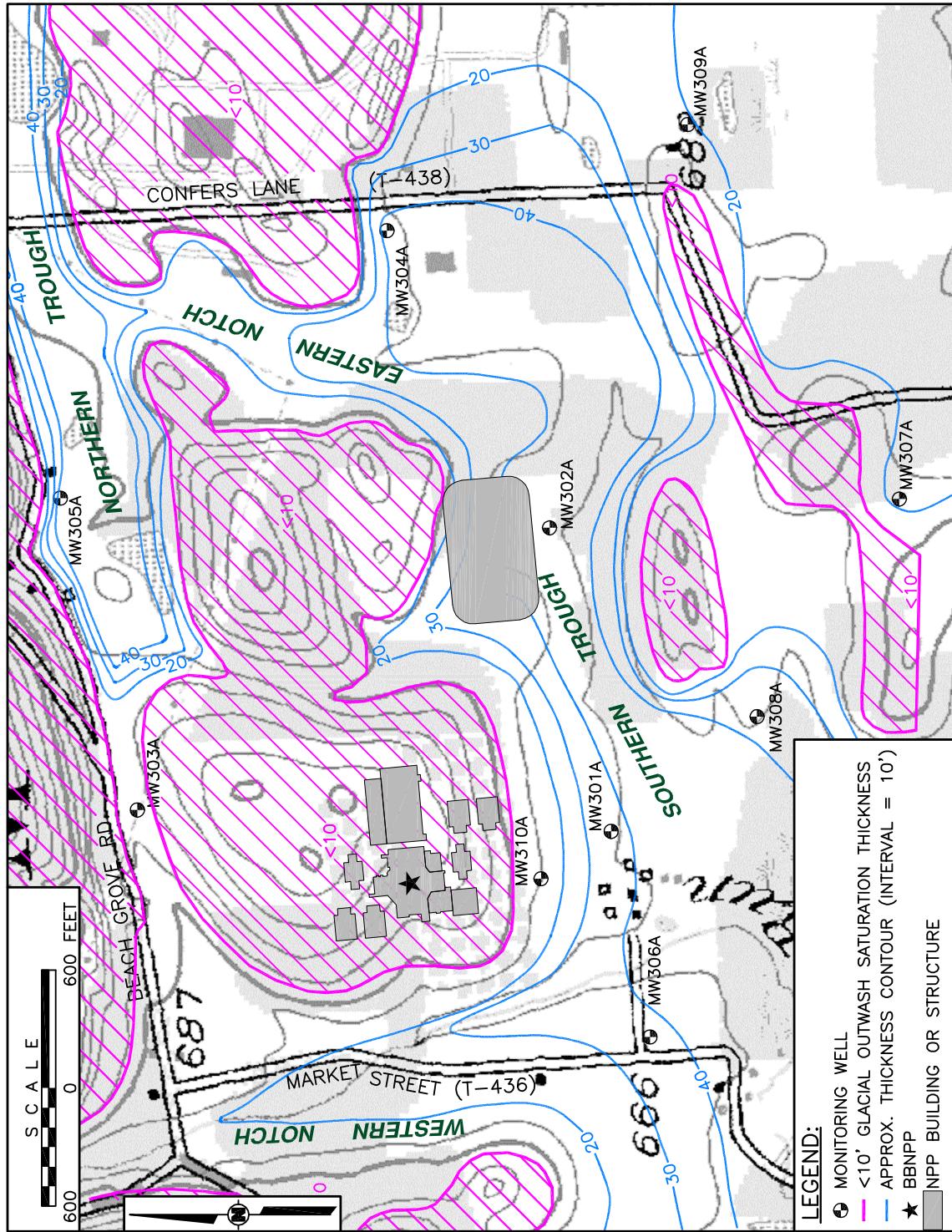
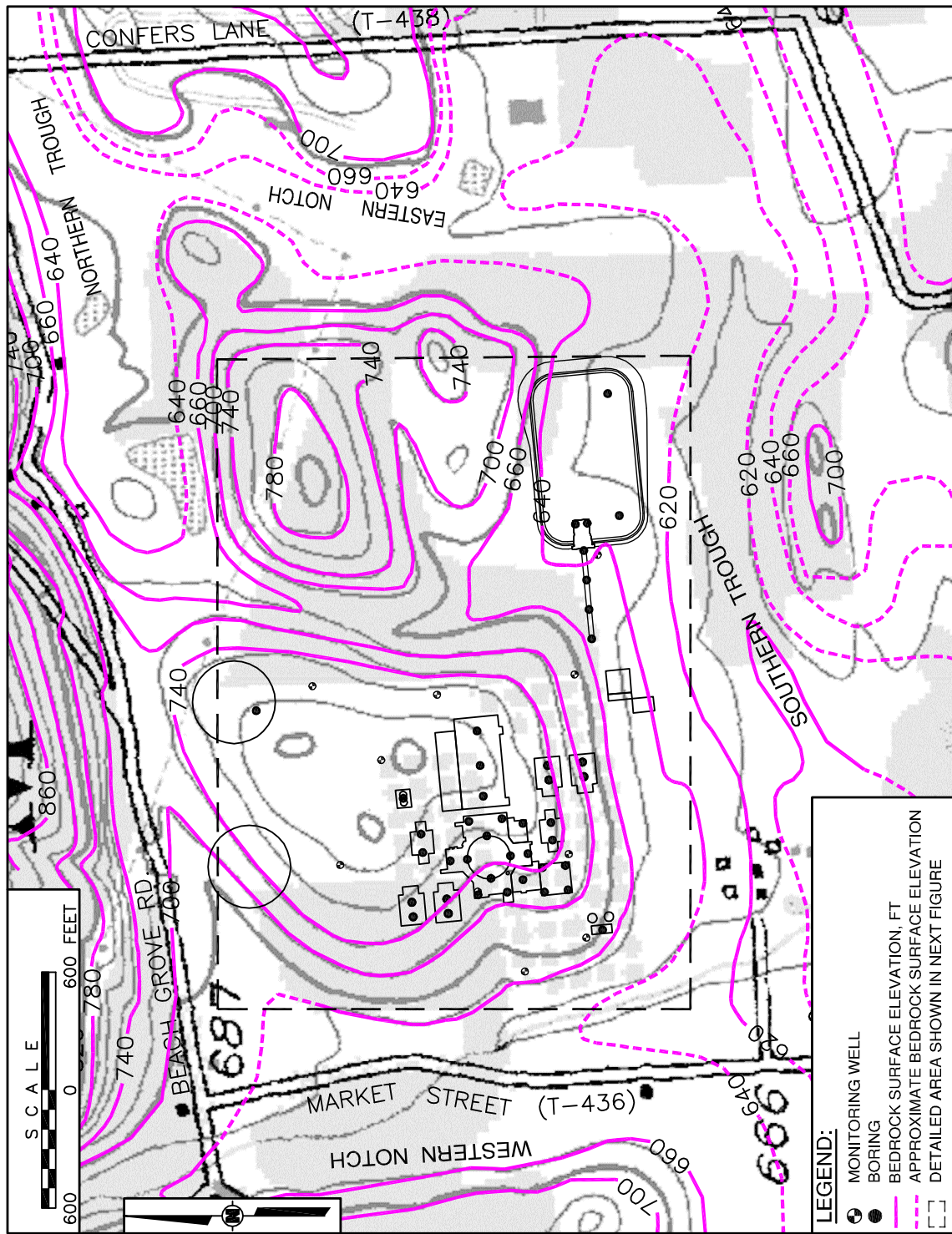


Figure 2.3-36— Thickness Map of the Glacial Overburden Aquifer



10-4310-CADD-A032

Figure 2.3-37 — Topography of Bedrock Surface



10-4310-CADD-A033

Figure 2.3-38— Topography of Bedrock Surface in the Power Block Area

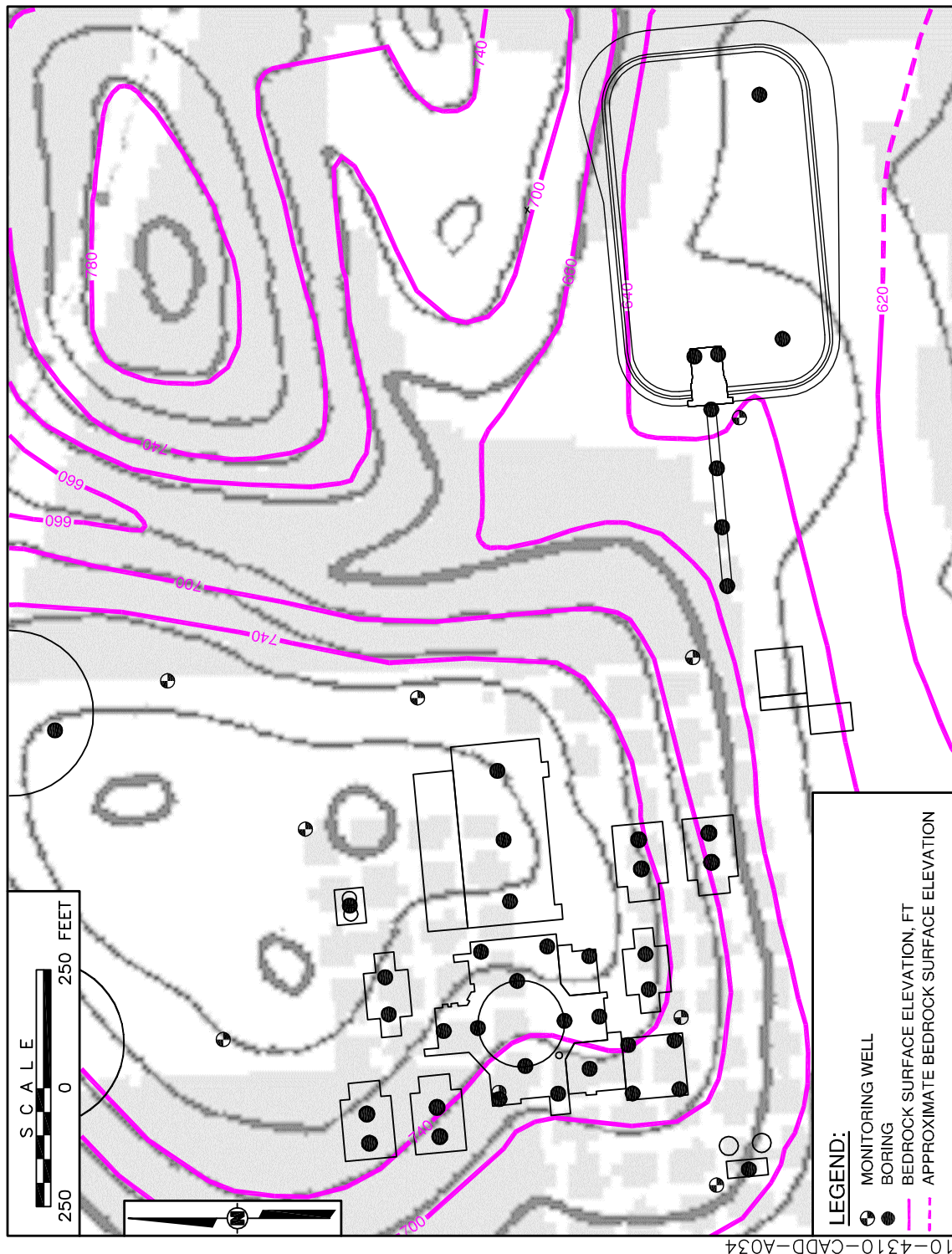
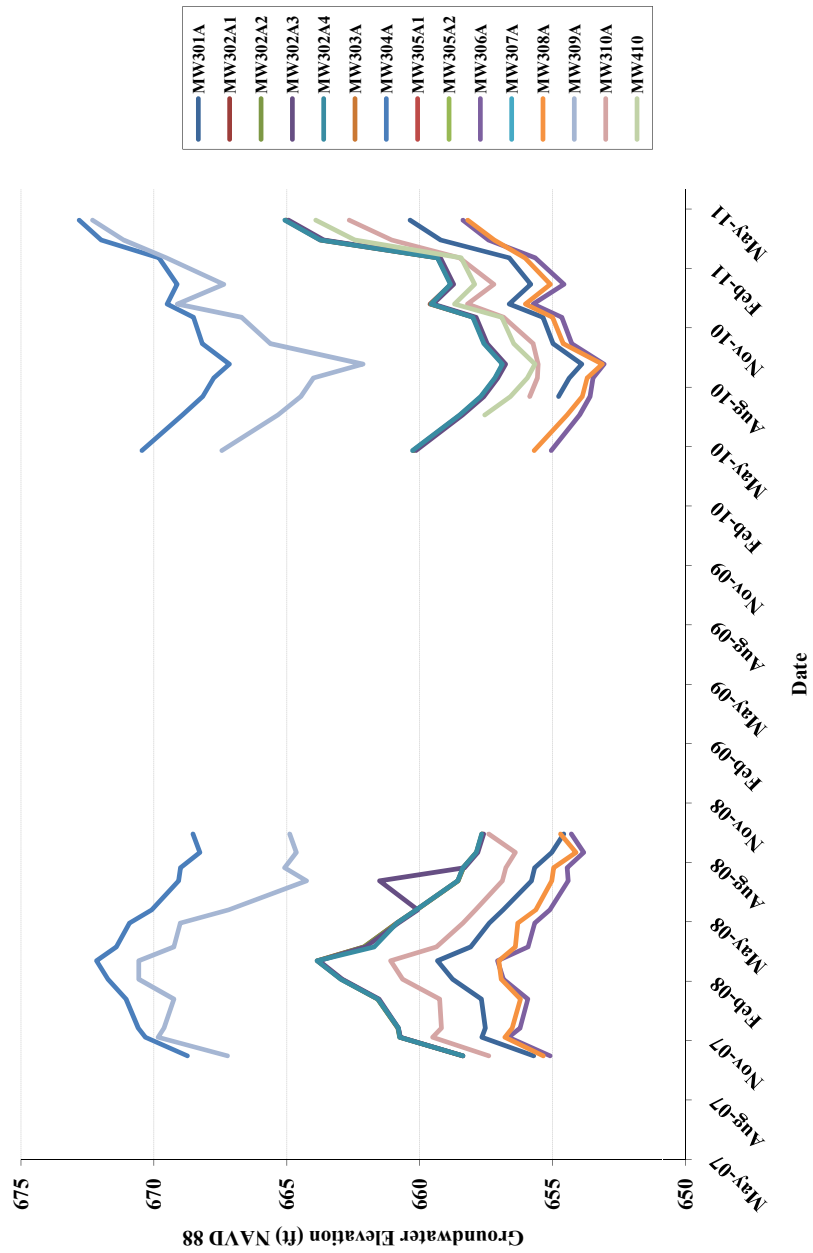
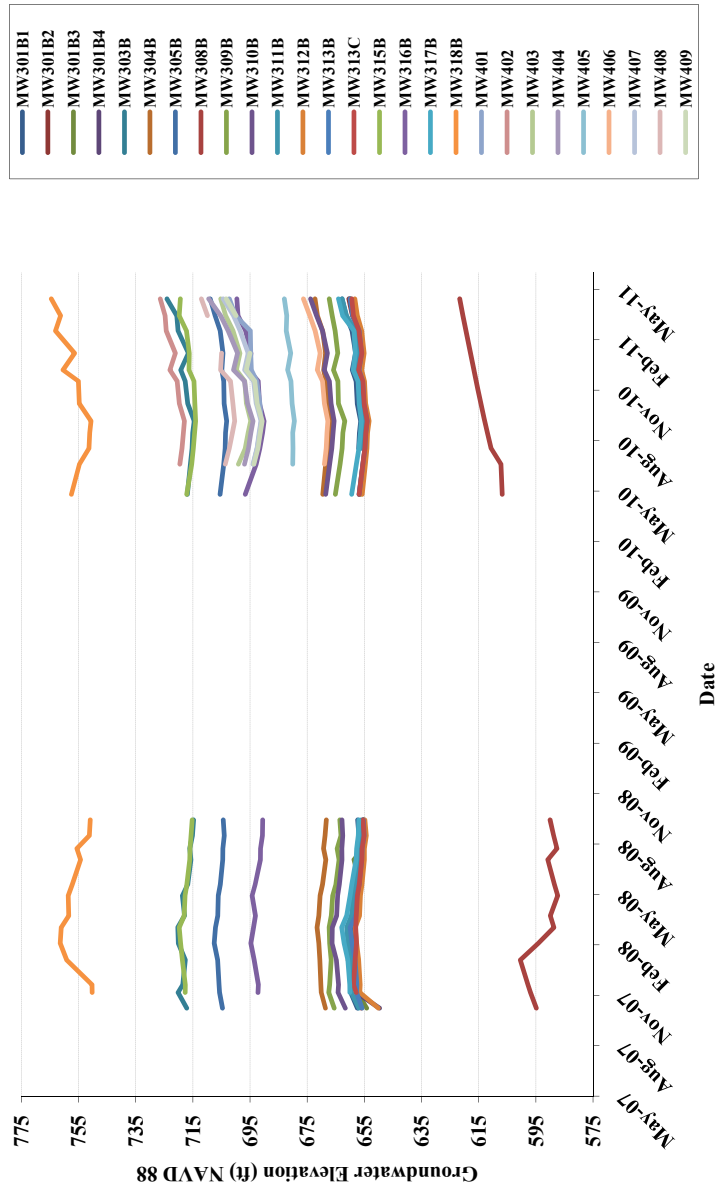


Figure 2.3-39— Groundwater Elevation versus Time, Glacial Outwash Aquifer



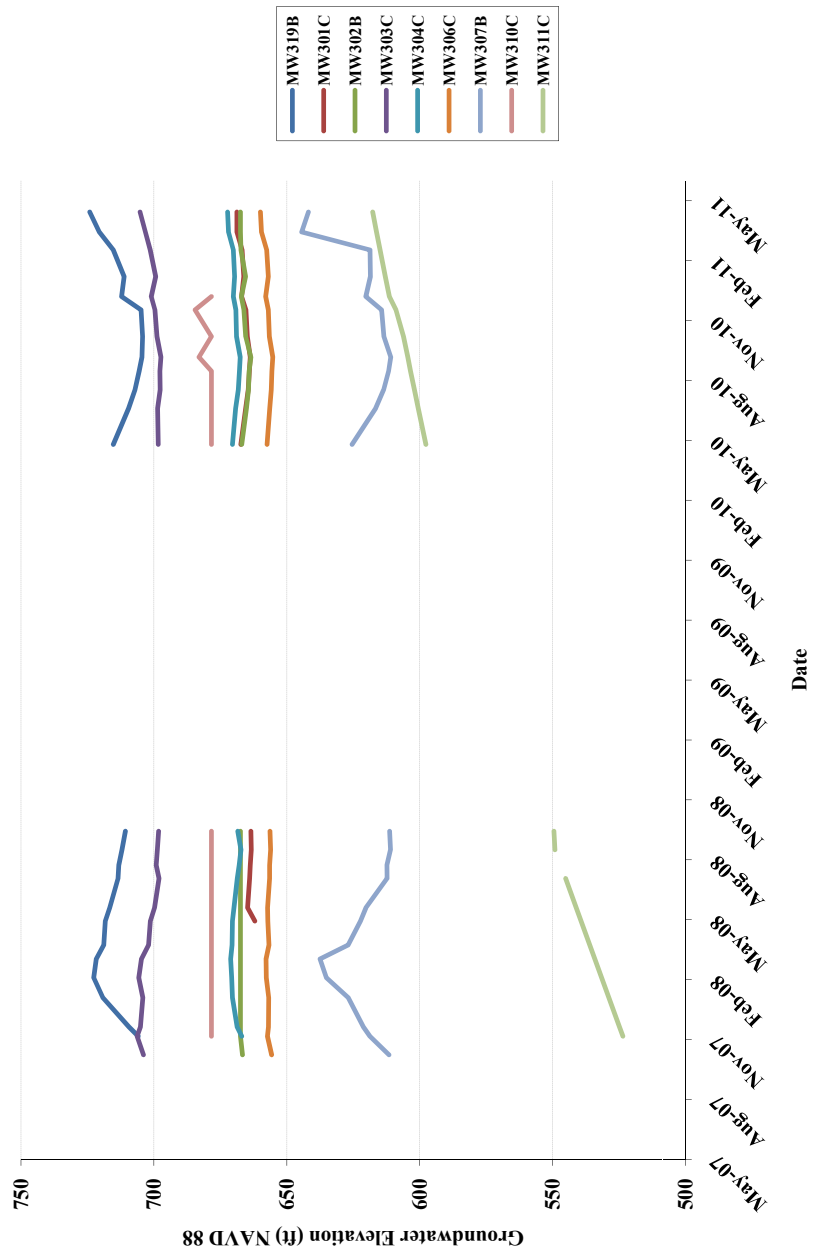
10-4310-GIS-A313

Figure 2.3-40— Groundwater Elevation versus Time, Shallow Bedrock Aquifer



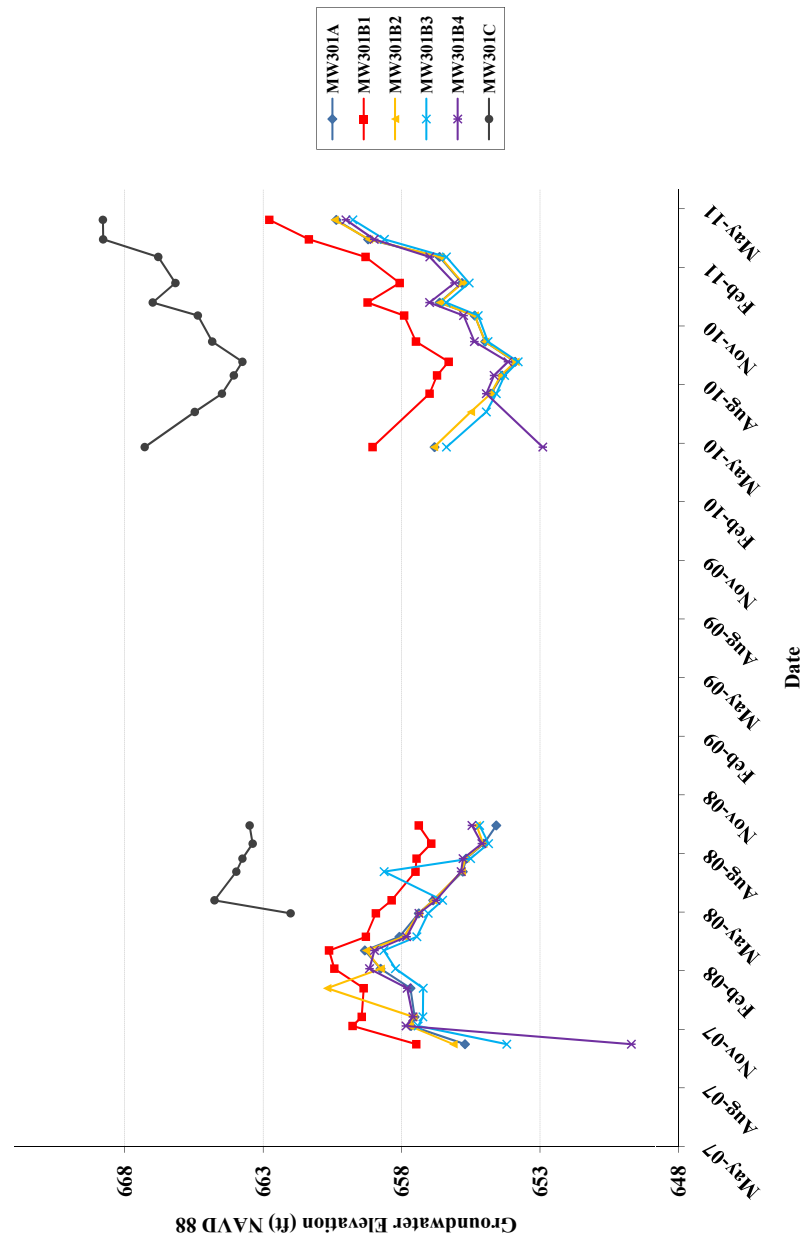
10-4310-GIS-A314

Figure 2.3-41 — Groundwater Elevation versus Time, Deep Bedrock Aquifer



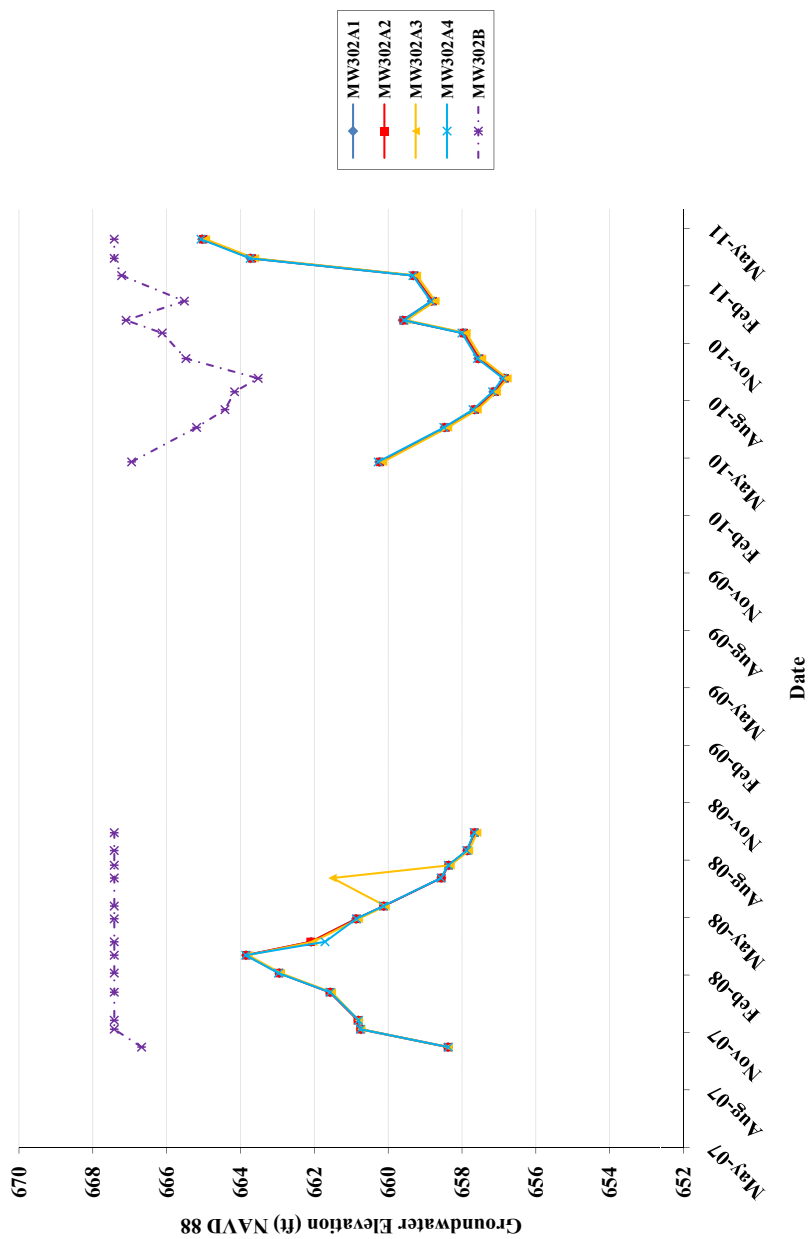
10-4310-GIS-A315

Figure 2.3-42— Groundwater Elevation versus Time, Well Cluster MW301



10-4310-GIS-A271

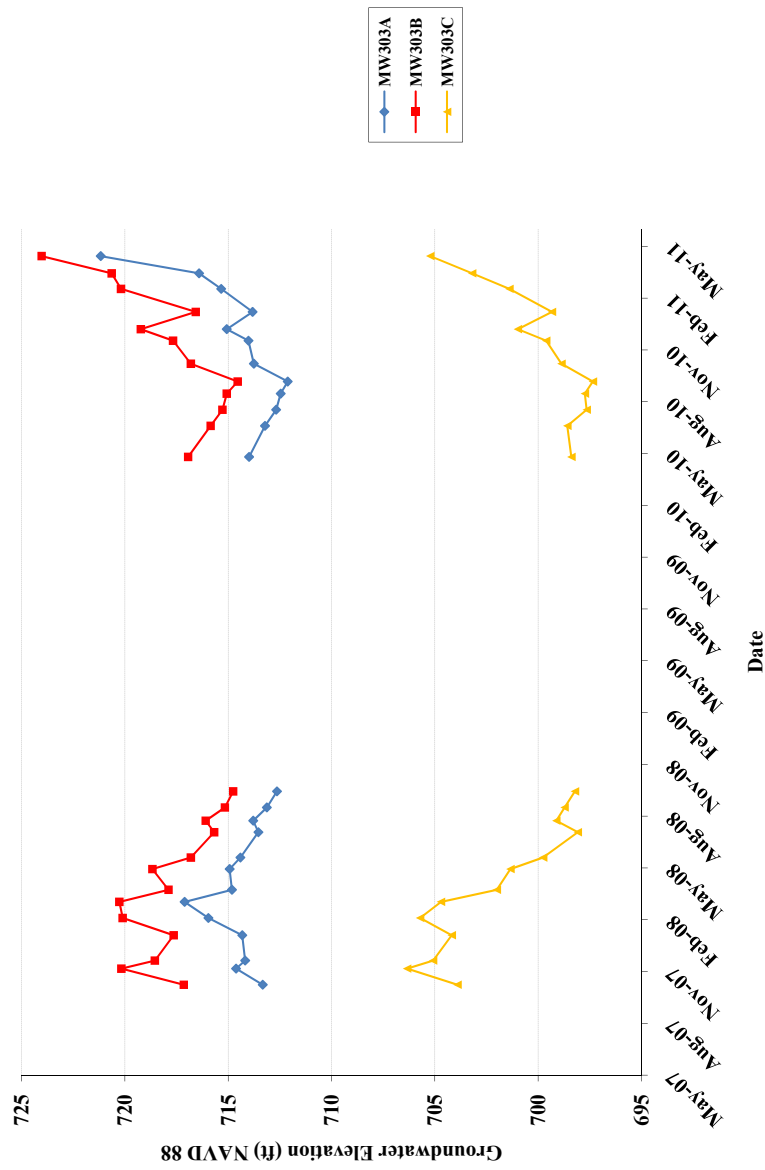
Figure 2.3-43— Groundwater Elevation versus Time, Well Cluster MW302



10-4310-GIS-A272

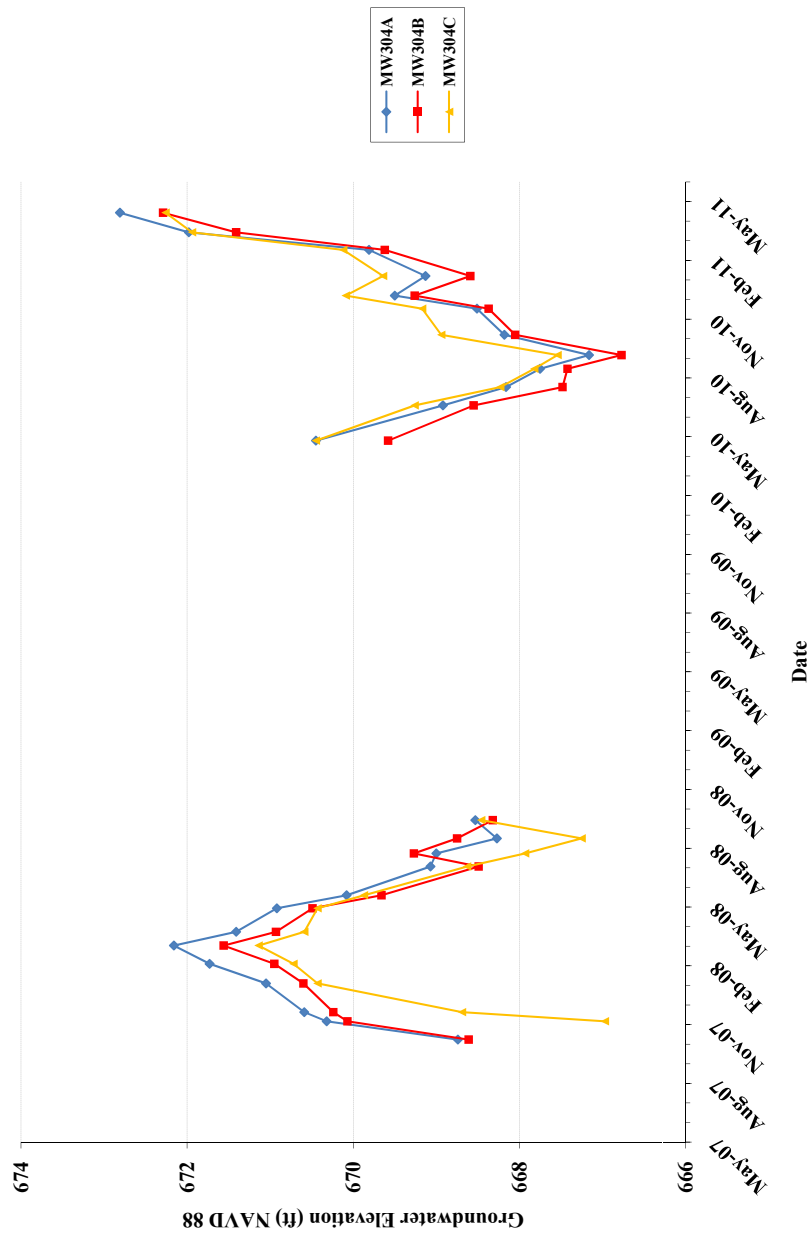


Figure 2.3-44— Groundwater Elevation versus Time, Well Cluster MW303



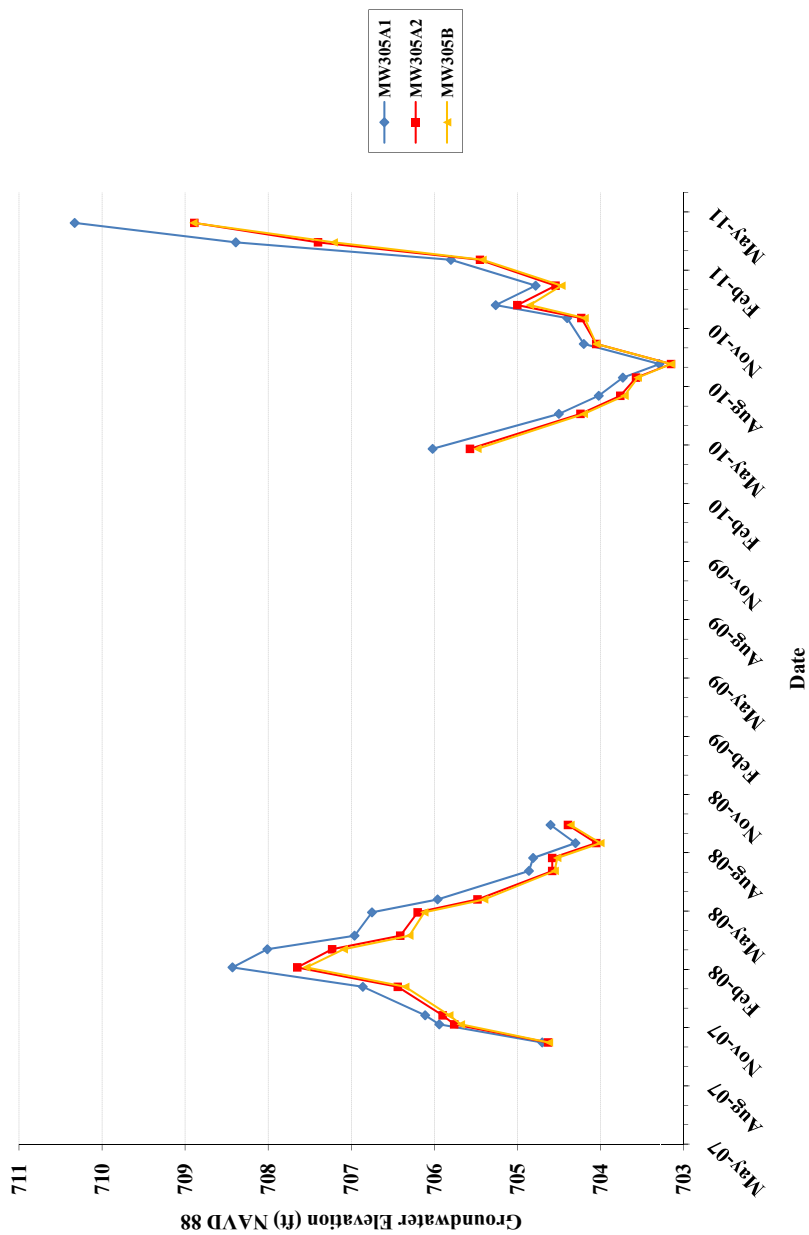
10-4310-GIS-A273

Figure 2.3-45— Groundwater Elevation versus Time, Well Cluster MW304



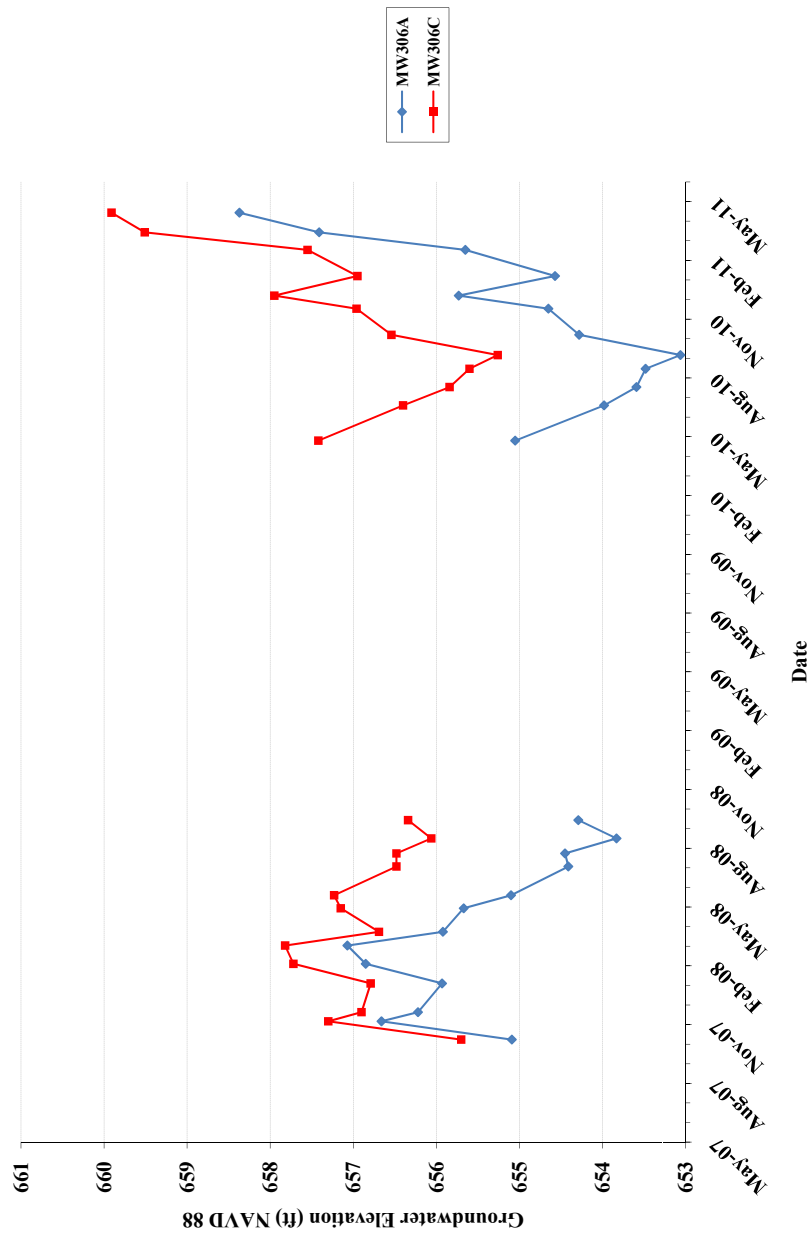
10-4310-GIS-A274

Figure 2.3-46— Groundwater Elevation versus Time, Well Cluster MW305



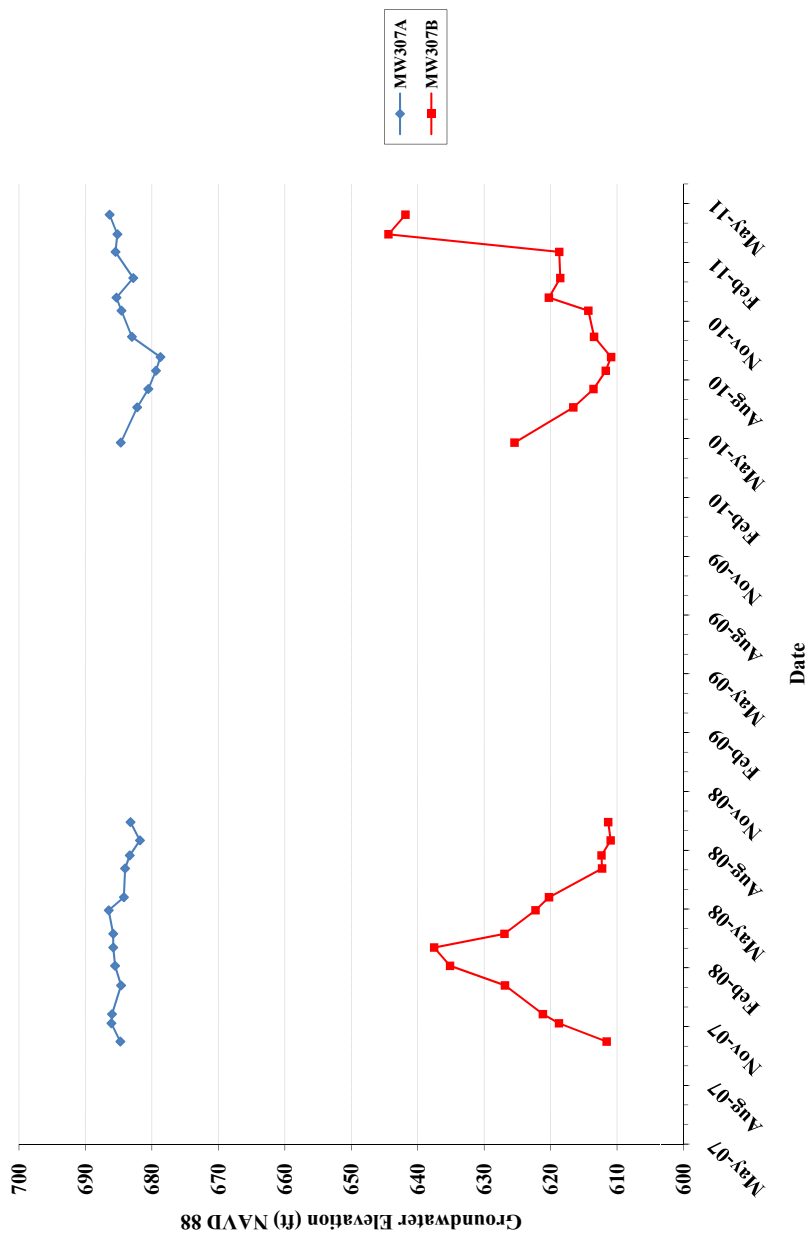
10-4310-GIS-A275

Figure 2.3-47— Groundwater Elevation versus Time, Well Cluster MW306



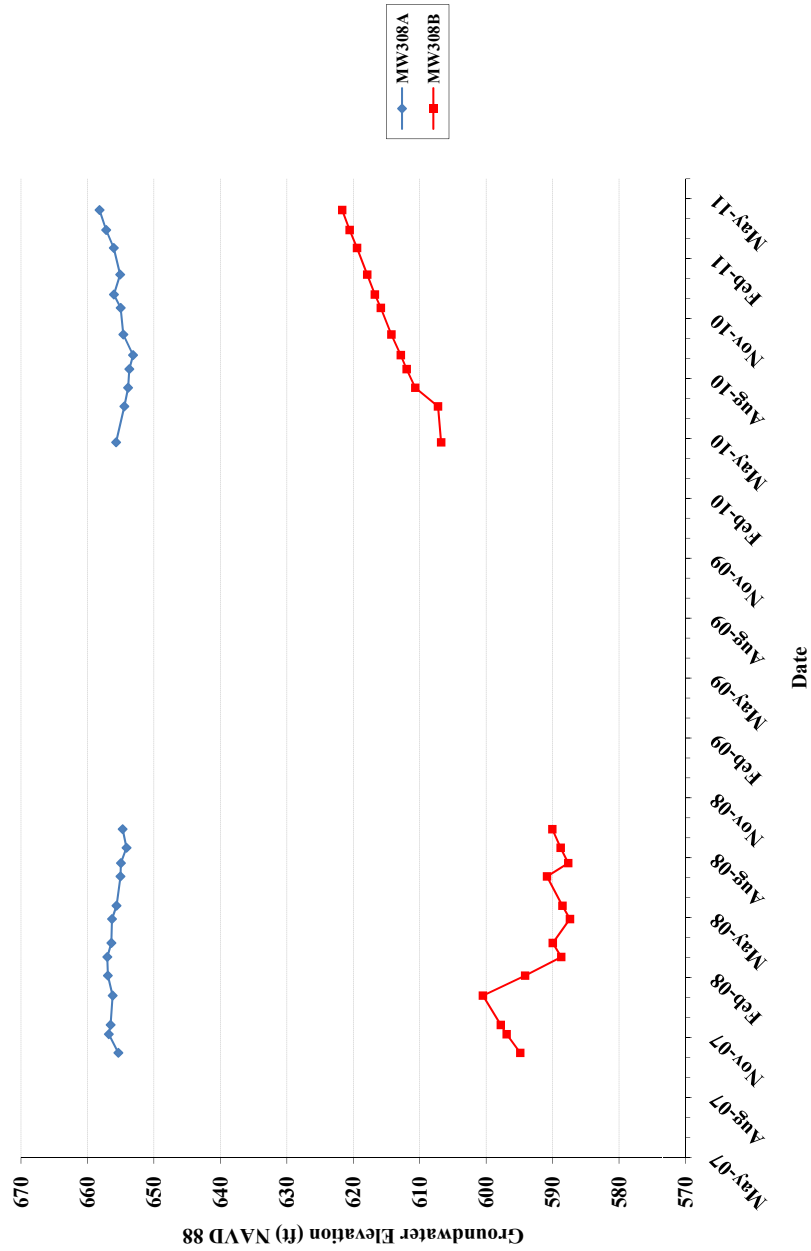
10-4310-GIS-A276

Figure 2.3-48— Groundwater Elevation versus Time, Well Cluster MW307



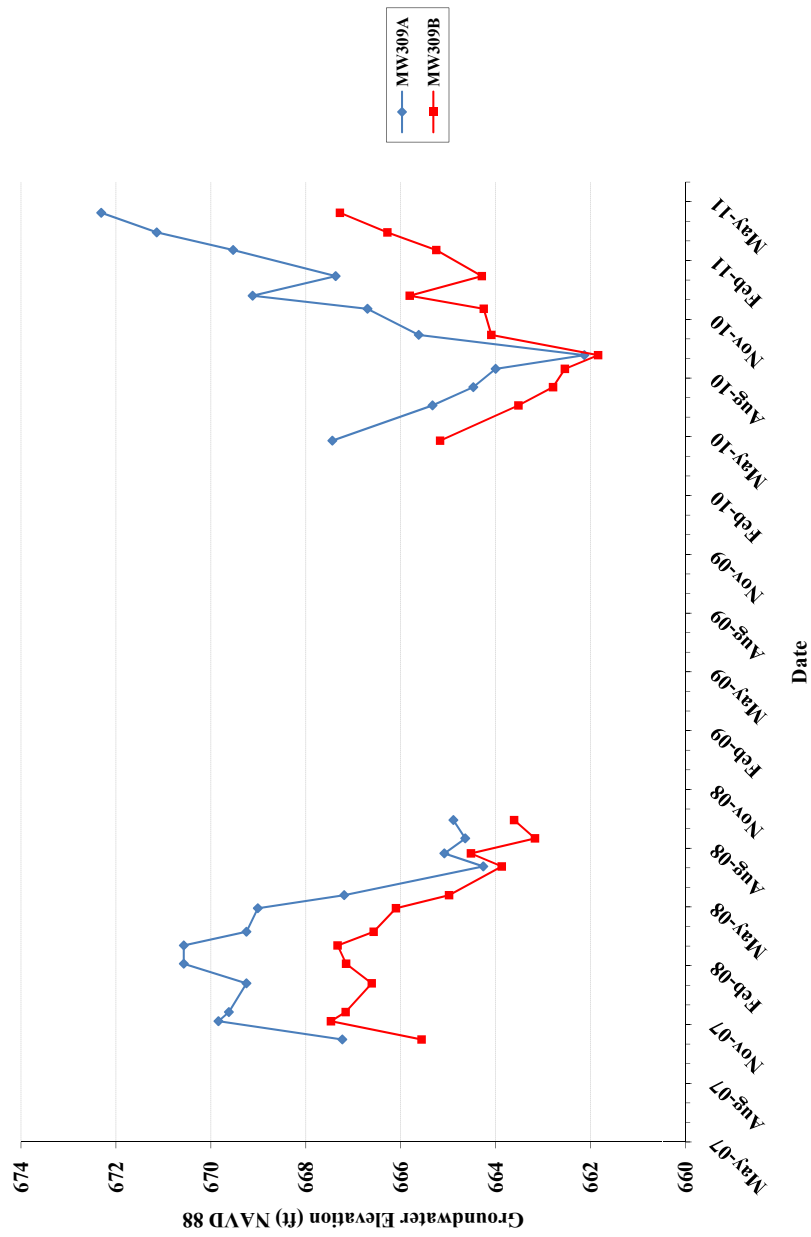
10-4310-GIS-A277

Figure 2.3-49— Groundwater Elevation versus Time, Well Cluster MW308



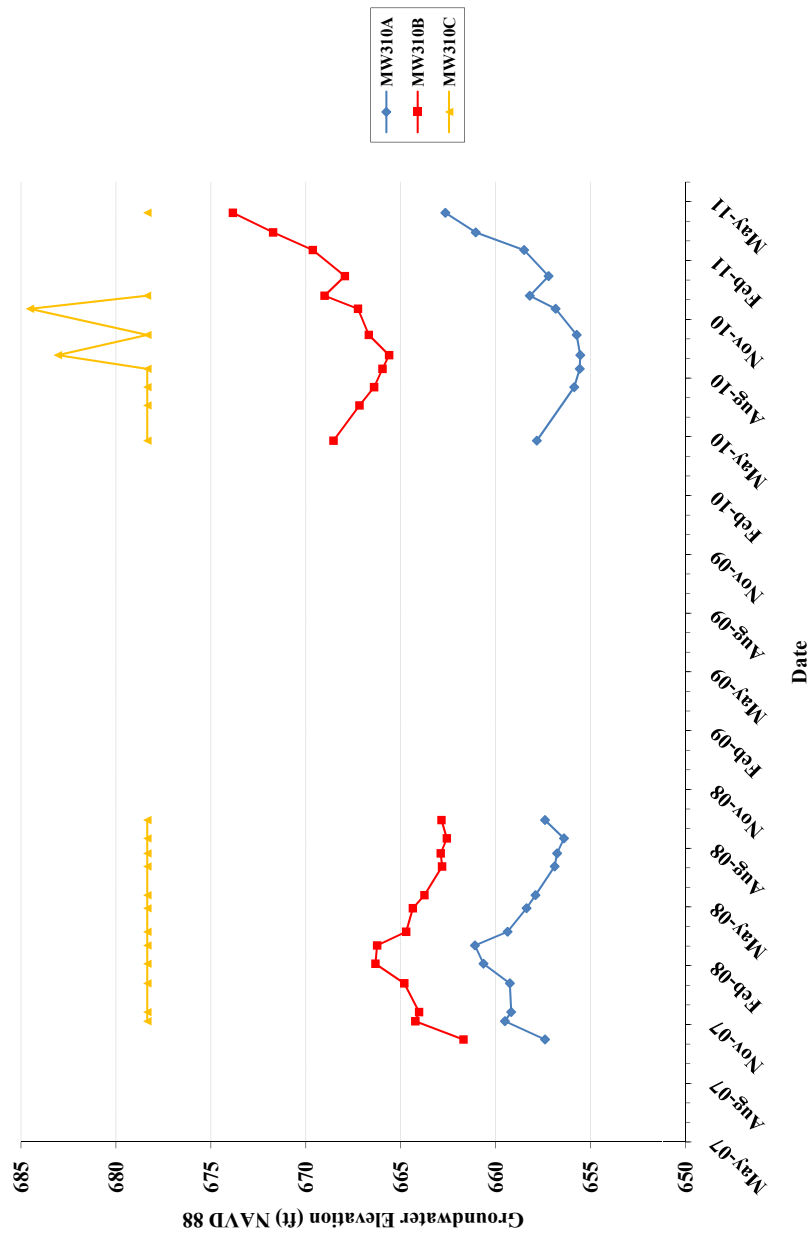
10-4310-GIS-A0317

Figure 2.3-50— Groundwater Elevation versus Time, Well Cluster MW309



10-4310-GIS-A278

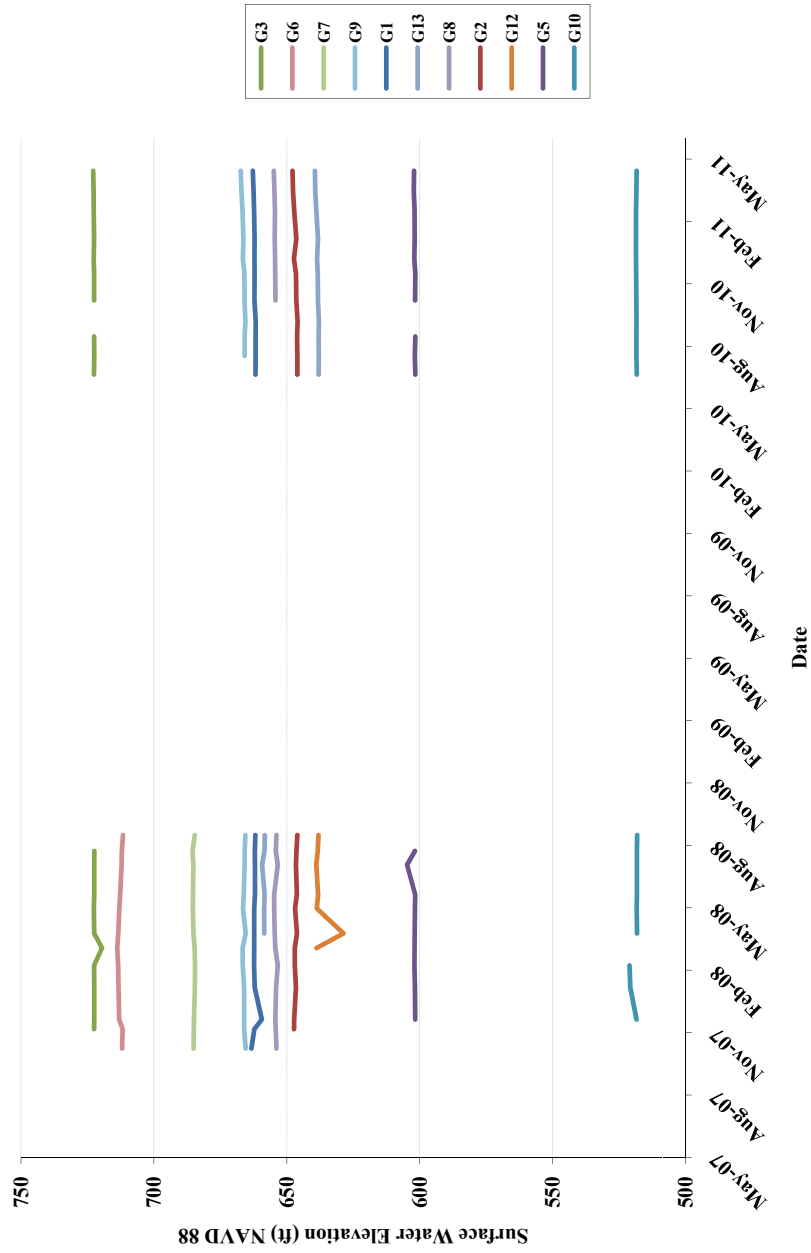
Figure 2.3-51 — Groundwater Elevation versus Time, Well Cluster MW310



10-4310-GIS-A279

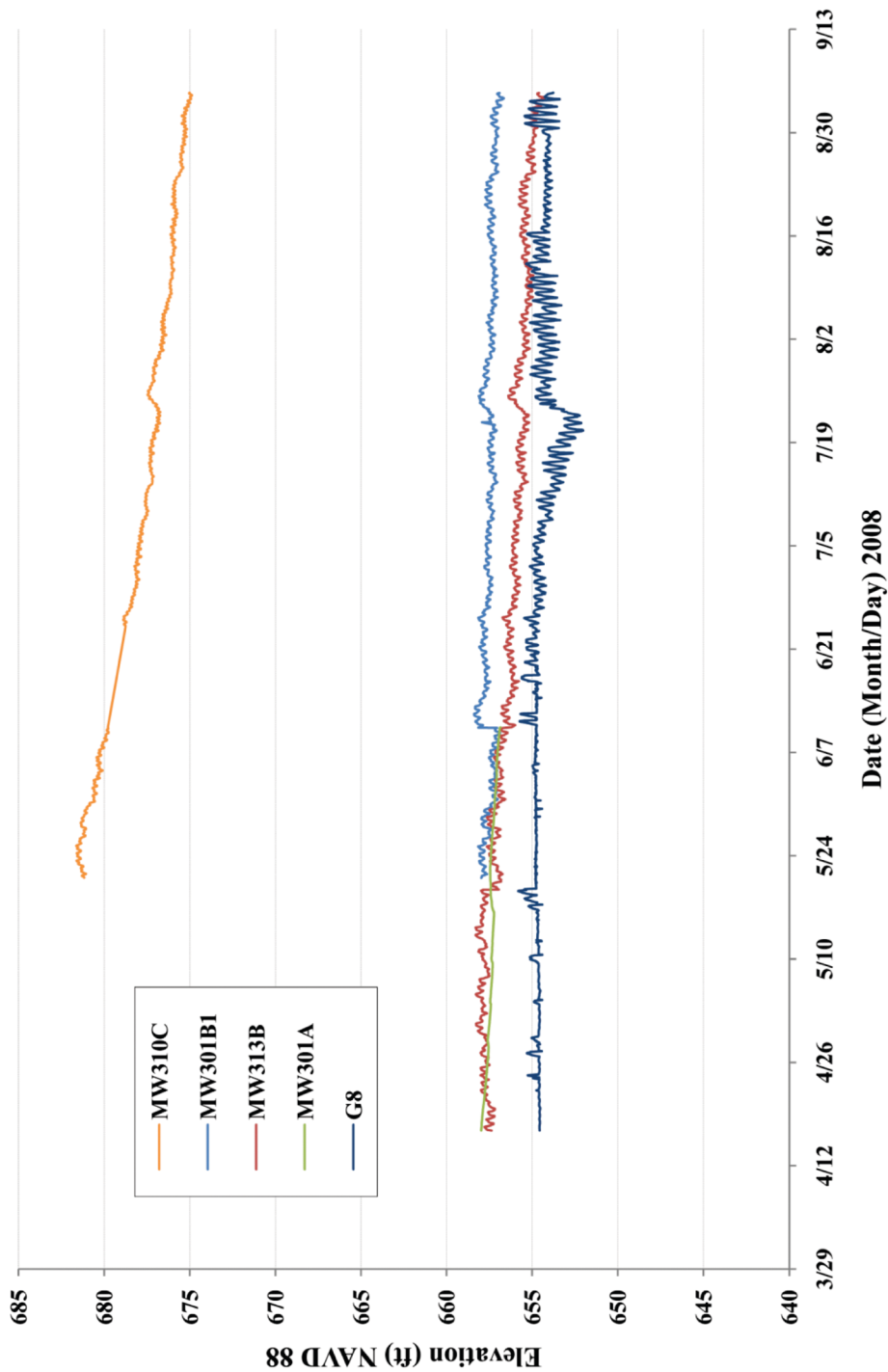


Figure 2.3-52— Surface Water Elevation versus Time



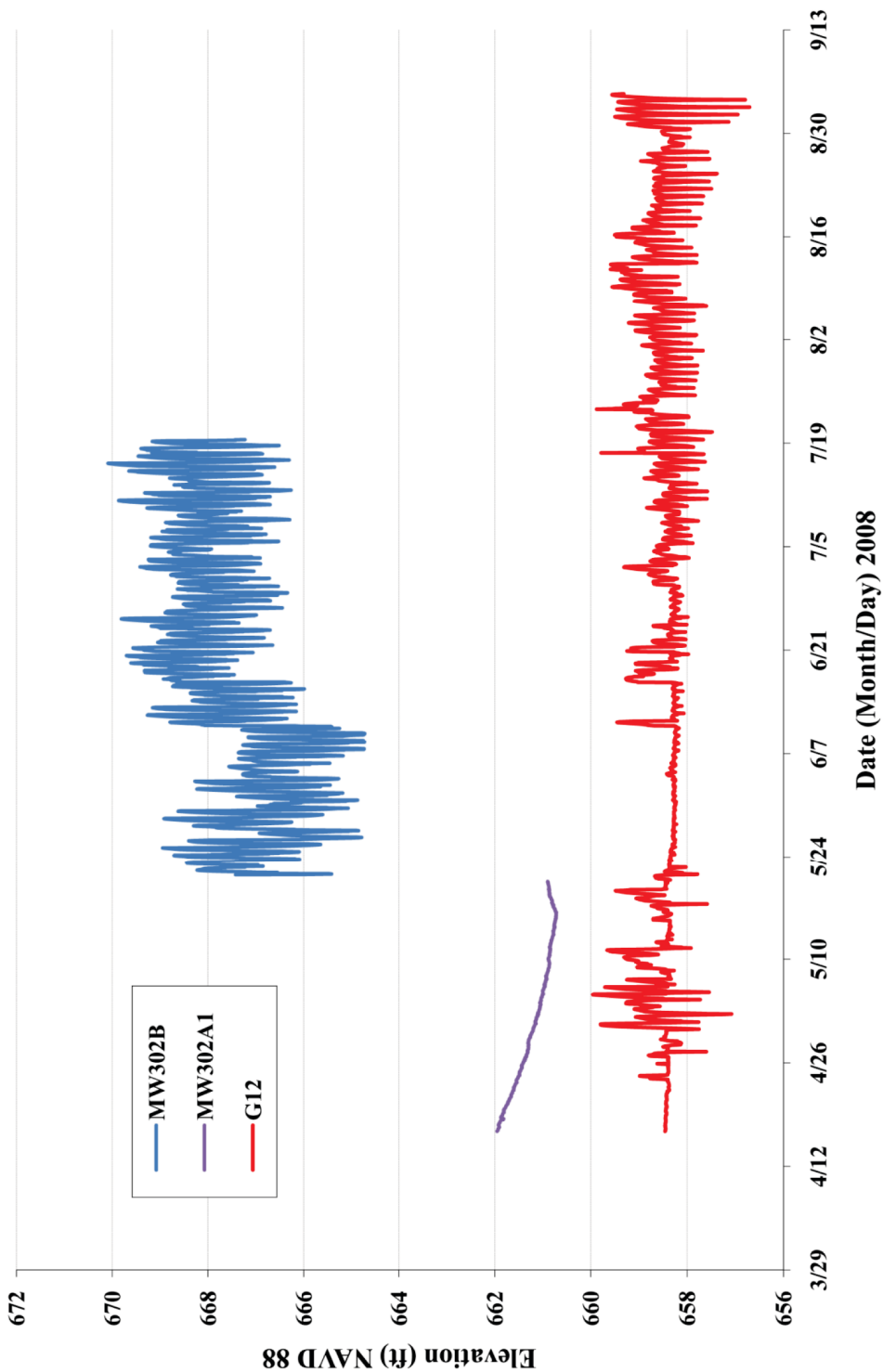
10-4310-GIS-A0316

Figure 2.3-53— Water Level Fluctuations In MW301 Cluster Area Based on Pressure Transducer Data



10-4310-GIS-A280

Figure 2.3-54— Water Level Fluctuations In MW302 Cluster Area Based on Pressure Transducer Data  
(Page 1 of 2)



10-1310-GIS-A281

**Figure 2.3-54— Water Level Fluctuations In MW302 Cluster Area Based on Pressure Transducer Data**  
(Page 2 of 2)

Intentionally Blank

Figure 2.3-55 — Potentiometric Surface Map of Glacial Outwash Aquifer, November 2007

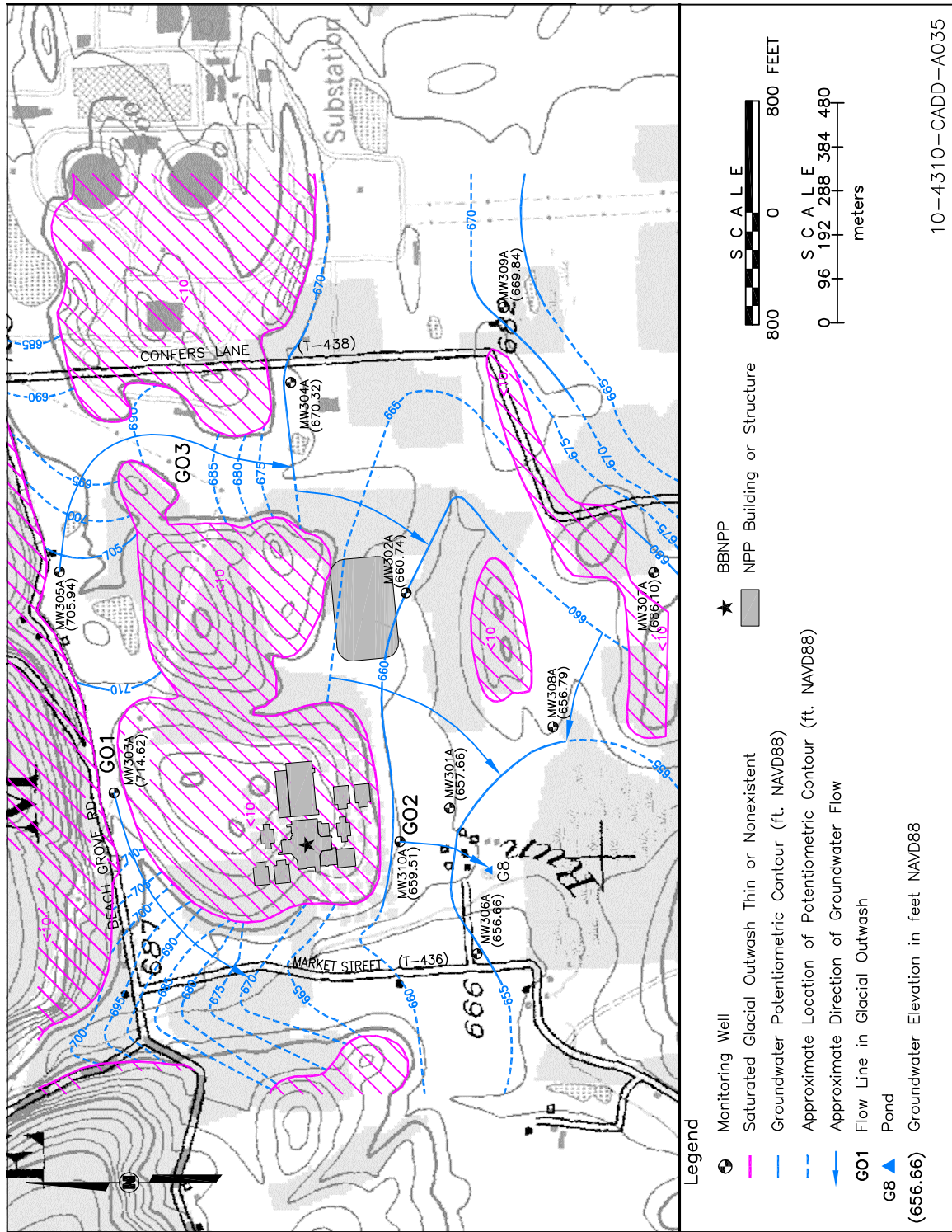


Figure 2.3-56— Potentiometric Surface Map of Glacial Outwash Aquifer, January 2008

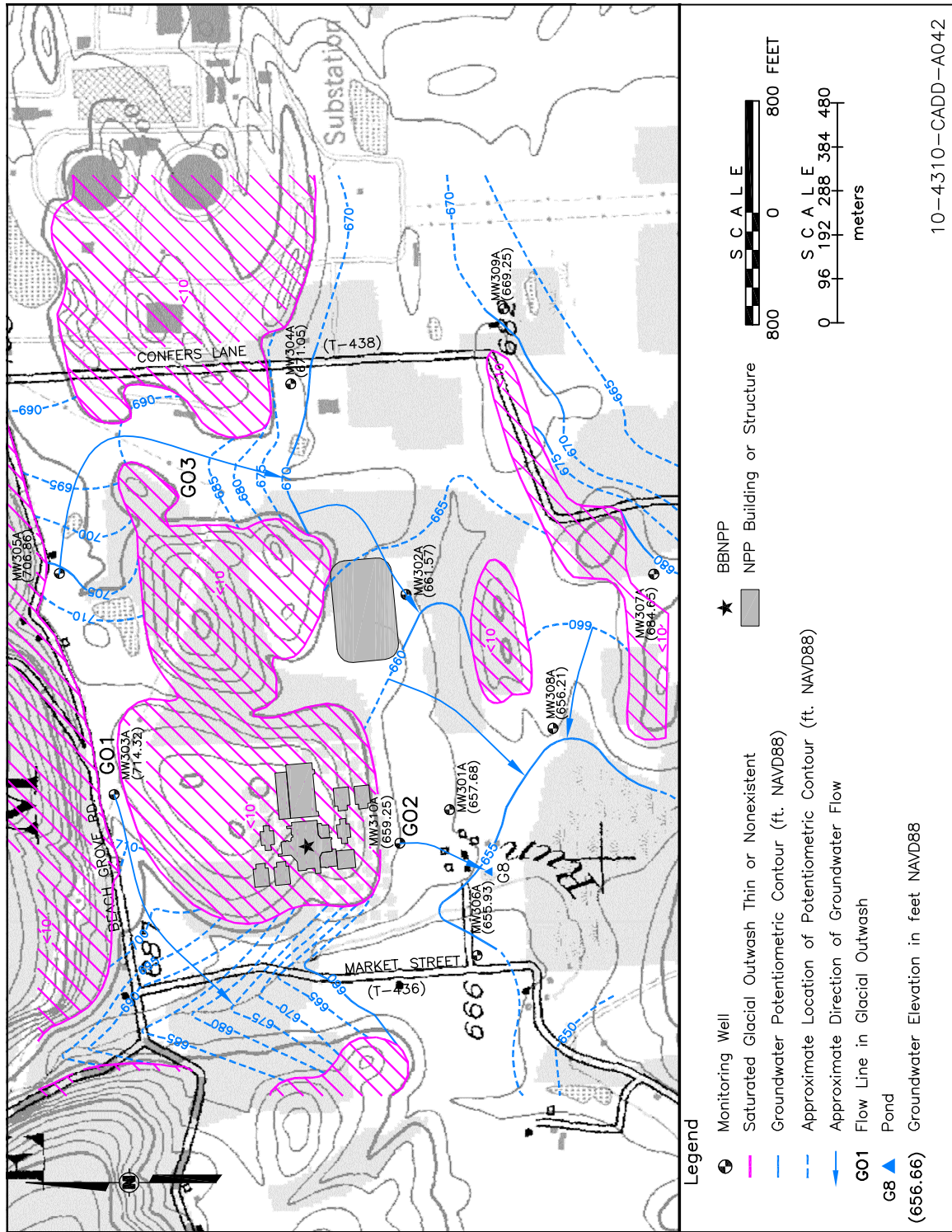


Figure 2.3-57 — Potentiometric Surface Map of Glacial Outwash Aquifer, March 2008

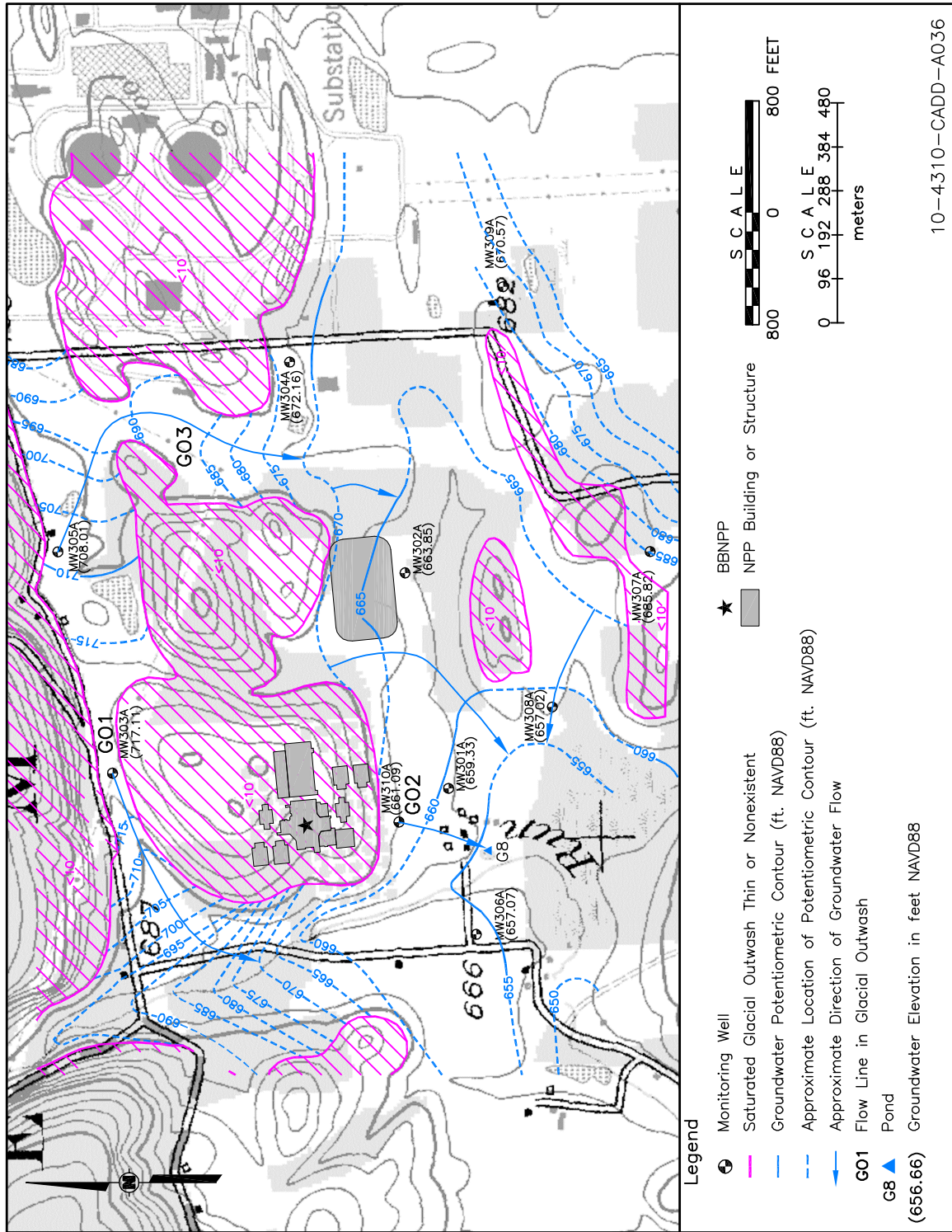


Figure 2.3-58 — Potentiometric Surface Map of Glacial Overburden Outwash Aquifer, July 2008

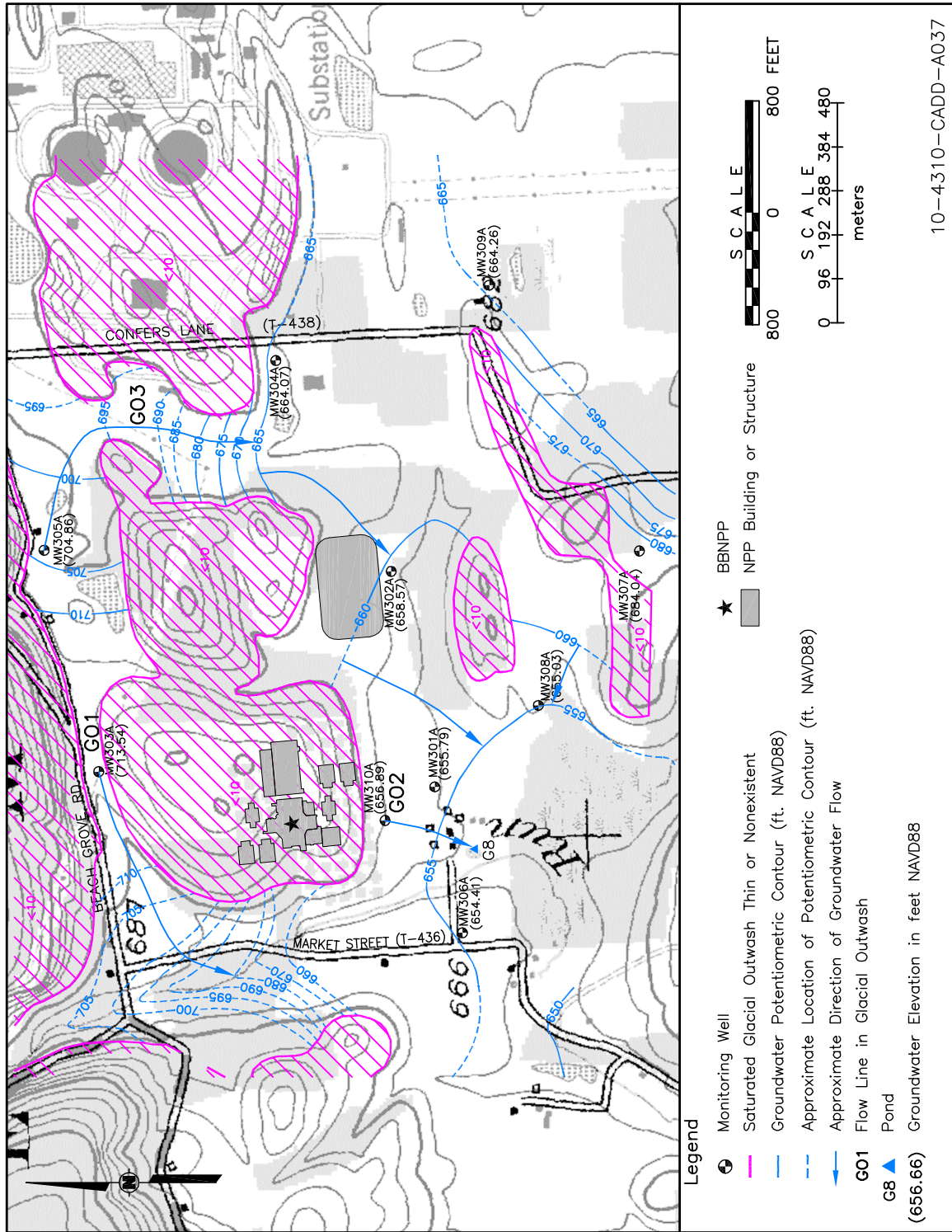
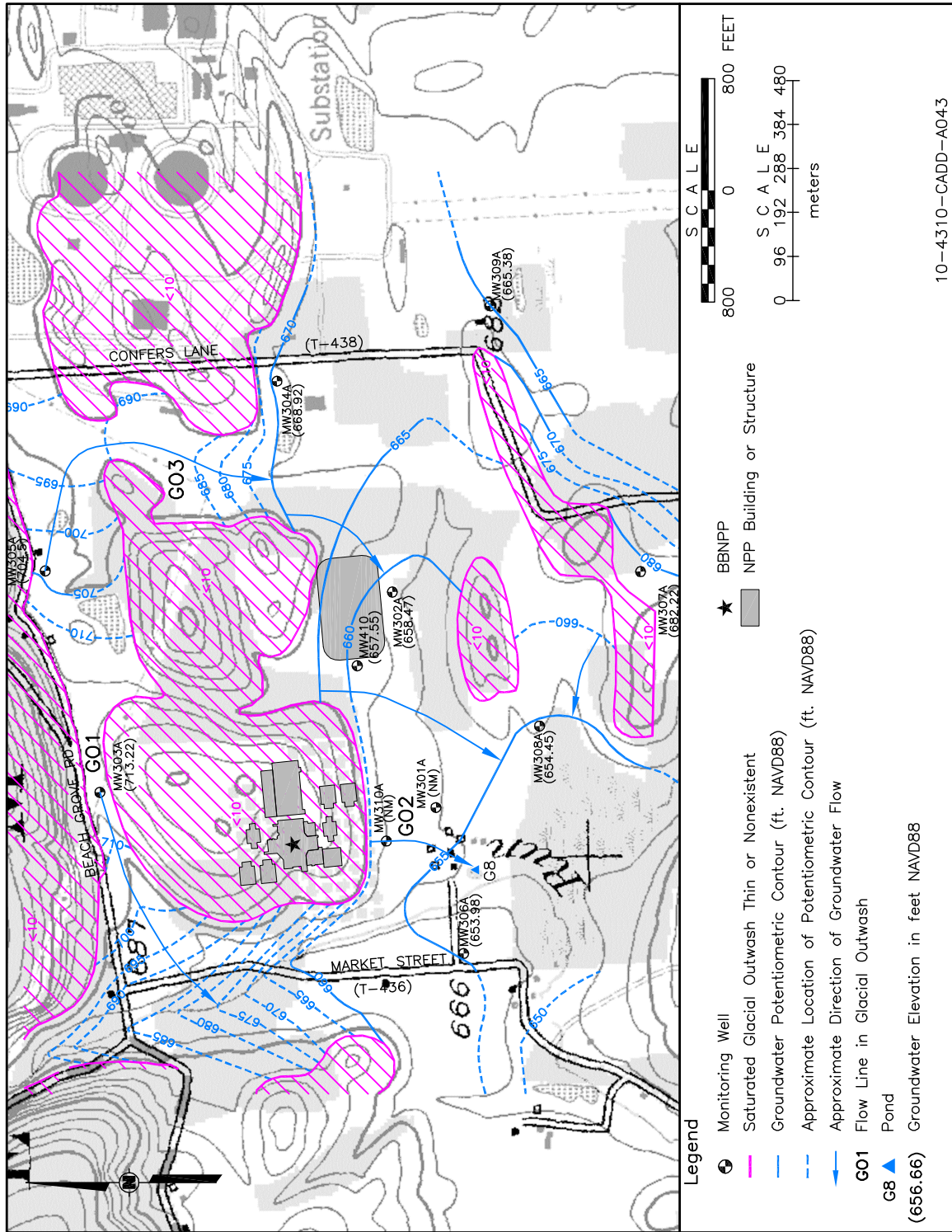




Figure 2.3-59— Potentiometric Surface Map of Glacial Outwash Aquifer, June 2010



10-4310-CADD-A043

Figure 2.3-60— Potentiometric Surface Map of Glacial Outwash Aquifer, September 2010

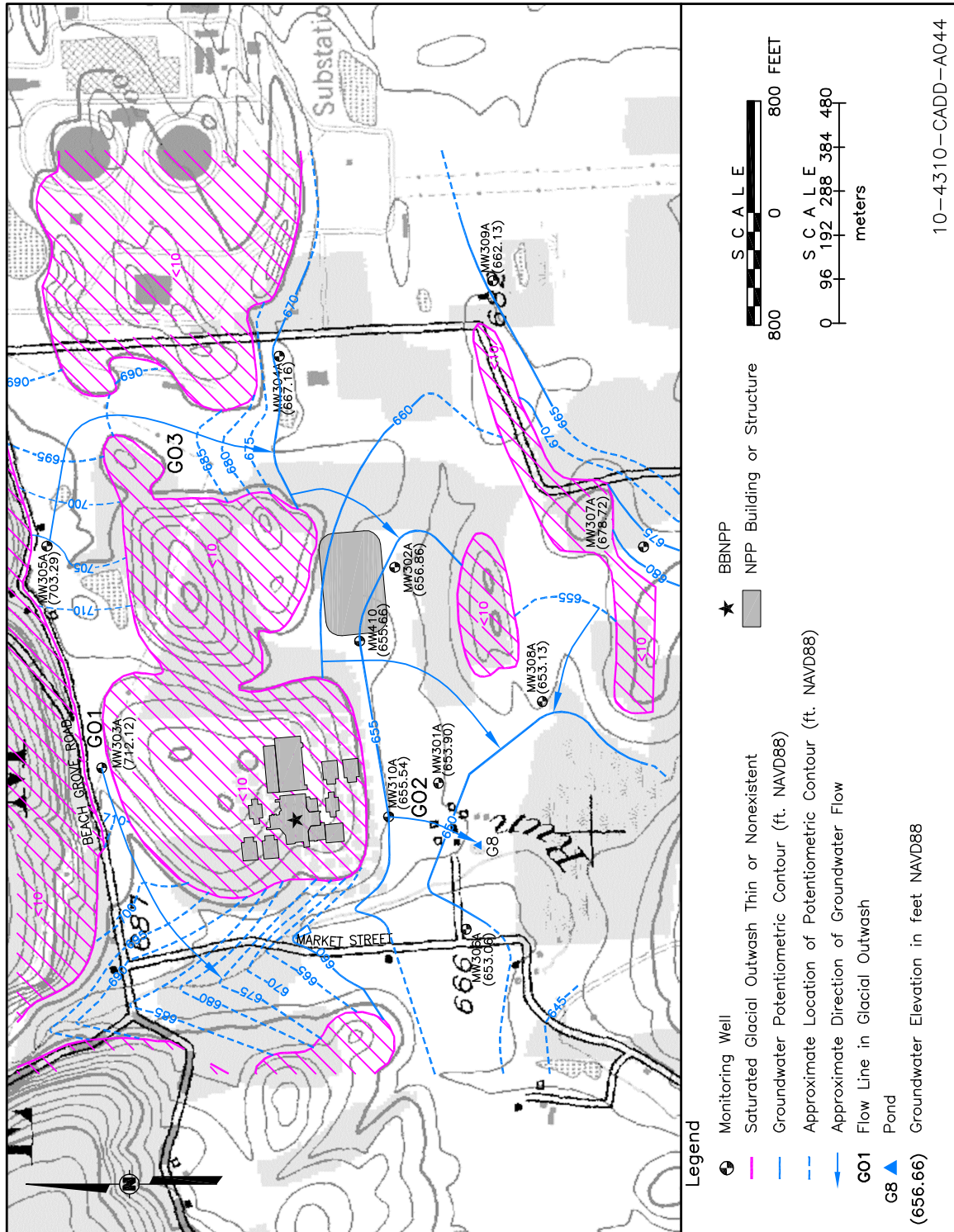


Figure 2.3-61 — Potentiometric Surface Map of Glacial Outwash Aquifer, December 2010

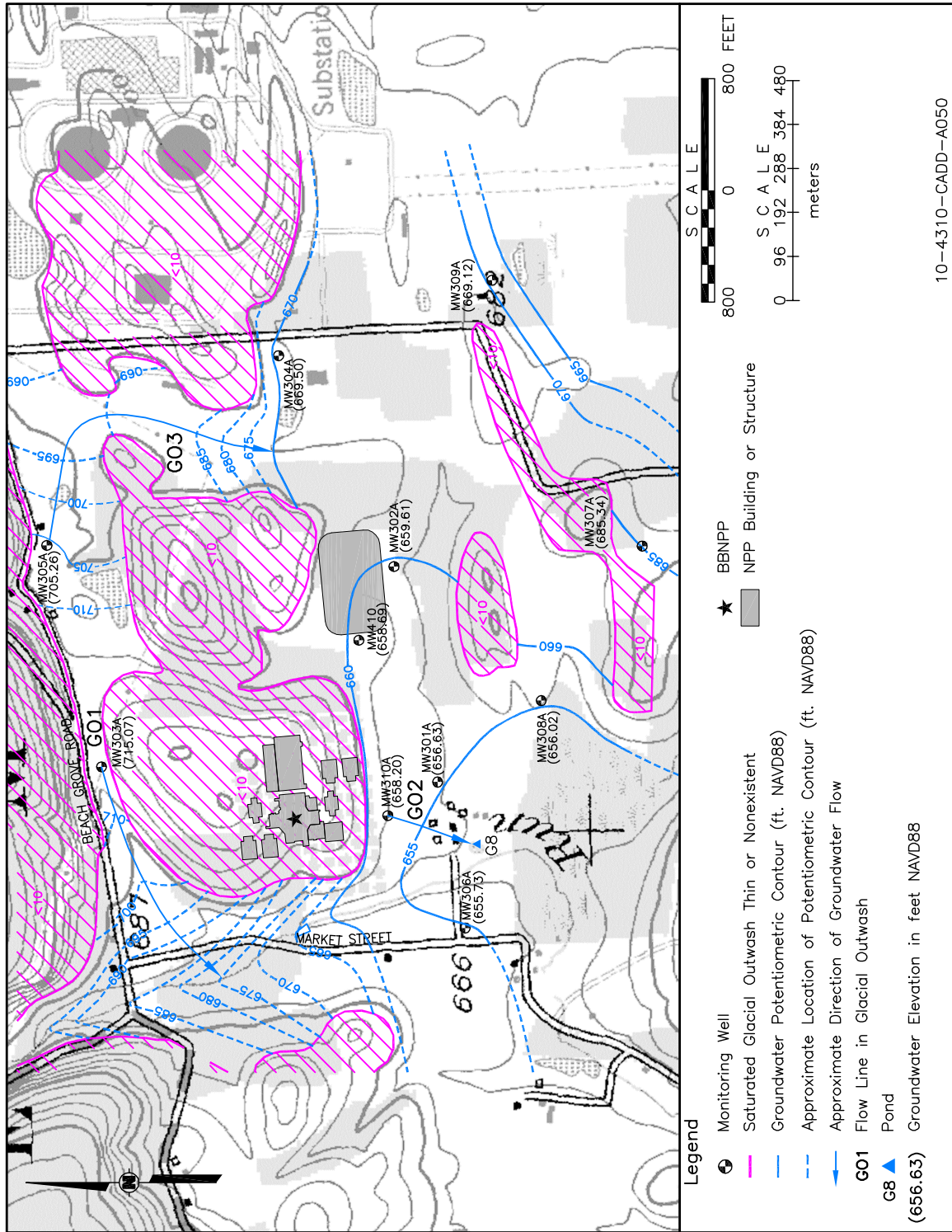


Figure 2.3-62— Potentiometric Surface Map of Glacial Outwash Aquifer, April 2011

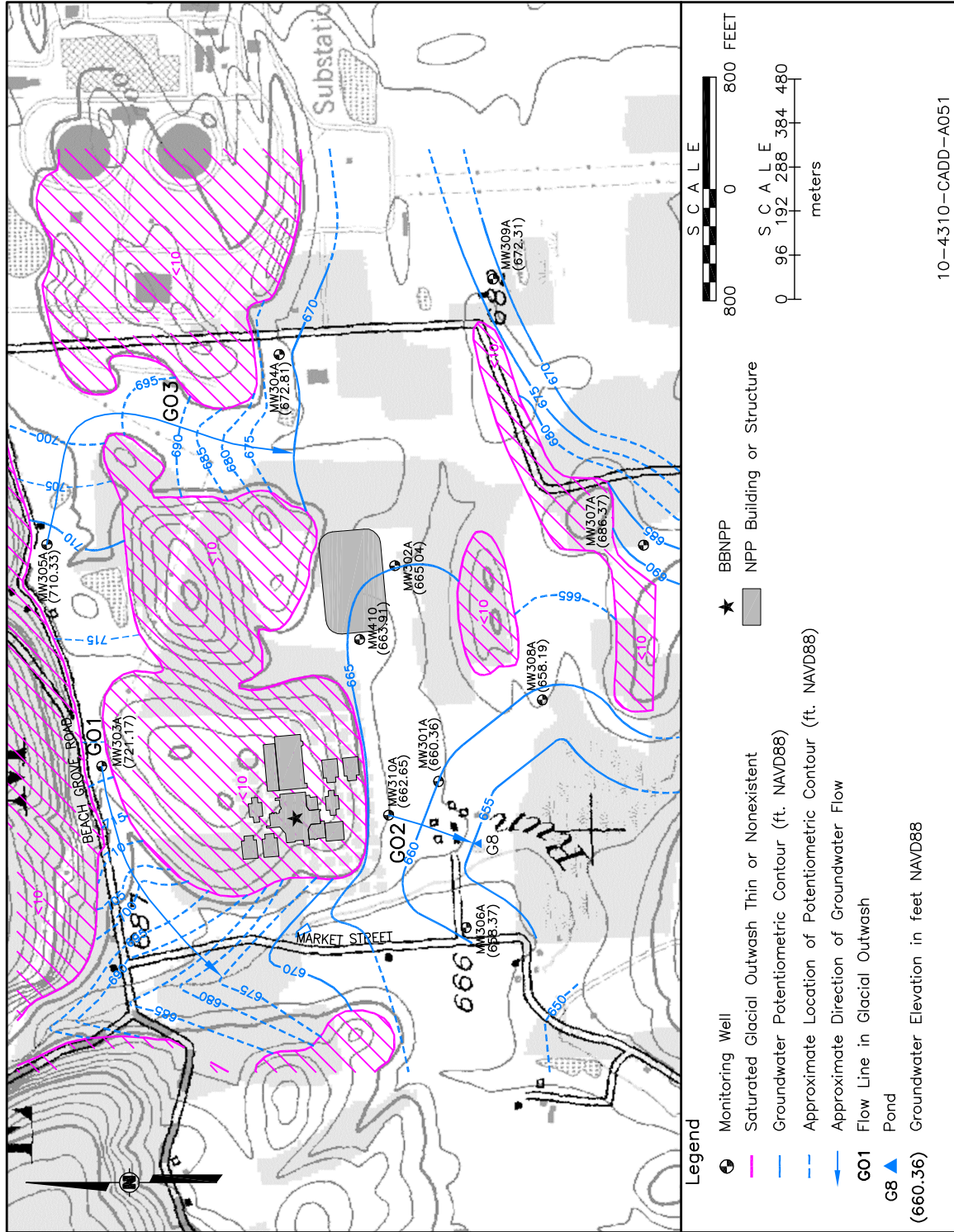
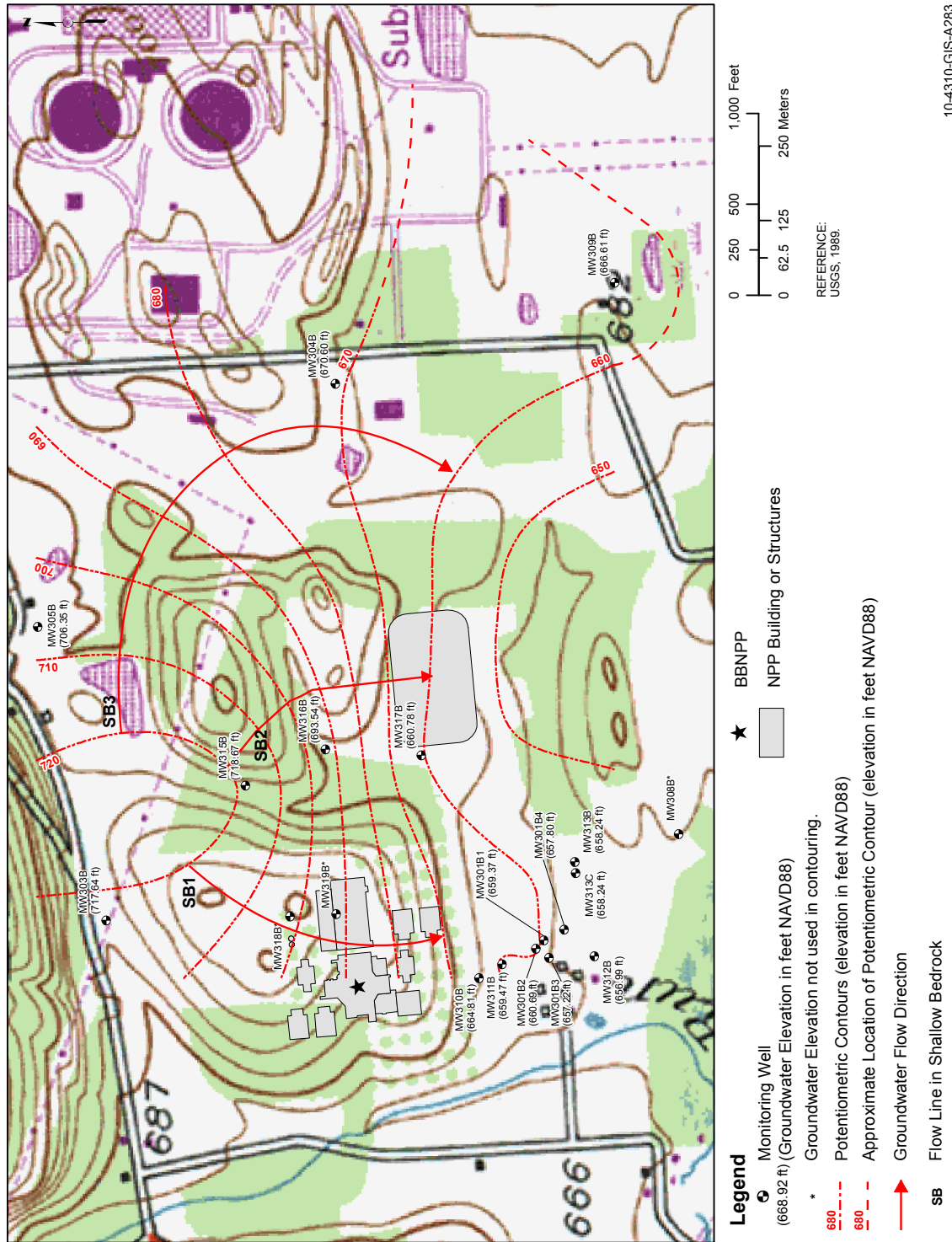


Figure 2.3-63— Potentiometric Surface Map of Shallow Bedrock Aquifer, November 2007



10-4310-GIS-A282

Figure 2.3-64— Potentiometric Surface Map of Shallow Bedrock Aquifer, January 2008



10-4310-GIS-A283

Figure 2.3-65— Potentiometric Surface Map of Shallow Bedrock Aquifer, March 2008

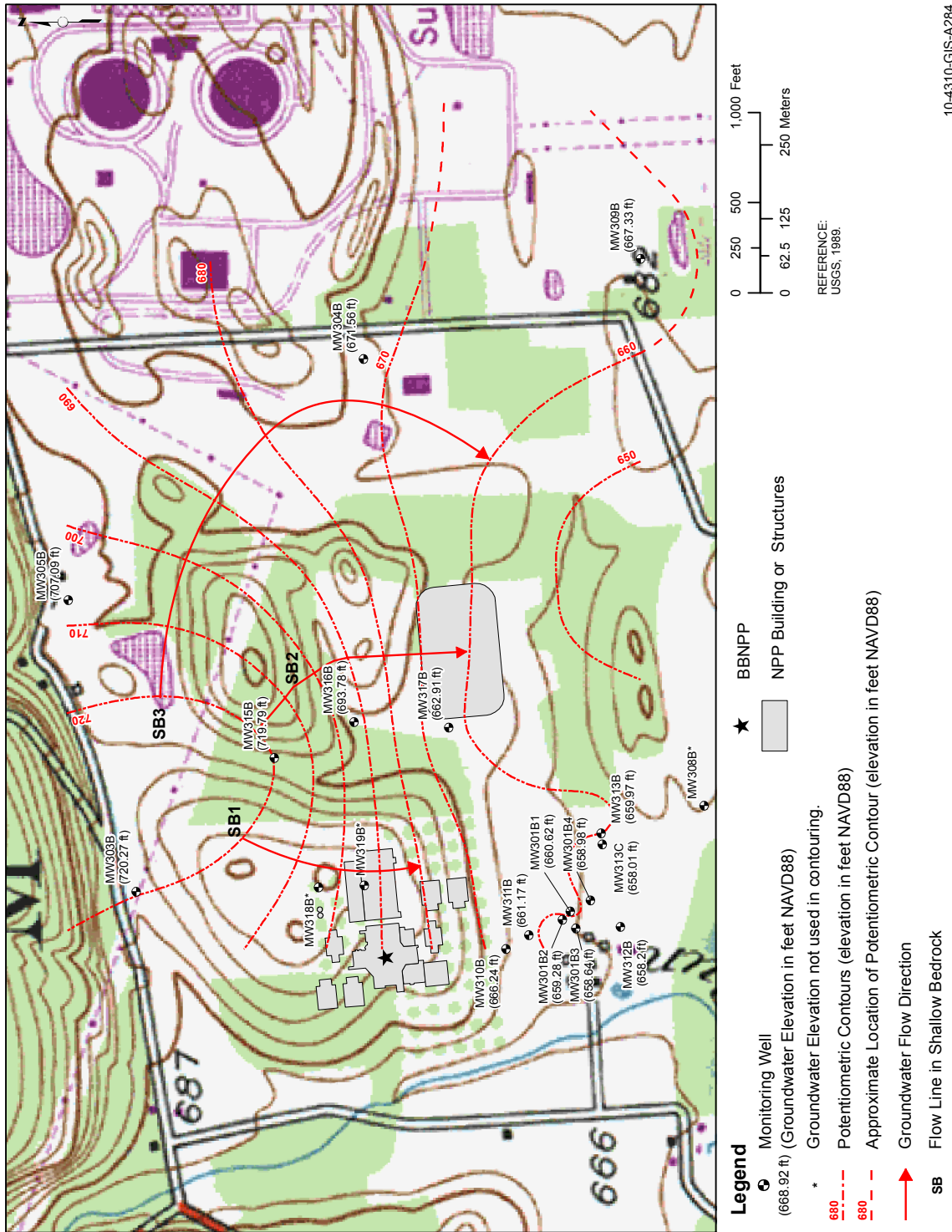


Figure 2.3-66— Potentiometric Surface Map of Shallow Bedrock Aquifer, July 2008

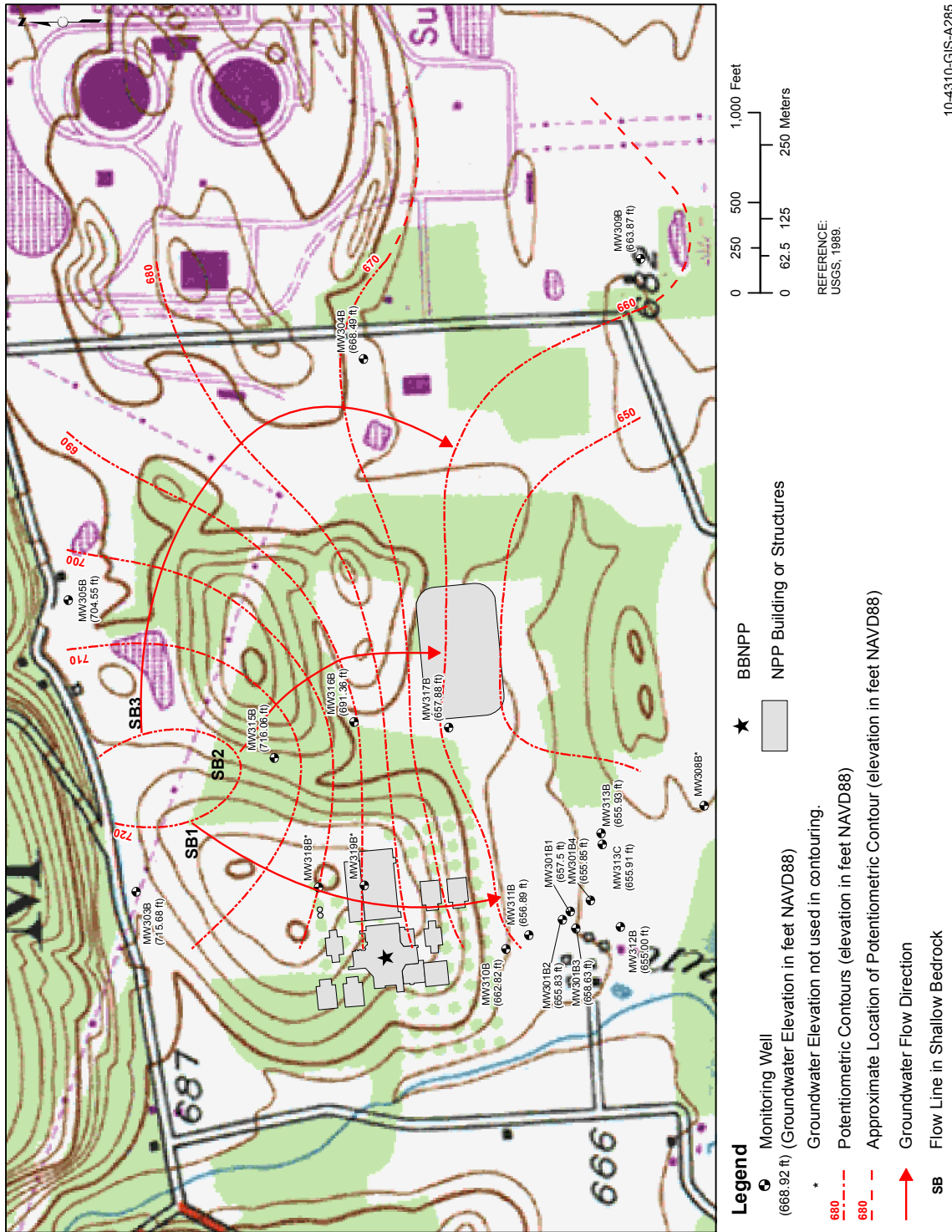
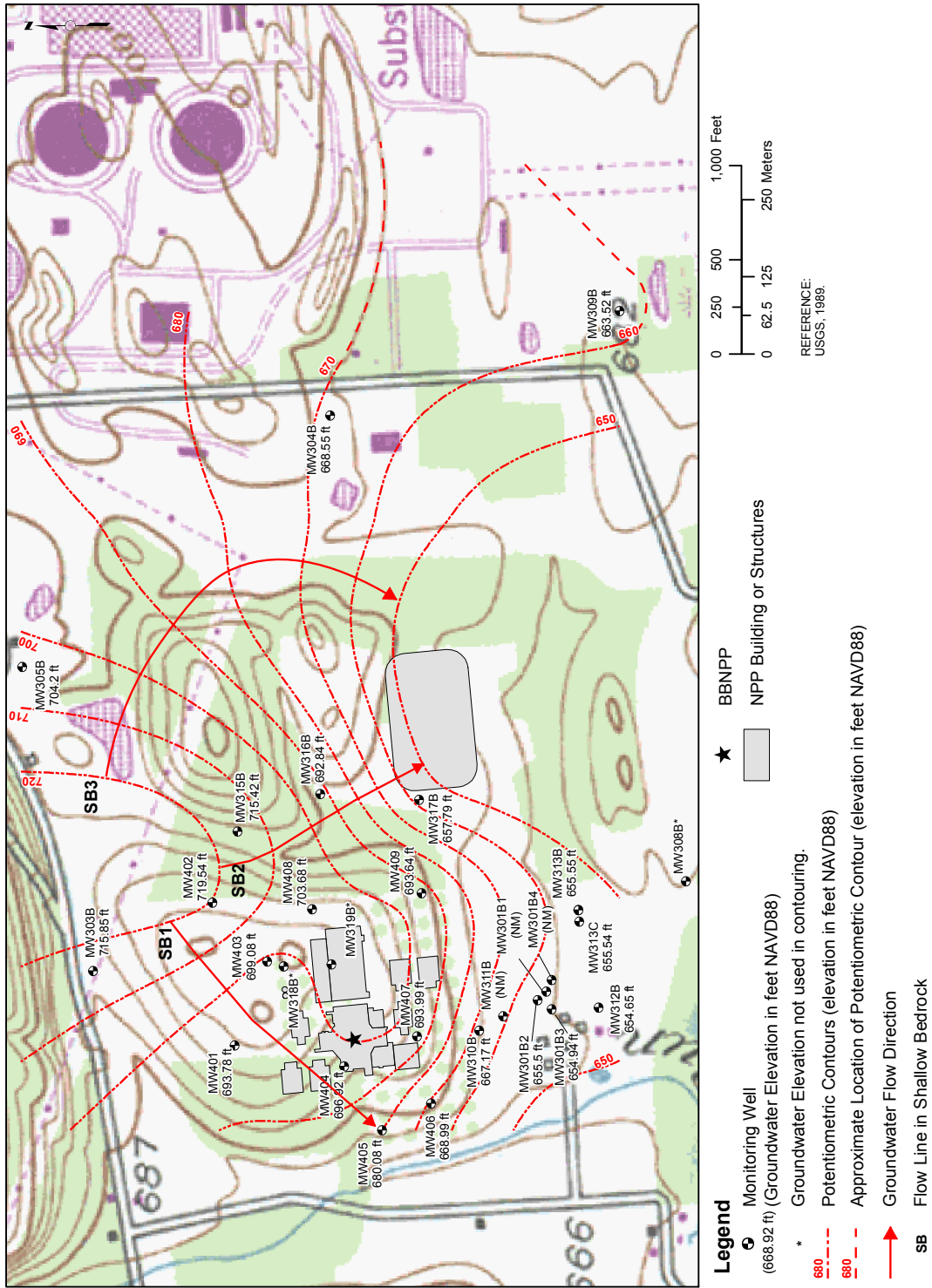


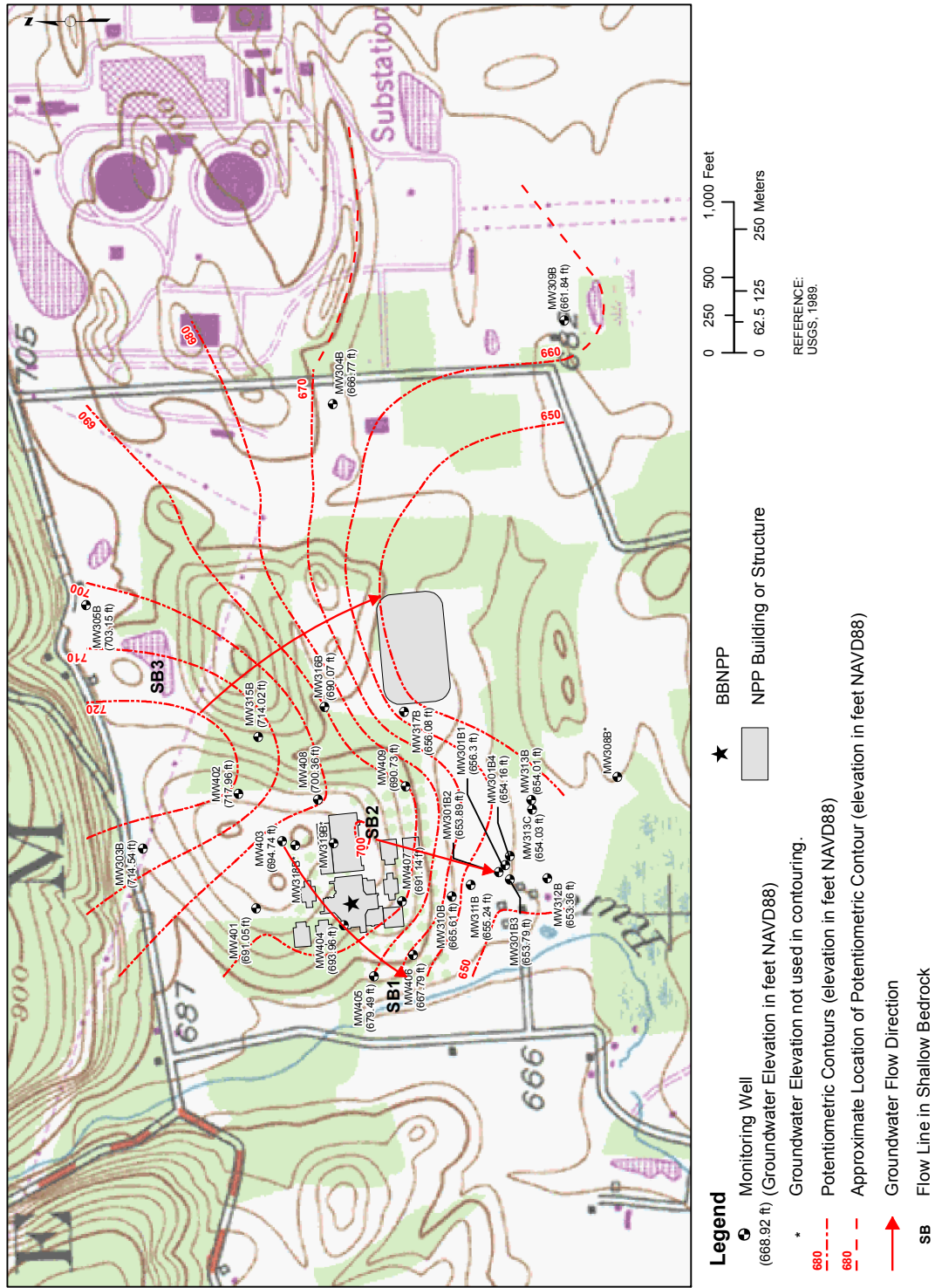


Figure 2.3-67 — Potentiometric Surface Map of Shallow Bedrock Aquifer, June 2010



10-4310-GIS-A286

Figure 2.3-68— Potentiometric Surface Map of Shallow Bedrock Aquifer, September 2010



10-4310-GIS-A287

Figure 2.3-69— Potentiometric Surface Map of Shallow Bedrock Aquifer, December 2010



10-4310-GIS-A312

Figure 2.3-70— Potentiometric Surface Map of Shallow Bedrock Aquifer, April 2011



10-4310-GIS-A309

Figure 2.3-71 — Potentiometric Surface Map of Deep Bedrock Aquifer, November 2007

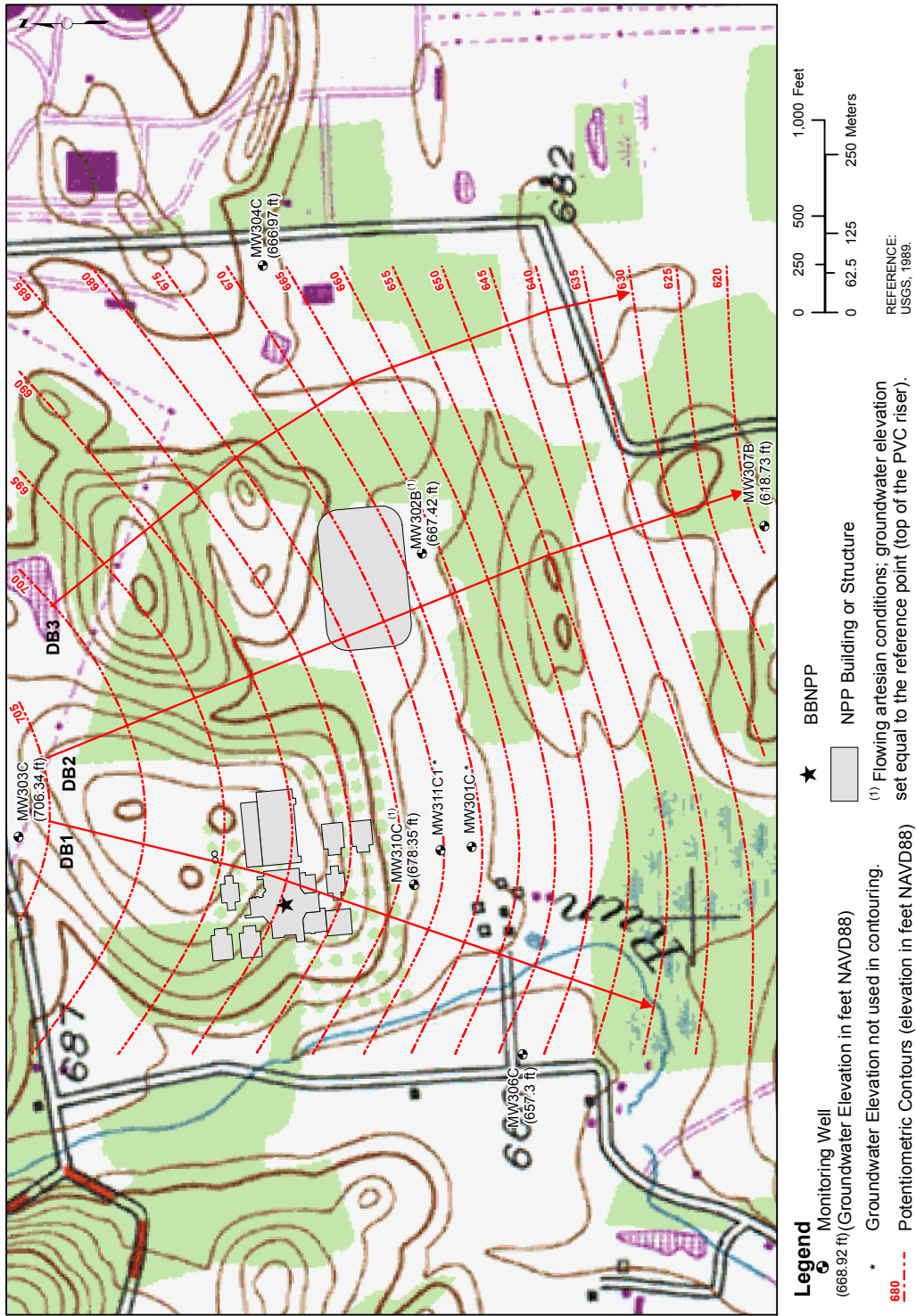
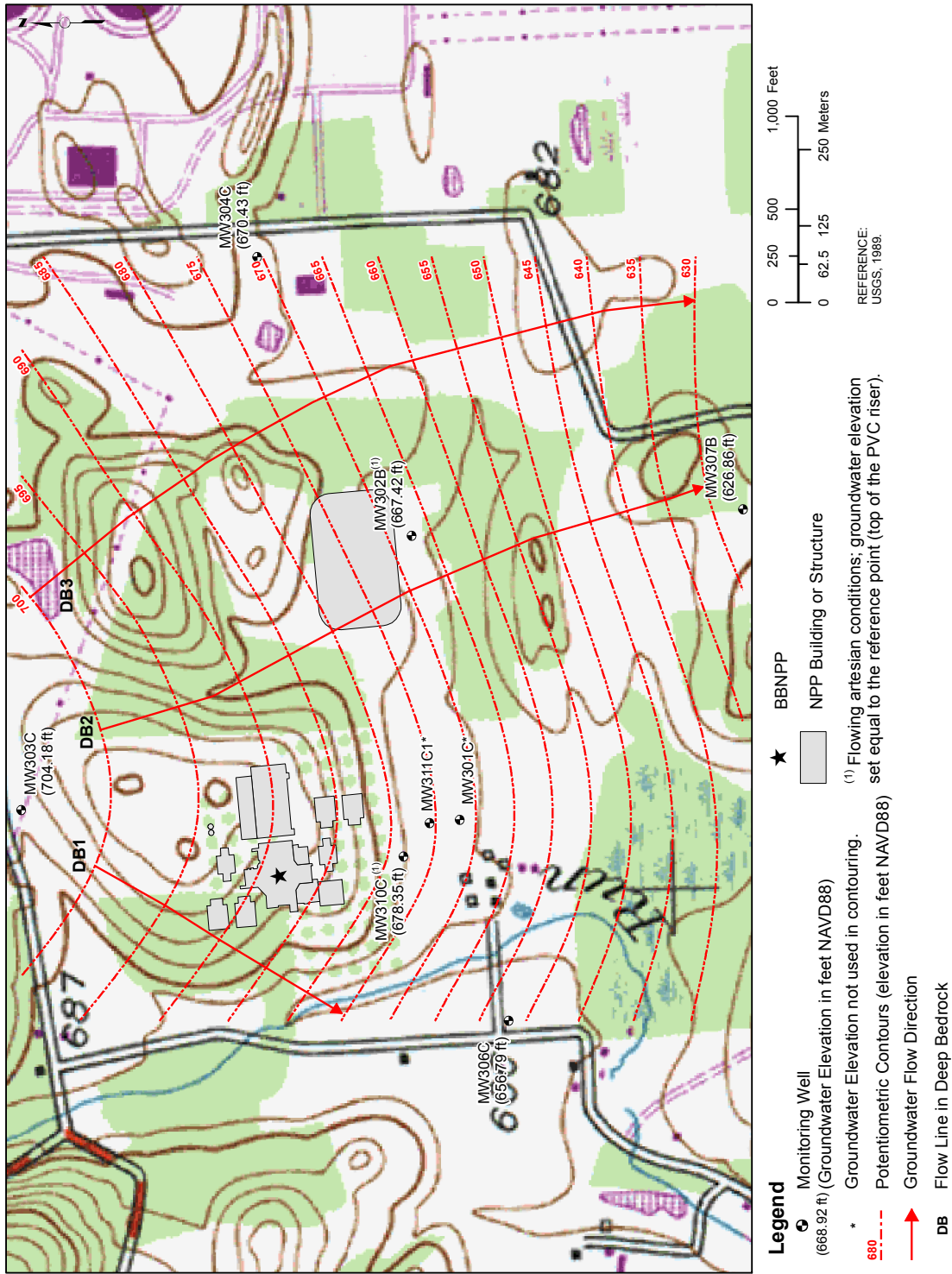


Figure 2.3-72— Potentiometric Surface Map of Deep Bedrock Aquifer, January 2008



10-4310-GIS-A289

Figure 2.3-73 — Potentiometric Surface Map of Deep Bedrock Aquifer, March 2008

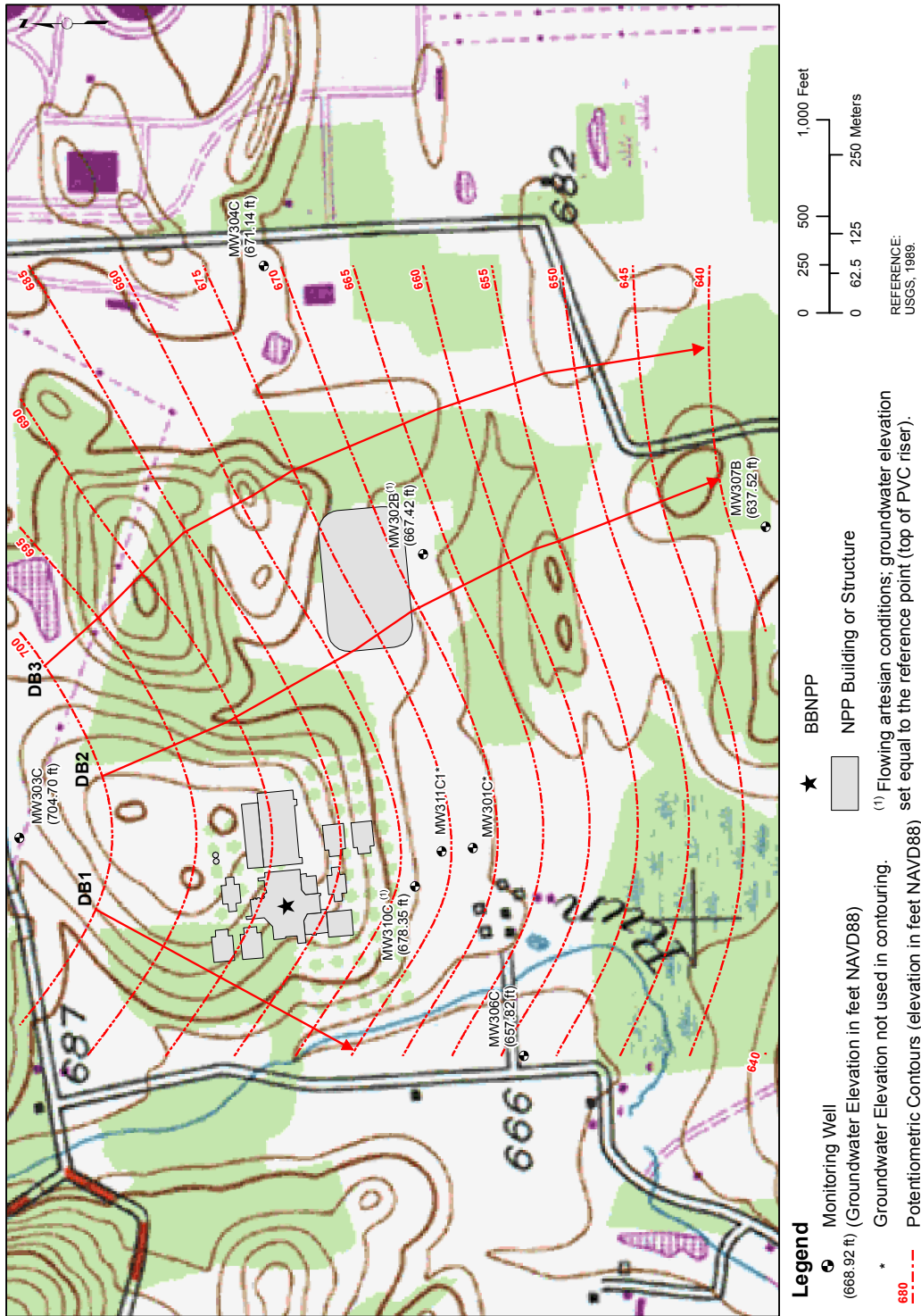
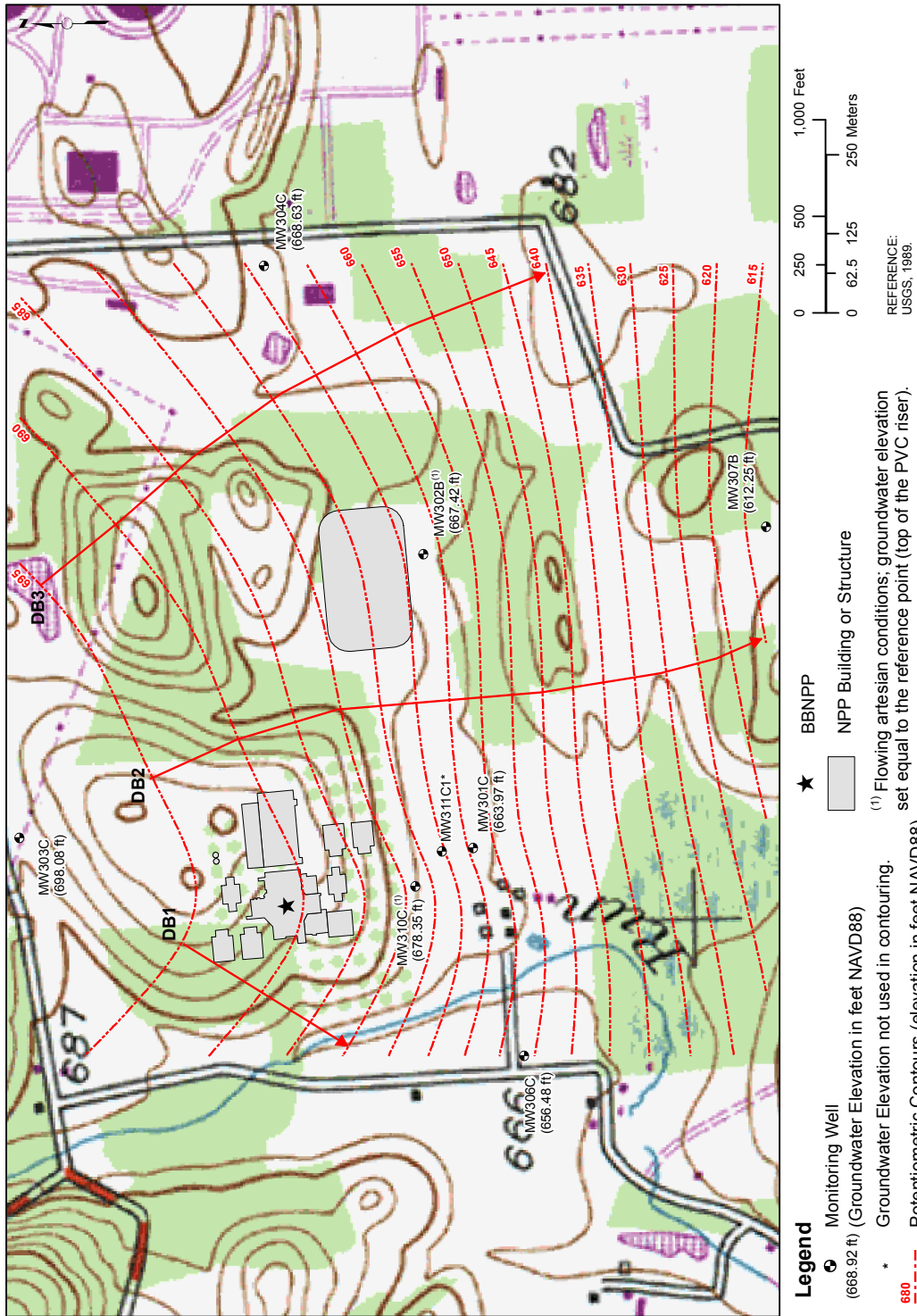


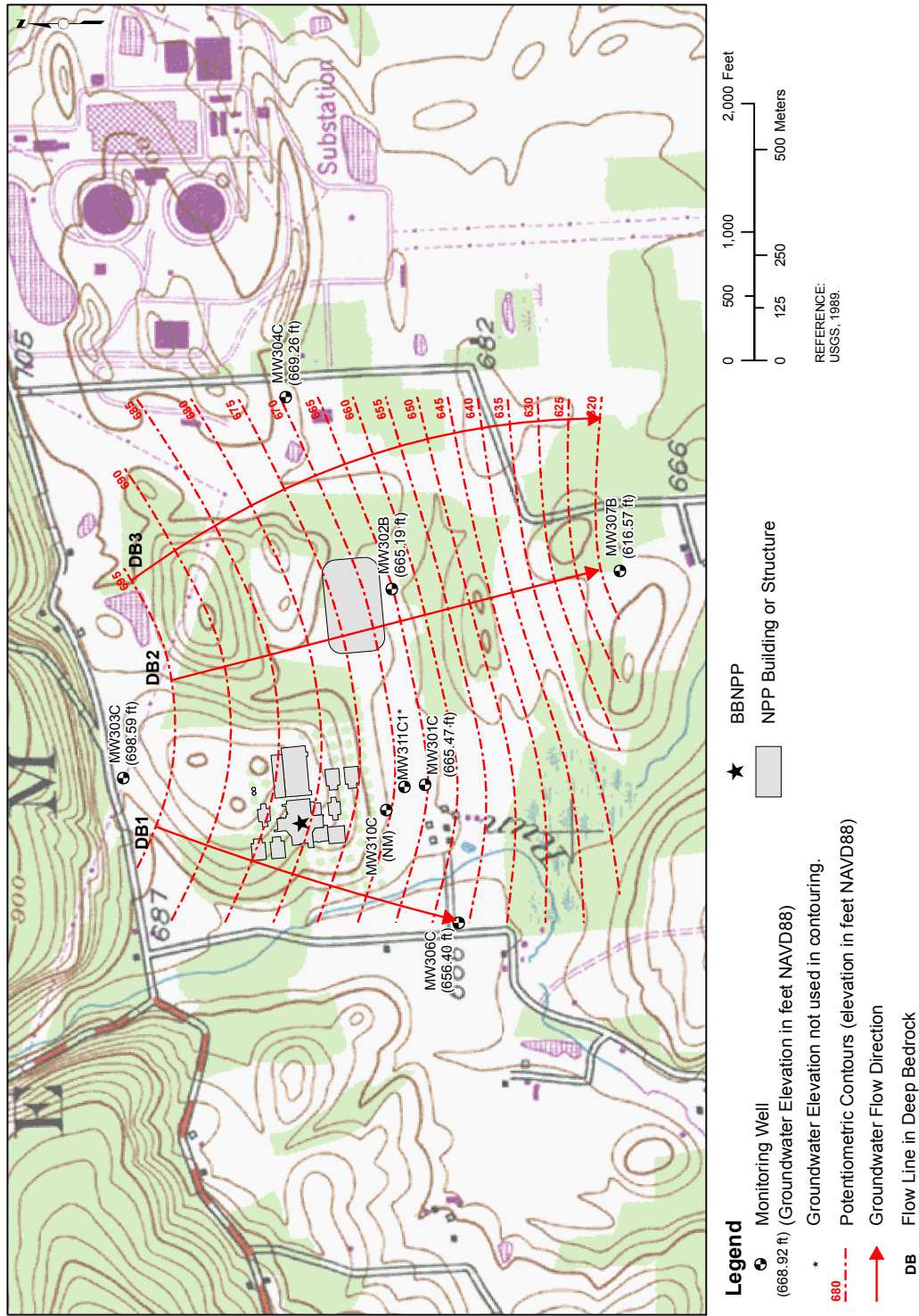
Figure 2.3-74— Potentiometric Surface Map of Deep Bedrock Aquifer, July 2008



10-4310-GIS-A291

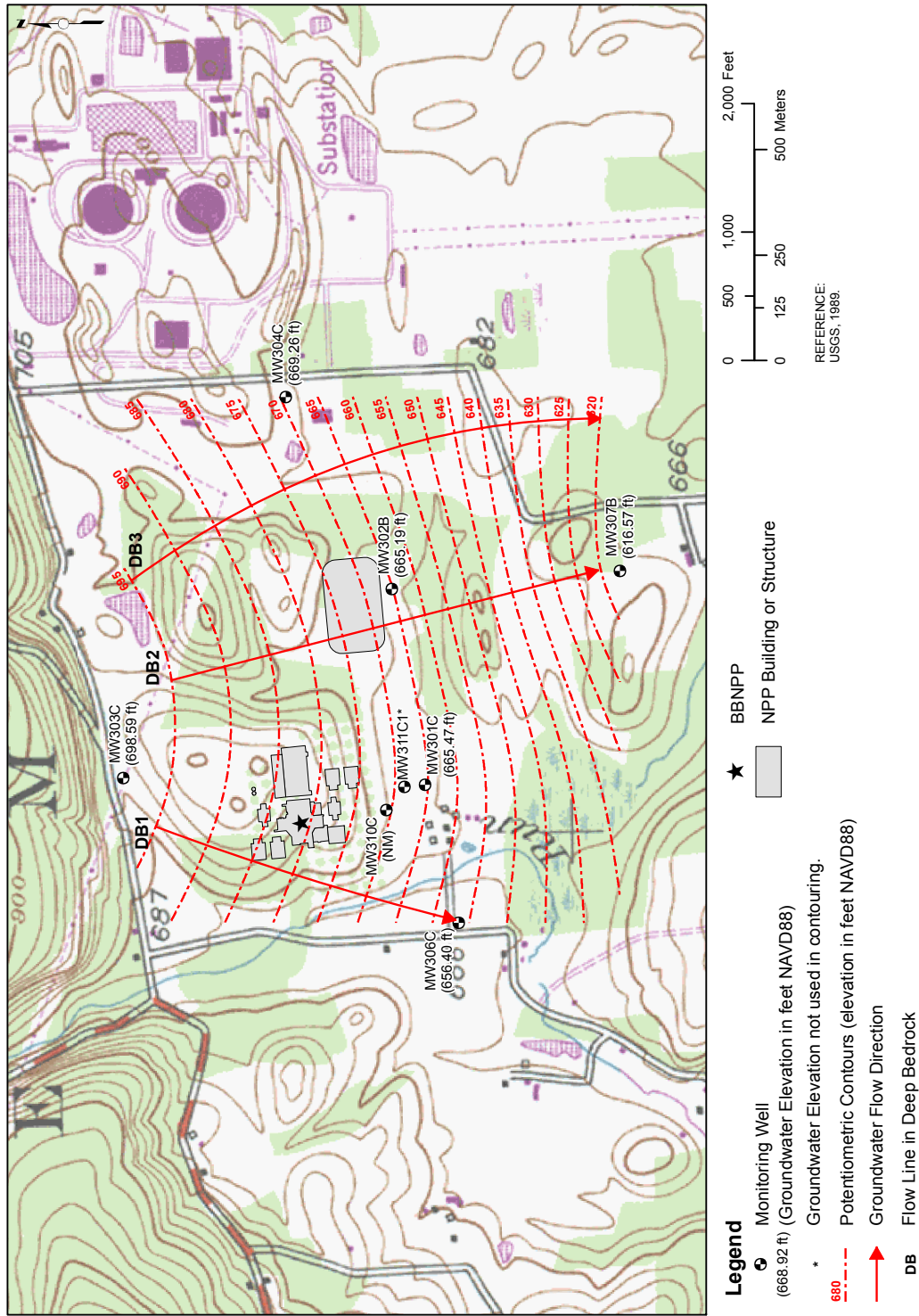


Figure 2.3-75 — Potentiometric Surface Map of Deep Bedrock Aquifer, June 2010



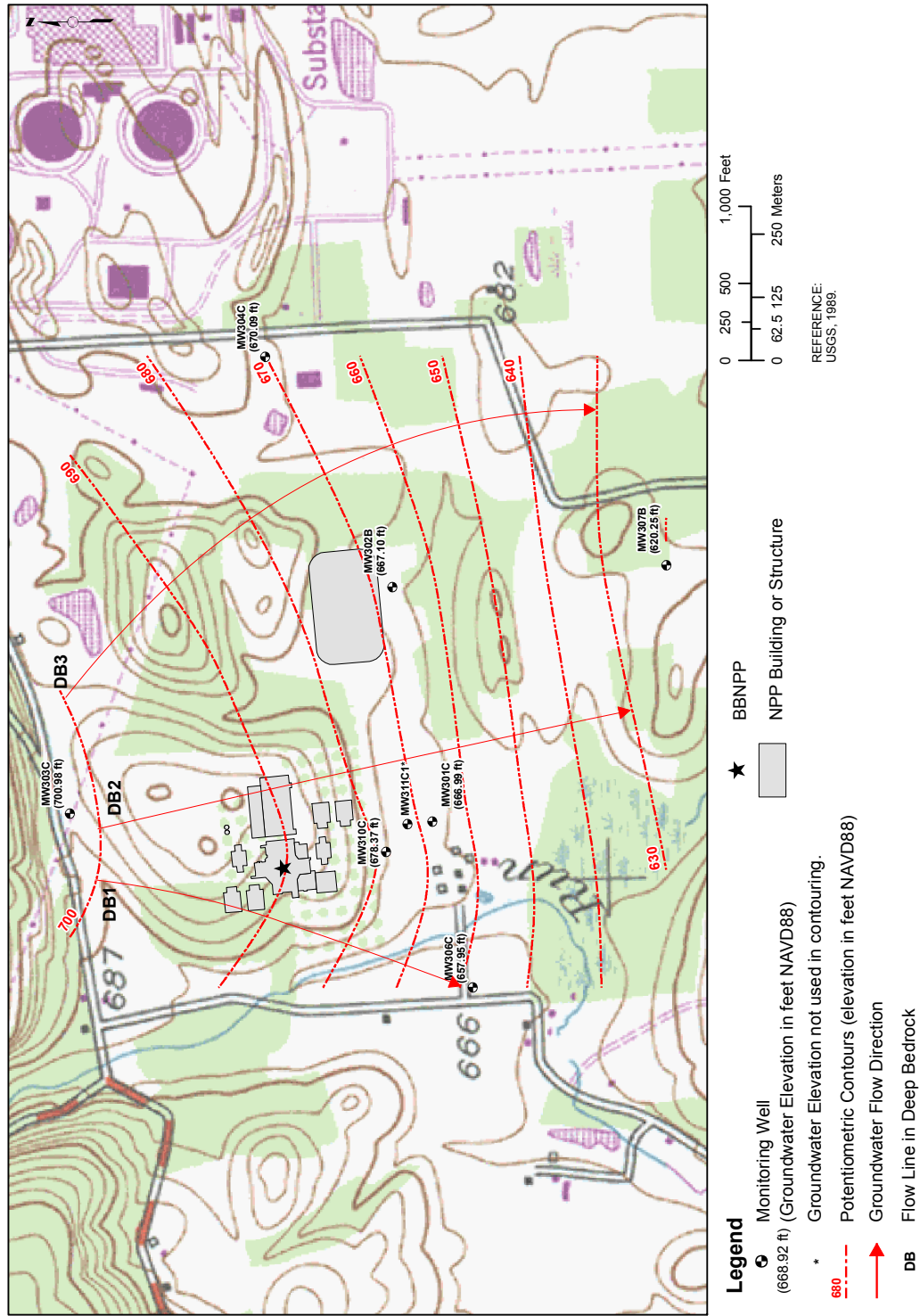
10-4310-GIS-A292

Figure 2.3-76— Potentiometric Surface Map of Deep Bedrock Aquifer, September 2010



10-4310-GIS-A292

Figure 2.3-77— Potentiometric Surface Map of Deep Bedrock Aquifer, December 2010



10-4310-GIS-A311

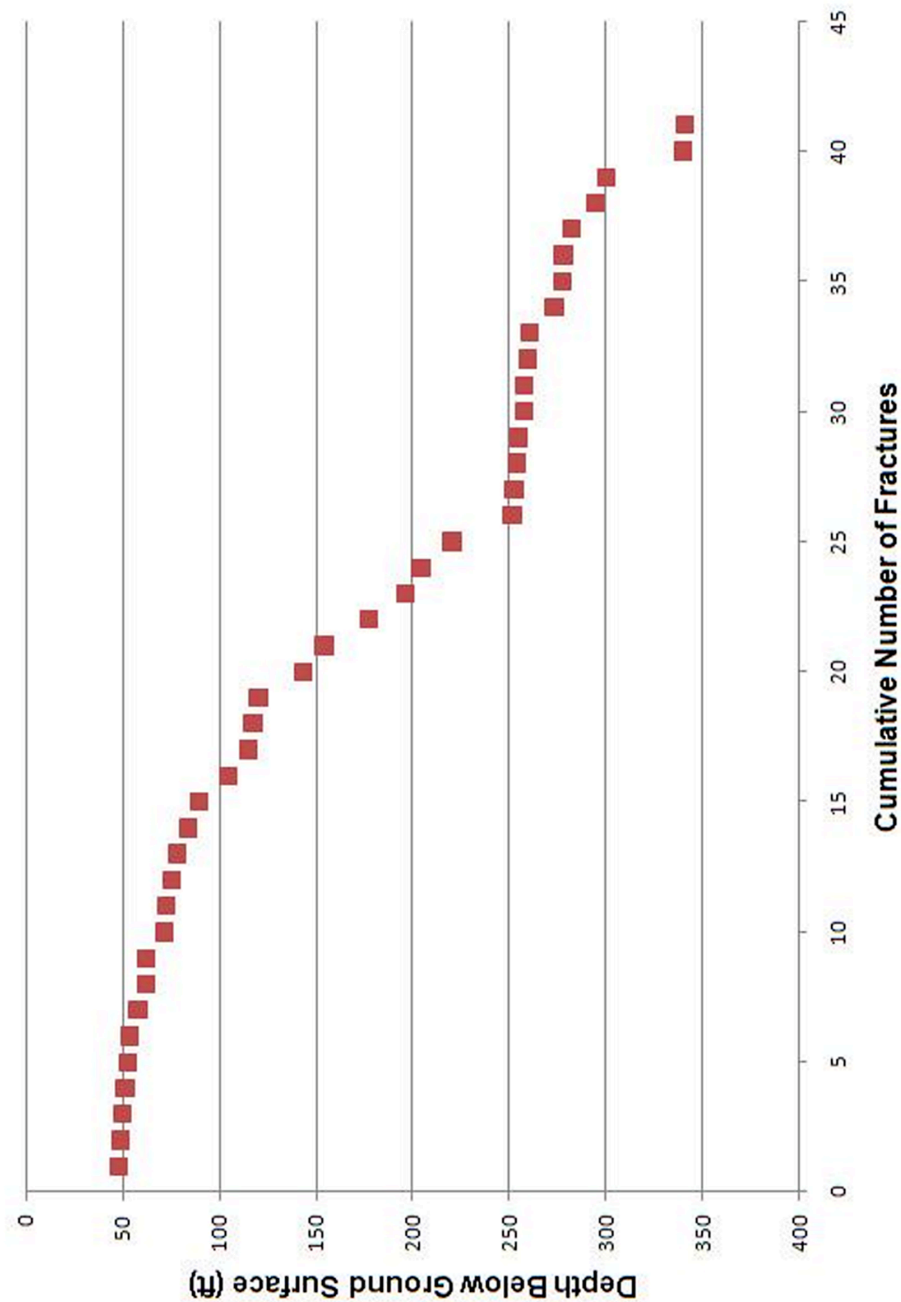
Figure 2.3-78— Potentiometric Surface Map of Deep Bedrock Aquifer, April 2011



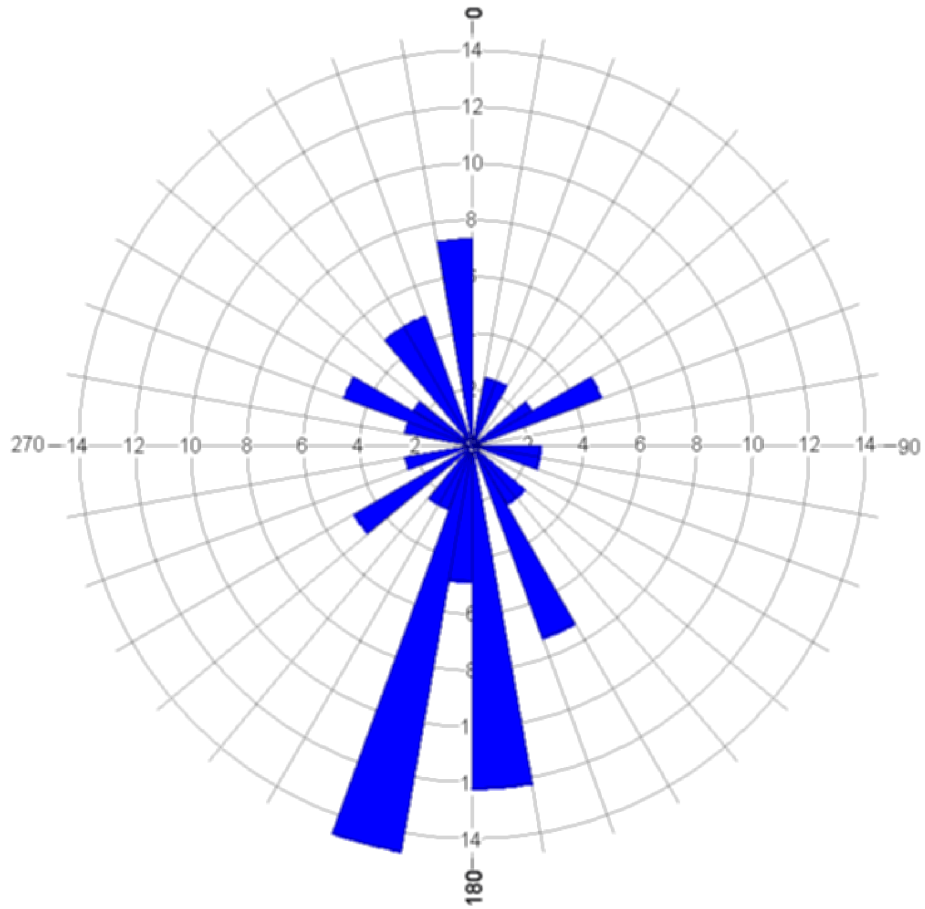
10-4310-GIS-A310



Figure 2.3-80— Vertical Distribution of Fractures in MW301C Between 45 and 345 Feet Below Ground Surface



**Figure 2.3-81— Distribution of Fracture Dip Directions in Monitoring Well MW301C**



**Figure 2.3-82— Distribution of Fracture Dip Angles in Monitoring Well MW301C**

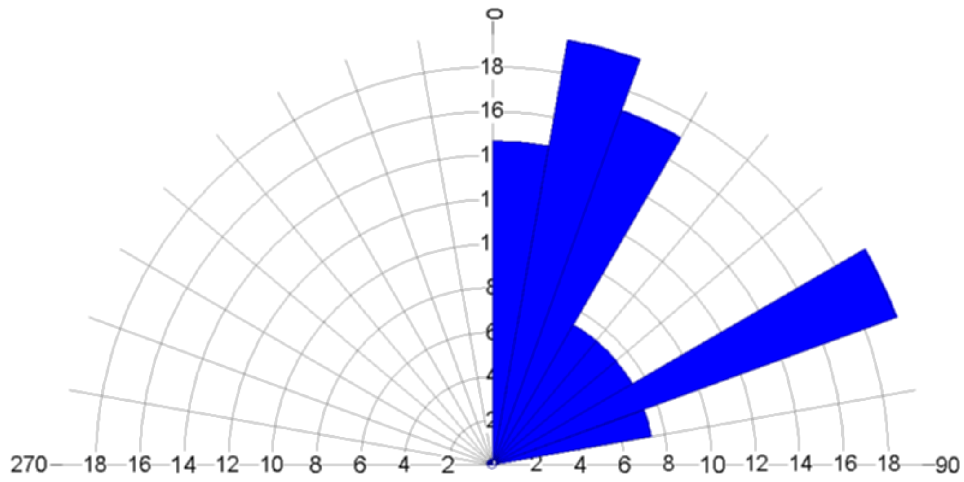
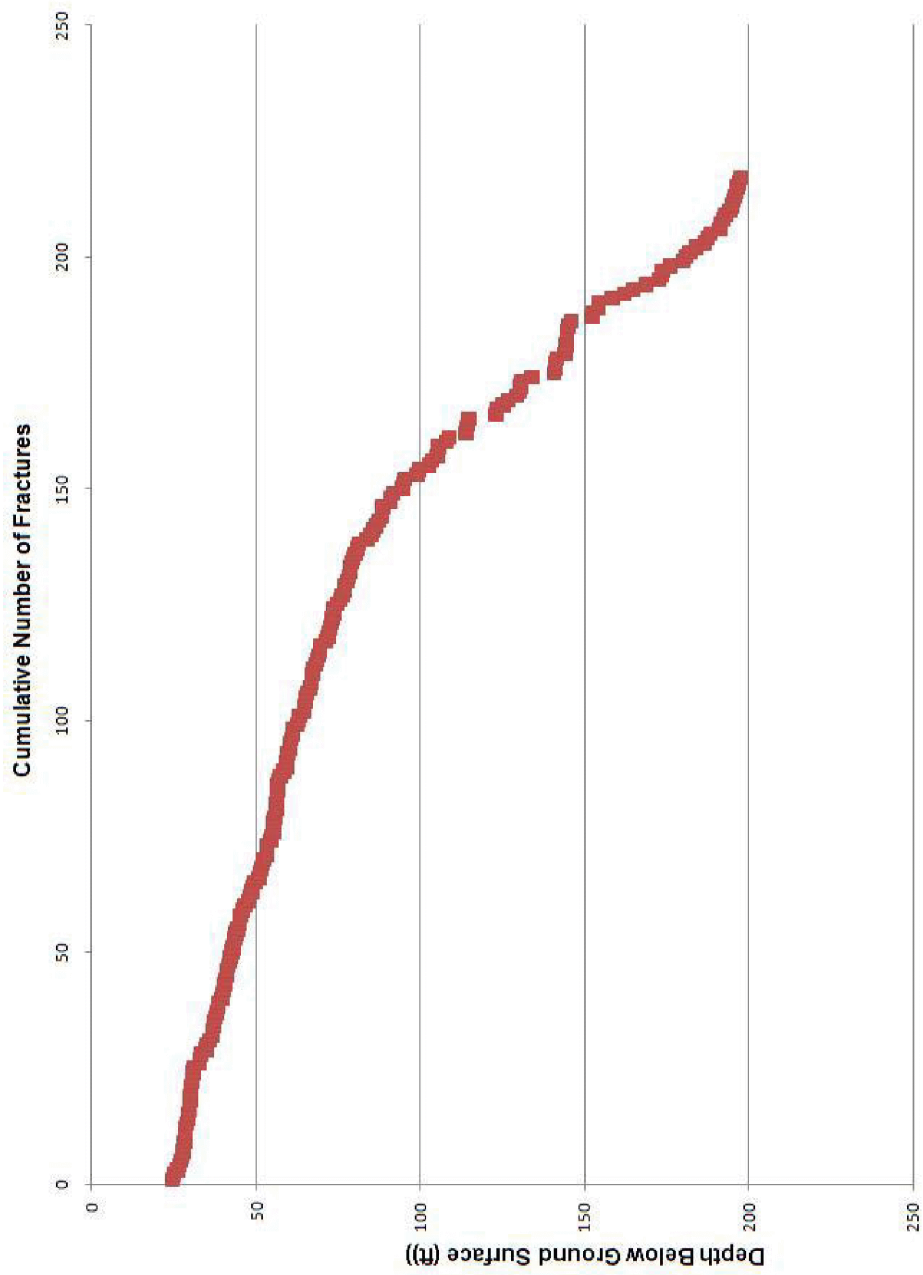
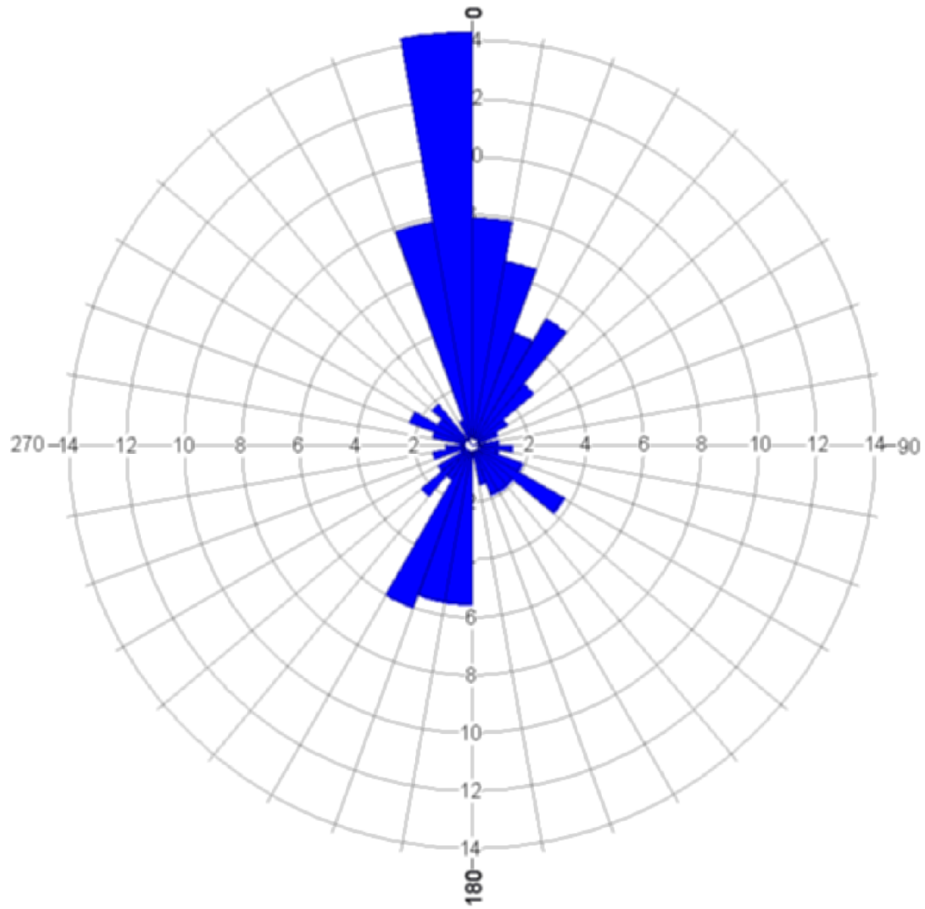




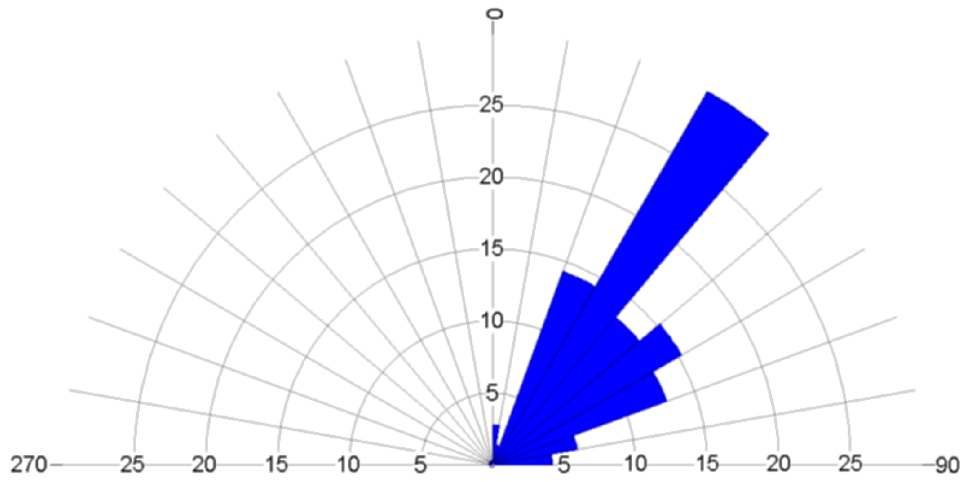
Figure 2.3-83— Vertical Distribution of Fractures in MW310C Between 24 and 200 Feet Below Ground Surface



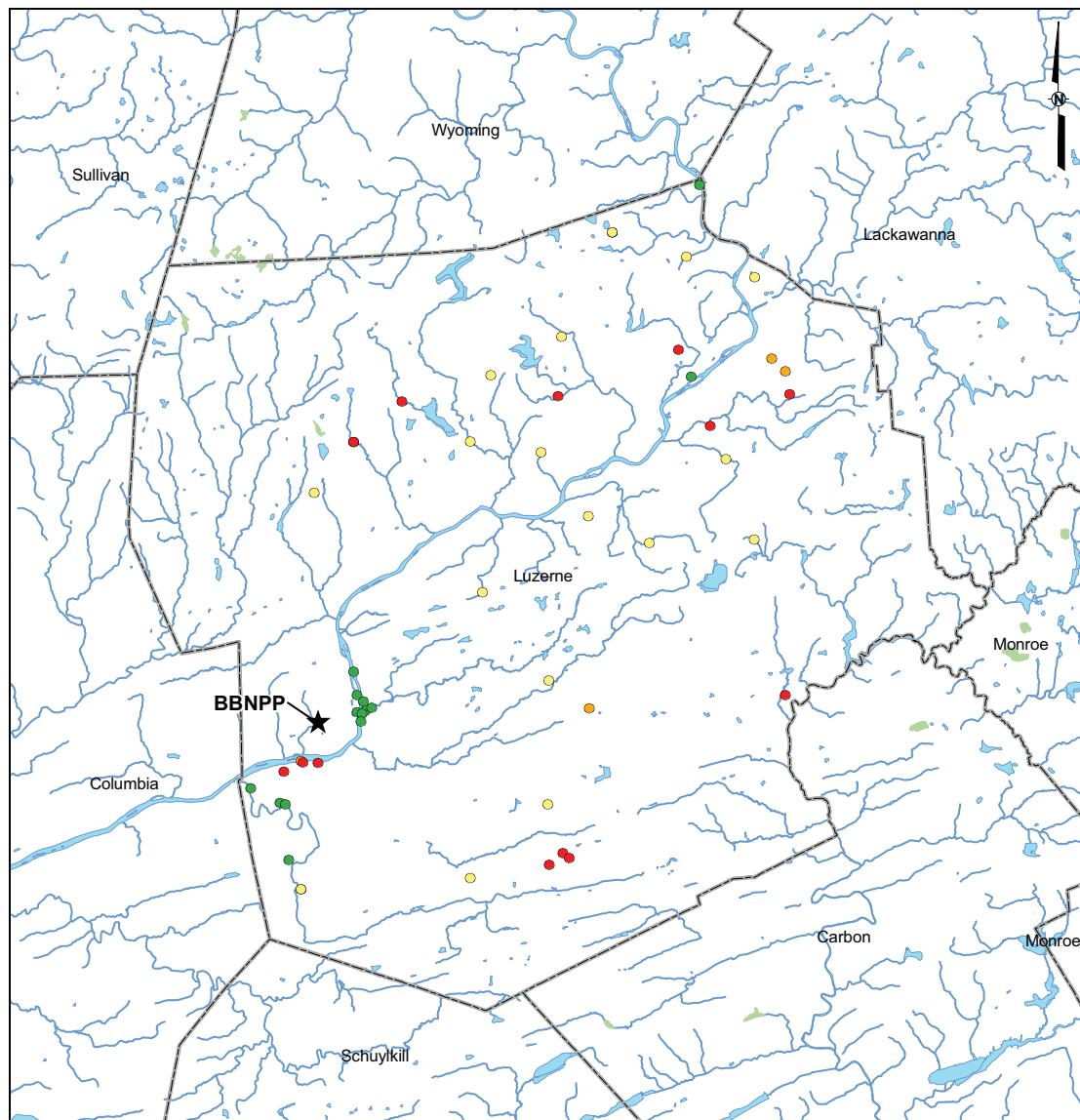
**Figure 2.3-84— Distribution of Fracture Dip Directions in Monitoring Well MW310C**



**Figure 2.3-85— Distribution of Fracture Dip Angles in Monitoring Well MW310C**

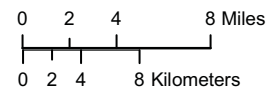


**Figure 2.3-86— Surface Water Withdrawal Within Luzerne County**



**LEGEND**

- ★ Center Point of Bell Bend NPP (BBNPP)
- Surface Water Withdrawal (PADEP, 2010)
  - Agricultural Use
  - Commercial Use
  - Industrial Use
  - Mineral Use
- ▭ County Boundary
- Streams and Rivers
- Waterbody

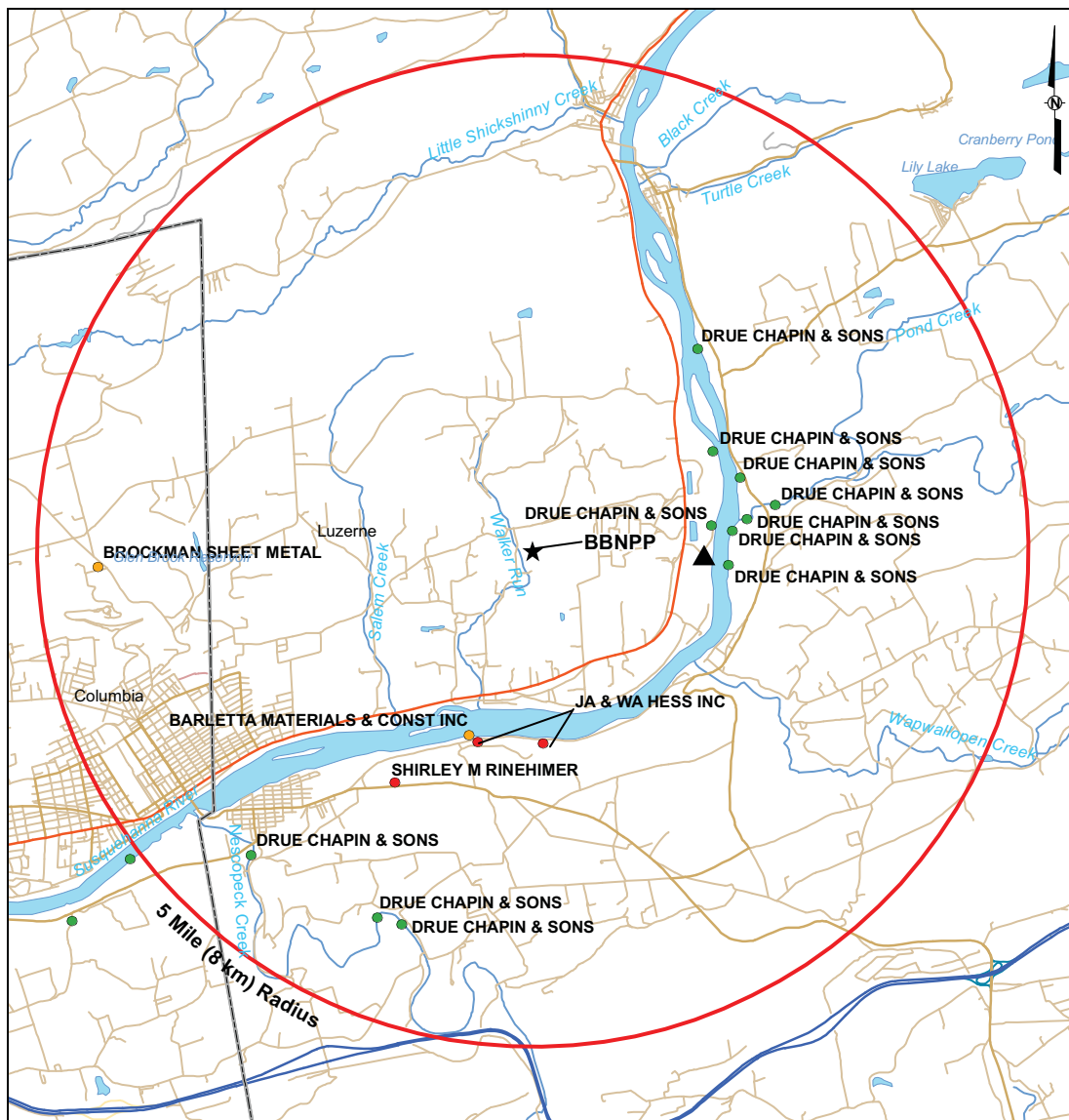


**REFERENCES**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, and county boundaries.
- Water Resources from PASDA, published by PADEP. <http://www.pasda.psu.edu/data/dep/> Downloaded June 2010.

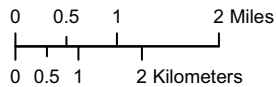
10-4310-GIS-A255

Figure 2.3-87— Surface Water Withdrawal Within 5 Mile (8 km) Radius



**LEGEND**

- ★ Center Point of Bell Bend NPP (BBNPP)
- ▲ Susquehanna Steam Electric Station (SSES) Intake Structure
- Surface Water Withdrawal (PADEP, 2010)
  - Agricultural Use
  - Industrial Use
  - Commercial Use
  - Mineral Use
- BBNPP Reactor 5 Mile (8 km) Radius
- ▭ County Boundary
- ▬ Interstate
- ▬ Secondary State and County Highway
- ▬ Local, Neighborhood, Rural, or City Street
- ▬ Streams and Rivers
- ▬ Waterbody

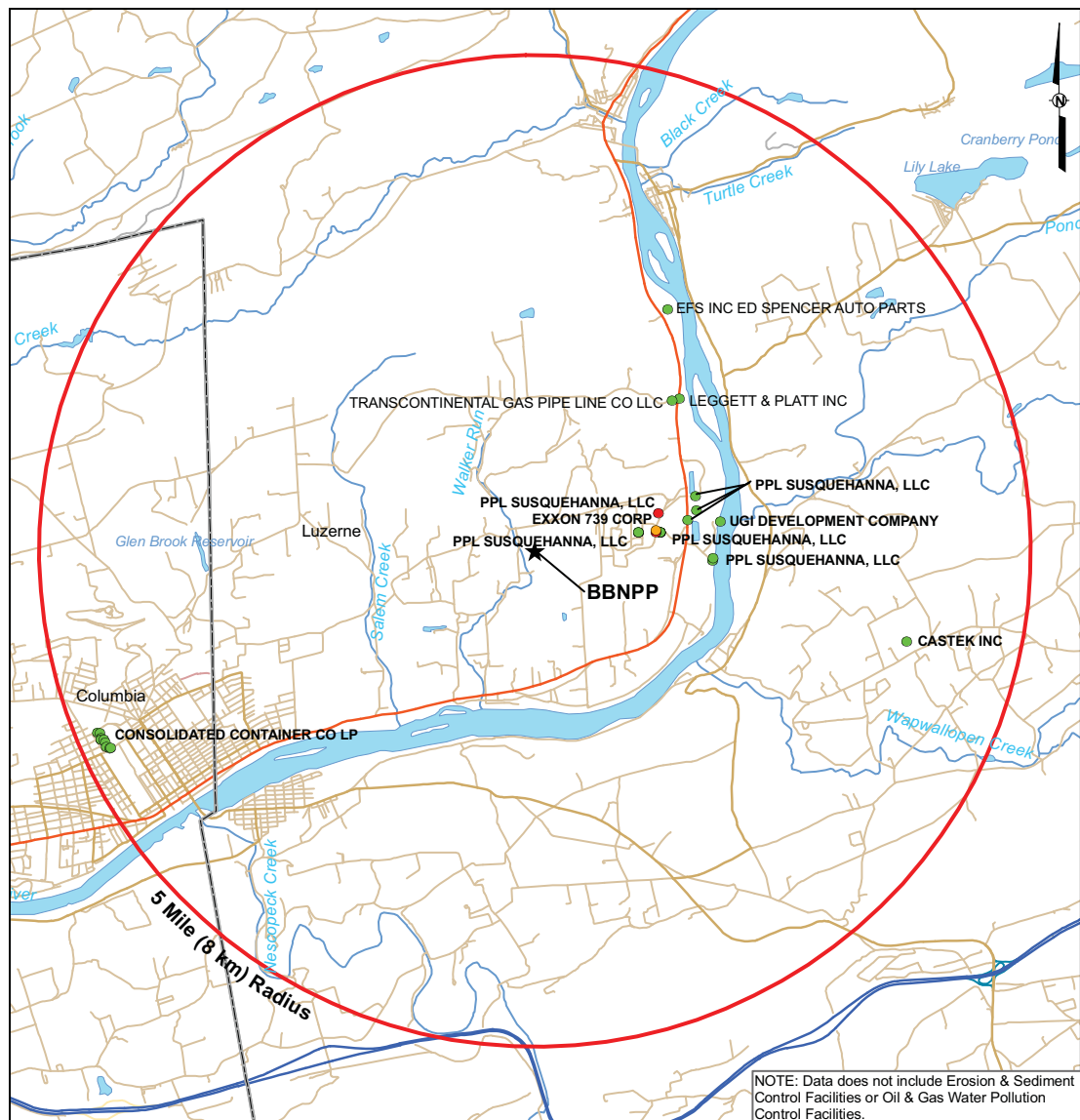


**REFERENCES**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, and county boundaries.
- Water Resources from PASDA, published by PADEP. <http://www.pasda.psu.edu/data/dep/> Downloaded June 2010.

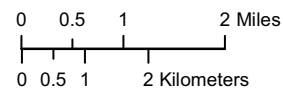
10-4310-GIS-A256

**Figure 2.3-88— Water Pollution Control Facility Locations Within a 5 Mile (8 km) Radius**



**LEGEND**

- ★ Center Point of Bell Bend NPP (BBNPP)
- Water Pollution Facility (PADEP, 2010) - NPDES
  - Discharge Point
  - Treatment Plant
- Production Service Unit
- BBNPP Reactor 5 Mile (8 km) Radius
- County Boundary
- Interstate
- Secondary State and County Highway
- Local, Neighborhood, Rural, or City Street
- Streams and Rivers
- Waterbody



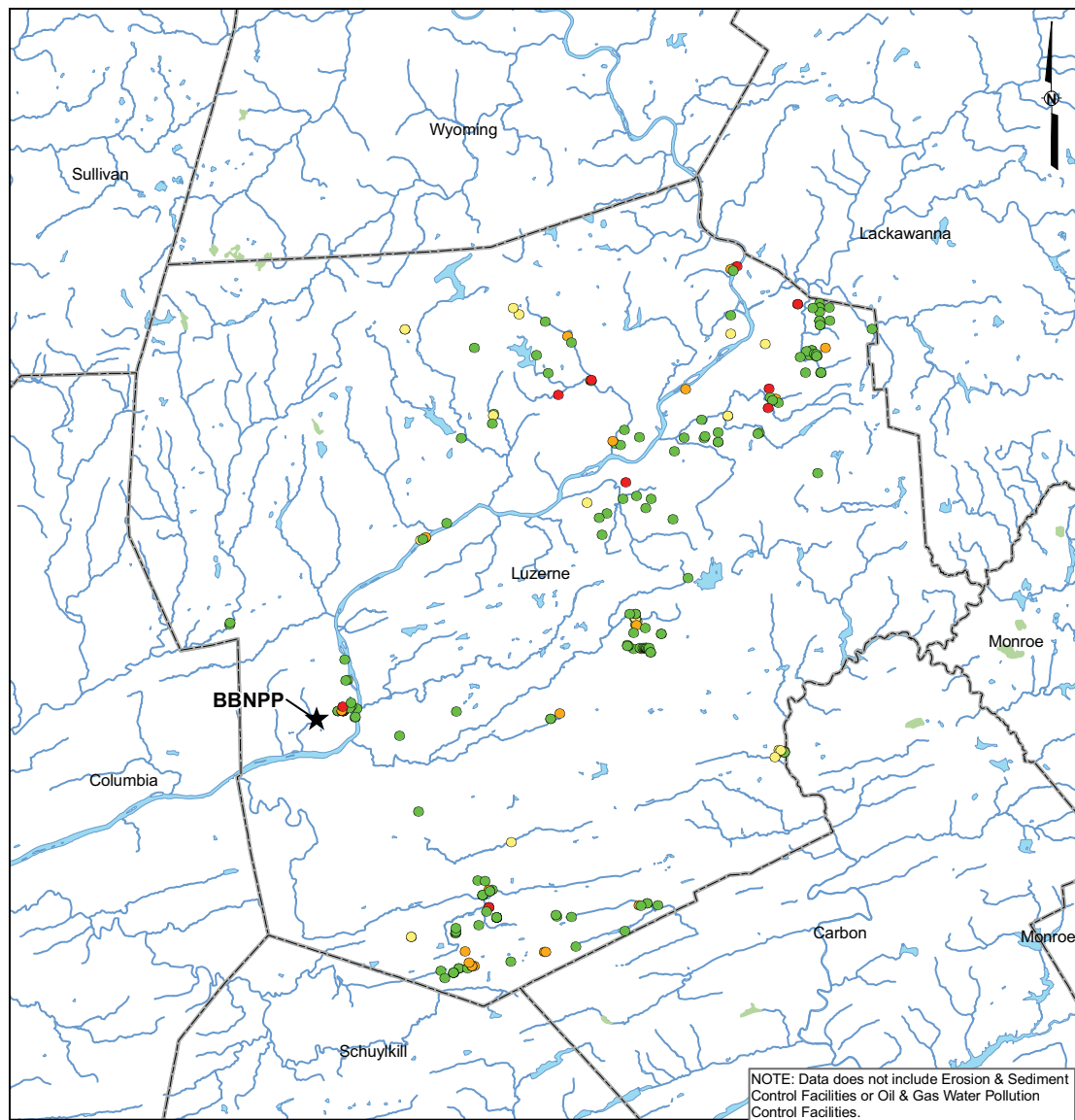
**REFERENCE**

• ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, roads, and county boundaries.  
 • Water Pollution Facility (NPDES) from PASDA, published by PADEP. <http://www.pasda.psu.edu/data/dep/>  
 Downloaded November 23, 2010.

NOTE: Data does not include Erosion & Sediment Control Facilities or Oil & Gas Water Pollution Control Facilities.

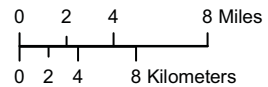
10-4310-GIS-A257

**Figure 2.3-89— Water Pollution Control Facility Locations Within Luzerne County**



**LEGEND**

- ★ Center Point of Bell Bend NPP (BBNPP)
- Water Pollution Facility (PADEP, 2010) - NPDES
  - Discharge Point
  - Production Service Unit
  - Treatment Plant
  - Other
- ▭ County Boundary
- Streams and Rivers
- Waterbody

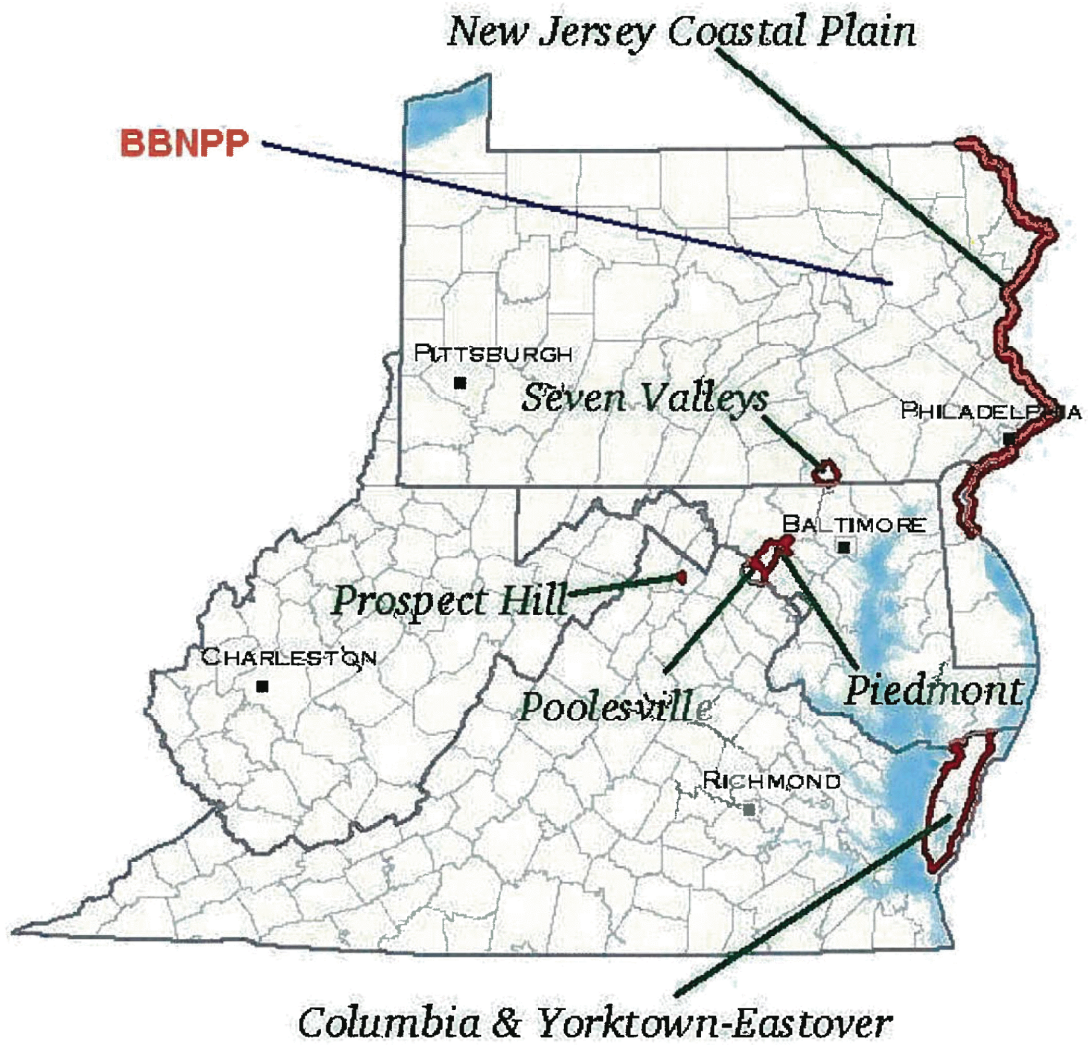


**REFERENCE**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, roads, and county boundaries.
- Water Pollution Facility (NPDES) from PASDA, published by PADEP. <http://www.pasda.psu.edu/data/dep/>
- Downloaded November 23, 2010.

10-4310-GIS-A258

Figure 2.3-90— Sole Source Aquifers Located in USEPA Region 3

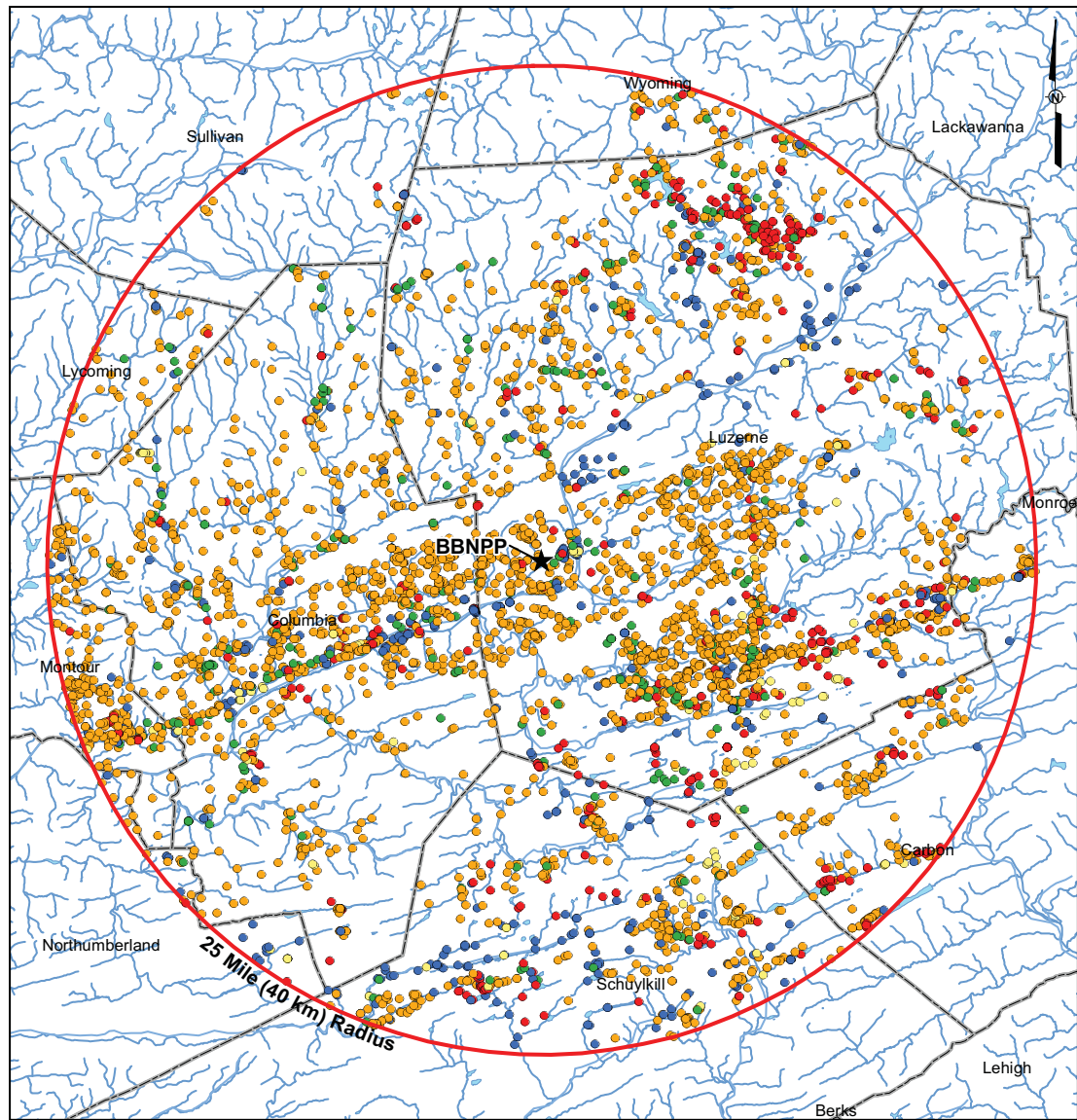


Reference: USEPA, 2008b



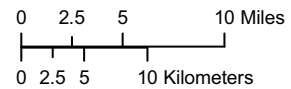


**Figure 2.3-92— Groundwater Well Locations Within a 25-Mile (40-km) Radius**



**LEGEND**

- ★ Center Point of Proposed Bell Bend NPP (BBNPP)
- Groundwater Well Location (DCNR, 2010)
  - Public Supply Use
  - Industrial Use
  - Domestic Use
  - Commercial Use
  - Other Use
- NPP Reactor 25 Mile (40 km) Radius
- County Boundary
- Streams and Rivers
- Waterbody

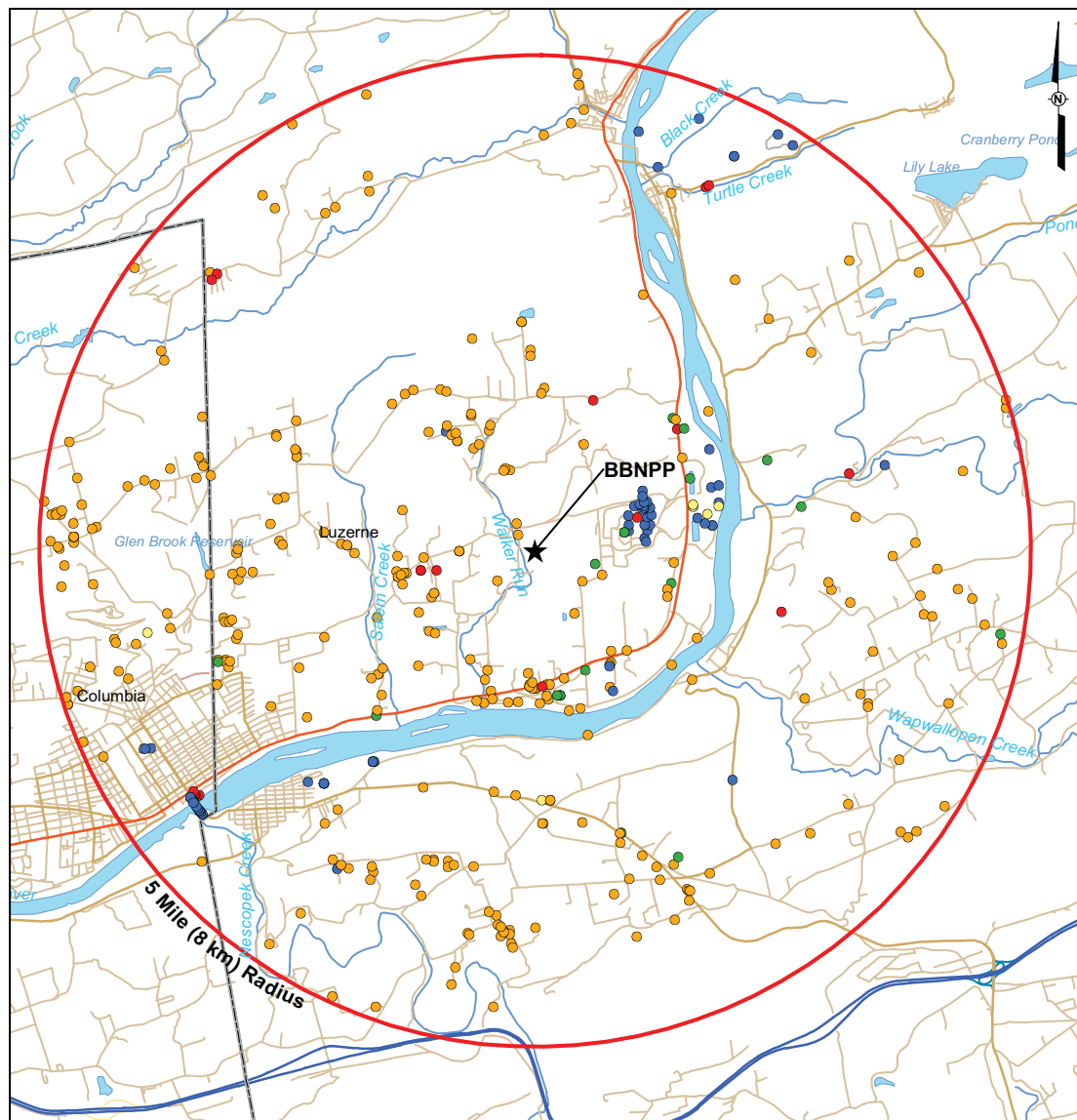


**REFERENCE**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, and county boundaries.
- DCNR, 2010, PA Topographic & Geologic Survey, Pa Groundwater Information System (PaGWIS). <http://www.dcnr.state.pa.us/topogeo/groundwater/> Database Accessed August 3, 2010.

10-4310-GIS-A264

**Figure 2.3-93— Groundwater Well Locations within a 5-Mile (8-km) Radius**



**LEGEND**

- ★ Center Point of Proposed Bell Bend NPP (BBNPP)
- Groundwater Well Location (DCNR, 2010)
  - Public Supply Use
  - Industrial Use
  - Domestic Use
  - Commercial Use
  - Other Use
- NPP Reactor 5 Mile (8 km) Radius
- County Boundary
- Interstate
- Secondary State and County Highway
- Local, Neighborhood, Rural, or City Street
- Streams and Rivers
- Waterbody

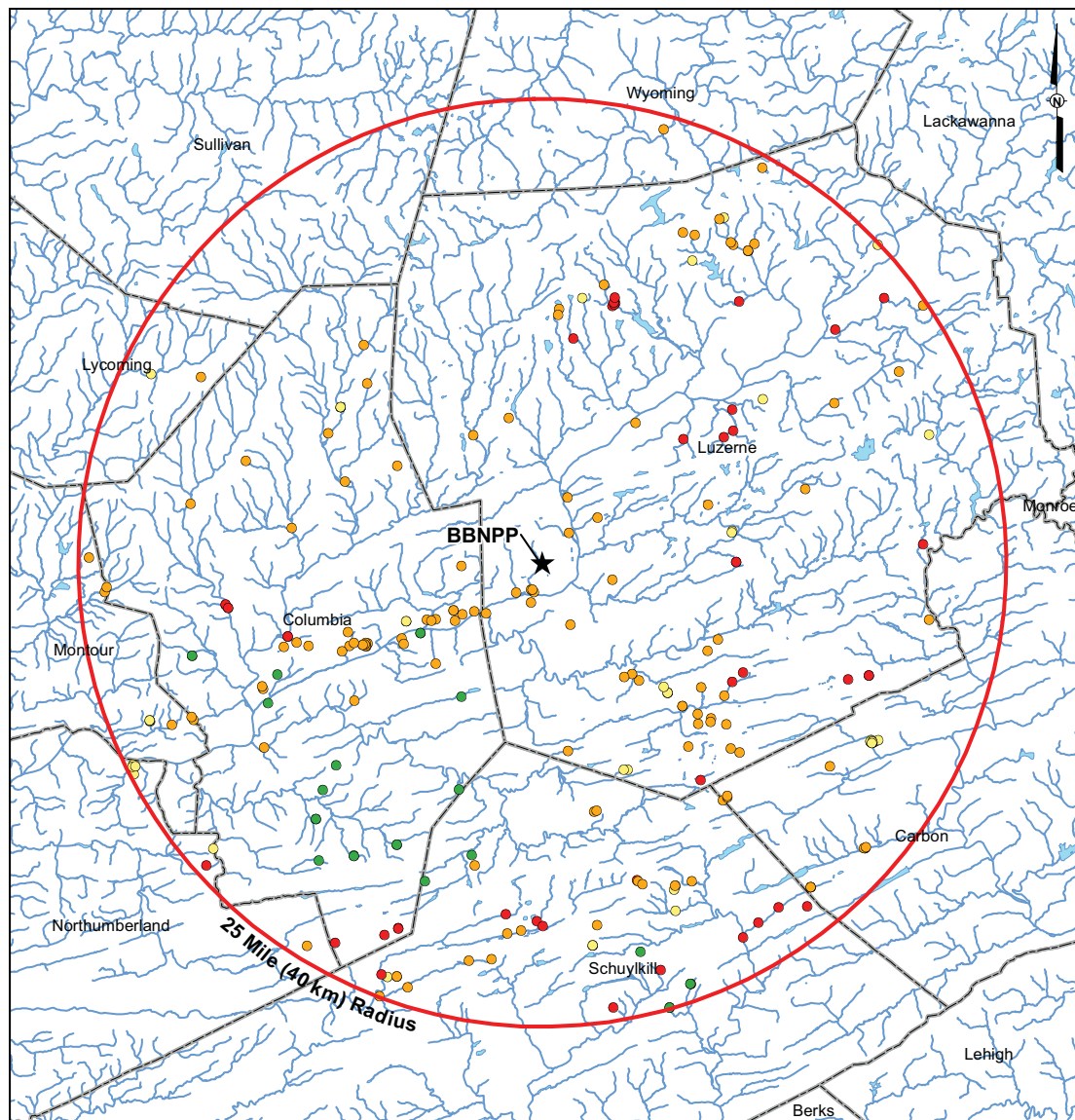


**REFERENCE**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, and county boundaries.
- DCNR, 2010, PA Topographic & Geologic Survey, Pa Groundwater Information System (PaGWIS). <http://www.dcnr.state.pa.us/topogeo/groundwater/> Database Accessed August 3, 2010.

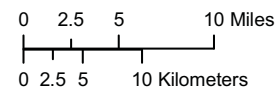
10-4310-GIS-A265

**Figure 2.3-94— Groundwater Withdrawal within a 25-Mile (40-km) Radius**



**LEGEND**

- ★ Center Point of Proposed Bell Bend NPP (BBNPP)
- Groundwater Withdrawal (PADEP, 2010)
  - Agricultural Use
  - Commercial Use
  - Industrial Use
  - Mineral Use
- NPP Reactor 25 Mile (40 km) Radius
- County Boundary
- Streams and Rivers
- Waterbody

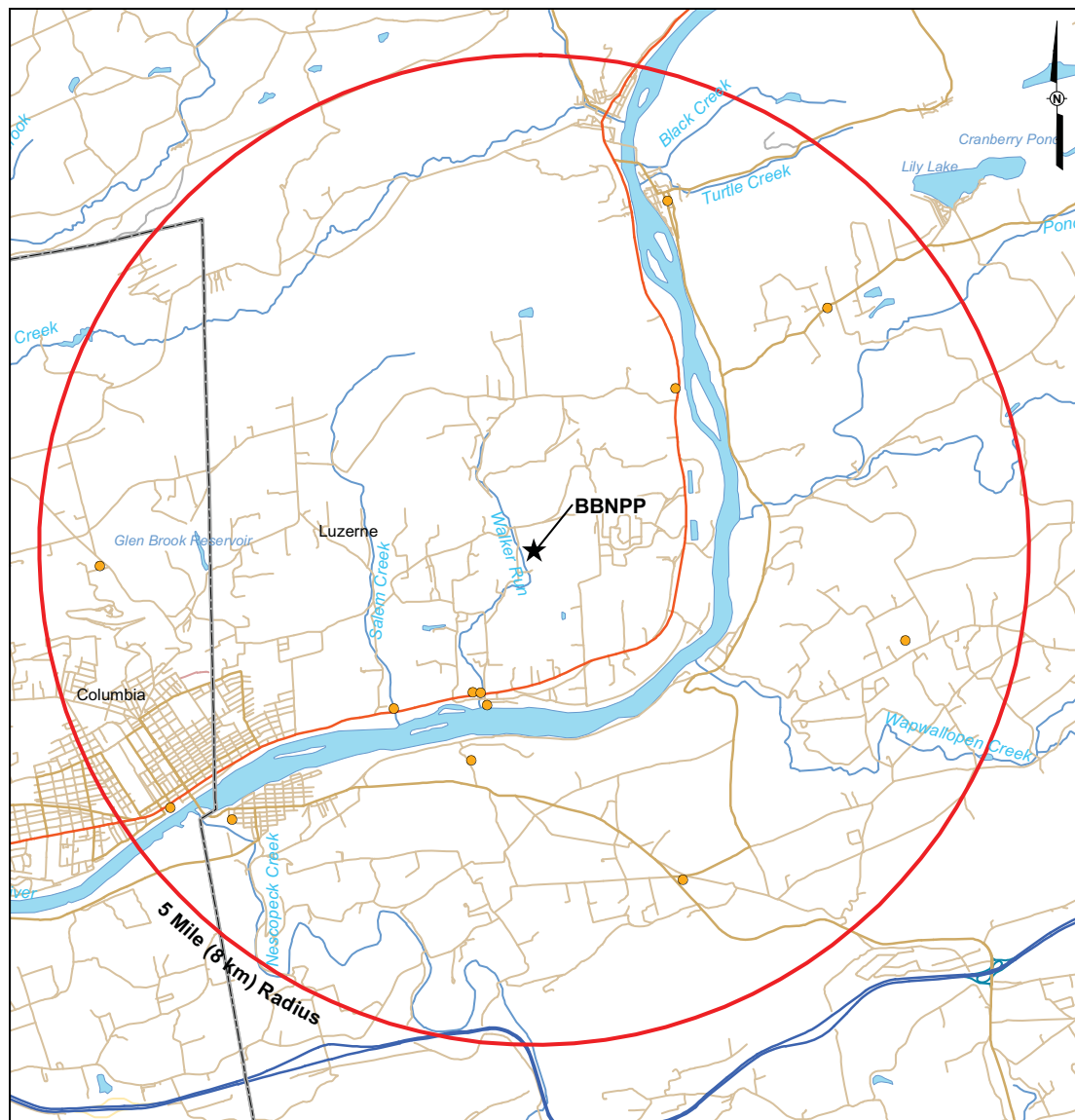


**REFERENCES**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, and county boundaries.
- PADEP, 2010, Water Resources (Groundwater Withdrawal) from PASDA, published by PADEP. <http://www.pasda.psu.edu/data/dep/> Data Accessed June 2010.

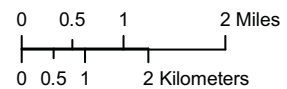
10-4310-GIS-A266

**Figure 2.3-95— Groundwater Withdrawal within a 5-Mile (8-km) Radius**



**LEGEND**

- ★ Center Point of Proposed Bell Bend NPP (BBNPP)
- Groundwater Withdrawal (PADEP, 2010)
  - Agricultural Use
  - Industrial Use
  - Commercial Use
  - Mineral Use
- Unit 1 Reactor 5 Mile (8 km) Radius
- County Boundary
- Interstate
- Secondary State and County Highway
- Local, Neighborhood, Rural, or City Street
- Streams and Rivers
- Waterbody



**REFERENCES**

- ESRI StreetMap Pro [CD-ROM], 2007, rivers, waterbodies, and county boundaries.
- PADEP, 2010, Water Resources (Groundwater Withdrawal) from PASDA, published by PADEP. <http://www.pasda.psu.edu/data/dep/> Data Accessed June 2010.

10-4310-GIS-A267

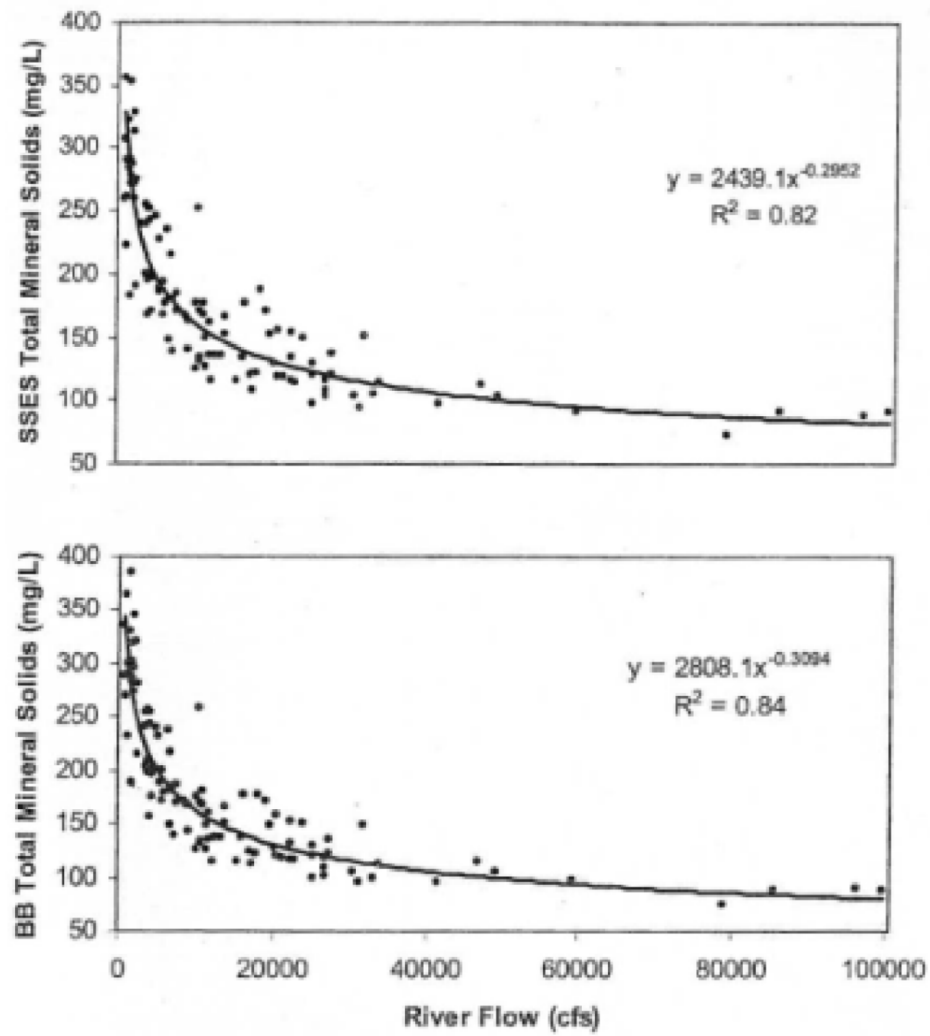
Figure 2.3-96— Groundwater Production Wells at SSES



**Figure 2.3-97— Potentially Stressed Areas and Water Challenged Areas in the Susquehanna River Basin**



**Figure 2.3-98— Relationship Between Total Mineral Solids and Flow Rates in the Susquehanna River**



Reference: Ecology III, 2007