# San Joaquin County
# Flood Control and Water Conservation District

# Groundwater Report
# Fall 2016

# San Joaquin County
# Flood Control and Water Conservation District

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Copies of the Fall 2016 Groundwater Report may be purchased for $30 and 36″X48″ Contour Maps for $25 each from:

San Joaquin County Department of Public Works
P.O. Box 1810
Stockton, California 95201
Make checks payable to: San Joaquin County Department of Public Works

# Acknowledgements

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This Groundwater Report is a product of the commitment that the San Joaquin County Flood Control and Water Conservation District together with many other interested agencies made to sustain and enhance the groundwater resources of the Eastern San Joaquin Basin. The District extends thanks to…

California Water Service

City of Lathrop

City of Lodi

City of Manteca

City of Stockton Municipal Utilities Department

East Bay Municipal Utility District

Libby-Owens-Ford, Lathrop

Morada Area Association

Newark Sierra Paperboard Company

Pacific Gas and Electric Company

San Joaquin County Department of Public Works

State of California, Department of Water Resources, Central District

Stockton East Water District

United States Bureau of Reclamation

United States Geological Survey

Most of all, we would like to thank all of the individual well owners, who give us access to their wells and in some cases some of their time.

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# San Joaquin County Flood Control and Water Conservation District
# Fall 2016 Groundwater Report

## Introduction

Since the fall of 1971, the San Joaquin County Flood Control and Water Conservation District has monitored groundwater levels and groundwater quality and has published the data in the Semi-annual Groundwater Report. This report utilizes data from federal, state and local government agencies as well as non-governmental sources.

Water level data is collected on a semi-annual basis, during the months of April and October, to observe groundwater levels before and after peak groundwater pumping conditions. Over 550 wells, of which 270 are measured by County staff, are included in the Monitoring Program. The exact number of wells varies from year to year, depending on circumstances such as destructions, new well construction, well accessibility, and well condition.

## Purpose

The purpose of the Semi-annual Groundwater Report is to provide information on groundwater conditions in San Joaquin County and to publish the results of the groundwater monitoring program which consists of the following:

1. Monitor groundwater quality along a North-South line from the north of the City of Stockton to the City of Lathrop.
2. Measure groundwater levels on a County-wide basis.

In general, water quality data is more meaningful after peak production which usually occurs during the summer months. Therefore, groundwater quality data will be published only in the fall report. The groundwater depth and elevation data will be published both in the spring and fall.

Saline intrusion from the west is a continuing concern affecting the quality of groundwater in the Eastern San Joaquin Groundwater Basin. Groundwater quality analysis is completed on an annual basis, from approximately 18 municipal and domestic supply wells (exact number varies from year to year) located in proximity to the saline front.

## Procedure

Groundwater quality sampling is conducted on an annual basis during the month of October, along with the Fall measurements. Approximately 18 wells are currently sampled. The exact number of wells may vary depending on well access and other conditions. Replicate groundwater samples (two) are analyzed for Chloride ($Cl^-$) by Fruit Growers Laboratory, Inc., and analyzed for Electrical Conductivity (EC) using DiST 3 by Hanna Instruments. Total Dissolved Solids (TDS) are calculated using the formula: TDS = 0.64 X EC (umhos). Data is then stored in a database for accessibility and reporting requirements.

Water level measurements are performed with the use of either a steel chain or sounder. Data is then immediately recorded in field books and then stored in a database for accessibility and reporting requirements.

# Section 1–Rainfall Distribution

## Summary of Rainfall Distribution

The underlying groundwater basin levels in San Joaquin County respond to changes in annual precipitation. There are four total annual precipitation graphs and four monthly precipitation graphs included in this report (Figures 1-1 through 1-8). These graphs reflect three areas located across San Joaquin County and one area in Calaveras County. The station located at the Stockton Fire Station No. 4, as well as the station located in Tracy Carbona, has pertinent data beginning in 1940. Lodi station has data from 1949 to 2016. The Camp Pardee station has data available from 1949 to 2016.

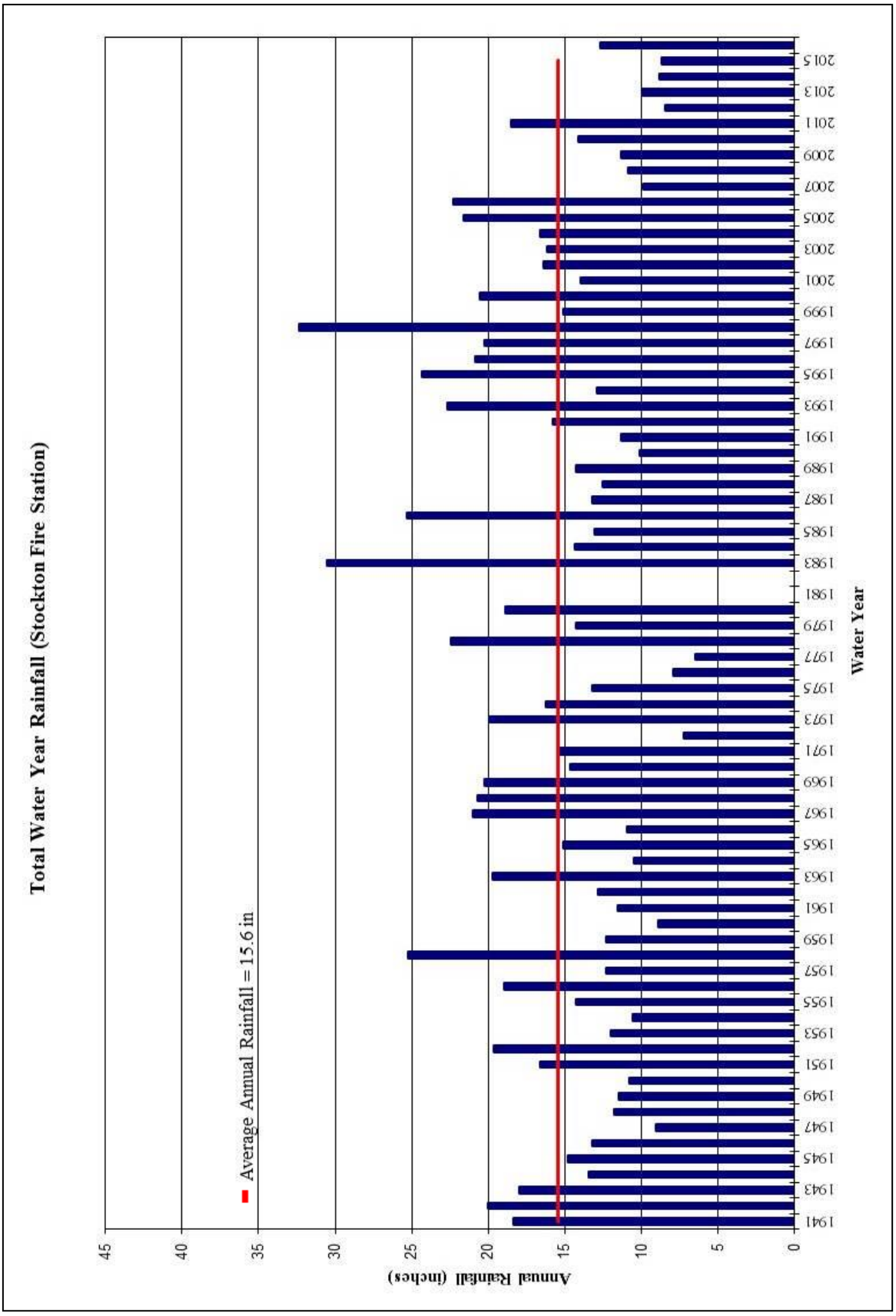


**Figure 1-1: Total Annual Rainfall (Stockton Fire Station 4)**

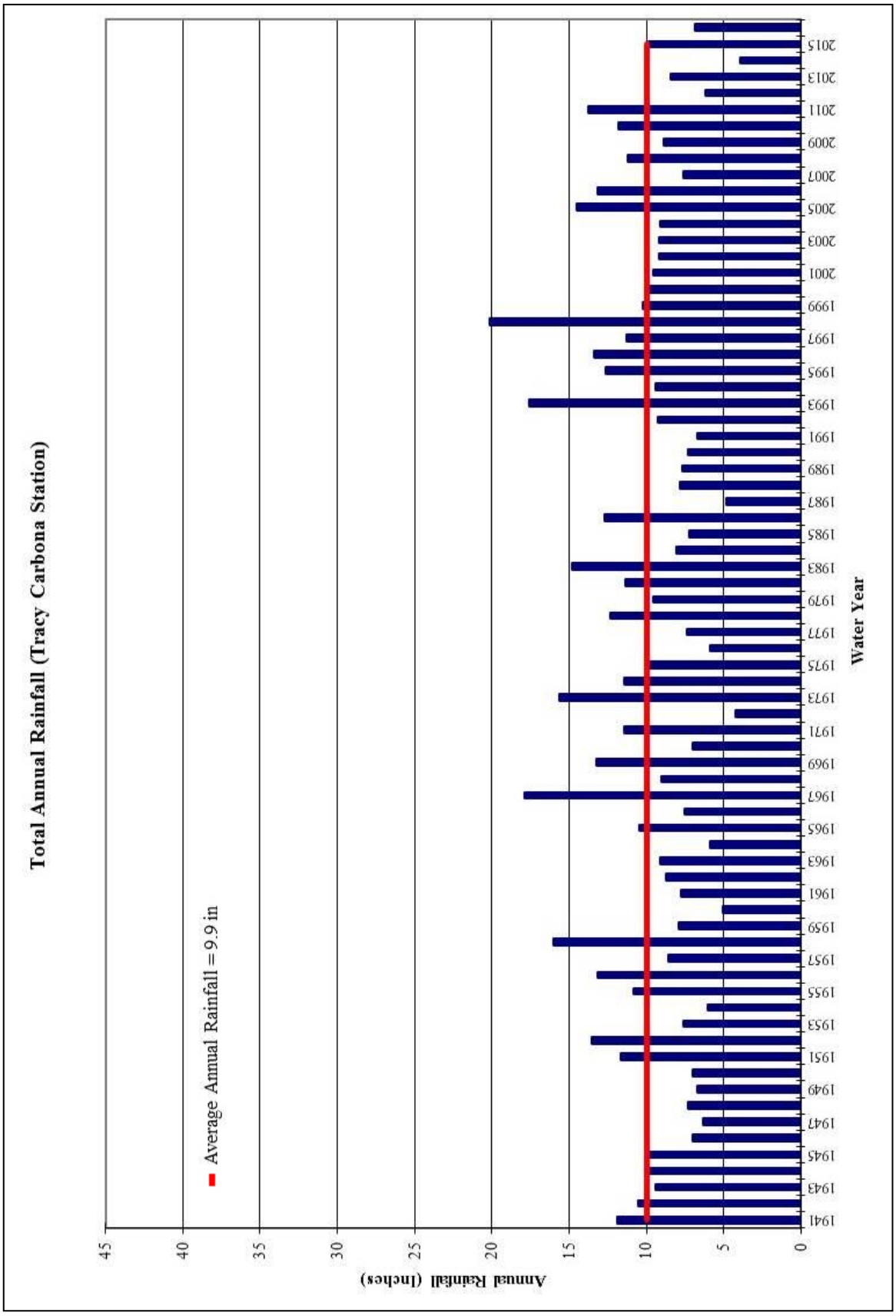


**Figure 1-2: Total Annual Rainfall (Tracy Carbona Station)**

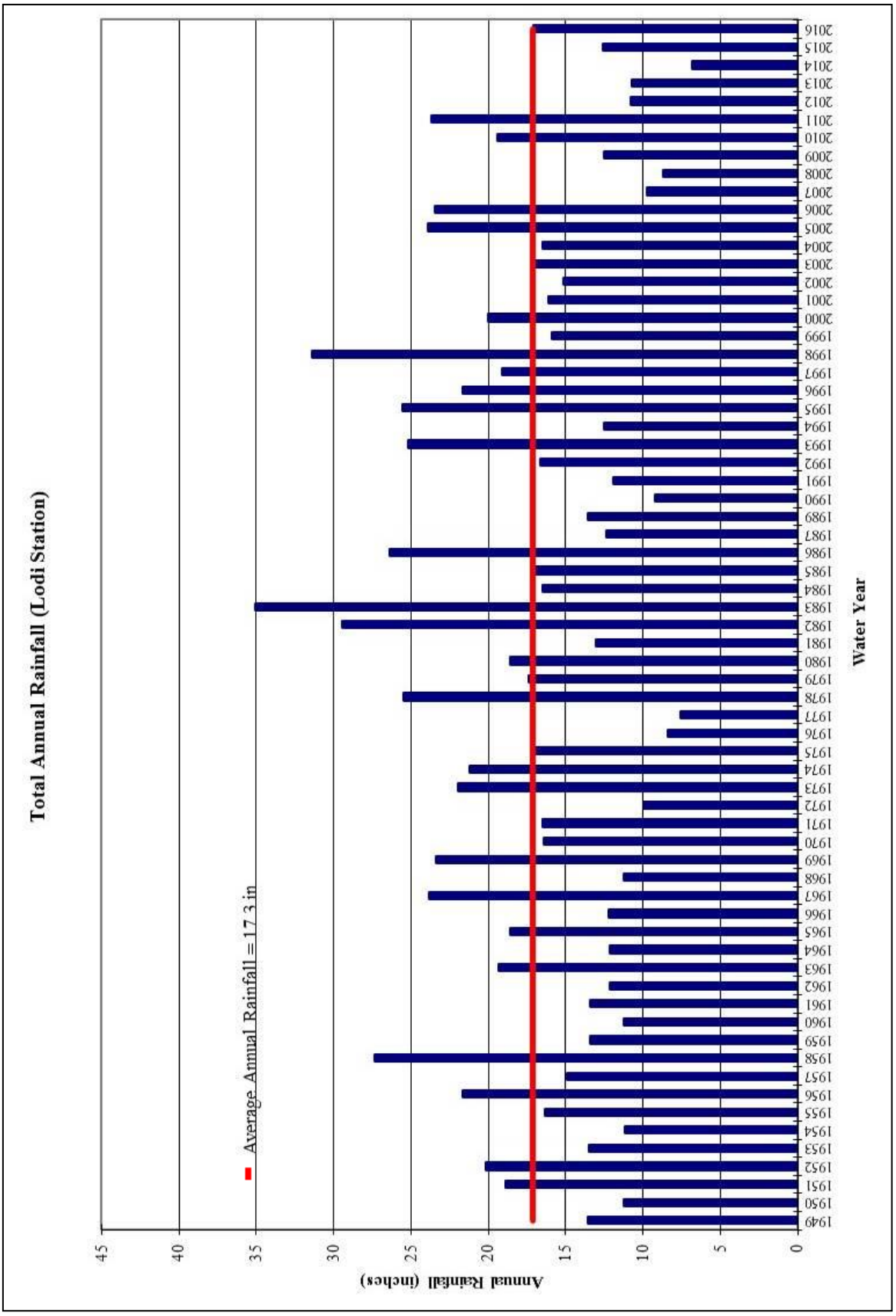


**Figure 1-3: Total Annual Rainfall (Lodi Station)**

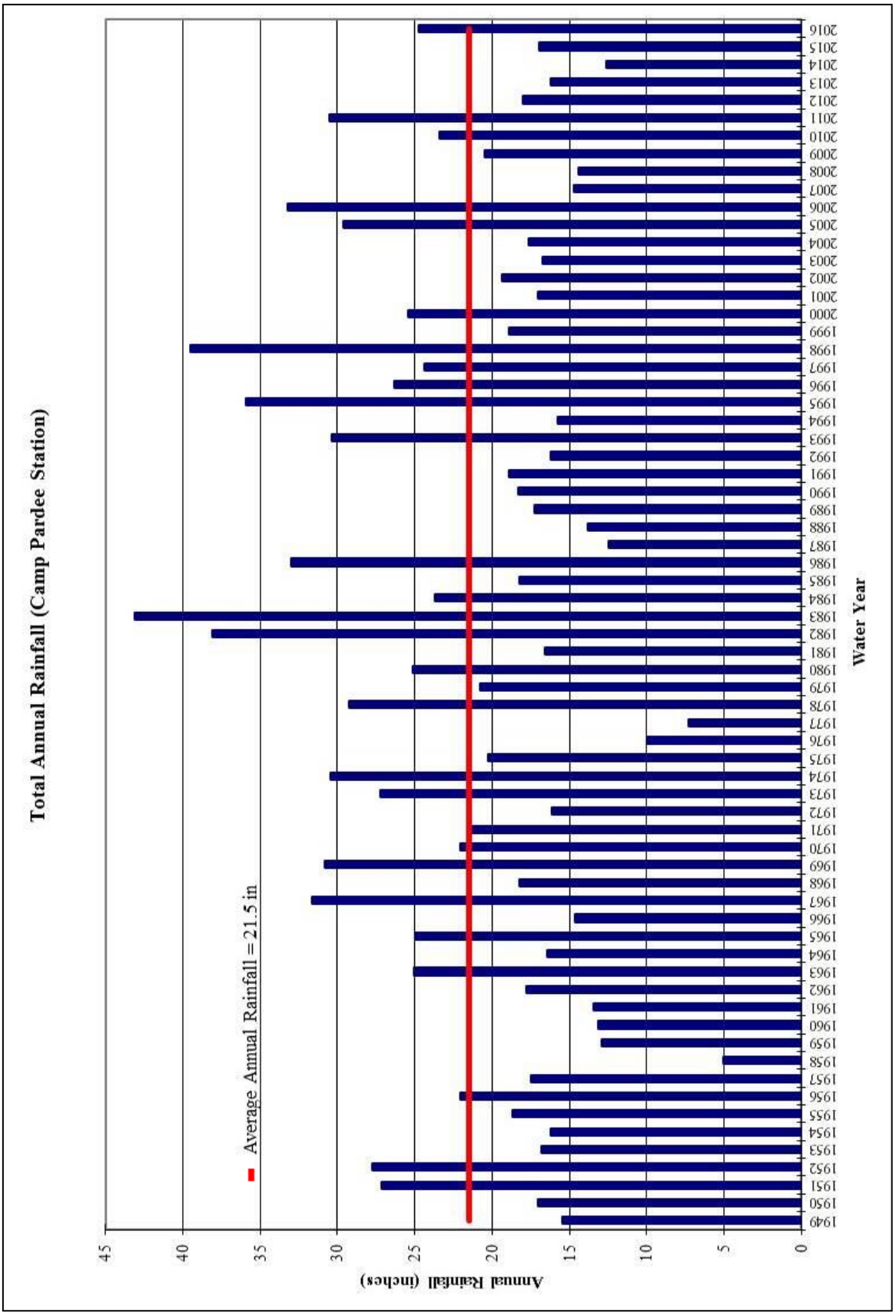


**Figure 1-4: Total Annual Rainfall (Camp Pardee)**

# Monthly Rainfall Distribution

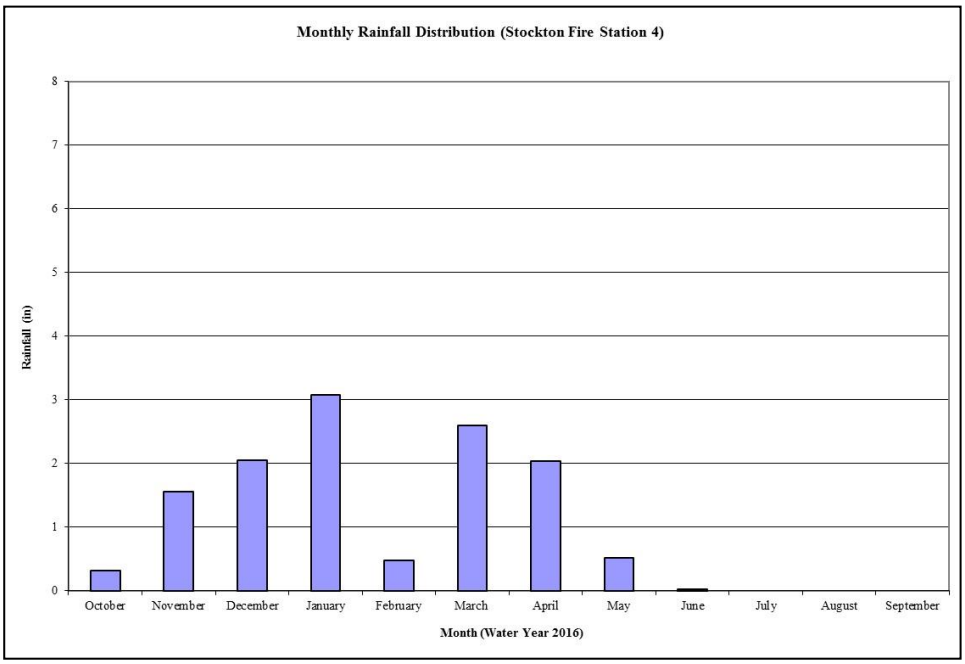


**Figure 1-5: Monthly Rainfall Distribution (Stockton Fire Station 4)**

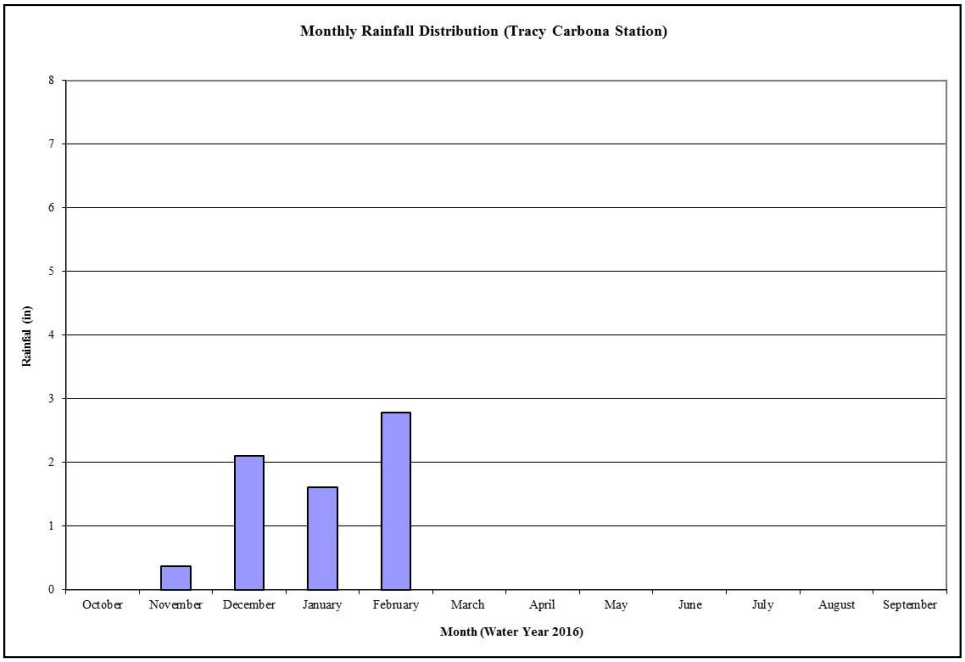


**Figure 1-6: Monthly Rainfall Distribution (Tracy Carbona Station)**

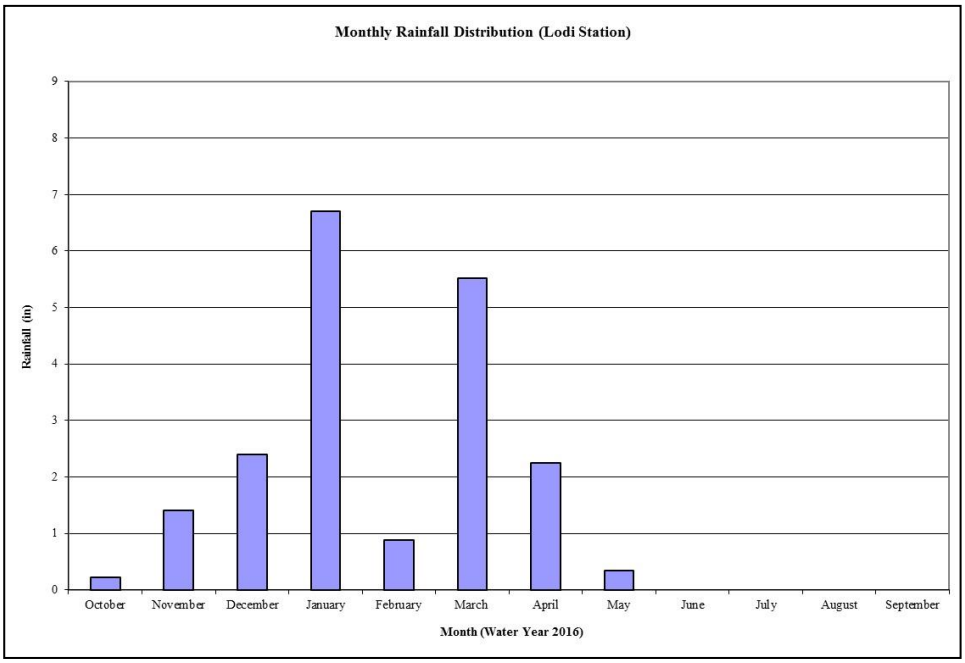


**Figure 1-7: Monthly Rainfall Distribution (Lodi Station)**

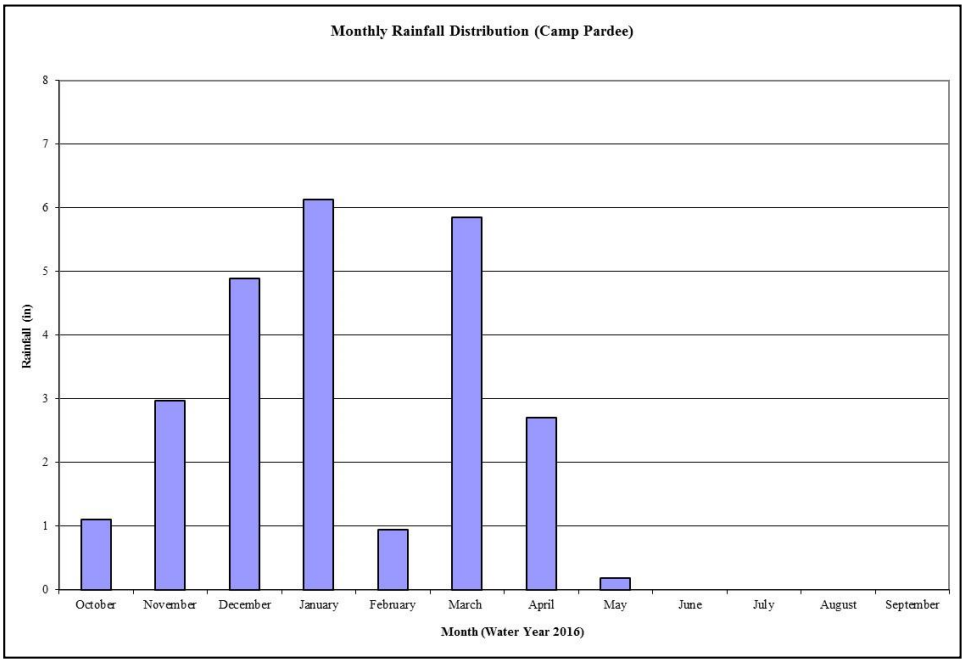


**Figure 1-8: Monthly Rainfall Distribution (Camp Pardee)**

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# Section 2 – Groundwater Quality Monitoring

## Summary of Groundwater Quality Results

The information contained in the Fall 2016 Groundwater Report is summarized as follows:

North San Joaquin County – One well was sampled $Cl^-$, EC and TDS in Woodbridge, the well was not sampled in the fall of 2015 and therefore no comparisons can be made.

North Stockton – Four wells were tested for $Cl^-$, EC and TDS in North Stockton. Two of the wells increased in $Cl^-$, EC and TDS concentrations from the previous measurements in the fall of 2015. One of the wells decreased in $Cl^-$, EC and TDS concentrations, and one of the wells were not comparable to the analysis in the fall 2015.

County Hospital Area – Due to access constraints no wells were tested in this area this year.

Lathrop – Two wells were sampled in Lathrop. Both of the wells increased in $Cl^-$, EC and TDS concentrations from the analysis in the fall 2015.

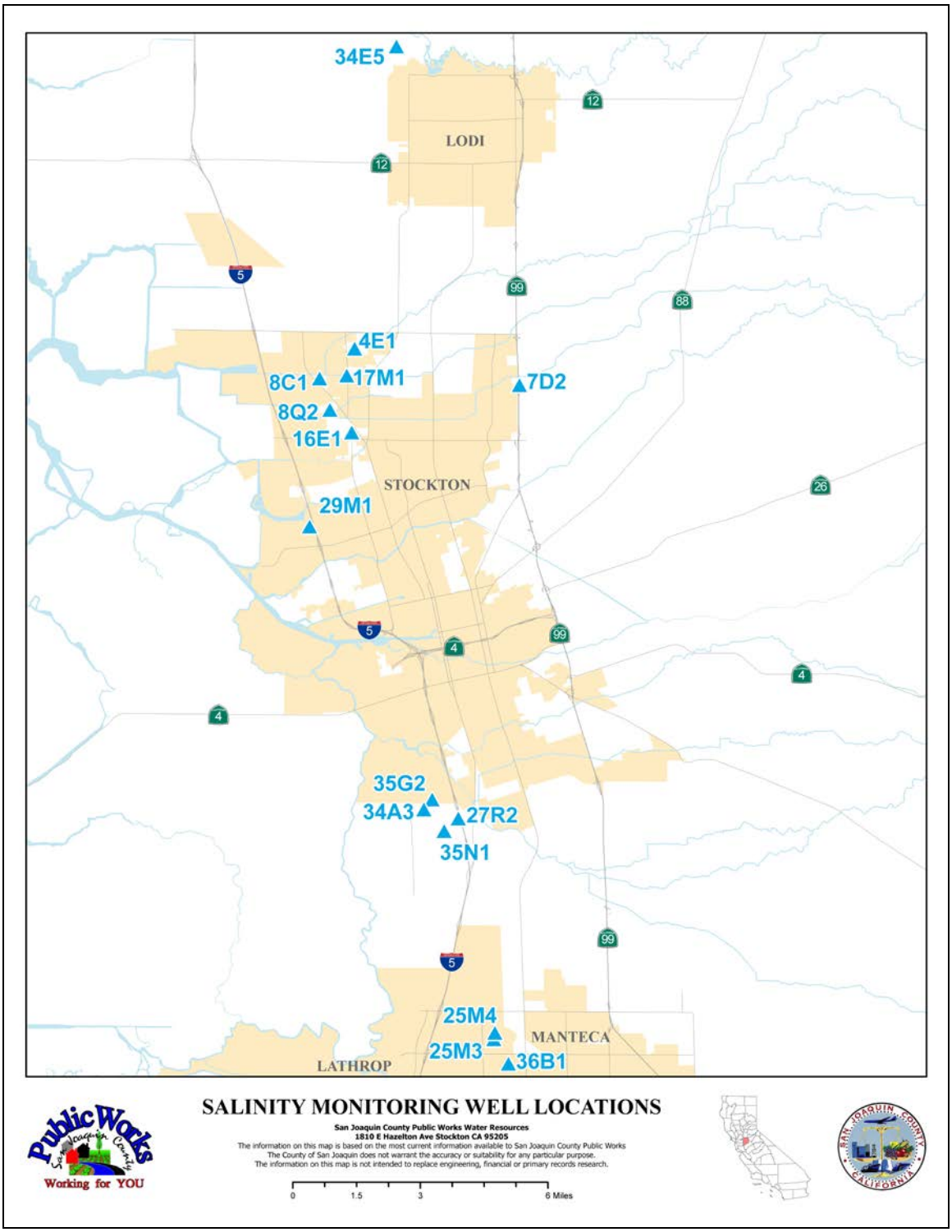


**Figure 2-1: Salinity Monitoring Well Locations**

## Table 2-1: Groundwater Quality Mineral Analysis Fall 2016

| Well | Chloride ppm | EC mmho | TDS* ppm |
|---|---|---|---|
| 34A3 | - | - | - |
| 35G2 | - | - | - |
| 35N1 | - | - | - |
| 25M3 | 64 | 0.669 | 428 |
| 25M4 | 36 | 0.500 | 320 |
| 36B1 | - | - | - |
| 4E1 | 24 | 0.590 | 378 |
| 8C1 | 32 | 0.865 | 554 |
| 8Q2 | - | - | - |
| 16E1 | - | - | - |
| 17M1 | | | |
| 29M1 | 75 | 0.650 | 416 |
| 7D2 | 6 | 0.400 | 256 |
| 34E5 | 19 | 0.500 | 320 |

*TDS values are calculated by the following formula: TDS = .64*1000*EC

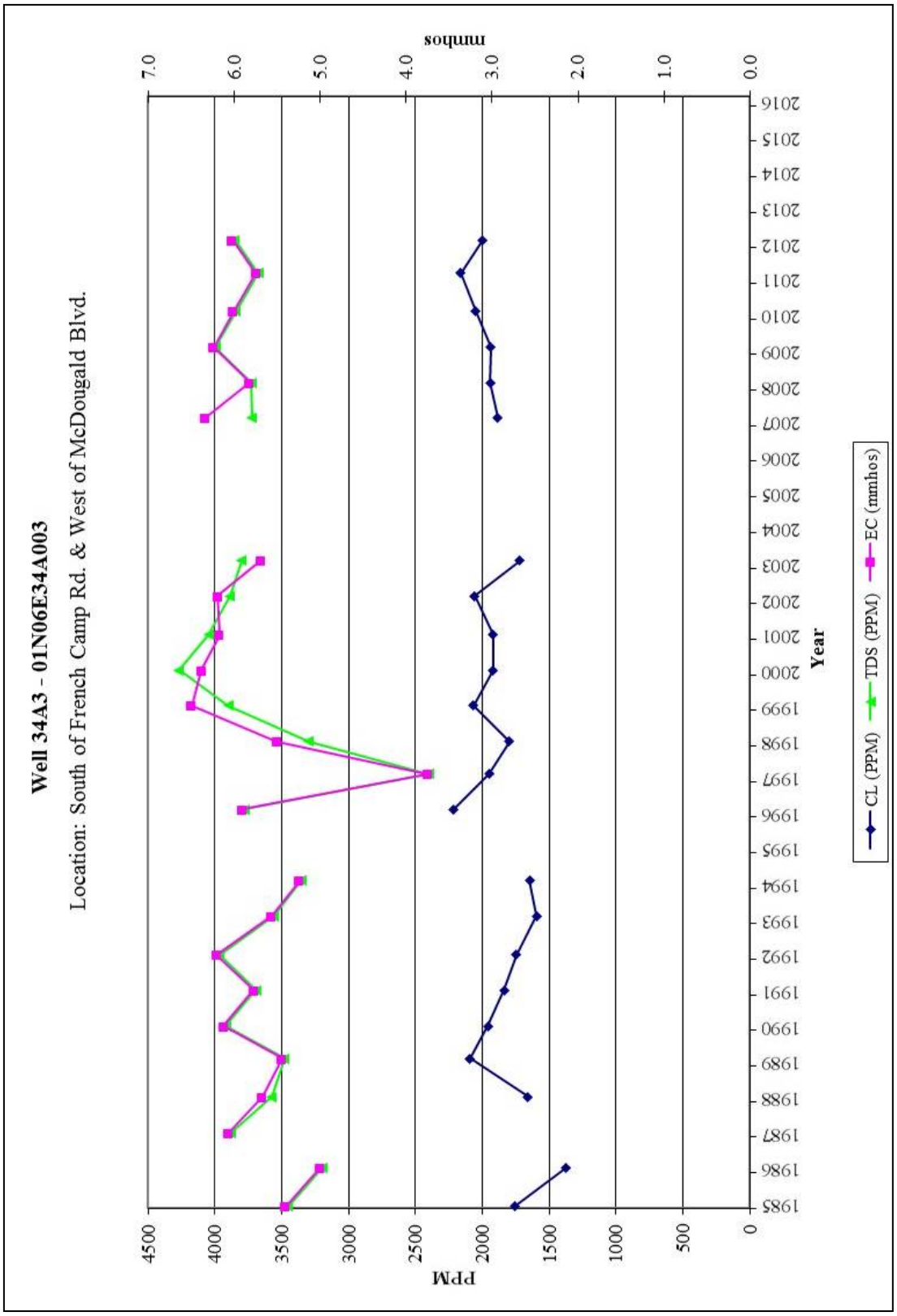


**Figure 2-2: Quality Comparison Graph Well 34A3**

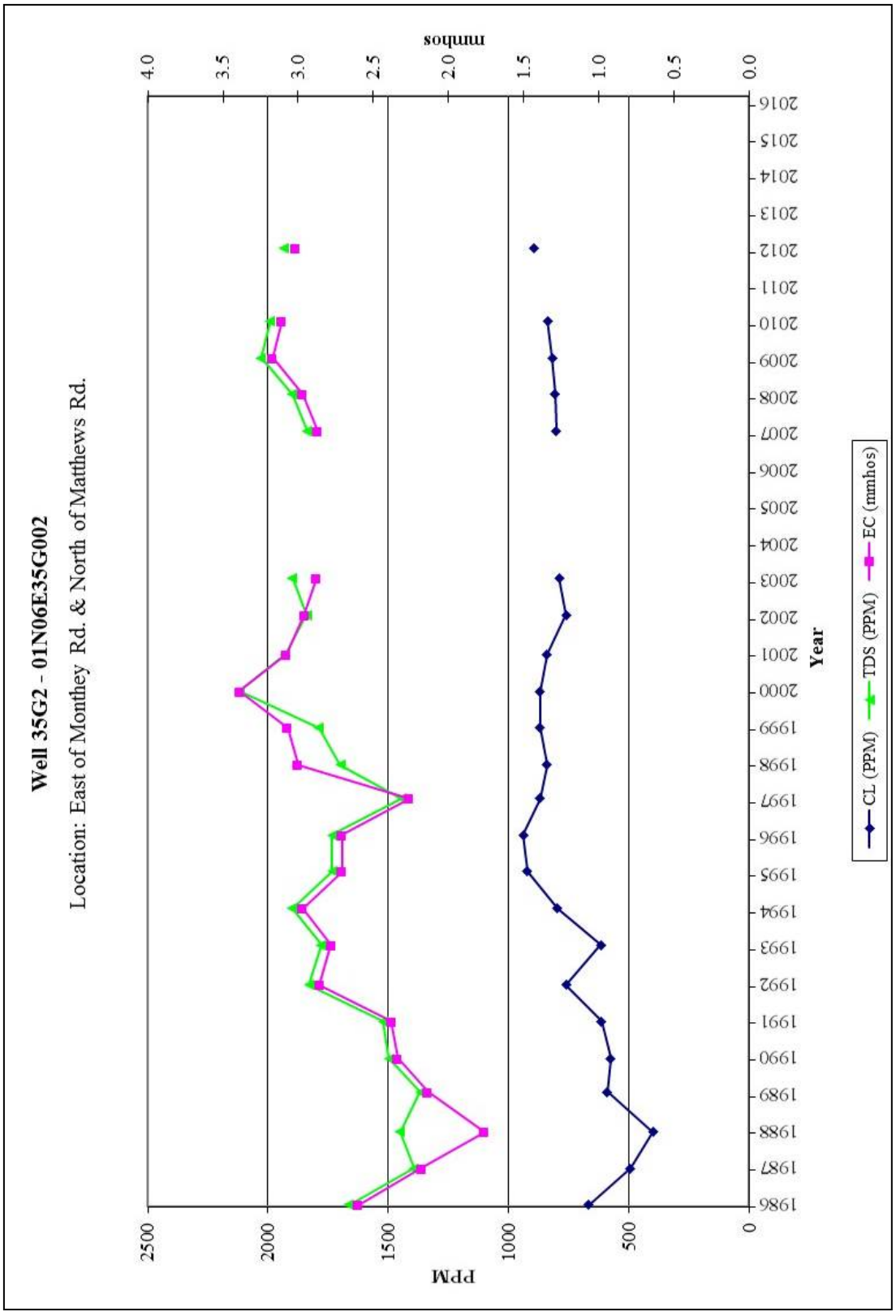


**Figure 2-3 Quality Comparison Graph Well 35G2**

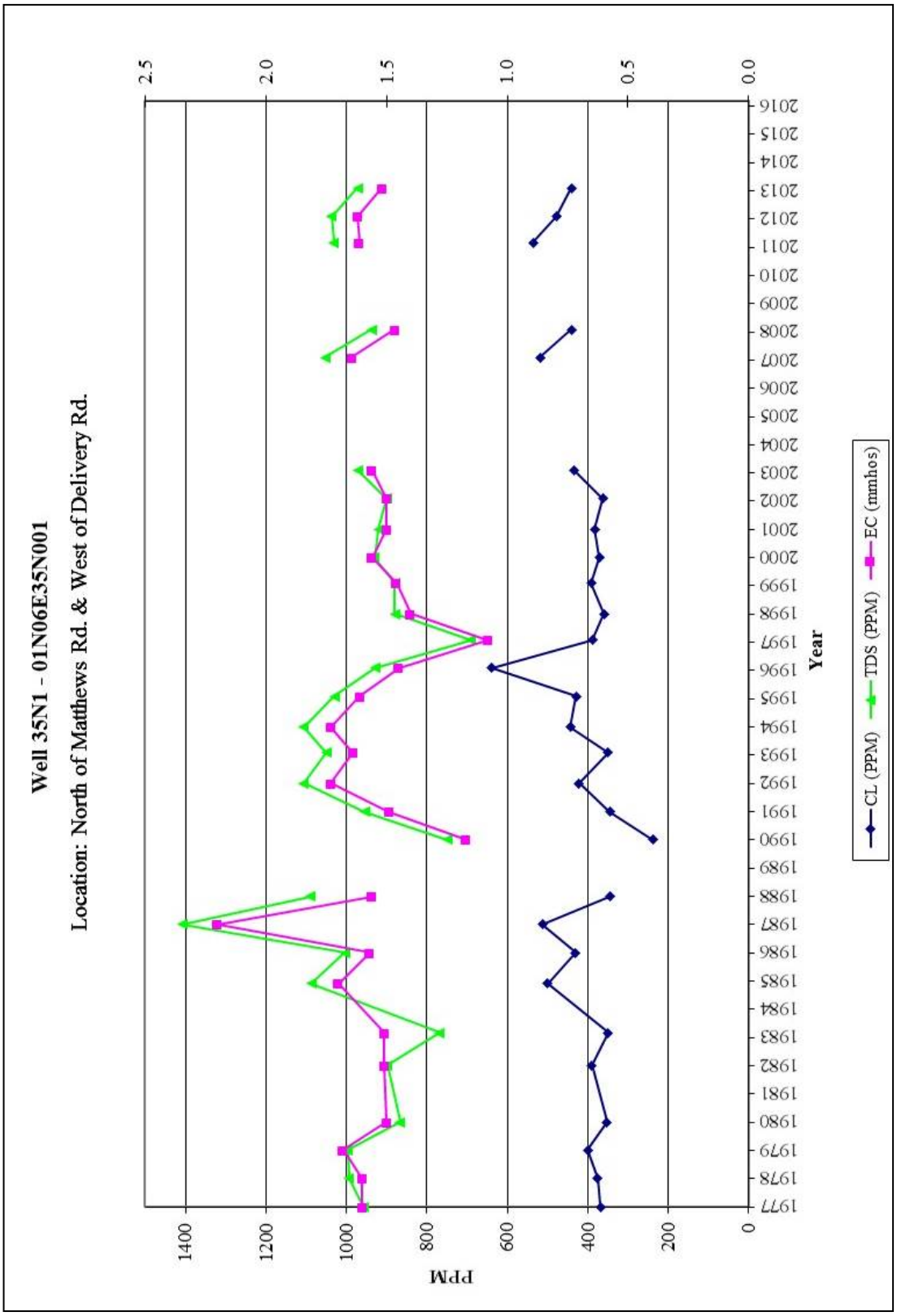


**Figure 2-4: Quality Comparison Graph Well 35N1**

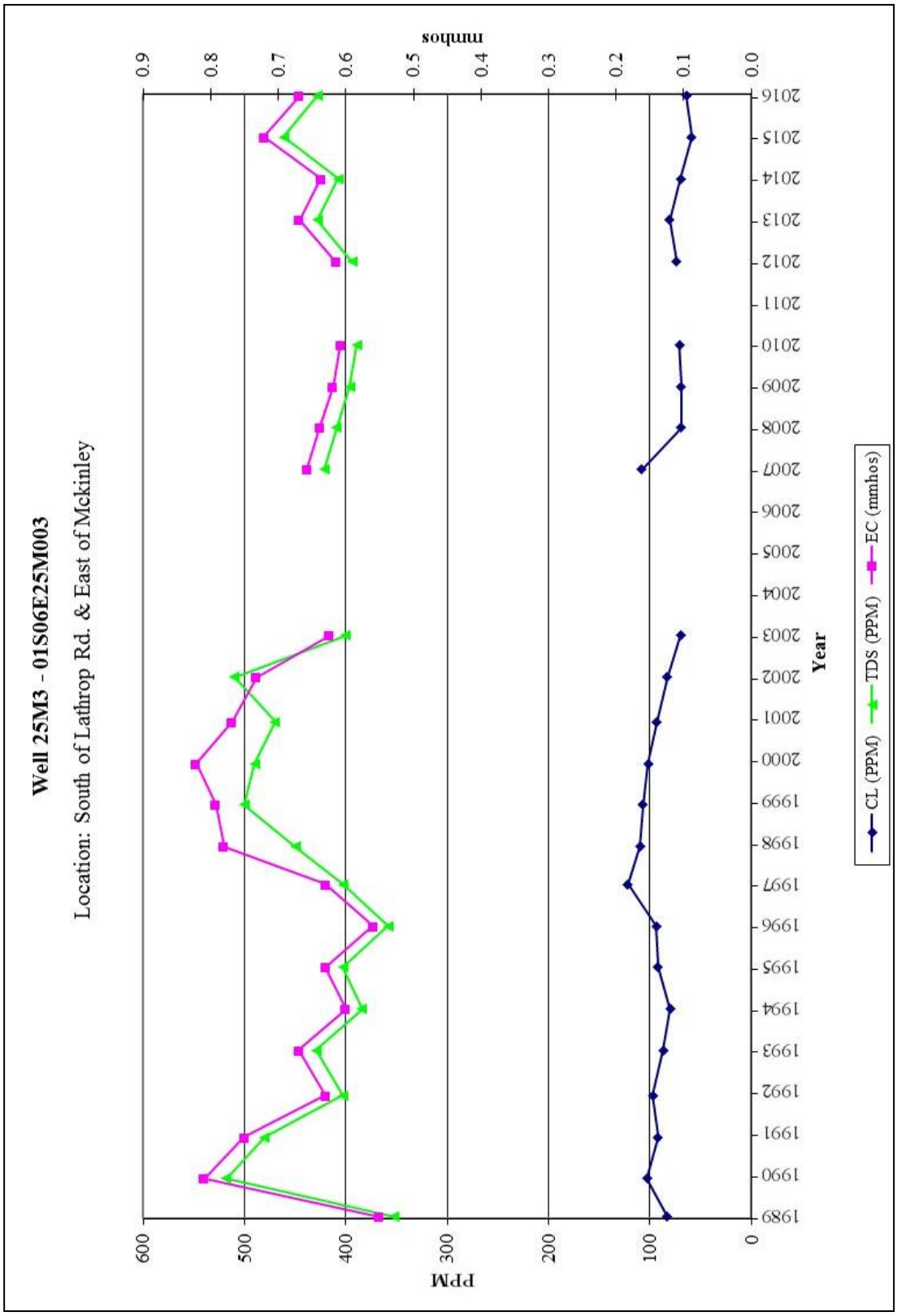


**Figure 2-5: Quality Comparison Graph Well 25M3**

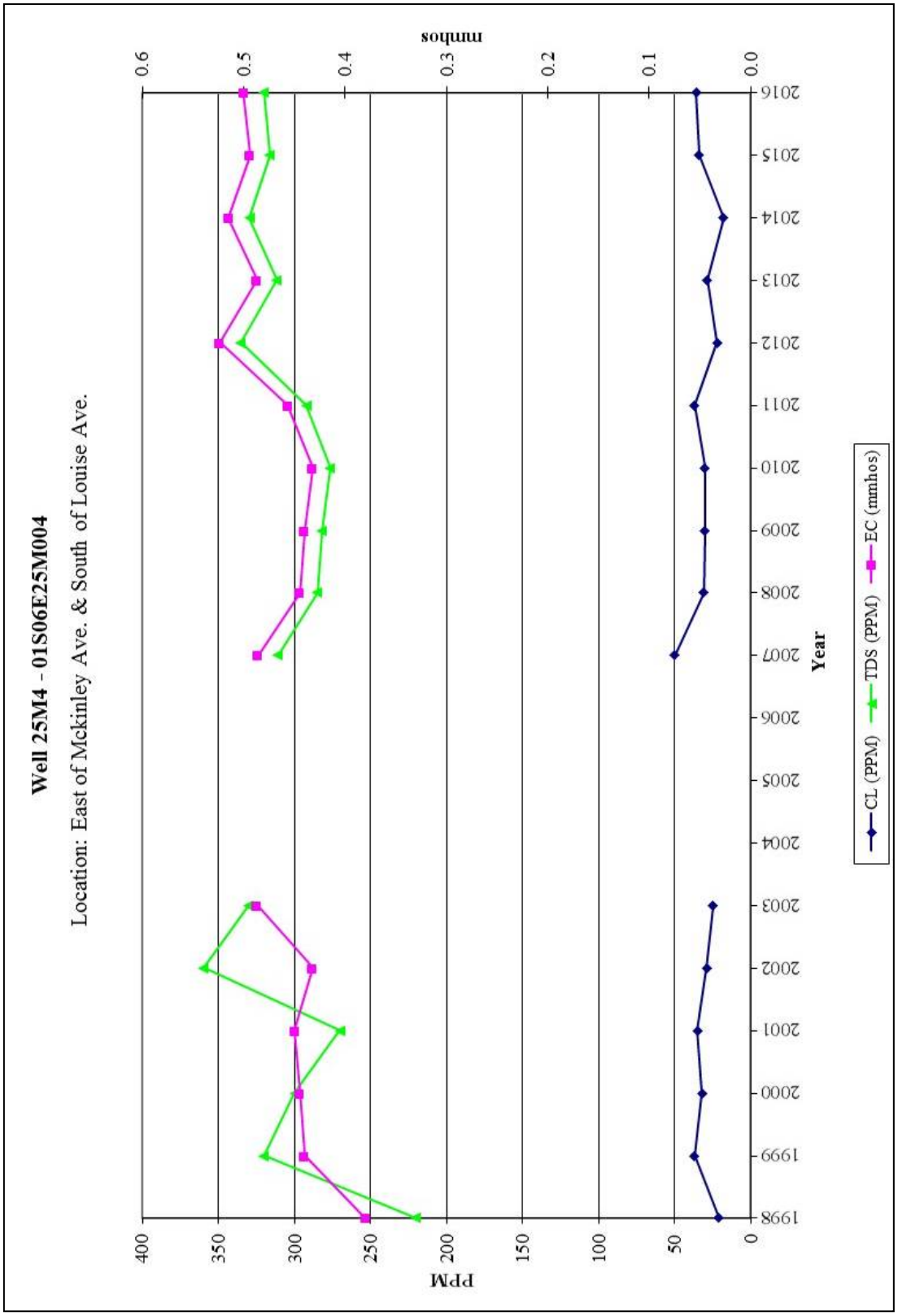


**Figure 2-6: Quality Comparison Graph Well 25M4**

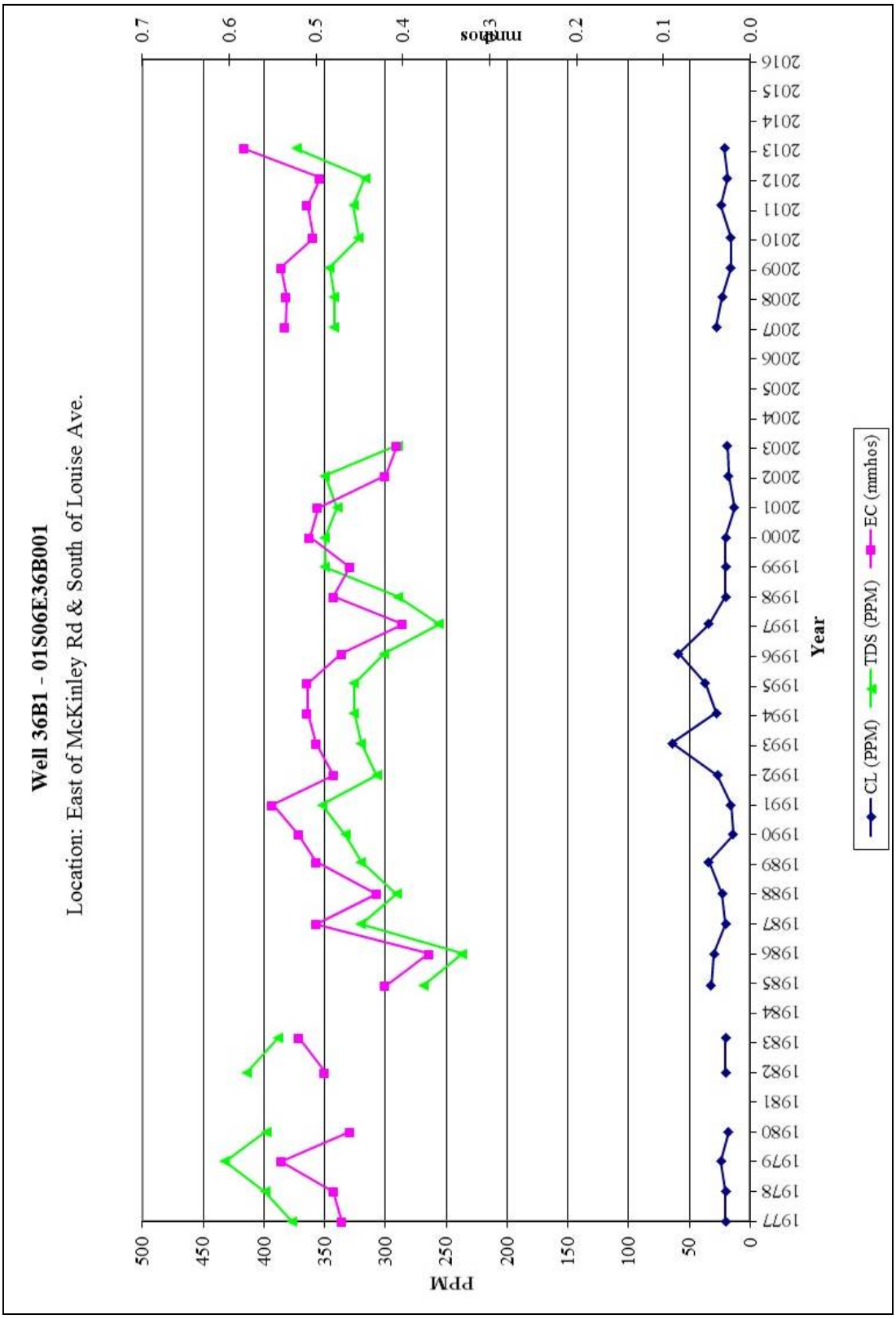


**Figure 2-7: Quality Comparison Graph Well 36B1**

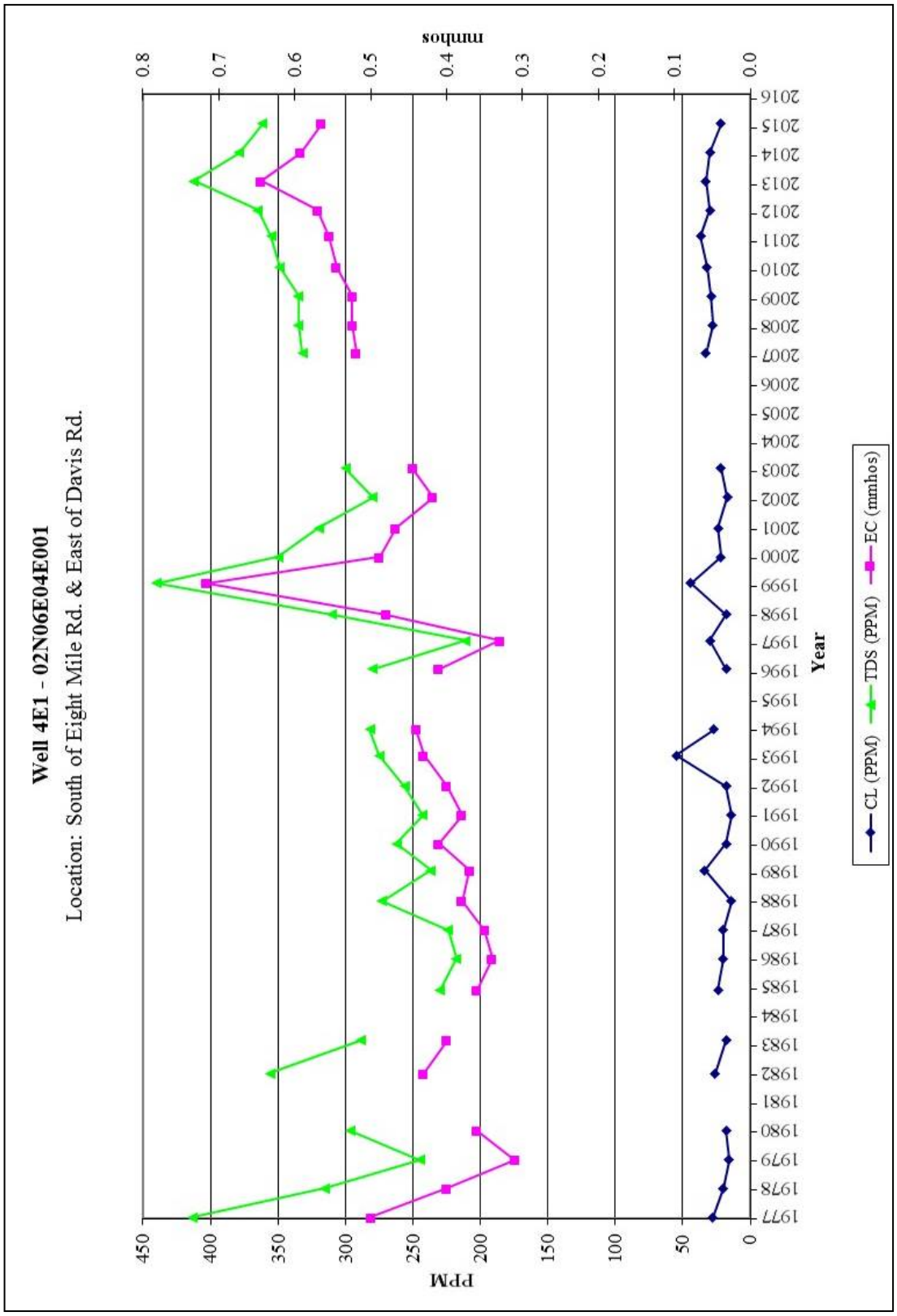


**Figure 2-8: Quality Comparison Graph Well 4E1**

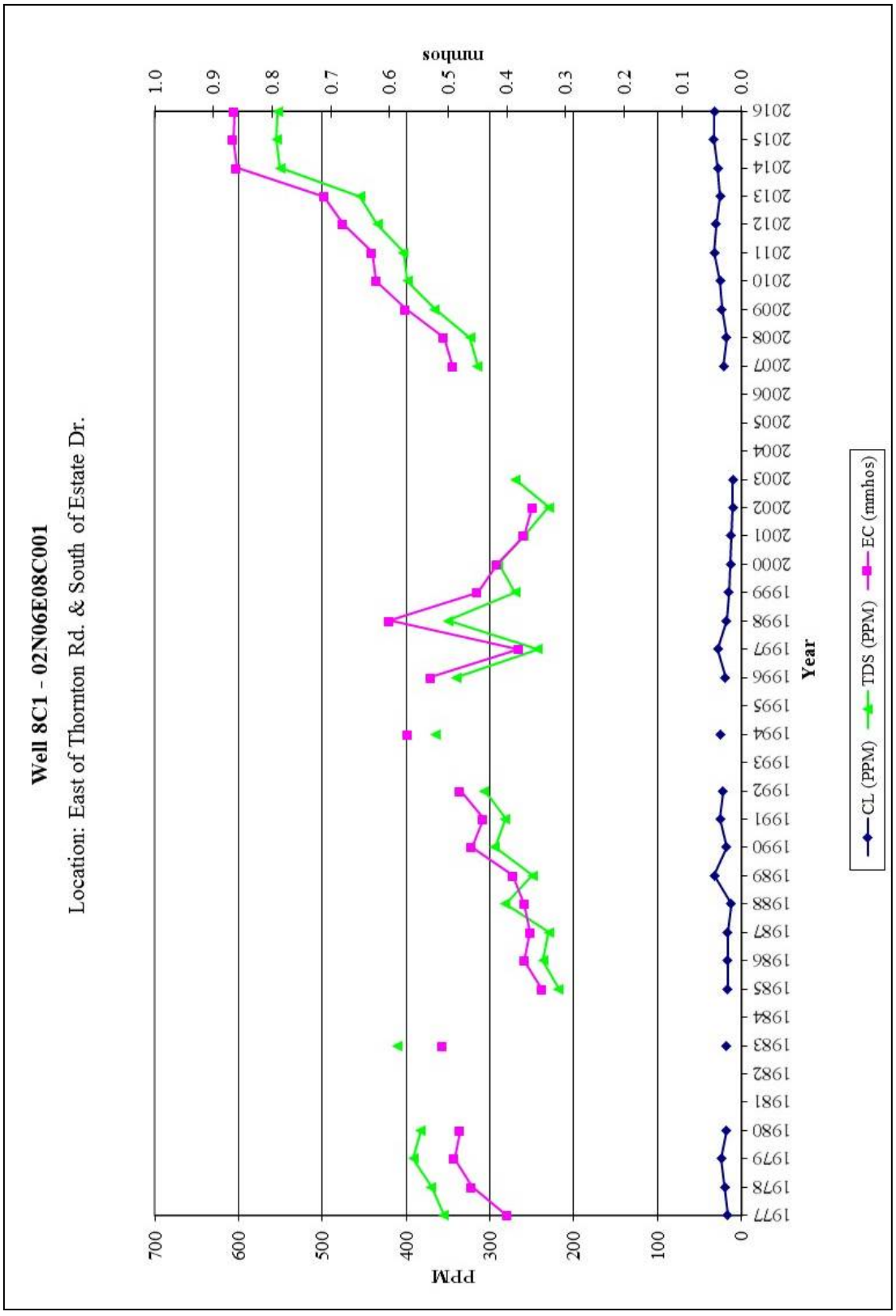


**Figure 2-9: Quality Comparison Graph Well 8C1**

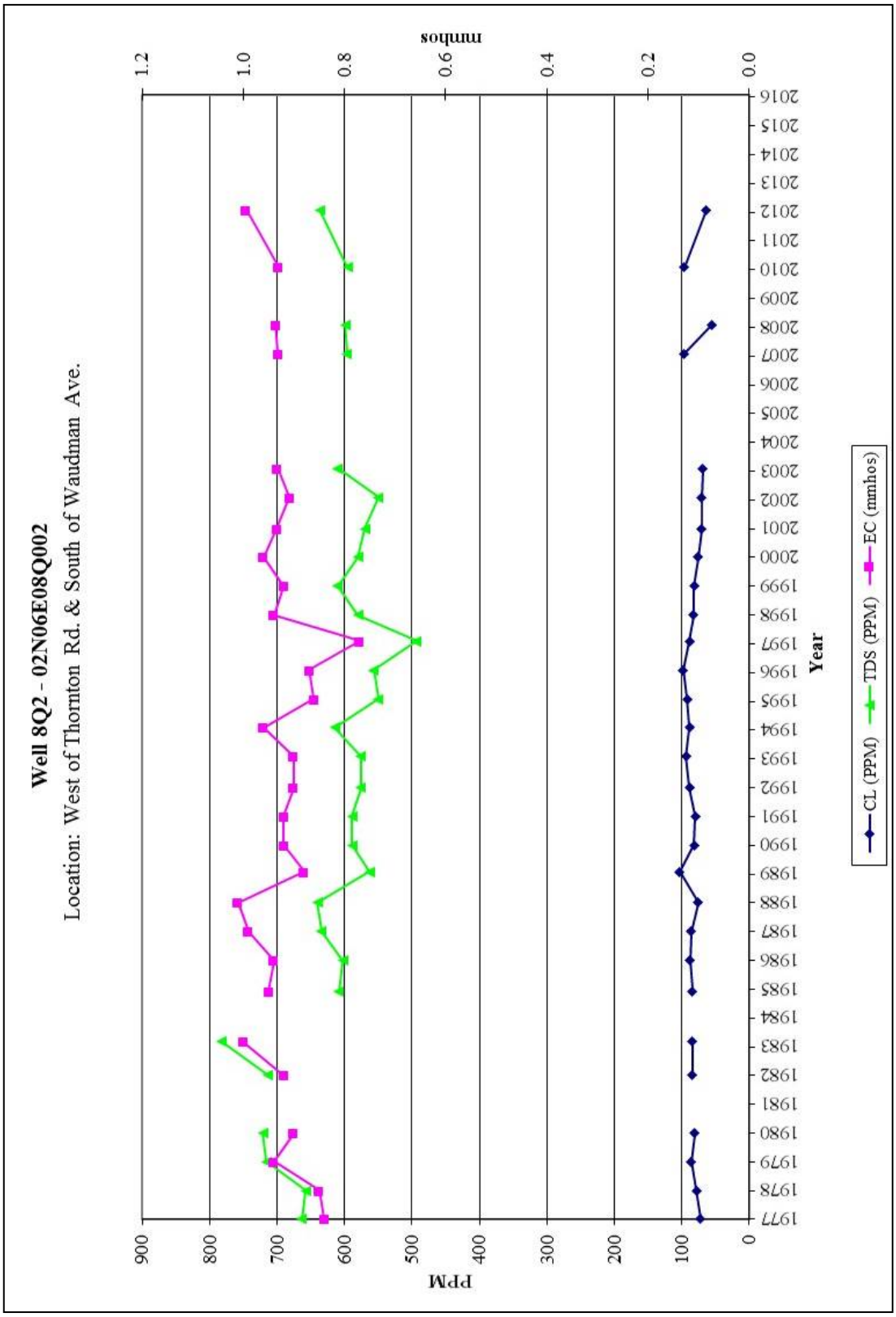


**Figure 2-10: Quality Comparison Graph Well 8Q2**

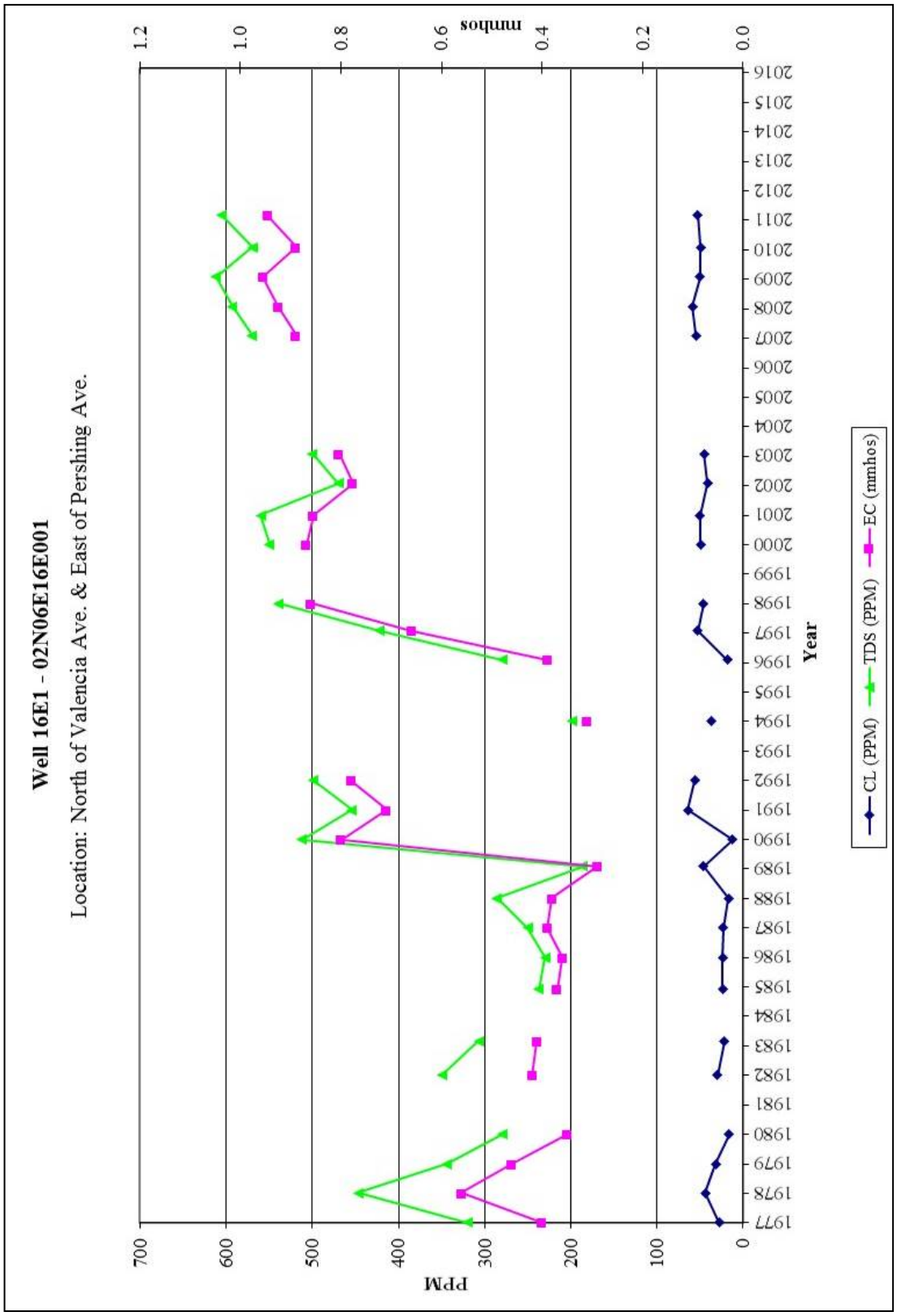


**Figure 2-11: Quality Comparison Graph Well 16E1**

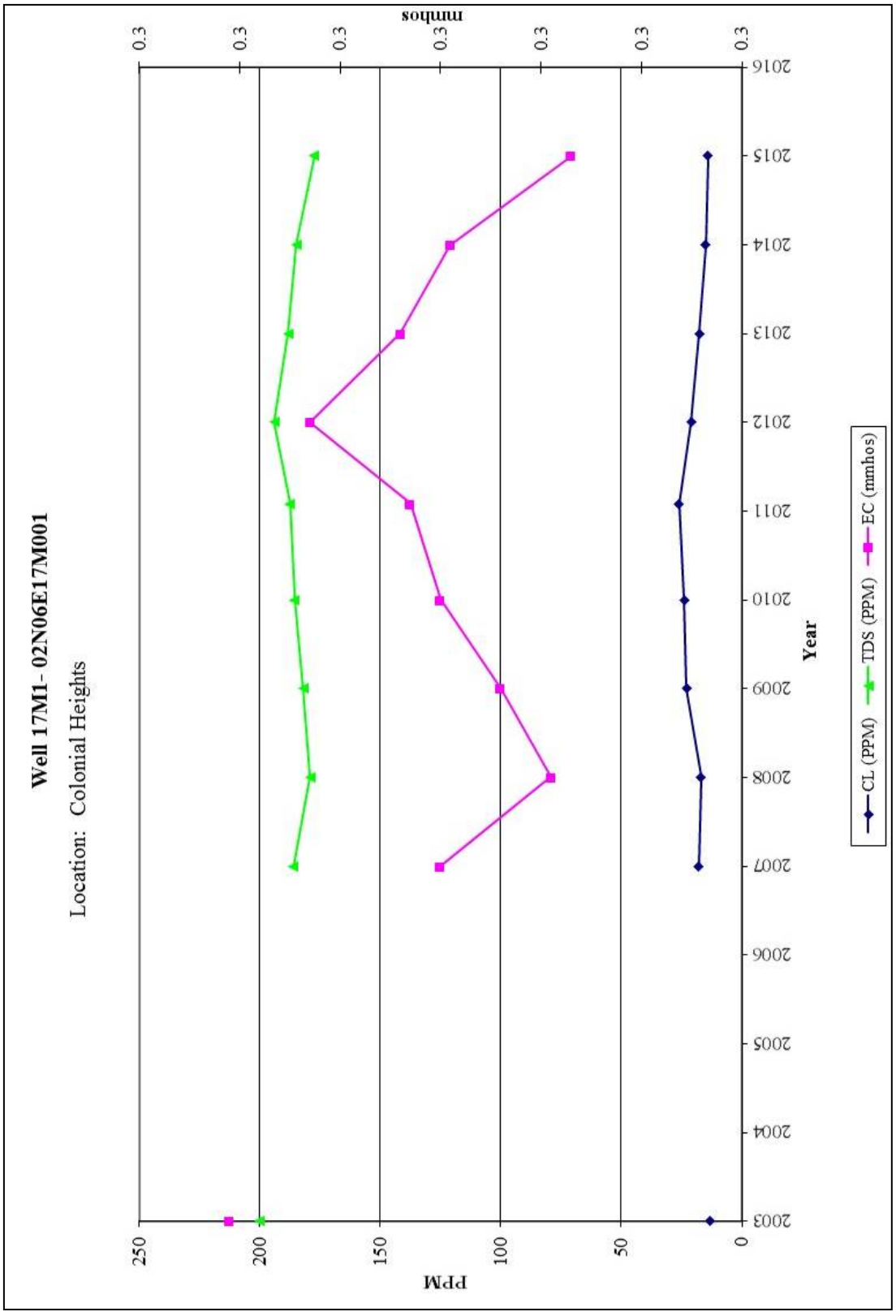


**Figure 2-12: Quality Comparison Graph Well 17M1**

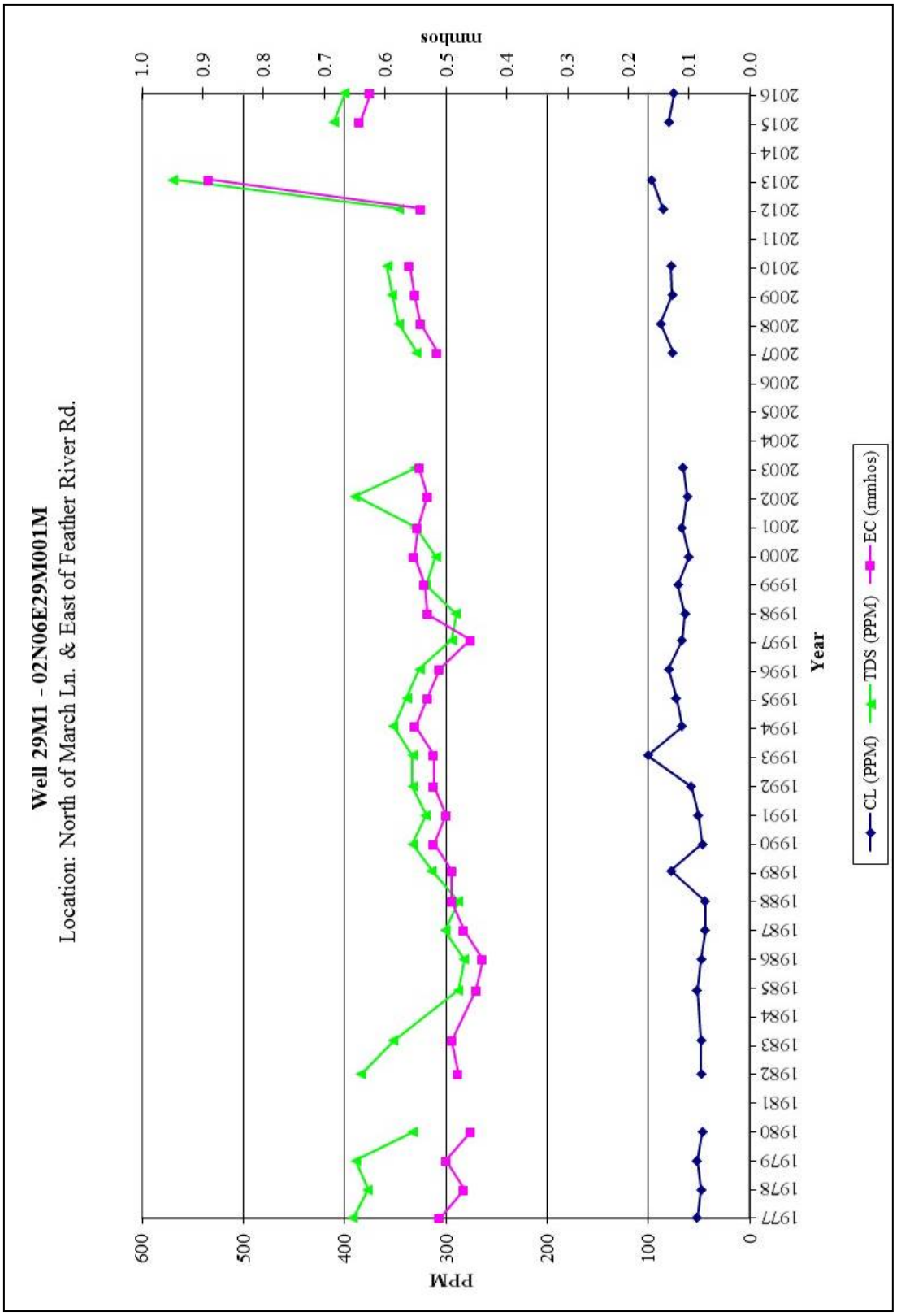


**Figure 2-13: Quality Comparison Graph Well 29M1**

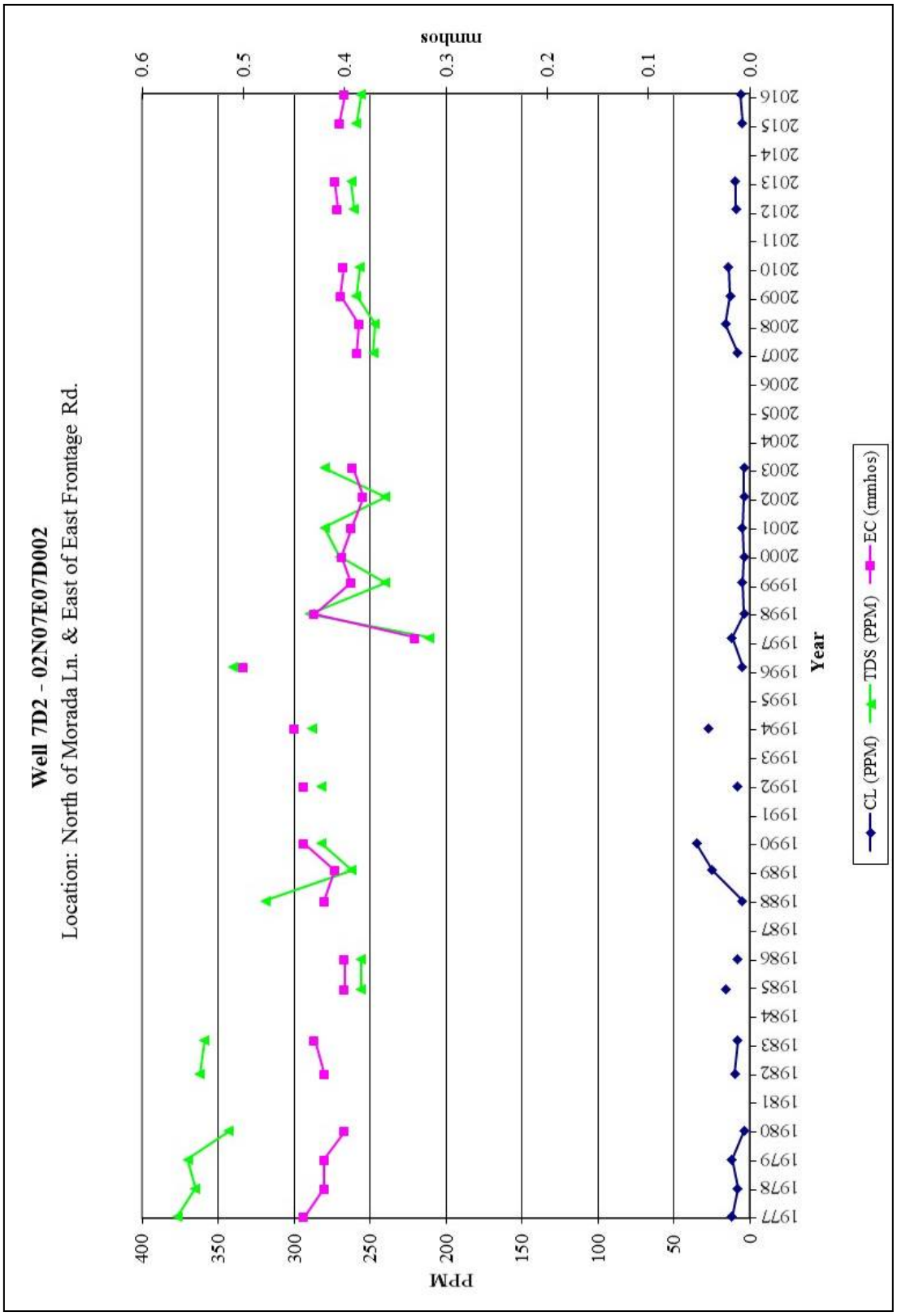


**Figure 2-14: Quality Comparison Graph Well 7D2**

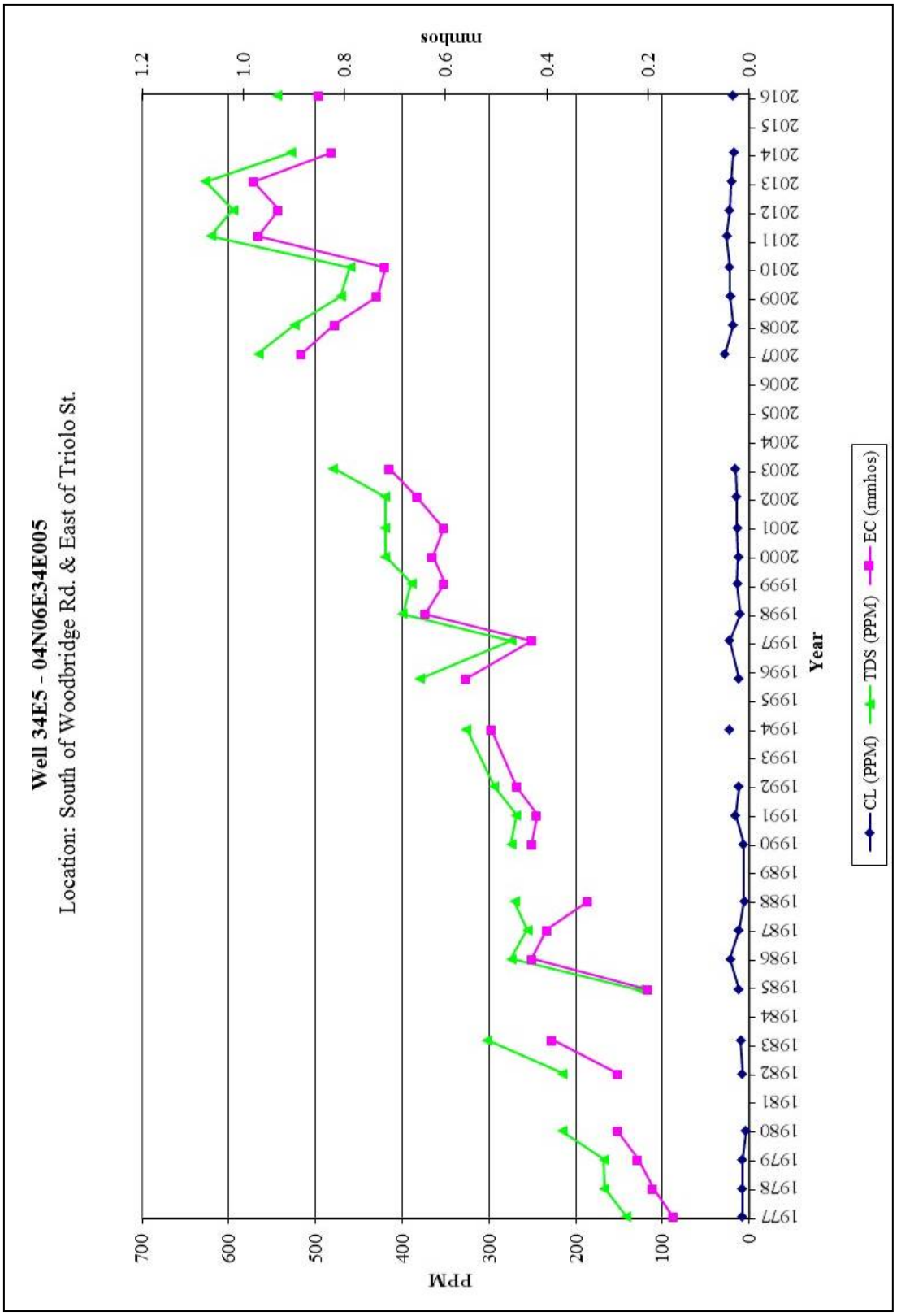


**Figure 2-15: Quality Comparison Graph Well 34E5**

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# Section 3 – Groundwater Elevation Monitoring

## Summary of Groundwater Elevations

The information contained in the Fall 2016 Groundwater Report is summarized as follows:

## GROUNDWATER LEVELS

Central San Joaquin Water Conservation District (CSJWCD) – Fourteen (14) wells were able to be compared in CSJWCD. Eleven (11) show decreases in groundwater levels. Three (3) wells show an increase in groundwater levels.

North San Joaquin Water Conservation District (NSJWCD) – One-hundred nineteen (119) wells were compared in NSJWCD. Seventy-four (74) wells decreased in groundwater levels. Forty-five (45) wells increased in groundwater levels.

Oakdale Irrigation District (OID) – One (1) well1 was compared in the OID area. The well decreased in groundwater elevation.

Stockton East Water District (SEWD) – Ninety (90) wells were compared in SEWD. Forty-four (44) wells decreased in groundwater levels. Forty (40) wells show increases in groundwater levels. Six (6) wells had no change in groundwater elevation.

South San Joaquin Irrigation District (SSJID) – Twenty-two (22) wells were compared in the SSJID area. Twelve (12) wells declined in groundwater elevation. Nine (9) increased in groundwater elevation. One (1) well had no change in groundwater elevation.

Woodbridge Irrigation District (WID) – Twenty-four (24) wells were compared in WID. Six (6) wells decreased in groundwater levels. Seventeen (17) wells shows increase in groundwater levels. One (1) well had no change in groundwater elevation.

Southwest County Areas – Thirty-one (31) wells were compared across the Southwest County. Twenty-seven (27) wells decreased in groundwater levels. Three (3) wells increased in groundwater level. One (1) well had no change in groundwater elevation.

## Table 3-1 Comparison of CSJWCD Water Levels

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01N07E11L001 | **** | -57.0 | **** |
| 01N07E13J002 | **** | **** | **** |
| 01N07E14J002 | -62.6 | -52.1 | -10.5 |
| 01N07E24A001 | **** | **** | **** |
| 01N07E24R001 | **** | -60.0 | **** |
| 01N07E26H003 | **** | **** | **** |
| 01N07E32A001 | -24.4 | -22.9 | -1.5 |
| 01N08E09L001 | **** | -63.2 | **** |
| 01N08E11L001 | **** | -60.5 | **** |
| 01N08E13J001 | -62.2 | **** | **** |
| 01N08E16G001 | -58.4 | -56.2 | -2.2 |
| 01N08E16H002 | -57.1 | -55.5 | -1.6 |
| 01N08E16P001 | **** | -54.9 | **** |
| 01N08E18A002 | -74.5 | -58.0 | **** |
| 01N08E22J001 | -57.5 | -54.5 | -3.0 |
| 01N08E26A002 | **** | -48.3 | **** |
| 01N08E27R002 | **** | -47.0 | **** |
| 01N08E29M002 | **** | -53.0 | **** |
| 01N08E35F001 | -64.9 | **** | **** |
| 01N08E36F001 | -58.0 | **** | **** |
| 01N09E05J001 | **** | -22.5 | **** |
| 01N09E06N001 | **** | -59.0 | **** |
| 01N09E13D001 | **** | 9.0 | **** |
| 01N09E15B002 | **** | **** | **** |
| 01N09E15B002 | **** | **** | **** |
| 01N09E17D001 | -39.5 | -37.5 | -2.0 |
| 01N09E17M001 | -39.5 | -40.0 | 0.5 |
| 01N09E19C001 | -44.0 | -41.6 | -2.4 |
| 01N09E21J001 | **** | -12.1 | **** |
| 01N09E22G002 | **** | -9.9 | **** |
| 01N09E29R001 | **** | -19.3 | **** |
| 01N09E30C005 | -35.2 | -31.2 | -4.0 |
| 01N09E31J001 | **** | **** | **** |
| 01N09E35K001 | **** | 1.6 | **** |
| 01S07E01J001 | -40.8 | -44.6 | 3.8 |
| 01S07E02J001 | **** | -44.0 | **** |
| 01S07E12H001 | **** | **** | **** |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01S07E13J001 | **** | **** | **** |
| 01S08E04R001 | -66.0 | **** | **** |
| 01S08E05A001 | -76.4 | **** | **** |
| 01S08E05R001 | -64.8 | **** | **** |
| 01S08E06D001 | -41.7 | -42.1 | 0.4 |
| 01S08E09Q001 | **** | -28.7 | **** |
| 01S08E11F001 | -32.7 | -29.9 | -2.8 |
| 01S08E12B001 | **** | -15.7 | **** |
| 01S08E14B001 | **** | -21.2 | **** |
| 01S08E15P001 | **** | **** | **** |
| 01S08E20B001 | **** | -17.7 | **** |
| 01S08E23A001 | **** | **** | **** |
| 01S09E02R001 | **** | 9.8 | **** |
| 01S09E05H002 | **** | -11.0 | **** |
| 01S09E07A001 | -35.3 | **** | **** |
| 01S09E07N001 | -30.3 | -10.3 | **** |
| 01S09E09R001 | -19.7 | -5.1 | -14.6 |
| 01S09E11J002 | **** | **** | **** |
| 01S09E18R003 | -47.0 | **** | **** |
| 01S09E19Q002 | 5.0 | 6.0 | -1.0 |

| | |
|---|---|
| **Total Number of Wells** | **57** |
| **Total Number of Comparable Wells** | **14** |
| **Number of Wells with Decrease** | **11** |
| **Number of Wells with Increase** | **3** |
| **Number of Wells with No Change** | **0** |
| **Range of Change** | **-14.6 to 3.8** |
| **Average Change** | **-2.92** |

**Table 3-2 Comparison of NSJWCD Water Levels**

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 03N06E04C001 | -1.6 | -3.4 | 1.8 |
| 03N06E23A003 | -30.4 | -33.6 | 3.2 |
| 03N06E24M003 | **** | **** | **** |
| 03N06E25C001 | -42.6 | -41.8 | -0.8 |
| 03N06E25H015 | **** | **** | **** |
| 03N06E36N001 | **** | **** | **** |
| 03N07E03R001 | -36.3 | -34.8 | -1.5 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 03N07E05D005 | 18.5 | 18.3 | 0.2 |
| 03N07E08B012 | -26.1 | -24.6 | -1.5 |
| 03N07E08E002 | -39.0 | -42.0 | 3.0 |
| 03N07E09C001 | -48.7 | -42.2 | -6.5 |
| 03N07E09C003 | -28.5 | -28.2 | -0.3 |
| 03N07E09P002 | -39.1 | -39.9 | 0.8 |
| 03N07E10L004 | -40.0 | -38.8 | -1.2 |
| 03N07E12P001 | -56.0 | -51.8 | -4.2 |
| 03N07E15C004 | -50.5 | -46.5 | -4.0 |
| 03N07E17A006 | -38.6 | -37.8 | -0.8 |
| 03N07E17D003 | -30.5 | -30.8 | 0.3 |
| 03N07E17D004 | -27.4 | **** | **** |
| 03N07E17K002 | **** | -45.7 | **** |
| 03N07E18D012 | -36.0 | -33.0 | -3.0 |
| 03N07E18M002 | -36.2 | -36.4 | 0.2 |
| 03N07E19J004 | -62.0 | -59.0 | -3.0 |
| 03N07E19Q012 | -46.7 | -46.8 | 0.1 |
| 03N07E20C012 | -45.0 | **** | **** |
| 03N07E21L003 | -59.0 | -51.5 | -7.5 |
| 03N07E22C011 | -51.3 | -49.0 | -2.3 |
| 03N07E23C002 | -56.0 | -52.0 | -4.0 |
| 03N07E23K011 | -54.0 | -52.8 | -1.2 |
| 03N07E25G001 | **** | **** | **** |
| 03N07E26G012 | -55.7 | -54.1 | -1.6 |
| 03N07E32Q012 | -57.7 | -61.5 | 3.8 |
| 03N07E33G002 | -55.0 | **** | **** |
| 03N08E04Q001 | -49.2 | -47.7 | -1.5 |
| 03N08E05K011 | -46.0 | -44.1 | -1.9 |
| 03N08E07J001 | **** | **** | **** |
| 03N08E17B001 | -55.8 | -52.8 | -3.0 |
| 03N08E17Q011 | -59.6 | -57.2 | -2.4 |
| 03N08E19C001 | **** | **** | **** |
| 03N08E19M003 | -59.6 | -57.9 | -1.7 |
| 03N08E22A001 | -60.3 | -57.0 | -3.3 |
| 04N06E02R011 | **** | **** | **** |
| 04N06E03A012 | -24.2 | -24.1 | -0.1 |
| 04N06E06N012 | **** | -16.6 | **** |
| 04N06E12C004 | **** | -42.0 | **** |
| 04N06E12N002 | -43.8 | -43.3 | -0.5 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 04N06E15B002 | -19.7 | -20.7 | 1.0 |
| 04N06E16A011 | -14.3 | **** | **** |
| 04N06E16C001 | **** | -14.9 | **** |
| 04N06E16K011 | -2.3 | -3.4 | 1.1 |
| 04N06E23D004 | -29.5 | -30.6 | 1.1 |
| 04N06E23K00 | -18.0 | -17.0 | -1.0 |
| 04N06E24D012 | -20.9 | -22.7 | 1.8 |
| 04N06E24F001 | -29.0 | -26.5 | -2.5 |
| 04N06E25B001 | -17.8 | -17.6 | -0.2 |
| 04N06E25R001 | -12.0 | -8.0 | -4.0 |
| 04N06E27D002 | 0.7 | 0.2 | 0.5 |
| 04N06E27Q012 | 12.3 | 12.7 | -0.4 |
| 04N06E36J012 | 5.4 | 5.2 | 0.2 |
| 04N07E01B011 | **** | **** | **** |
| 04N07E02R001 | -49.4 | -47.7 | -1.7 |
| 04N07E04B012 | -53.9 | -51.7 | -2.2 |
| 04N07E04Q012 | -53.8 | -51.5 | -2.3 |
| 04N07E07A001 | **** | **** | **** |
| 04N07E07H011 | -47.8 | -46.4 | -1.4 |
| 04N07E11D012 | -50.9 | -49.6 | -1.3 |
| 04N07E12E001 | -52.5 | **** | **** |
| 04N07E12G012 | -45.4 | -43.7 | -1.7 |
| 04N07E14P011 | -40.0 | -39.4 | -0.6 |
| 04N07E15B012 | **** | **** | **** |
| 04N07E16D001 | -46.4 | -46.5 | 0.1 |
| 04N07E17J013 | **** | **** | **** |
| 04N07E17N001 | -43.8 | -44.3 | 0.5 |
| 04N07E19K001 | -32.1 | -41.1 | 9.0 |
| 04N07E19R011 | -28.2 | -27.5 | -0.7 |
| 04N07E20H003 | -36.7 | -105.8 | -1.2 |
| 04N07E21F001 | -43.8 | **** | **** |
| 04N07E23J012 | -38.0 | -35.2 | -2.8 |
| 04N07E24N002 | -36.6 | -35.2 | -1.4 |
| 04N07E25G015 | -21.5 | -32.0 | 10.5 |
| 04N07E27C002 | -44.5 | **** | **** |
| 04N07E28J002 | -30.7 | -30.2 | -0.5 |
| 04N07E28P011 | -0.1 | 0.0 | -0.1 |
| 04N07E29H001 | **** | **** | **** |
| 04N07E29N012 | -8.4 | -16.9 | 8.5 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 04N07E31Q031 | 16.5 | 16.6 | -0.1 |
| 04N07E32F011 | 1.1 | 1.0 | 0.1 |
| 04N07E33H001 | 15.0 | 15.5 | -0.5 |
| 04N07E34K011 | -19.2 | -18.0 | -1.2 |
| 04N07E35C002 | **** | **** | **** |
| 04N07E35E013 | **** | -23.7 | **** |
| 04N07E36L001 | -36.1 | -33.3 | -2.8 |
| 04N08E01K001 | 46.1 | 47.8 | -1.7 |
| 04N08E02E011 | -13.9 | -11.3 | -2.6 |
| 04N08E04P014 | -44.8 | -36.7 | -8.1 |
| 04N08E06C002 | **** | **** | **** |
| 04N08E06N002 | **** | -56.2 | **** |
| 04N08E11M012 | -14.2 | -12.1 | -2.1 |
| 04N08E12A011 | 67.4 | 69.4 | -2.0 |
| 04N08E12B011 | 46.5 | 49.0 | -2.5 |
| 04N08E12N001 | 15.6 | 17.1 | -1.5 |
| 04N08E14B011 | -7.5 | -5.9 | -1.6 |
| 04N08E14K001 | -16.1 | -17.1 | 1.0 |
| 04N08E15D011 | -26.4 | -26.3 | -0.1 |
| 04N08E15J011 | -22.3 | -20.5 | -1.8 |
| 04N08E17A001 | **** | **** | **** |
| 04N08E17J001 | -39.0 | **** | **** |
| 04N08E21M001 | -41.1 | **** | **** |
| 04N08E22C015 | -26.7 | **** | **** |
| 04N08E26A012 | **** | **** | **** |
| 04N08E27J011 | -25.1 | -23.9 | -1.2 |
| 04N08E28E001 | **** | -39.4 | **** |
| 04N08E32N001 | -66.1 | **** | **** |
| 04N08E34Q011 | -40.3 | -43.4 | 3.1 |
| 04N09E05E099 | 156.2 | 149.7 | 6.5 |
| 04N09E06H098 | 174.7 | 173.6 | 1.1 |
| 04N09E06H099 | 205.8 | 205.4 | 0.4 |
| 04N09E06J098 | 205.7 | 204.6 | 1.1 |
| 04N09E06J099 | 164.1 | 159.5 | 4.6 |
| 04N09E06K097 | 111.0 | 108.0 | 3.0 |
| 04N09E06K099 | 123.4 | 121.2 | 2.2 |
| 04N09E06L011 | **** | 109.4 | **** |
| 04N09E07B098 | 151.6 | 152.5 | -0.9 |
| 04N09E07B099 | 149.9 | 144.8 | 5.1 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 04N09E07D012 | 78.5 | 72.2 | 6.3 |
| 04N09E07E011 | **** | 87.9 | **** |
| 04N09E08N096 | 169.9 | 161.1 | 8.8 |
| 04N09E08N097 | 166.2 | 158.8 | 7.4 |
| 04N09E08N098 | 163.2 | 159.1 | 4.1 |
| 04N09E08N099 | 166.9 | 160.9 | 6.0 |
| 04N09E08P099 | 175.3 | 166.5 | 8.8 |
| 04N09E08R099 | 182.1 | 174.0 | 8.1 |
| 04N09E16Q002 | 136.3 | 143.9 | -7.6 |
| 04N09E17A099 | 176.4 | 171.4 | 5.0 |
| 04N09E17E001 | 134.0 | 130.1 | 3.9 |
| 04N09E17E099 | 153.8 | 152.7 | 1.1 |
| 04N09E17F099 | 160.1 | 158.4 | 1.7 |
| 04N09E17G099 | 163.4 | 161.1 | 2.3 |
| 04N09E18A011 | **** | 151.0 | **** |
| 04N09E18D002 | 46.7 | 47.3 | -0.6 |
| 04N09E18N011 | 0.3 | 13.6 | -13.3 |
| 04N09E20M001 | 110.0 | 109.7 | 0.3 |
| 04N09E21A001 | 165.0 | 166.5 | -1.5 |
| 04N09E28C002 | 184.5 | 185.3 | -0.8 |
| 05N06E36R001 | **** | -42.8 | **** |
| 05N07E31J001 | -67.0 | **** | **** |
| 05N07E34G001 | **** | **** | **** |
| 05N07E34Q001 | **** | -56.9 | **** |
| 05N08E24Q011 | 52.0 | 53.3 | -1.3 |
| 05N08E25P011 | 51.3 | 52.5 | -1.2 |
| 05N08E32R011 | **** | -40.7 | **** |
| 05N08E35K012 | -2.2 | 0.5 | -2.7 |
| 05N09E30C011 | 159.6 | 161.3 | -1.7 |
| 05N09E30M011 | 143.0 | 144.7 | -1.7 |
| 05N09E31L011 | 121.9 | 123.1 | -1.2 |
| DWS-IPS | -3.6 | -3.7 | 0.1 |
| Harney MW-1 | -34.2 | -32.7 | -1.5 |
| Harney MW-2 | -38.4 | -36.5 | -1.9 |
| Harney MW-3 | -46.3 | **** | **** |
| Harney MW-4 | -46.8 | **** | **** |
| North G-1 | **** | -55.2 | **** |
| North G-3D | -55.7 | -55.5 | -0.3 |
| North G-4 | -54.4 | -54.1 | -0.3 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| North G-5 | -51.2 | **** | **** |
| North G-6 | -47.4 | -47.3 | -0.1 |

| | |
|---|---|
| **Total Number of Wells** | **165** |
| **Total Number of Comparable Wells** | **119** |
| **Number of Wells with Decrease** | **74** |
| **Number of Wells with Increase** | **45** |
| **Number of Wells with No Change** | **0** |
| **Range of Change** | **-13.3 to 10.5** |
| **Average Change** | **-0.10** |

**Table 3-3 Comparison of OID Water Levels**

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01S09E21J002 | 26.2 | 27.5 | -1.3 |
| 01S09E23N001 | **** | **** | **** |
| 01S09E24R001 | **** | **** | **** |
| 01S09E28M002 | **** | **** | **** |

| | |
|---|---|
| **Total Number of Wells** | **1** |
| **Total Number of Comparable Wells** | **1** |
| **Number of Wells with Decrease** | **1** |
| **Number of Wells with Increase** | **0** |
| **Number of Wells with No Change** | **0** |
| **Range of Change** | **** |
| **Average Change** | **** |

**Table 3-4 Comparison of SEWD Water Levels**

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01N06E01J001 | **** | -30.5 | **** |
| 01N06E01M001 | -40.0 | -40.0 | 0.0 |
| 01N06E02C001 | -21.1 | -28.9 | 7.8 |
| 01N06E04J003 | -19.1 | -19.9 | 0.8 |
| 01N06E04J004 | -13.1 | -13.9 | 0.8 |
| 01N06E04J005 | -6.4 | -7.1 | 0.7 |
| 01N06E05H001 | -9.0 | -9.6 | 0.6 |
| 01N06E05M004 | **** | **** | **** |
| 01N06E12A001 | -27.0 | -26.0 | -1.0 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01N06E12F001 | **** | -55.0 | **** |
| 01N06E12G001 | -37.8 | -34.8 | -3.0 |
| 01N06E23J001 | **** | **** | **** |
| 01N06E27R002 | -8.5 | **** | **** |
| 01N06E36C003 | -19.7 | -19.9 | 0.2 |
| 01N06E36C004 | -14.7 | -15.3 | 0.6 |
| 01N06E36C005 | -12.7 | -13.8 | 1.1 |
| 01N07E01A002 | **** | **** | **** |
| 01N07E01M002 | -71.0 | -70.0 | -1.0 |
| 01N07E02G001 | **** | -61.5 | **** |
| 01N07E03D002 | **** | **** | **** |
| 01N07E03D003 | **** | **** | **** |
| 01N07E03D004 | **** | **** | **** |
| 01N07E03D005 | **** | **** | **** |
| 01N07E03L001 | **** | **** | **** |
| 01N07E03M001 | **** | **** | **** |
| 01N07E04R001 | -59.0 | -54.8 | -4.2 |
| 01N07E05A001 | -53.0 | -49.0 | -4.0 |
| 01N07E08B001 | **** | **** | **** |
| 01N07E08H002 | -48.0 | -35.0 | -13.0 |
| 01N07E08P001 | -35.5 | -29.5 | -6.0 |
| 01N07E09E004 | **** | -35.0 | **** |
| 01N07E09H001 | **** | -46.5 | **** |
| 01N07E09Q003 | -56.0 | -48.0 | -8.0 |
| 01N07E10D001 | -61.0 | -56.0 | -5.0 |
| 01N07E10G001 | **** | **** | **** |
| 01N07E16M001 | -48.0 | -41.0 | -7.0 |
| 01N07E17D001 | -36.5 | -37.5 | 1.0 |
| 01N07E17D002 | -38.5 | -35.5 | -3.0 |
| 01N07E18B001 | -32.0 | -33.0 | 1.0 |
| 01N07E18D001 | -26.0 | -23.0 | -3.0 |
| 01N07E18E003 | -27.0 | -23.0 | -4.0 |
| 01N07E18L001 | -25.0 | -31.0 | 6.0 |
| 01N07E19G001 | **** | **** | **** |
| 01N07E20G001 | **** | **** | **** |
| 01N07E21R001 | -26.8 | **** | **** |
| 01N08E03P001 | **** | **** | **** |
| 01S06E01C002 | -9.6 | -7.0 | -2.6 |
| 01S06E02D004 | -20.4 | -8.9 | -11.5 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01S06E02G002 | -9.5 | -10.2 | 0.7 |
| 01S06E10G001 | -11.8 | -8.8 | -3.0 |
| 01S07E06M002 | **** | -11.0 | **** |
| 01S07E08J002 | -11.6 | -14.0 | 2.4 |
| 02N05E01A002 | -32.8 | -32.9 | 0.1 |
| 02N05E01A003 | -21.3 | -21.9 | 0.6 |
| 02N05E01A004 | -17.6 | -18.0 | 0.4 |
| 02N05E01A005 | -15.1 | -15.4 | 0.3 |
| 02N05E01A006 | -11.6 | -12.0 | 0.4 |
| 02N06E03A003 | -35.8 | **** | **** |
| 02N06E06C002 | **** | **** | **** |
| 02N06E08N001 | -29.7 | -30.9 | 1.2 |
| 02N06E08N002 | -27.2 | -28.2 | 1.0 |
| 02N06E08N003 | -23.5 | -24.3 | 0.8 |
| 02N06E11H004 | **** | -56.8 | **** |
| 02N06E11H005 | **** | -59.2 | **** |
| 02N06E11H006 | **** | -52.2 | **** |
| 02N06E11H007 | **** | -51.8 | **** |
| 02N06E13R002 | **** | **** | **** |
| 02N06E20E001 | -21.1 | -22.1 | 1.0 |
| 02N06E20E002 | -19.6 | -20.9 | 1.3 |
| 02N06E20E003 | -18.1 | -19.3 | 1.2 |
| 02N06E22B001 | -37.0 | -38.0 | 1.0 |
| 02N06E22G001 | -32.0 | -38.0 | 6.0 |
| 02N06E22G002 | -38.0 | -40.0 | 2.0 |
| 02N06E22Q001 | -39.5 | -36.5 | -3.0 |
| 02N06E22Q002 | -36.0 | -35.0 | -1.0 |
| 02N06E24F001 | -41.0 | **** | **** |
| 02N06E24J002 | -43.3 | -45.3 | 2.0 |
| 02N06E26L001 | -33.0 | **** | **** |
| 02N06E27B001 | **** | -33.0 | **** |
| 02N06E27H001 | -42.0 | -35.0 | -7.0 |
| 02N06E27K001 | -48.0 | -35.0 | -13.0 |
| 02N06E27K002 | -44.0 | -44.0 | 0.0 |
| 02N06E27L001 | -34.0 | -33.0 | -1.0 |
| 02N06E27P001 | -41.0 | -32.0 | -9.0 |
| 02N06E34C001 | -41.0 | -33.0 | -8.0 |
| 02N06E35B001 | -37.0 | **** | **** |
| 02N06E36A001 | -46.0 | -47.0 | 1.0 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 02N06E36D001 | -40.5 | -38.5 | -2.0 |
| 02N06E36D001 | **** | -38.5 | **** |
| 02N06E36F001 | -38.5 | -36.5 | -2.0 |
| 02N06E36G001 | -52.0 | -41.0 | -11.0 |
| 02N06E36N003 | -41.5 | -40.5 | -1.0 |
| 02N06E36R003 | -37.0 | -26.0 | -11.0 |
| 02N07E03D001 | -82.0 | **** | **** |
| 02N07E06P002 | -45.8 | -49.8 | 4.0 |
| 02N07E08D001 | -75.2 | **** | **** |
| 02N07E08K003 | -71.0 | -71.0 | 0.0 |
| 02N07E08R002 | -68.6 | -69.6 | 1.0 |
| 02N07E10F002 | -66.4 | **** | **** |
| 02N07E11F001 | -90.0 | -80.5 | -9.5 |
| 02N07E11R002 | -78.0 | **** | **** |
| 02N07E15C001 | **** | **** | **** |
| 02N07E16F002 | **** | **** | **** |
| 02N07E16L001 | **** | -71.3 | **** |
| 02N07E18H002 | -51.7 | -59.7 | 8.0 |
| 02N07E20N002 | -54.0 | -54.0 | 0.0 |
| 02N07E21A002 | -77.8 | -82.8 | 5.0 |
| 02N07E21K002 | -78.0 | -69.0 | -9.0 |
| 02N07E21N001 | **** | **** | **** |
| 02N07E23B001 | -77.0 | -82.0 | 5.0 |
| 02N07E24B001 | -73.1 | -71.1 | -2.0 |
| 02N07E24Q001 | **** | -81.5 | **** |
| 02N07E26H003 | **** | **** | **** |
| 02N07E26N001 | -75.3 | -75.2 | -0.1 |
| 02N07E28K002 | -74.0 | -69.5 | -4.5 |
| 02N07E28N004 | -64.4 | -59.0 | -5.4 |
| 02N07E28P001 | **** | **** | **** |
| 02N07E29B001 | **** | **** | **** |
| 02N07E29M002 | -62.0 | **** | **** |
| 02N07E30E001 | **** | -46.5 | **** |
| 02N07E30H001 | -54.0 | **** | **** |
| 02N07E30K001 | -49.0 | -53.0 | 4.0 |
| 02N07E31M001 | **** | **** | **** |
| 02N07E32J002 | -58.0 | -50.0 | -8.0 |
| 02N07E32M002 | -47.0 | -48.0 | 1.0 |
| 02N07E32R001 | **** | **** | **** |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 02N07E33L001 | -63.0 | -62.0 | -1.0 |
| 02N07E34R001 | **** | -59.4 | **** |
| 02N07E35L001 | **** | **** | **** |
| 02N07E36H001 | **** | **** | **** |
| 02N08E03G002 | -63.7 | **** | **** |
| 02N08E04C001 | -67.5 | -67.5 | 0.0 |
| 02N08E05C001 | -71.5 | -84.5 | 13.0 |
| 02N08E08N001 | -74.5 | **** | **** |
| 02N08E09G002 | **** | **** | **** |
| 02N08E10H002 | **** | **** | **** |
| 02N08E13K001 | **** | **** | **** |
| 02N08E14C001 | -48.0 | -44.0 | -4.0 |
| 02N08E15M002 | -69.7 | -63.2 | -6.5 |
| 02N08E16D001 | -75.1 | -81.1 | 6.0 |
| 02N08E18C001 | -83.7 | **** | **** |
| 02N08E20F001 | **** | **** | **** |
| 02N08E24J001 | **** | **** | **** |
| 02N08E24P001 | **** | **** | **** |
| 02N08E28H002 | **** | -50.6 | **** |
| 02N08E32L002 | **** | **** | **** |
| 02N08E33E001 | -71.6 | -68.7 | -2.9 |
| 02N09E03A001 | **** | **** | **** |
| 02N09E04H001 | **** | **** | **** |
| 02N09E05H001 | **** | **** | **** |
| 02N09E05N001 | -29.4 | -27.5 | -1.9 |
| 02N09E08N001 | **** | **** | **** |
| 02N09E09D001 | **** | -19.8 | **** |
| 02N09E18Q001 | **** | **** | **** |
| 02N09E22D001 | **** | **** | **** |
| 02N09E28N001 | **** | **** | **** |
| 03N07E28K012 | -57.8 | -56.5 | -1.3 |
| 03N07E35C002 | -75.8 | -65.8 | -10.0 |
| 03N07E35L001 | -69.0 | -64.5 | -4.5 |
| 03N07E36J001 | -72.3 | -72.3 | 0.0 |
| 03N08E27R001 | **** | **** | **** |
| 03N09E25R001 | 80.7 | 80.1 | 0.6 |
| 03N09E36G001 | **** | **** | **** |
| C-1 | **** | **** | **** |
| Foothill MW-1 | 63.4 | **** | **** |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| Foothill MW-2R | 42.0 | 34.1 | 4.9 |
| Foothill MW-3 | -18.7 | -17.6 | -1.1 |

| | |
|---|---|
| **Total Number of Wells** | **167** |
| **Total Number of Comparable Wells** | **90** |
| **Number of Wells with Decrease** | **44** |
| **Number of Wells with Increase** | **40** |
| **Number of Wells with No Change** | **6** |
| **Range of Change** | **-13 to 13** |
| **Average Change** | **-1.37** |

**Table 3-5 Comparison of SSJID Water Levels**

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01S07E09Q001 | **** | -11.8 | **** |
| 01S07E14M001 | **** | -9.1 | **** |
| 01S07E14P003 | -14.8 | -10.8 | -4.0 |
| 01S07E15F002 | -14.1 | -16.6 | 2.5 |
| 01S07E18L001 | -0.1 | 0.1 | -0.2 |
| 01S07E21G001 | 4.7 | 6.4 | -1.7 |
| 01S07E25E001 | -1.0 | -4.0 | 3.0 |
| 01S07E25R001 | 6.5 | 7.8 | -1.3 |
| 01S07E26G001 | -1.5 | **** | **** |
| 01S07E27K001 | 0.6 | 2.7 | -2.1 |
| 01S07E30R001 | 5.0 | 4.6 | 0.4 |
| 01S07E36D001 | 11.8 | 10.2 | 1.6 |
| 01S08E19R001 | **** | **** | **** |
| 01S08E25Q001 | **** | **** | **** |
| 01S08E29K001 | -5.0 | -4.0 | -1.0 |
| 01S08E30C002 | -5.4 | -2.0 | -3.4 |
| 01S08E34Q001 | -4.3 | 7.5 | -11.8 |
| 01S08E35R002 | 18.0 | 19.1 | -1.1 |
| 01S09E29M002 | **** | 21.5 | **** |
| 01S09E33J002 | 45.7 | 47.2 | -1.5 |
| 01S09E33P001 | 41.3 | 40.6 | 0.7 |
| 01S09E34A001 | **** | **** | **** |
| 02S07E07D002 | 7.3 | 8.0 | -0.7 |
| 02S07E07Q001 | **** | 19.1 | **** |
| 02S07E08R001 | 22.1 | **** | **** |
| 02S07E10B002 | **** | 19.8 | **** |
| 02S07E11N002 | 23.0 | 26.0 | -3.0 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 02S07E19H001 | 18.5 | 18.0 | 0.5 |
| 02S07E22N002 | **** | 21.3 | **** |
| 02S08E04M001 | **** | **** | **** |
| 02S08E06J001 | 14.0 | 14.0 | 0.0 |
| 02S08E07R001 | **** | **** | **** |
| 02S08E08A001 | 17.6 | **** | **** |
| 02S08E08E001 | **** | **** | **** |
| 02S08E09J001 | 28.9 | **** | **** |
| 02S08E12D001 | 32.7 | 32.3 | 0.4 |
| 02S09E03K001 | **** | **** | **** |
| 02S09E07D001 | 34.1 | 30.3 | 3.8 |
| 02S09E12R001 | 62.8 | 60.9 | 1.9 |

| | |
|---|---|
| **Total Number of Wells** | **39** |
| **Total Number of Comparable Wells** | **22** |
| **Number of Wells with Decrease** | **12** |
| **Number of Wells with Increase** | **9** |
| **Number of Wells with No Change** | **1** |
| **Range of Change** | **-11.8 to 3.8** |
| **Average Change** | **-0.77** |

**Table 3-7 Comparison of WID Water Levels**

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 03N05E13L001 | **** | **** | **** |
| 03N05E14C001 | -5.3 | -7.1 | 1.8 |
| 03N06E04P012 | -8.4 | -10.0 | 1.6 |
| 03N06E05N003 | -14.5 | -16.5 | 2.0 |
| 03N06E07D013 | -10.5 | -10.3 | -0.2 |
| 03N06E07H003 | -23.0 | -19.0 | -4.0 |
| 03N06E09N011 | **** | **** | **** |
| 03N06E10D001 | **** | -13.9 | **** |
| 03N06E15C004 | **** | **** | **** |
| 03N06E17A004 | -31.7 | -29.7 | -2.0 |
| 03N06E18M003 | -18.1 | -18.6 | 0.5 |
| 03N06E20D002 | **** | -32.5 | **** |
| 03N06E26P002 | -36.7 | -37.2 | 0.5 |
| 03N06E27E001 | -43.2 | -43.7 | 0.5 |
| 03N06E29C001 | -29.3 | -31.3 | 2.0 |
| 03N06E30R001 | -36.0 | **** | **** |
| 03N06E32R001 | -29.0 | -29.0 | 0.0 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 04N05E10K001 | -7.5 | -7.0 | -0.5 |
| 04N05E13C012 | -9.0 | -9.9 | 0.9 |
| 04N05E13H001 | **** | **** | **** |
| 04N05E13R004 | -12.0 | **** | **** |
| 04N05E14B002 | -8.9 | -10.4 | 1.5 |
| 04N05E14P001 | -3.0 | **** | **** |
| 04N05E22H001 | -13.0 | **** | **** |
| 04N05E24J004 | -6.6 | -8.6 | 2.0 |
| 04N05E26F001 | -1.8 | -3.3 | 1.5 |
| 04N05E36C004 | -4.6 | -3.4 | -1.2 |
| 04N05E36H003 | -4.0 | -7.5 | 3.5 |
| 04N06E17G004 | -7.5 | -9.5 | 2.0 |
| 04N06E18R012 | -7.4 | -8.3 | 0.9 |
| 04N06E19R012 | -1.5 | -7.2 | 5.7 |
| 04N06E29N002 | -7.6 | -11.4 | 3.8 |
| 04N06E30E001 | -4.3 | **** | **** |
| 04N06E34J002 | 21.4 | 18.9 | 2.5 |
| 05N05E28L003 | -7.0 | -6.0 | -1.0 |

| | |
|---|---|
| **Total Number of Wells** | **35** |
| **Total Number of Comparable Wells** | **24** |
| **Number of Wells with Decrease** | **6** |
| **Number of Wells with Increase** | **17** |
| **Number of Wells with No Change** | **1** |
| **Range of Change** | **-4 to 5.7** |
| **Average Change** | **1.01** |

**Table 3-6 Comparison of South West County Area Water Levels**

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 01S05E31R002 | 0.1 | 0.6 | -0.5 |
| 01S06E04J001 | -2.0 | -4.0 | 2.0 |
| 01S06E14F001 | **** | **** | **** |
| 01S06E15F001 | -0.7 | -0.5 | -0.2 |
| 01S06E23C003 | -0.9 | 2.6 | -3.5 |
| 01S06E26K001 | -2.7 | **** | **** |
| 02S04E15R001 | 52.5 | 54.0 | -1.5 |
| 02S05E08B001 | -2.2 | **** | **** |
| 02S05E13N001 | **** | **** | **** |
| 02S06E10K001 | 2.0 | 2.0 | 0.0 |

| StateWellID | Fall 2016 | Fall 2015 | Change |
|---|---|---|---|
| 02S06E25J001 | 14.9 | 12.6 | 2.3 |
| 02S06E26B001 | **** | **** | **** |
| 02S06E27E001 | **** | **** | **** |
| 02S06E31N001 | 49.5 | 50.5 | -1.0 |
| 02S06E31N001 | 51.7 | 50.5 | -1.2 |
| 03S05E04H001 | **** | **** | **** |
| 03S06E03F002 | **** | **** | **** |
| 03S06E23C001 | **** | **** | **** |
| 03S06E27N001 | 62.8 | **** | **** |
| 03S06E27N001 | 66.5 | **** | **** |
| Corral MW-4 | 224.0 | 221.9 | 2.1 |
| Corral MW-5 | 226.7 | 227.1 | -0.4 |
| Corral MW-6 | -54.8 | -54.6 | -0.2 |
| Corral MW-7 | 1.7 | 1.8 | 0.0 |
| MW-1A | -24.7 | -22.1 | -2.7 |
| MW-1B | -38.5 | -36.1 | -2.4 |
| MW-1C | -38.8 | -36.3 | -2.4 |
| MW-2A | -34.5 | -31.6 | -2.9 |
| MW-2B | -41.4 | -38.5 | -2.8 |
| MW-2C | -41.8 | -39.3 | -2.5 |
| MW-3A | -31.4 | -27.7 | -3.7 |
| MW-3B | -41.7 | -38.6 | -3.1 |
| MW-3C | -42.6 | -39.9 | -2.8 |
| MW-4A | -34.3 | -32.1 | -2.2 |
| MW-4B | -40.0 | -37.4 | -2.5 |
| MW-4C | -39.9 | -38.2 | -1.7 |
| MW-5A | -33.3 | -31.2 | -2.0 |
| MW-5B | -34.3 | -32.4 | -1.9 |
| MW-5C | -33.0 | -31.6 | -1.3 |
| MW-6A | -28.1 | -25.5 | -2.6 |
| MW-6B | -32.9 | -30.6 | -2.2 |
| MW-6C | -30.2 | -28.8 | -1.4 |

| | |
|---|---|
| **Total Number of Wells** | **42** |
| **Total Number of Comparable Wells** | **31** |
| **Number of Wells with Decrease** | **27** |
| **Number of Wells with Increase** | **3** |
| **Number of Wells with No Change** | **1** |
| **Range of Change** | **-3.713 to 2.3** |
| **Average Change** | **-1.47** |

# HYDROGRAPHS

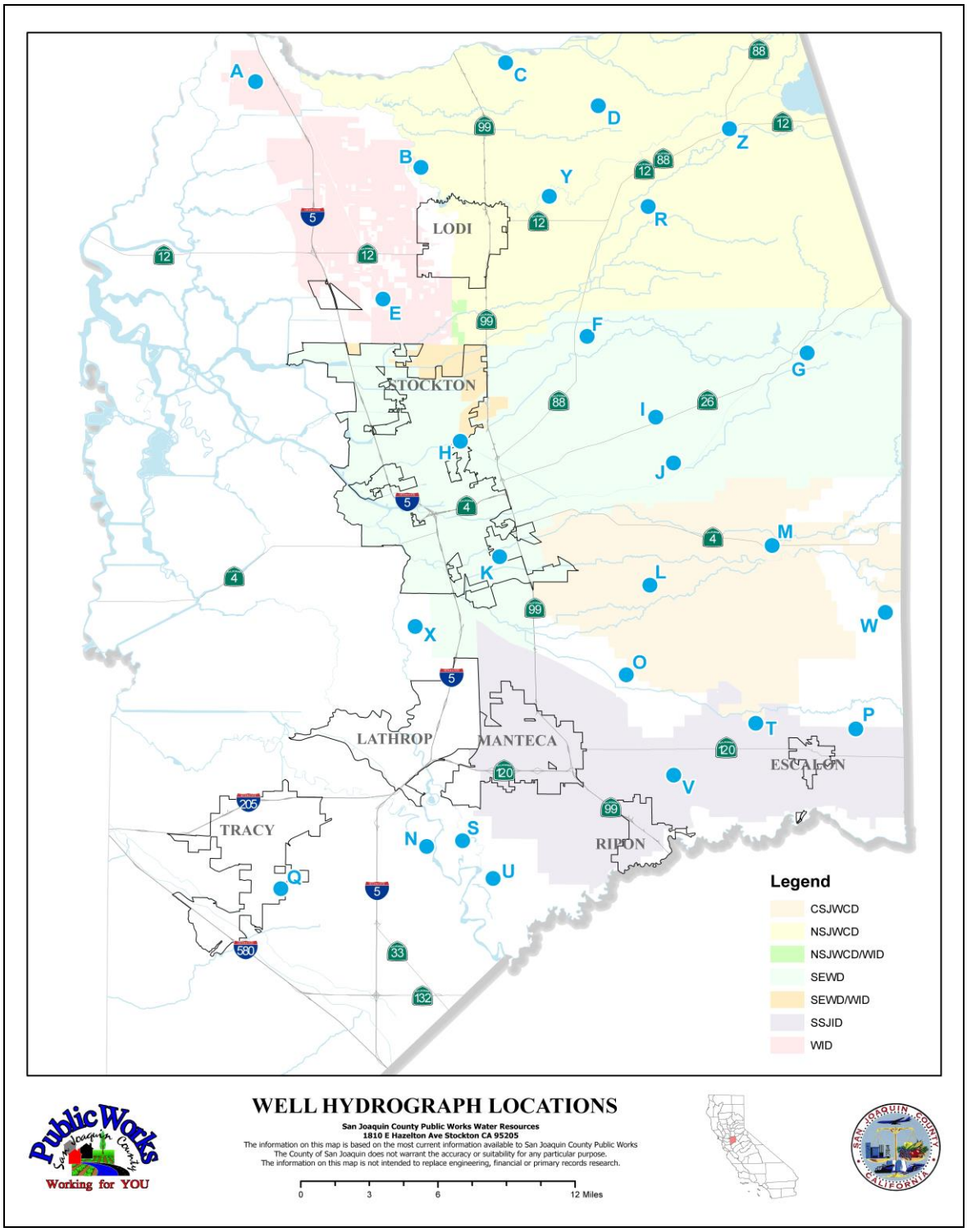



**Figure 3-1: Well Hydrograph Locations**

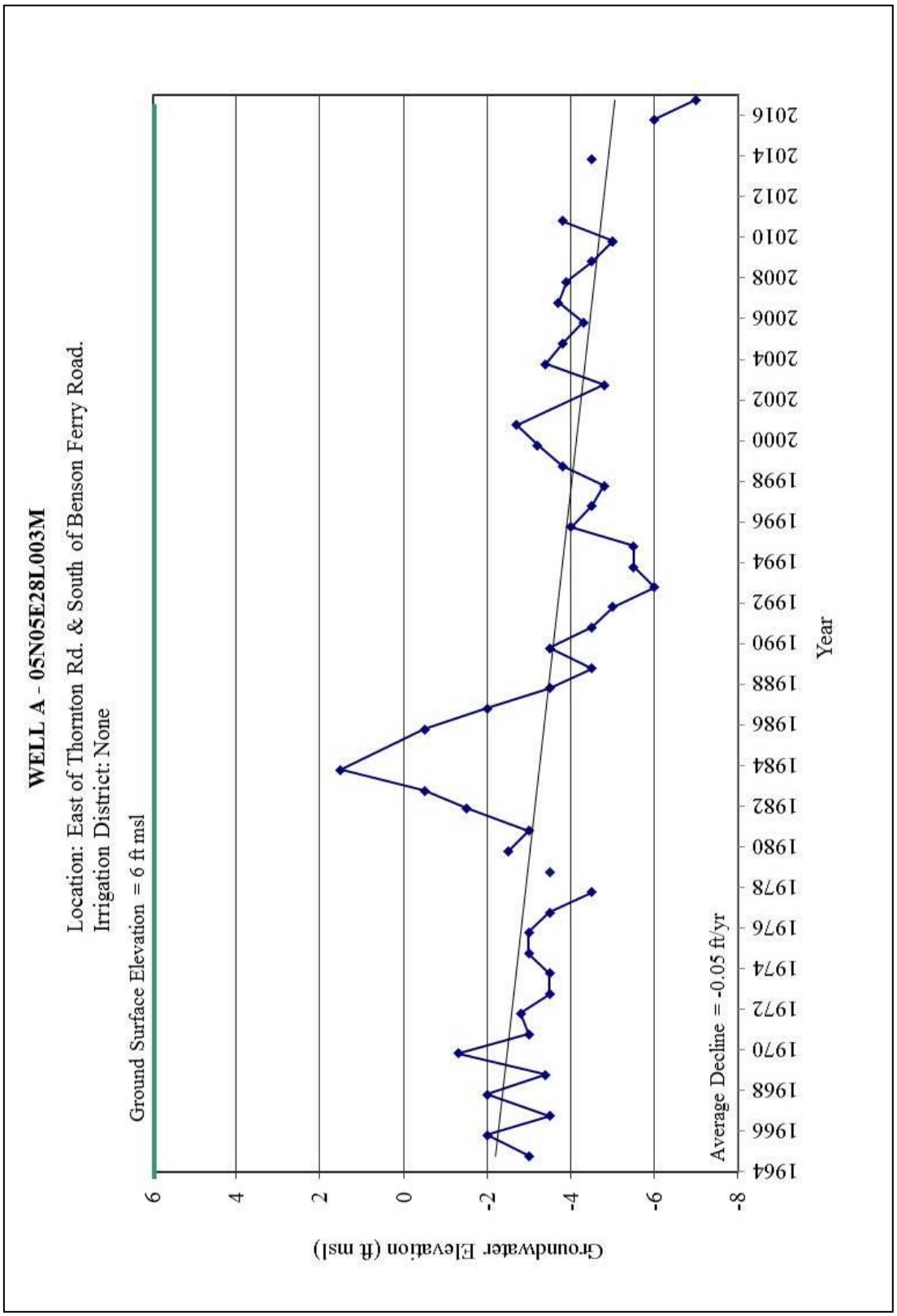



**Figure 3-2: Fall Hydrograph Well A**

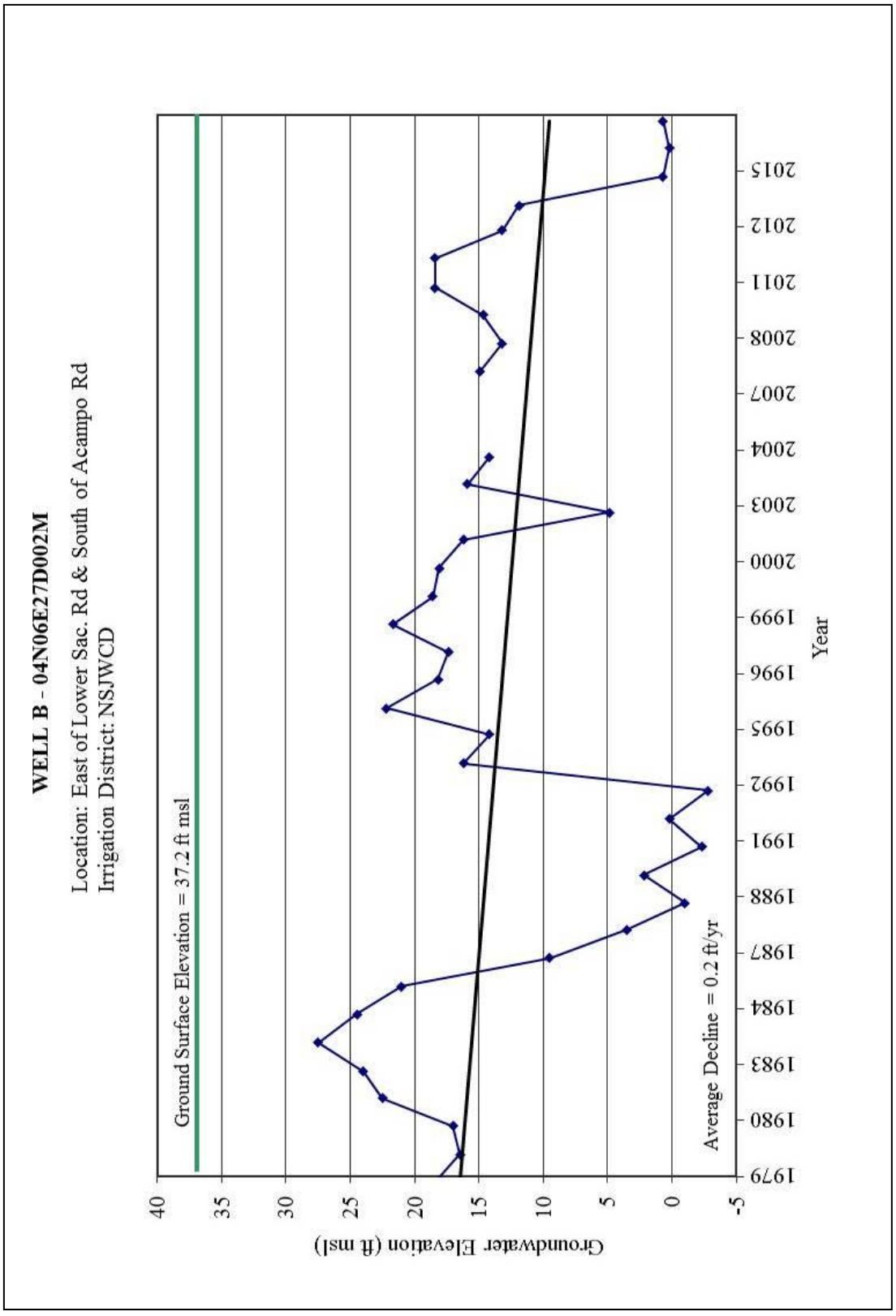
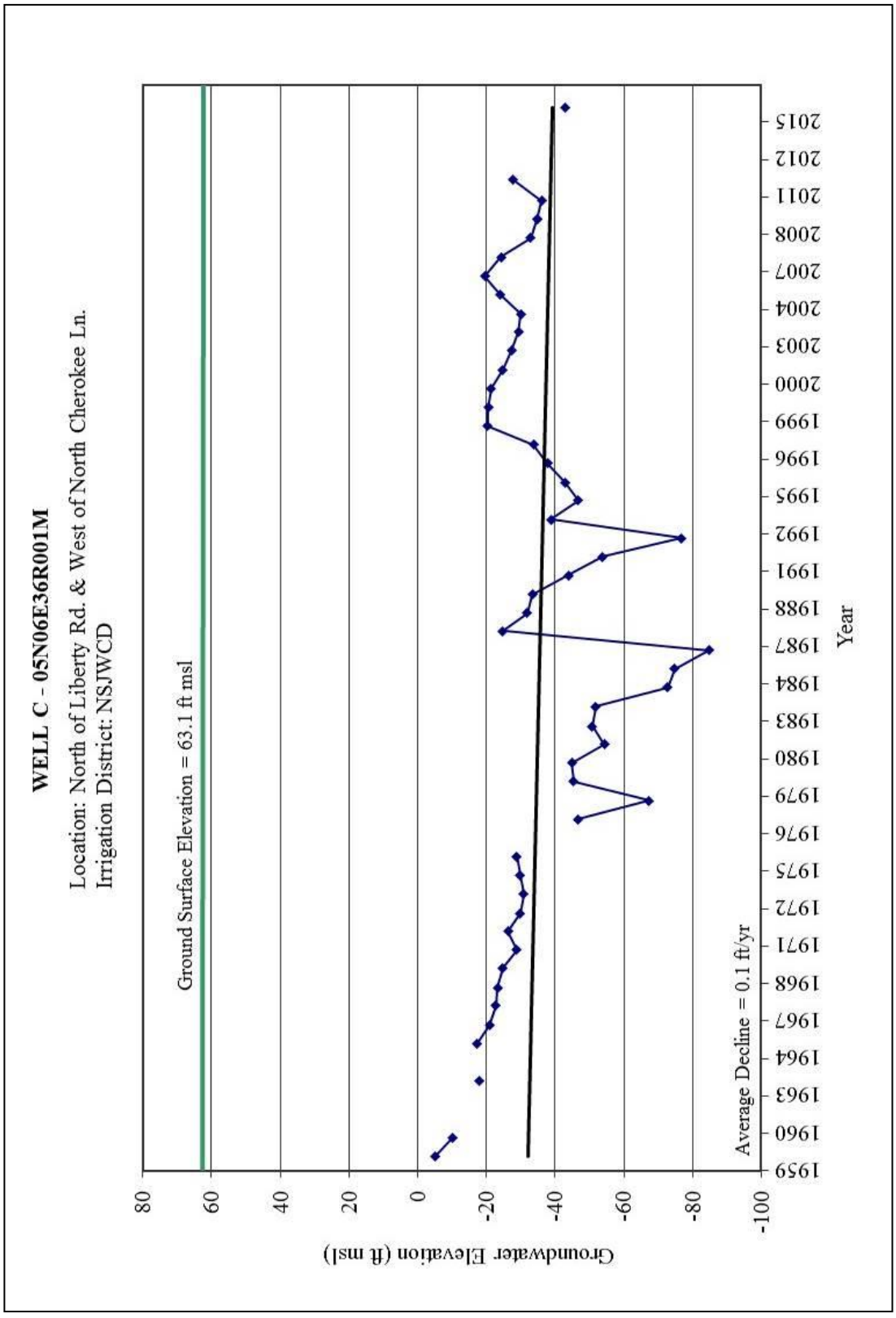



**Figure 3-3: Fall Hydrograph Well B**


WELL C - 05N06E36R001M
Location: North of Liberty Rd. & West of North Cherokee Ln.
Irrigation District: NSJWCD
Ground Surface Elevation = 63.1 ft msl
Average Decline = 0.1 ft/yr
Groundwater Elevation (ft msl)
Year
80
60
40
20
0
-20
-40
-60
-80
-100
1959
1960
1963
1964
1967
1968
1971
1972
1975
1976
1979
1980
1983
1984
1987
1988
1991
1992
1995
1996
1999
2000
2003
2004
2007
2008
2011
2012
2015

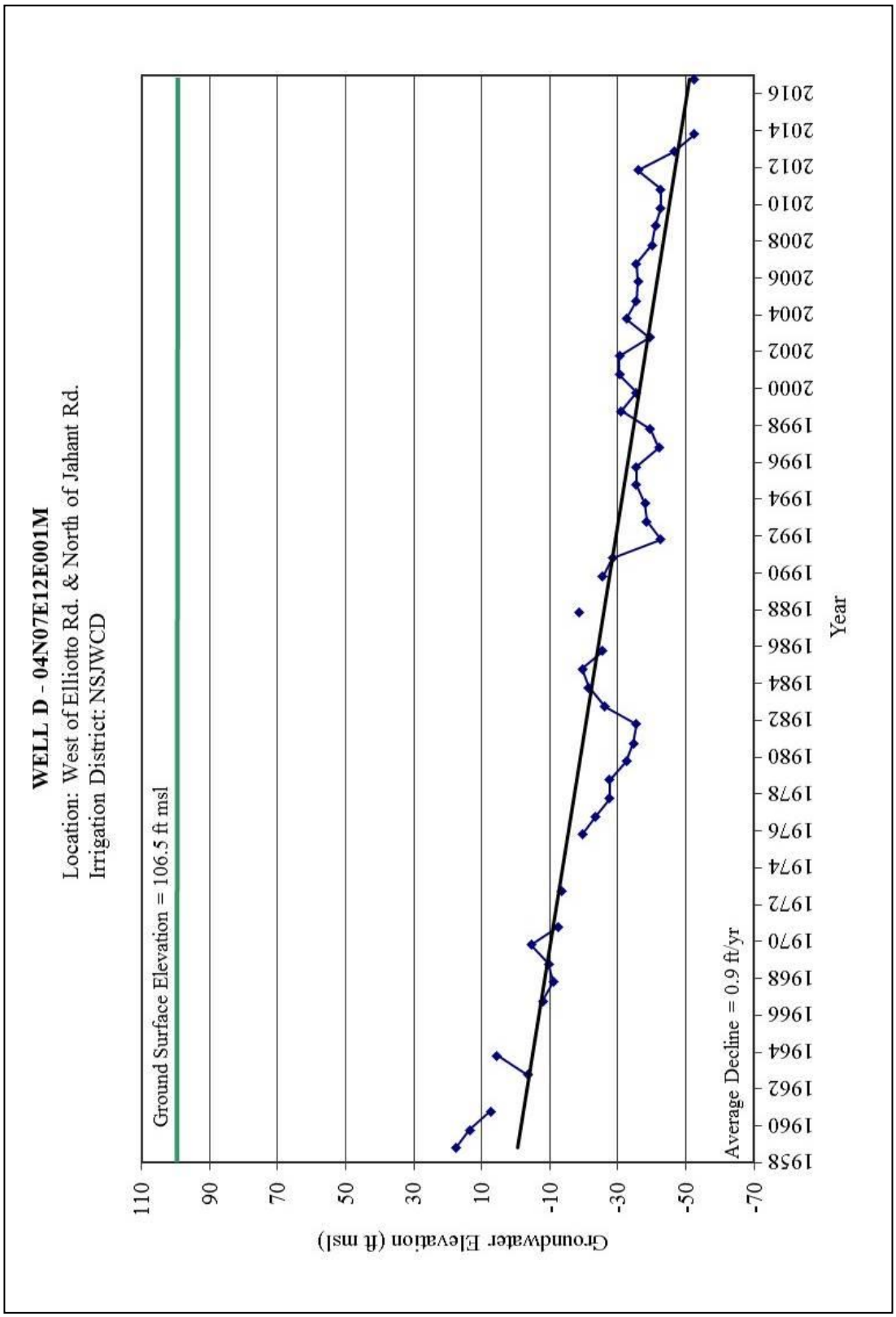



**Figure 3-5: Fall Hydrograph Well D**

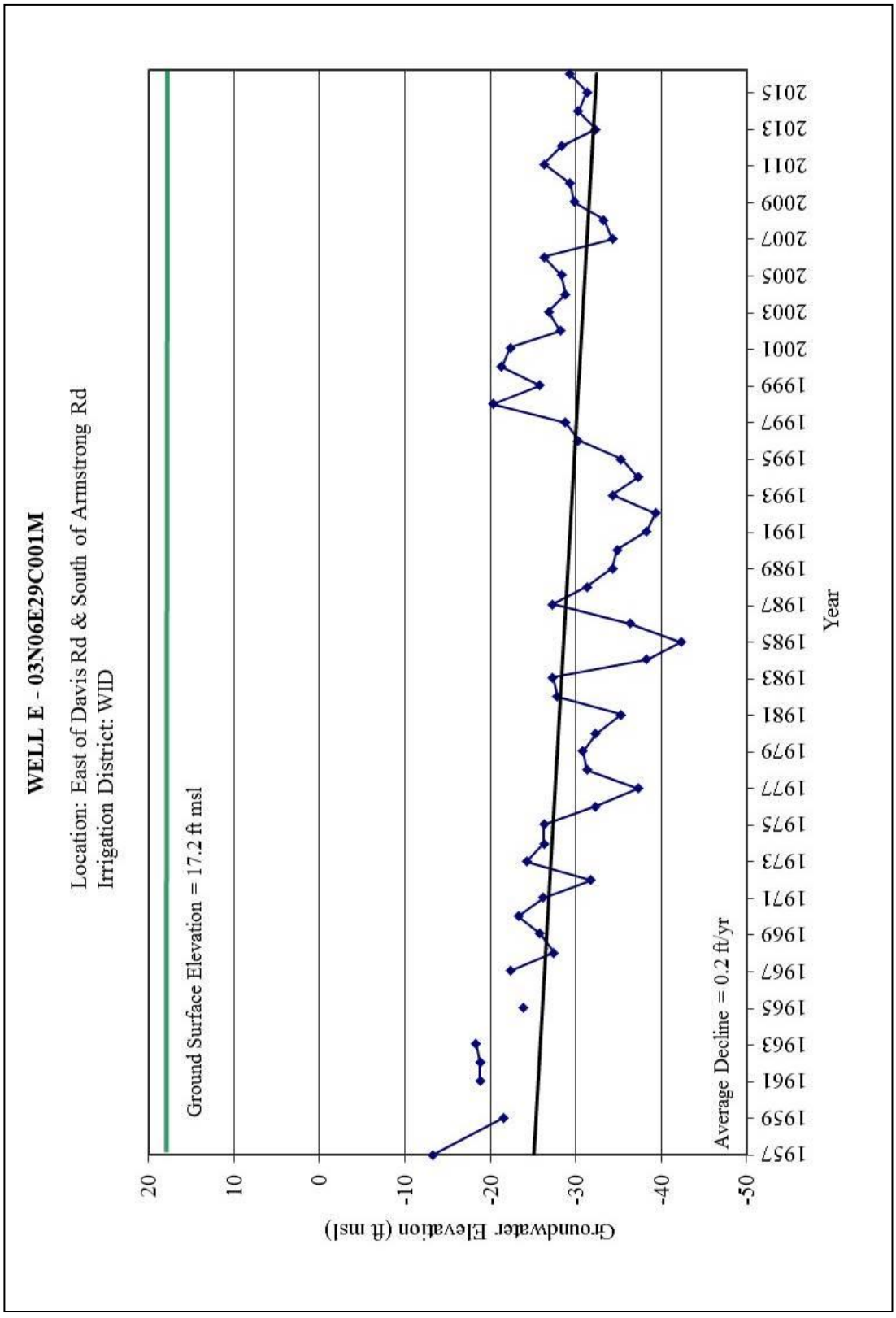



**Figure 3-6: Fall Hydrograph Well E**

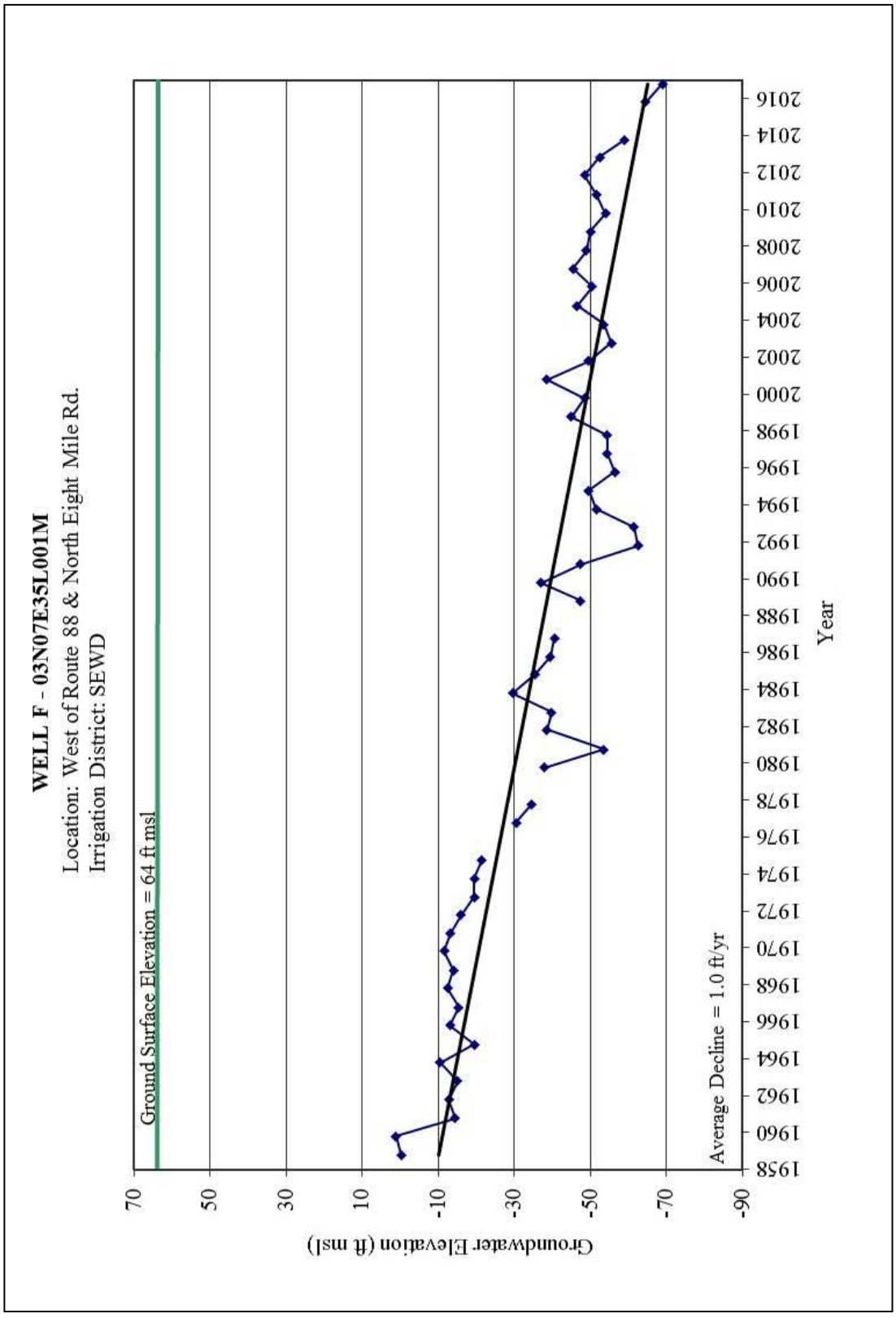



**Figure 3-7: Fall Hydrograph Well F**

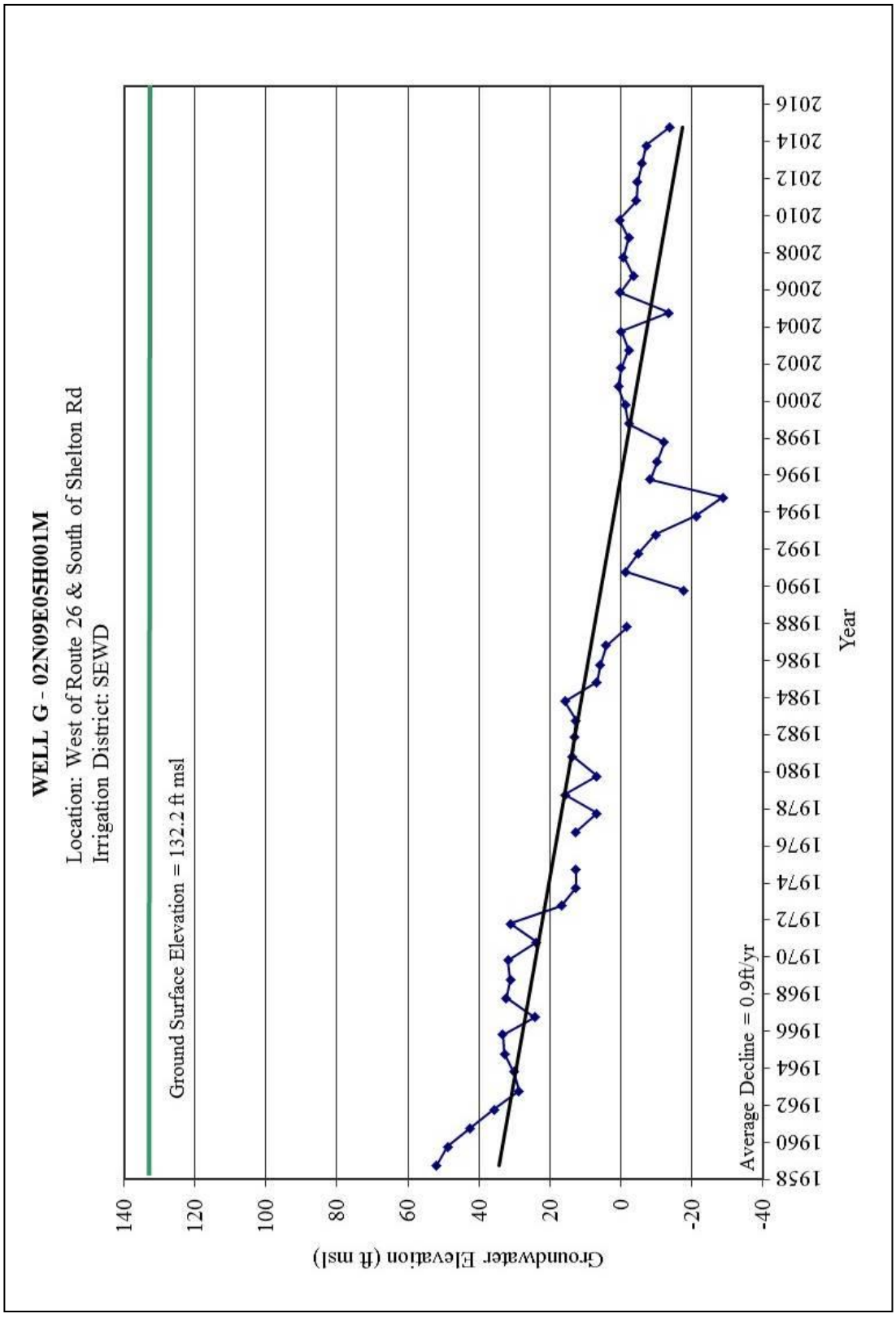



**Figure 3-8: Fall Hydrograph Well G**

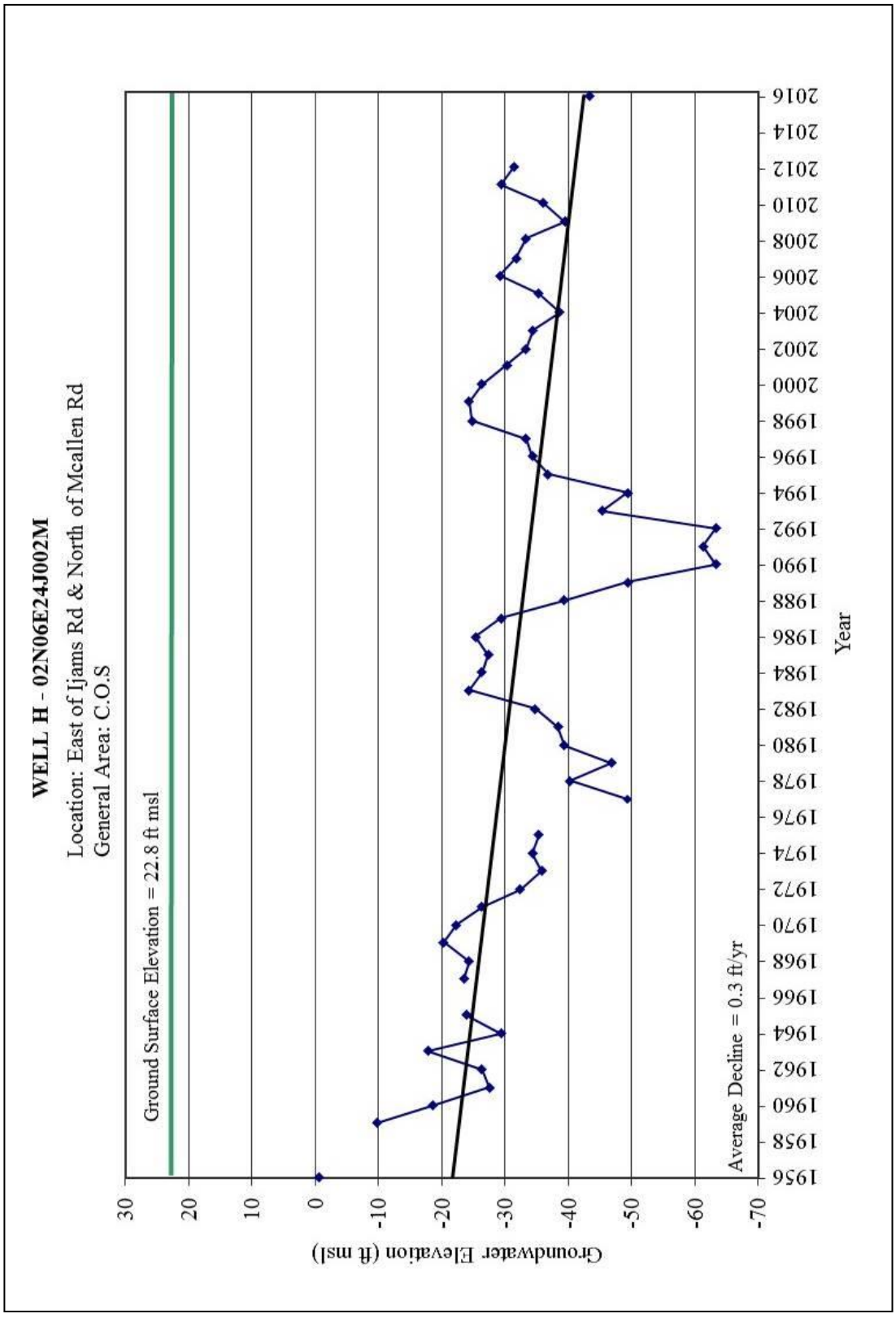



**Figure 3-9: Fall Hydrograph Well H**

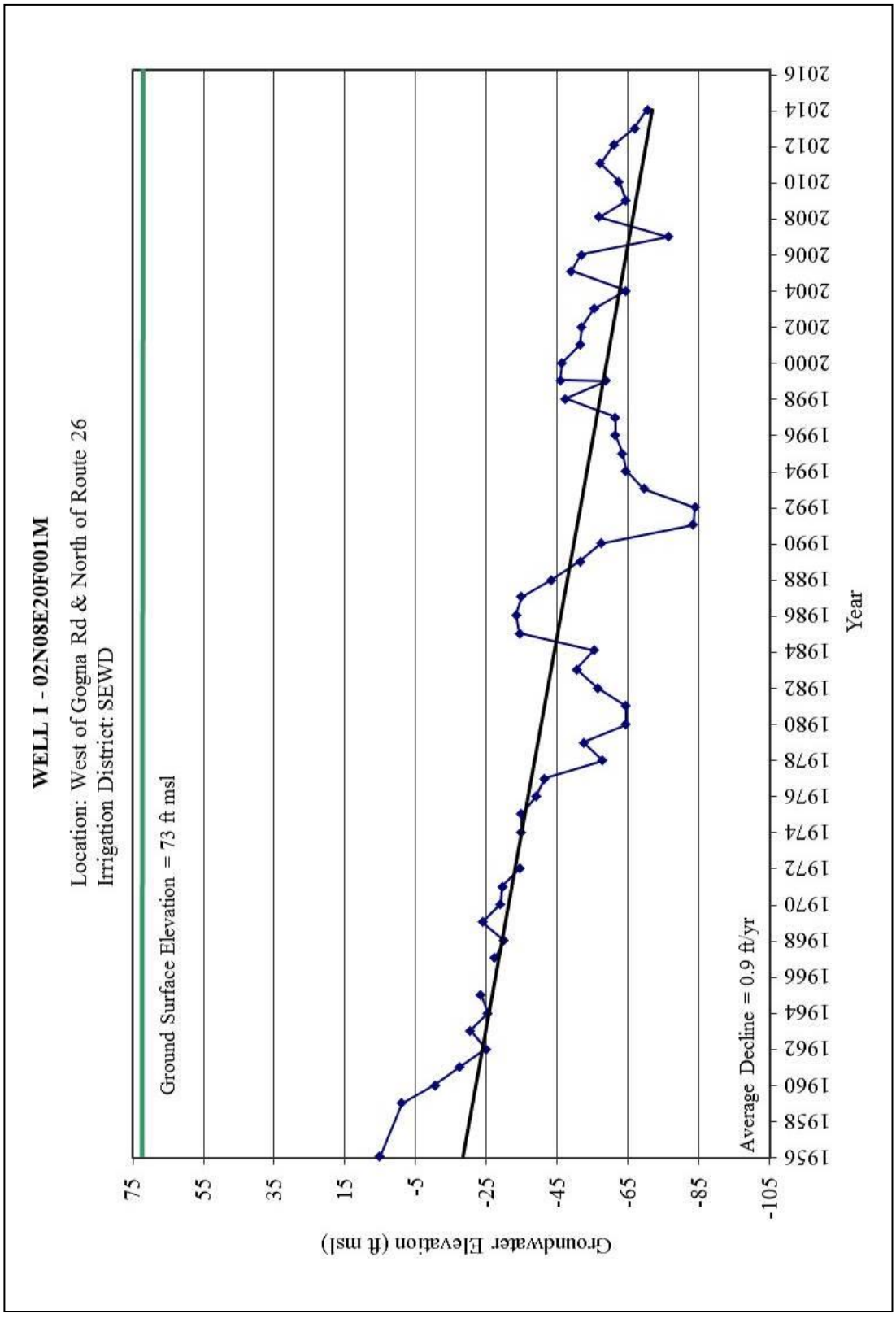



**Figure 3-10: Fall Hydrograph Well I**

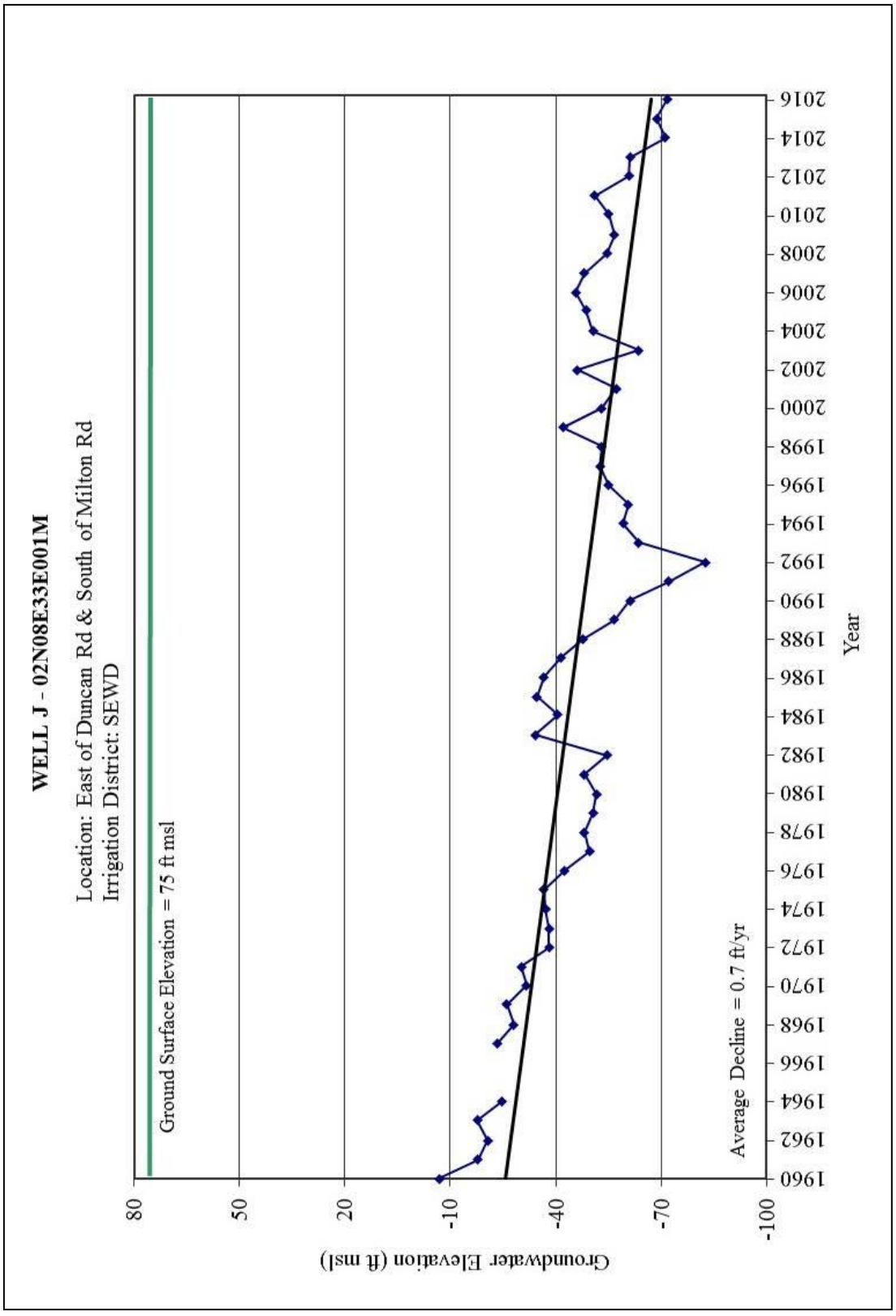



**Figure 3-11: Fall Hydrograph Well J**

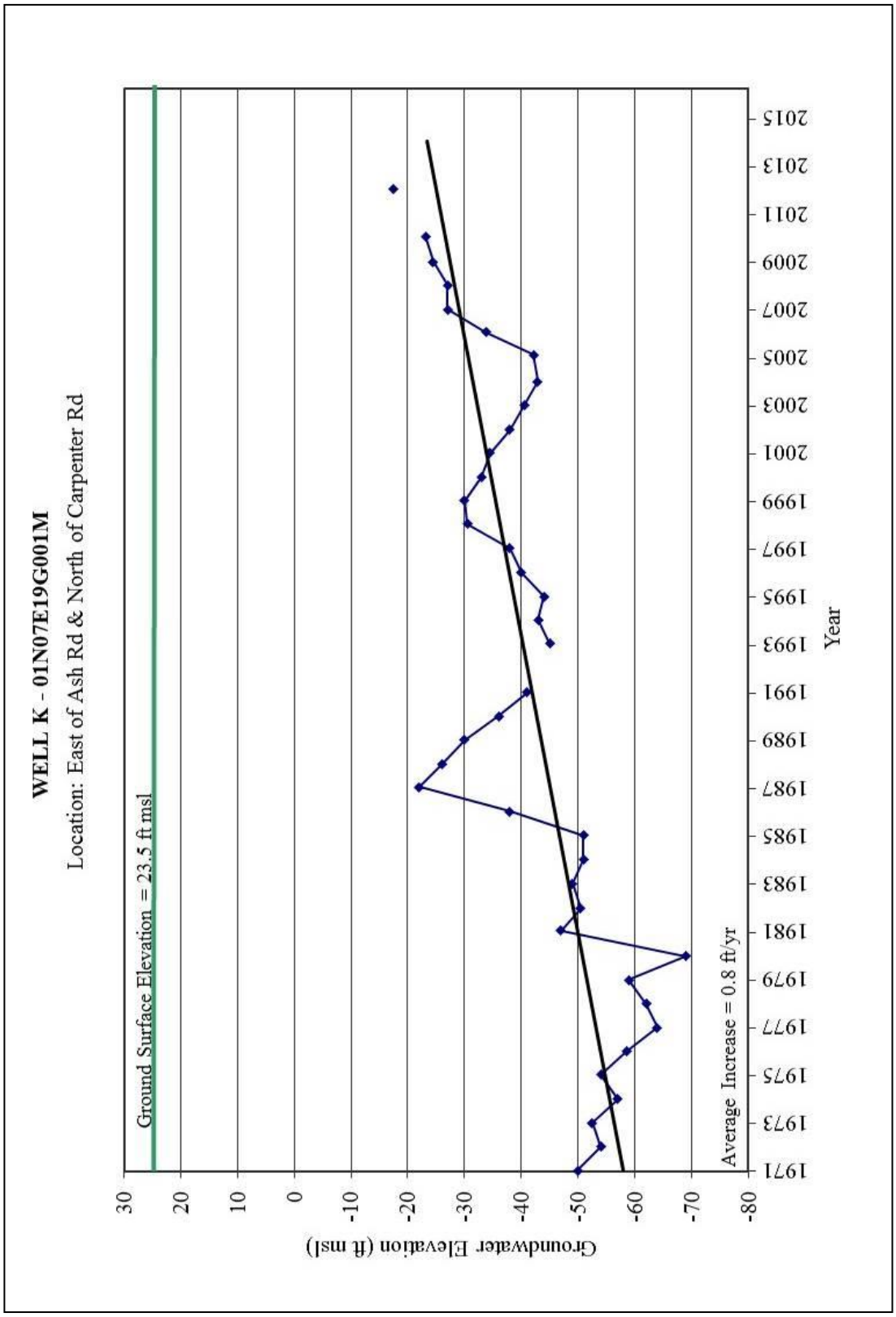



**Figure 3-12: Fall Hydrograph Well K**

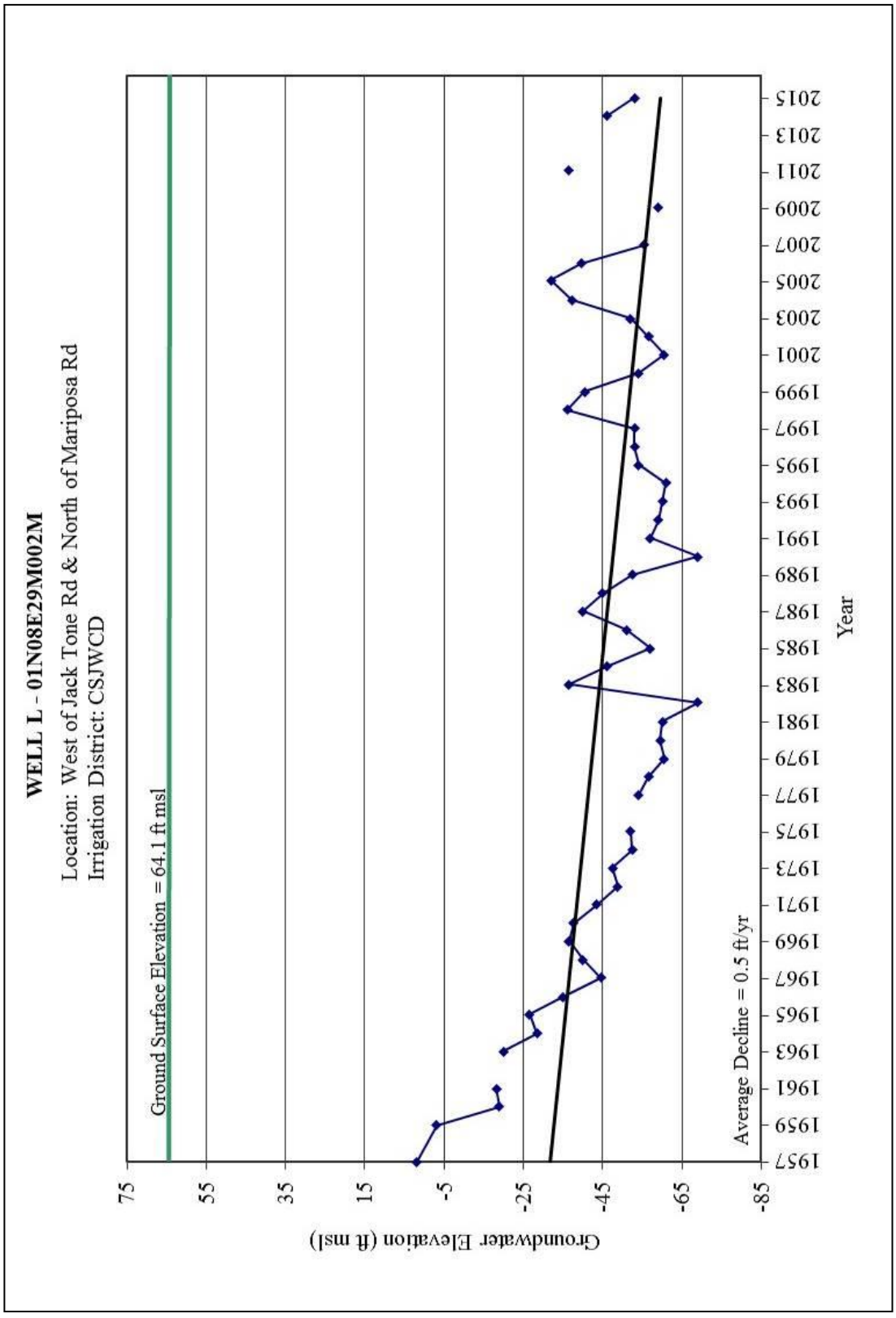



**Figure 3-13: Fall Hydrograph Well L**

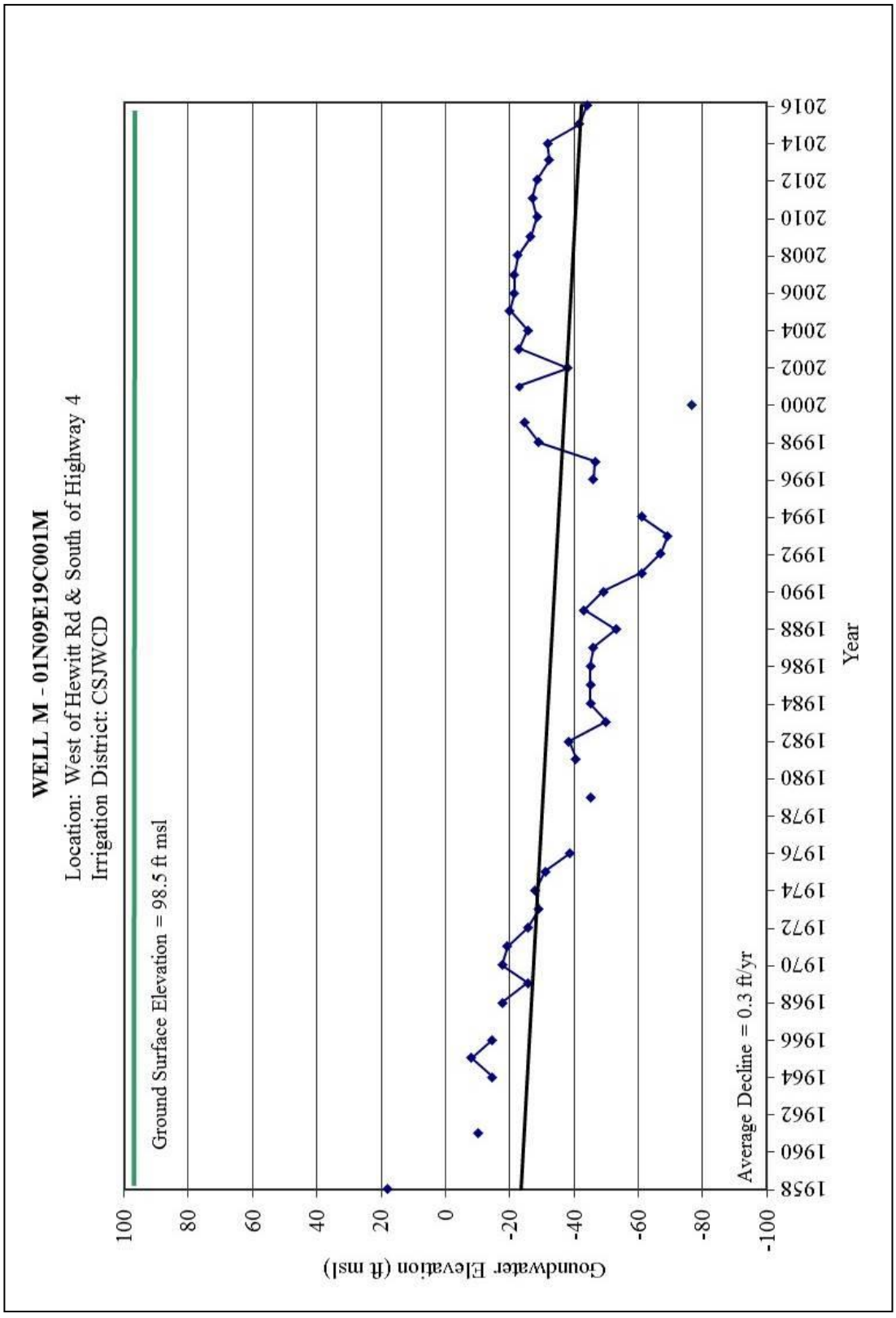



**Figure 3-14: Fall Hydrograph Well M**

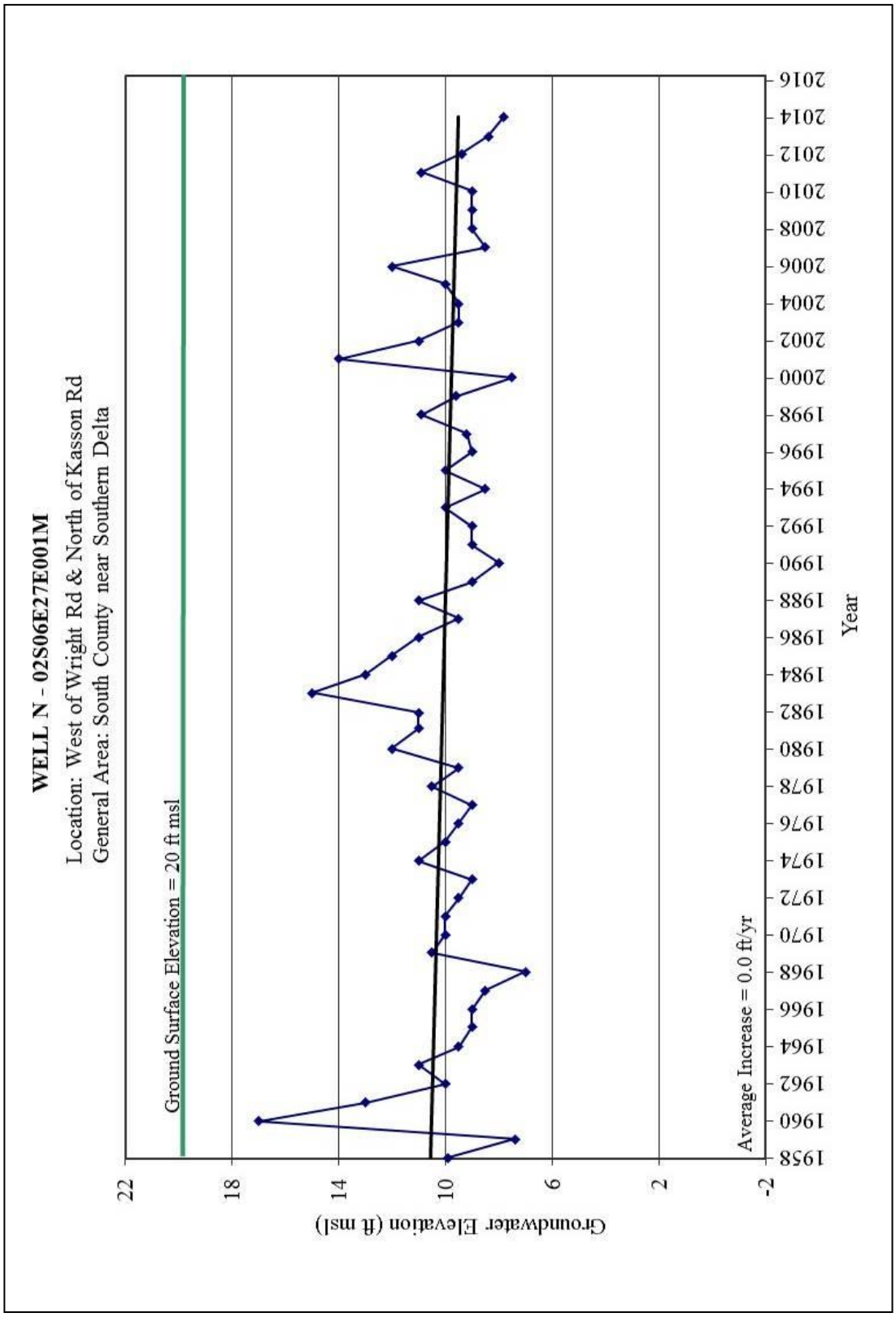



**Figure 3-15: Fall Hydrograph Well N**

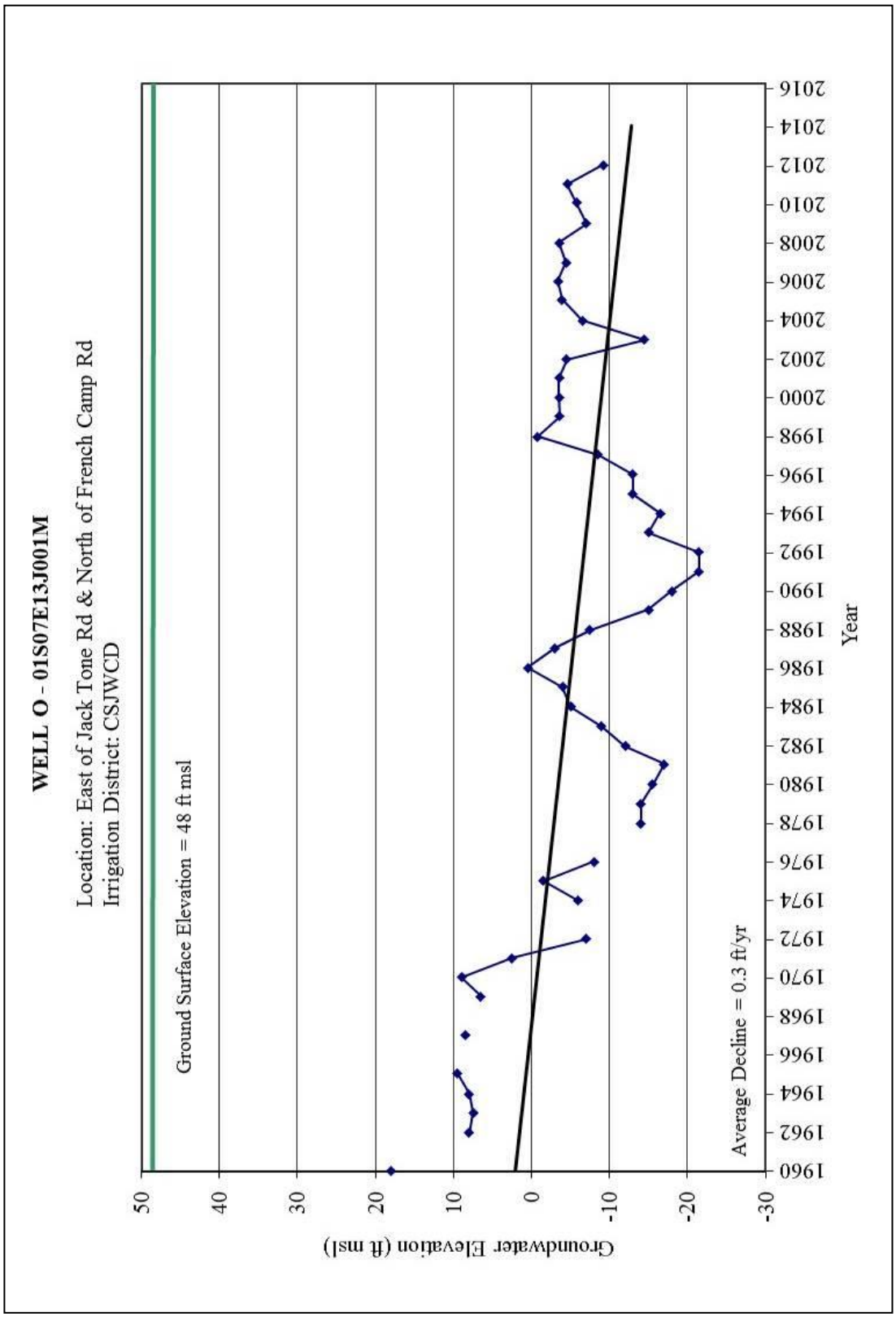



**Figure 3-16: Fall Hydrograph Well O**

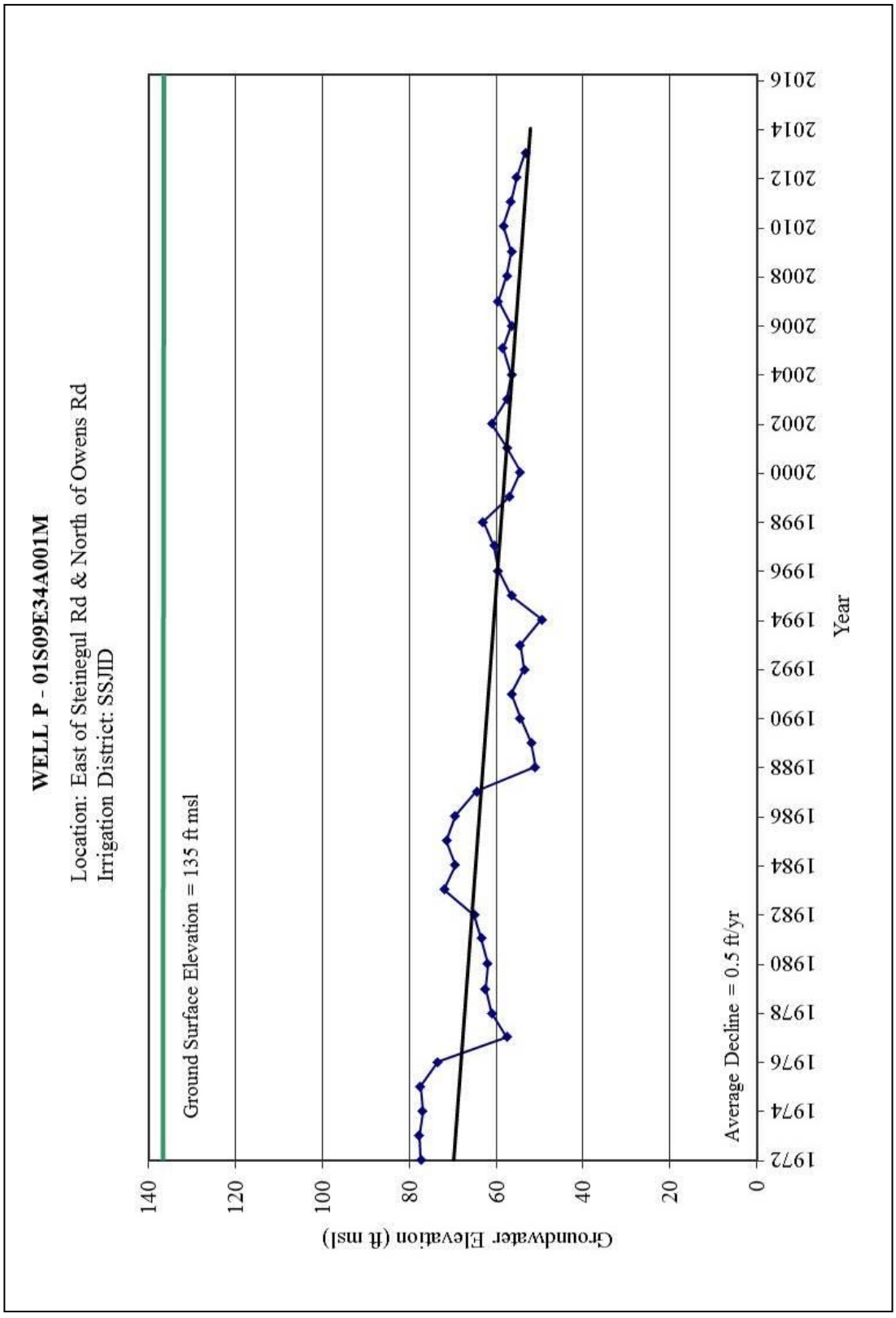



**Figure 3-17: Fall Hydrograph Well P**

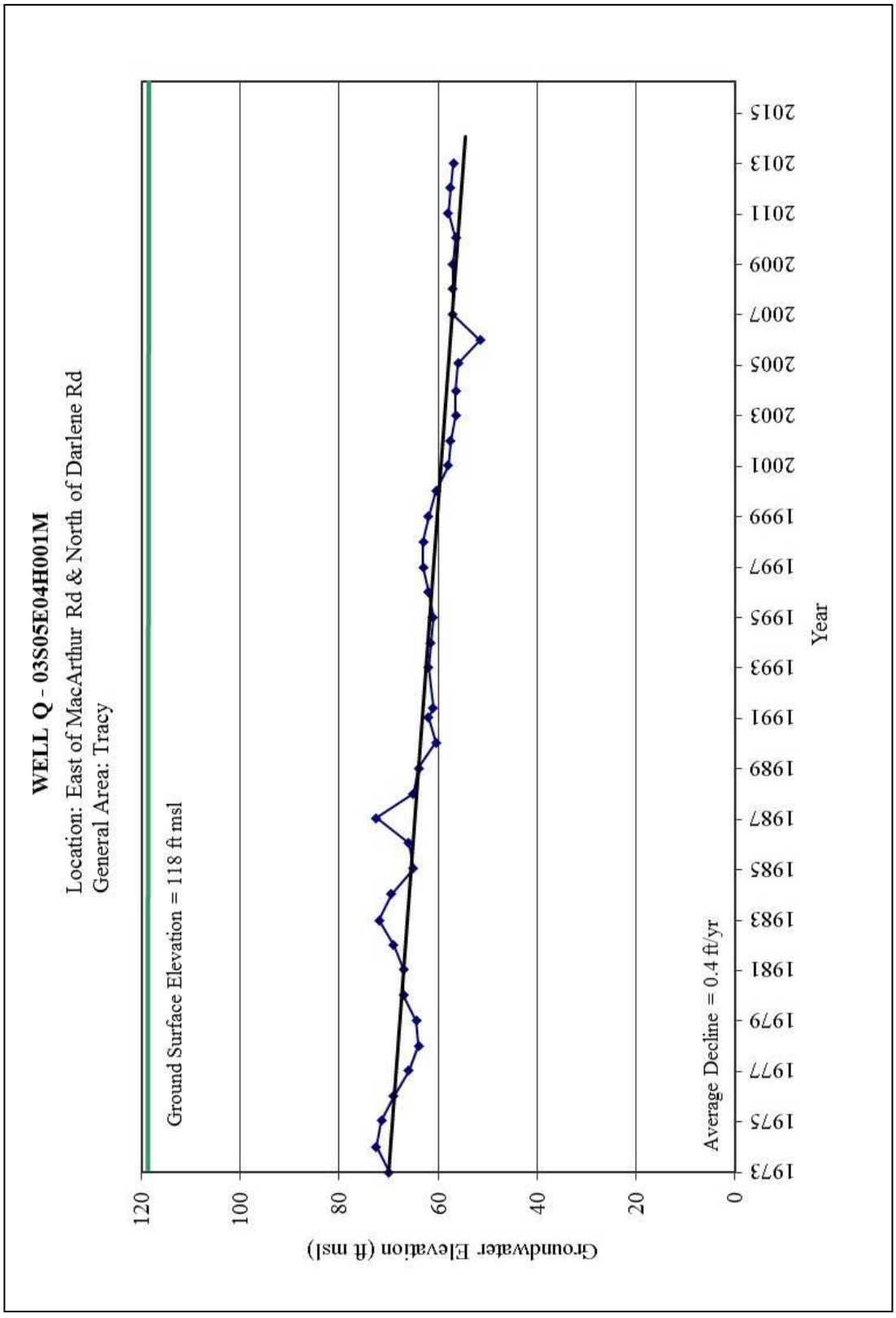



Figure 3-18: Fall Hydrograph Well Q

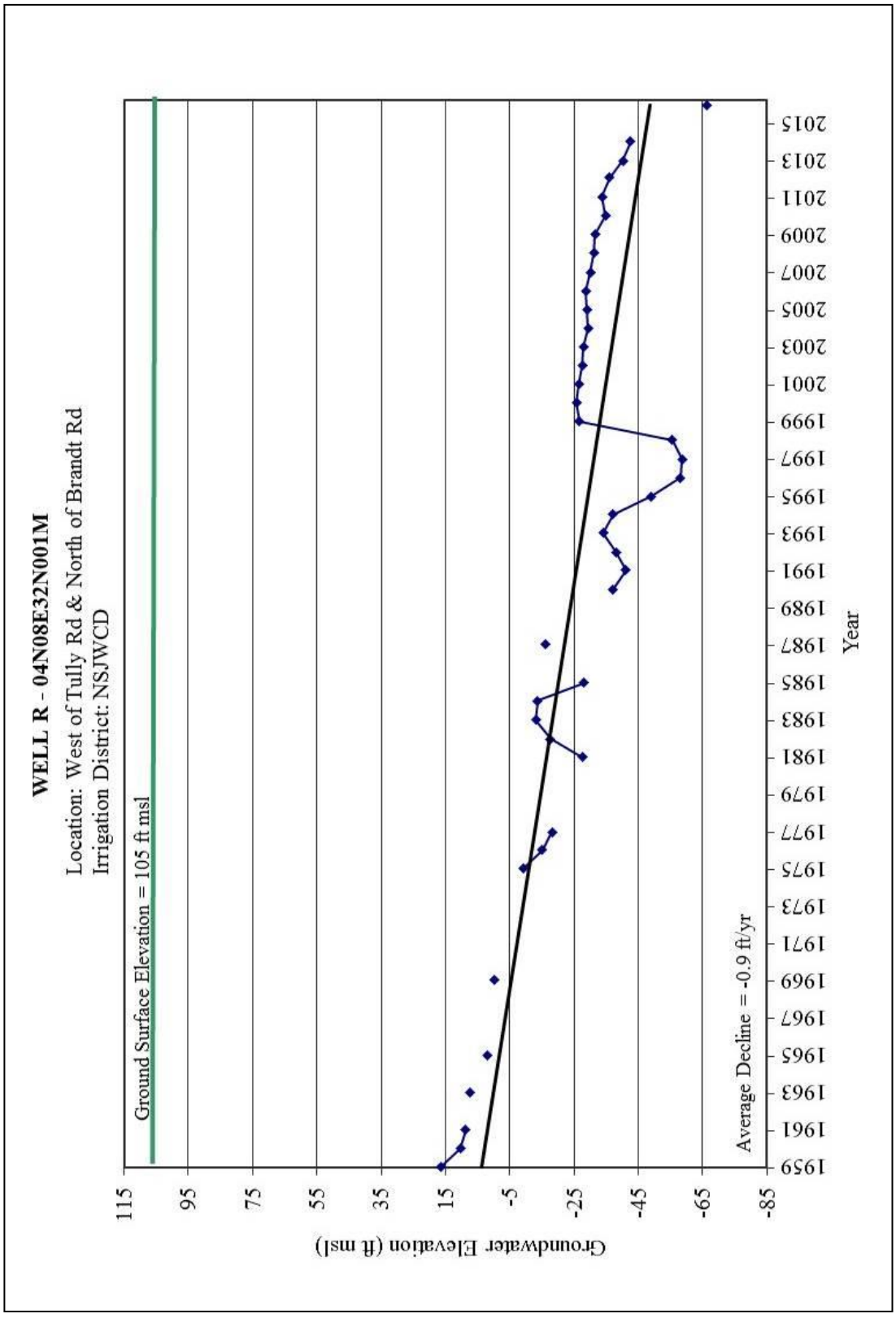



**Figure 3-19: Fall Hydrograph Well R**

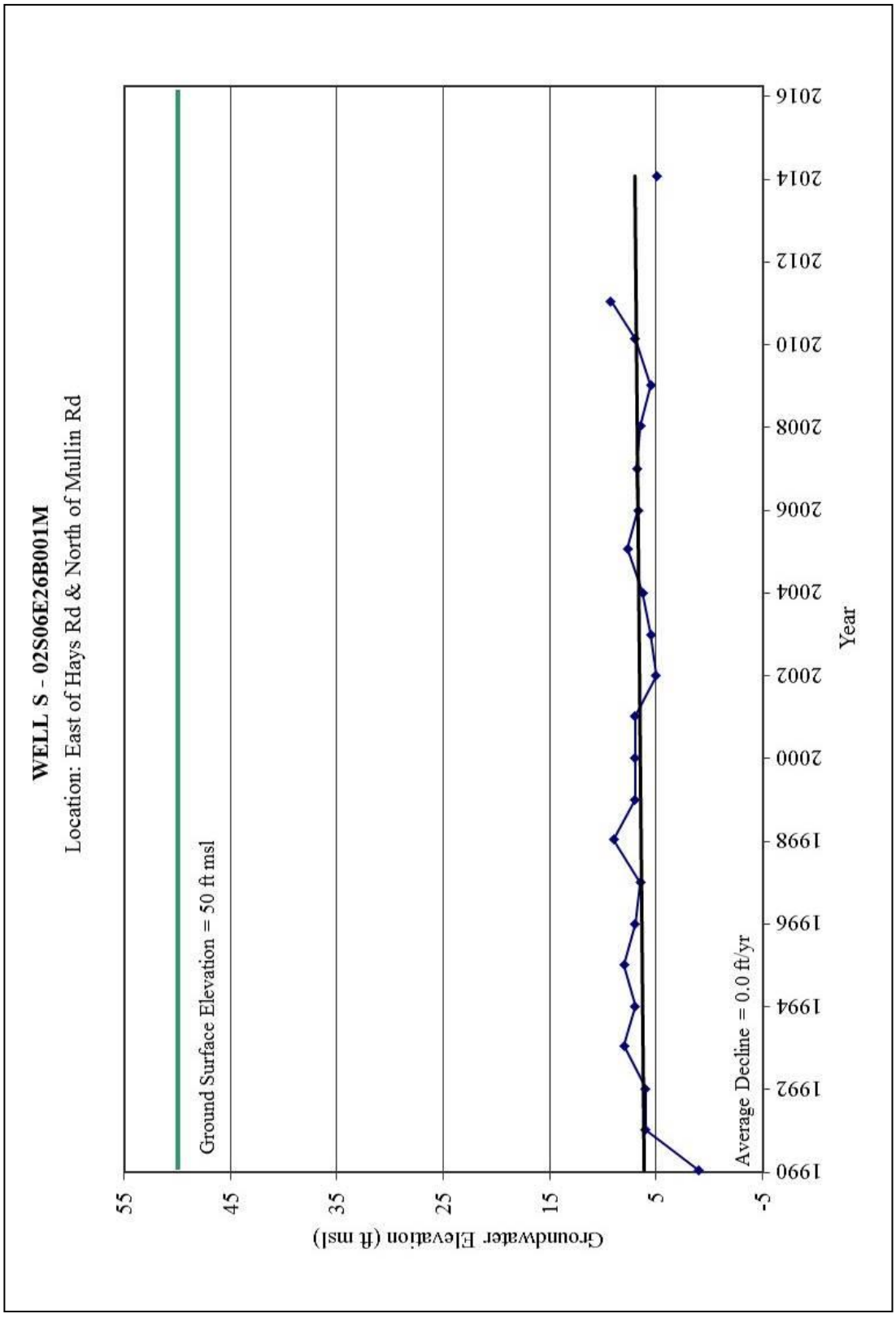



**Figure 3-20: Fall Hydrograph Well S**

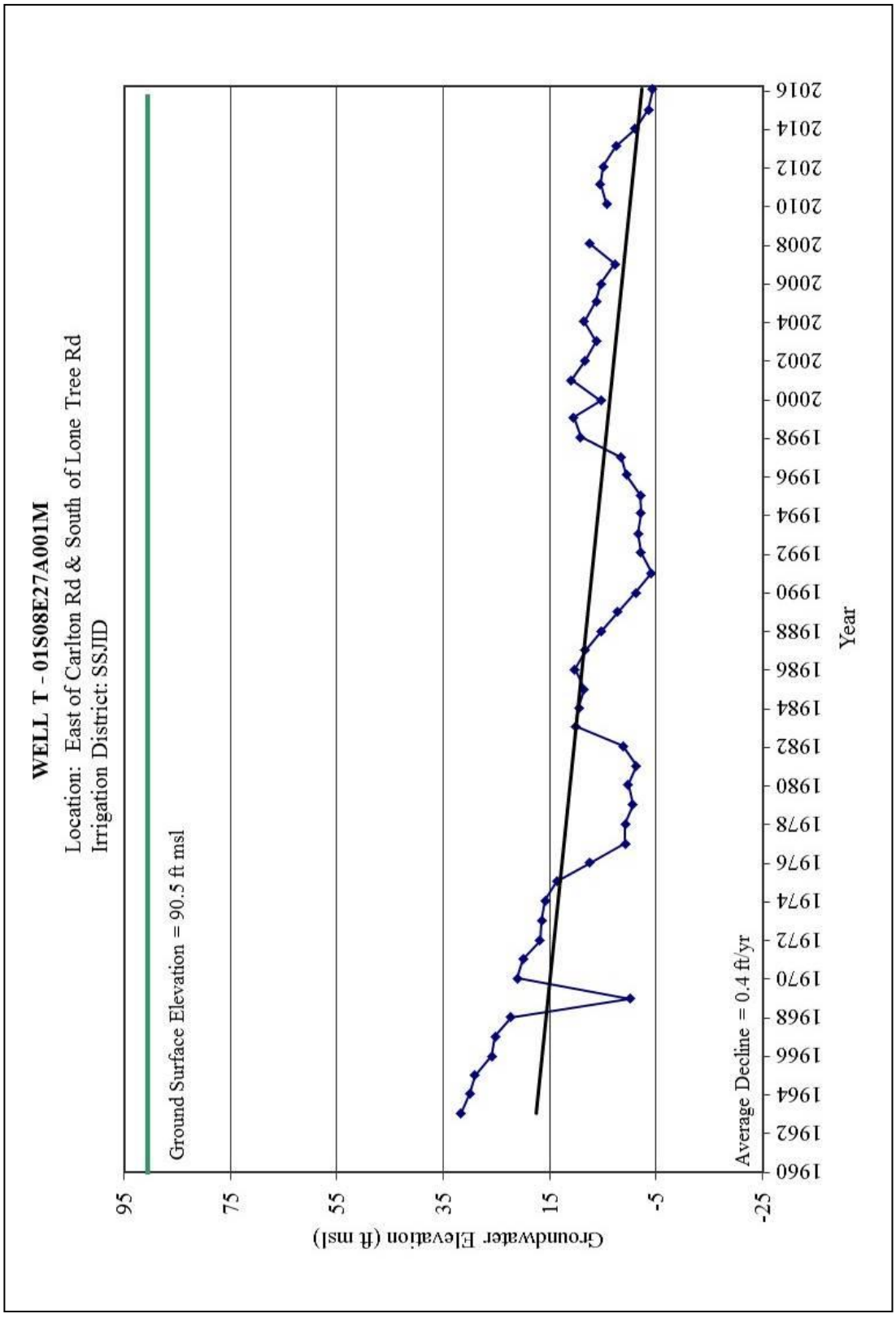



**Figure 3-21: Fall Hydrograph Well T**

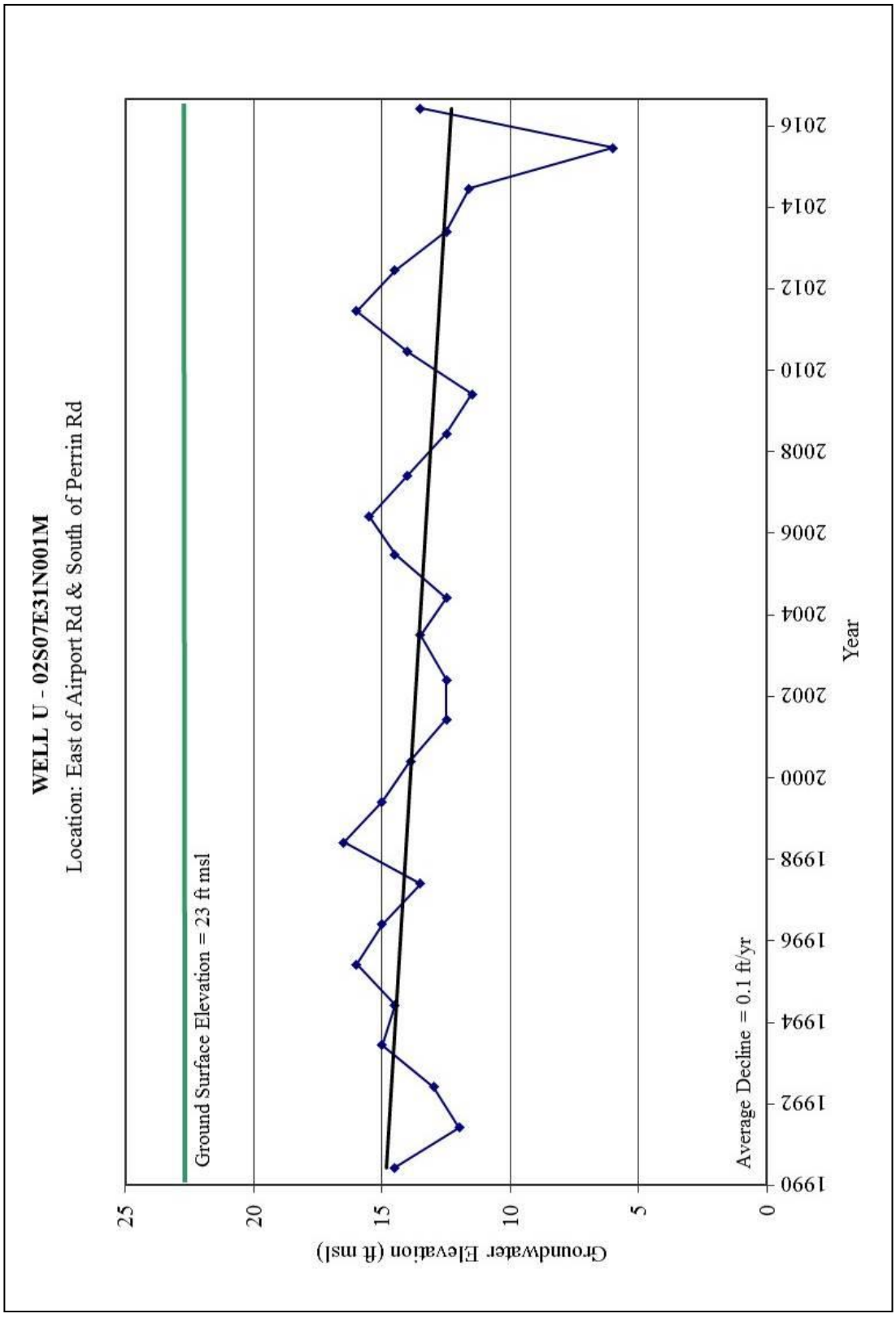



**Figure 3-22: Fall Hydrograph Well U**

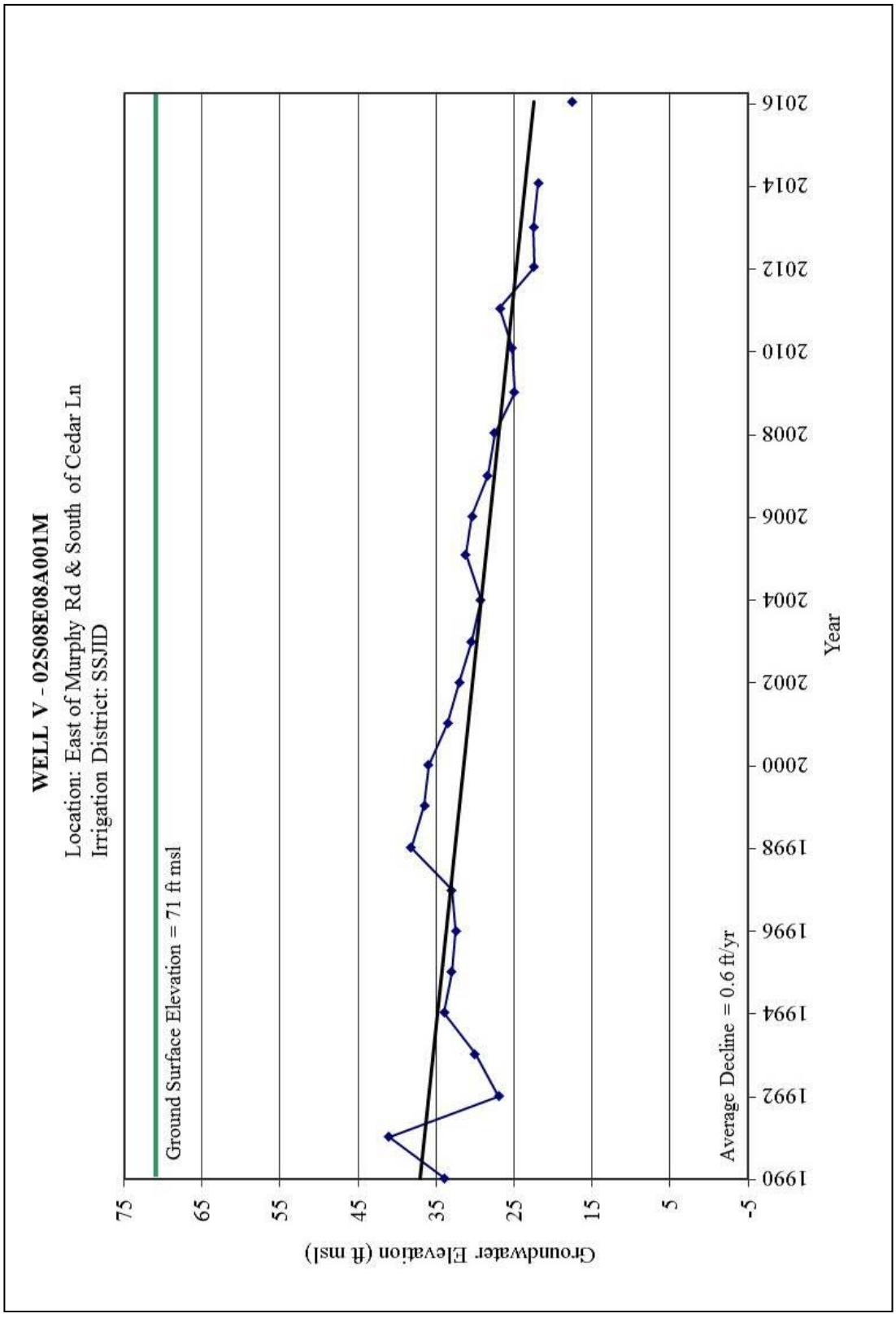



**Figure 3-23: Fall Hydrograph Well V**

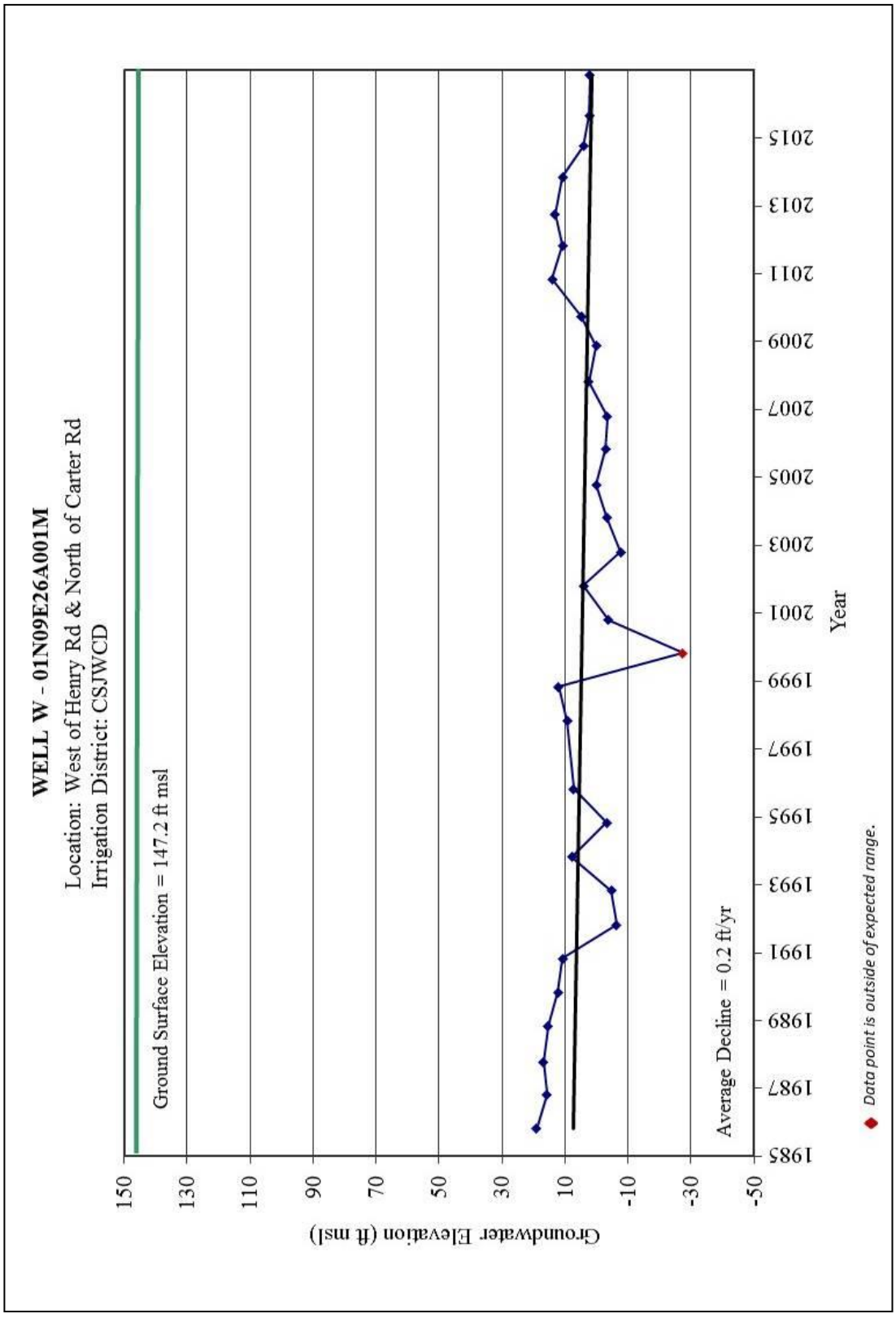



**Figure 3-24: Fall Hydrograph Well W**

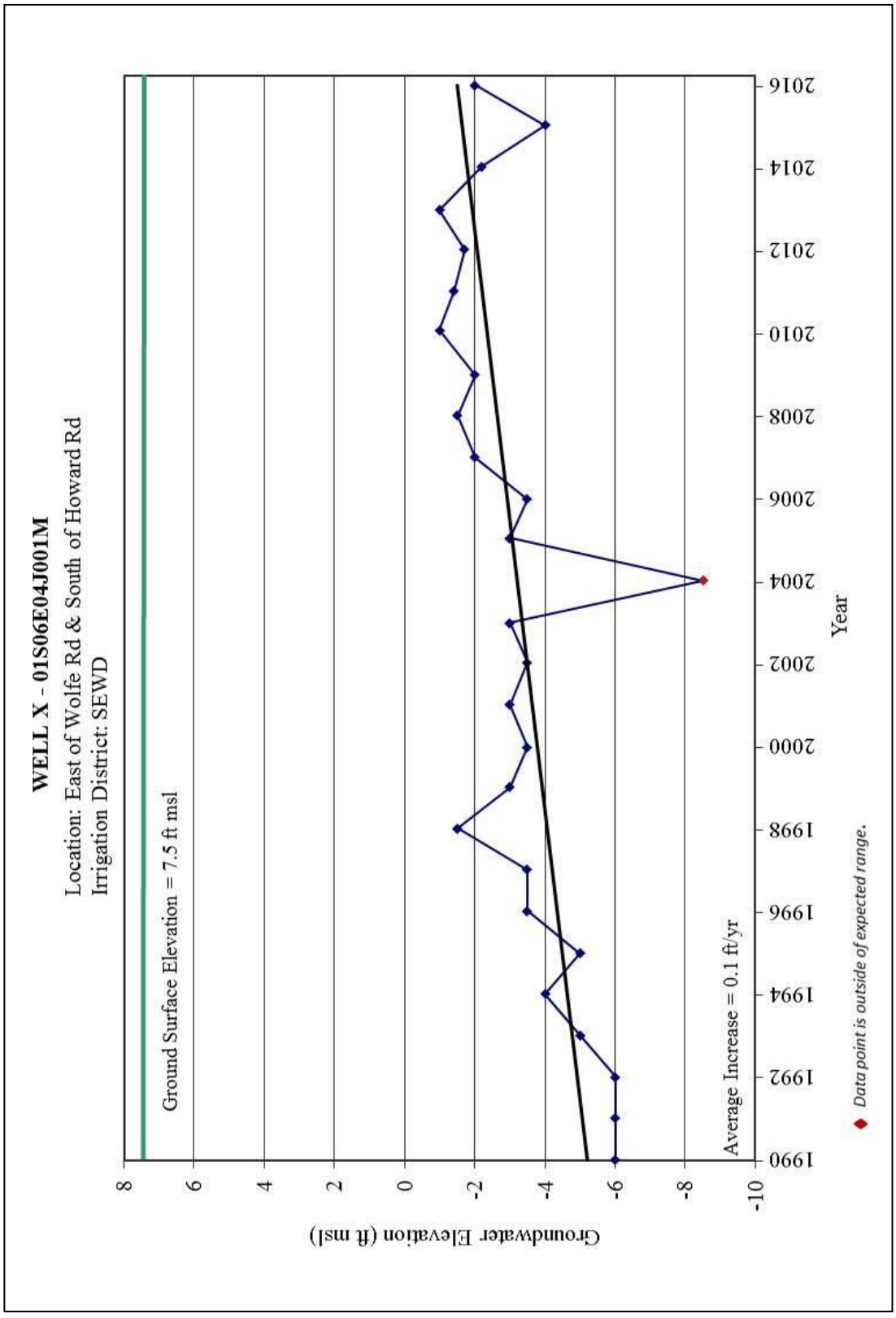



**Figure 3-25: Fall Hydrograph Well X**

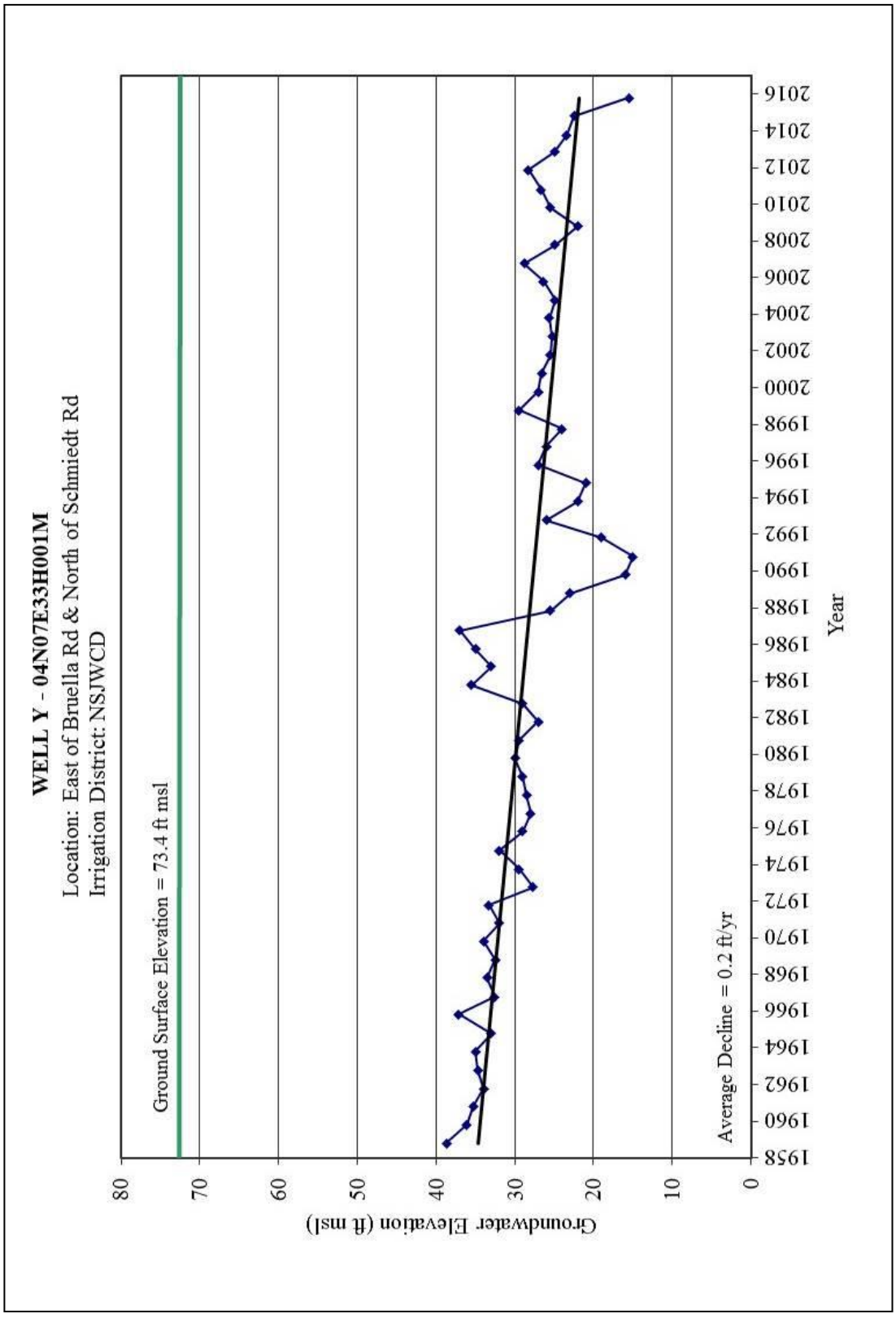



**Figure 3-26: Fall Hydrograph Well Y**

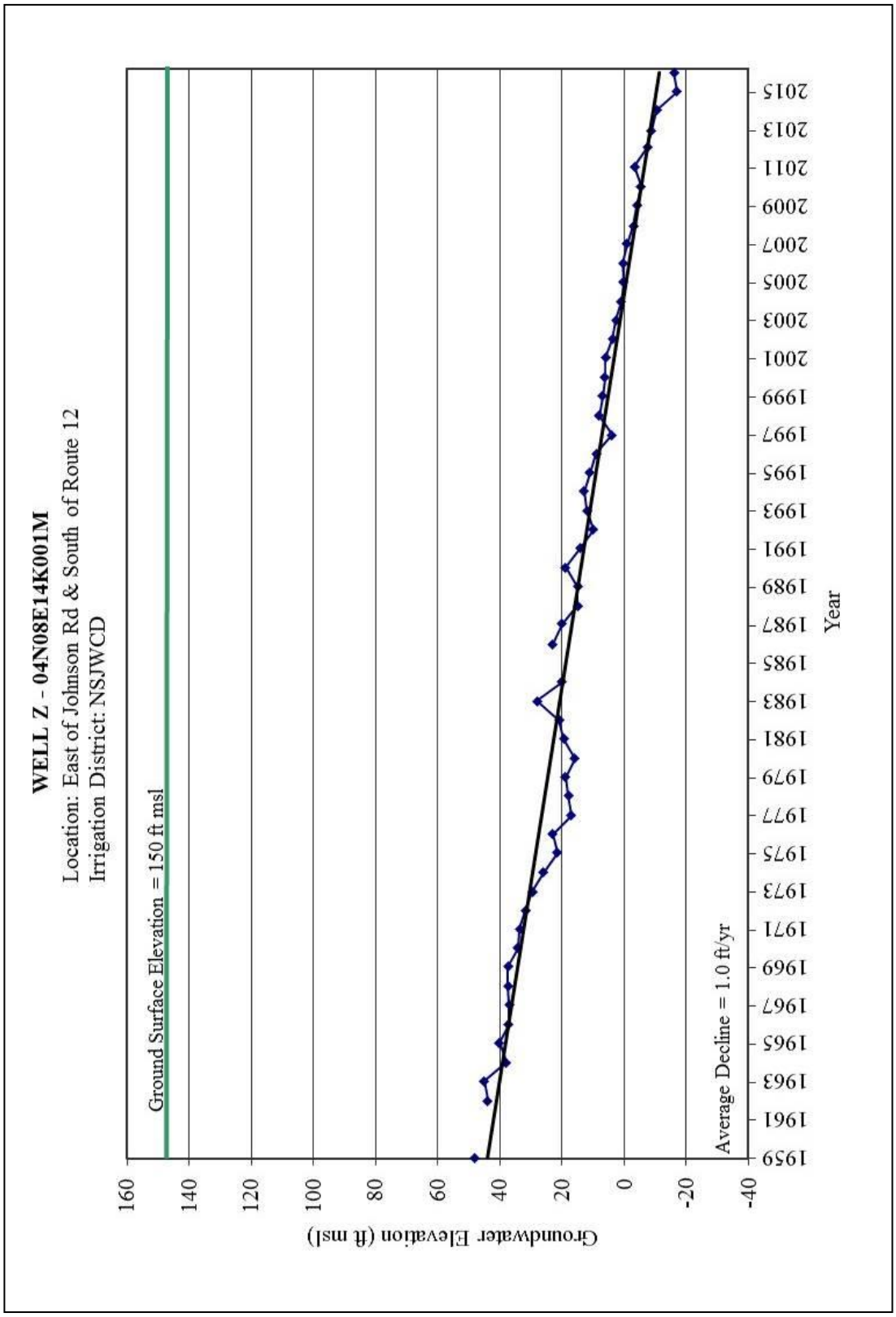



**Figure 3-27: Fall Hydrograph Well Z**

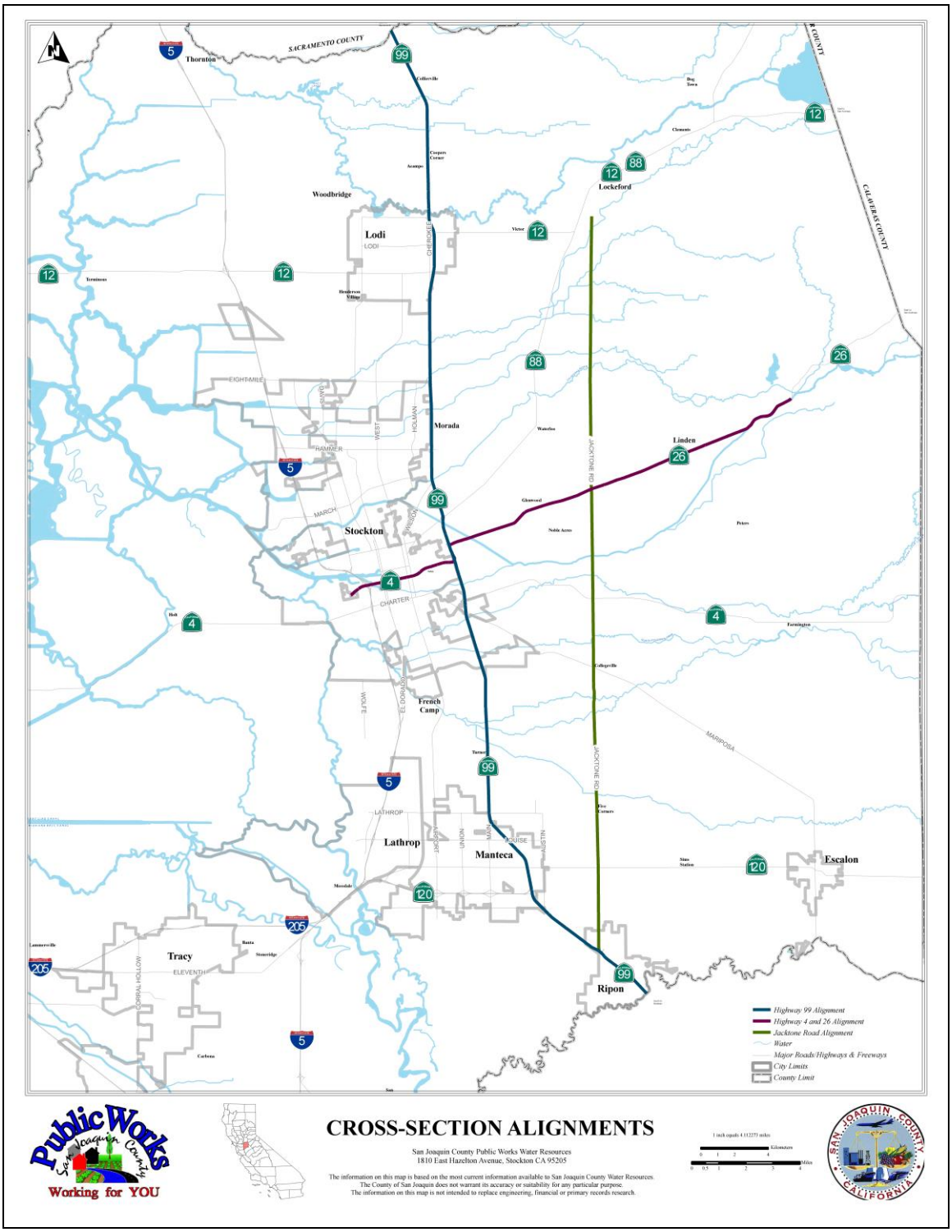



**Figure 3-28: Cross Section Alignments**

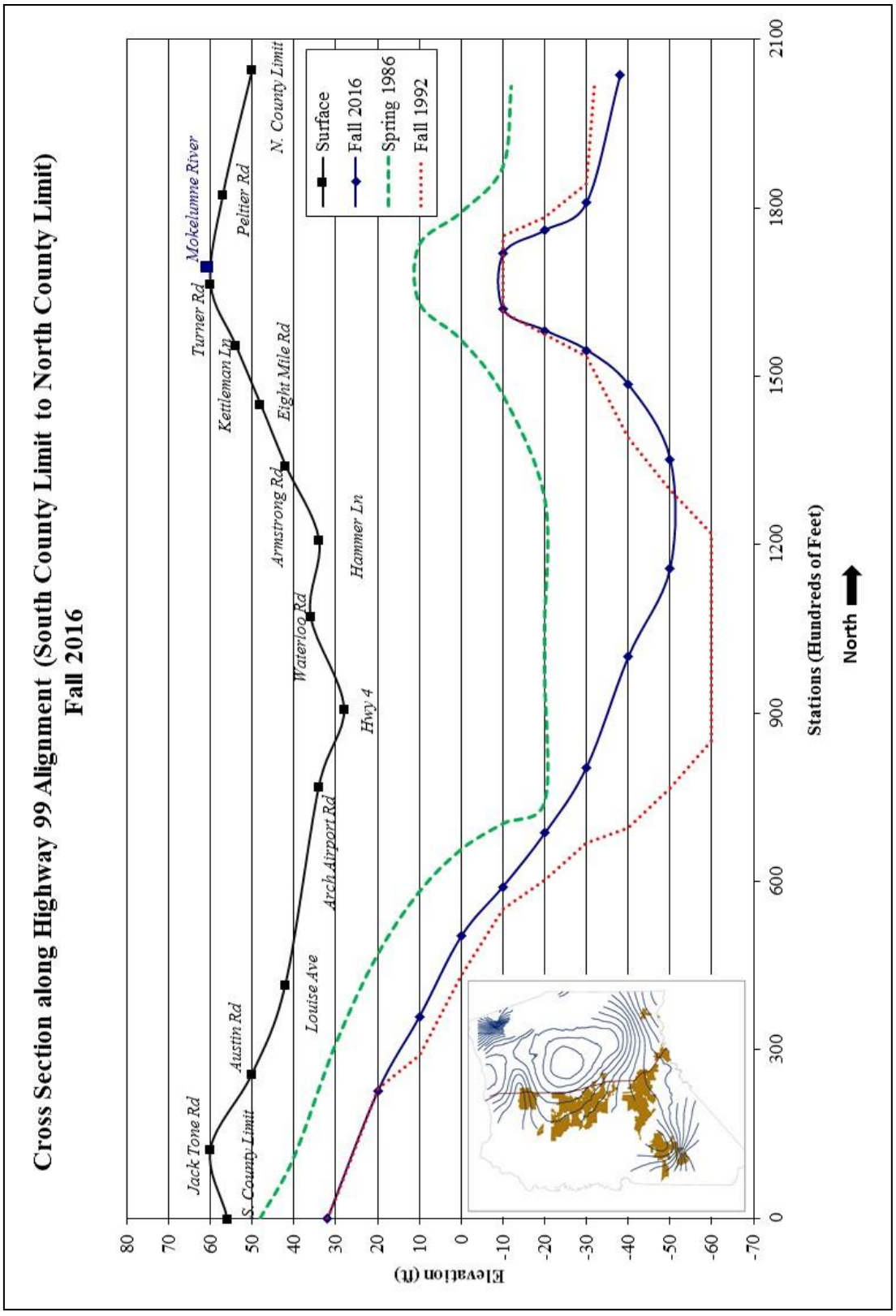
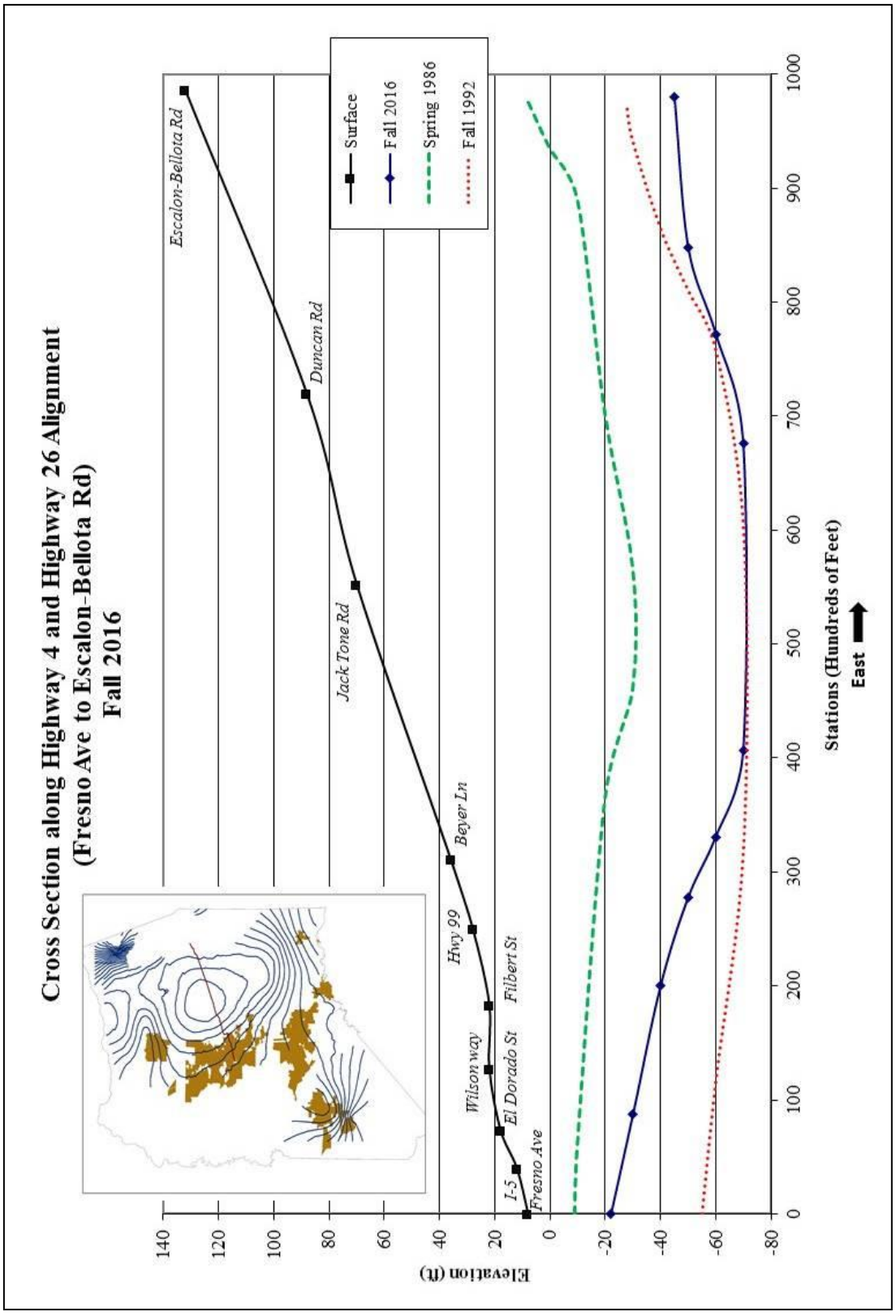



**Figure 3-29: Highway 99 Cross Section Fall 2016**


Cross Section along Highway 4 and Highway 26 Alignment
(Fresno Ave to Escalon-Bellota Rd)
Fall 2016
Surface
Fall 2016
Spring 1986
Fall 1992
Escalon-Bellota Rd
Duncan Rd
Jack Tone Rd
Beyer Ln
Hwy 99
Filbert St
El Dorado St
Wilson way
I-5
Fresno Ave
Elevation (ft)
140
120
100
80
60
40
20
0
-20
-40
-60
-80
0
100
200
300
400
500
600
700
800
900
1000
Stations (Hundreds of Feet)
East

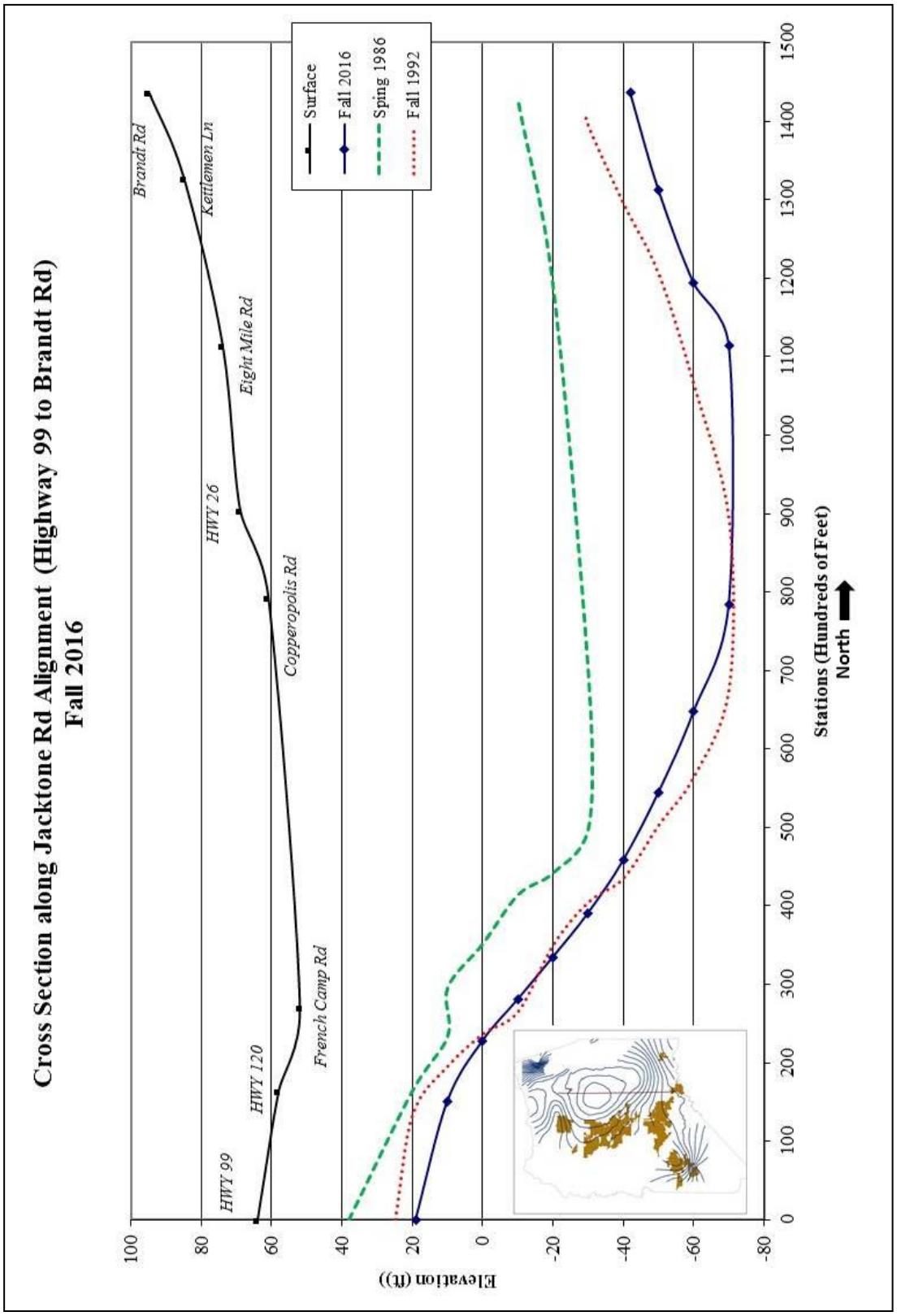



**Figure 3-31: Jacktone Rd Cross Section Fall 2016**

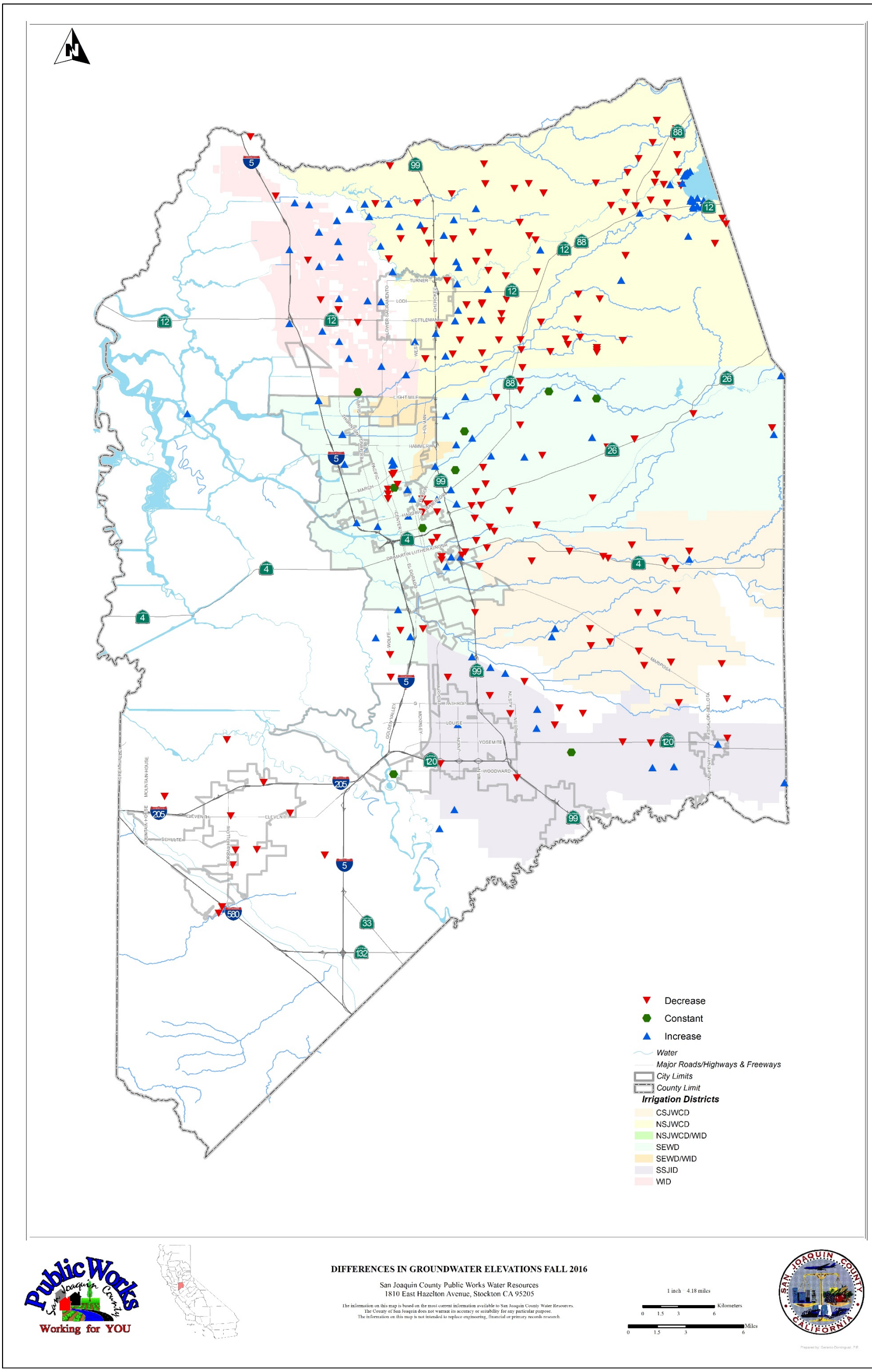



**Figure 3-32: Differences in Groundwater Elevations Fall 2016**

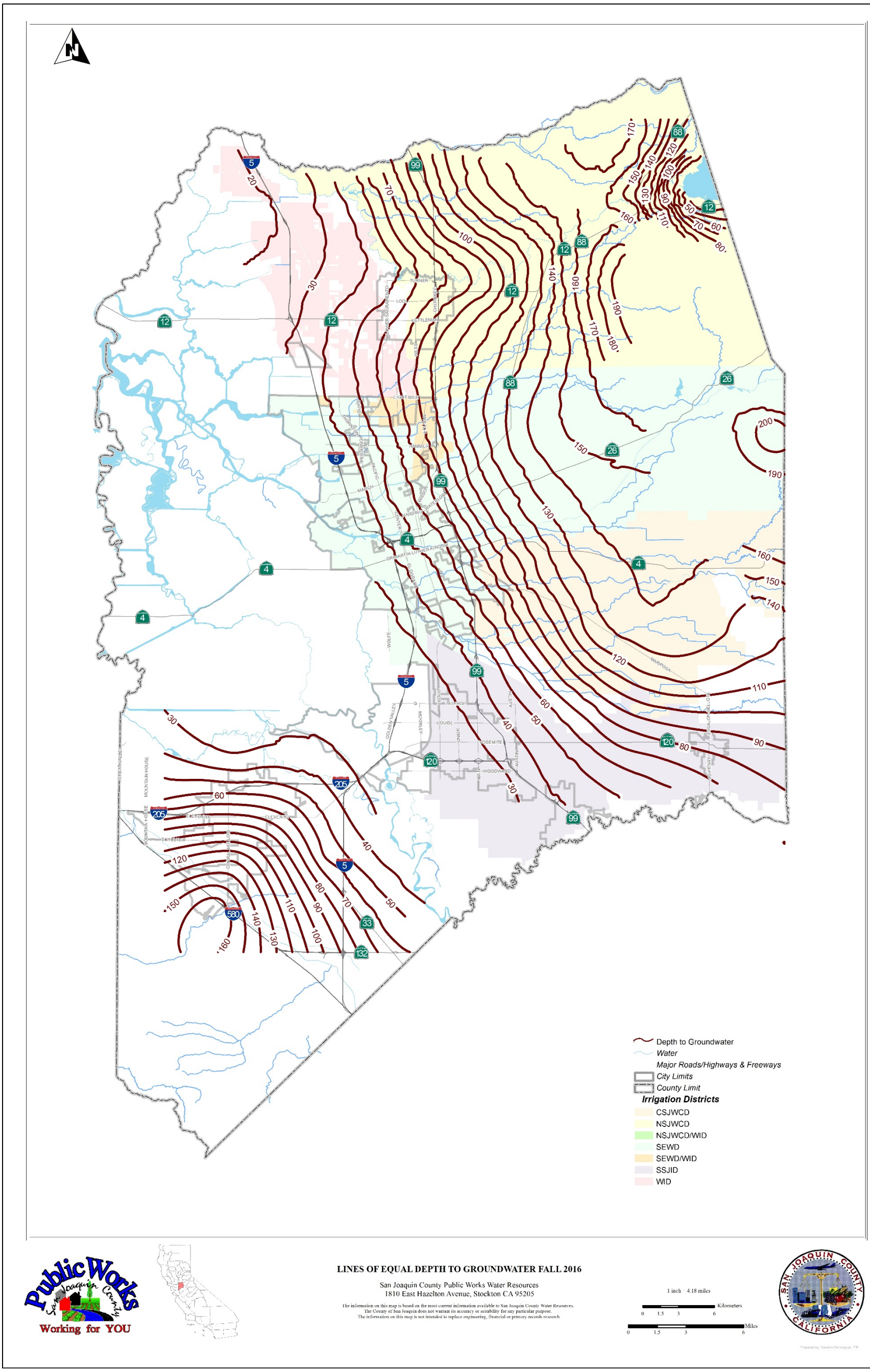



**Figure 3-33: Lines of Equal Depth to Groundwater Fall 2016**

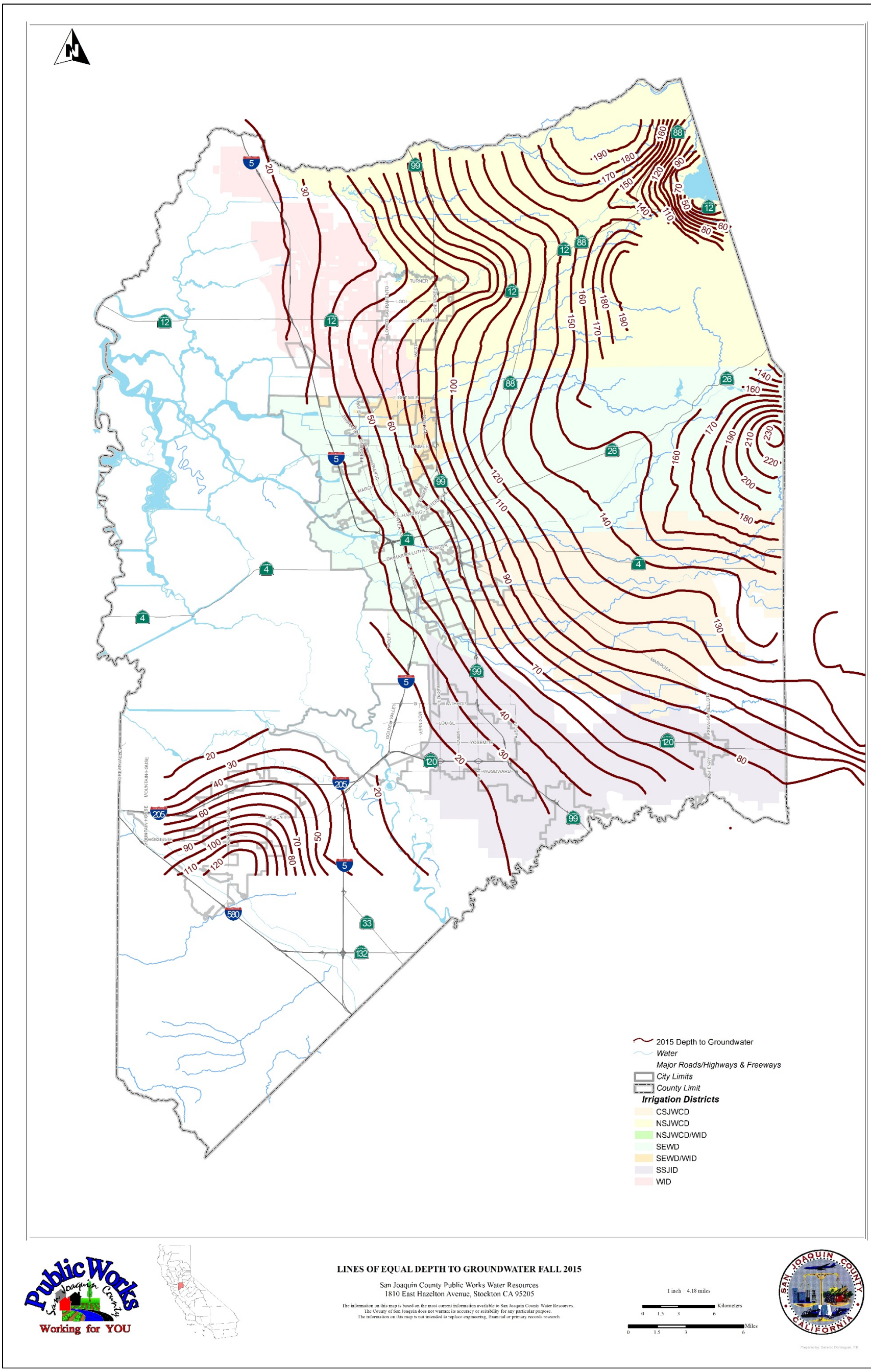



**Figure 3-34: Lines of Equal Depth to Groundwater Fall 2015**

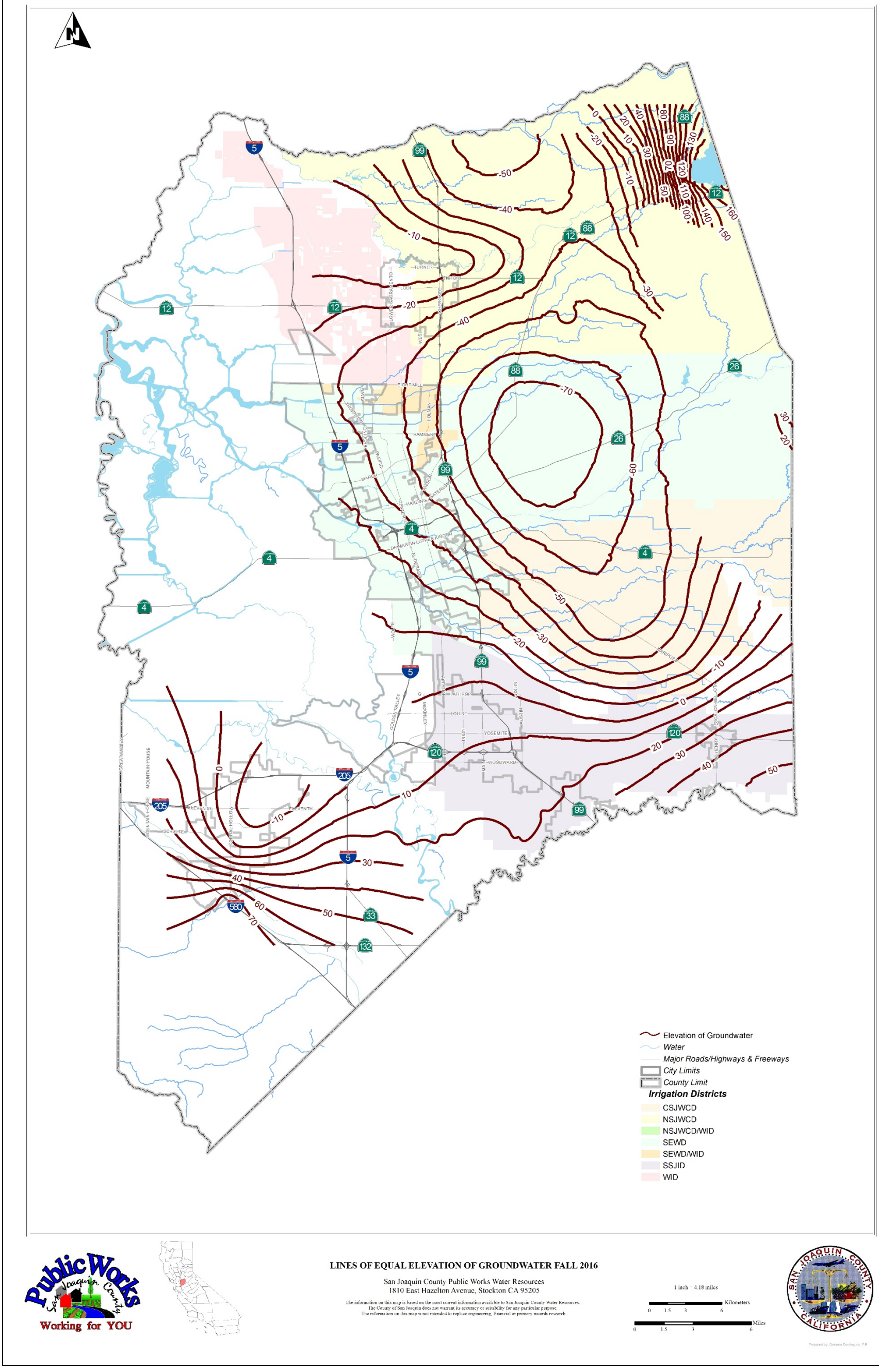



**Figure 3-35: Lines of Equal Elevation of Groundwater Fall 2016**

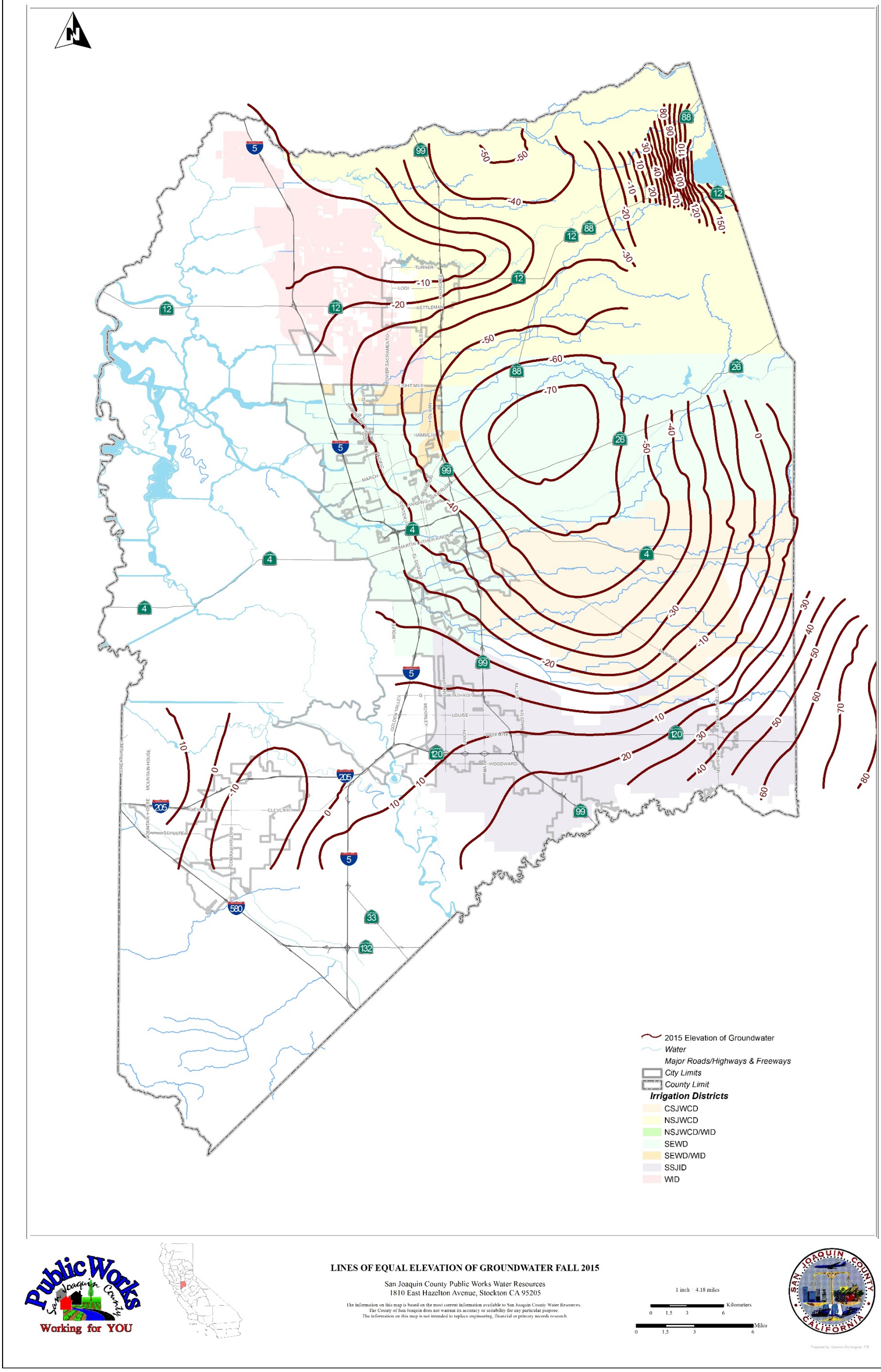



**Figure 3-36: Lines of Equal Elevation of Groundwater Fall 2015**