



2009 ANNUAL MONITORING REPORT

HIGHWAY 96 SITE WHITE BEAR TOWNSHIP, MINNESOTA

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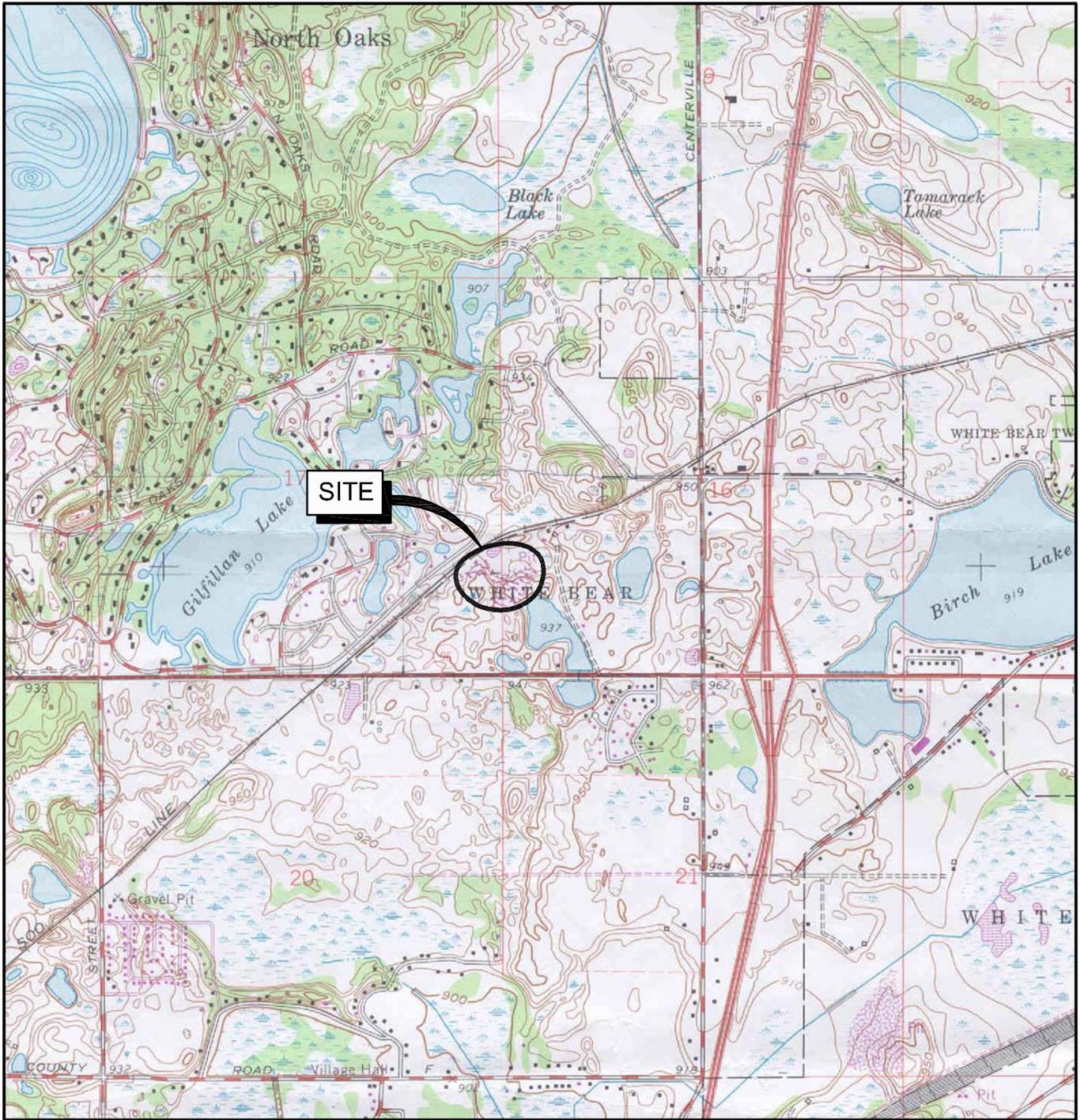
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NORTH DISPOSAL AREA



SOURCE: USGS 7.5 MINUTE QUAD
WHITE BEAR LAKE WEST, MINN.



figure 1.1

SITE LOCATION
HIGHWAY 96 SITE
White Bear Township, Minnesota



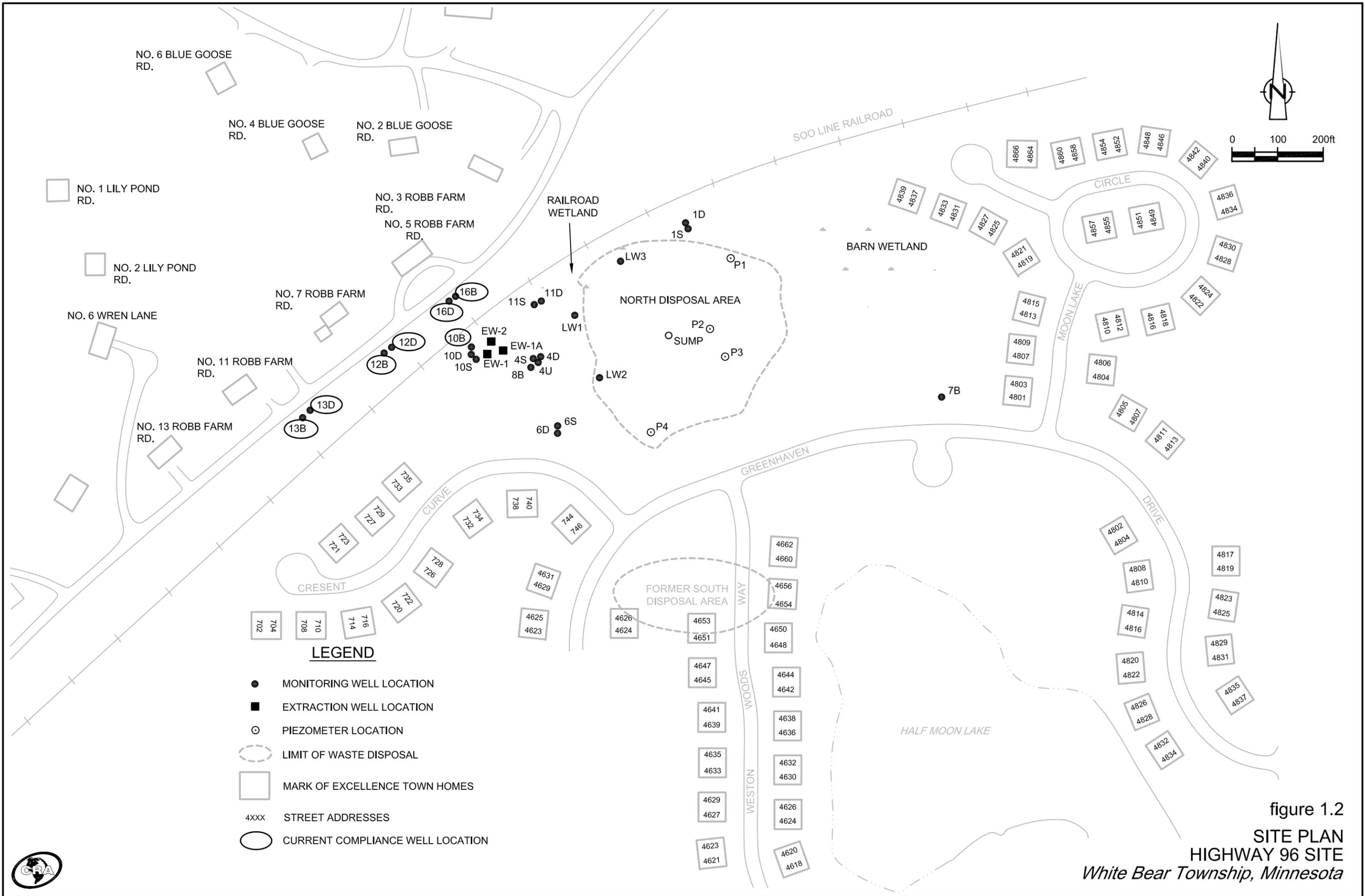
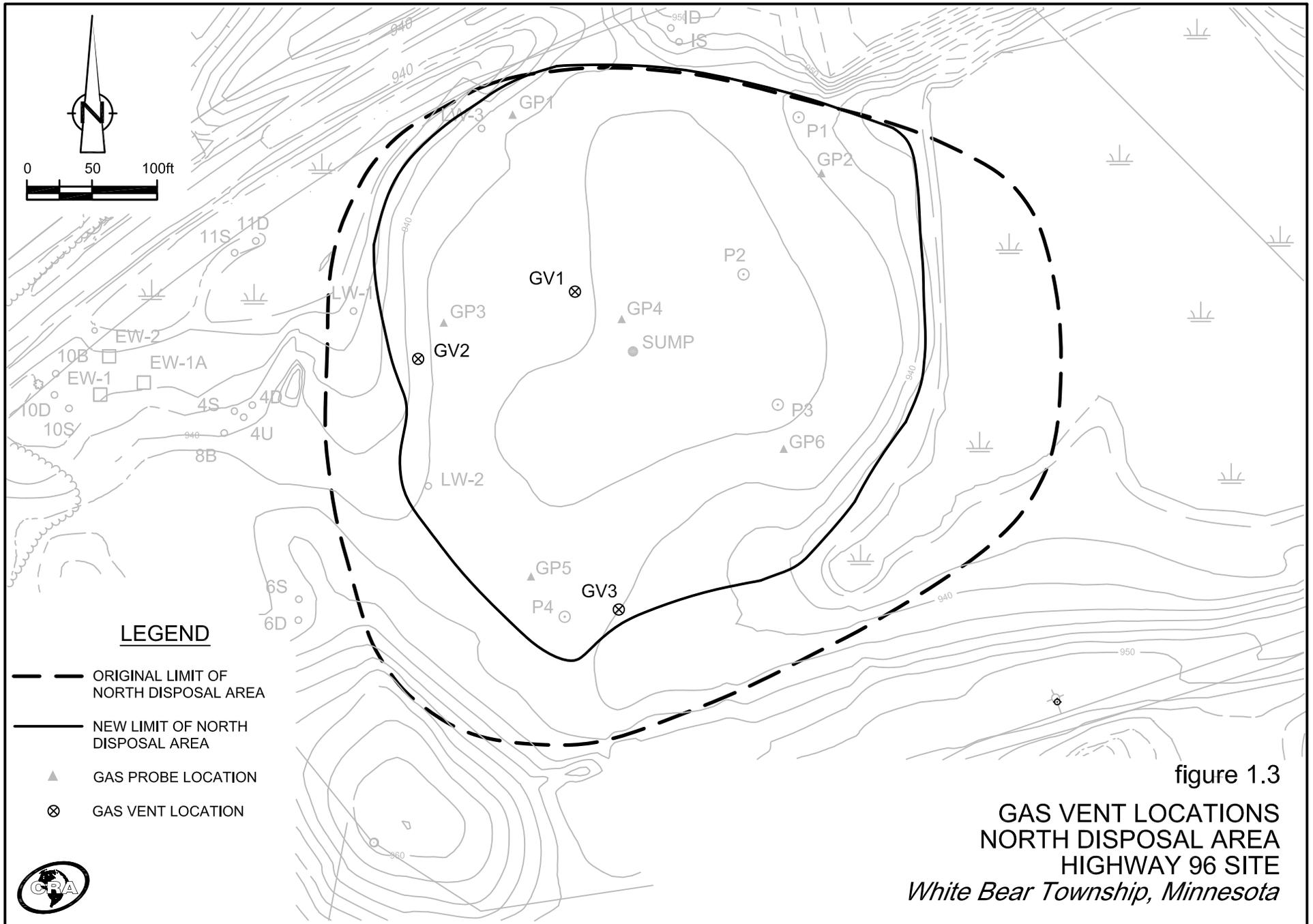
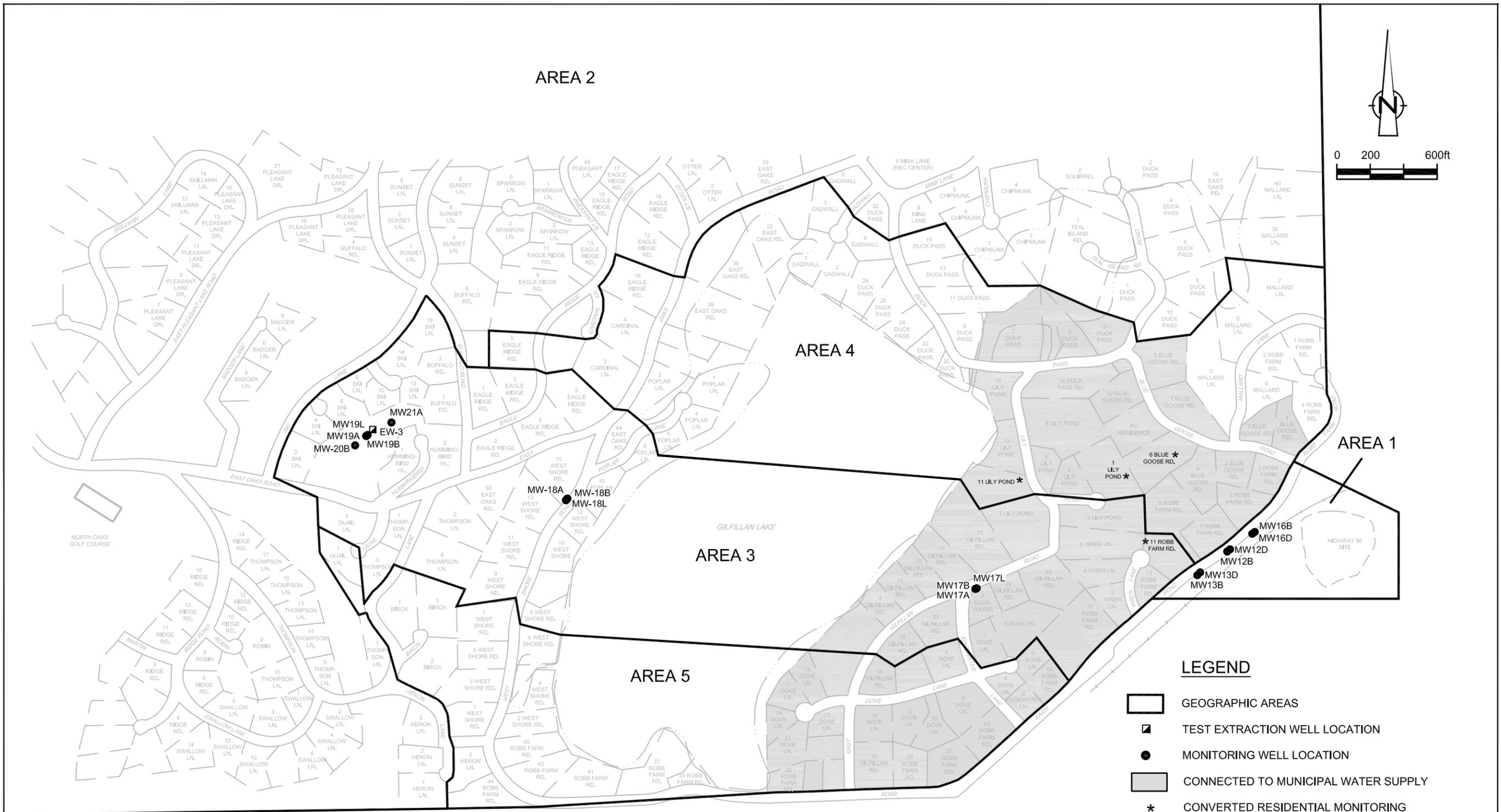


figure 1.2
 SITE PLAN
 HIGHWAY 96 SITE
 White Bear Township, Minnesota







LEGEND

- GEOGRAPHIC AREAS
- TEST EXTRACTION WELL LOCATION
- MONITORING WELL LOCATION
- CONNECTED TO MUNICIPAL WATER SUPPLY
- * CONVERTED RESIDENTIAL MONITORING WELL LOCATION

figure 1.4
OFF-SITE GROUNDWATER MONITORING NETWORK
HIGHWAY 96 SITE
White Bear Township, Minnesota



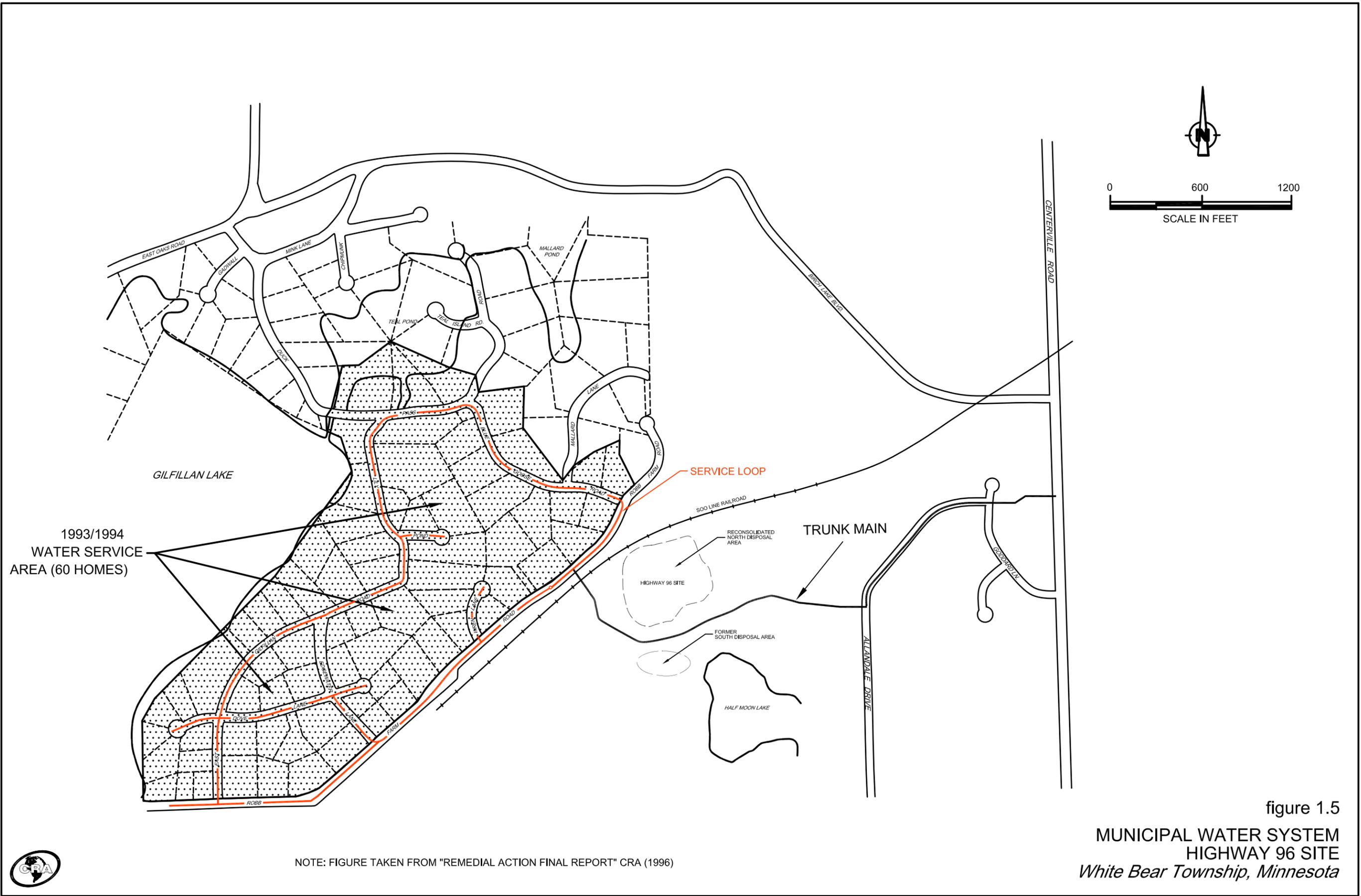
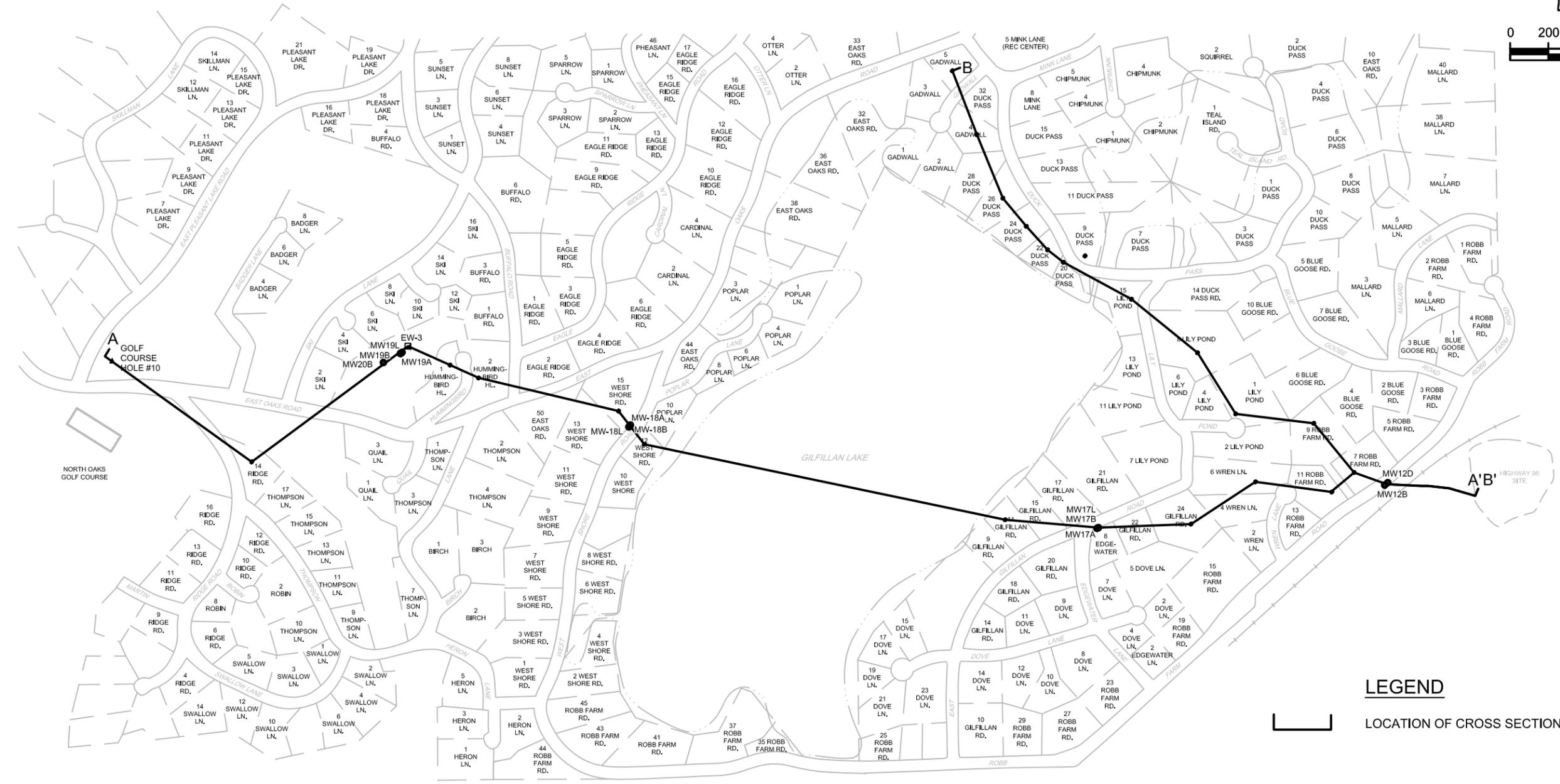


figure 1.5
 MUNICIPAL WATER SYSTEM
 HIGHWAY 96 SITE
 White Bear Township, Minnesota



NOTE: FIGURE TAKEN FROM "REMEDIAL ACTION FINAL REPORT" CRA (1996)



LEGEND

 LOCATION OF CROSS SECTION

figure 3.1
LOCATION OF CROSS SECTIONS
HIGHWAY 96 SITE
White Bear Township, Minnesota



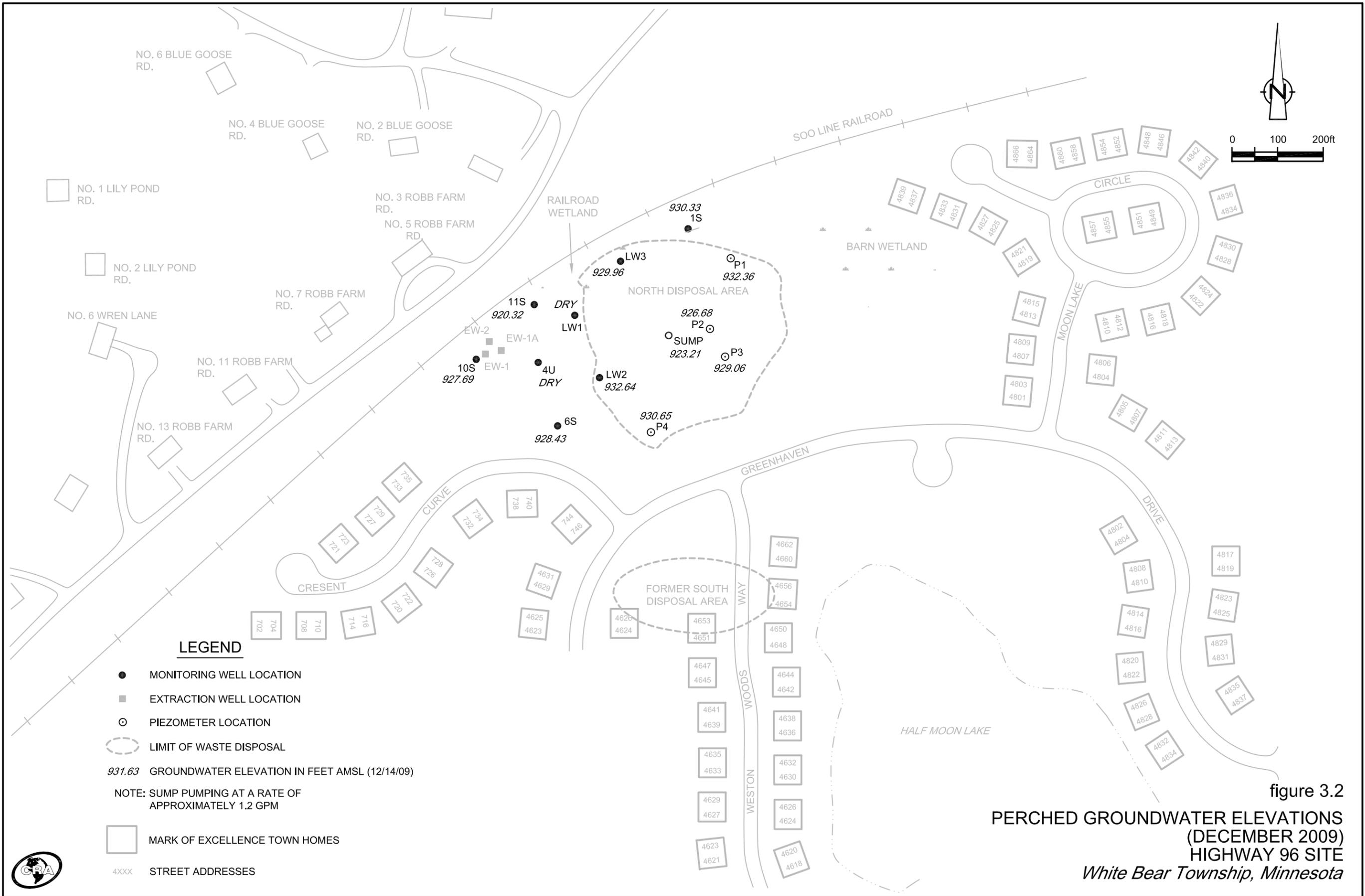


figure 3.2

PERCHED GROUNDWATER ELEVATIONS (DECEMBER 2009) HIGHWAY 96 SITE White Bear Township, Minnesota



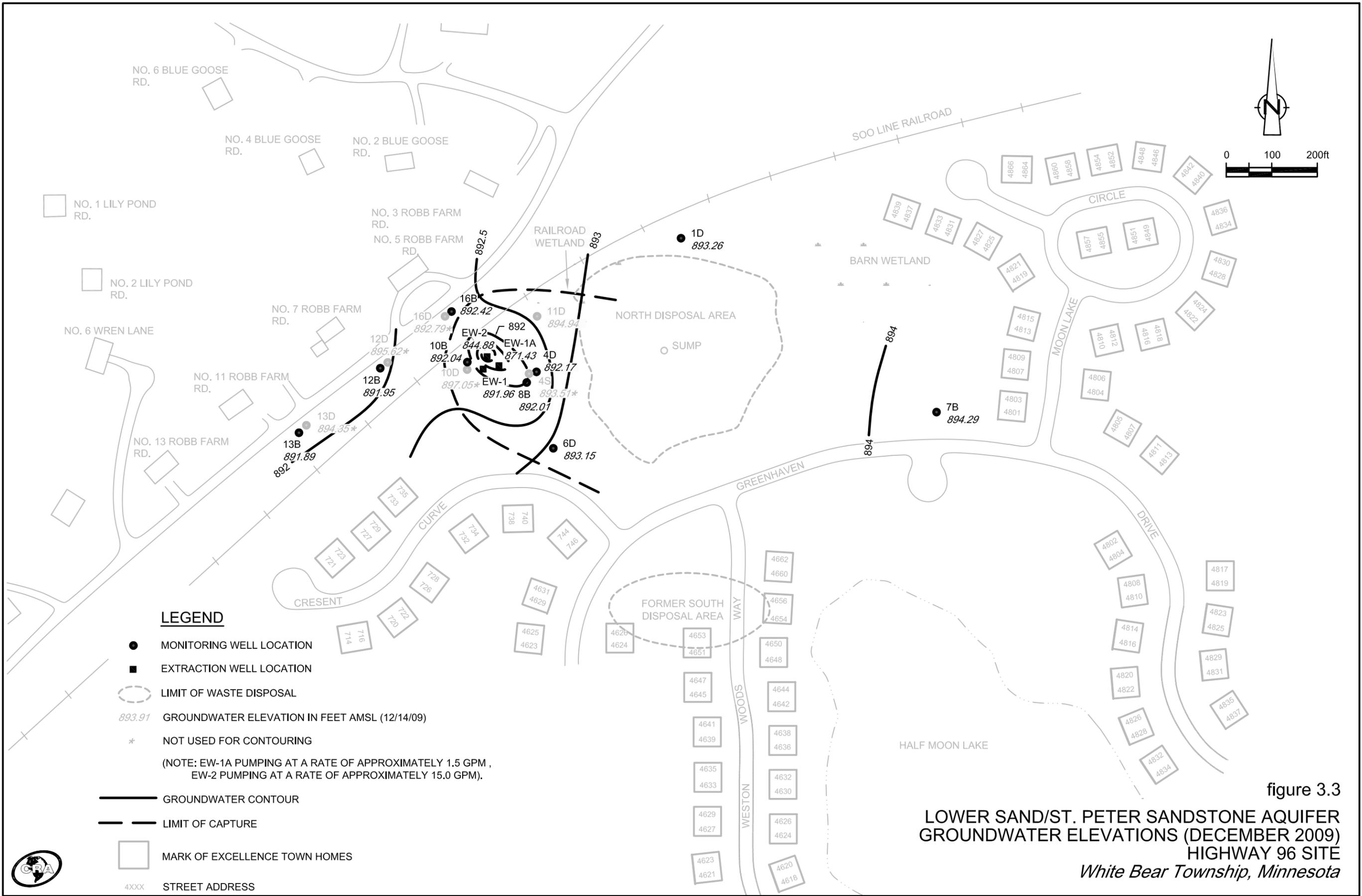
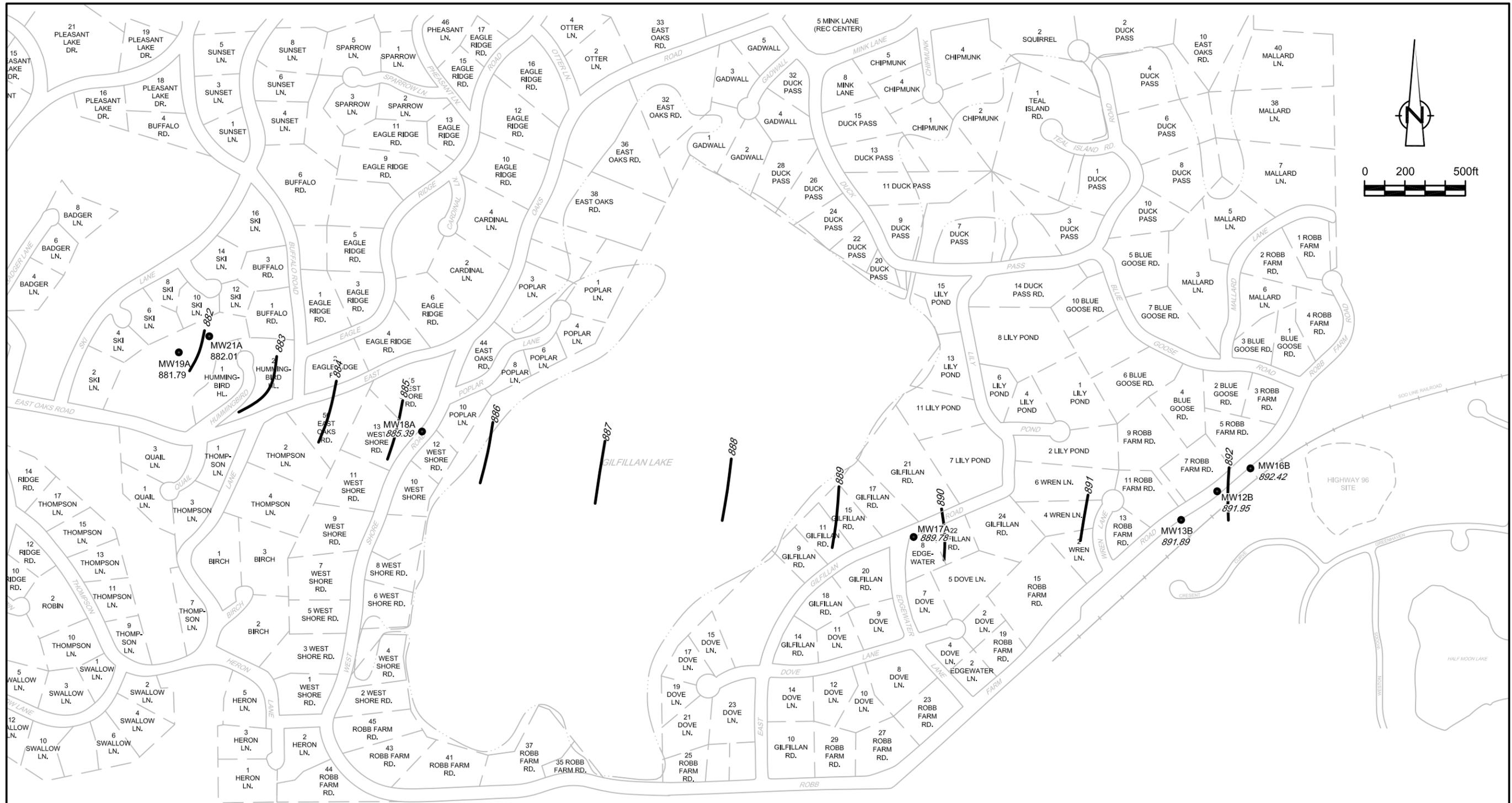


figure 3.3
**LOWER SAND/ST. PETER SANDSTONE AQUIFER
 GROUNDWATER ELEVATIONS (DECEMBER 2009)
 HIGHWAY 96 SITE
 White Bear Township, Minnesota**



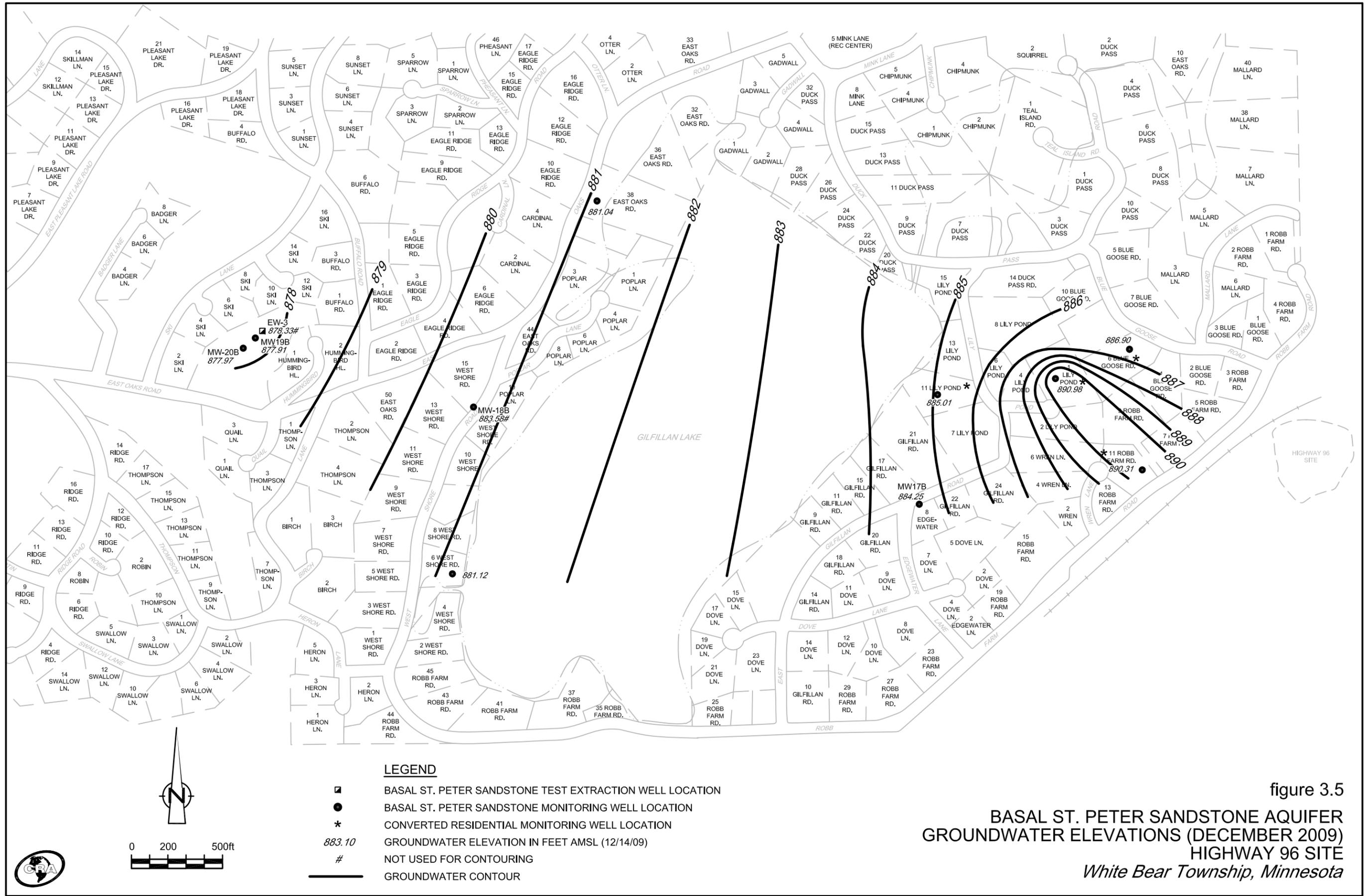


LEGEND

- UPPER ST. PETER SANDSTONE MONITORING WELL LOCATION
- 885.88 GROUNDWATER ELEVATION IN FEET AMSL (12/14/09)
- GROUNDWATER CONTOUR

figure 3.4
**UPPER ST. PETER SANDSTONE AQUIFER
 GROUNDWATER ELEVATIONS (DECEMBER 2009)
 HIGHWAY 96 SITE
 White Bear Township, Minnesota**





LEGEND

- ▣ BASAL ST. PETER SANDSTONE TEST EXTRACTION WELL LOCATION
- BASAL ST. PETER SANDSTONE MONITORING WELL LOCATION
- * CONVERTED RESIDENTIAL MONITORING WELL LOCATION
- 883.10 GROUNDWATER ELEVATION IN FEET AMSL (12/14/09)
- # NOT USED FOR CONTOURING
- GROUNDWATER CONTOUR

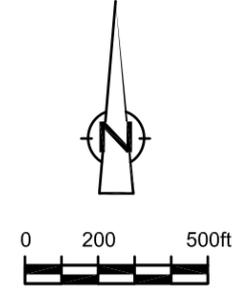
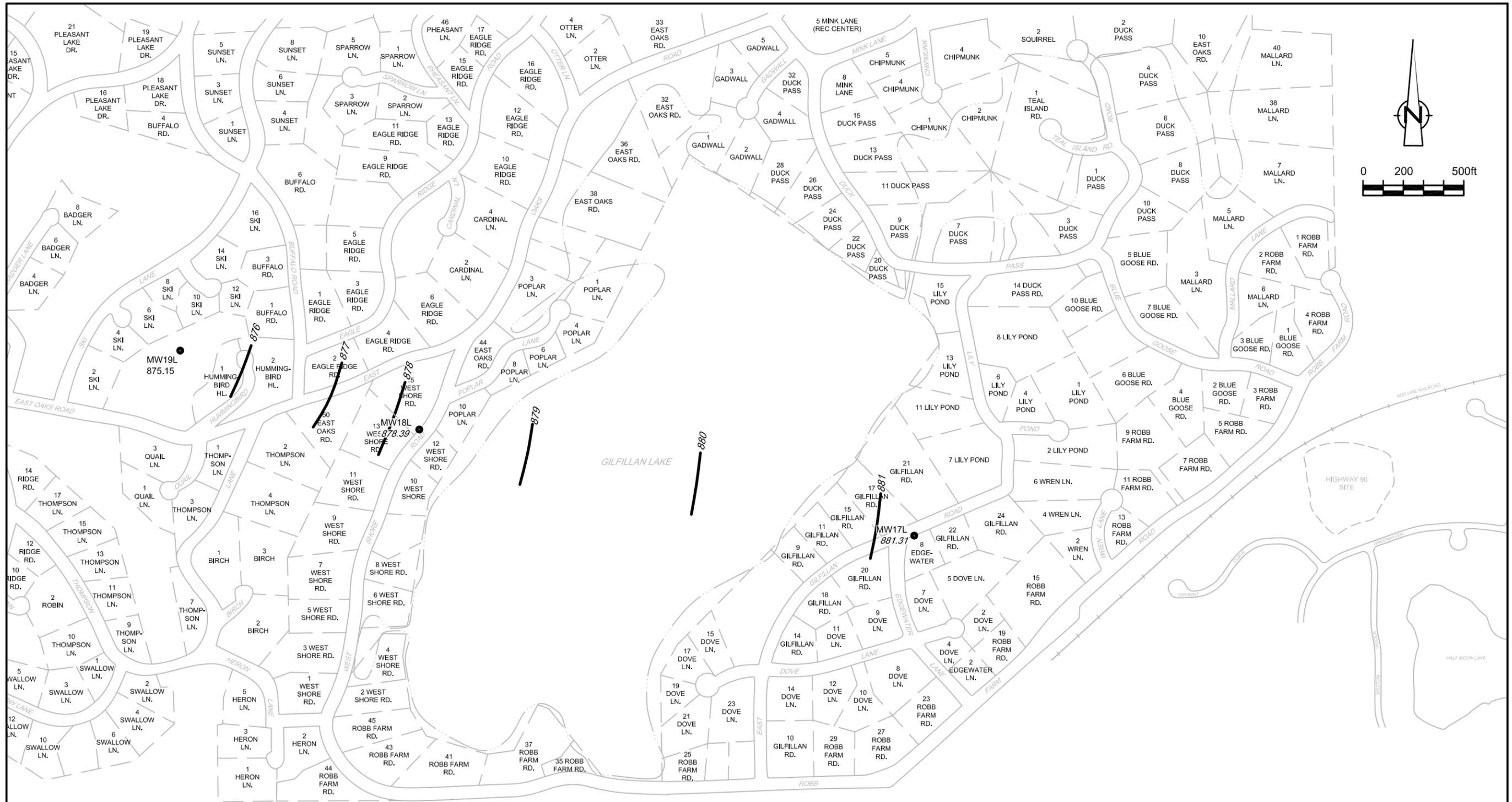


figure 3.5
**BASAL ST. PETER SANDSTONE AQUIFER
 GROUNDWATER ELEVATIONS (DECEMBER 2009)
 HIGHWAY 96 SITE
 White Bear Township, Minnesota**



LEGEND

- PRAIRIE DU CHIEN MONITORING WELL LOCATION
- 885.88 GROUNDWATER ELEVATION IN FEET AMSL (12/14/09)
- GROUNDWATER CONTOUR

figure 3.6
PRAIRIE DU CHIEN AQUIFER
GROUNDWATER ELEVATIONS (DECEMBER 2009)
HIGHWAY 96 SITE
White Bear Township, Minnesota



FIGURE 3.7

POUNDS OF TOTAL VOCs (TVOCs) REMOVED
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

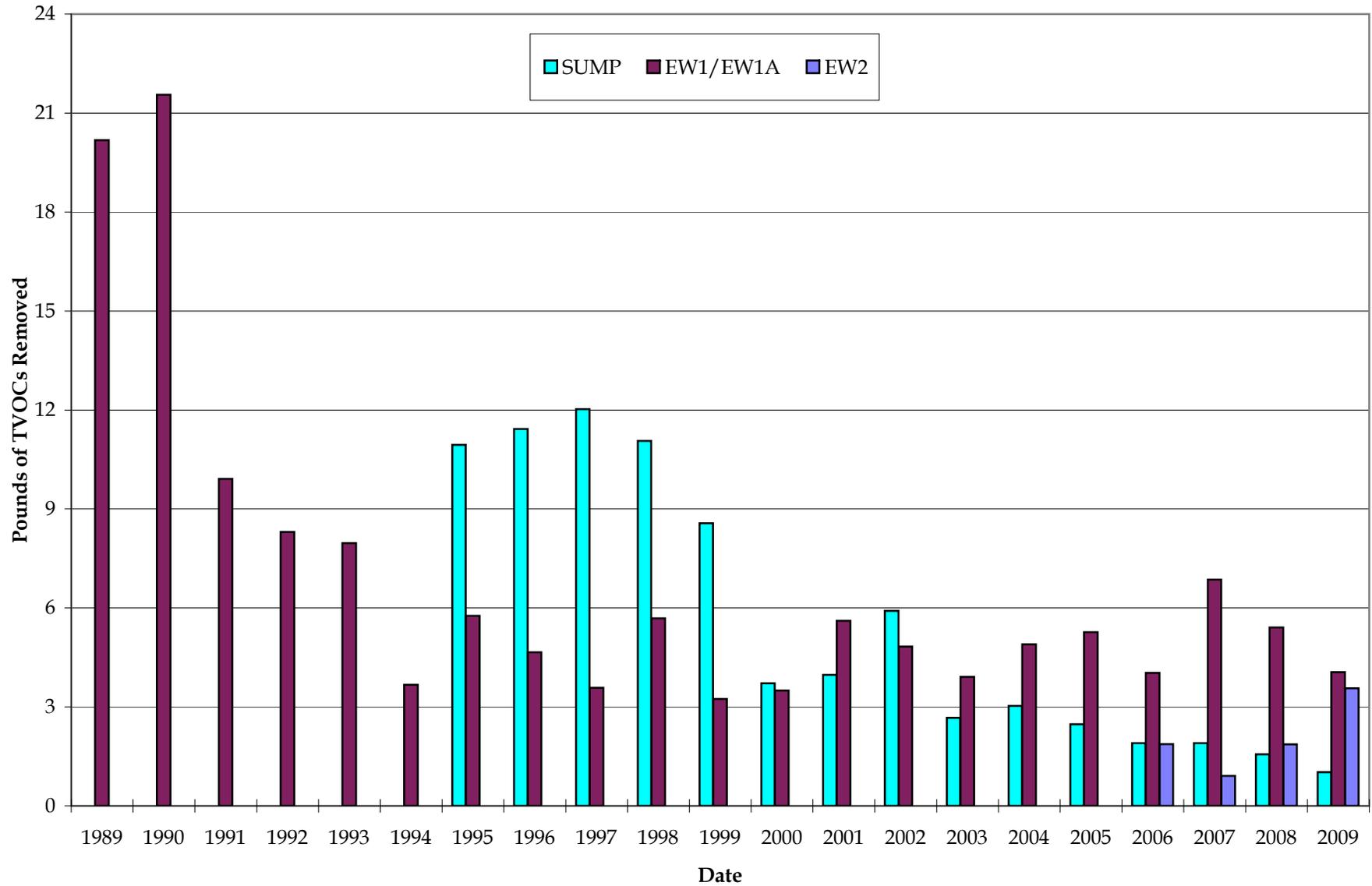


FIGURE 3.8

VOC REMOVAL EFFICIENCY
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

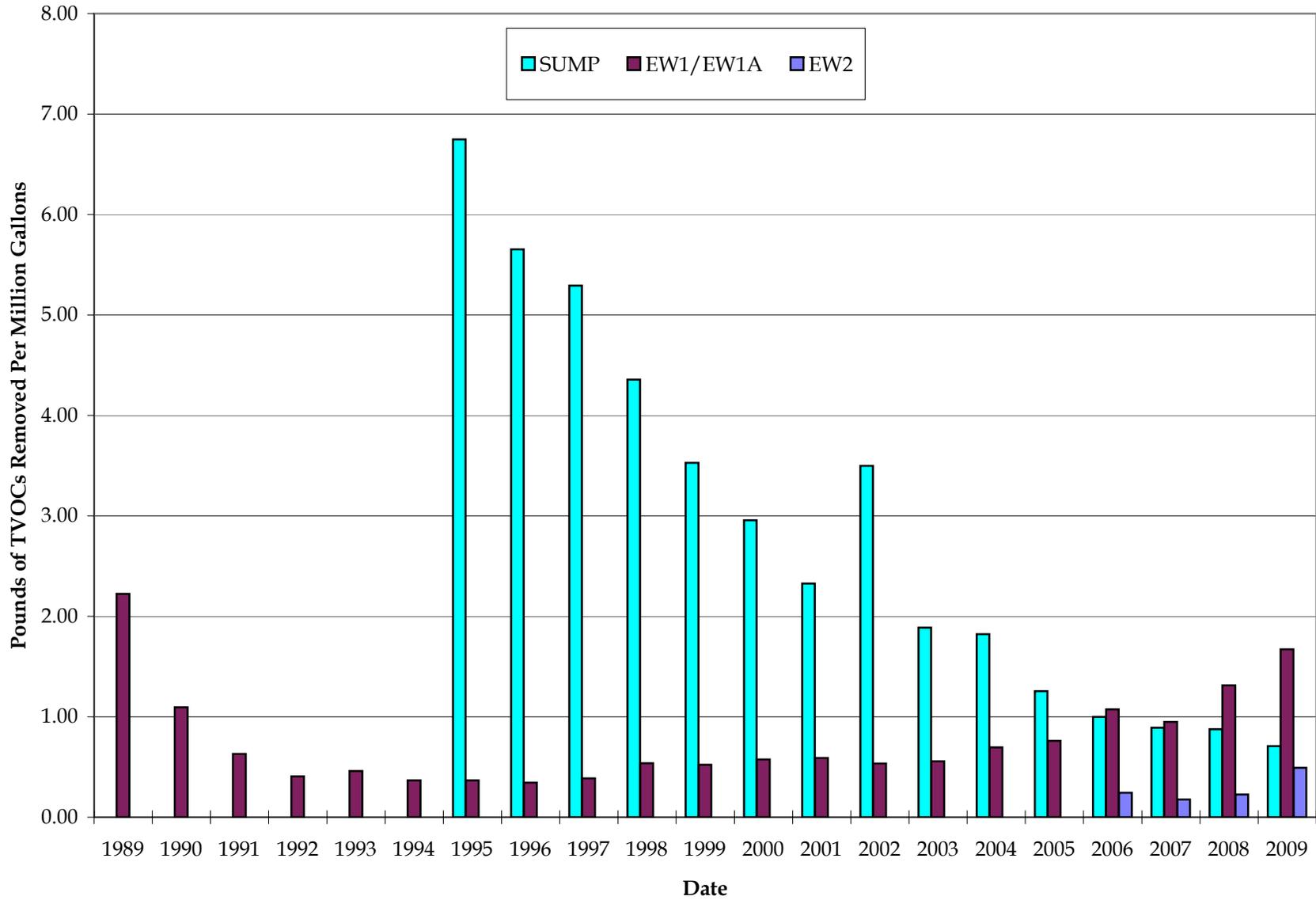
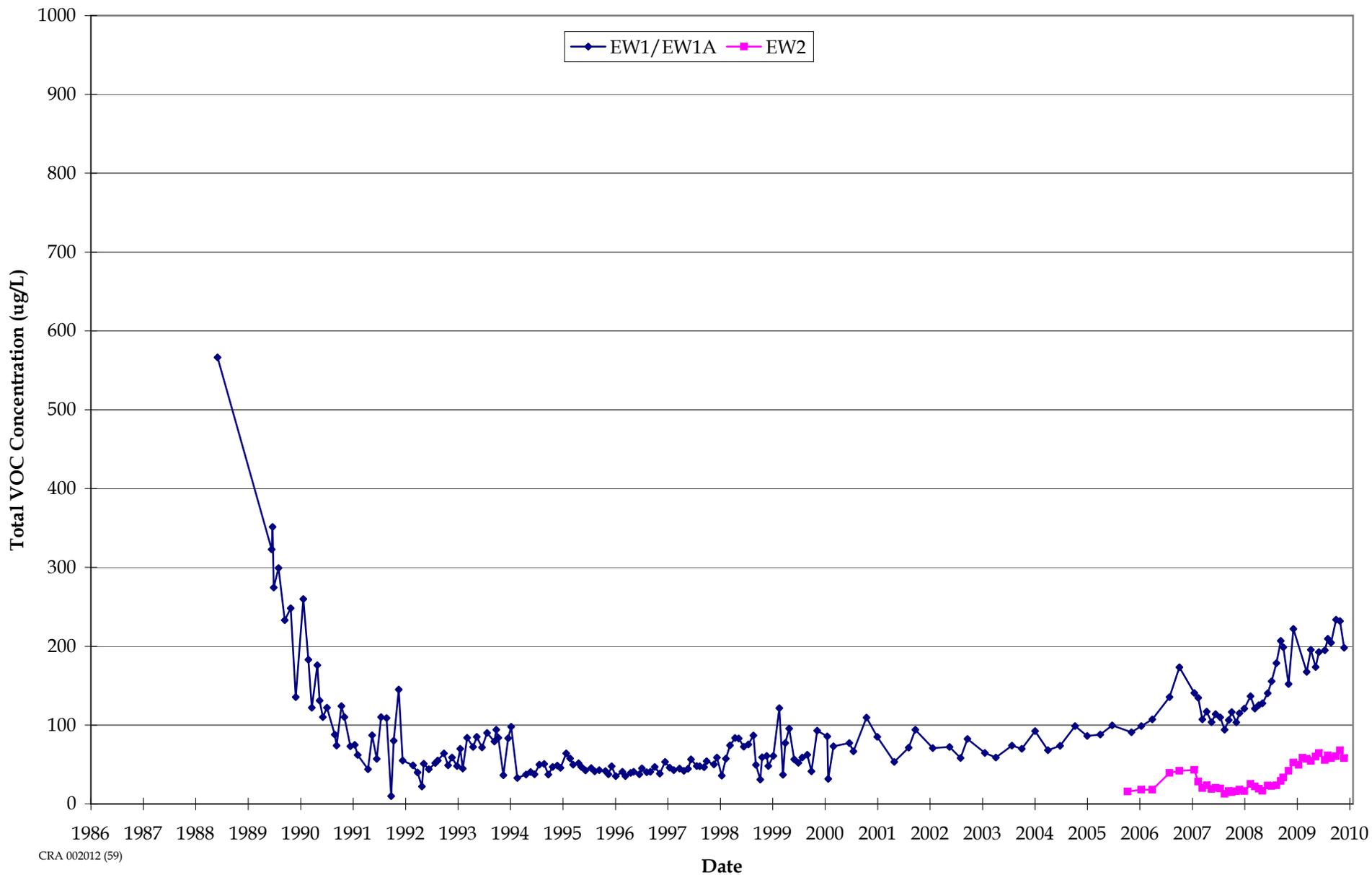


FIGURE 3.9

TOTAL VOC CONCENTRATIONS
EW1/EW1A/EW2
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA



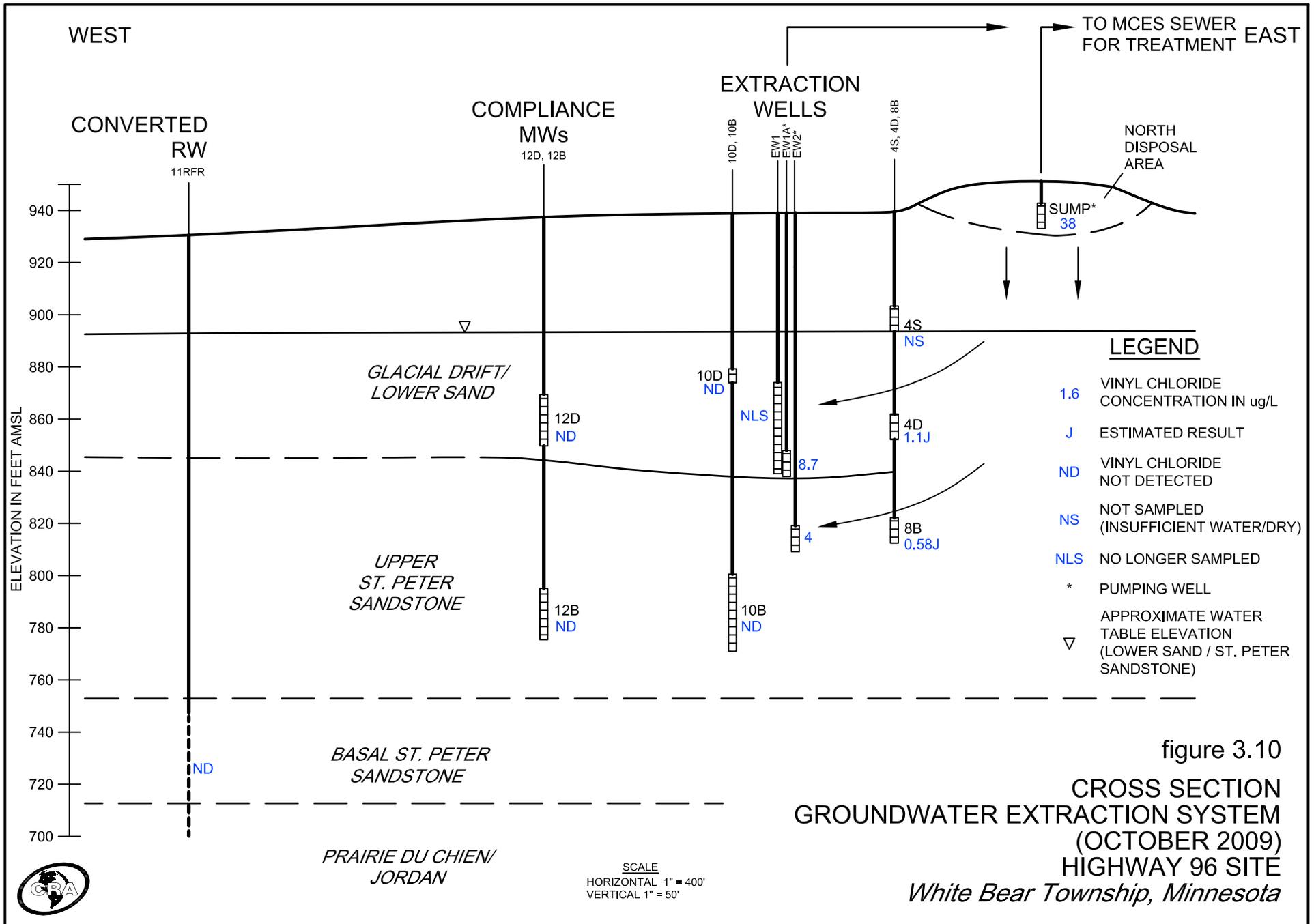


FIGURE 4.1

TOTAL VOC CONCENTRATIONS
LW3
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

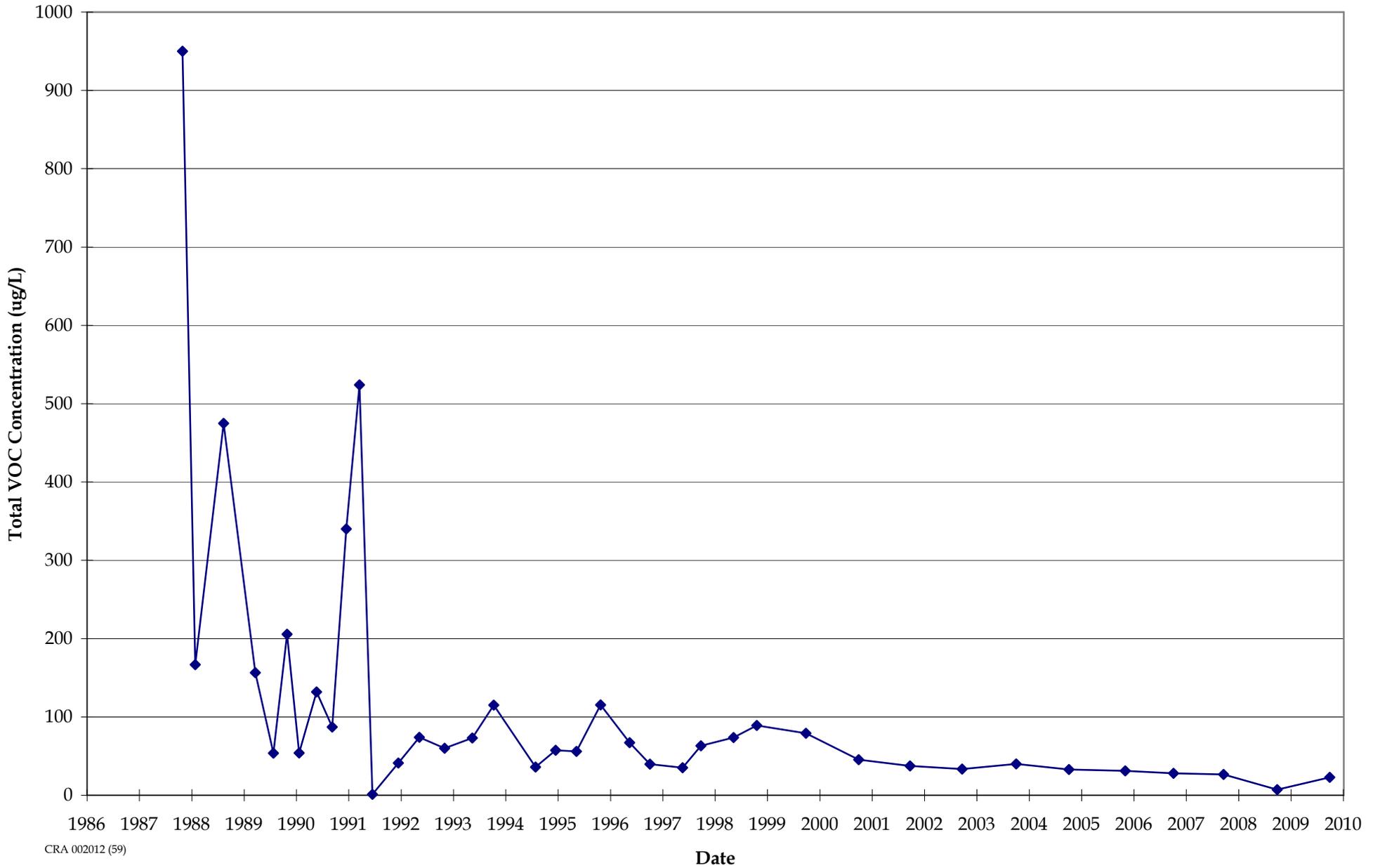


FIGURE 4.2

TOTAL VOC CONCENTRATIONS
MW4D
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

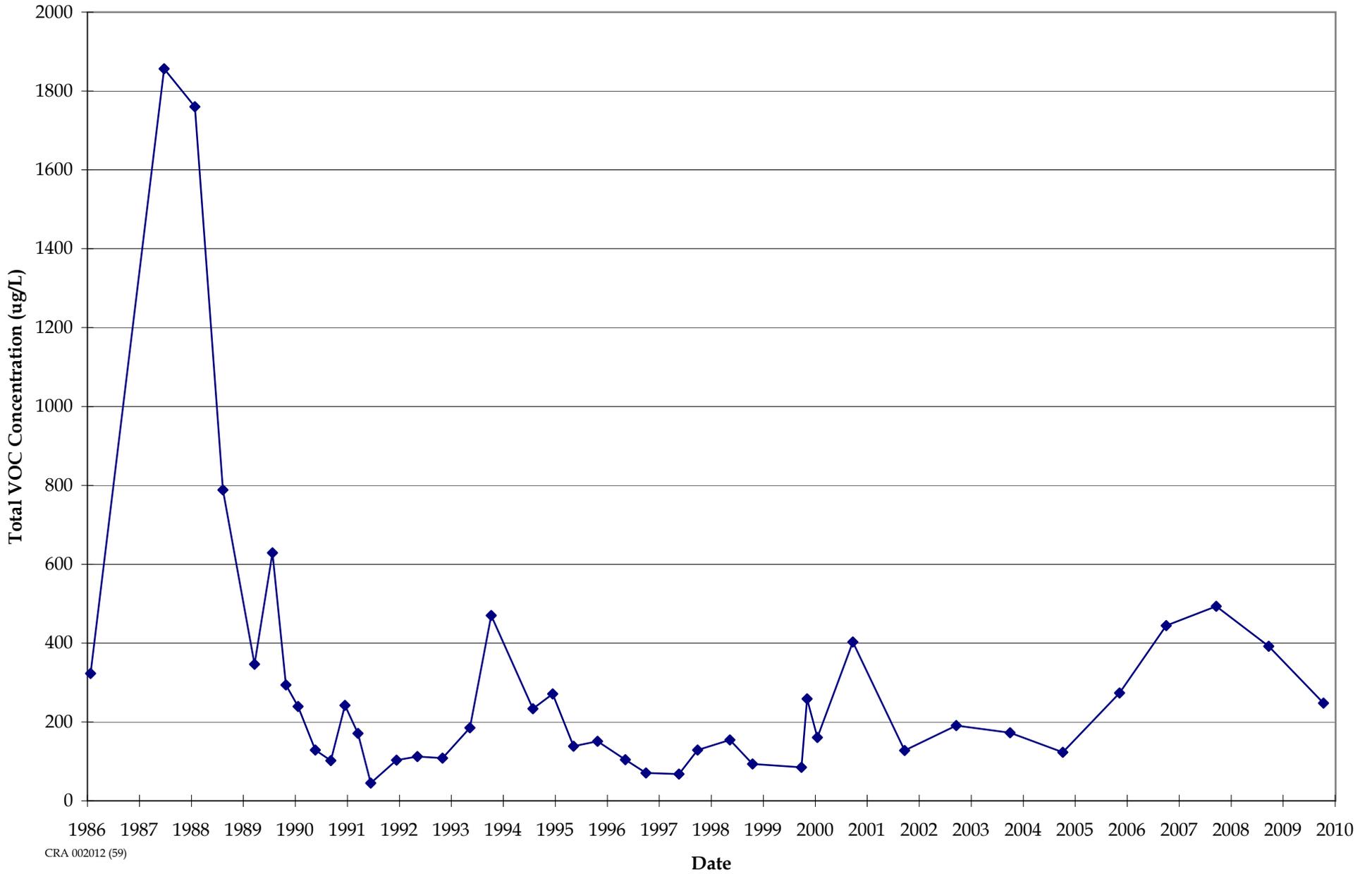


FIGURE 4.3

TOTAL VOC CONCENTRATIONS
MW12D
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

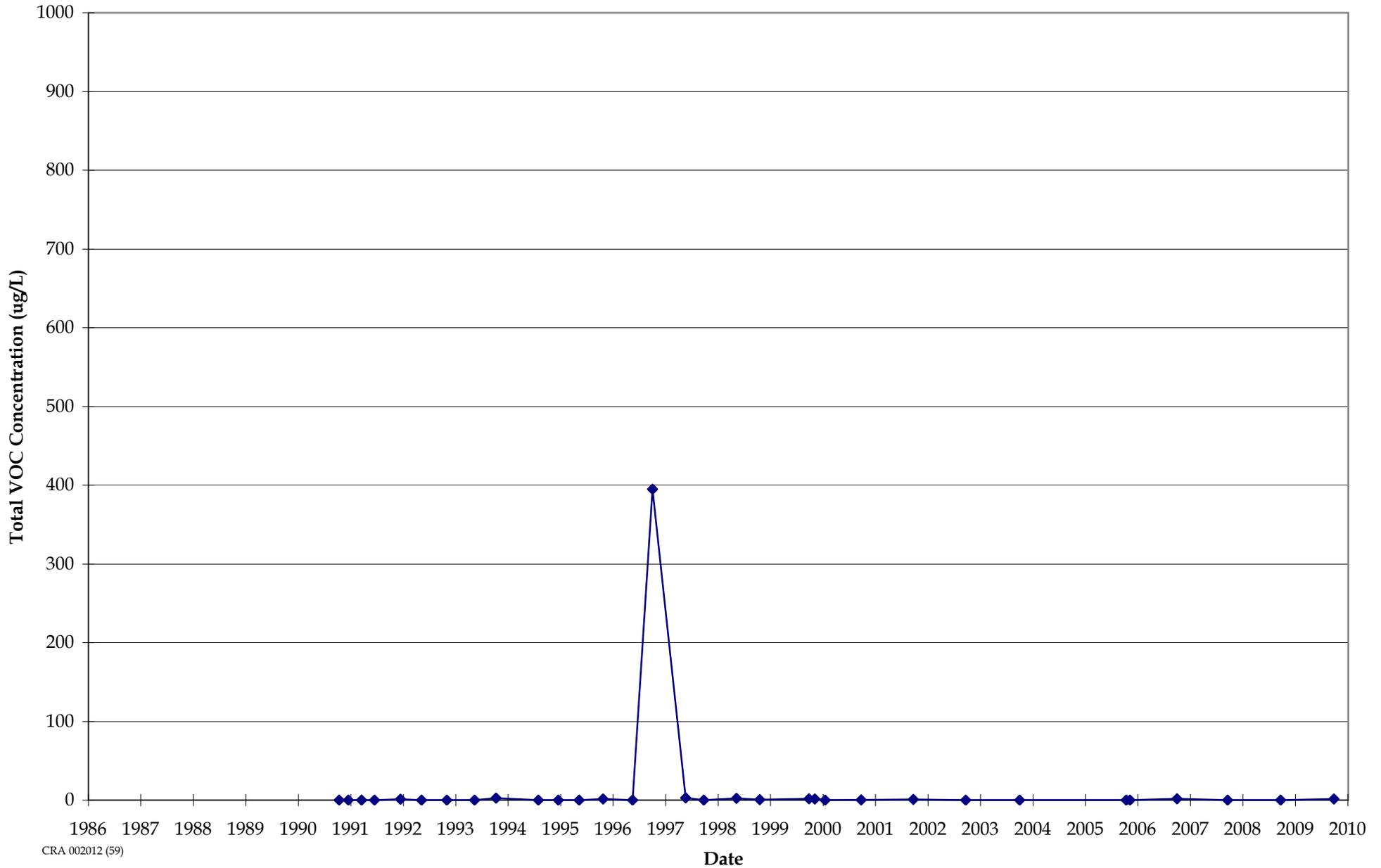


FIGURE 4.4

TOTAL VOC CONCENTRATIONS
MW8B
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

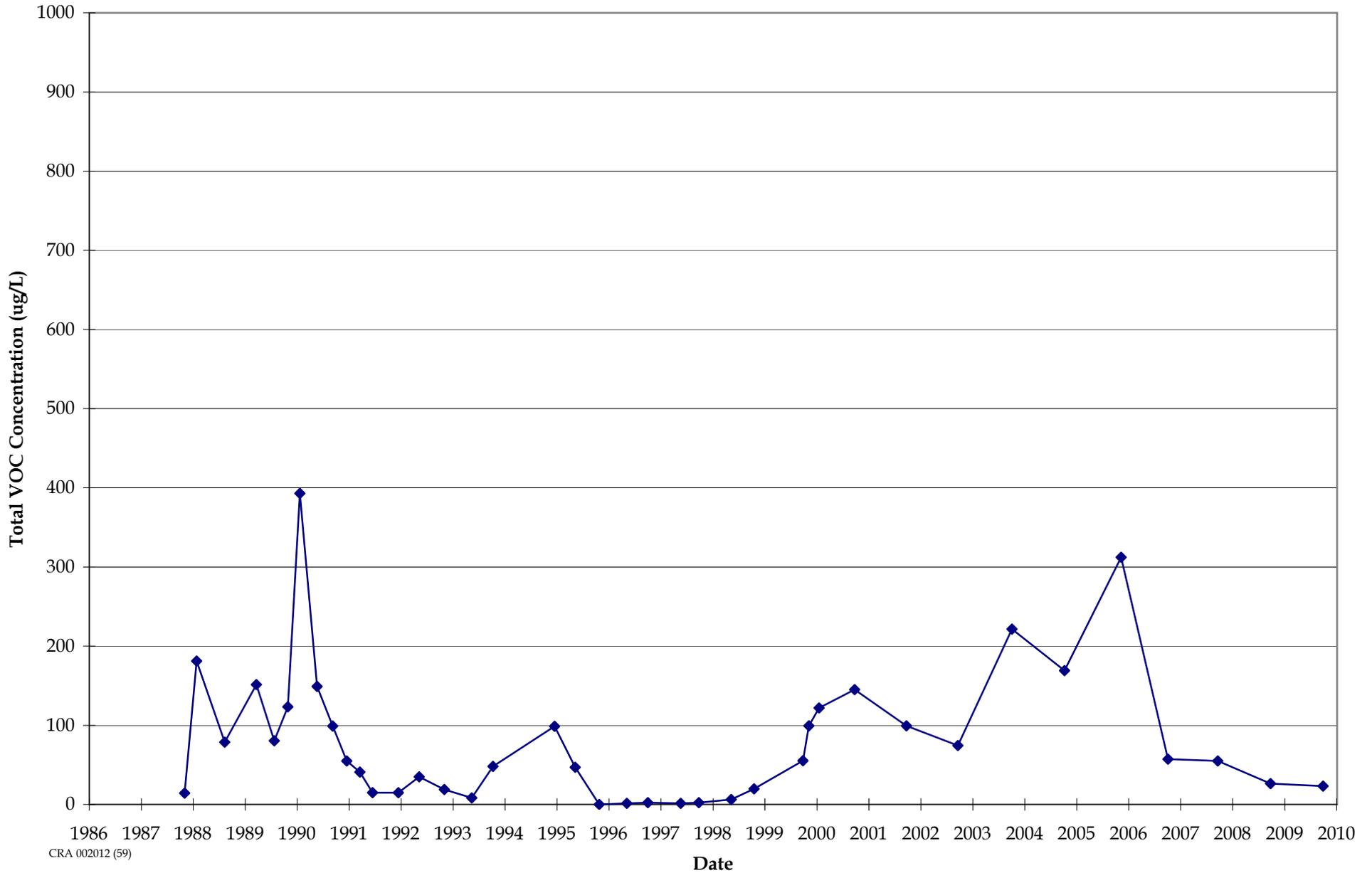


FIGURE 4.5

TOTAL VOC CONCENTRATIONS
MW12B
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

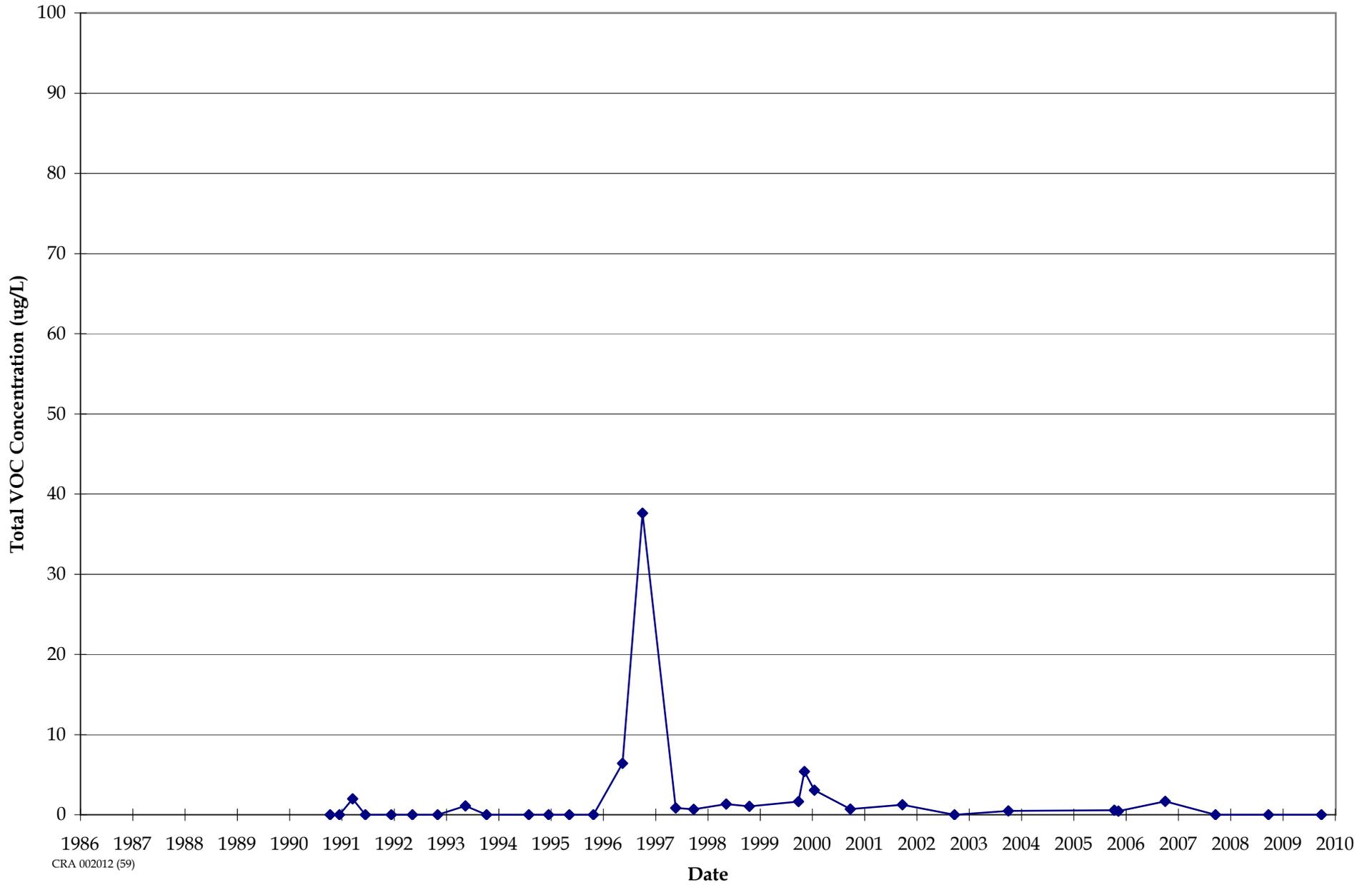


FIGURE 4.6

TOTAL VOC CONCENTRATIONS
11 ROBB FARM ROAD
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

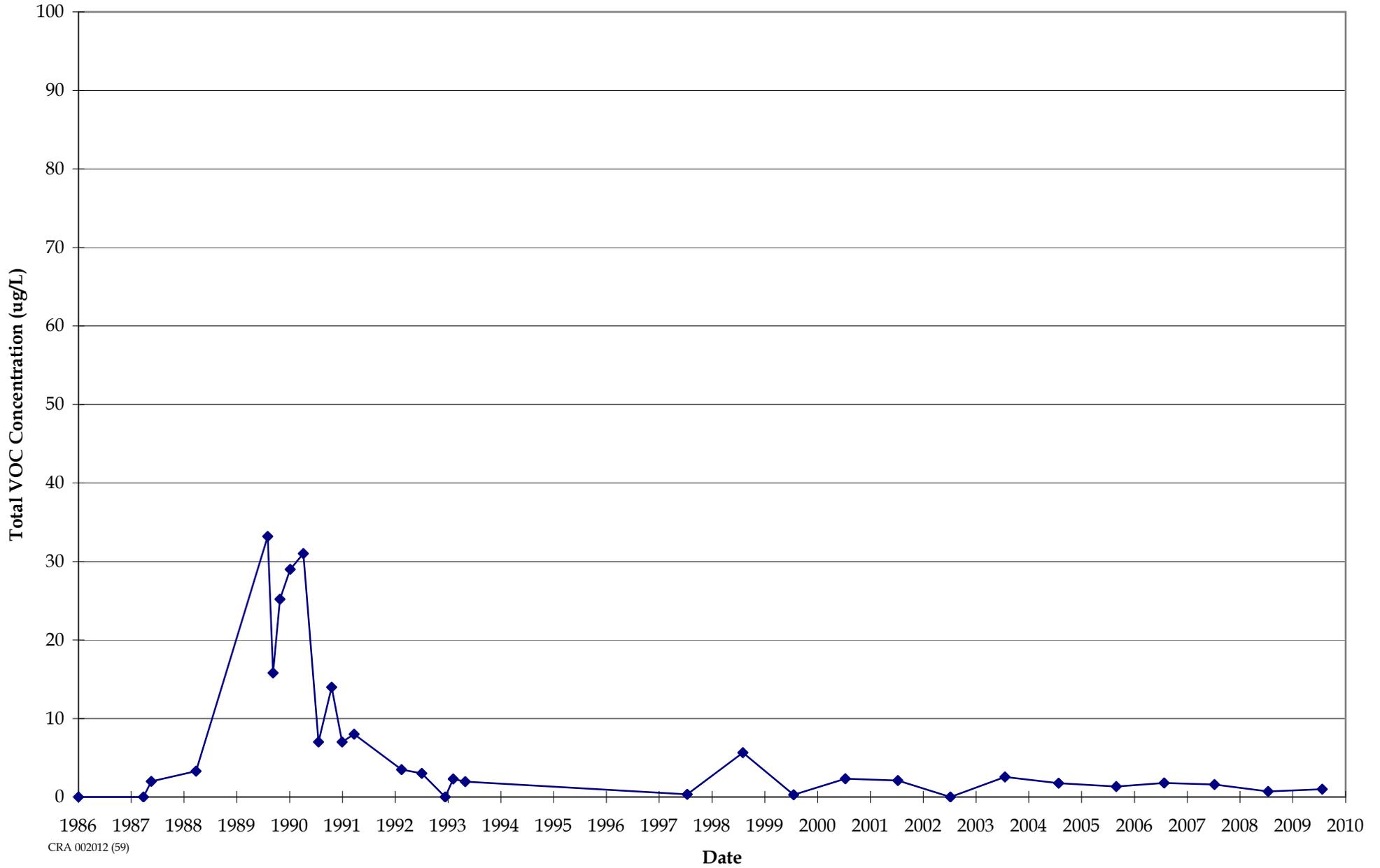
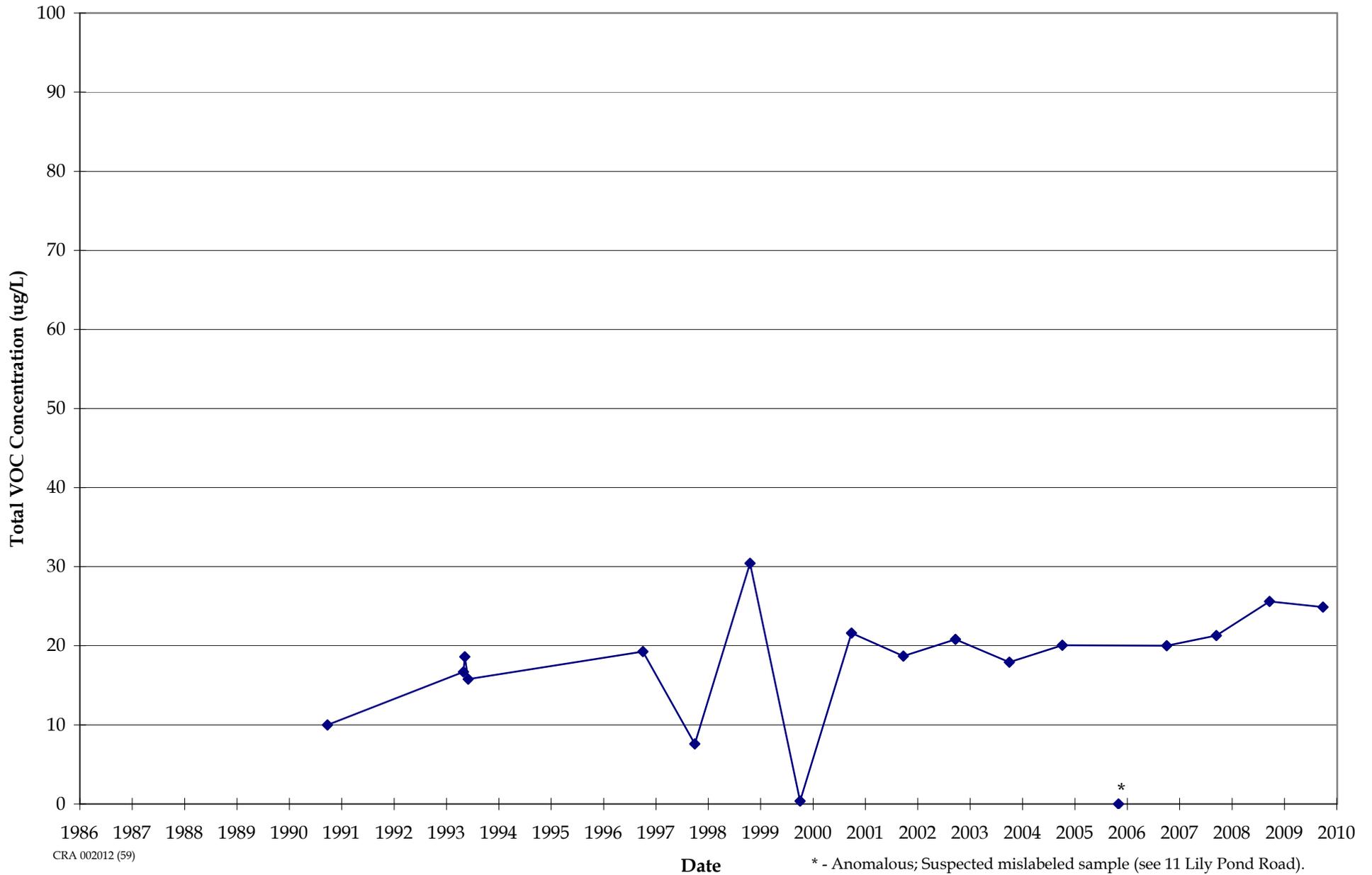


FIGURE 4.7

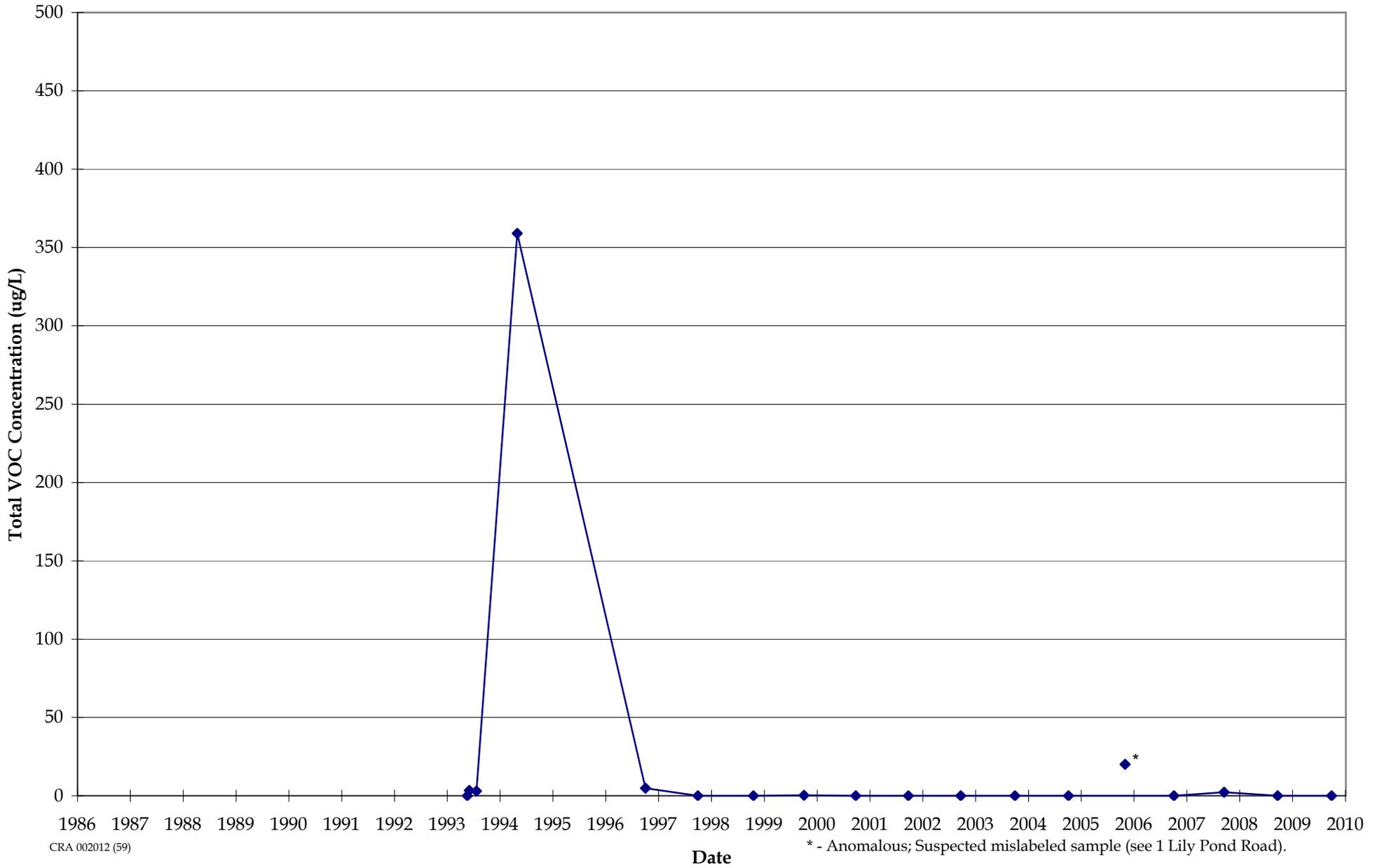
TOTAL VOC CONCENTRATIONS
1 LILY POND ROAD
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA



* - Anomalous; Suspected mislabeled sample (see 11 Lily Pond Road).

FIGURE 4.8

TOTAL VOC CONCENTRATIONS
11 LILY POND ROAD
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA



* - Anomalous; Suspected mislabeled sample (see 1 Lily Pond Road).

FIGURE 4.9

TOTAL VOC CONCENTRATIONS
6 BLUE GOOSE ROAD
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

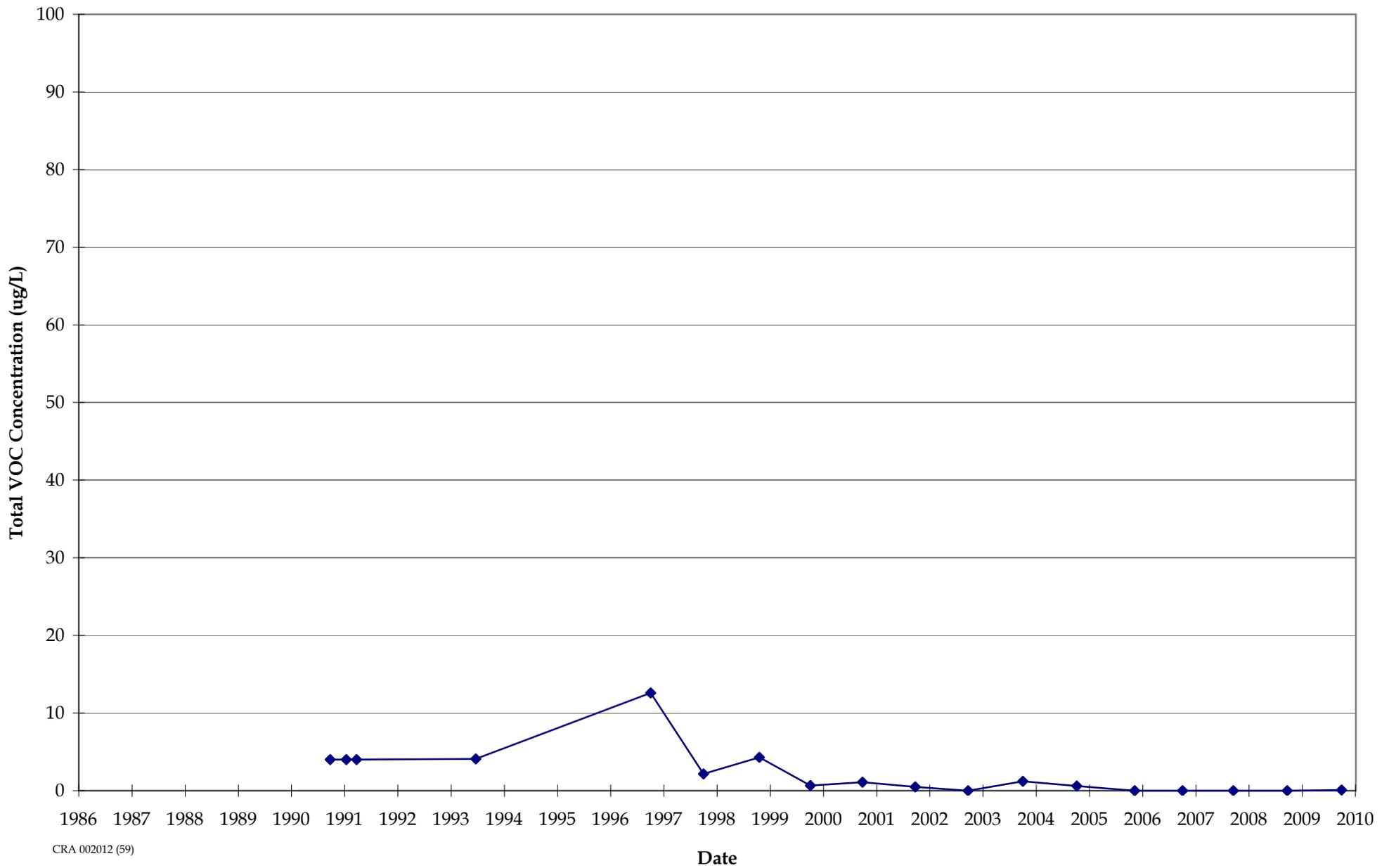
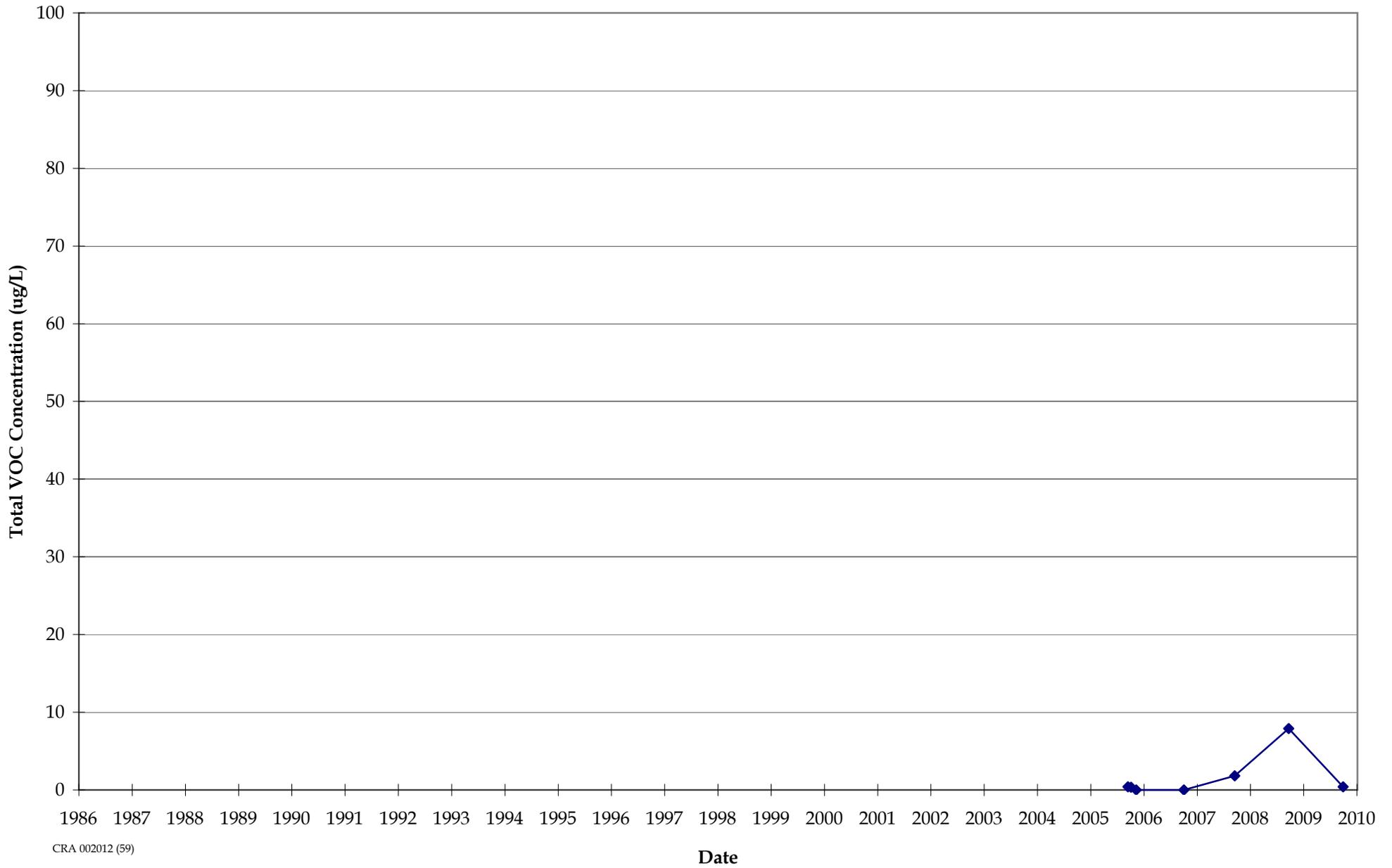
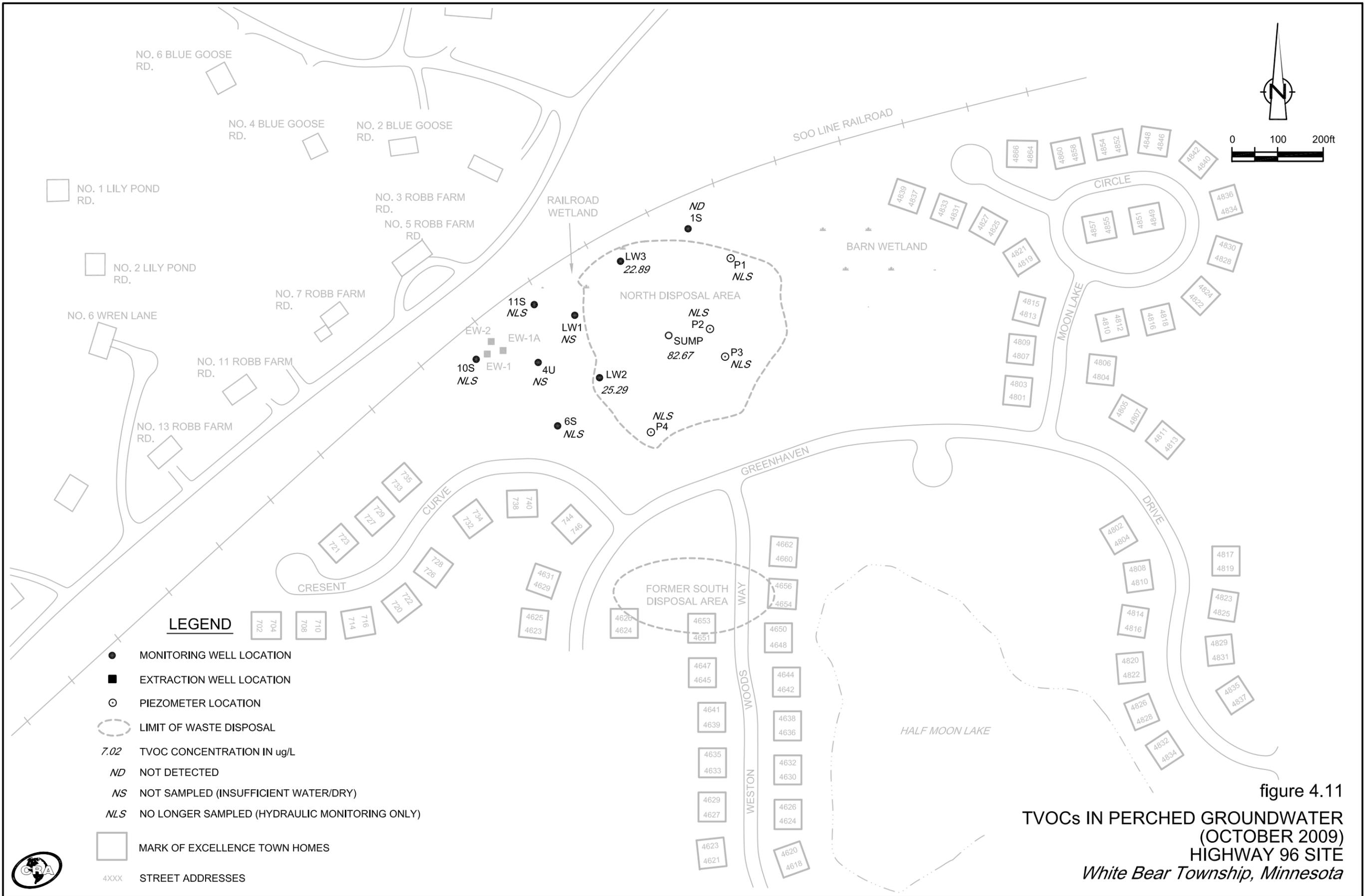


FIGURE 4.10

TOTAL VOC CONCENTRATIONS
MW17L
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

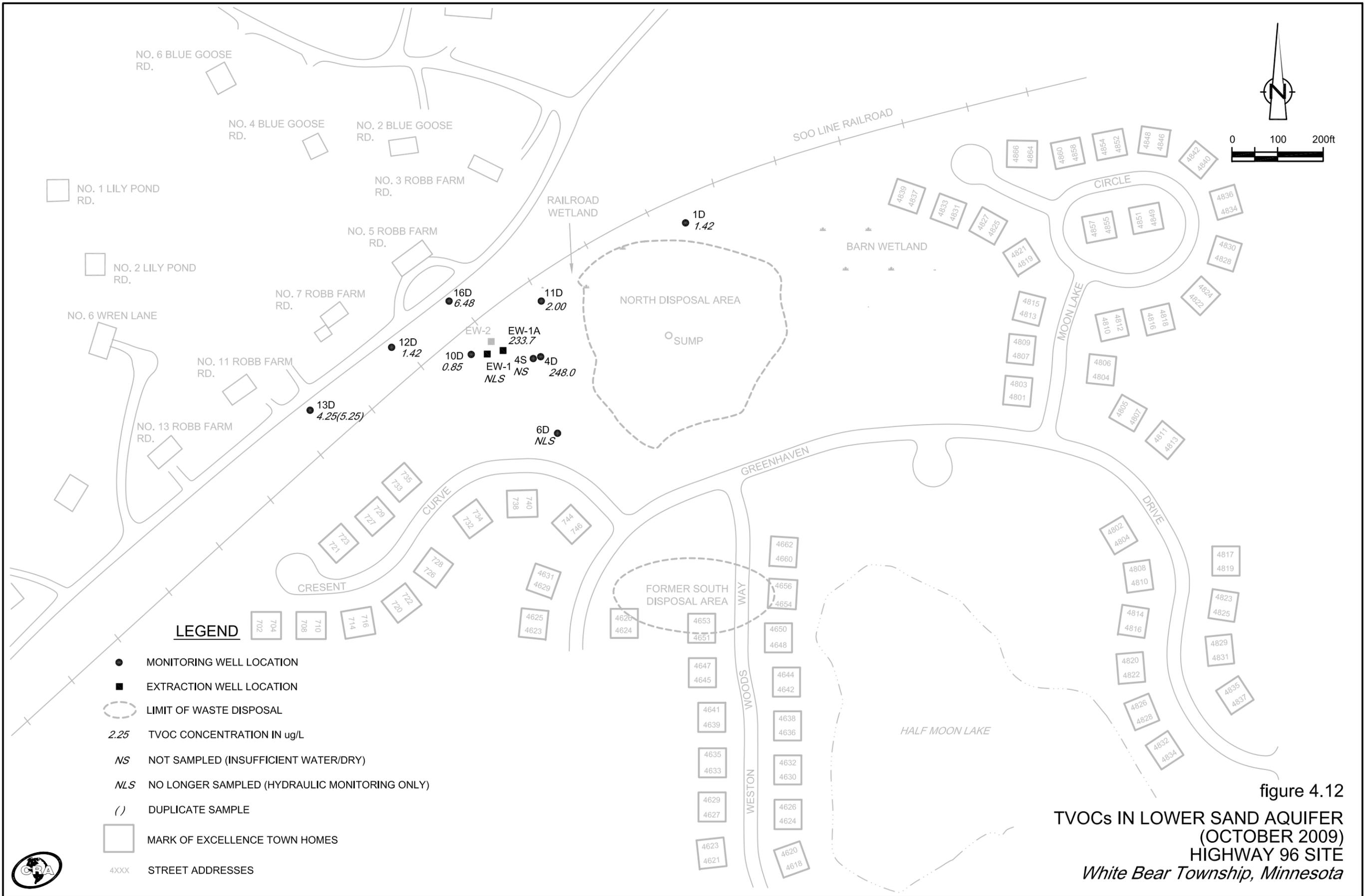


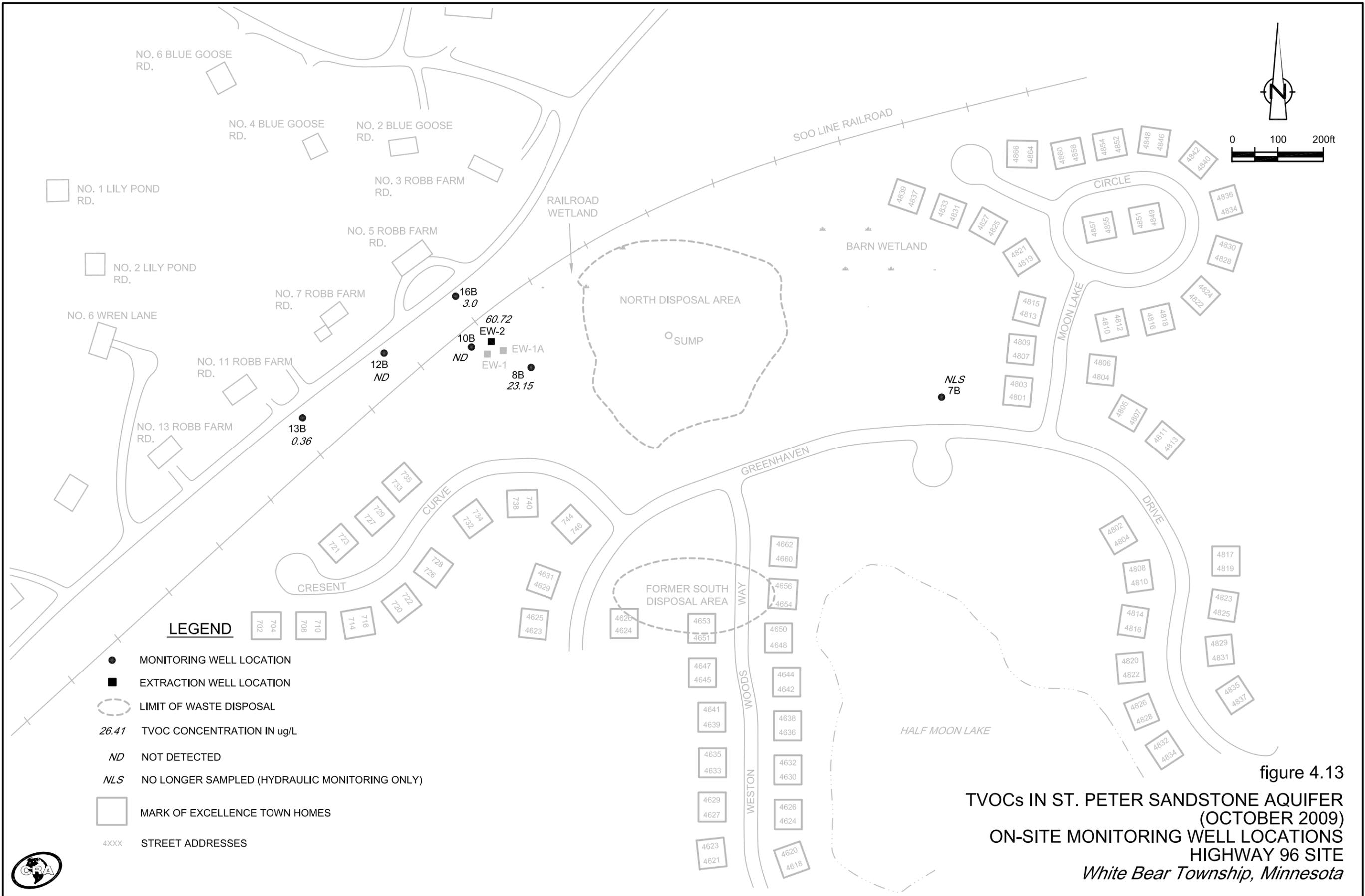


LEGEND

- MONITORING WELL LOCATION
- EXTRACTION WELL LOCATION
- ⊙ PIEZOMETER LOCATION
- LIMIT OF WASTE DISPOSAL
- 7.02 TVOC CONCENTRATION IN ug/L
- ND NOT DETECTED
- NS NOT SAMPLED (INSUFFICIENT WATER/DRY)
- NLS NO LONGER SAMPLED (HYDRAULIC MONITORING ONLY)
- MARK OF EXCELLENCE TOWN HOMES
- 4xxx STREET ADDRESSES

figure 4.11
**TVOCs IN PERCHED GROUNDWATER
(OCTOBER 2009)
HIGHWAY 96 SITE
White Bear Township, Minnesota**





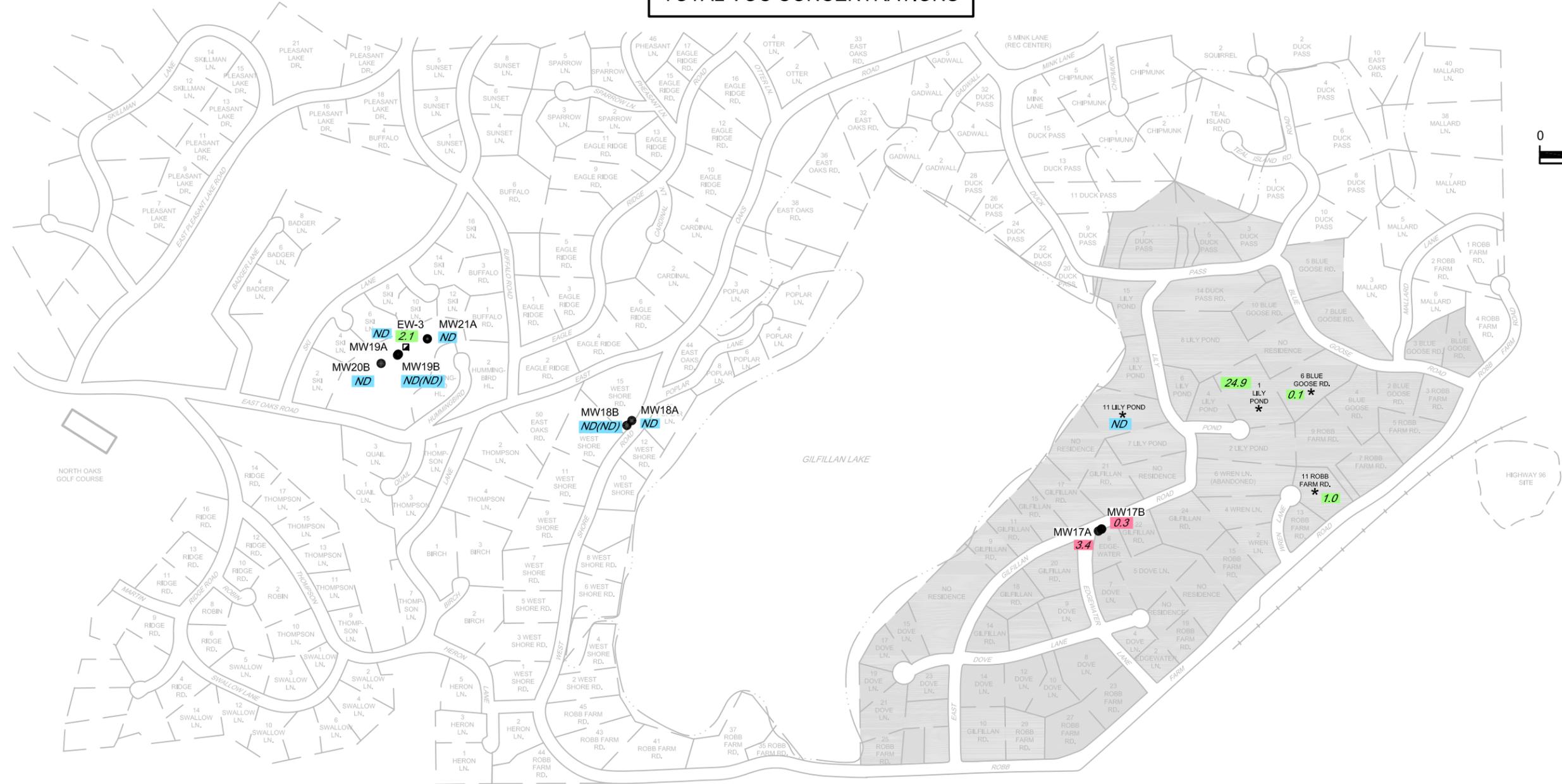
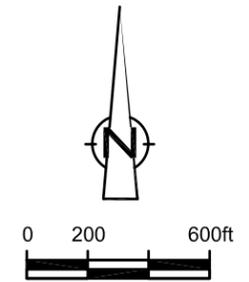
LEGEND

- MONITORING WELL LOCATION
- EXTRACTION WELL LOCATION
- LIMIT OF WASTE DISPOSAL
- 26.41 TVOC CONCENTRATION IN ug/L
- ND NOT DETECTED
- NLS NO LONGER SAMPLED (HYDRAULIC MONITORING ONLY)
- MARK OF EXCELLENCE TOWN HOMES
- 4XXX STREET ADDRESSES

figure 4.13
 TVOCs IN ST. PETER SANDSTONE AQUIFER
 (OCTOBER 2009)
 ON-SITE MONITORING WELL LOCATIONS
 HIGHWAY 96 SITE
 White Bear Township, Minnesota



TOTAL VOC CONCENTRATIONS



LEGEND

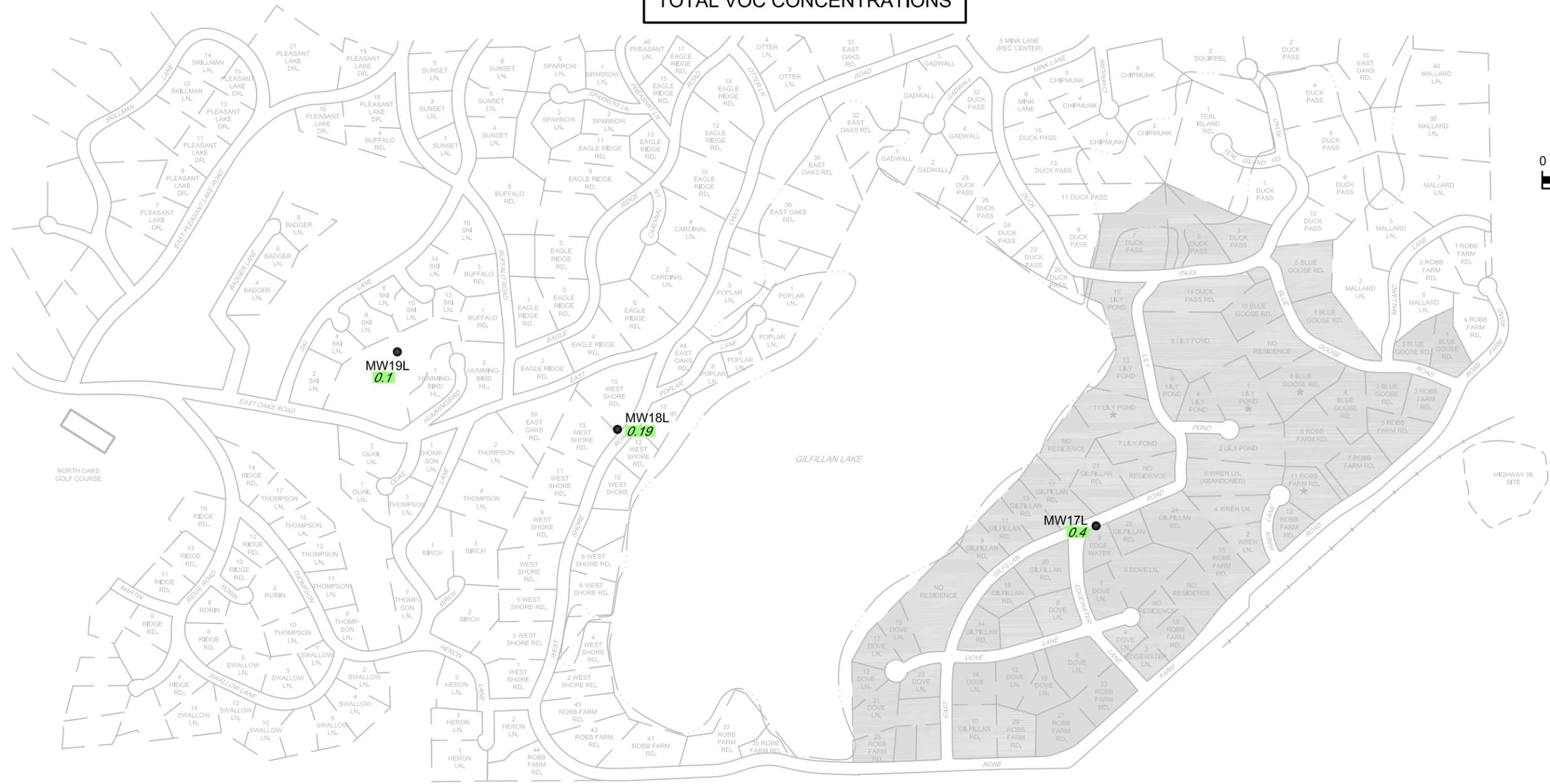
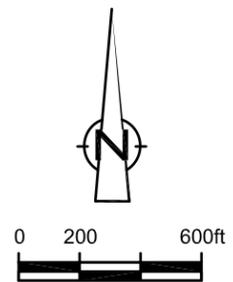
- TEST EXTRACTION WELL LOCATION
- MONITORING WELL LOCATION
- * CONVERTED RESIDENTAL MONITORING WELL LOCATION
- 4.2 TVOC CONCENTRATION IN ug/L
- ND NOT DETECTED
- () DUPLICATE SAMPLE
- CONNECTED TO MUNICIPAL WATER SUPPLY

- VOCs DETECTED, INCLUDING VINYL CHLORIDE. (VINYL CHLORIDE DETECTED ABOVE HRL (0.2 ug/L); ALL OTHER DETECTIONS BELOW HRLS)
- VOCs DETECTED (ALL DETECTIONS BELOW HRLS); VINYL CHLORIDE NOT DETECTED
- VOCs NOT DETECTED

figure 4.14
 TVOCs IN ST. PETER SANDSTONE AQUIFER
 (OCTOBER 2009)
 OFF-SITE MONITORING WELL LOCATIONS
 HIGHWAY 96 SITE
 White Bear Township, Minnesota



TOTAL VOC CONCENTRATIONS



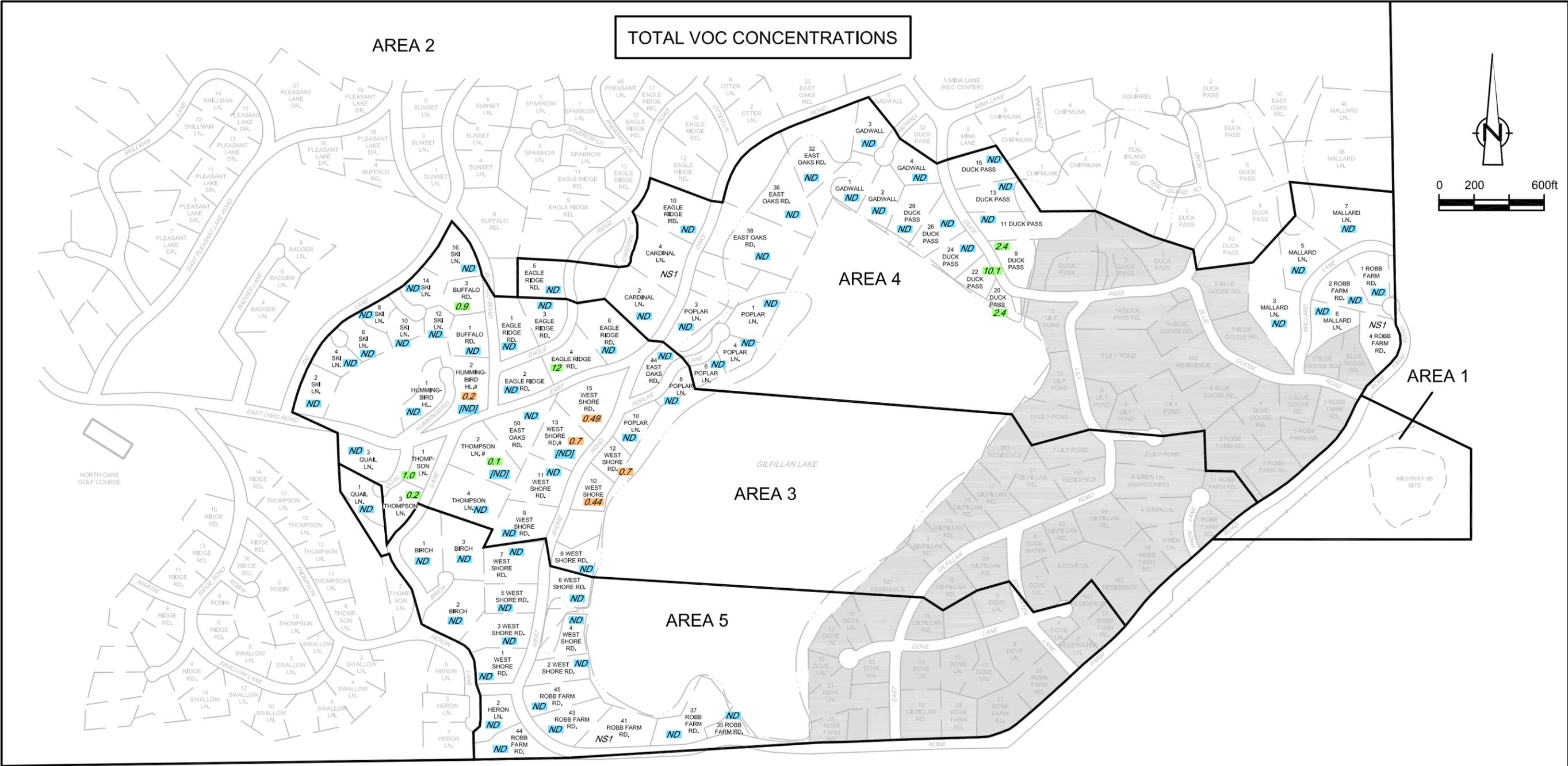
LEGEND

- MONITORING WELL LOCATION
- * CONVERTED RESIDENTAL MONITORING WELL LOCATION
- 4.9 TVOC CONCENTRATION IN ug/L
- CONNECTED TO MUNICIPAL WATER SUPPLY
- VOCs DETECTED (ALL DETECTIONS BELOW HRLS); VINYL CHLORIDE NOT DETECTED

figure 4.15
 TVOCs IN PRAIRIE DU CHIEN AQUIFER
 (OCTOBER 2009)
 OFF-SITE MONITORING WELL LOCATIONS
 White Bear Township, Minnesota



TOTAL VOC CONCENTRATIONS



LEGEND

- GEOGRAPHIC AREAS
- 1.1 MAXIMUM TVOC CONCENTRATION (2009) IN µg/L
- ND NOT DETECTED
- NS1 NOT SAMPLED (NO RESPONSE/DECLINED)
- # NEW (DEEPER) RESIDENTIAL WELL INSTALLED (2009)
- / / NEW WELL RESULT
- CONNECTED TO MUNICIPAL WATER SUPPLY

- VOCs DETECTED, INCLUDING VINYL CHLORIDE (ALL DETECTIONS AT OR BELOW HRLS)
- VOCs DETECTED (ALL DETECTIONS BELOW HRLS); VINYL CHLORIDE NOT DETECTED
- VOCs NOT DETECTED

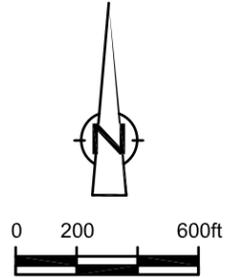
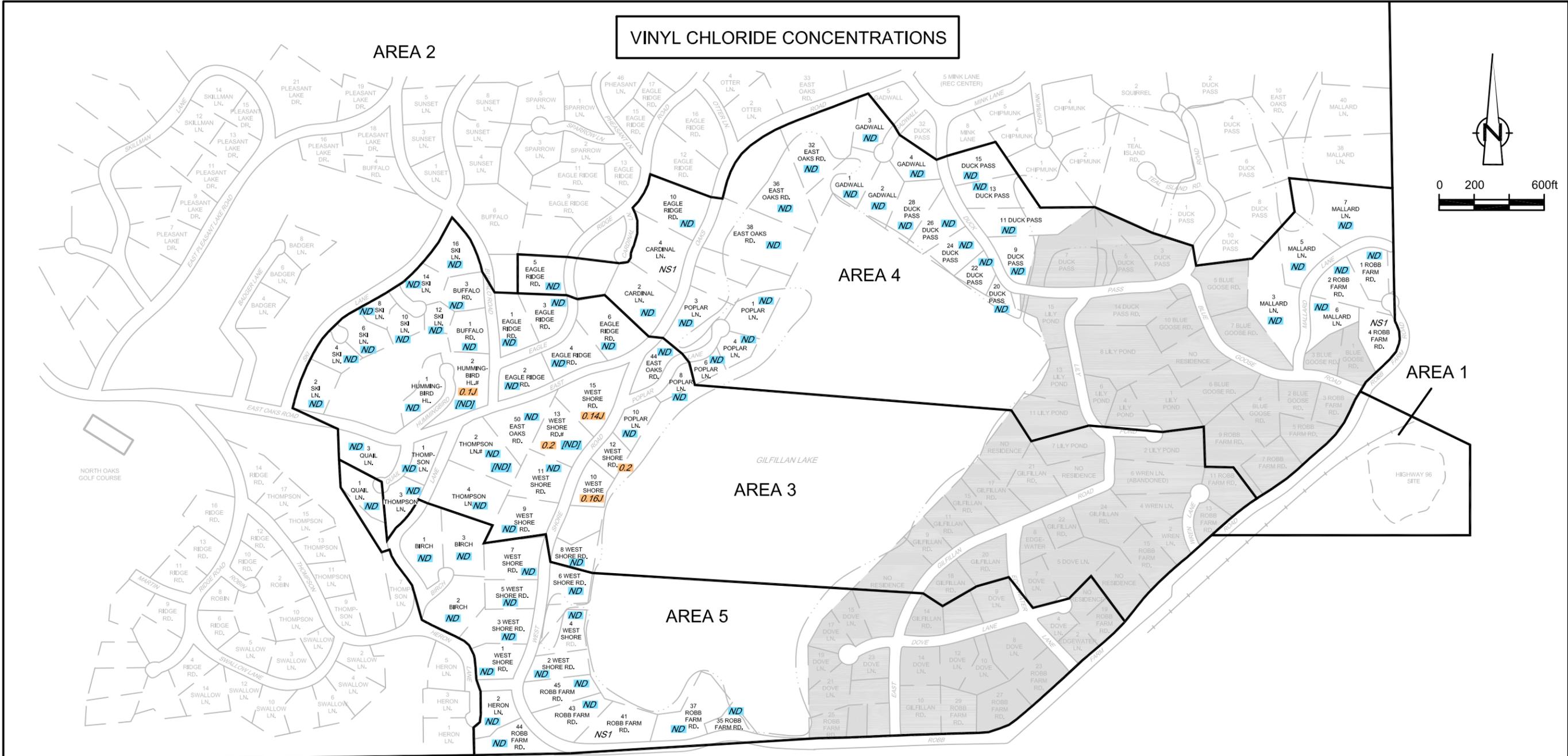


figure 4.16
 MAXIMUM TVOC CONCENTRATIONS
 IN RESIDENTIAL WELLS (2009)
 HIGHWAY 96 SITE
 White Bear Township, Minnesota



VINYL CHLORIDE CONCENTRATIONS



LEGEND

- GEOGRAPHIC AREAS
- 0.3 MAXIMUM VINYL CHLORIDE CONCENTRATION (2009) IN µg/L
- J ESTIMATED RESULT
- ND NOT DETECTED
- NS1 NOT SAMPLED (NO RESPONSE/DECLINED)
- # NEW (DEEPER) RESIDENTIAL WELL INSTALLED (2009)
- [] NEW WELL RESULT
- CONNECTED TO MUNICIPAL WATER SUPPLY
- VINYL CHLORIDE DETECTED AT OR BELOW HRL (0.2 ug/L)
- VINYL CHLORIDE NOT DETECTED

figure 4.17
**MAXIMUM VINYL CHLORIDE CONCENTRATIONS
 IN RESIDENTIAL WELLS (2009)
 HIGHWAY 96 SITE
 White Bear Township, Minnesota**



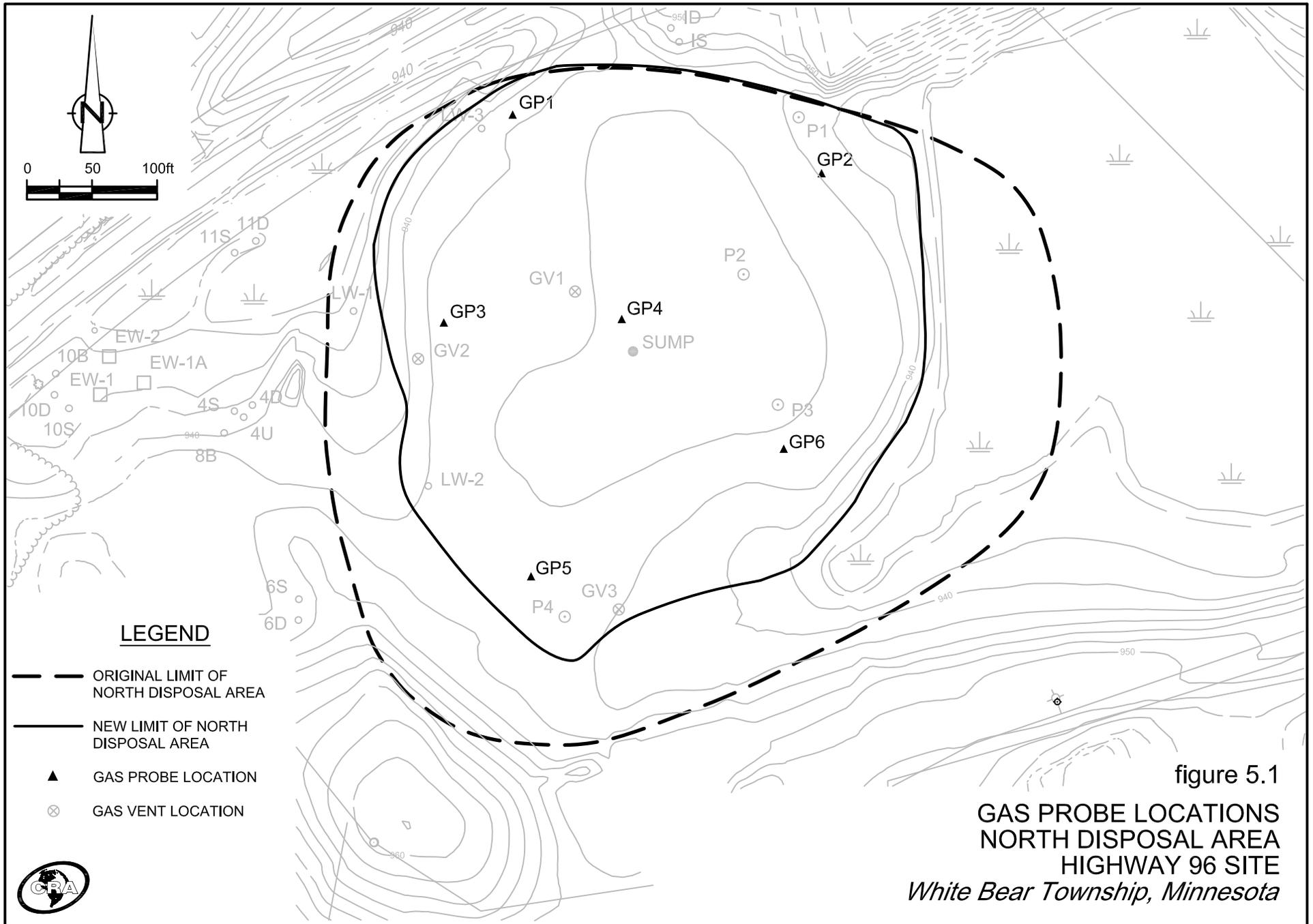


FIGURE 5.2

% COMBUSTIBLE GAS CONCENTRATIONS
GP1
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

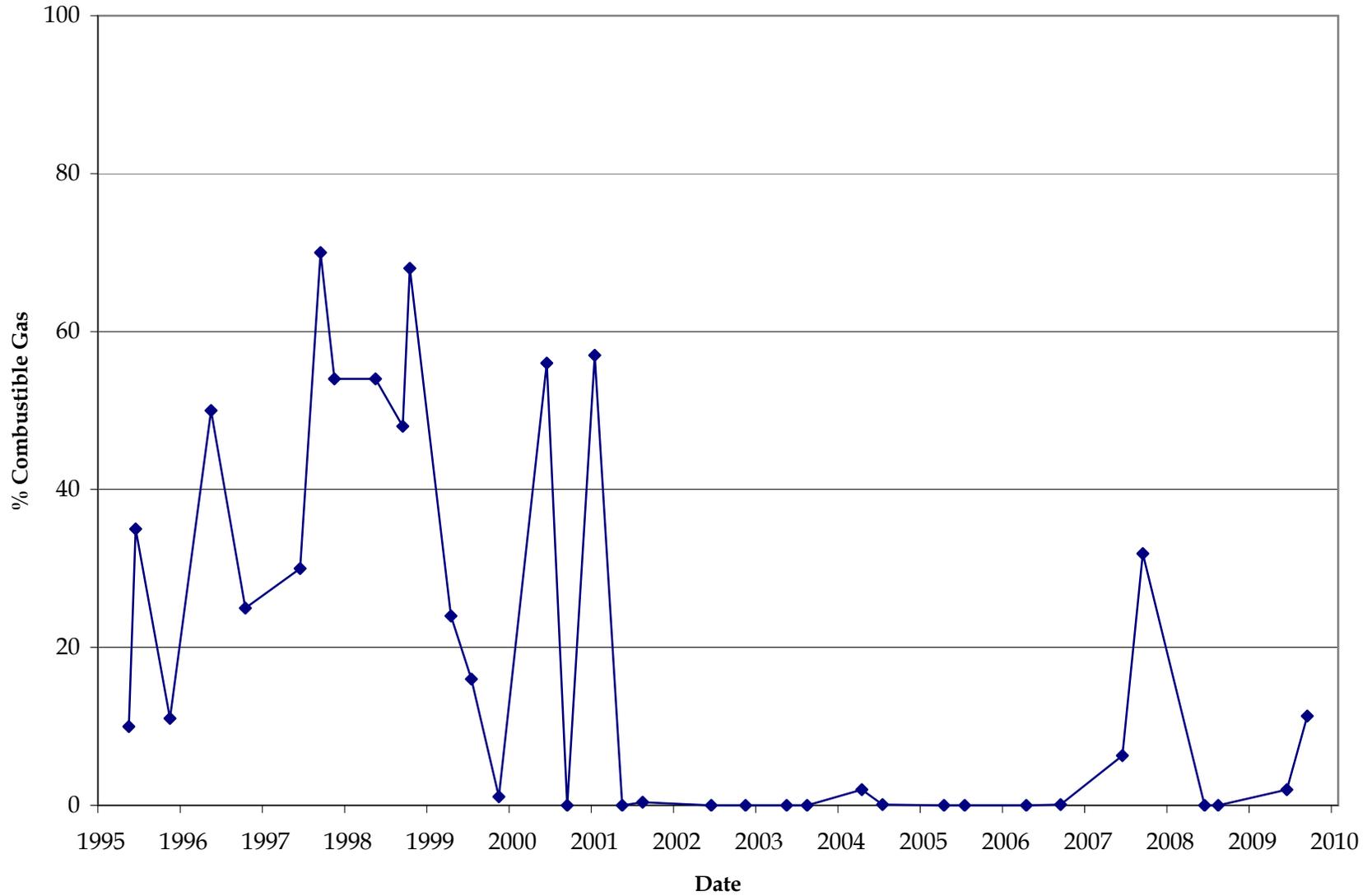


FIGURE 5.3
% COMBUSTIBLE GAS CONCENTRATIONS
GP2
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

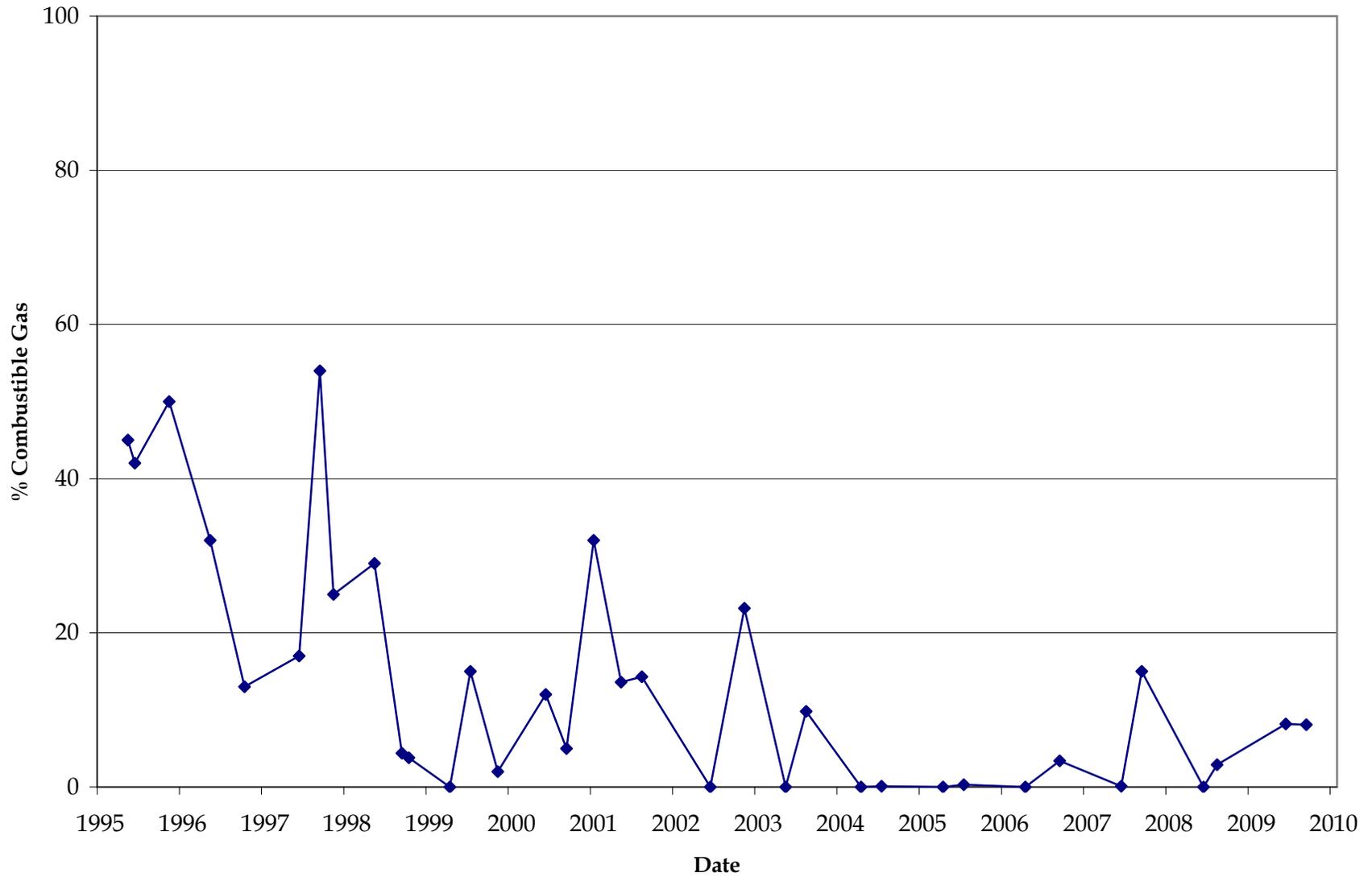


FIGURE 5.4
% COMBUSTIBLE GAS CONCENTRATIONS
GP3
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

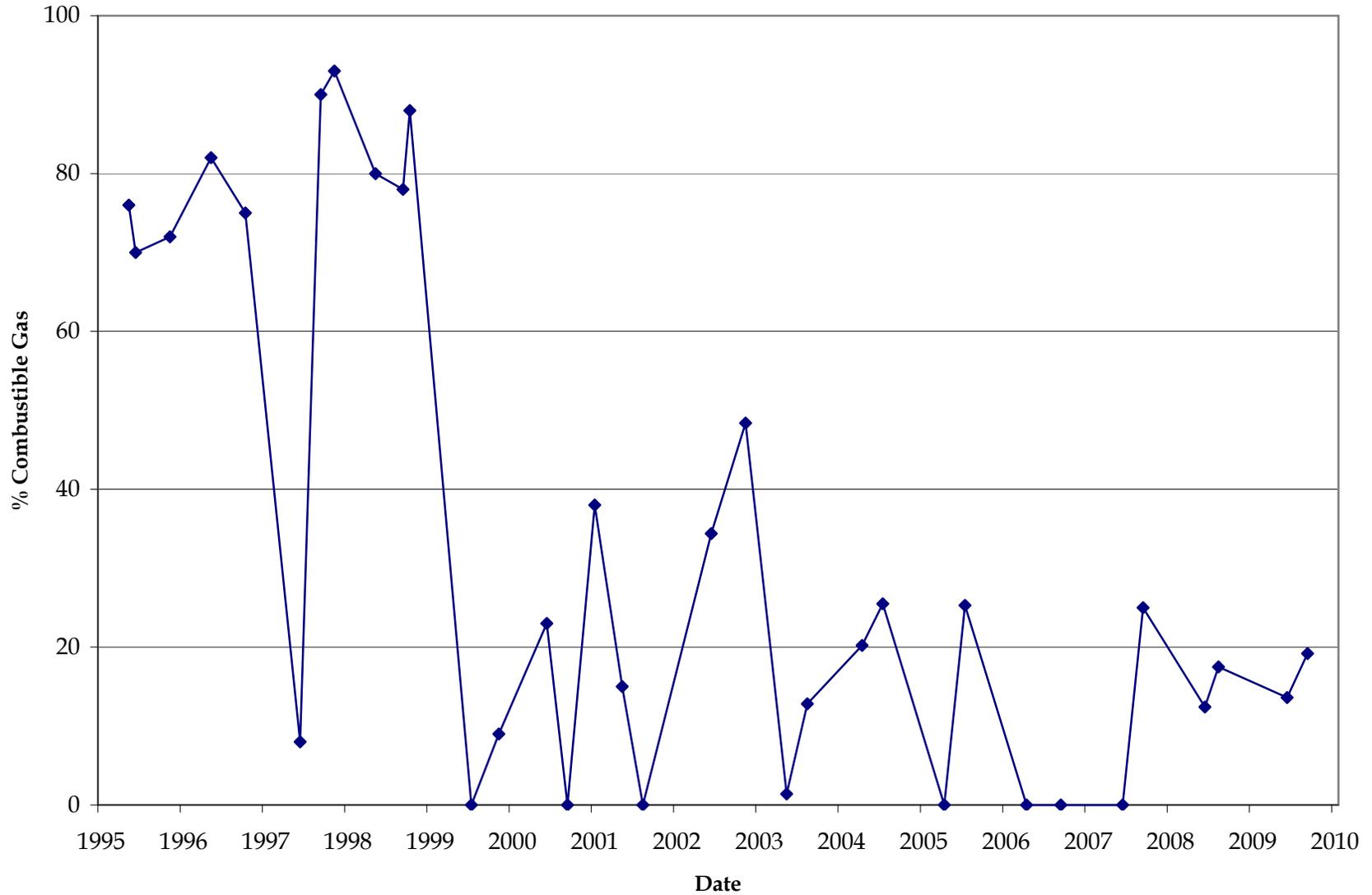


FIGURE 5.5
% COMBUSTIBLE GAS CONCENTRATIONS
GP4
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

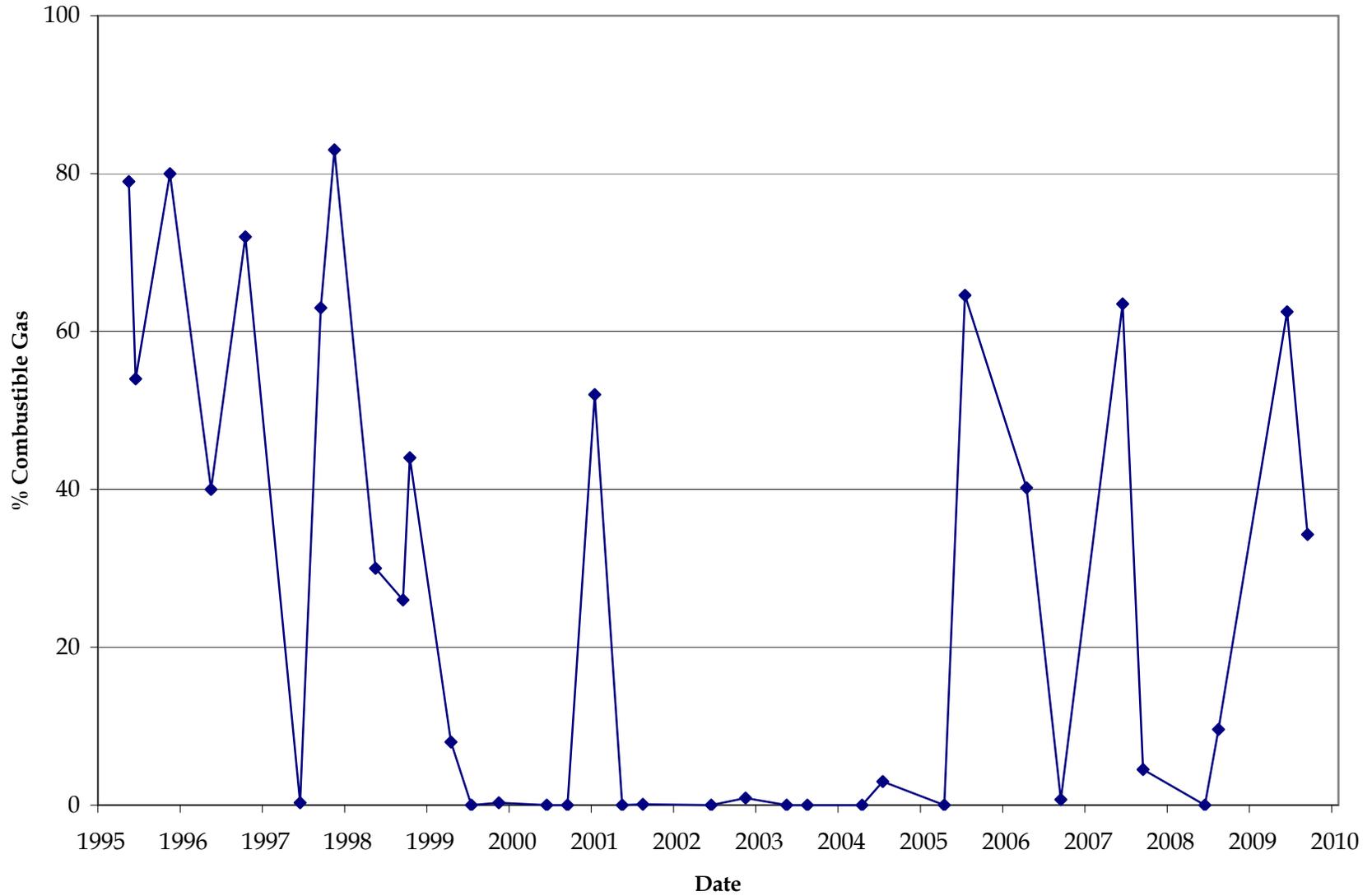


FIGURE 5.6
% COMBUSTIBLE GAS CONCENTRATIONS
GP5
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

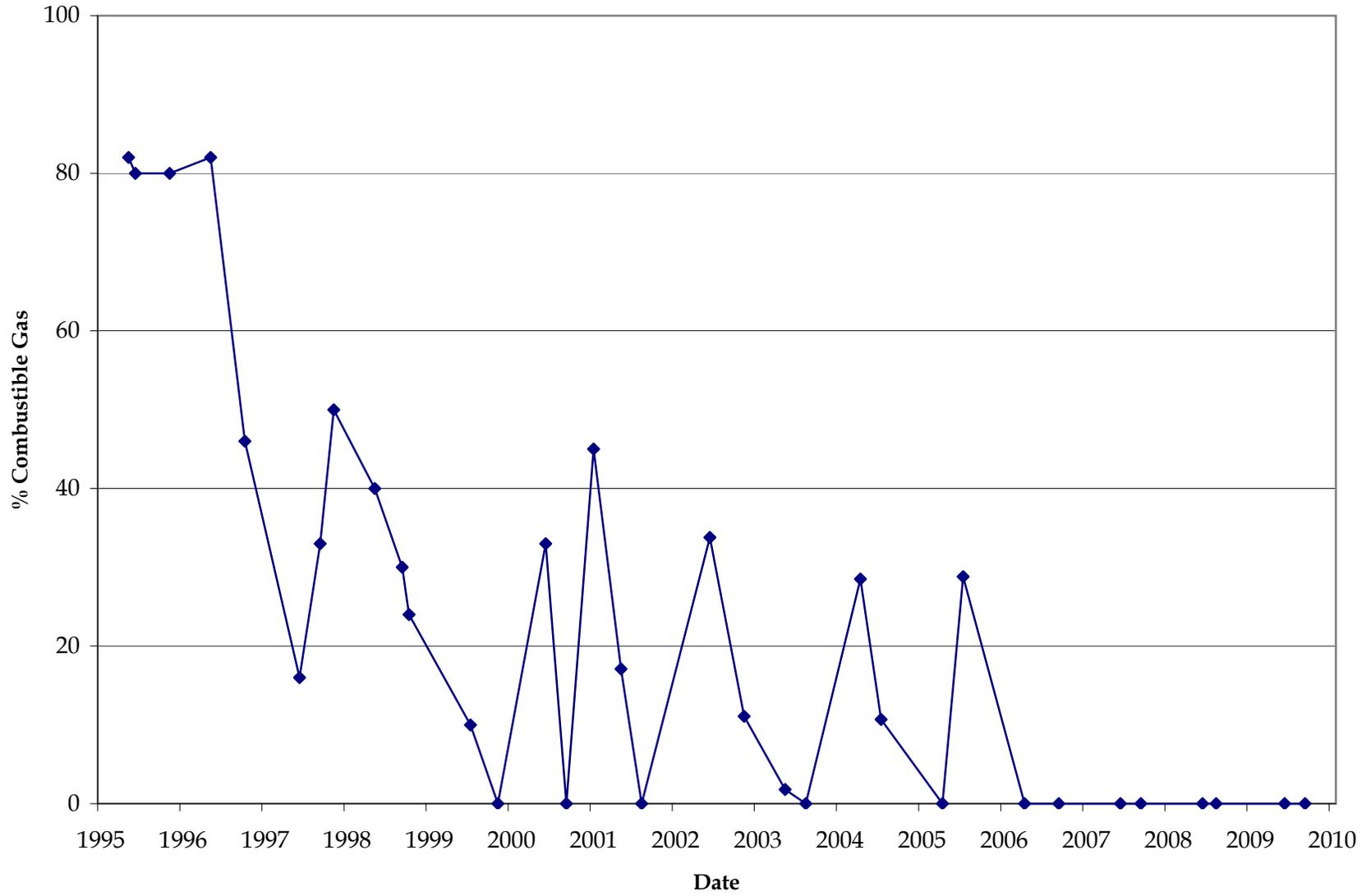


FIGURE 5.7
% COMBUSTIBLE GAS CONCENTRATIONS
GP6
HIGHWAY 96 SITE
WHITE BEAR TOWNSHIP, MINNESOTA

