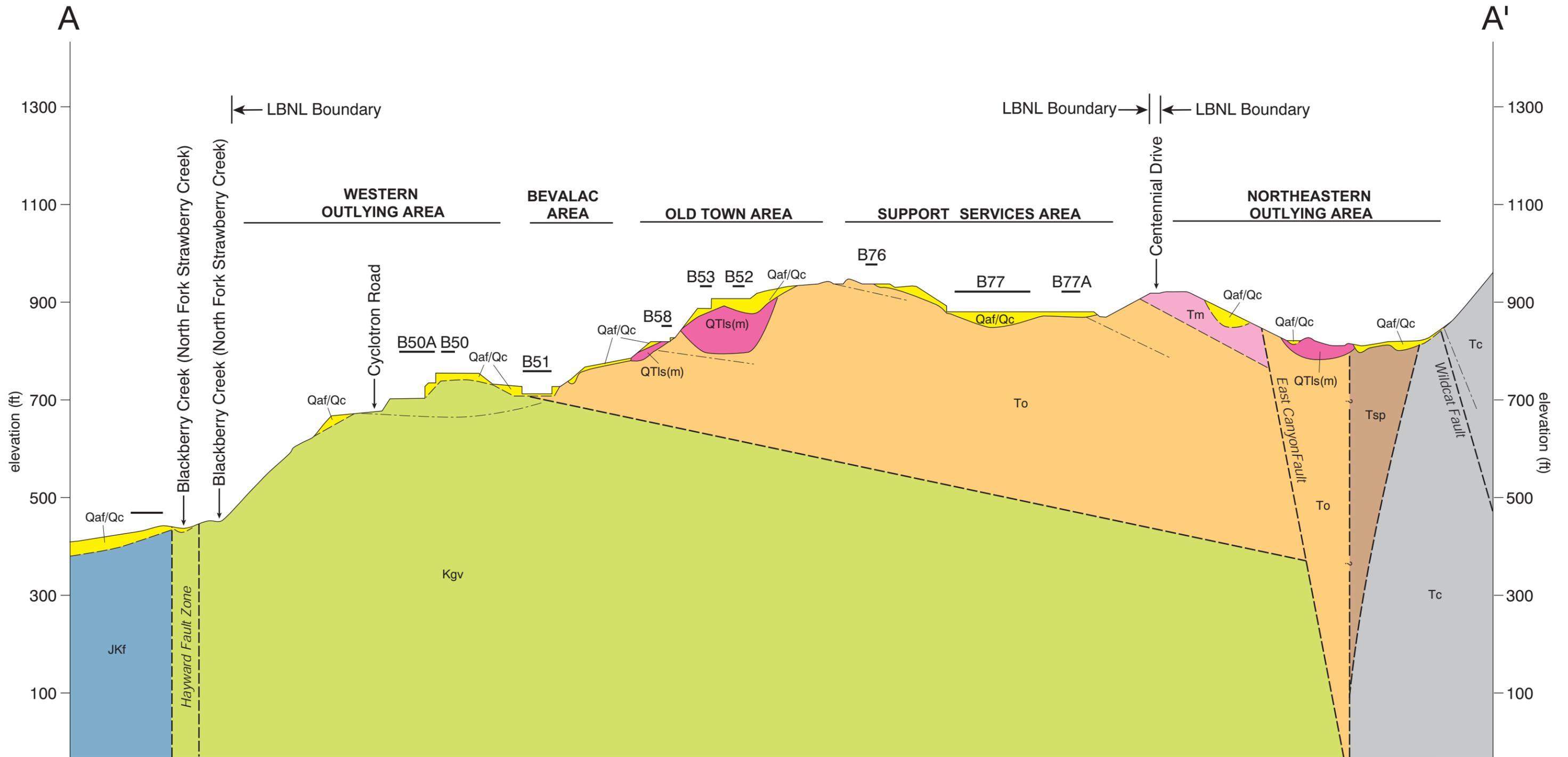


Figure D2.2-1. Storm Drains, Subdrains, and Hydraugers in Western Outlying Area (RFA Study Areas 6, 8, and 12).



B58
approximate horizontal location of
buildings on or near section

- tinted box indicates unit appears in section
- | | | |
|--|----------------------------|-------------------------------|
| Qaf/Qc artificial fill/colluvium
(may locally include
alluvium) | Tm Moraga Formation | Tc Claremont Formation |
| QTIs(m) Paleolandslide Deposit
Composed of Moraga
Formation Rocks | To Orinda Formation | Kgv Great Valley Group |
| | Tsp San Pablo Group | JKf Franciscan Complex |

- Contact**
dashed where
approximately located
- Fault**
dashed where
approximately located;
queried where inferred
- generalized apparent dip

**Figure D2.2-2. LBNL Site Cross Section A-A',
Including Western Outlying Area.**
D2.2-2 A-A'.ai

revision: 9/26/2000

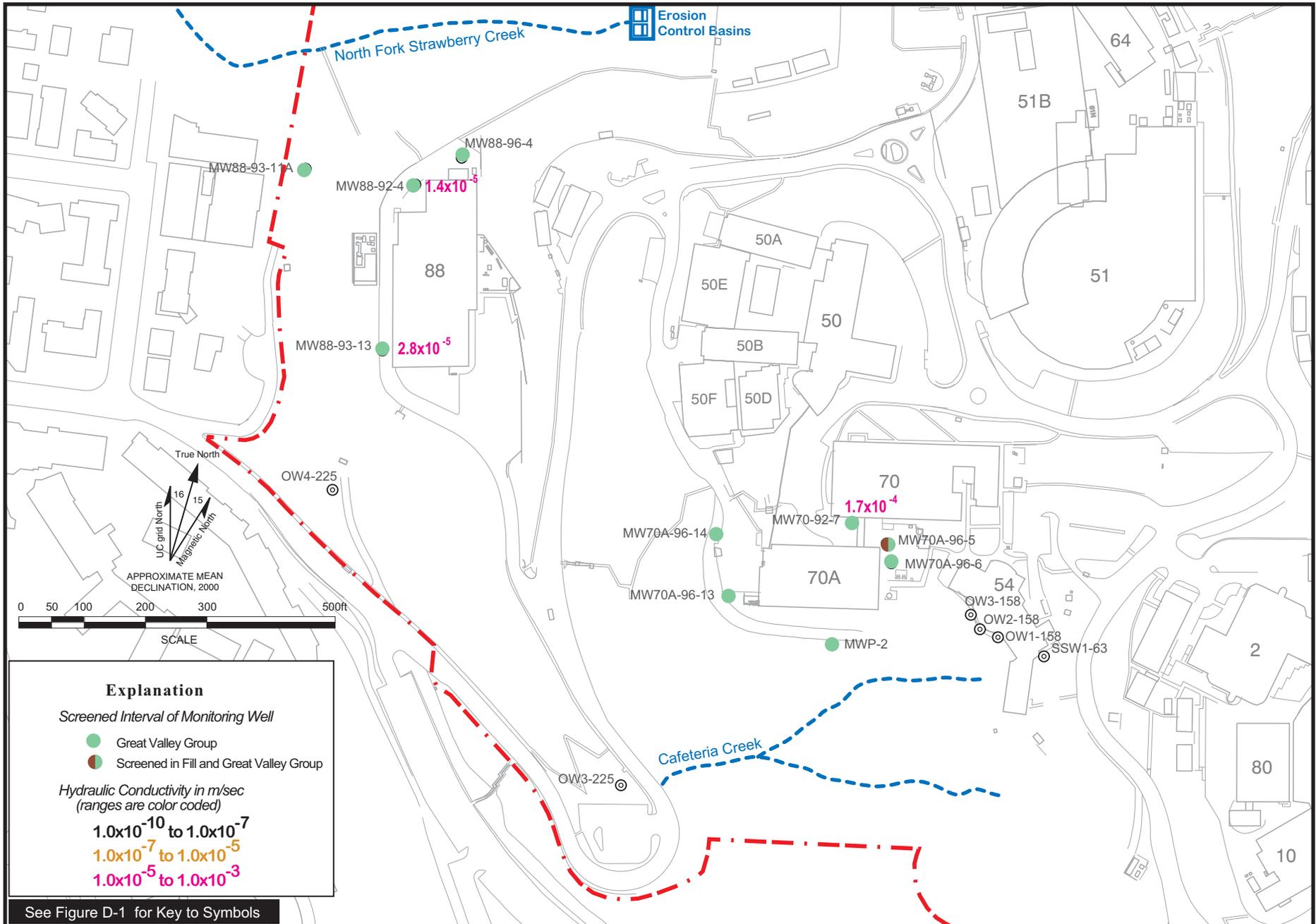


Figure D2.2-3. Well Locations Showing Hydraulic Conductivity Estimates Calculated from Slug Tests and Pumping Tests in Western Outlying Area.

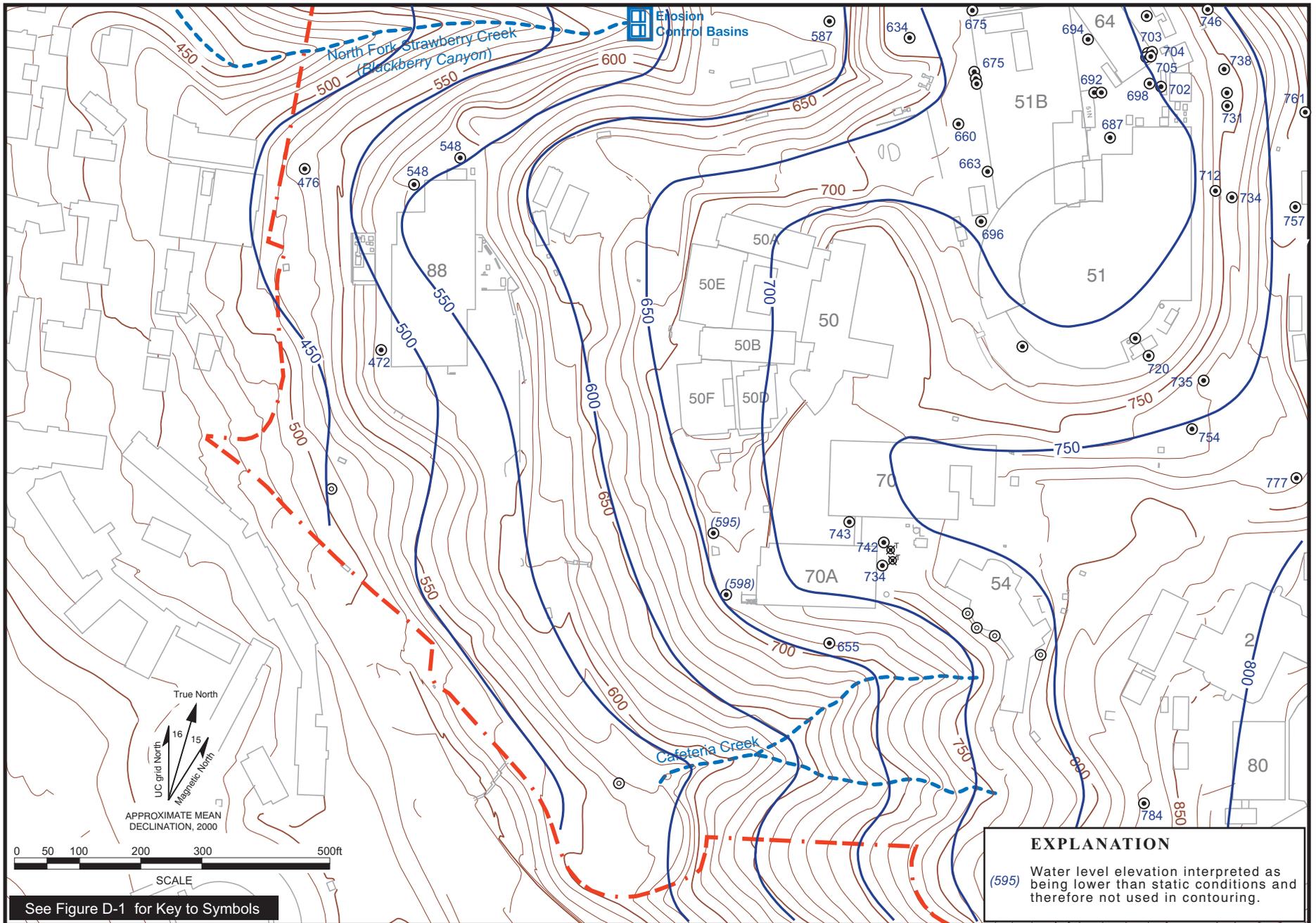


Figure D2.2-4. Water Level Elevation Contour Map, Western Outlying Area (RFA Study Areas 6, 8, and 12), Fourth Quarter Fiscal Year 1999.

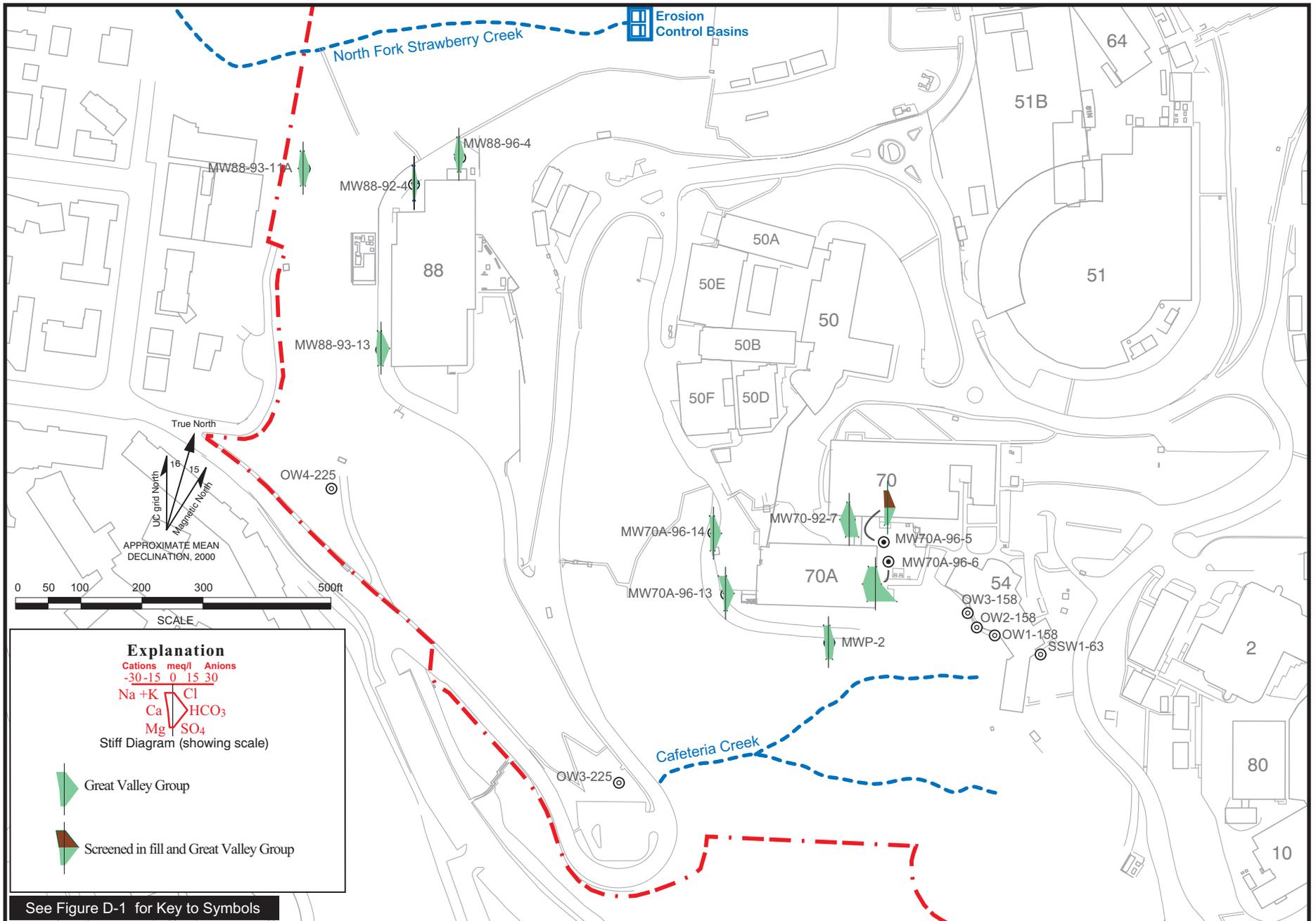


Figure D2.2-5. Stiff Diagram of Groundwater Geochemical Parameters in Western Outlying Area.

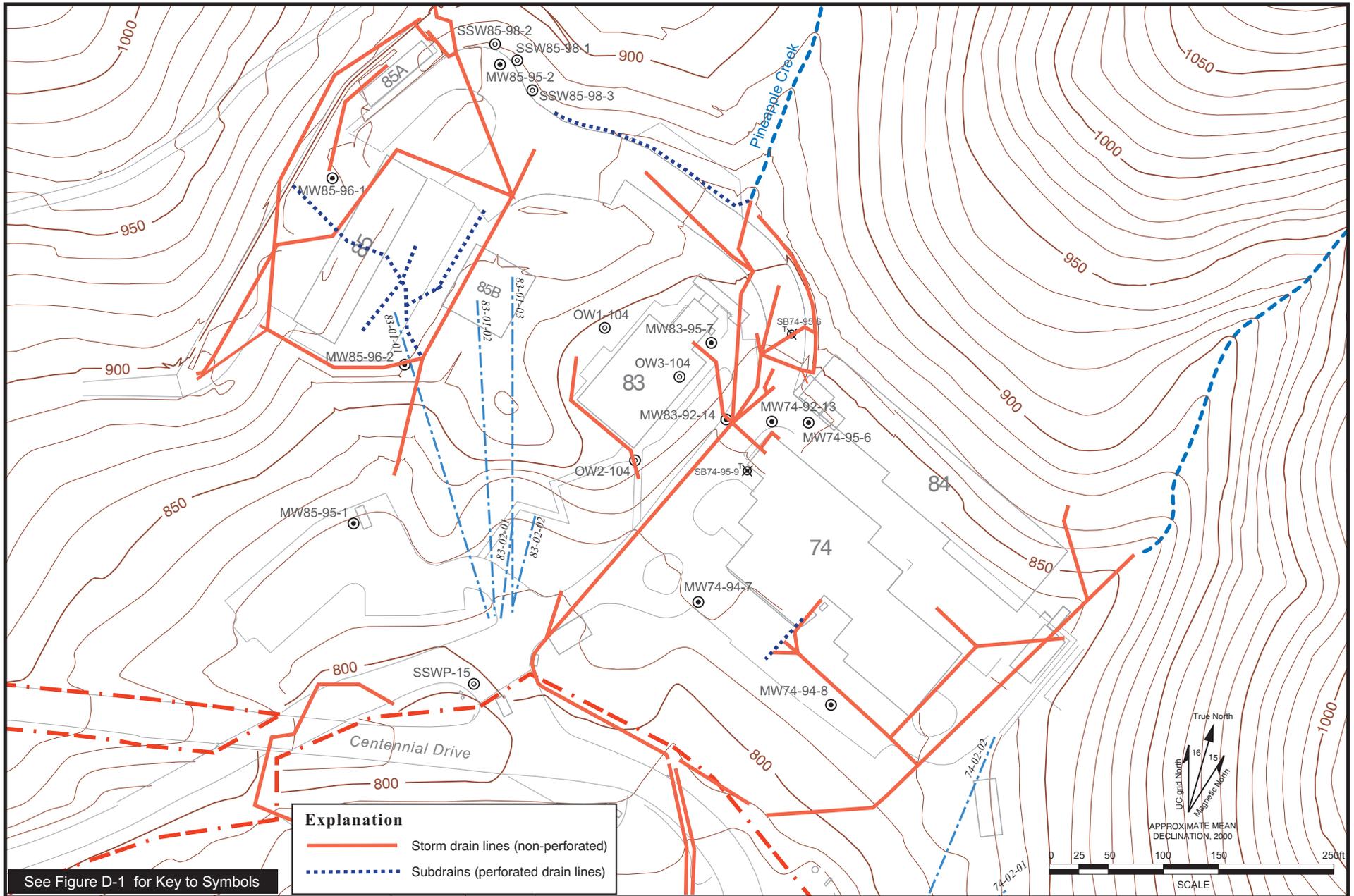


Figure D2.3-1. Storm Drains, Subdrains, and Hydraugers in Northeastern Outlying Area.

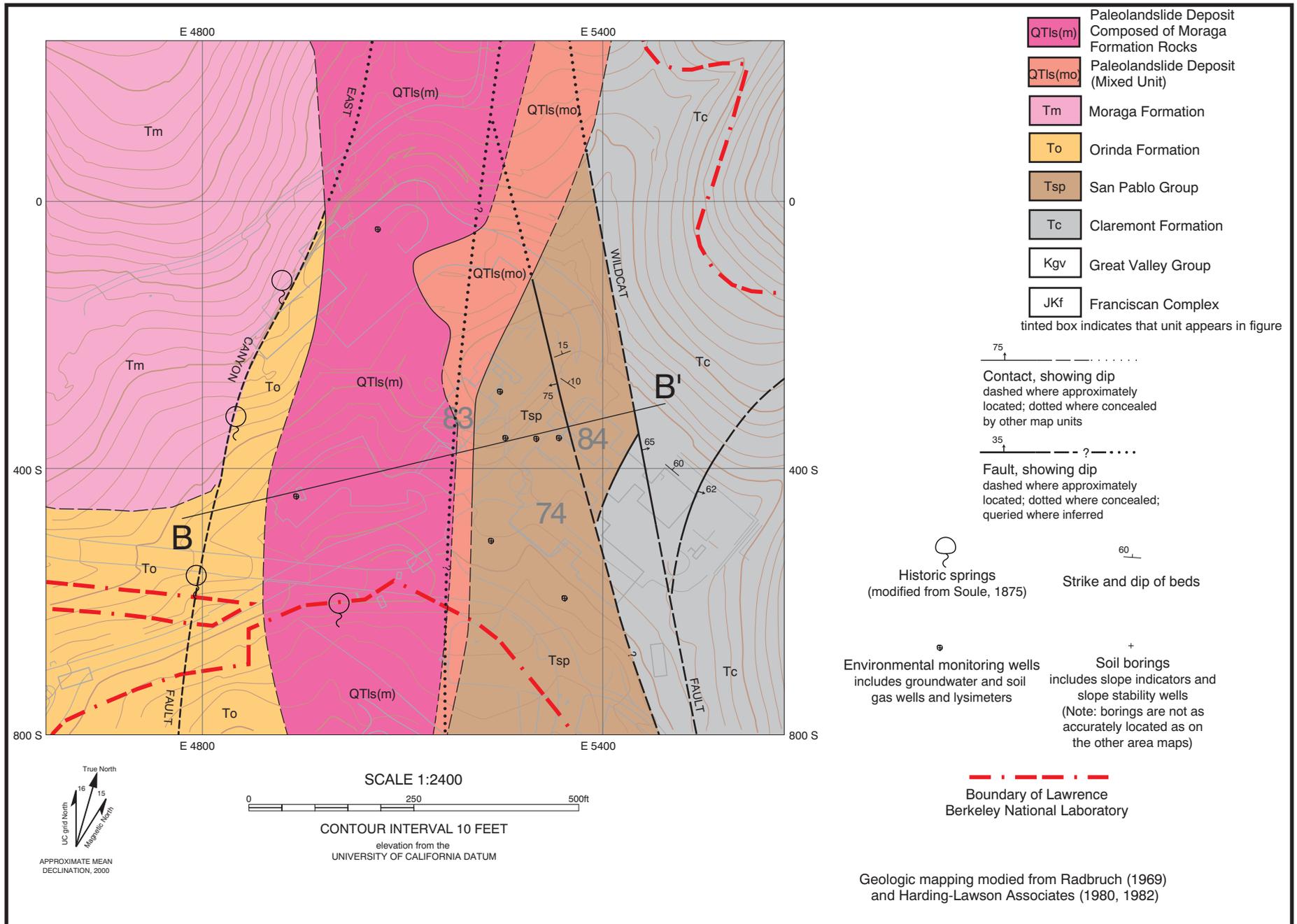
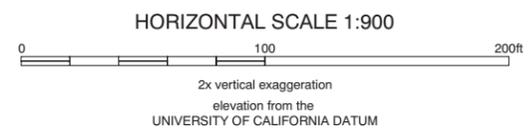
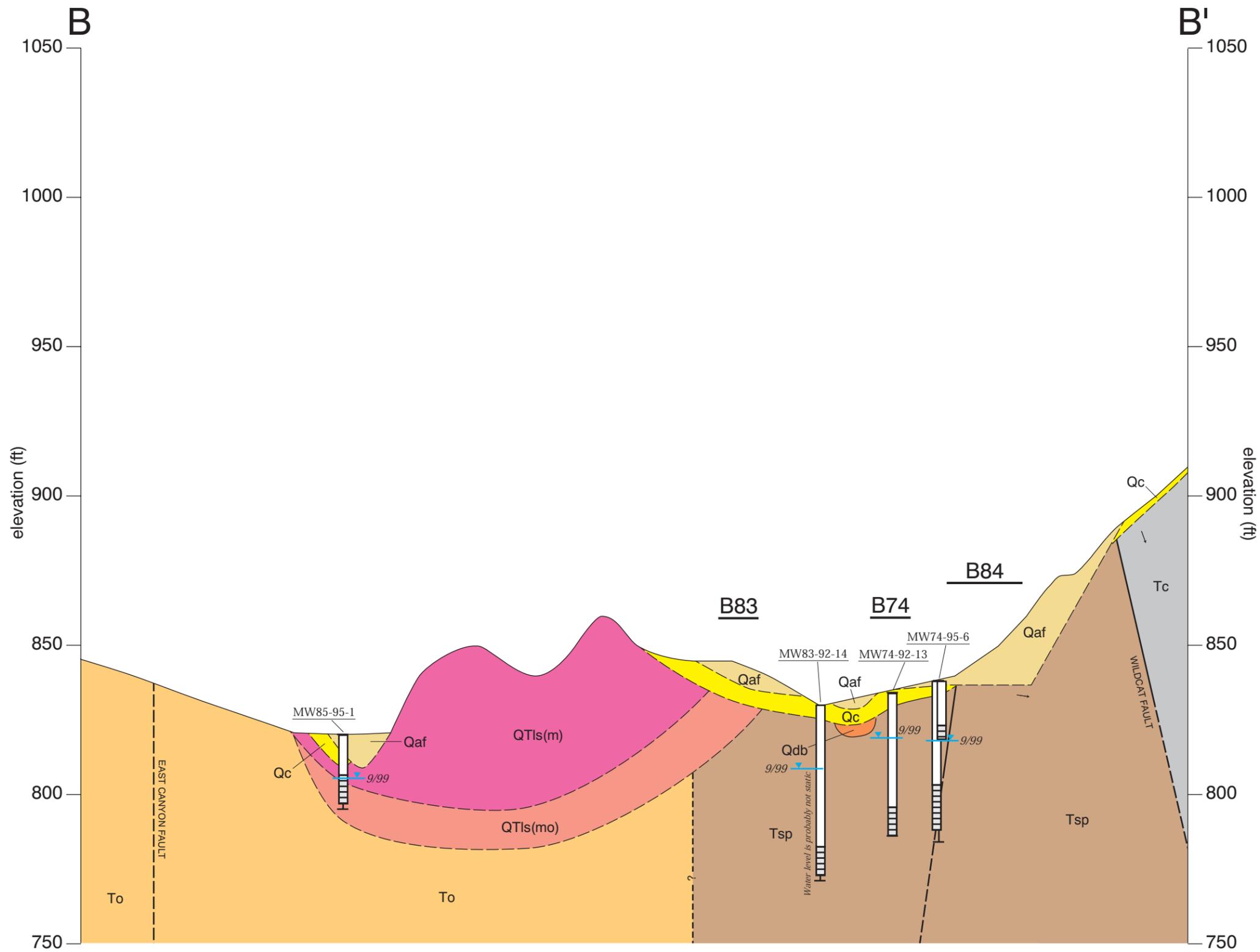
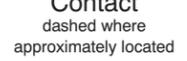
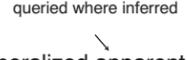


Figure D2.3-2. Life Sciences Area Bedrock Geologic Map.



B58 approximate horizontal location of buildings on or near section

 Qaf artificial fill	 QTls(m) Paleolandslide Deposit Composed of Moraga Formation Rocks	 Tsp San Pablo Group	 Contact dashed where approximately located
 Qc colluvium (may locally include alluvium)	 QTls(mo) Paleolandslide Deposit (Mixed Unit)	 Tc Claremont Formation	 Fault dashed where approximately located; queried where inferred
 Qdb debris flow deposits	 Tm Moraga Formation	 Kgv Great Valley Group	 generalized apparent dip
 To Orinda Formation			

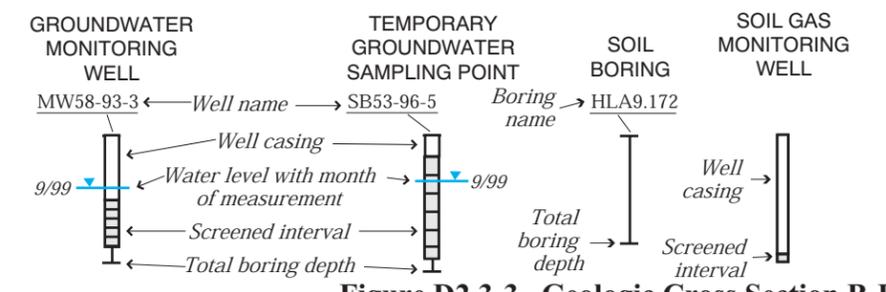


Figure D2.3-3. Geologic Cross Section B-B', Life Sciences Area.

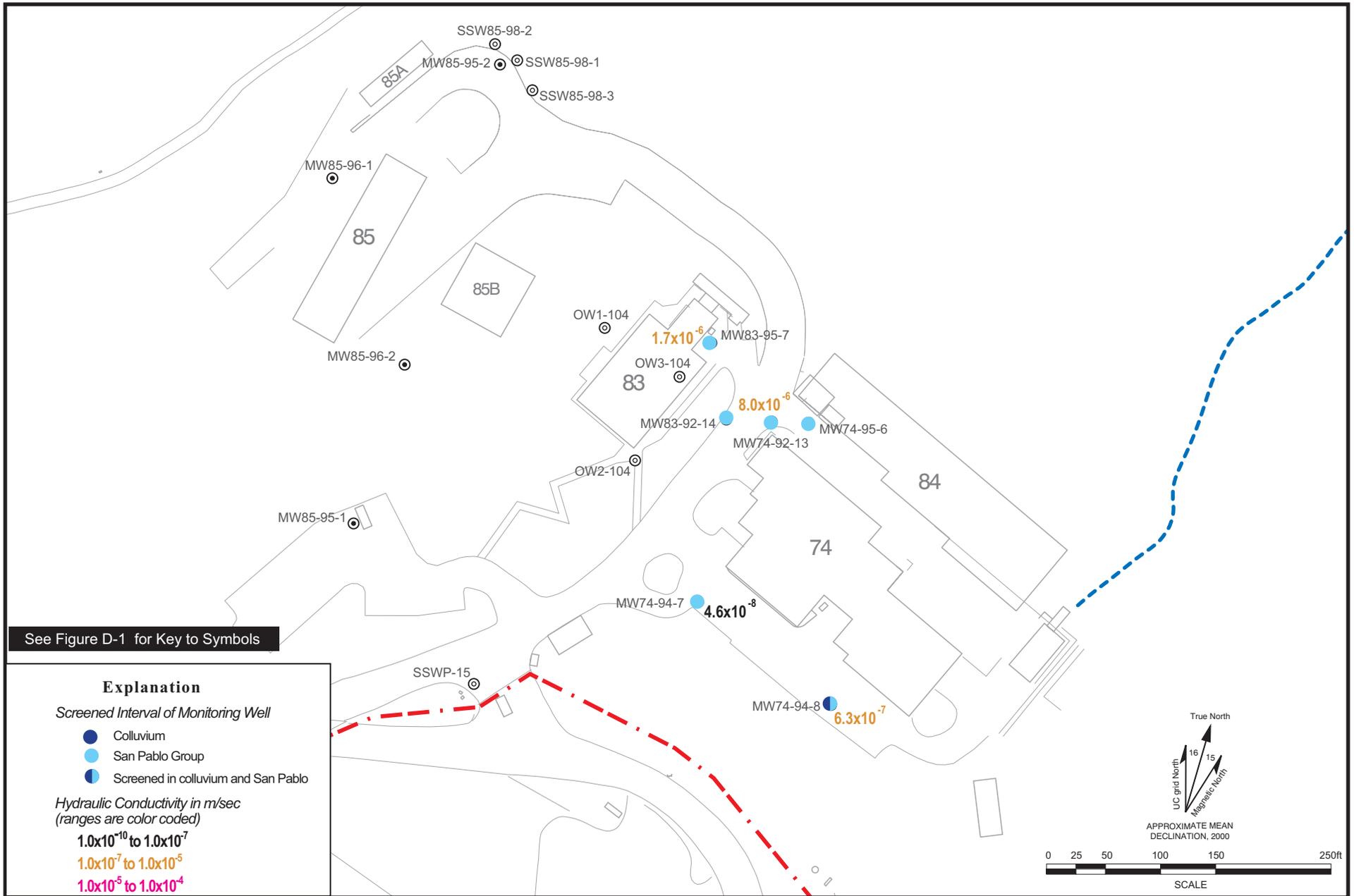


Figure D2.3-4. Well Locations Showing Hydraulic Conductivity Estimates Calculated from Slug Tests and Pumping Tests in Northeastern Outlying Area.

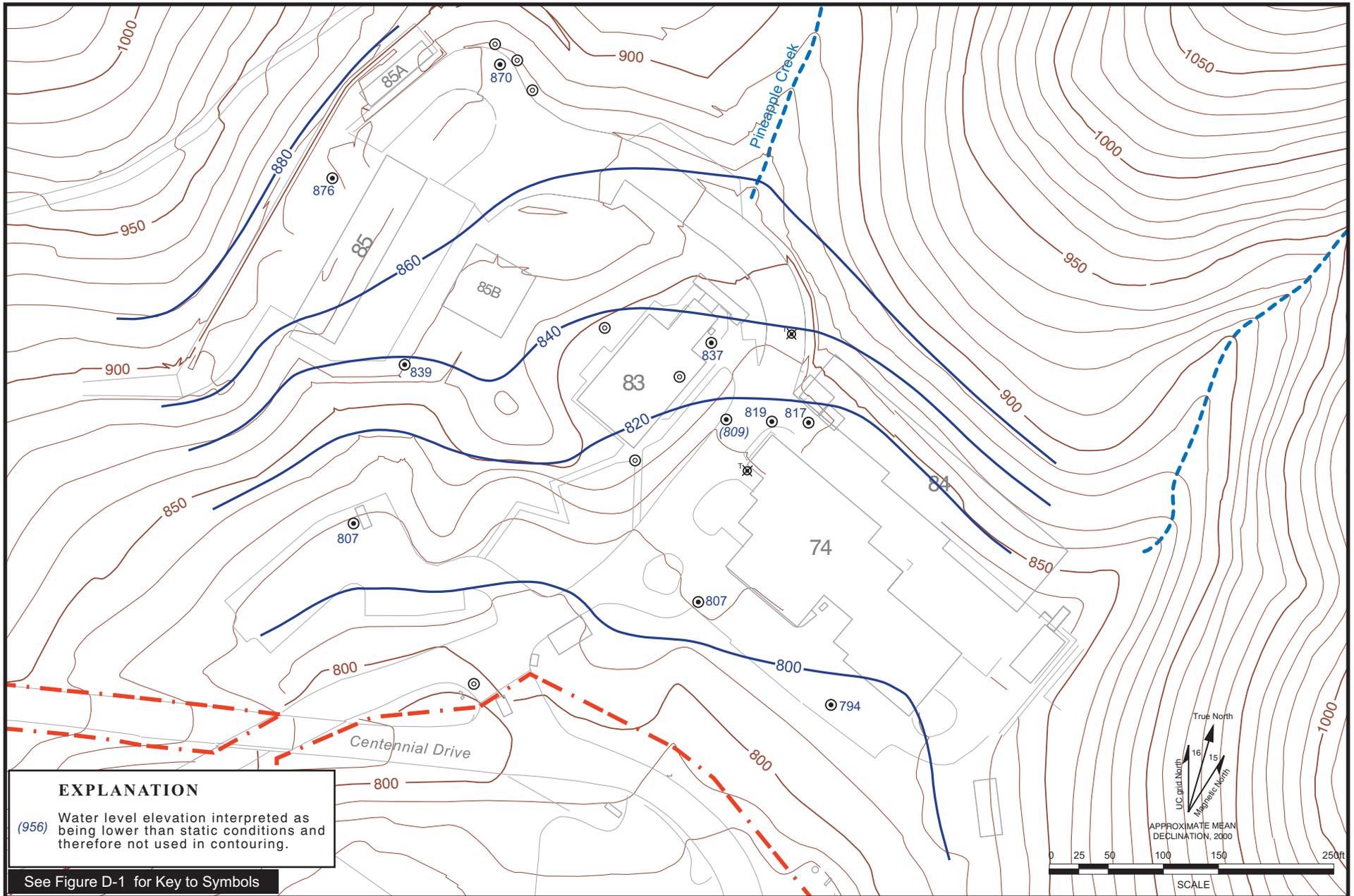


Figure D2.3-5. Water Level Elevation Contour Map, Northeastern Outlying Area, Fourth Quarter Fiscal Year 1999.

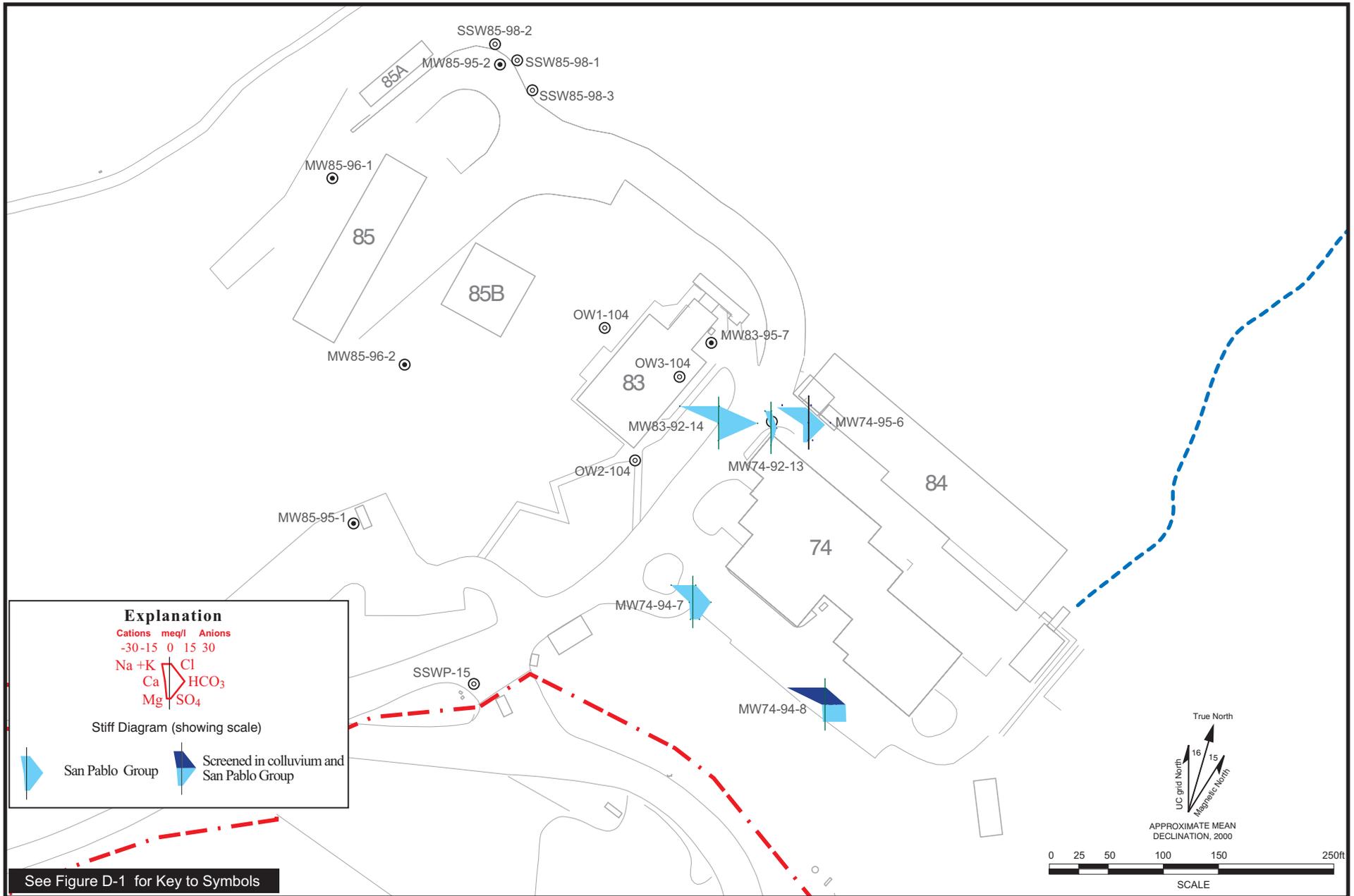


Figure D2.3-6. Stiff Diagrams of Groundwater Geochemical Parameters in Northeastern Outlying Area.

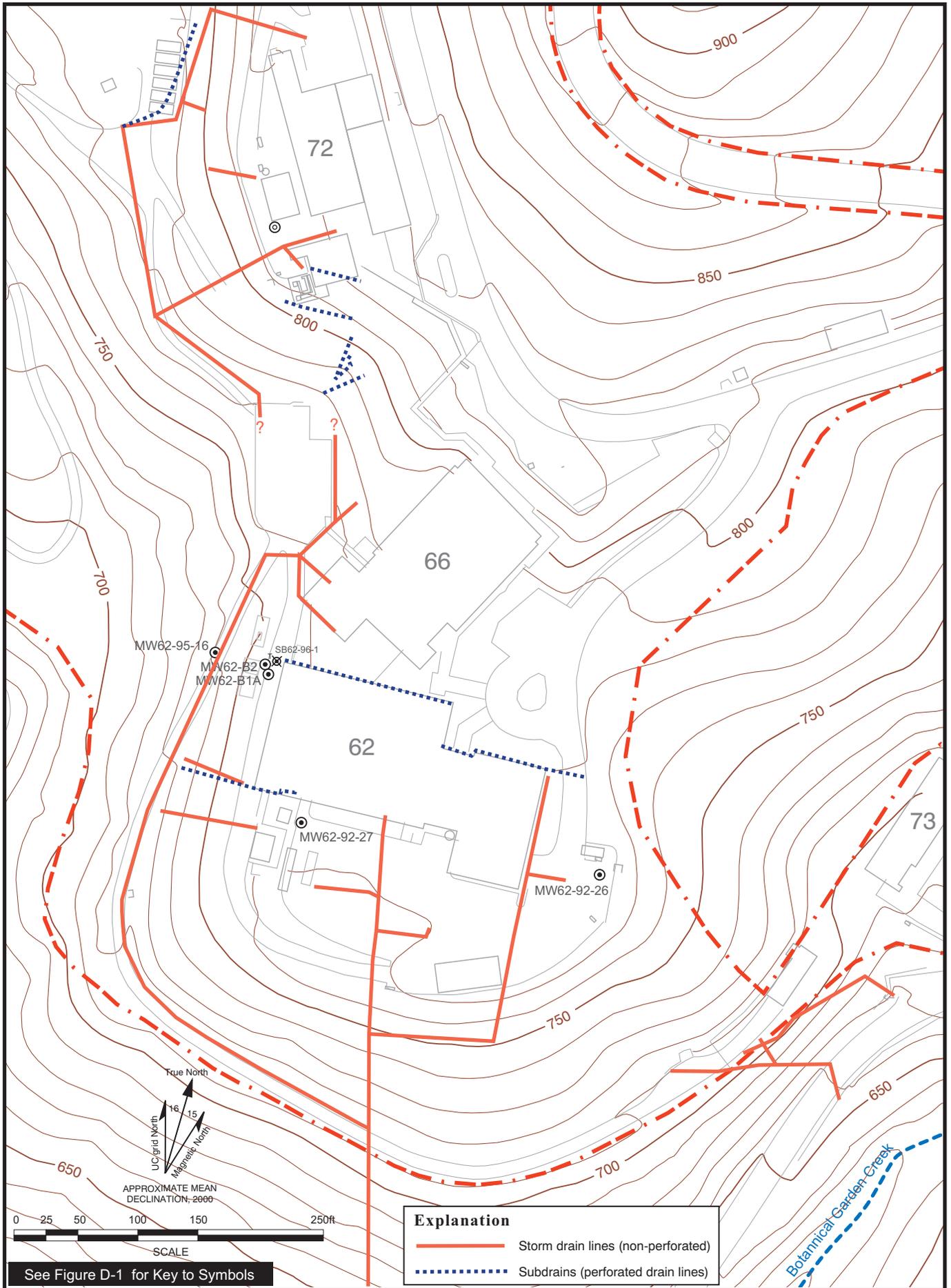


Figure D2.4-1. Storm Drains and Subdrains in Southeastern Outlying Area.

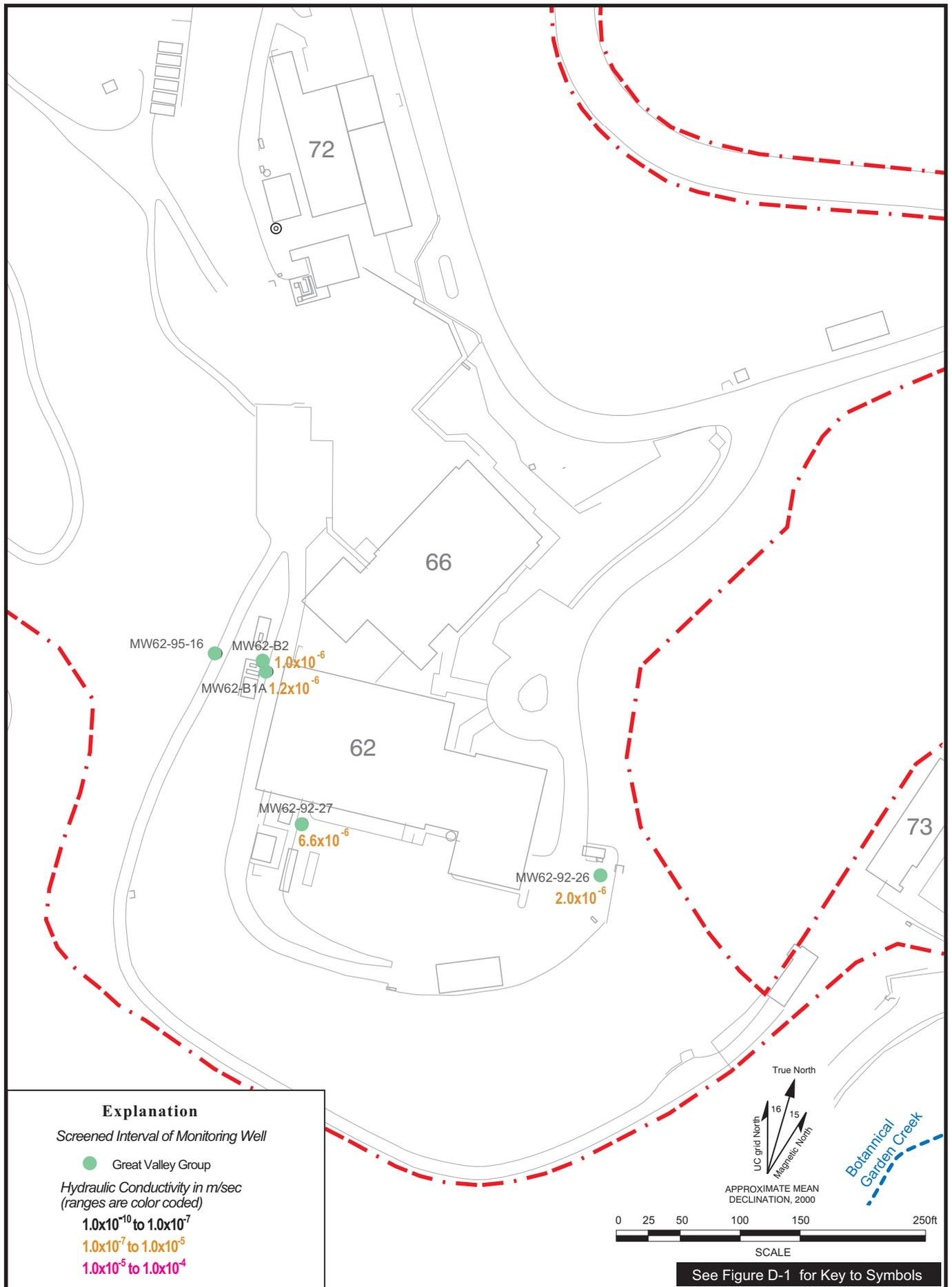


Figure D2.4-2. Well Locations Showing Hydraulic Conductivity Estimates Calculated from Slug Tests and Pumping Tests in Southeastern Outlying Area.

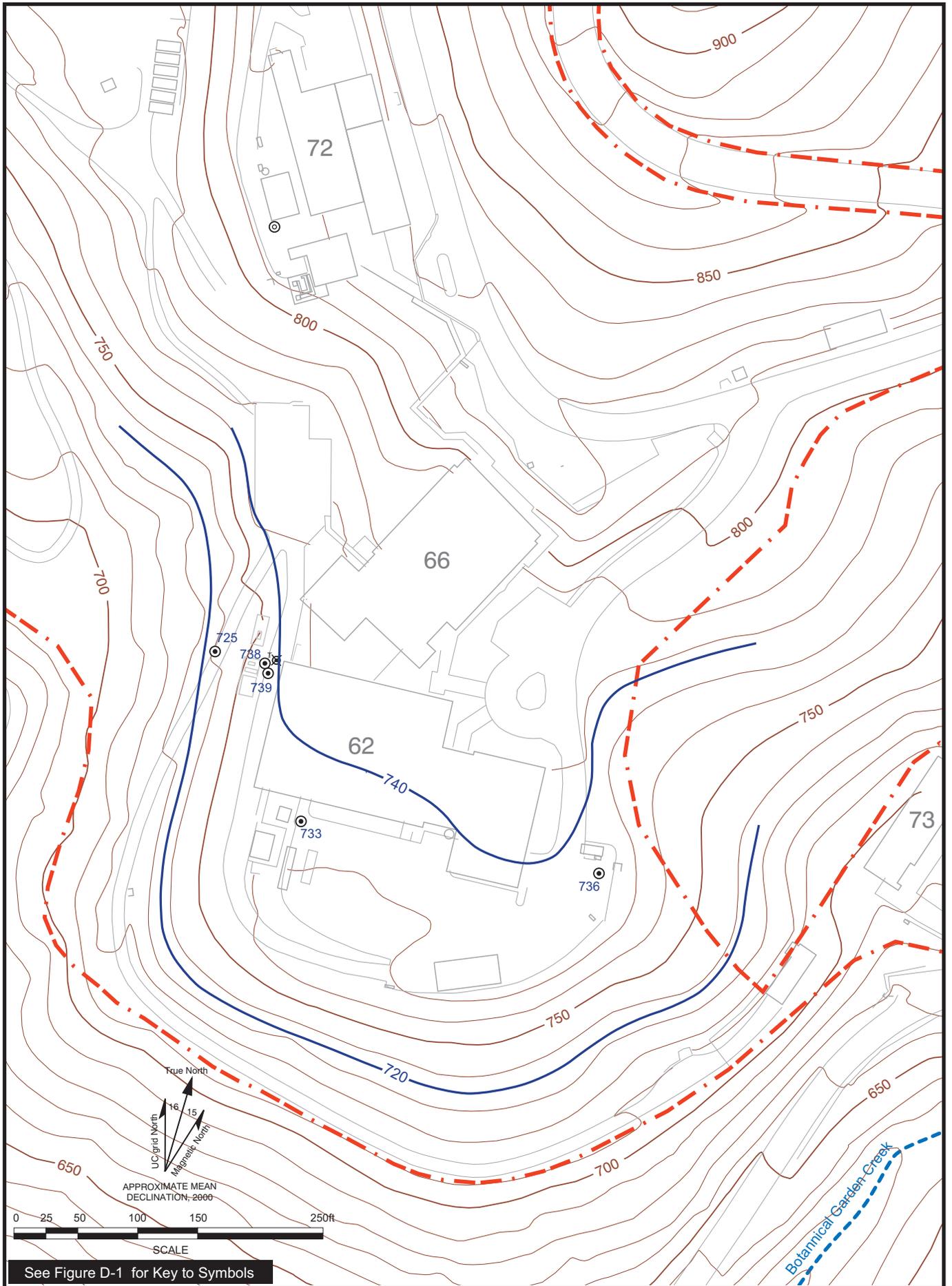


Figure D2.4-3. Water Level Elevation Contour Map, Southeastern Outlying Area, Fourth Quarter Fiscal Year 1999.

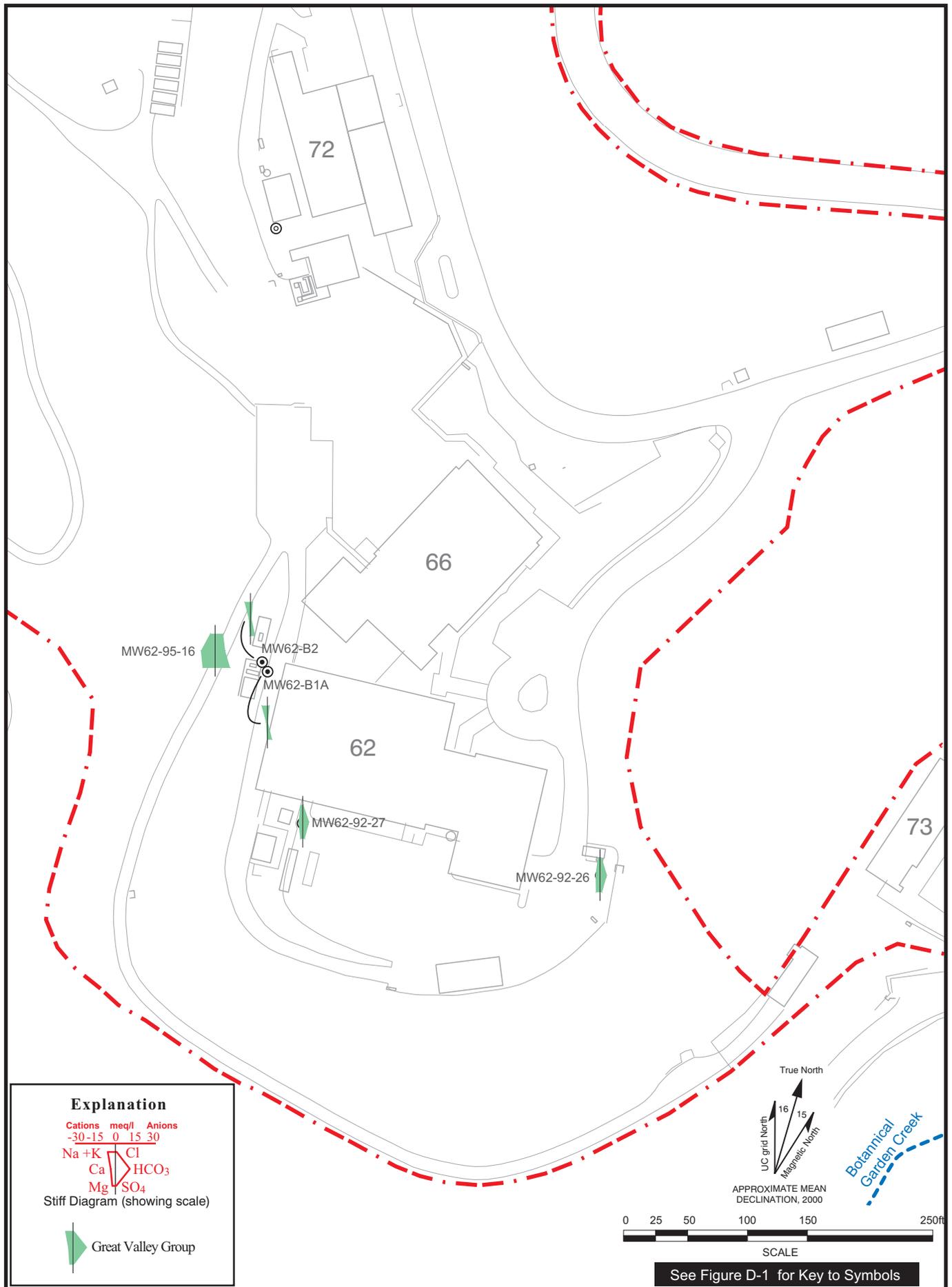


Figure D2.4-4. Stiff Diagram of Groundwater Geochemical Parameters in Southeastern Outlying Area.

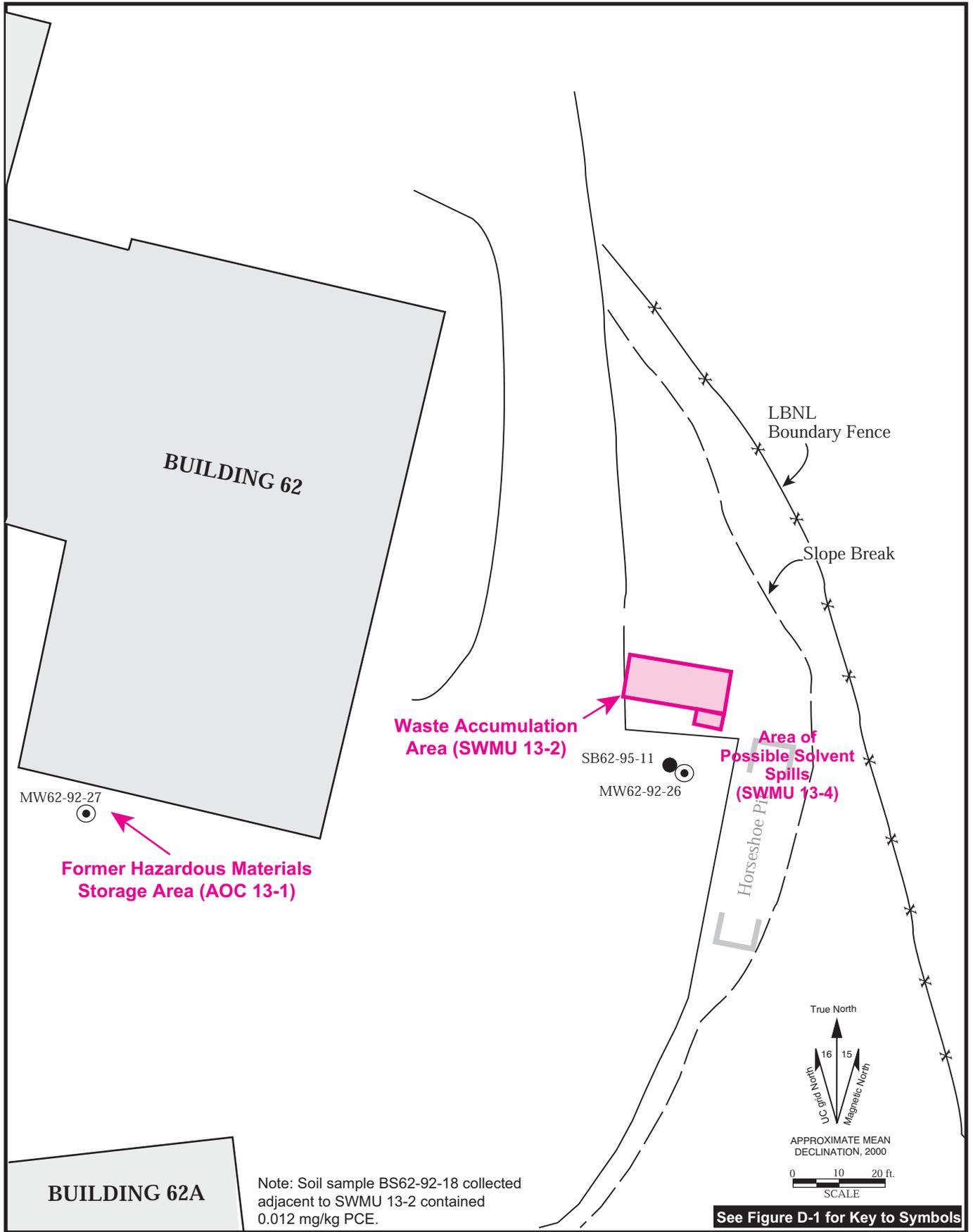


Figure D3.1-1. Locations of Soil Borings Showing Contaminant Concentrations (mg/kg) Exceeding Background, Building 62 Waste Accumulation and Chemical Storage Area (SWMU 13-2).

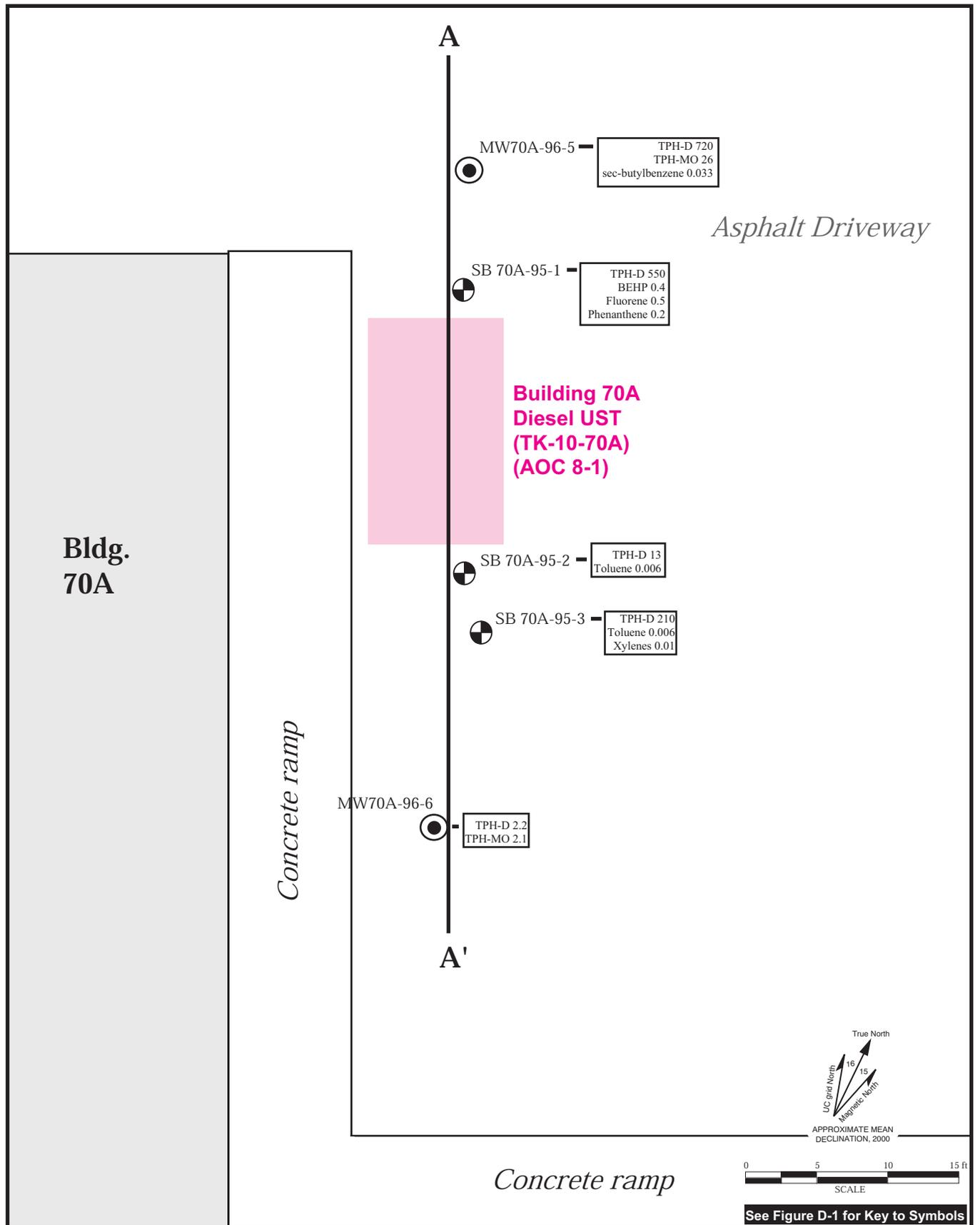


Figure D3.2-1. Locations of Soil Borings and Maximum Concentrations of Analytes Detected Above Background Levels (mg/kg), Building 70A Diesel UST (AOC 8-1).

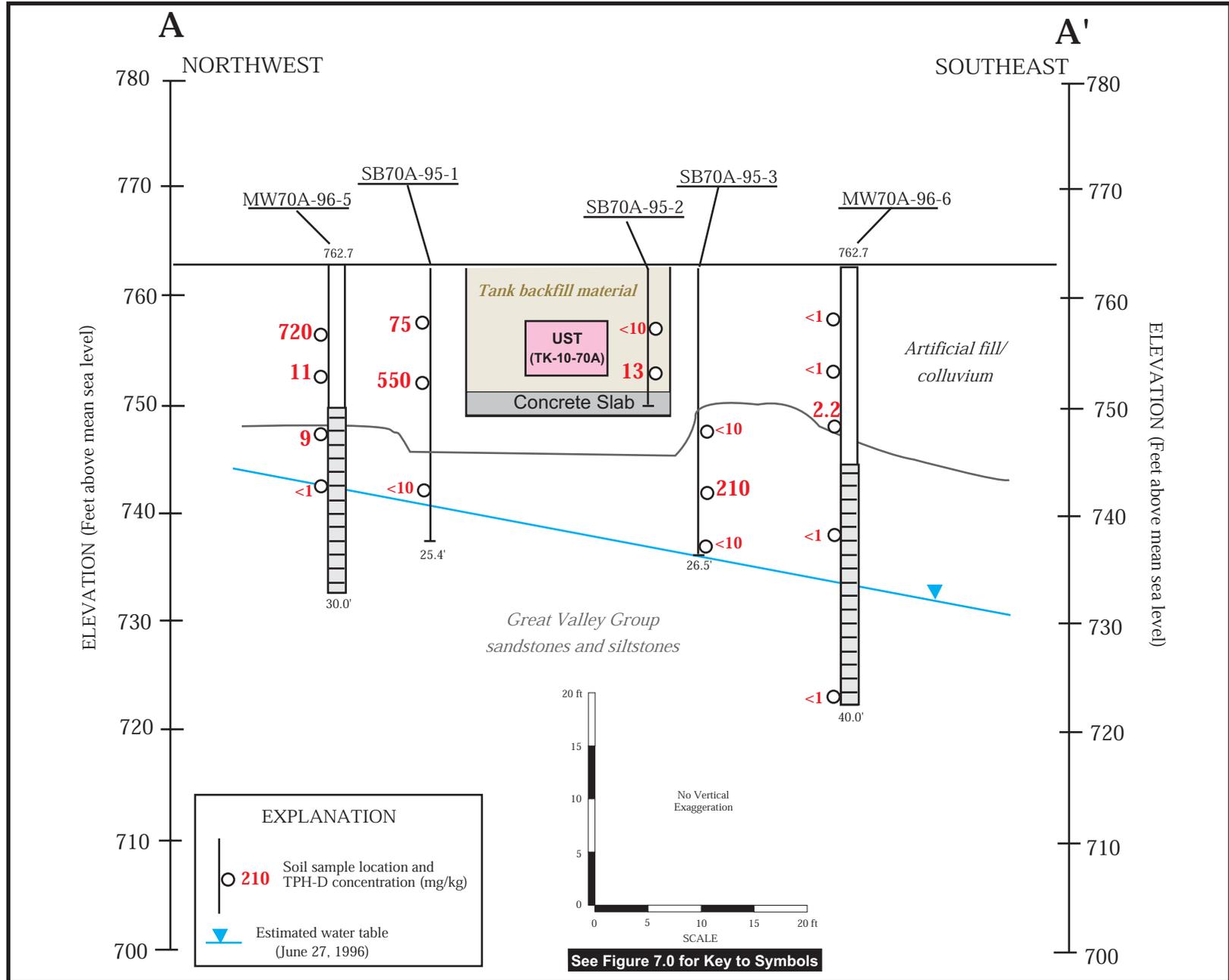


Figure D3.2-2. Geologic Cross Section A-A' Showing TPH-D Concentrations (mg/kg), Building 70A Diesel UST (AOC 8-1).

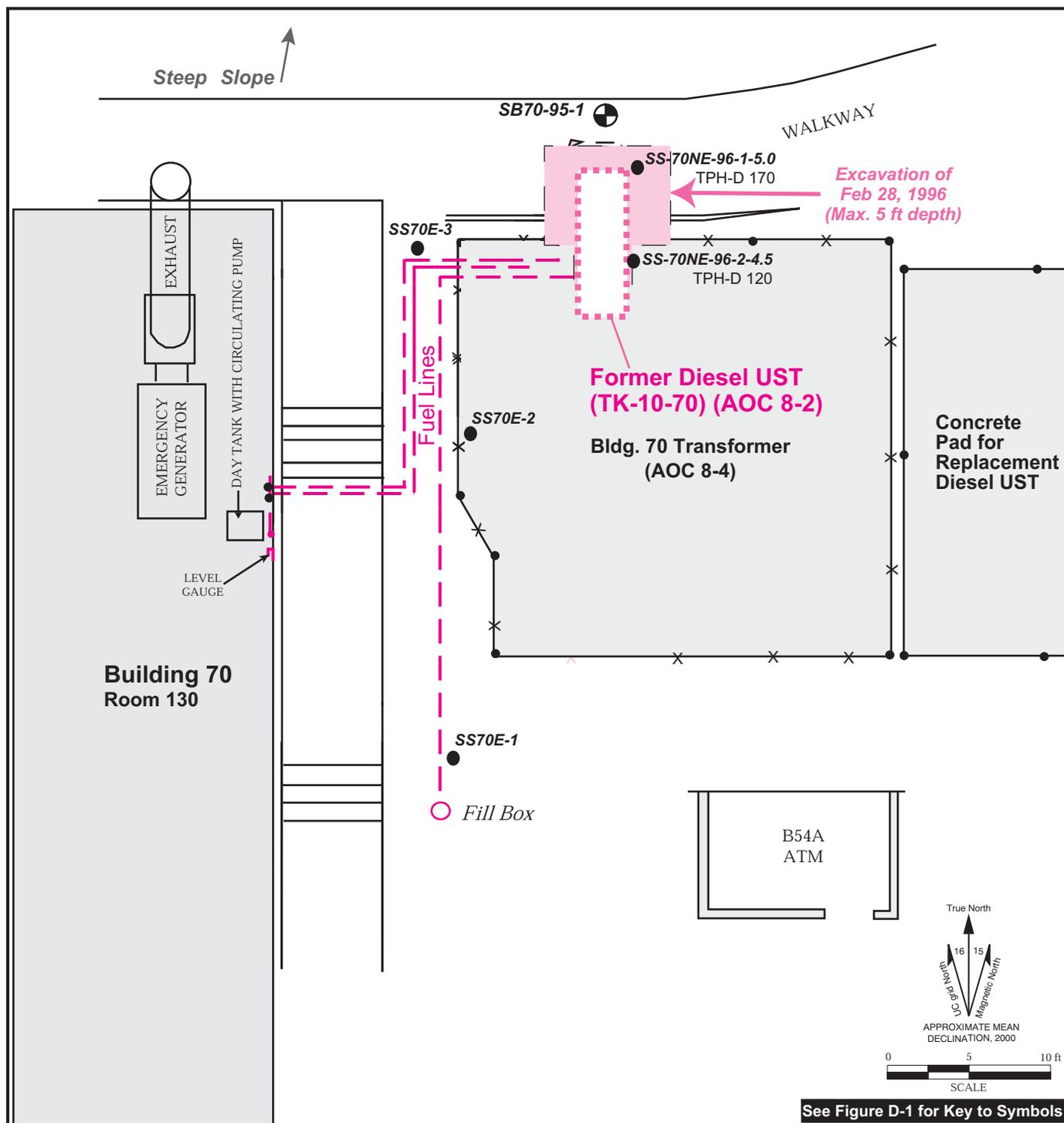


Figure 3.3-1. Locations of Soil Borings and Maximum Concentrations of TPH-D Detected (mg/kg), Building 70 Diesel UST (AOC 8-2).

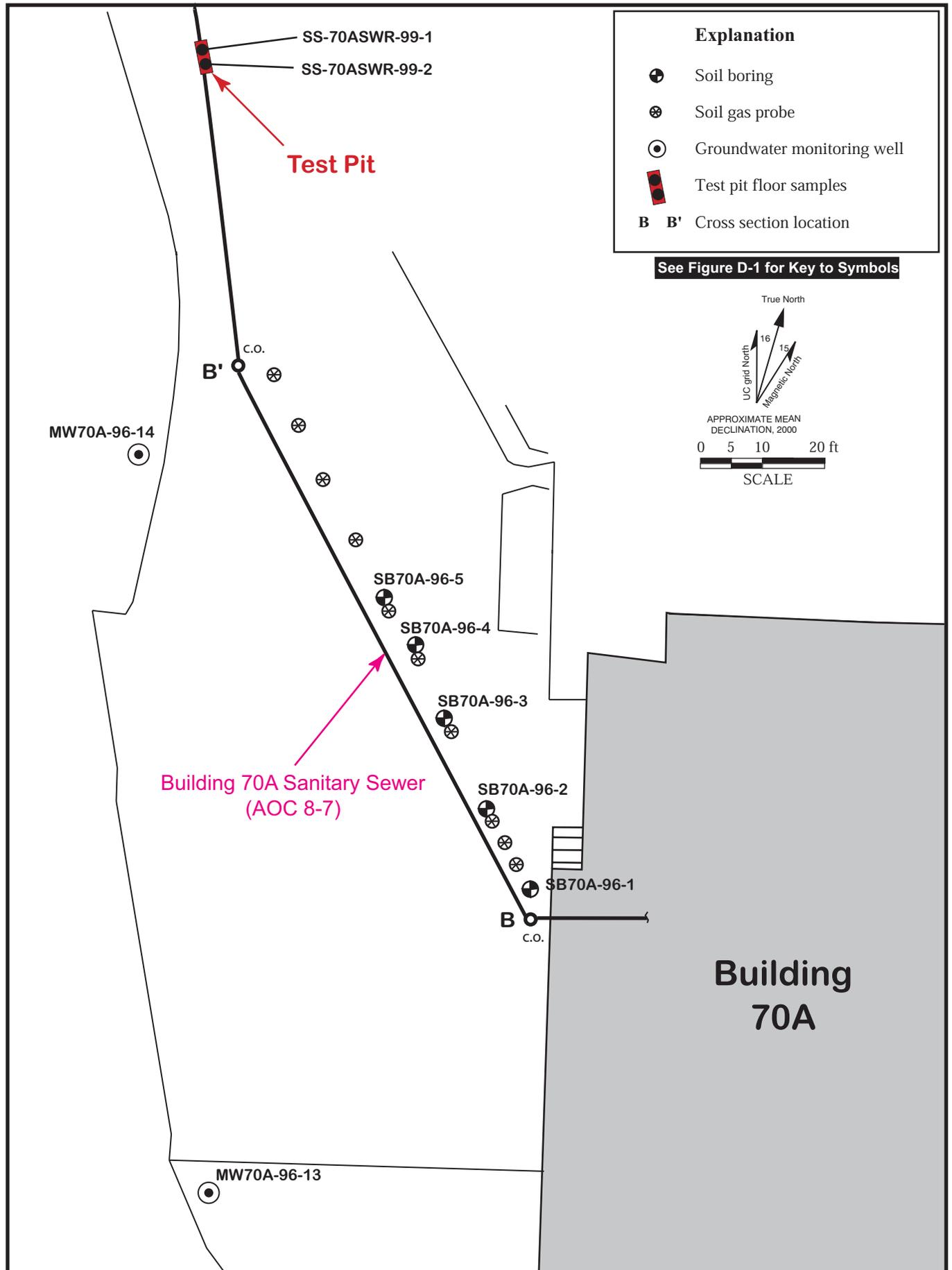


Figure D3.4-1. Locations of Soil Gas Probes, Soil Borings, Monitoring Wells, and Test Pit Samples, Building 70A Sanitary Sewer (AOC 8-7).

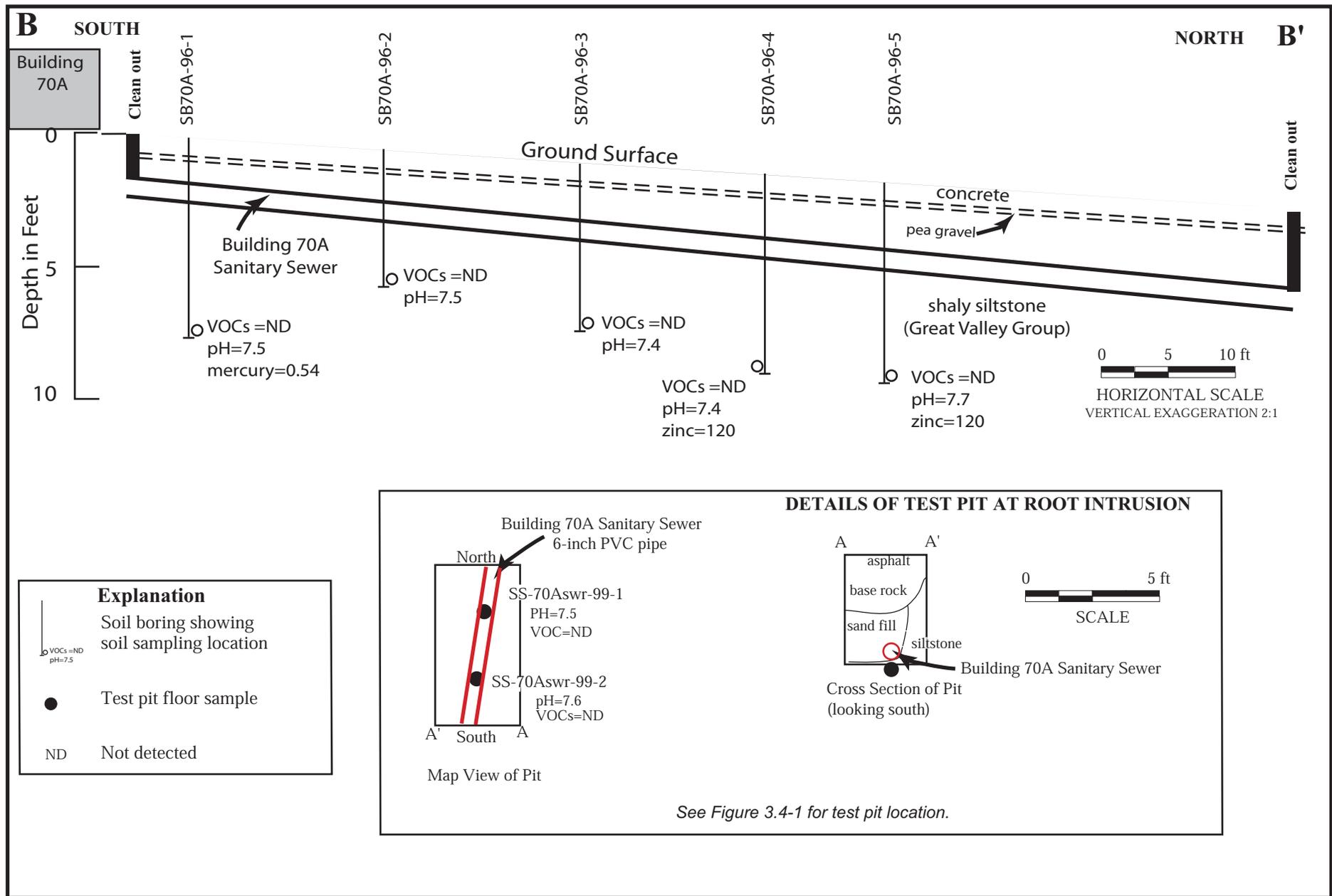
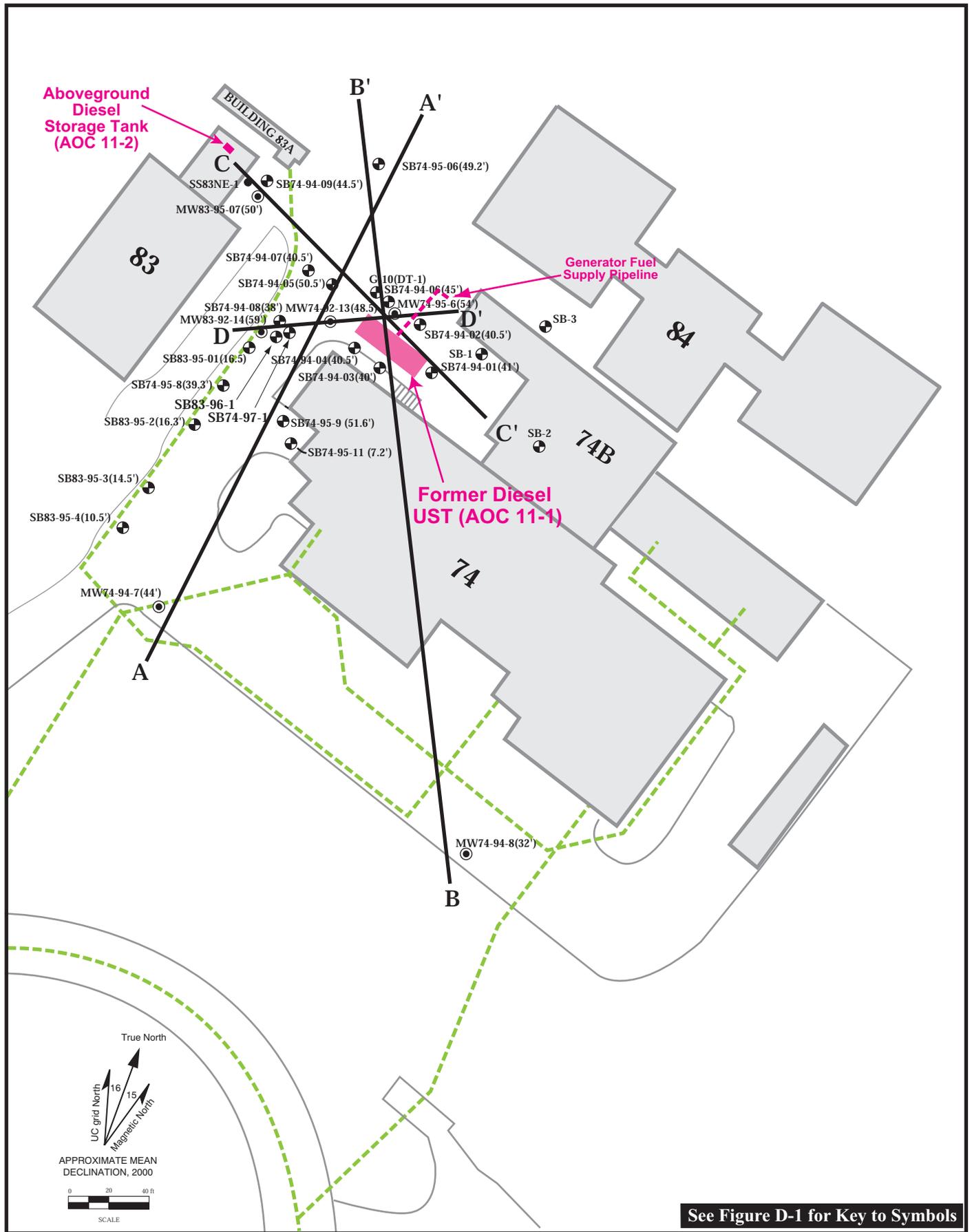


Figure D3.4-2. Geologic Cross Section B-B' Showing Concentrations of Analytes Detected Above Background Levels (mg/kg), Building 70A Sanitary Sewer UST (AOC 8-7).



See Figure D-1 for Key to Symbols

Figure D3.5-1. Site Map and Locations of Geologic Cross Sections, Former Building 74 Diesel UST (AOC 11-1).

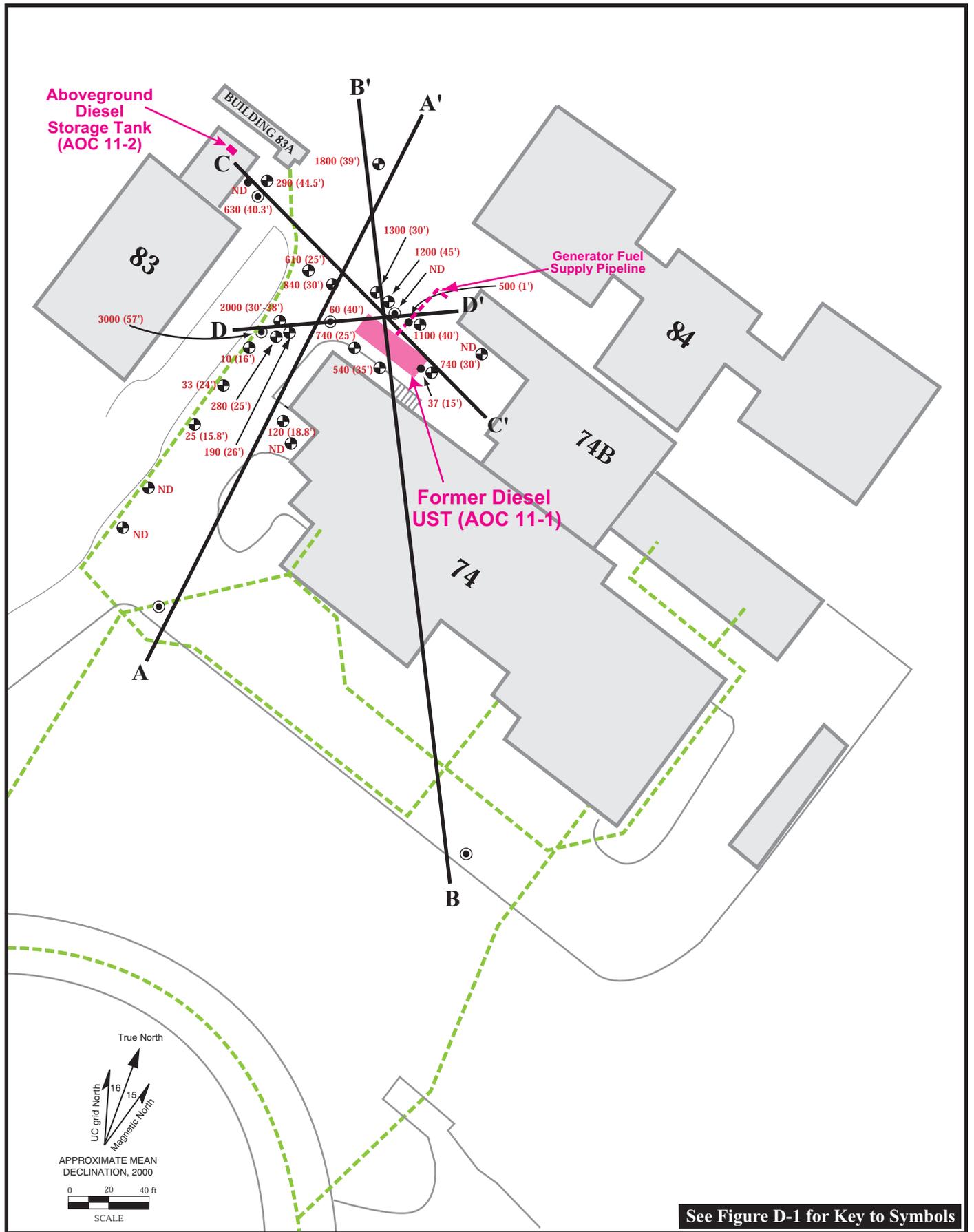


Figure D3.5-2. Locations of Soil Borings and Maximum Detected Concentrations of TPH-D (mg/kg), Former Building 74 Diesel UST (AOC 11-1).

See Figure D-1 for Key to Symbols

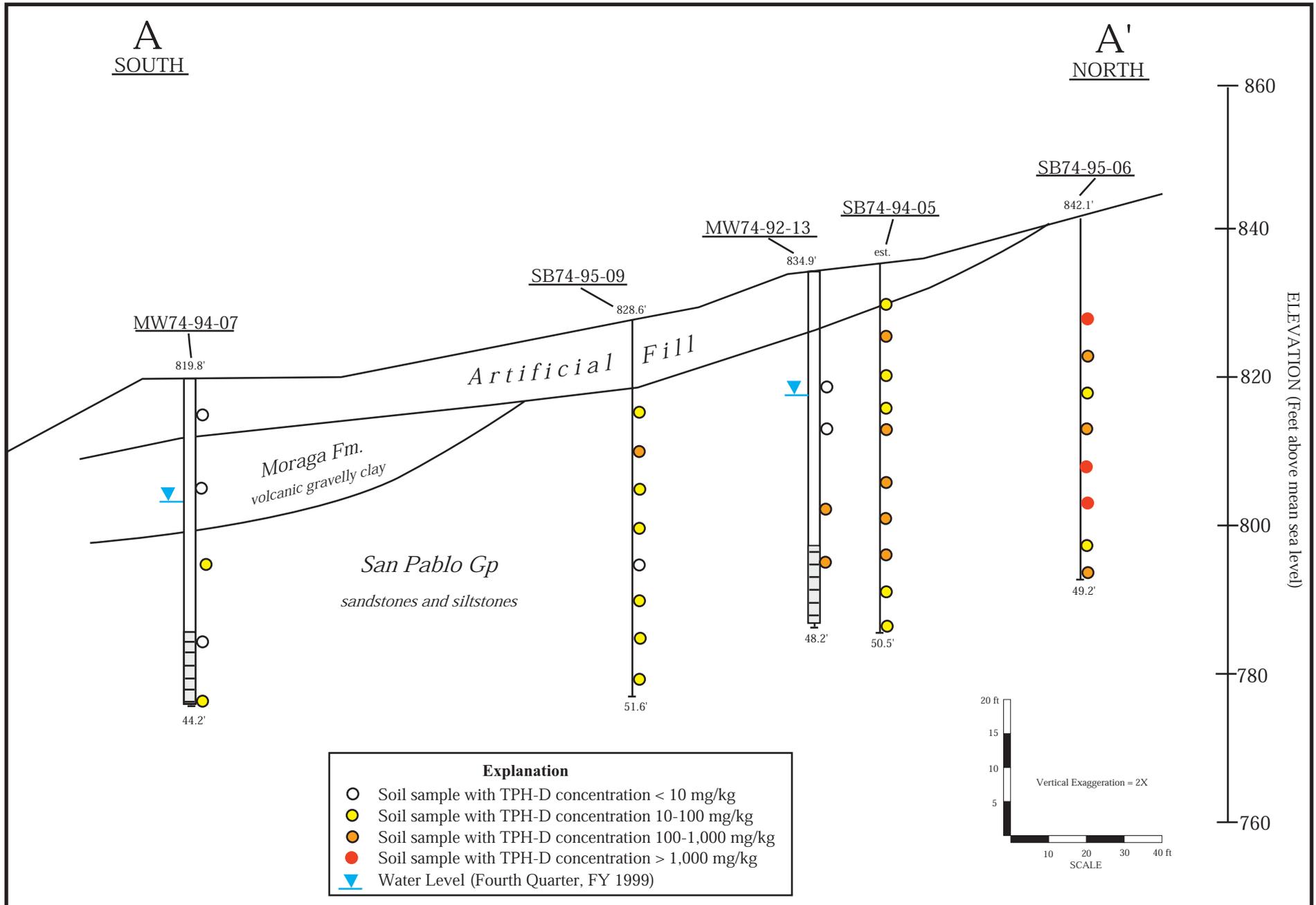


Figure D3.5-3. Life Sciences Area Geologic Cross Section A-A' Showing TPH-D Concentrations (mg/kg), Former Building 74 Diesel UST (AOC 11-1).

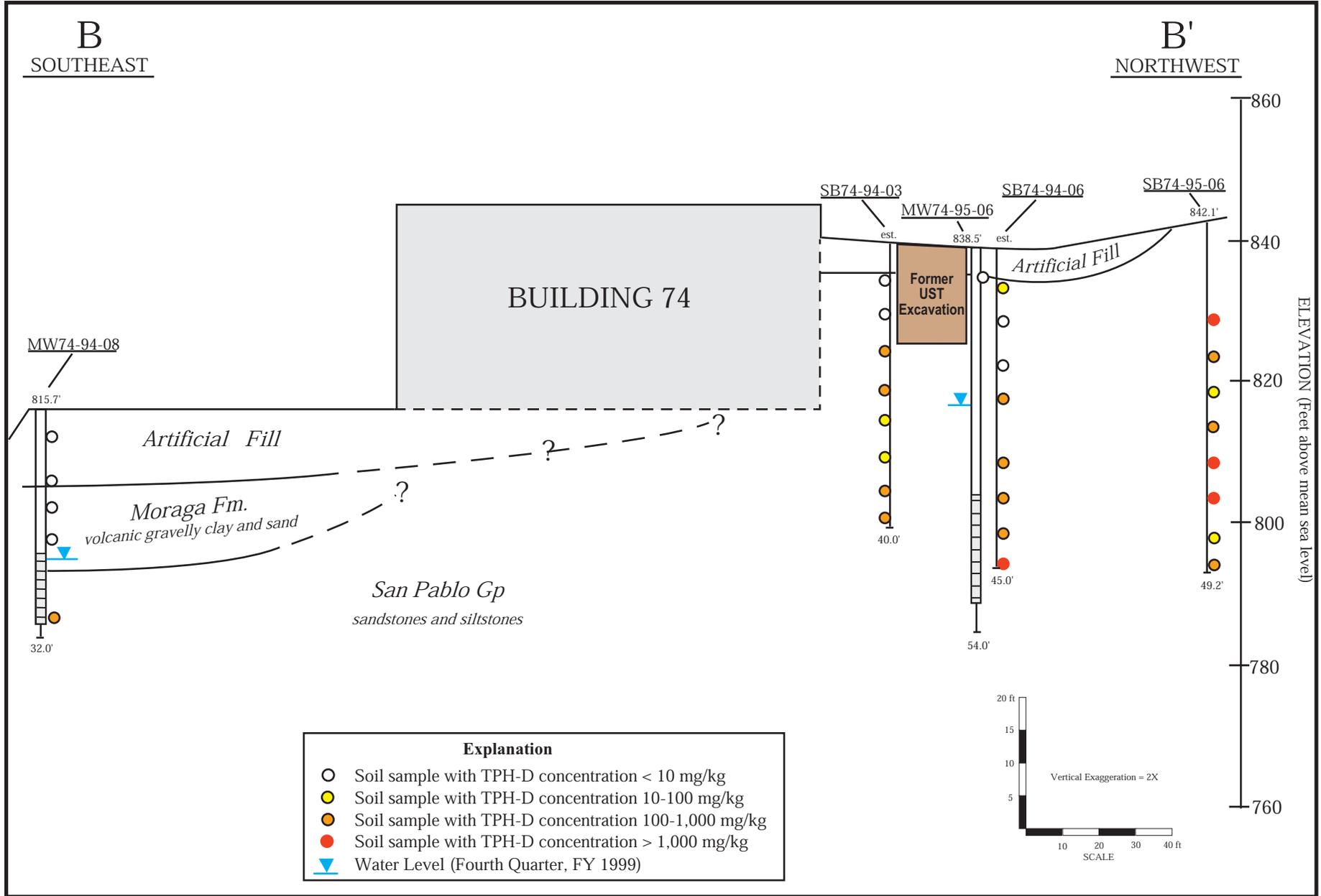


Figure D3.5-4. Life Sciences Area Geologic Cross Section B-B' Showing TPH-D Concentrations (mg/kg), Former Building 74 Diesel UST (AOC 11-1).

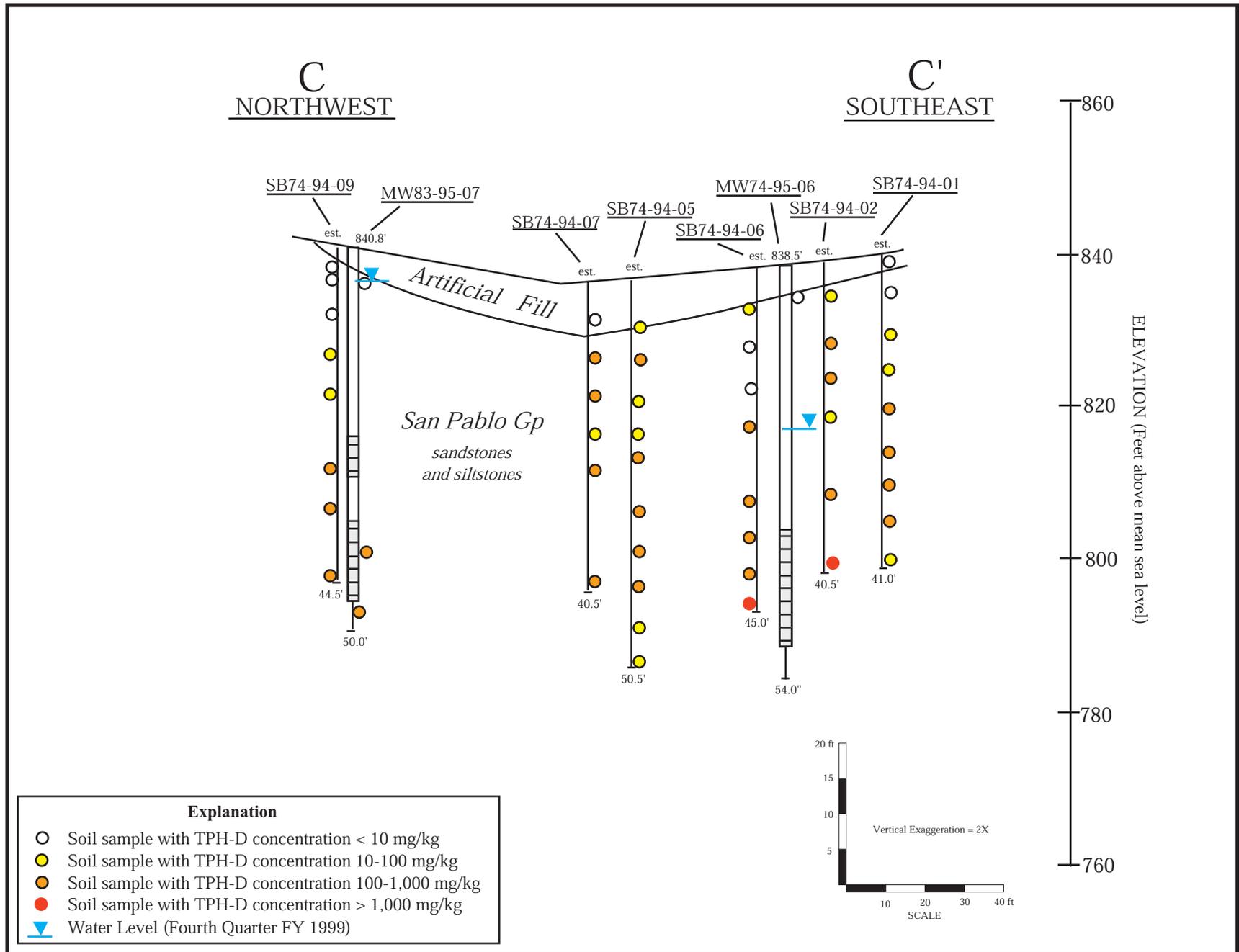


Figure D3.5-5. Life Sciences Area Geologic Cross Section C-C' Showing TPH-D Concentrations (mg/kg), Former Building 74 Diesel UST (AOC 11-1).

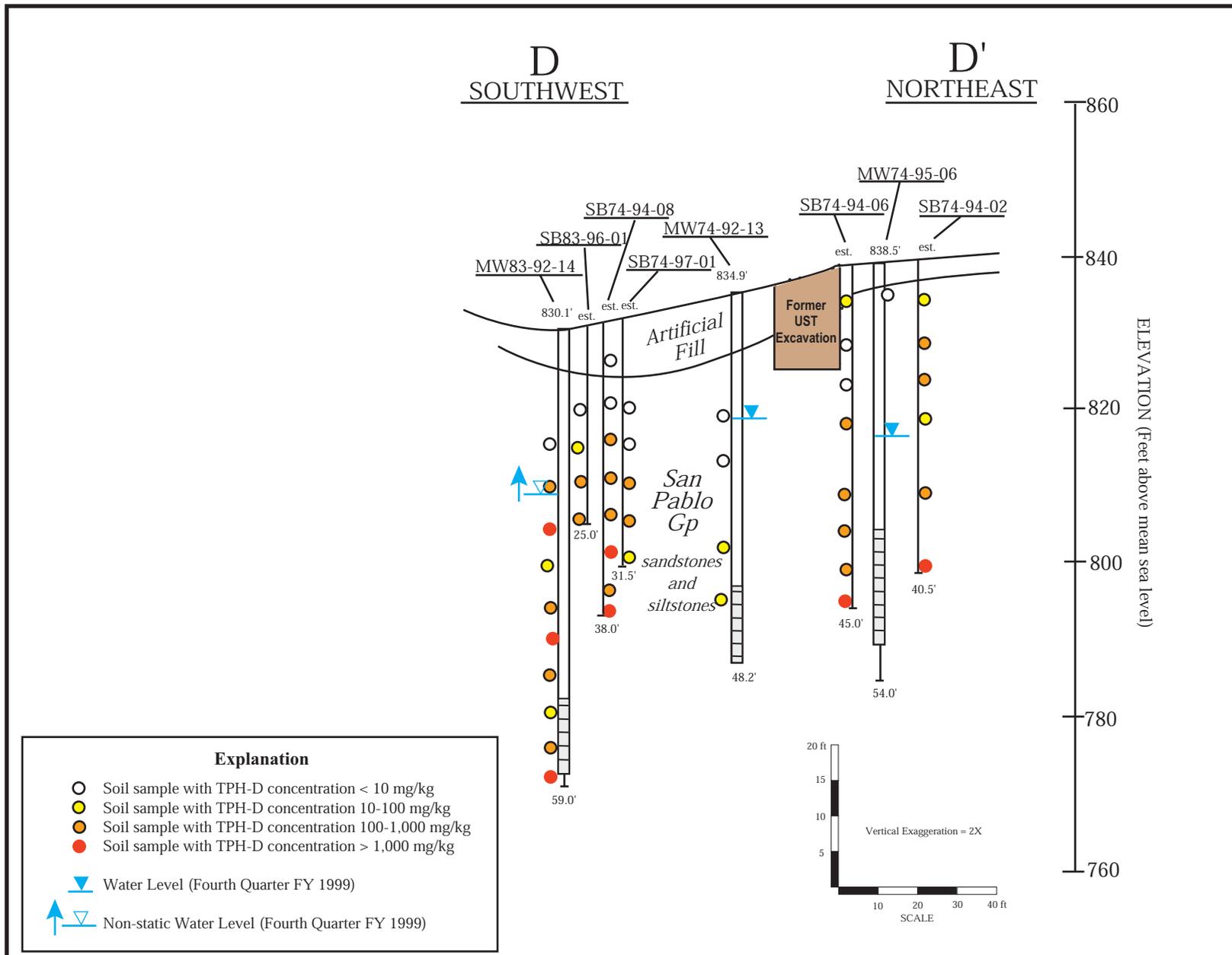


Figure D3.5-6. Life Sciences Area Geologic Cross Section D-D' Showing TPH-D Concentrations (mg/kg), Former Building 74 Diesel UST (AOC 11-1).

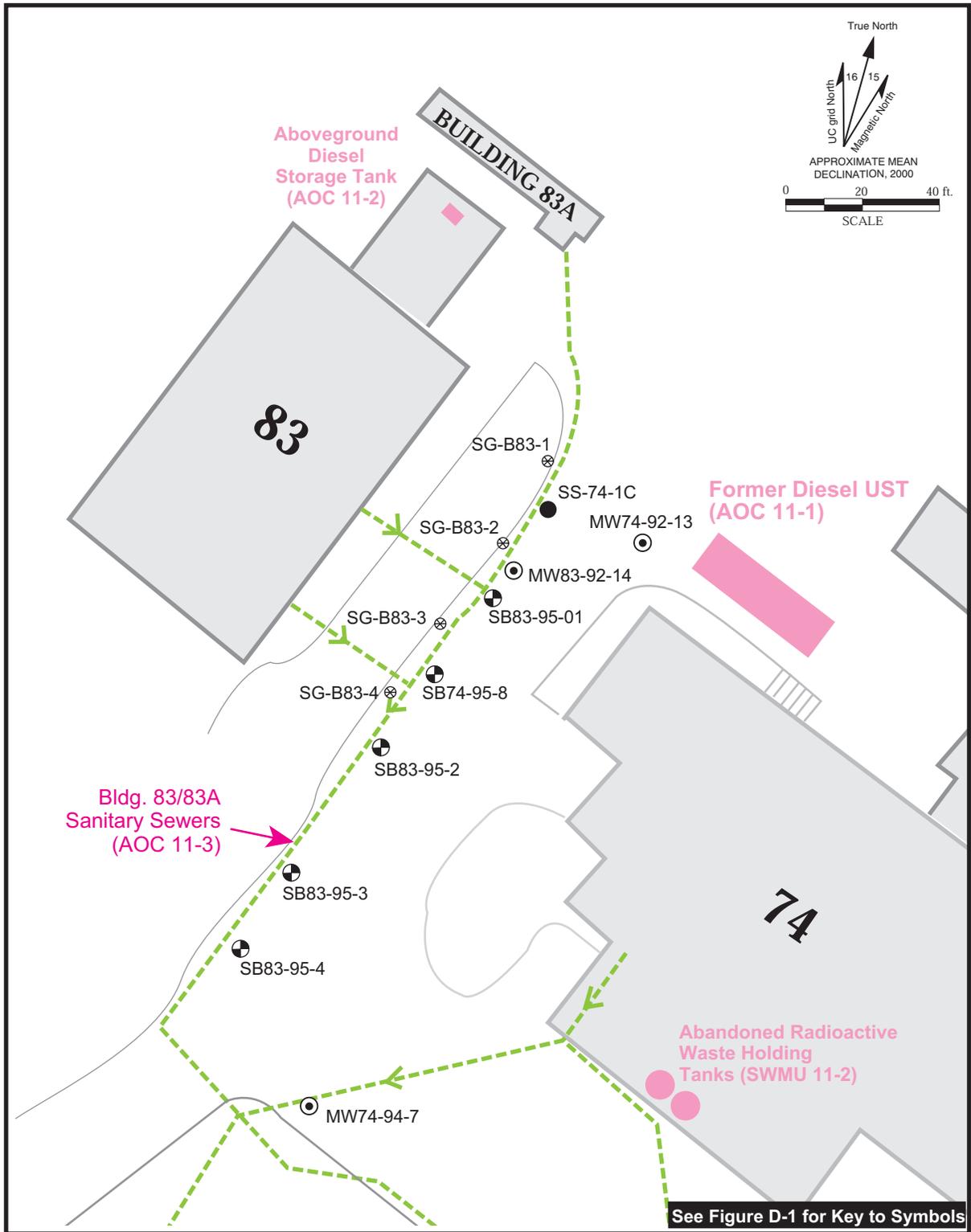


Figure D3.6-1. Locations of Soil Borings, Buildings 83/83A Sanitary Sewers (AOC 11-3).

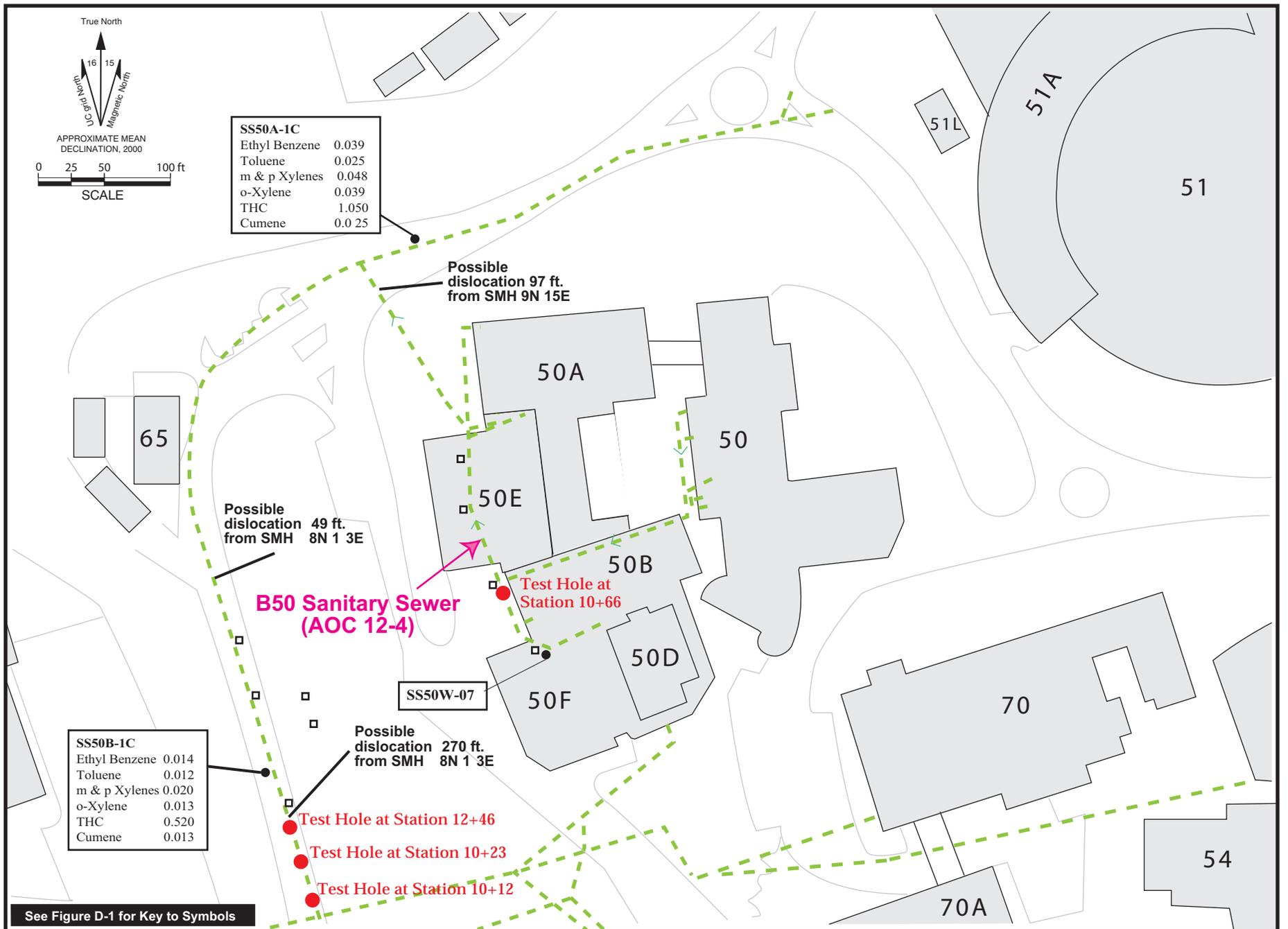


Figure D3.7-1. Locations of Soil Borings Showing Detected Contaminant Concentrations (mg/kg), Building 50 Sanitary Sewer Dislocations (AOC 12-4).

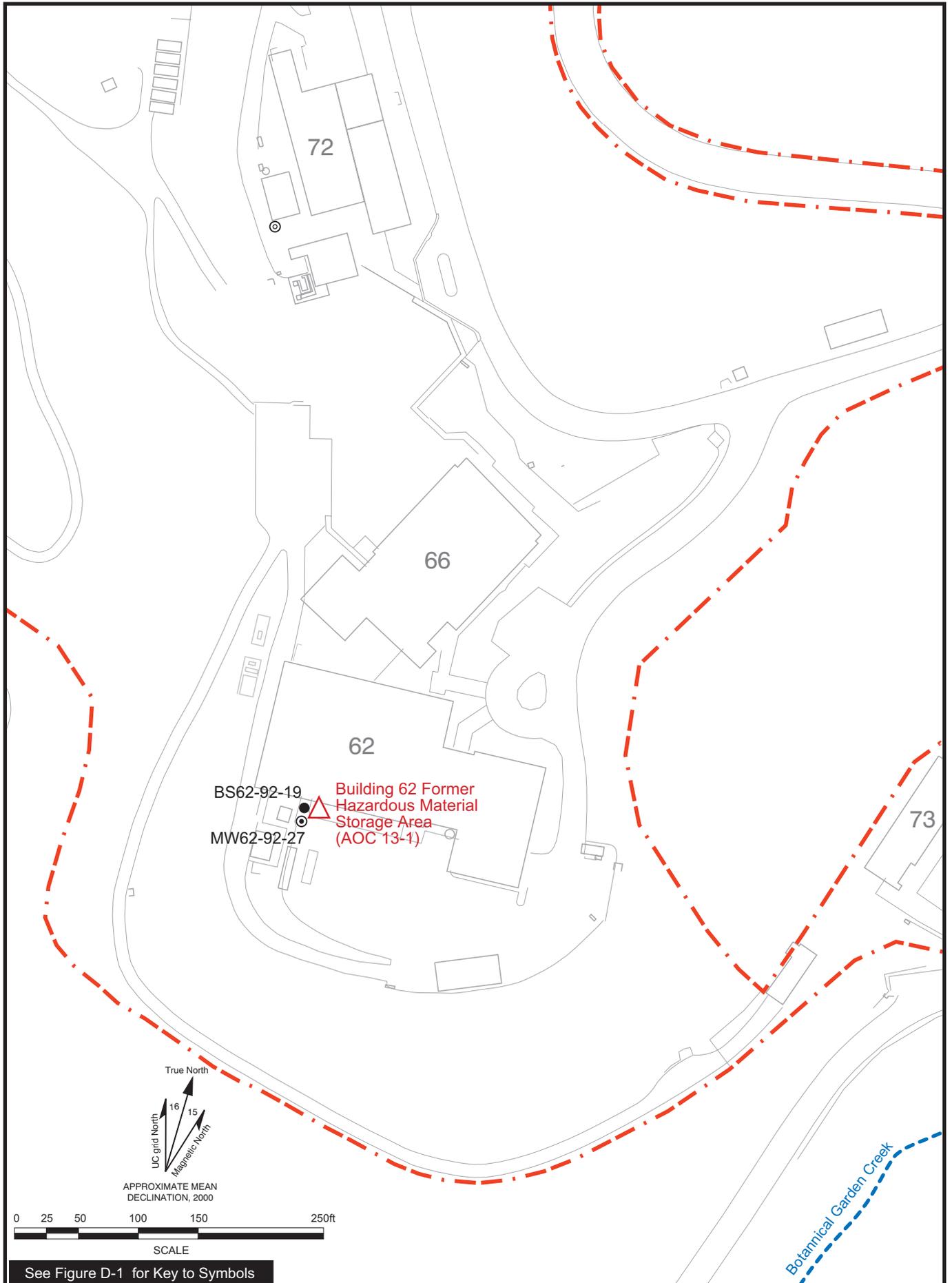


Figure D3.8-1. Locations of Soil Samples, Building 62 (Former) Hazardous Materials Storage Area (AOC 13-1).

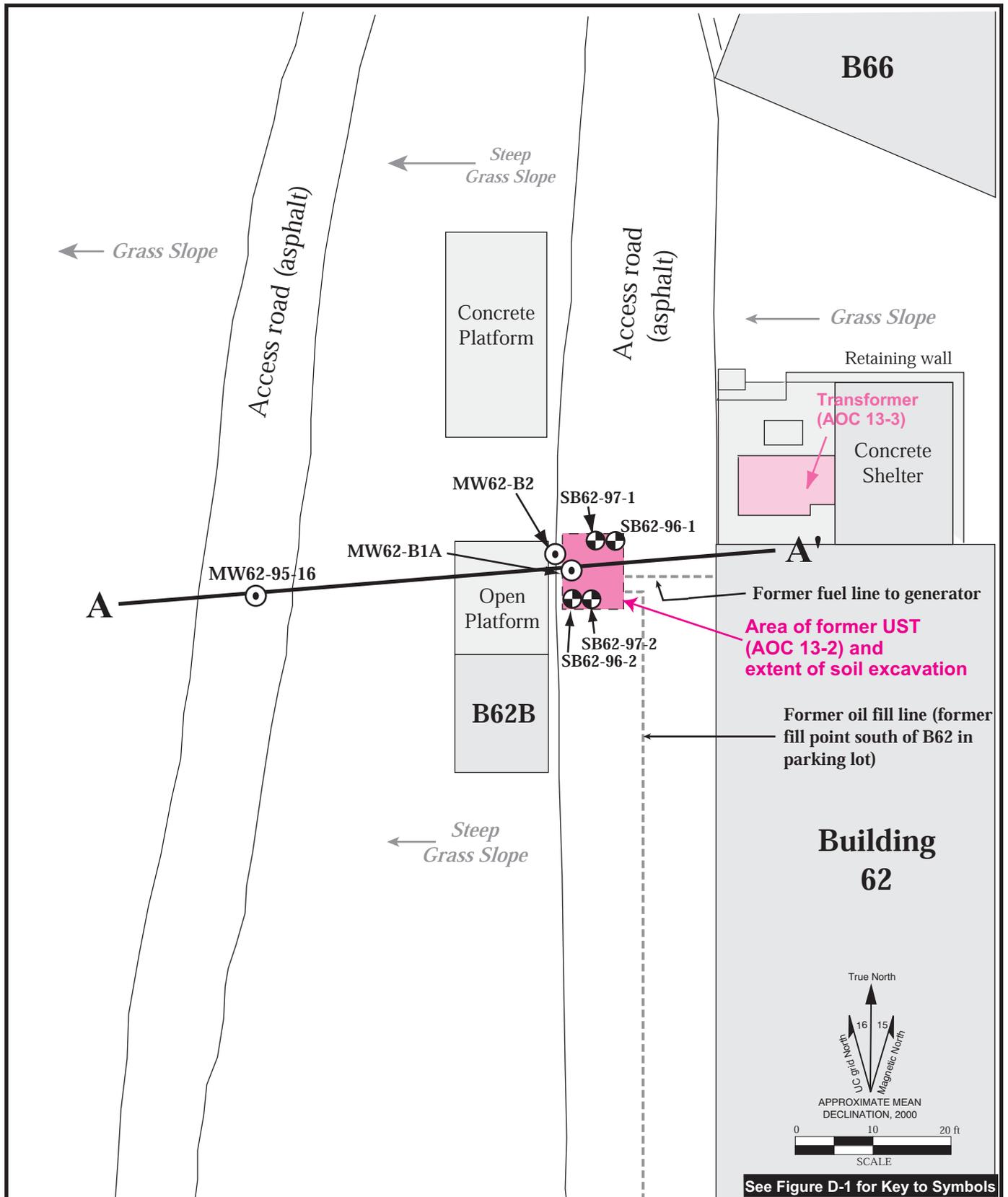


Figure D3.9-1. Locations of Soil Samples Collected Subsequent to Soil Removal Activities, Building 62 Former Diesel UST (AOC 13-2).

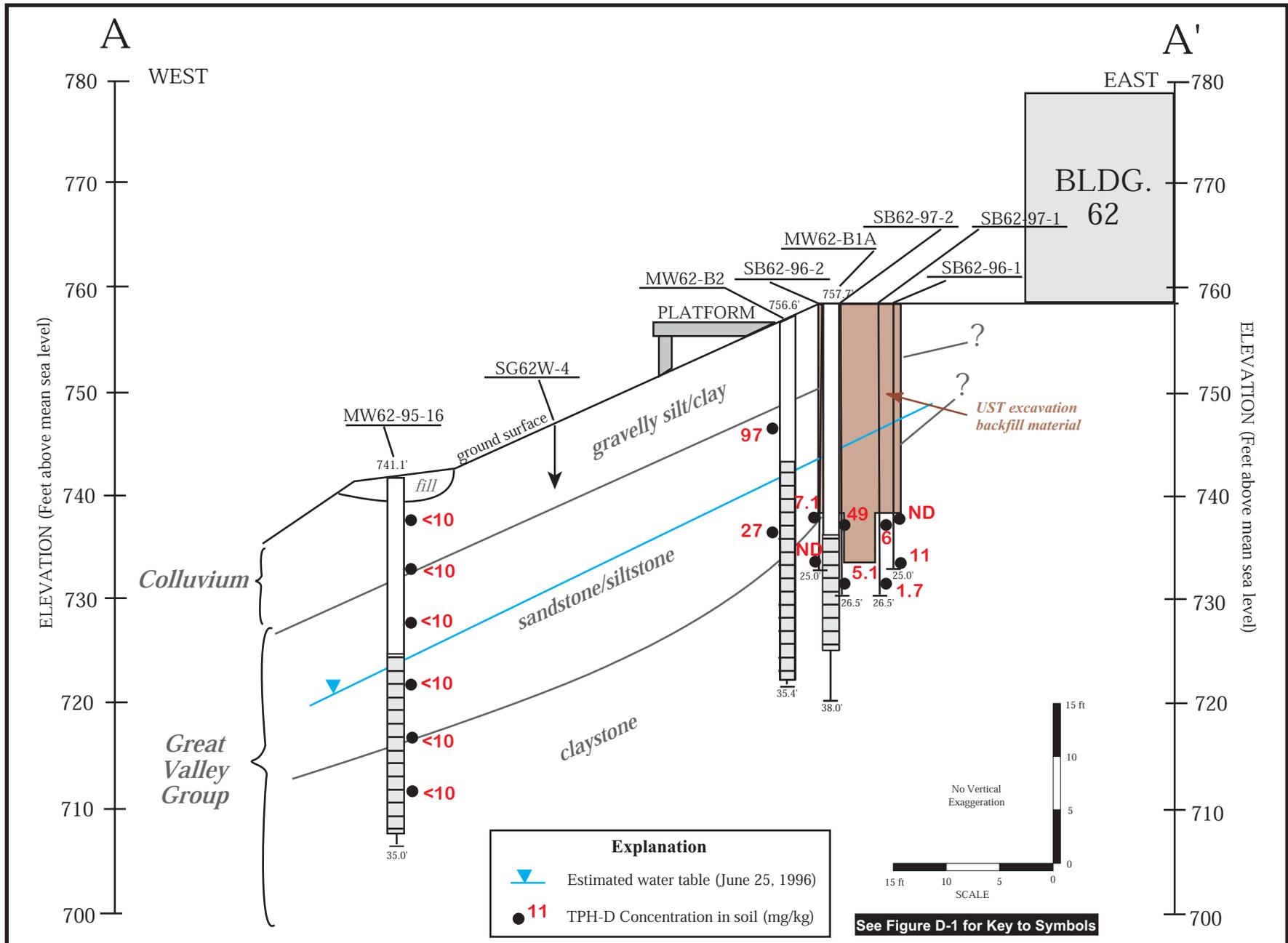


Figure D3.9-2. Geologic Cross Section Showing TPH-D Concentrations in Soil Samples Collected Subsequent to Soil Removal Activities, Building 62 Former Diesel UST (AOC 13-2).

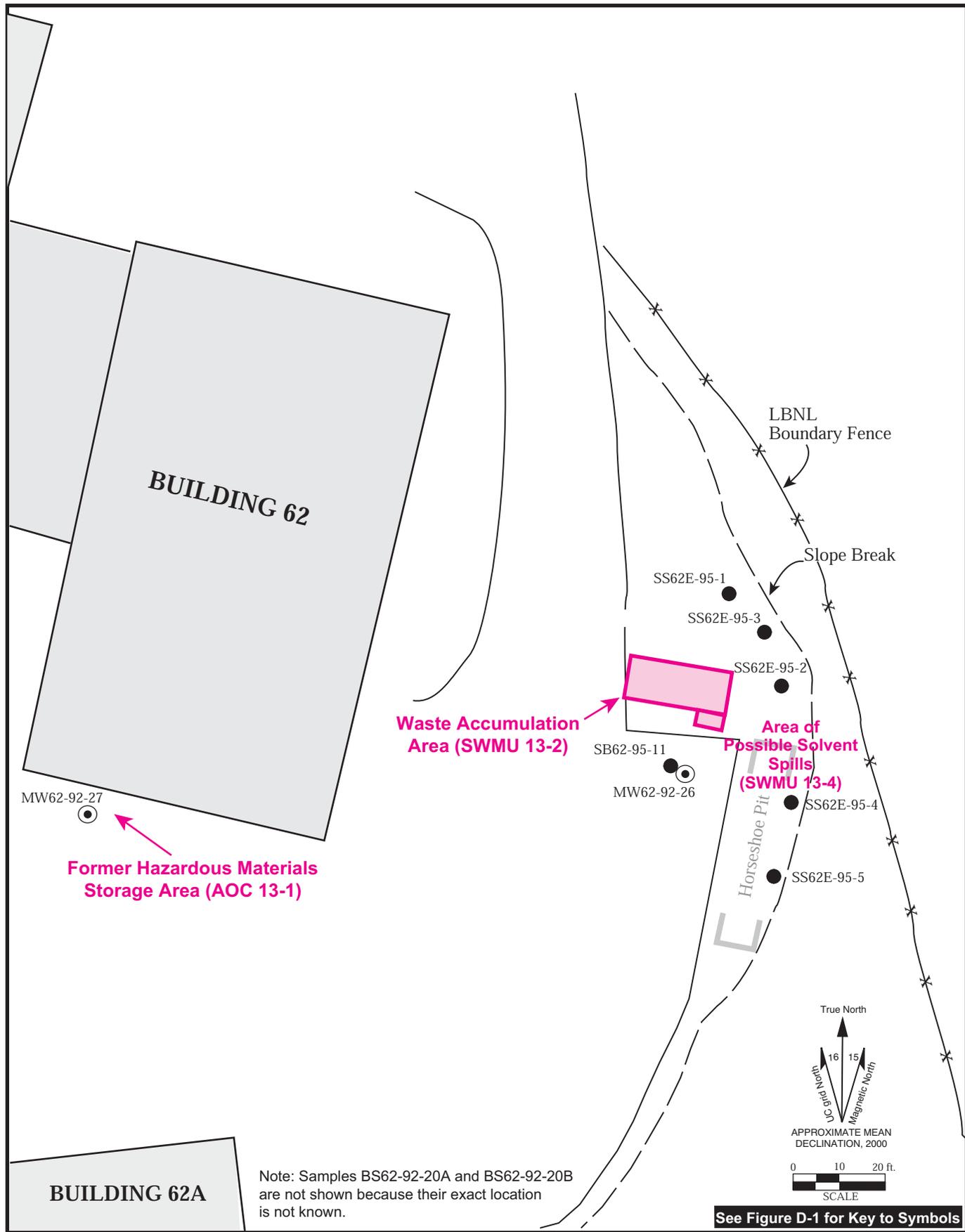
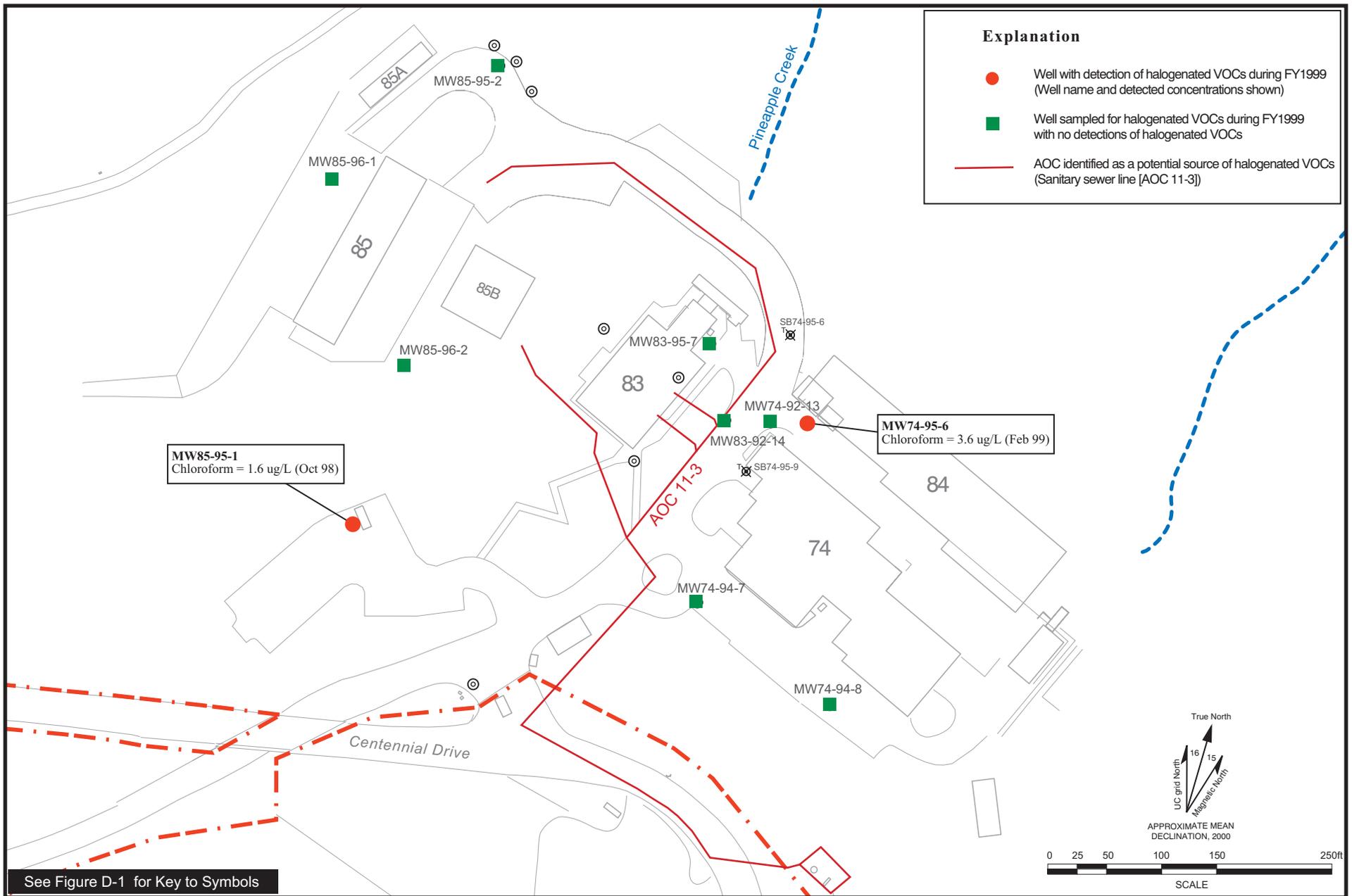


Figure D3.10-1. Locations of Soil Samples, Possible Solvent Spills East of Building 62 (AOC 13-1).



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Figure D4.3-1b. Halogenated VOCs Detected During FY 1999 in Groundwater in Northeastern Outlying Area With Potential Source Areas.

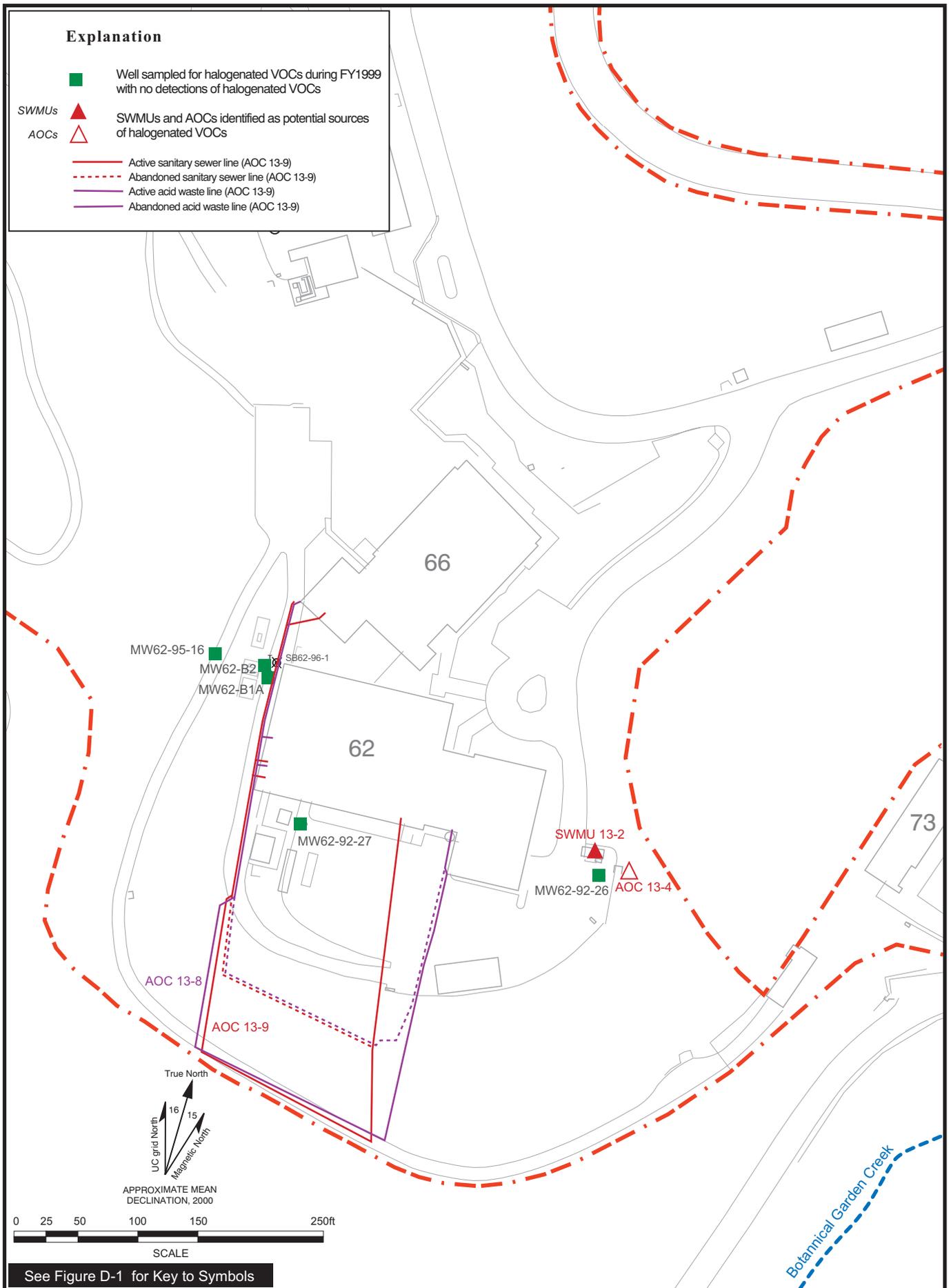


Figure D4.3-1c. Wells Sampled for Halogenated VOCs in Groundwater in Southeastern Outlying Area During FY1999, With Potential Source Areas.

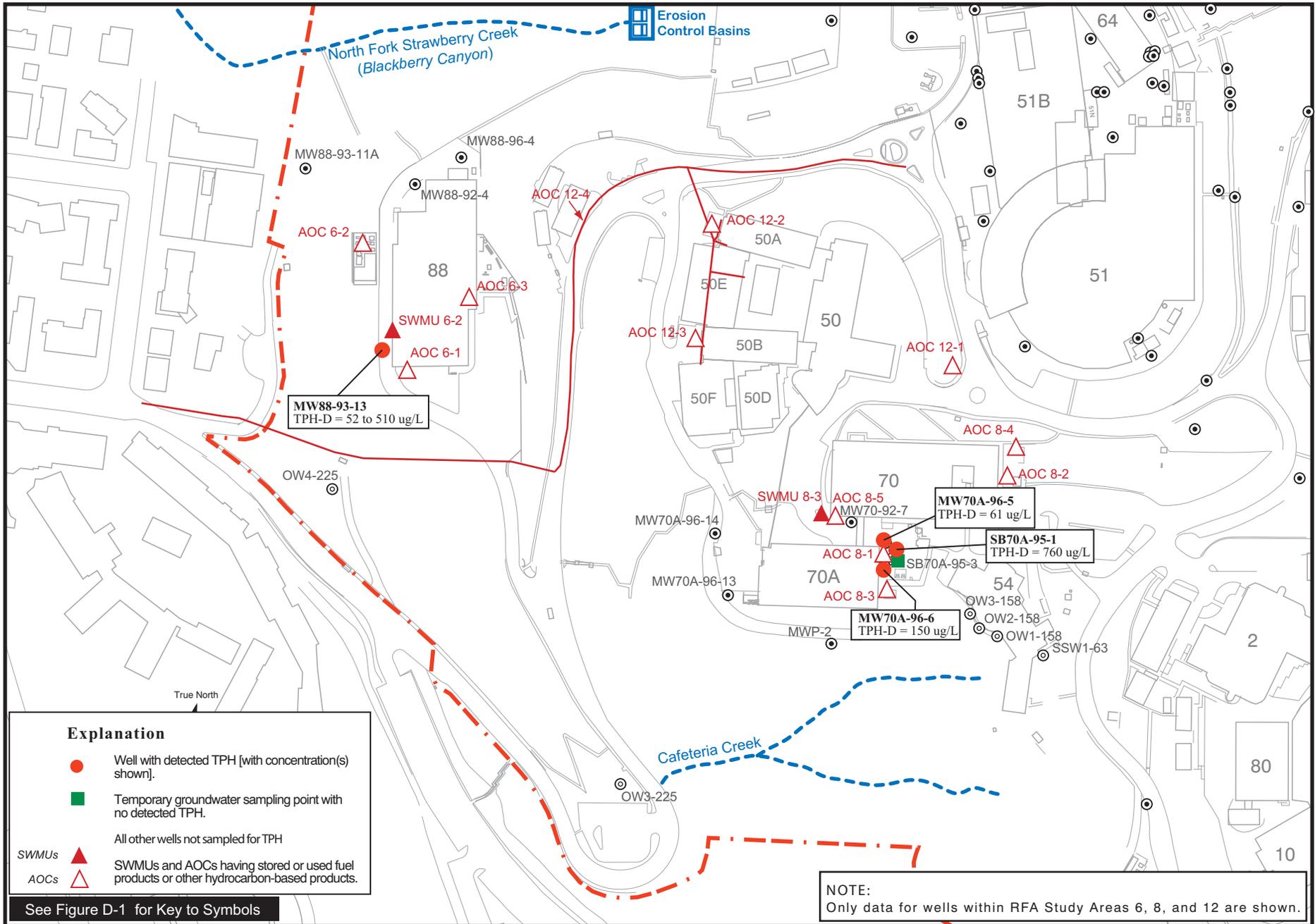


Figure D4.4-1a. TPH Concentration Ranges Detected in Groundwater in Western Outlying Area With Locations of SWMUs and AOCs That Stored or Used Fuel Products or Other Hydrocarbon-Based Products.

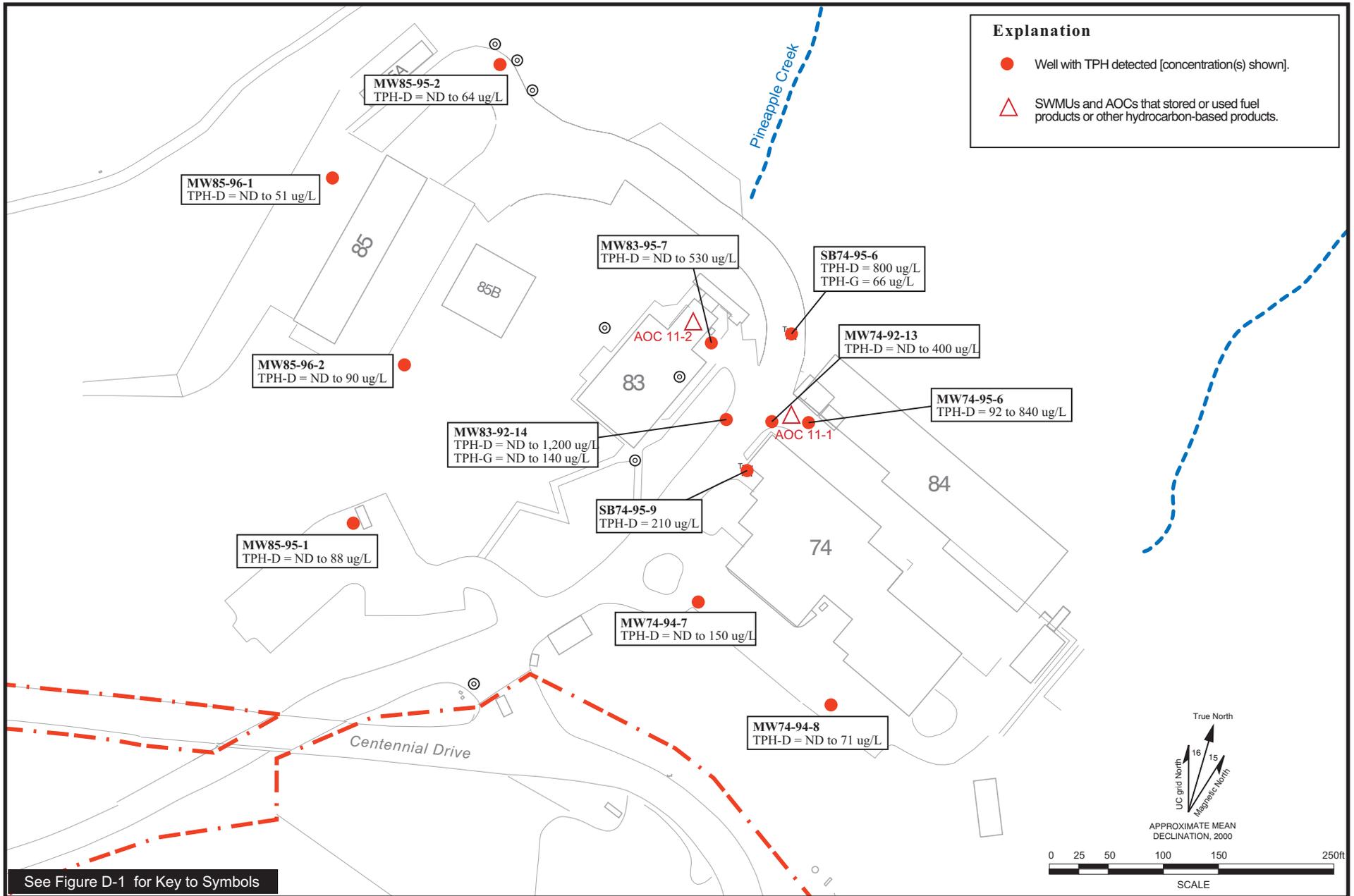


Figure D4.4-1b. TPH Concentration Ranges Detected in Groundwater in Northeastern Outlying Area With Locations of AOCs That Stored or Used Fuel Products or Other Hydrocarbon-Based Products.

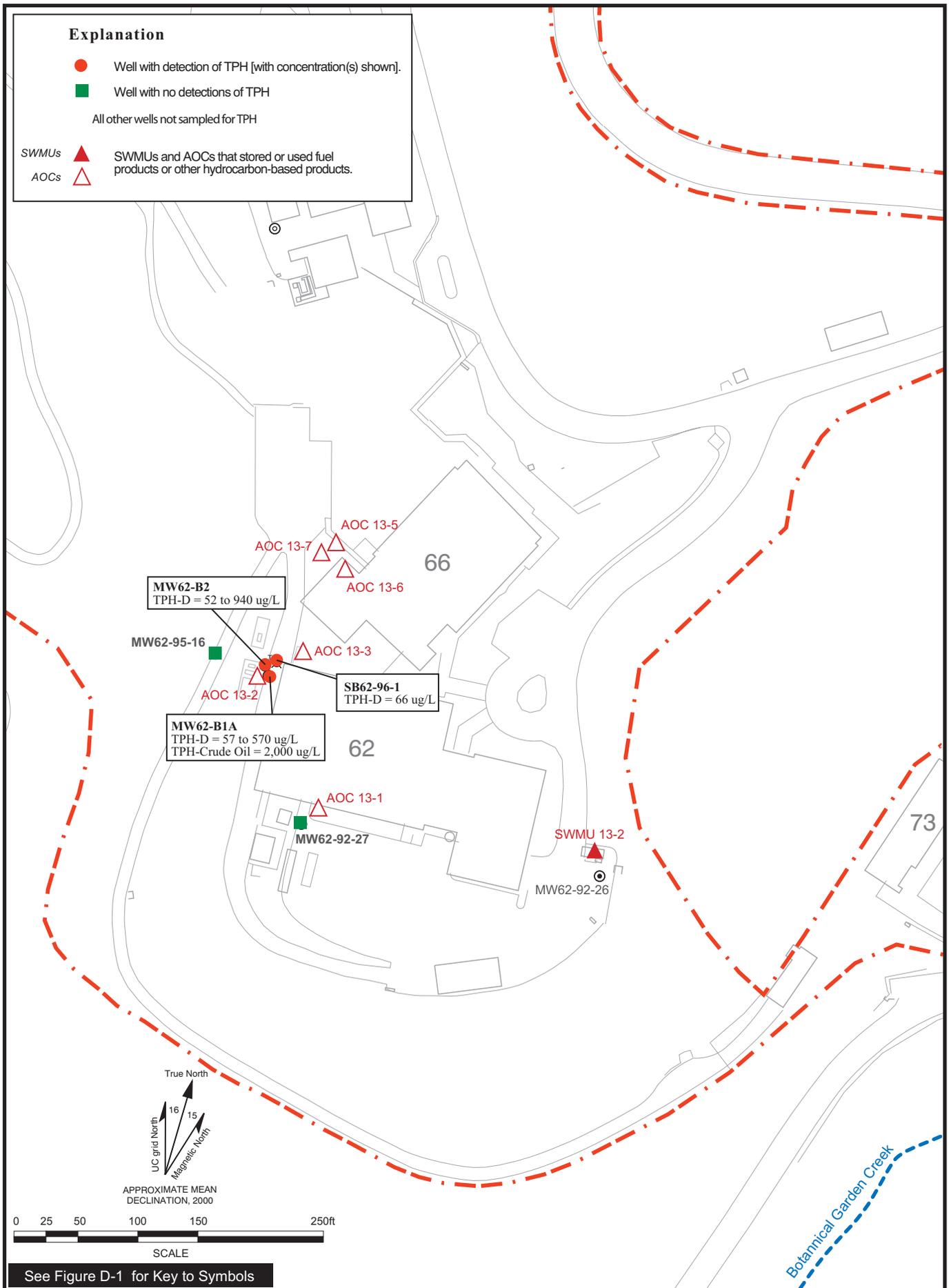


Figure D4.4-1c. Concentrations of TPH Detected in Groundwater in Southeastern Outlying Area With Locations of SWMUs and AOCs That Stored or Used Fuel Products or Other Hydrocarbon-Based Products.

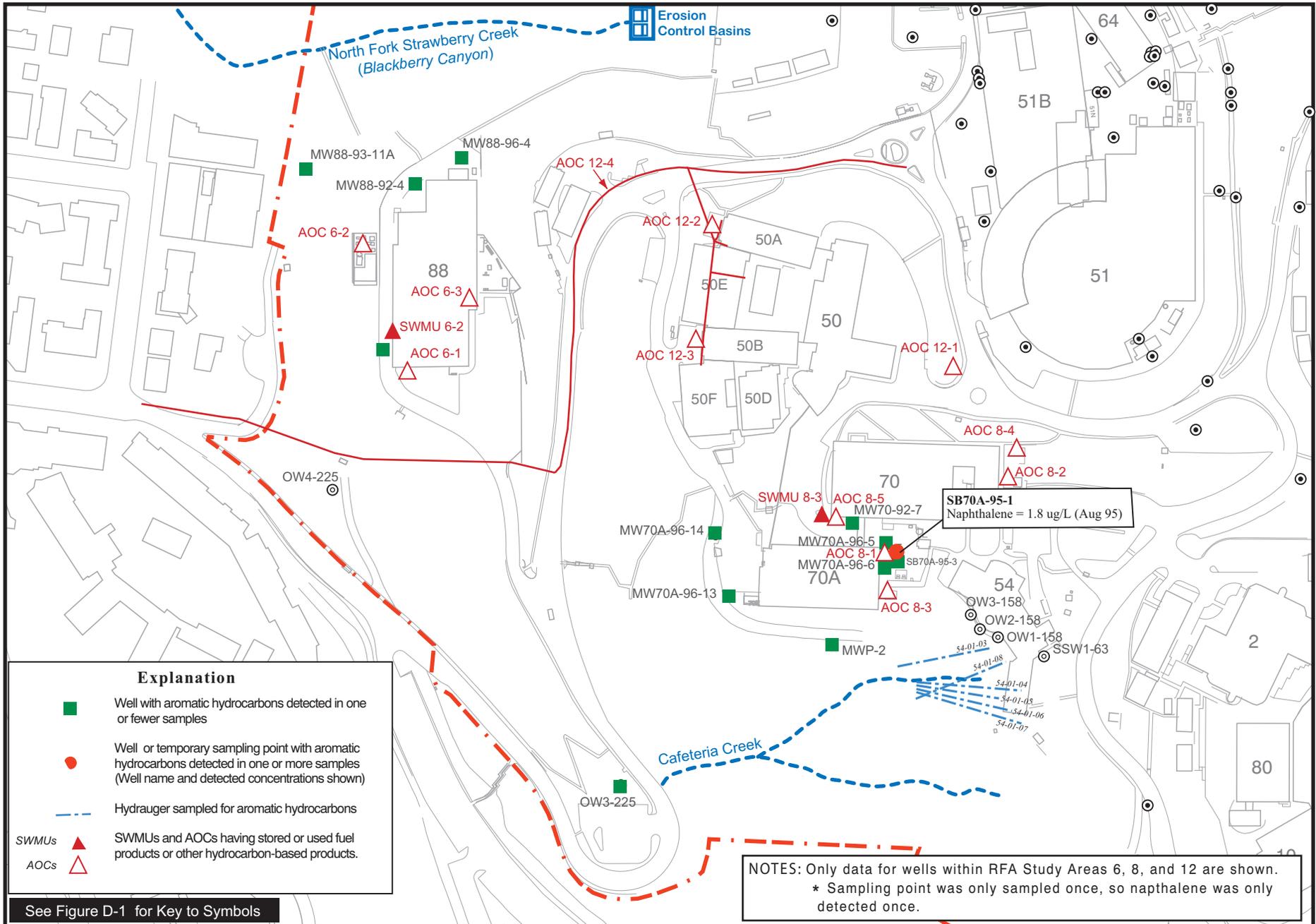


Figure D4.4-2a. Aromatic Hydrocarbons Detected in More Than One Sample in Western Outlying Area With Locations of SWMUs and AOCs That Stored or Used Fuel Products or Other Hydrocarbon-Based Products.

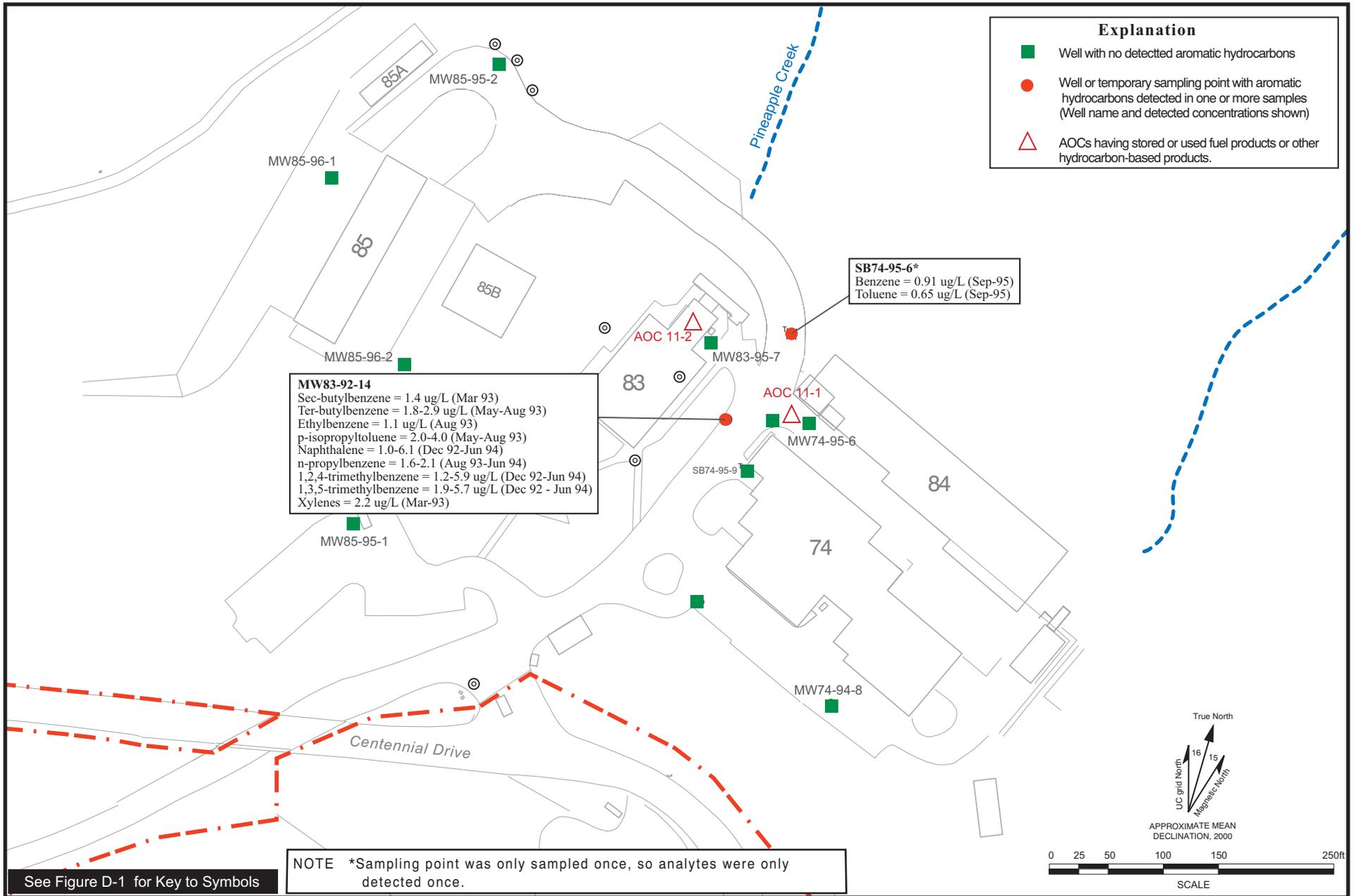


Figure D4.4-2b. Aromatic Hydrocarbons Detected in More Than One Sample in Northeastern Outlying Area With Locations of AOCs That Stored or Used Fuel Products or Other Hydrocarbon-Based Products.

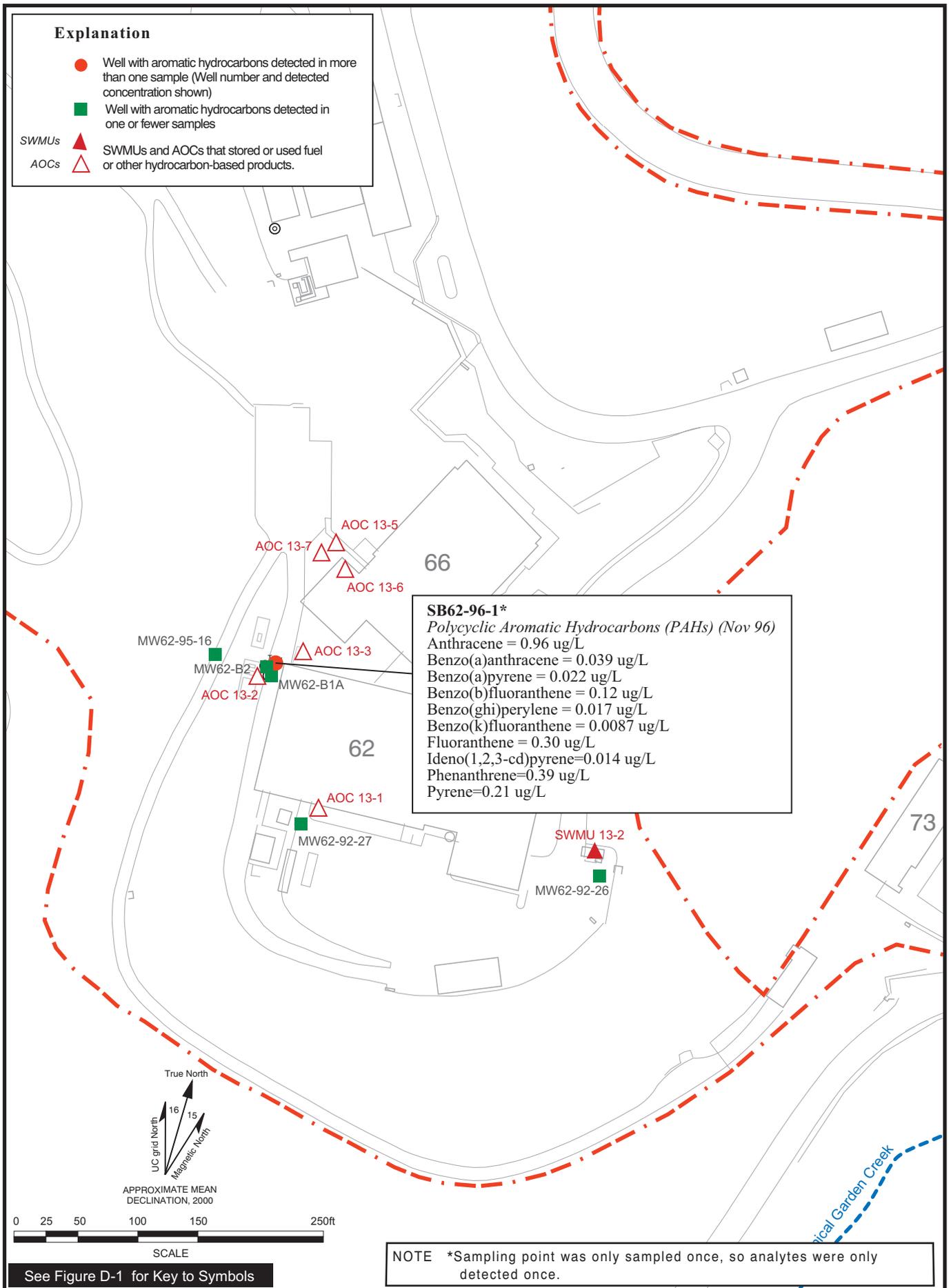


Figure D4.4-2c. Aromatic Hydrocarbons Detected in One or More Samples in Groundwater in Southeastern Outlying Area With Locations of SWMUs and AOCs That Stored or Used Fuel Products or Other Hydrocarbon-Based Products.

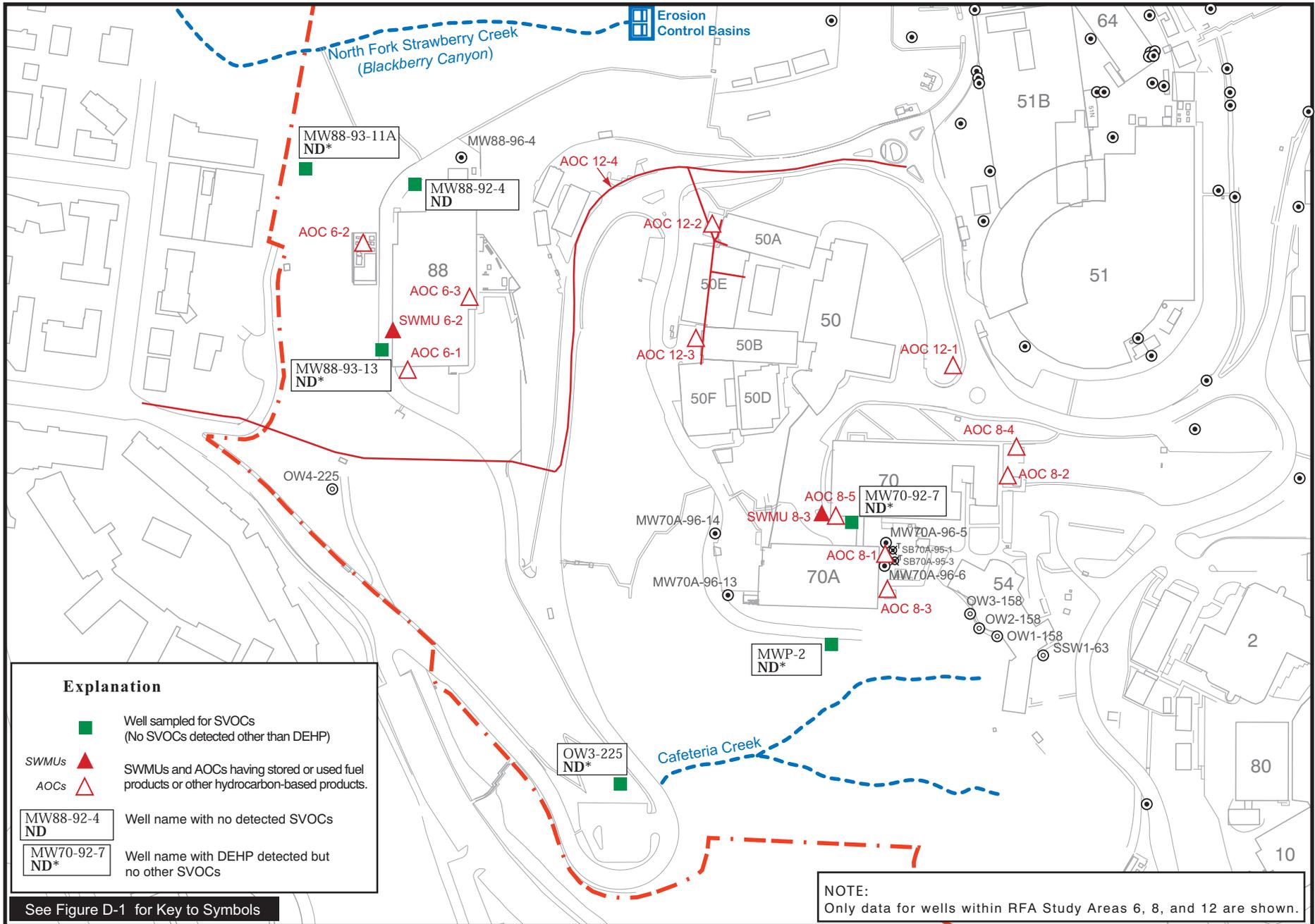


Figure D4.5-1a. Locations of Wells Sampled for SVOCs in Western Outlying Area With Locations of SWMUs and AOCs That Stored or Used SVOCs.

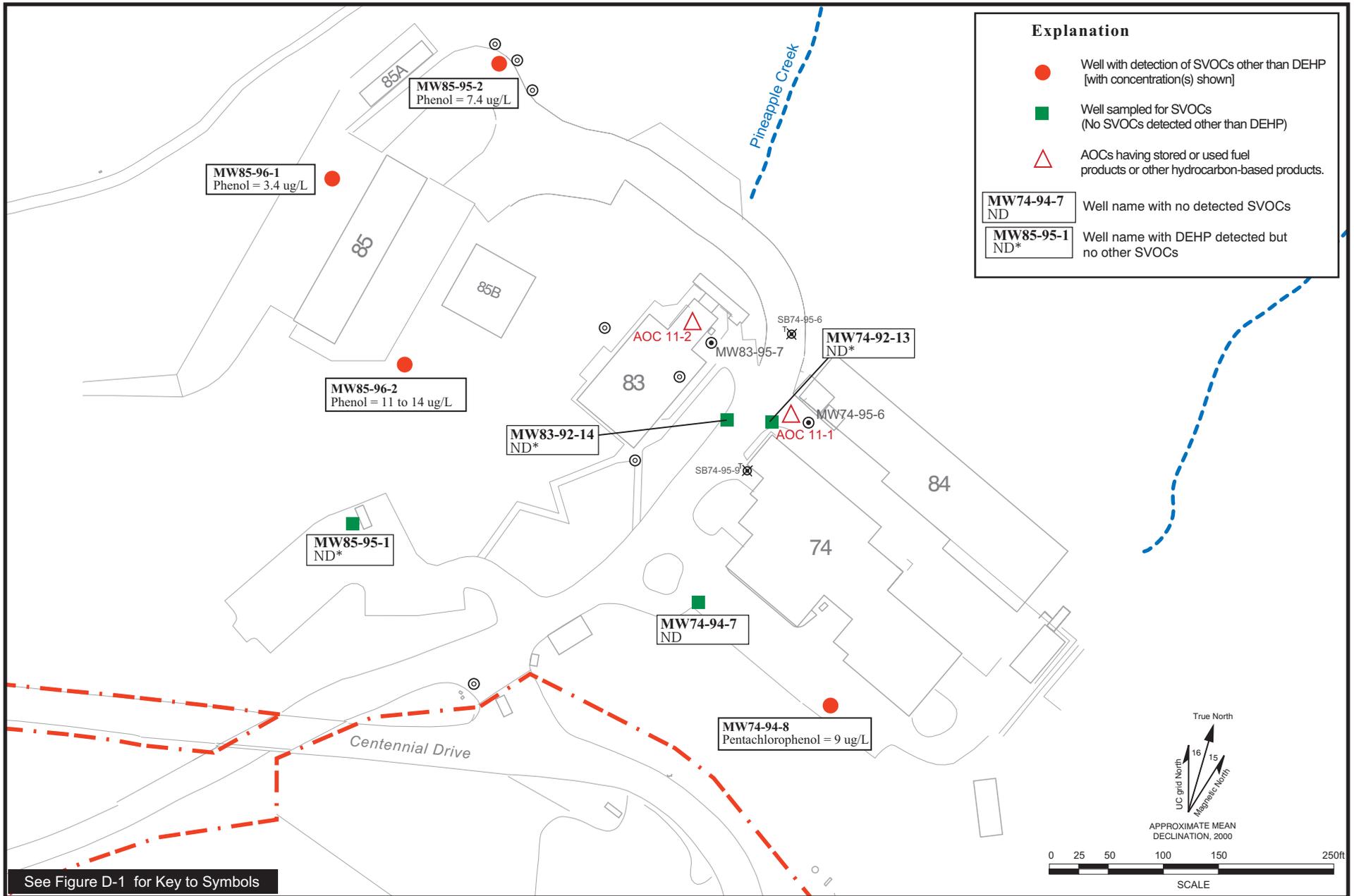


Figure D4.5-1b. Locations of Wells Sampled for SVOCs in Northeastern Outlying Area With Locations of AOCs That Stored or Used SVOCs.

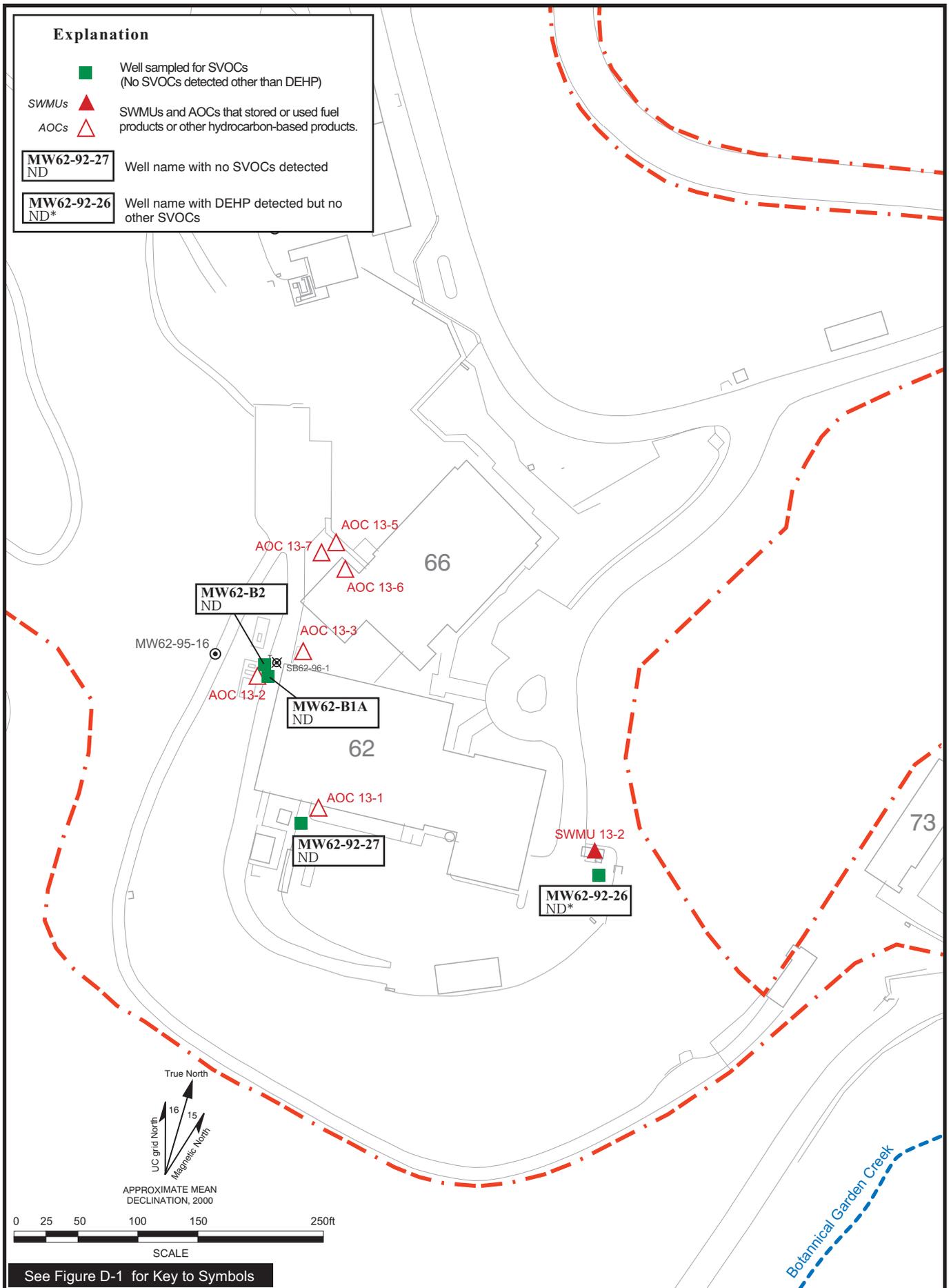


Figure D4.5-1c. Locations of Wells Sampled for SVOCs in Southeastern Outlying Area With Locations of SWMUs and AOCs That Stored or Used SVOCs.

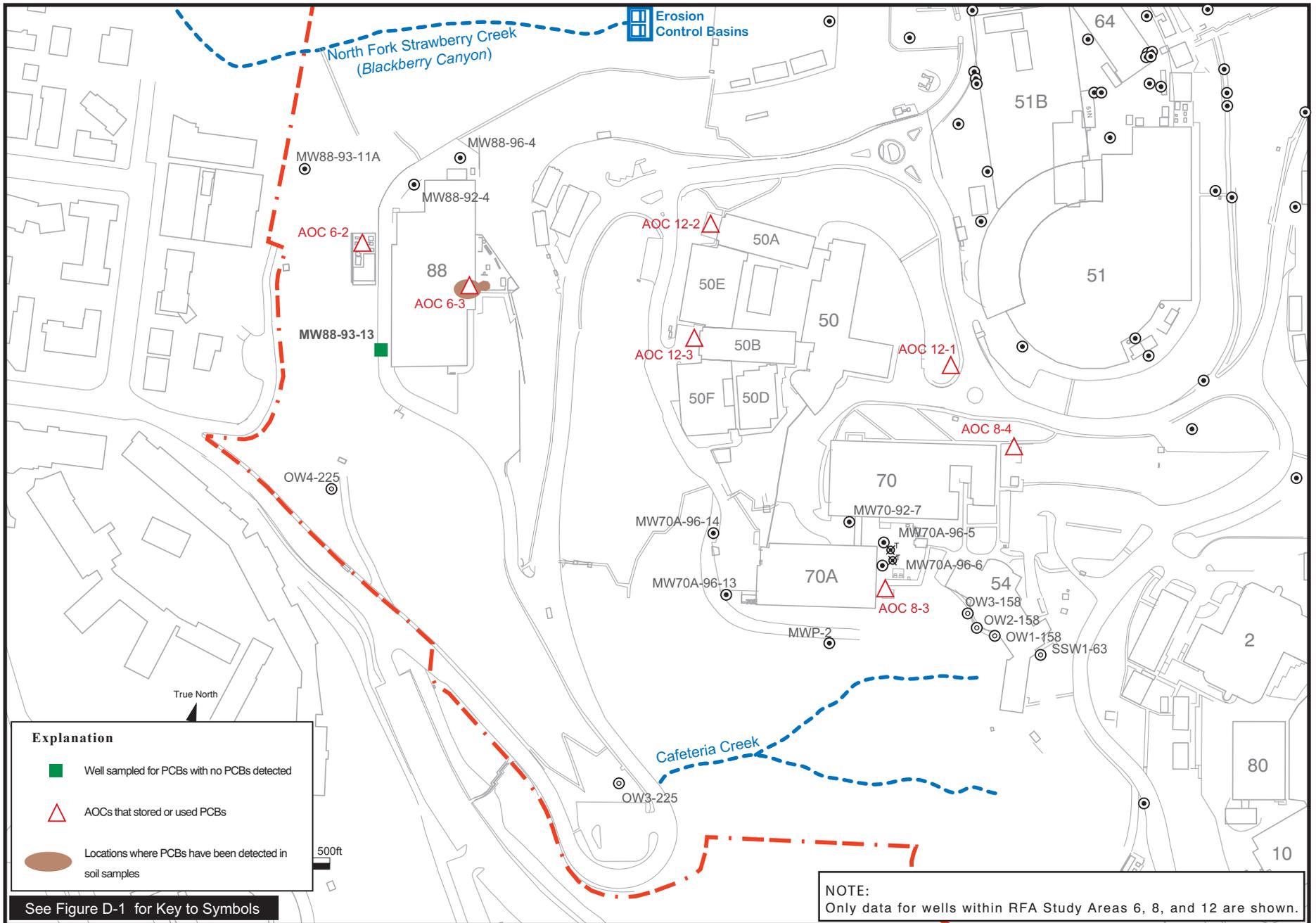


Figure D4.6-1a. Location of Well Sampled for PCBs in Groundwater in Western Outlying Area With Locations of AOCs That Stored or Used PCBs.

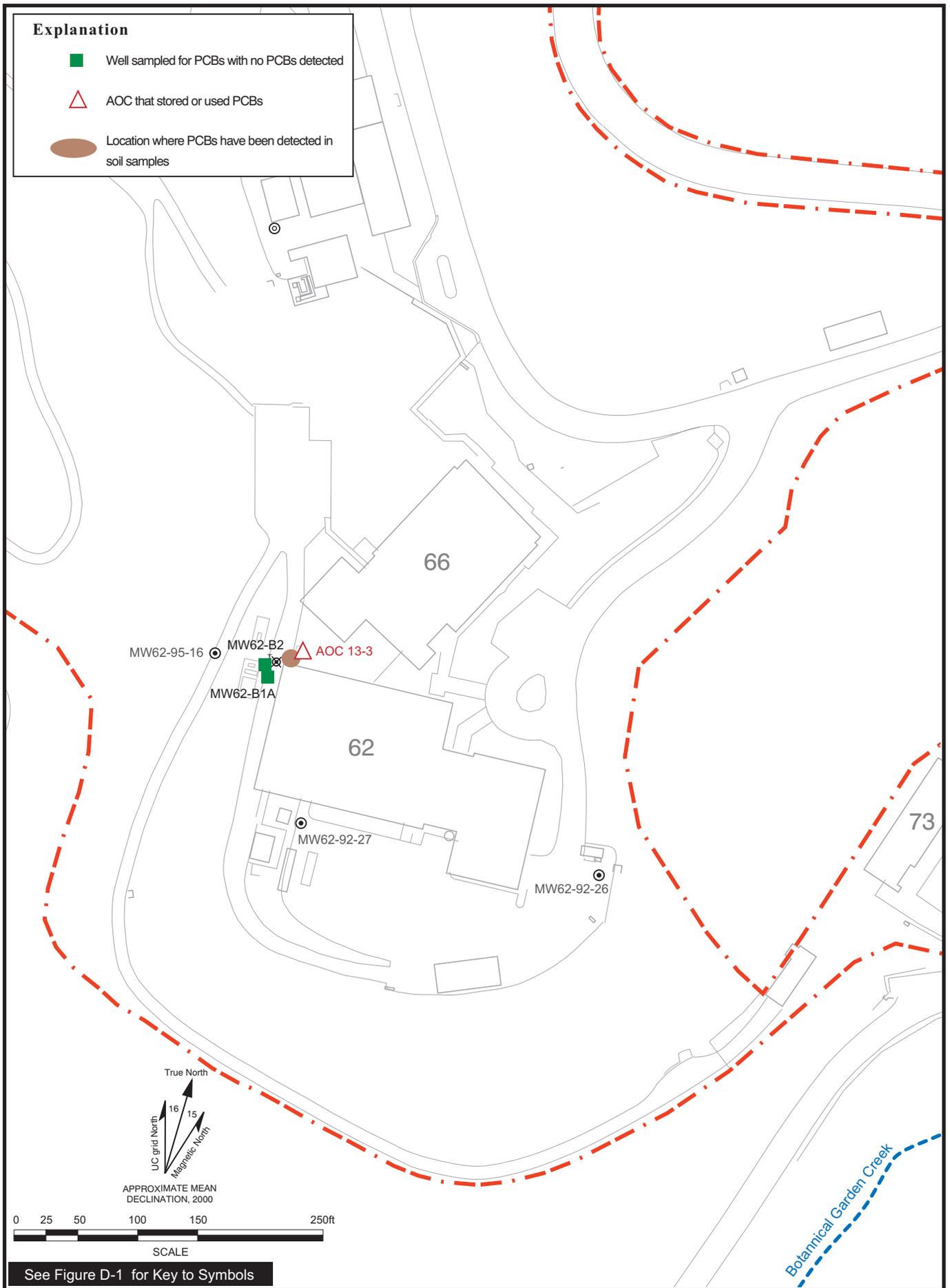


Figure D4.6-1b. PCBs in Groundwater and Soil in Southeastern Outlying Area With Location of AOC That Stored or Used PCBs.

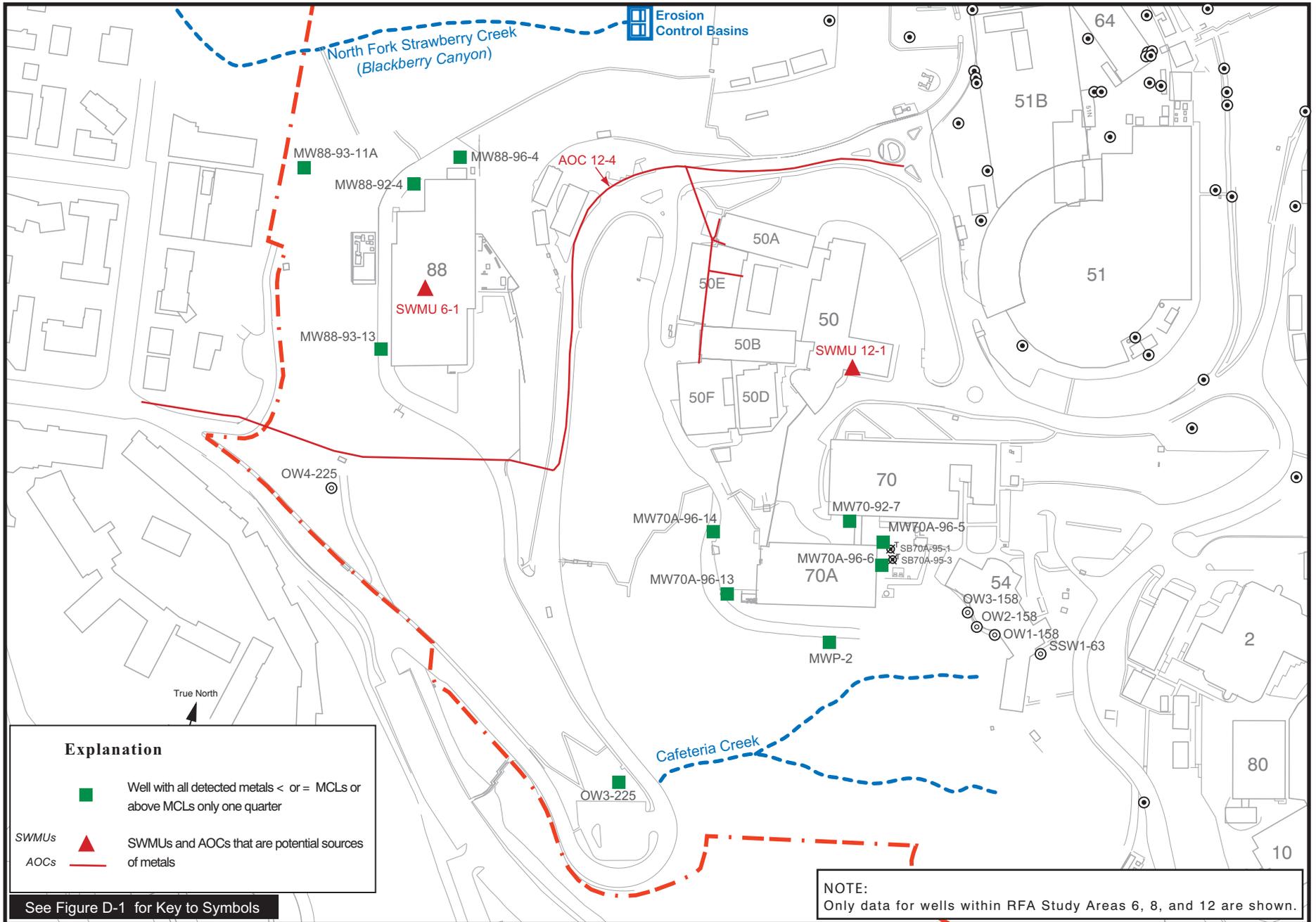


Figure D4.7-1a. Location of Wells Sampled for Metals in Groundwater in Western Outlying Area.

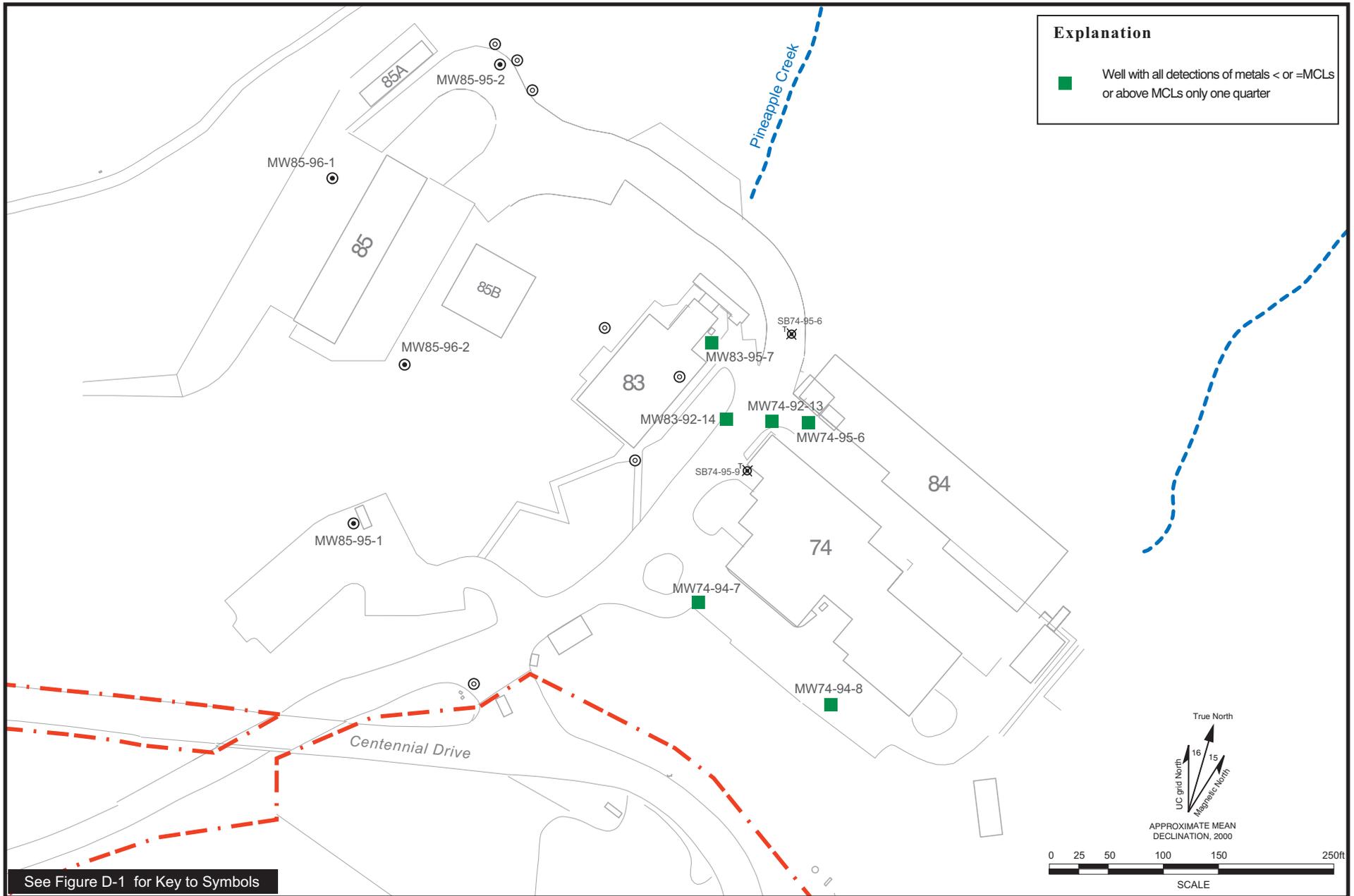


Figure D4.7-1b. Wells Sampled for Metals in Groundwater in Northeastern Outlying Area.

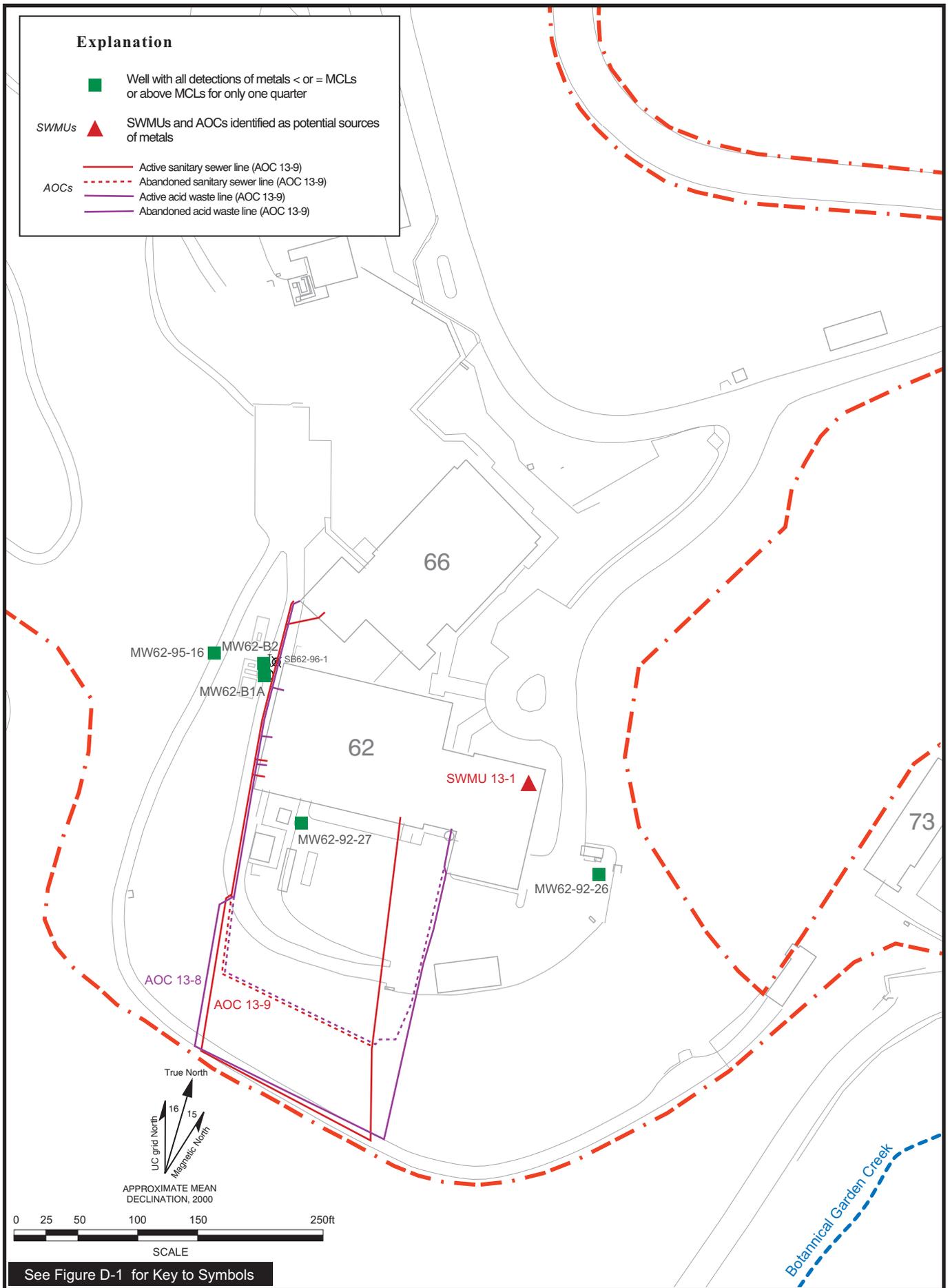


Figure D4.7-1c. Wells Sampled for Metals in Groundwater in Southeastern Outlying Area.

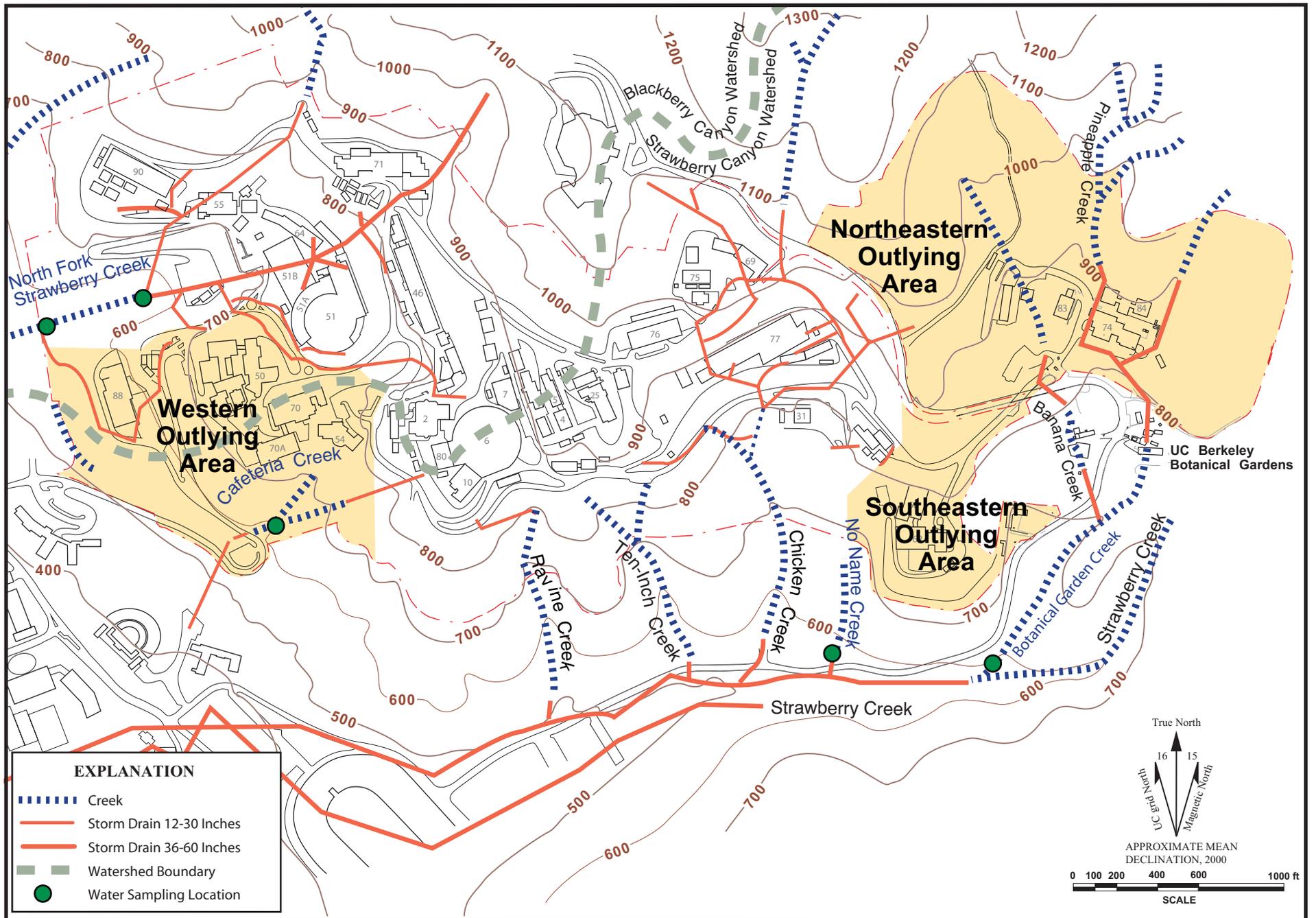


Figure D4.8-1. Surface Water Sampling Locations Evaluating Potential Migration Pathways of Contamination in Outlying Areas to Surface Water.

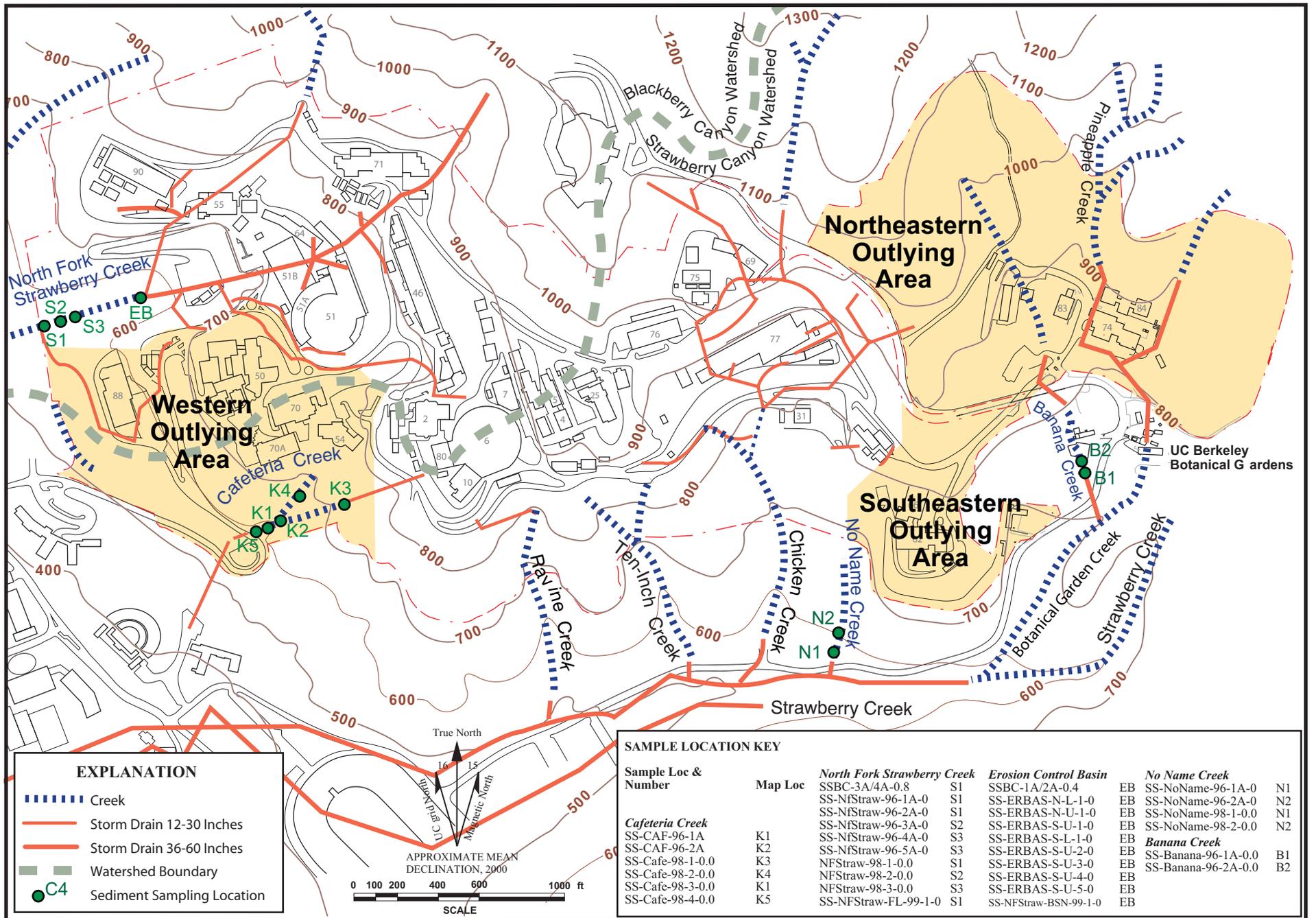


Figure D4.8-2. Sediment Sampling Locations Evaluating Potential Migration Pathways of Contamination in Outlying Areas to Surface Water.

