

**Basin Management Objective  
Butte County  
Sub Area – DURHAM DAYTON  
Calendar Year -2006**

**Butte County Water Advisory Committee Member** – Greg Sohnrey

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**Aquifer Systems Identified In Sub Area:**

Basin Deposits

Modesto Formation

Upper Tuscan (Formation Unit C) Aquifer System

Lower Tuscan (Formation Unit B) Aquifer System

**Management Objective –**

To maintain the groundwater surface elevation during the peak summer irrigation season (July and August) in all aquifer systems at a level that will assure an adequate and affordable irrigation groundwater supply and to insure that spring groundwater elevations return to historical levels. It is the intent of this management objective to assure a sustainable agricultural supply of good quality water now and into the future, and to assure the water supply can be utilized without injuring groundwater quality or inducing land subsidence. The management objective is also to assure an adequate groundwater supply of adequate quality from the alluvial aquifer system for all domestic users in the sub-area.

**Location of Basin Management Objective Key Wells:**

Groundwater Levels – See attached map of monitoring wells

Groundwater Quality – To be completed in 2007

Land Subsidence – See attached map of monitoring wells

**Groundwater Level Monitoring Network(s):**

Department of Water Resources

Butte County Department of Water and Resource Conservation

**Groundwater Quality Network(s):**

To be completed in 2007

## Land Subsidence Monitoring Network(s):

Department of Water Resources  
Butte County Department of Water and Resource Conservation

### Monitoring Frequency:

Groundwater Levels – Department of Water Resources - semiannually (fall and spring). Butte County Department of Water and Resource Conservation – July and August in accordance with Chapter 33 of the Butte County Code.

Groundwater Quality – To be completed in 2007

Land Subsidence – Department of Water Resources – Continuously

### Well Numbering System(s):

Groundwater Levels – Department of Water Resources (State Well Numbering System). Butte County Department of Water and Resource Conservation (State Well Numbering System).

Groundwater Quality – To be completed in 2007

Land Subsidence – Department of Water Resources (State Well Numbering System)

## Basin Management Objective Key Wells and Compliance Methodology for Groundwater Levels.

Well ID	Aquifer System	Well Type	Spring Stage 1&2 Alert Elev. (ft)	Spring Stage 3 Alert Elev. (ft)	Fall Stage 1&2 Alert Elev. (ft)	Fall Stage 3 Alert Elev. (ft)
21N01E08K02M	Modesto	Irrigation	122.55	118.06	112.00	107.85
21N01E10B03M	Upper Tuscan	Irrigation	128.06	122.59	113.35	107.26
21N02E07C01M	Upper Tuscan	Irrigation	129.19	121.80	118.87	109.23
21N01E27B01M	Modesto	Irrigation	113.76	108.13	100.62	95.56
21N01E25K01M	Modesto	Domestic	117.73	111.91	99.35	91.96
20N01E10C02M	Basin Deposits	Irrigation	111.79	107.35	101.40	95.71
20N02E06Q01M	Basin Deposits	Irrigation	120.37	116.05	110.82	105.27

\* - See Staff Report for description of method.

\*\* - See attached hydrographs.

## Basin Management Objective Key Wells and Compliance Methodology for Groundwater Quality.

To Be Completed in 2007

## **Basin Management Objective Key Wells and Compliance Methodology for Land Subsidence.**

Land Subsidence will be monitored at the closest extensometers located in the M&T and Western Canal sub inventory units. Maximum annual inelastic land subsidence shall not exceed 0.01 feet per year.

### **BMO Alert Stage Definitions:**

The Durham Dayton Sub Area will use the following guidelines in the management of the groundwater resources. The groundwater level and land subsidence management objectives are intended to trigger predetermined voluntary Ground Water Management Actions, as defined below, to remedy declining ground water levels that are not recovering to compliance levels for each index well. The groundwater quality BMO management actions will be defined in 2007.

#### **Groundwater Levels:**

Stage 1: The first year that spring or fall groundwater levels fall below one standard deviation below the average spring or fall groundwater level established for the well

Stage 2: Stage 2 is reached if spring or fall groundwater levels, for a second consecutive year, remain below one standard deviation below the average spring or fall groundwater level of the well.

Stage 3: Stage 3 is reached if the spring or fall groundwater levels fall below the average minus two standard deviations.

#### **Groundwater Quality:**

To be done in 2007

#### **Land Subsidence:**

Stage 1. When the annual elastic subsidence exceeds the average annual elastic subsidence measured over the period of record of the extensometer.

Stage 2. When the annual elastic subsidence exceeds the maximum recorded elastic subsidence over the period of record for the extensometer.

Stage 3. When inelastic subsidence occurs.

### **BMO Compliance Evaluation Procedure:**

Compliance with the BMO will be determined by the Butte County Water Commission's Technical Advisory Committee following the spring measurement period. The groundwater surface elevation at each monitoring well will be compared against the corresponding compliance graph and stage definition criteria to determine if the

groundwater surface elevations are above or below specific alert trigger levels. The Technical Advisory Committee of the Butte County Water Commission will perform this evaluation and report the results of the evaluation to the Butte County Water Advisory Committee and Water Commission.

### **Ground Water Management Actions:**

Stage 1. Groundwater management actions to be undertaken following a Stage 1 noncompliance shall be informational. The Butte County Water Advisory Committee (WAC) and Water Commission (WC) will be advised of the noncompliance. At the recommendation of the Water Advisory Committee and the Water Commission public notification of the noncompliance may be initiated.

Stage 2. Groundwater management actions to be undertaken following a Stage 2 noncompliance shall be investigational. Upon identification of the Stage 2 noncompliance the noncompliance will be reported to the WAC and the WC. Following review and concurrence, the WAC shall direct the TAC to initiate an investigation to determine the cause(s) of the noncompliance and make recommendations as how to correct the noncompliance. The TAC shall report their findings and recommendations back to the WAC and WC within 30 days.

Stage 3. Groundwater management actions to be undertaken following a Stage 3 noncompliance shall be actionable. Upon identification of the Stage 3 noncompliance, the noncompliance will be reported to the WAC and the WC. Following review and concurrence, the WAC shall direct the TAC to initiate an investigation to determine the cause(s) of the noncompliance and make recommendations as how to correct the noncompliance. The TAC shall report back their findings and recommendations back to the WAC and WC within 30 days. The WAC will then work with the locals in the sub area to implement needed water management activities necessary to correct the problem. Such water management activities shall include, but not limited to, voluntary water conservation measures, redistribution of groundwater extraction, reduction of groundwater extraction, or other measure(s) identified and approved by the WAC, WC, and the Butte County Board of Supervisors.

### **Future Monitoring Recommendations:**

Initiate data collection for development of groundwater quality management objective in 2007. Possibly secure funding for the installation of an extensometer to monitor land subsidence in the Durham Dayton Sub Area. Explore options for installing multi-completion monitoring wells to more accurately measure aquifer specific water quality and levels.

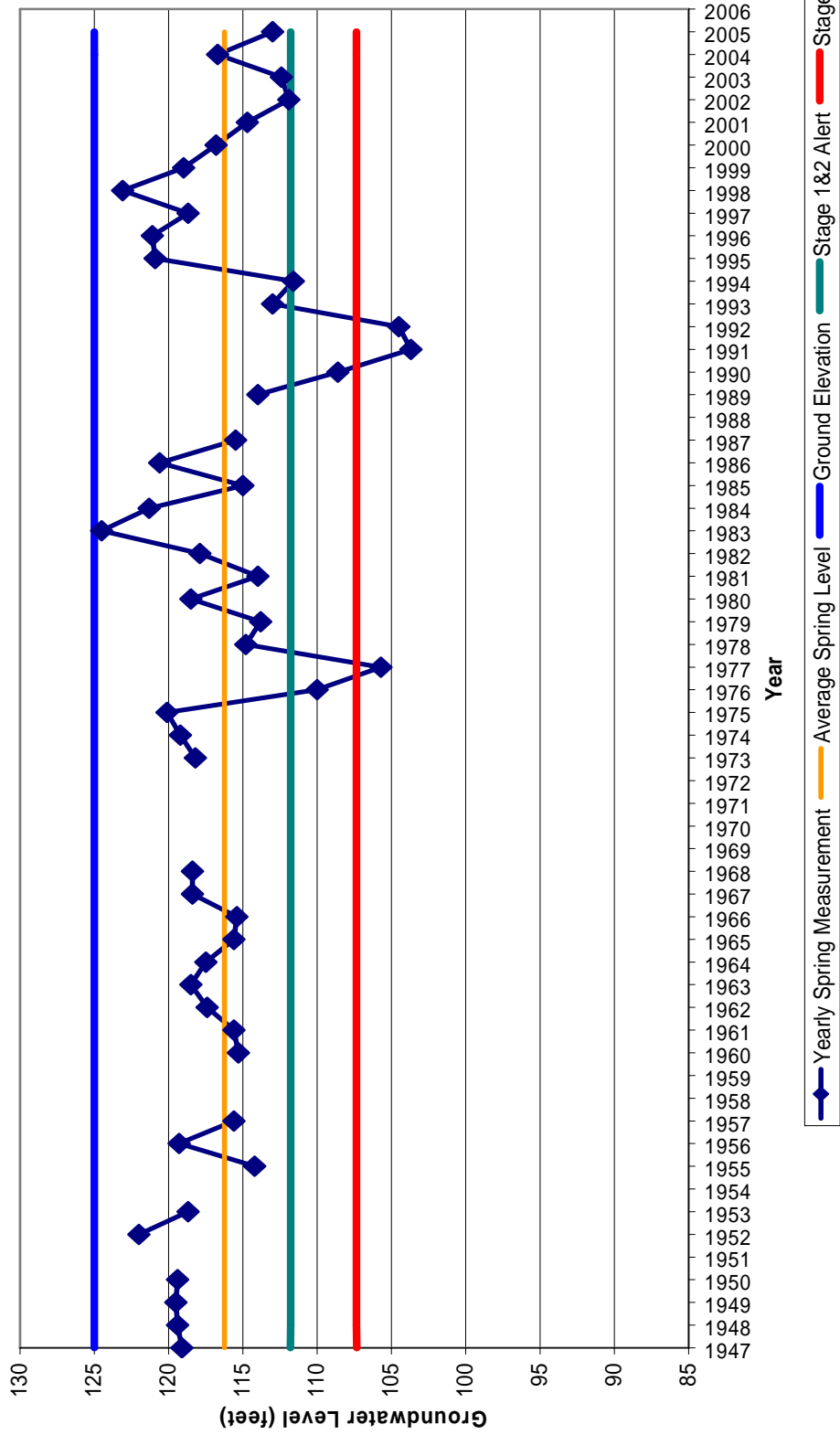
### **Supporting Data:**

See attached hydrographs

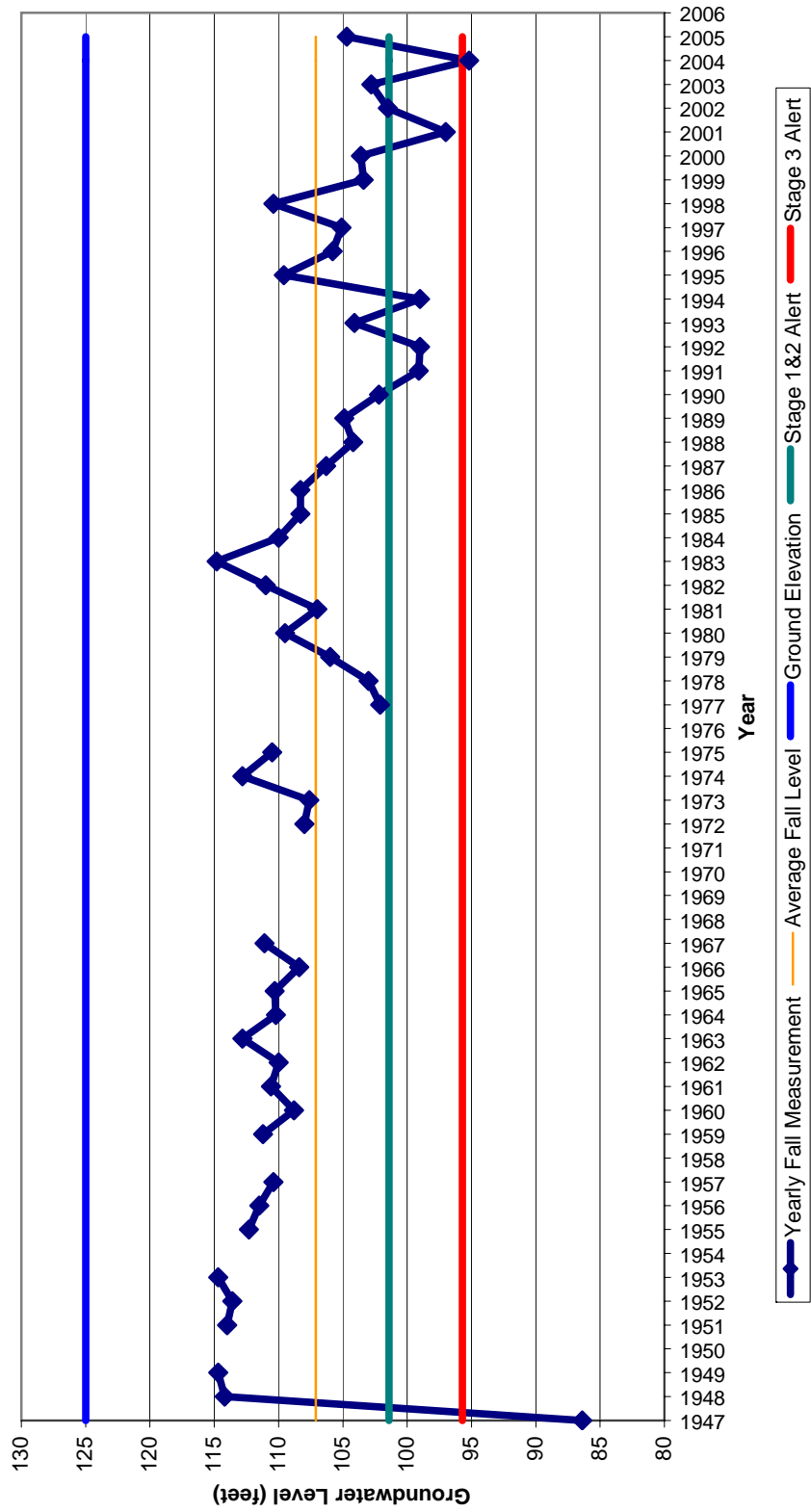
See attached map of existing monitoring wells

See attached map of Sub-Unit Boundaries

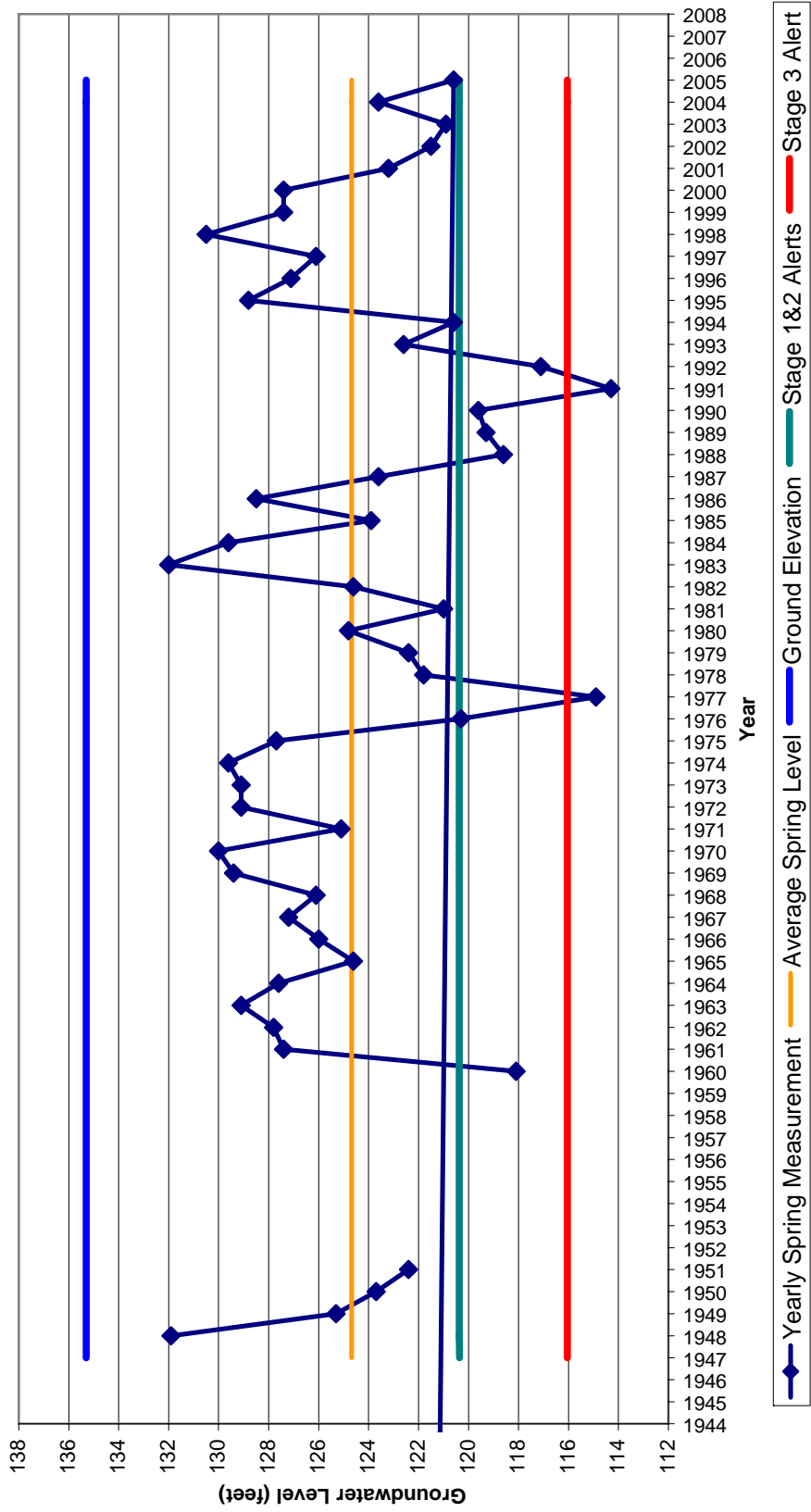
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 Durham Dayton - 20N01E10C02



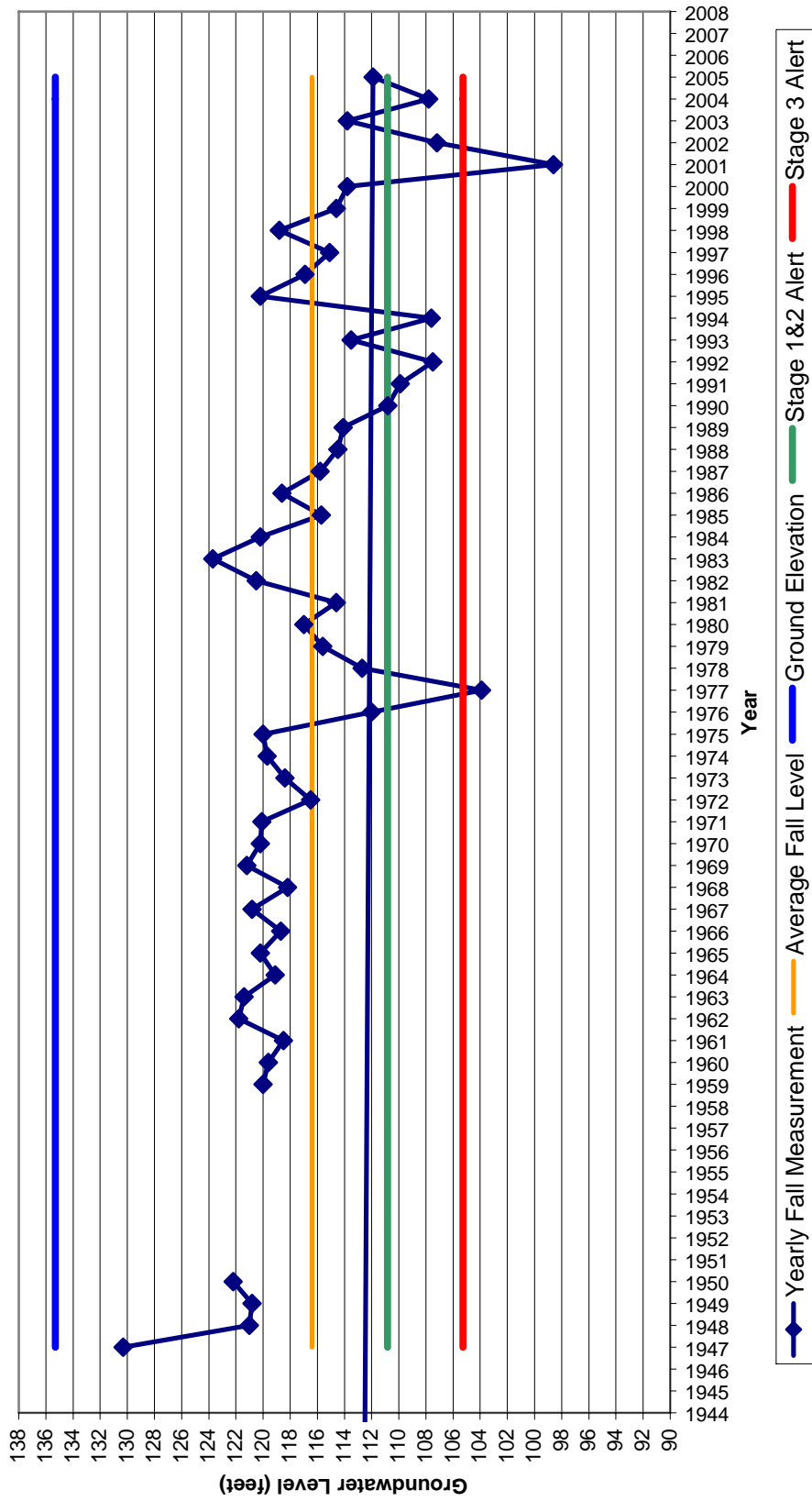
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Durham Dayton- 20N01E10C02



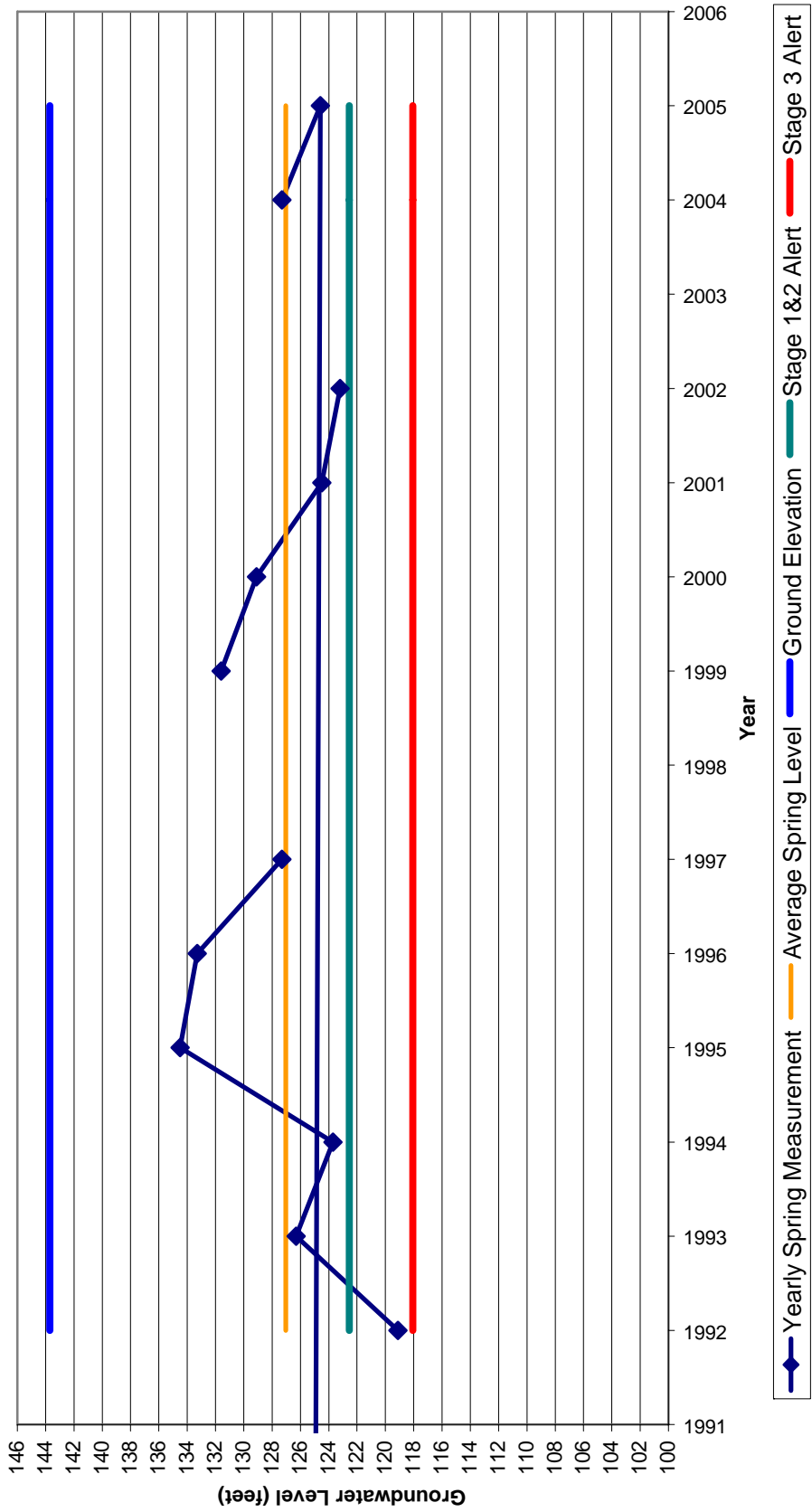
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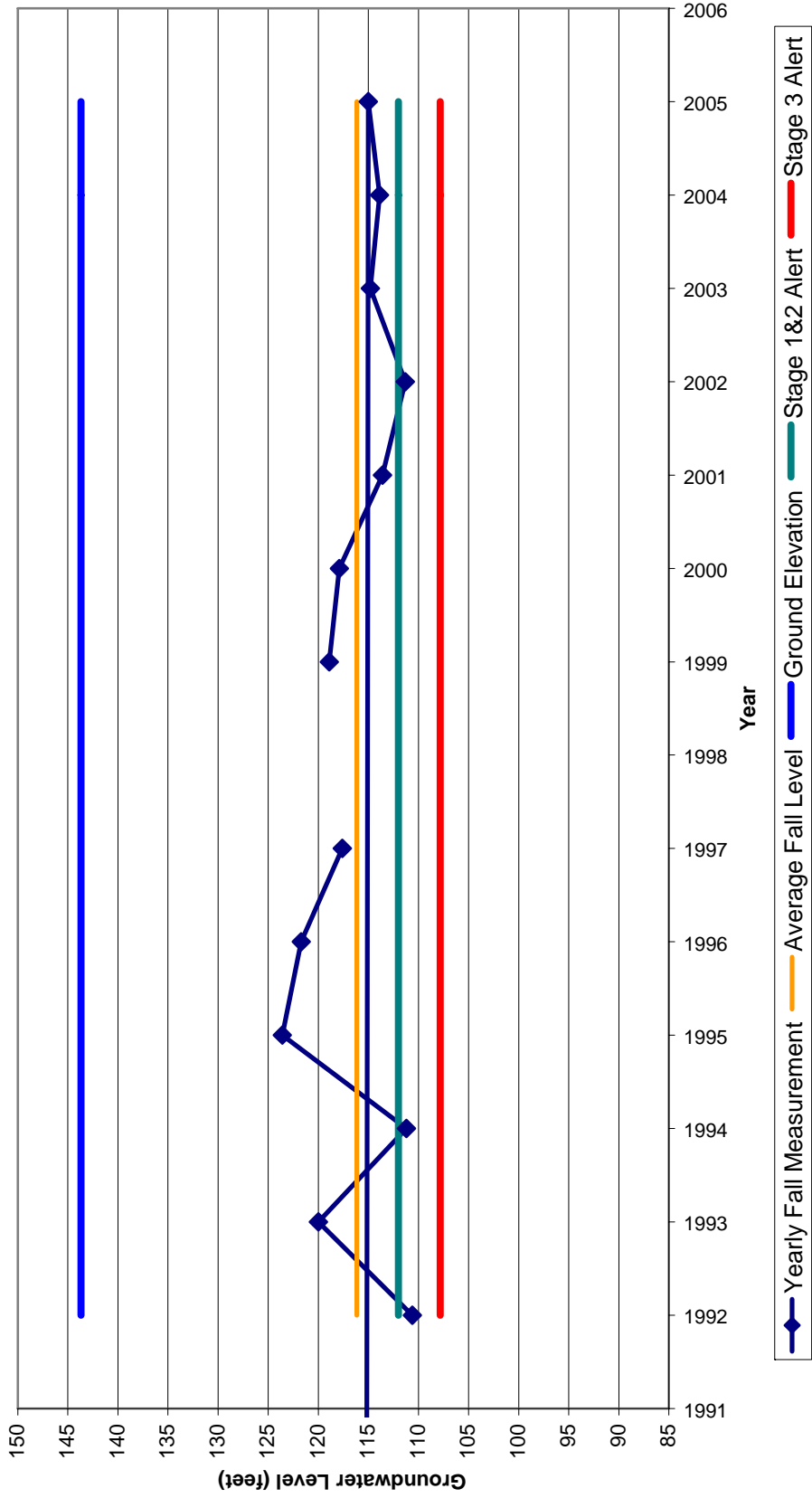
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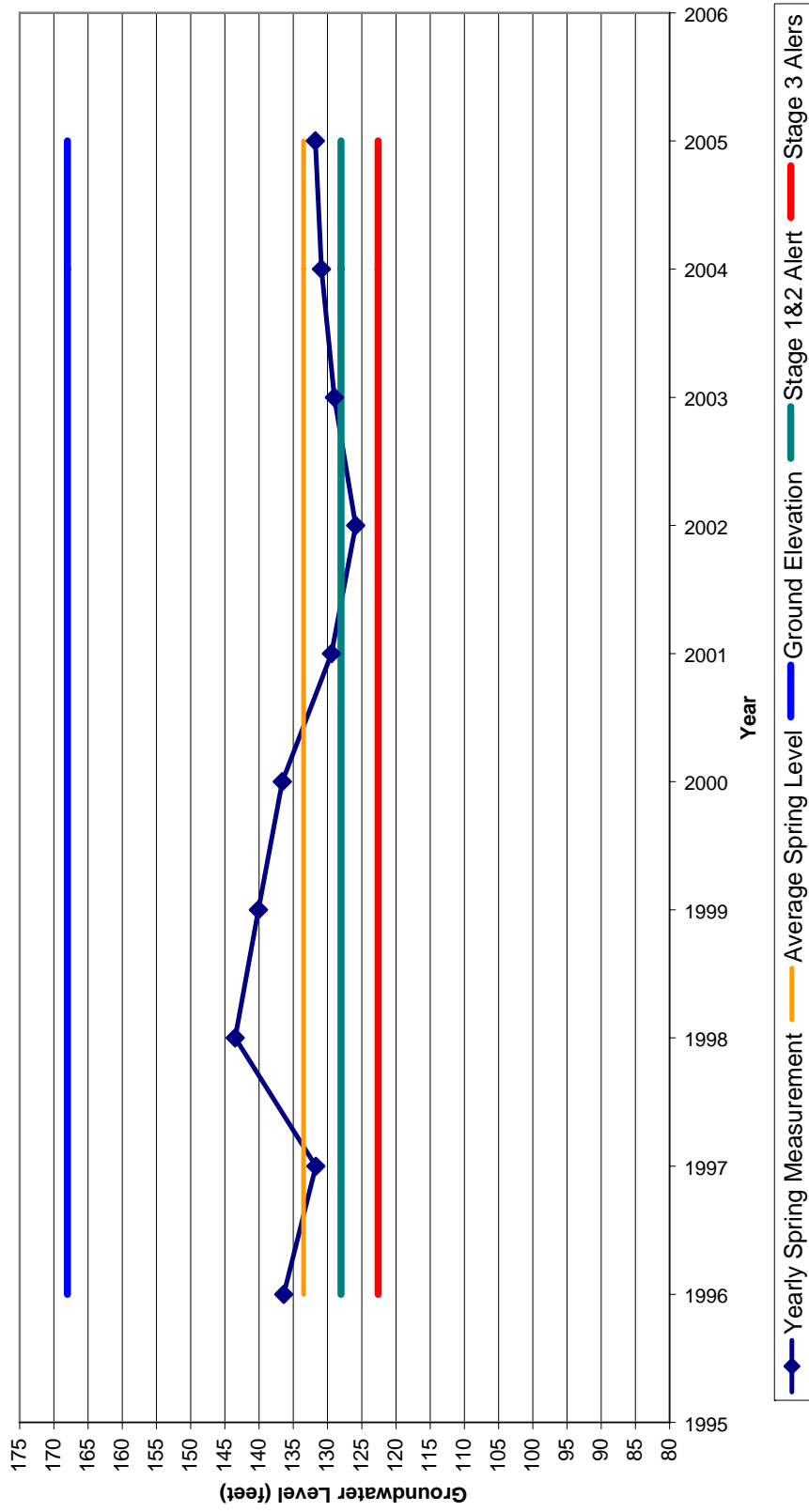
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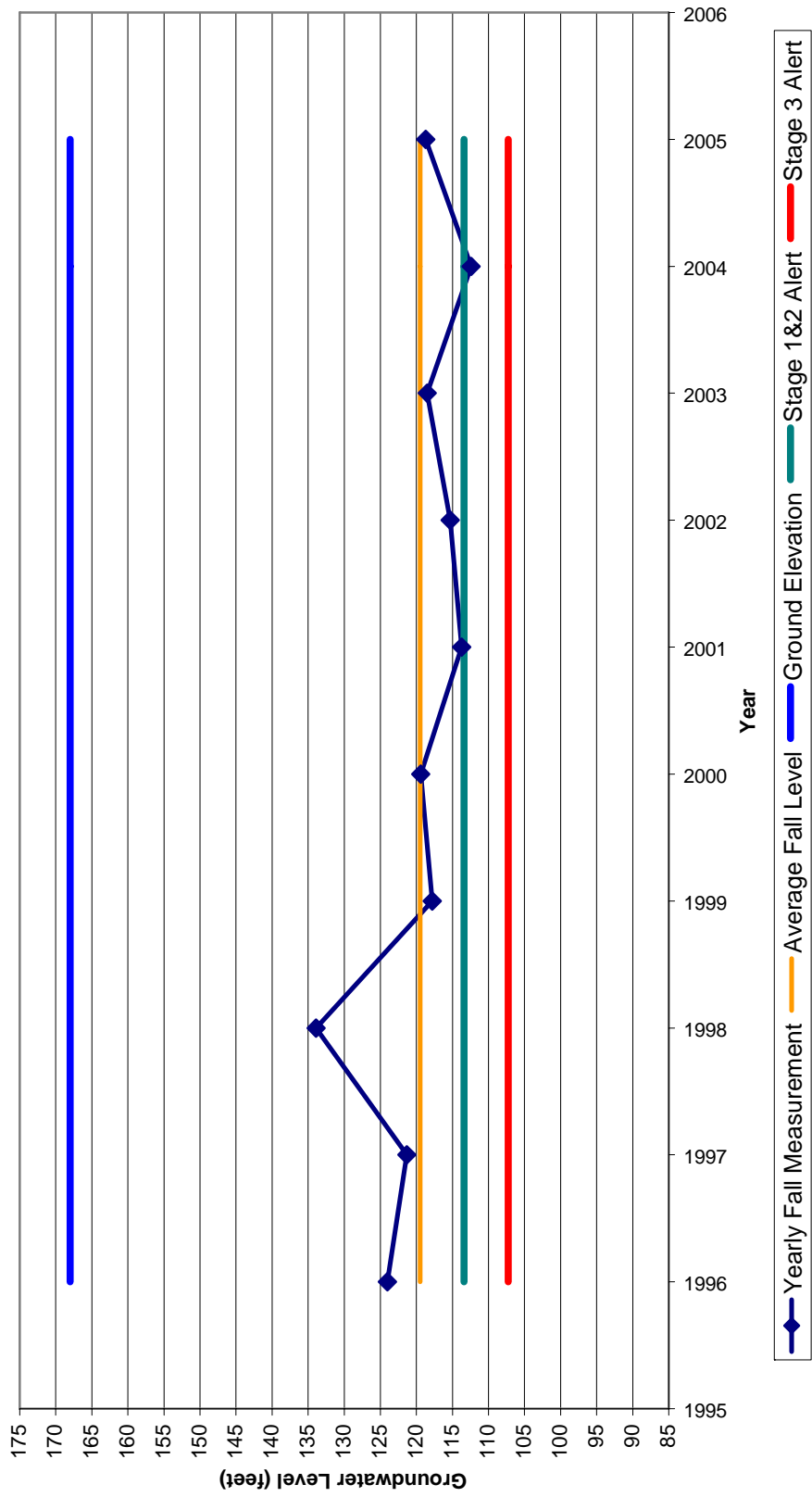
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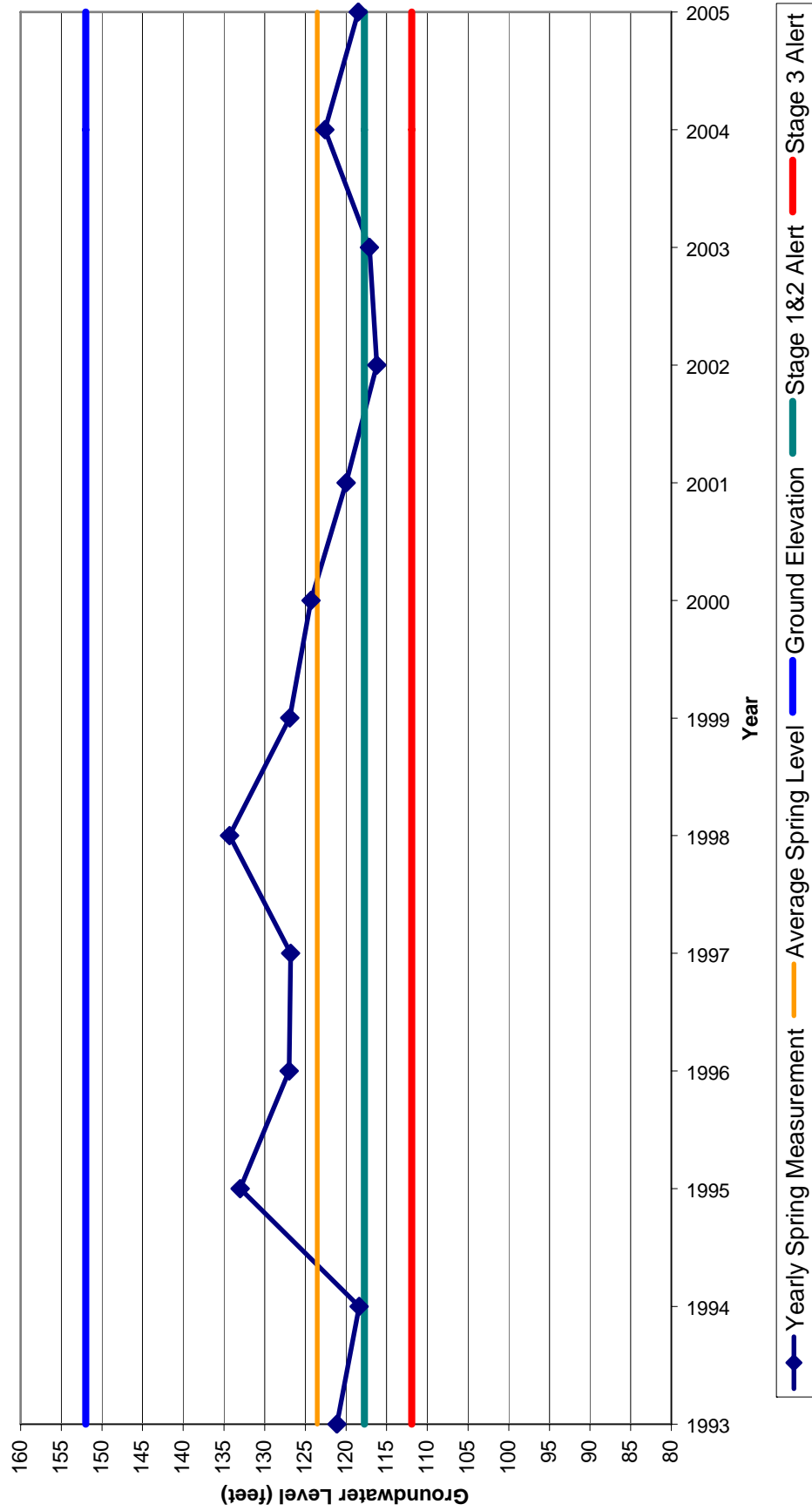
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Durham - 21N01E10B03



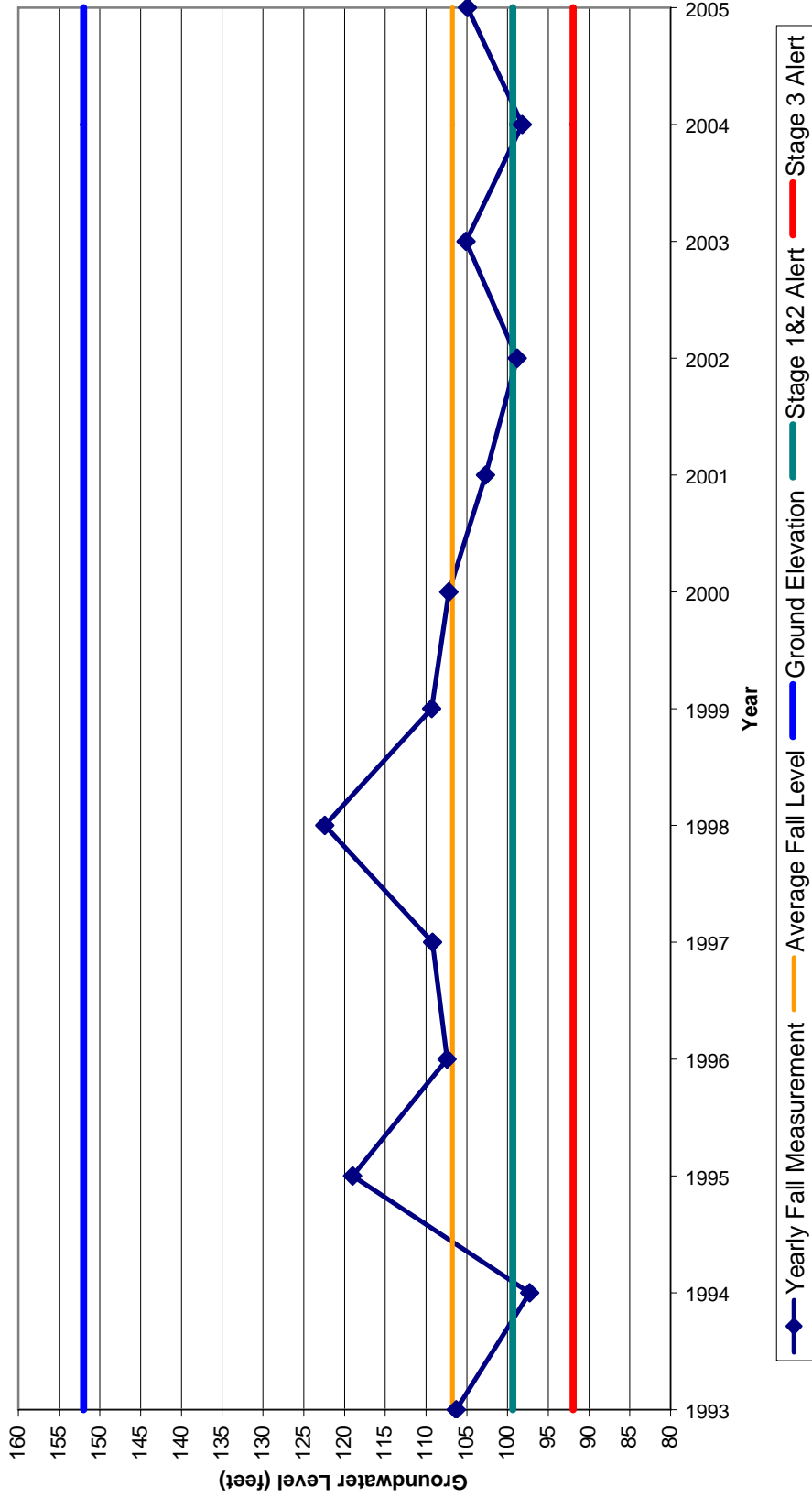
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Durham - 21N01E10B03



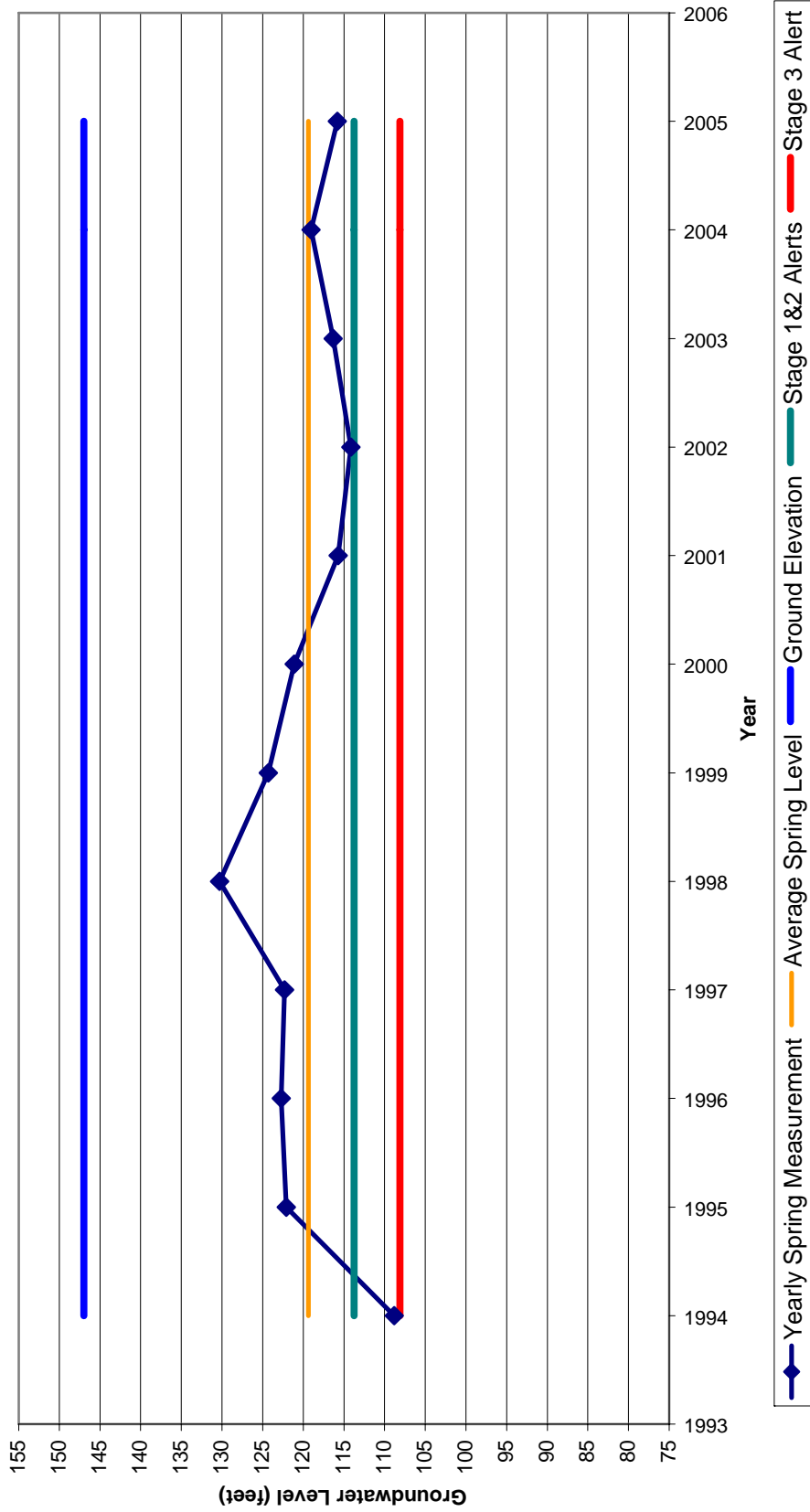
Spring Groundwater Levels  
Durham - 21N01E25K01



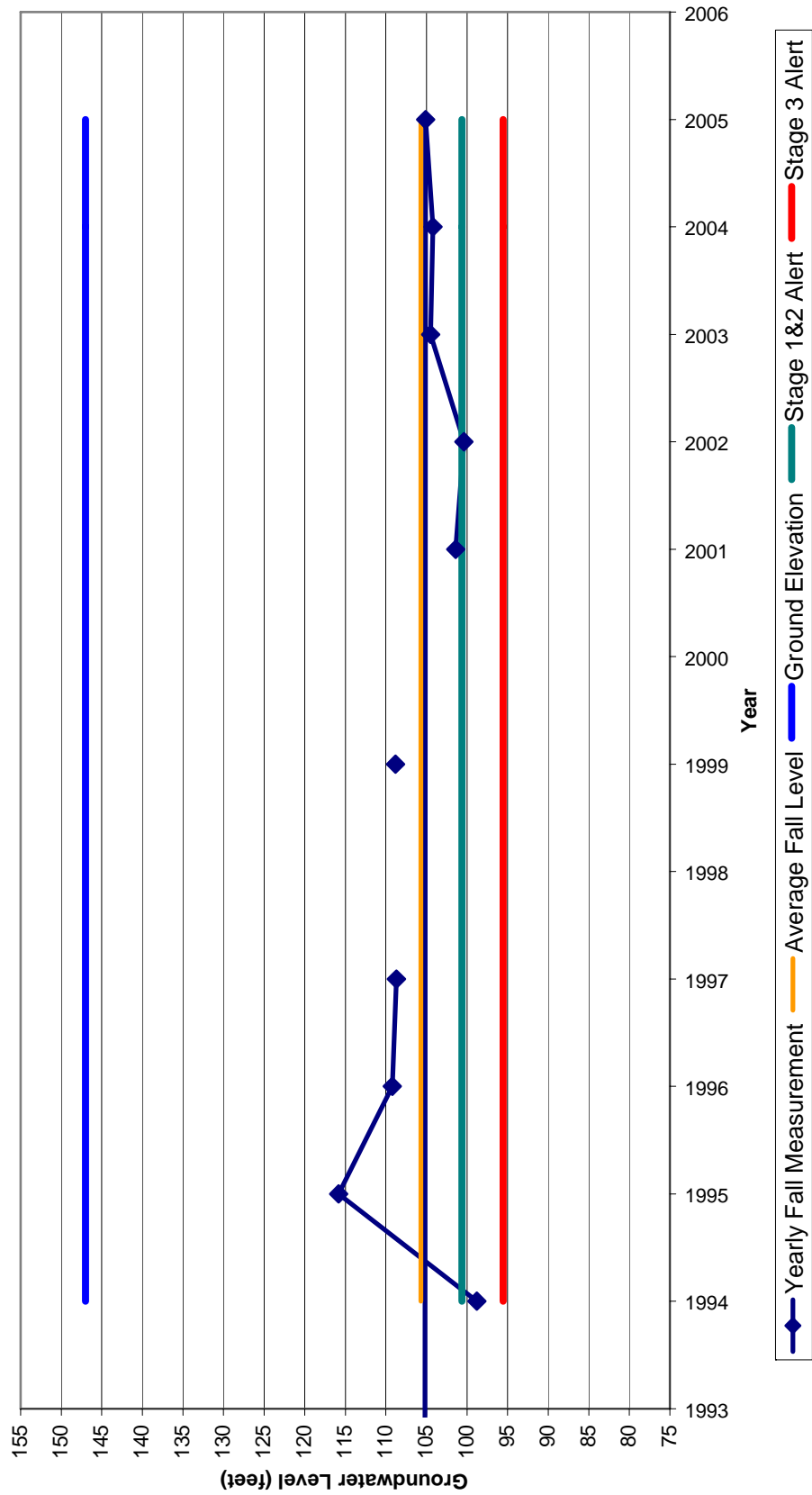
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Durham - 21N01E25K01



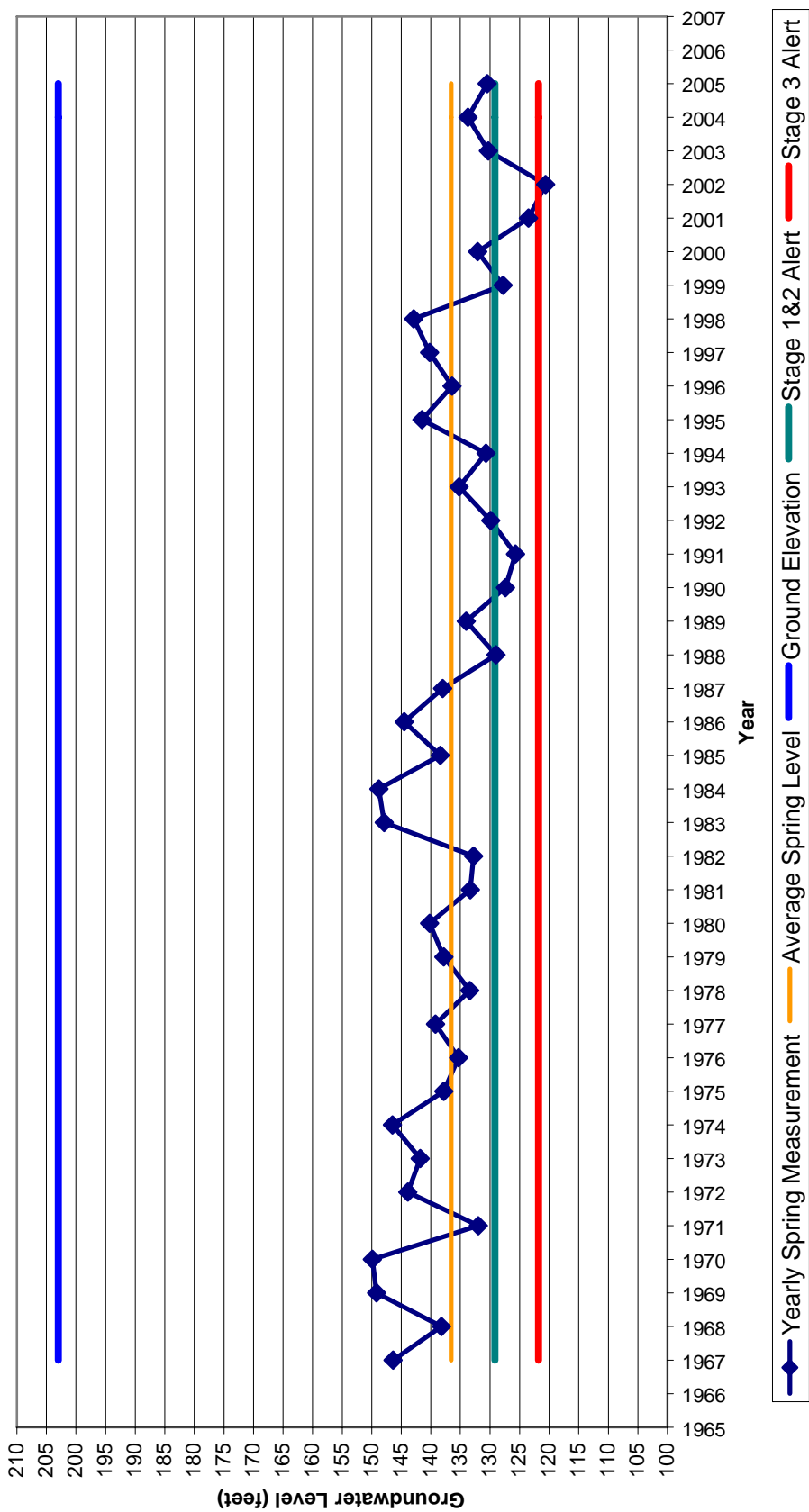
Spring Groundwater Levels  
Durham - 21N01E27B01



Fall Groundwater Levels  
Durham - 21N01E27B01



Spring Groundwater Levels  
Durham - 21N02E07C01



Fall Groundwater Levels  
Durham - 21N02E07C01

