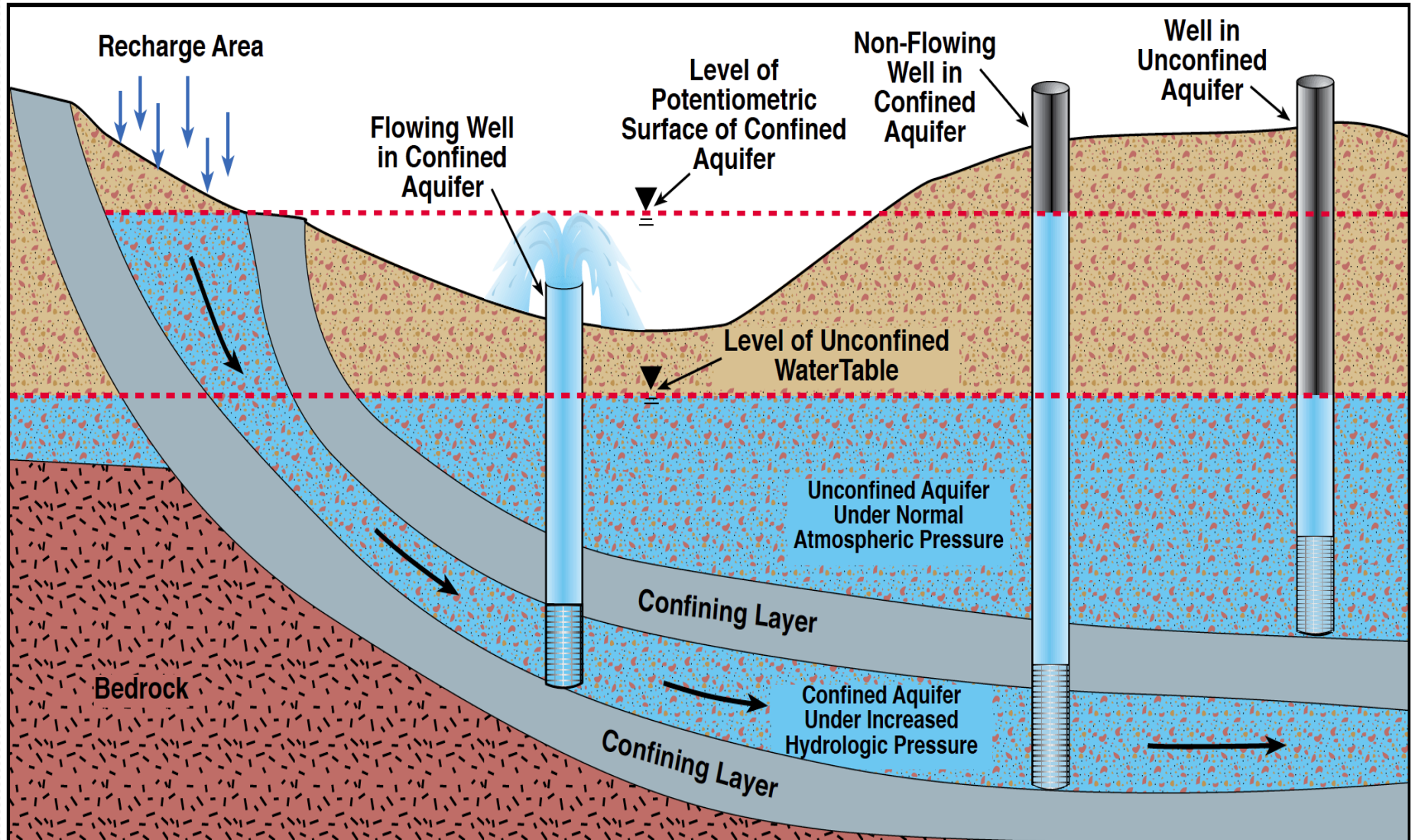


FLOWING WELLS IN OHIO

Jim Raab

ODNR Division of Soil and
Water Resources

WHAT CAUSES A WELL TO FLOW?



FLOWING WATER WELL



Well Log Denoting a Flowing Well

BAILING OR PUMPING TEST

(specify one by circling)

Test rate 100+ gpm Duration of test 1 hrs

Drawdown NONE ft Date 7-6-87

Static level (depth to water) FLows 60 GPM @ 1' ABOVE GRADE ft

Quality (clear, cloudy, taste, odor) _____

Pump installed by WATSON WELL DRILLING, INC.

Well Log Denoting a Flowing Well

PUMPING TEST

Pumping rate 15 G.P.M. Duration of test 1 hrs.

Drawdown 12 ft. Date 1/30/54

Developed capacity 15 GPM

Static level—depth to water 1' 6" above ground ft.

Pump installed by W. H. W. W. W.

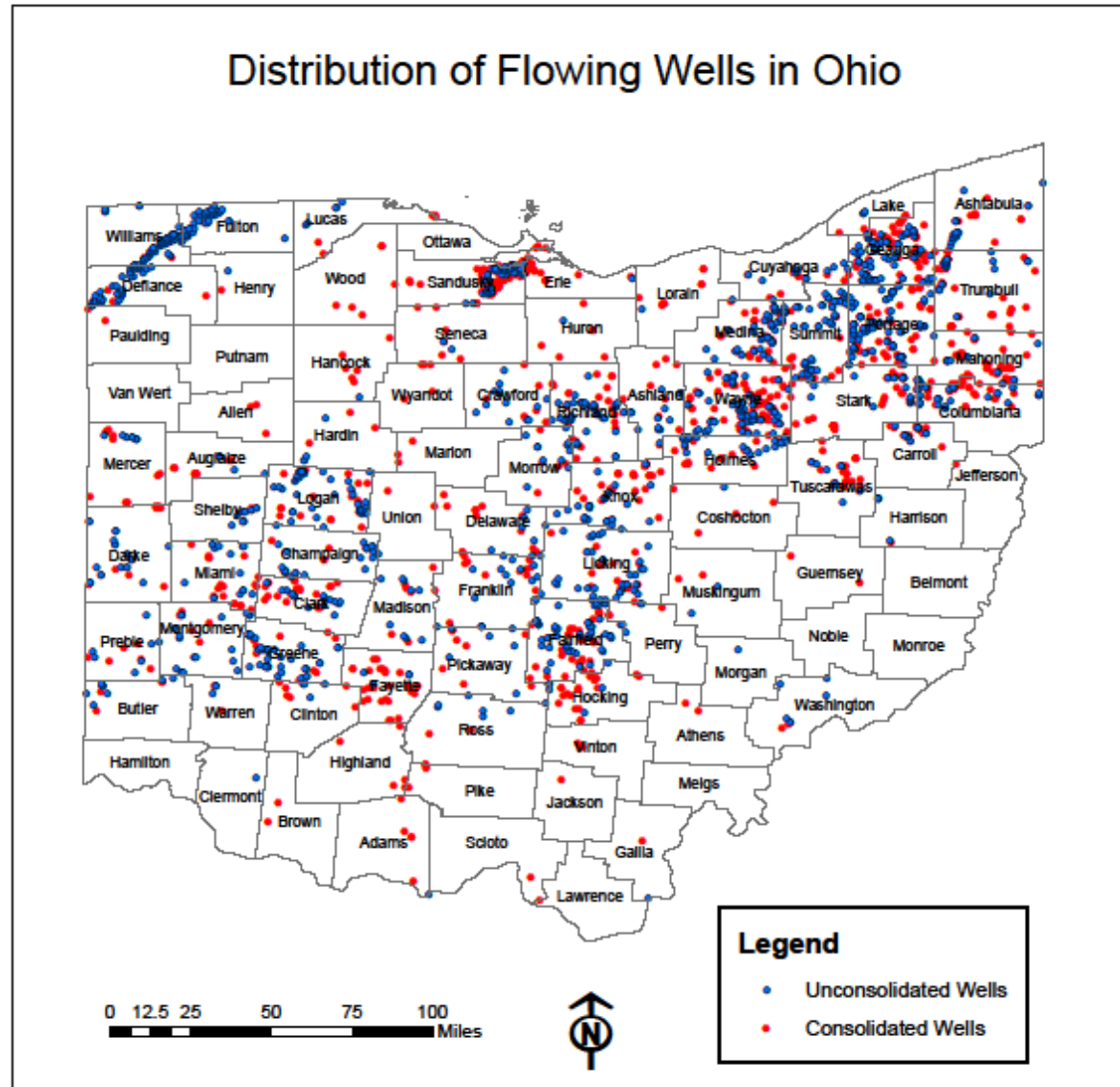
Well Log Denoting a Flowing Well

South	
WELL TEST*	
Pre-Pumping Static Level	<u>Flows</u> ft. Date <u>4/25/03</u>
Measured from: <input type="checkbox"/> Top of Casing	<input checked="" type="checkbox"/> Ground Level <input type="checkbox"/> Other
<input type="checkbox"/> Air	<input checked="" type="checkbox"/> Bailing <input checked="" type="checkbox"/> Pumping* <input type="checkbox"/> Other
Test Rate <u>18-20</u> gpm	Duration of Test <u>2 1/2</u> hrs.
<u>40' at 19.20 GPM for 1 hour</u>	Feet of Drawdown _____ ft. Sustainable Yield <u>18-20</u> gpm
*(Attach a copy of the pumping test record, per section 1521.05, ORC)	
Is Copy Attached? <input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No Flowing Well? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Quality	<u>clear</u>
PUMP/PITLESS	

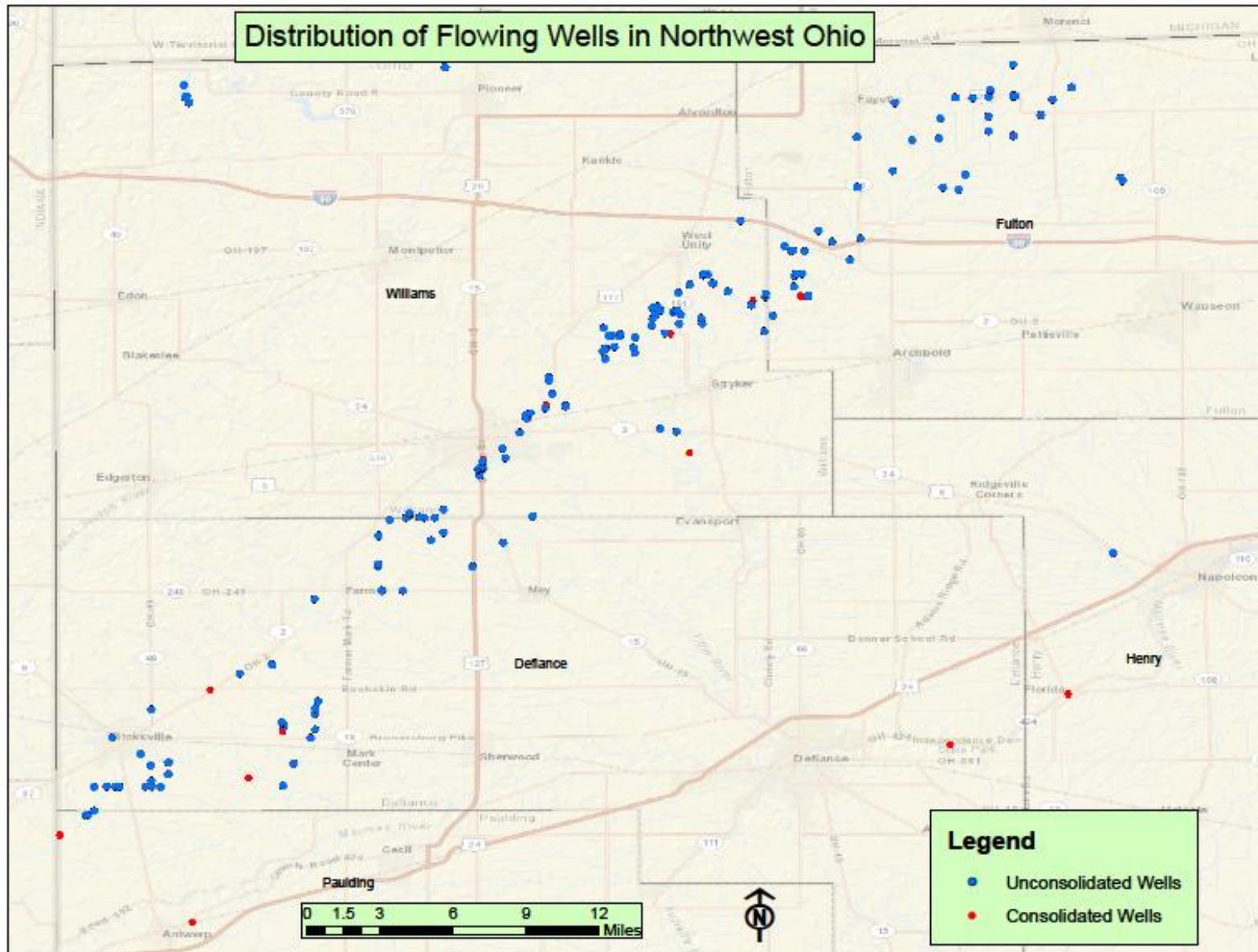
Well Log Denoting a Flowing Well

Comments on water quality/quantity and well construction: - THE FLOW RATE OF THE WELL IS 10 GPM.		Feet Below Ground Level
WELL TEST *		
Pre-Pumping Static Level	0 ft.	Date 5/11/2007
Measured from <u>GROUND LEVEL</u>		
Pumping test method <u>AIR</u>		
Test Rate	50 gpm	Duration of Test 1 hrs.
Feet of Drawdown	60 ft.	Sustainable Yield 50 gpm
*(Attach a copy of the pumping test record, per section 1521.05, ORC)		
Is Copy Attached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Flowing Well? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
PUMP/PITLESS		

FLOWING WELL DISTRIBUTION

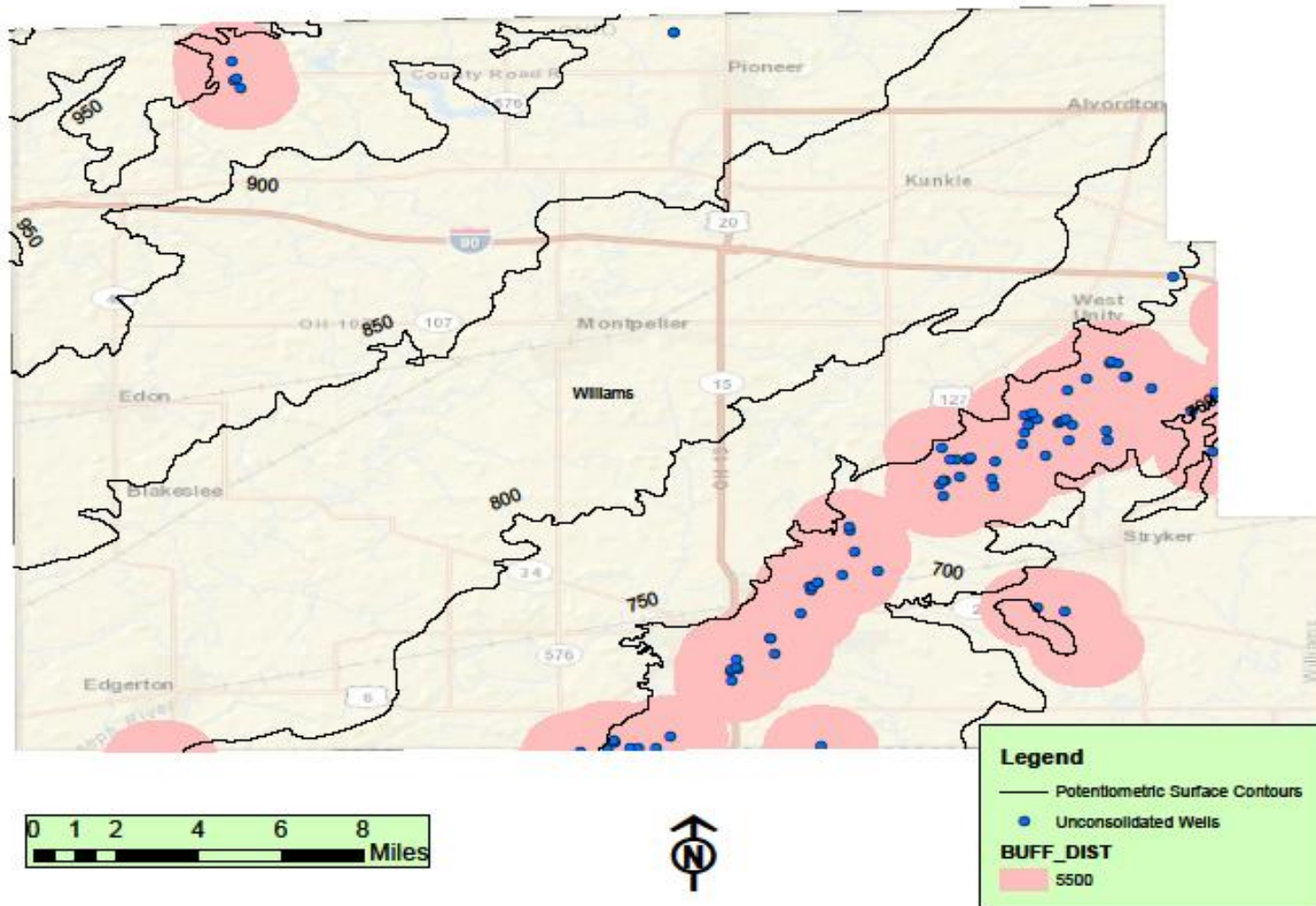


Flowing Wells in NW Ohio



Potentiometric Surface Map of Williams County

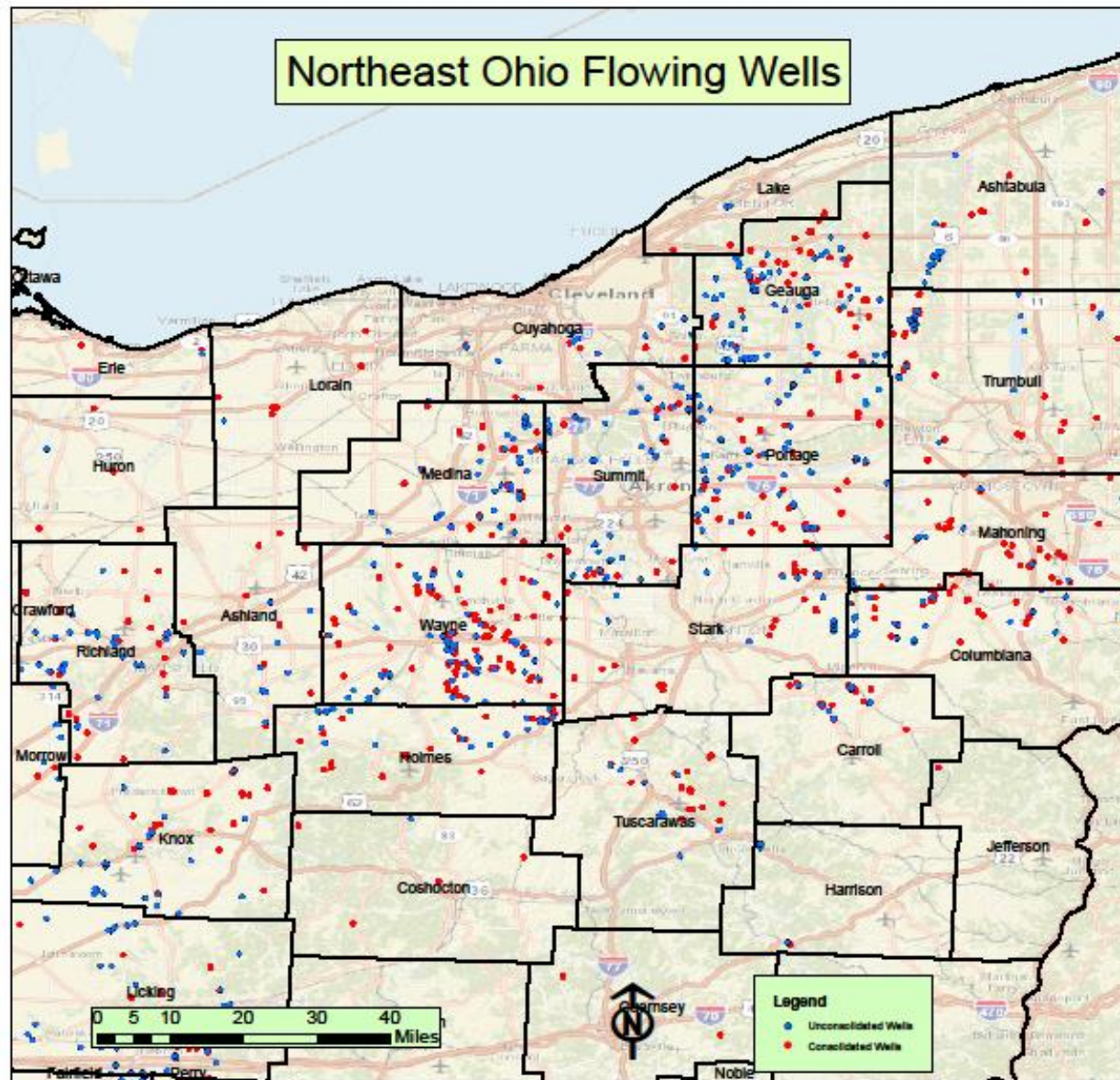
Potentiometric Surface Map with Flowing Wells of Williams County



Flowing Wells in NW Ohio

- Flowing wells concentrated in a 4-mile wide band trending NE-SW in Defiance, Williams, and Fulton Co.
- 94% of the wells are completed in the sand and gravel aquifer

Flowing Wells in NE Ohio



Flowing Wells in NE Ohio

- Flowing wells found 12 county area
- 48% of wells completed in sand and gravel aquifers

Logan County Flowing Wells

Map showing Logan County, Ohio, with flowing wells marked by blue dots (Unconsolidated Wells) and red dots (Consolidated Wells). The map includes major roads, towns, and a legend.

Legend

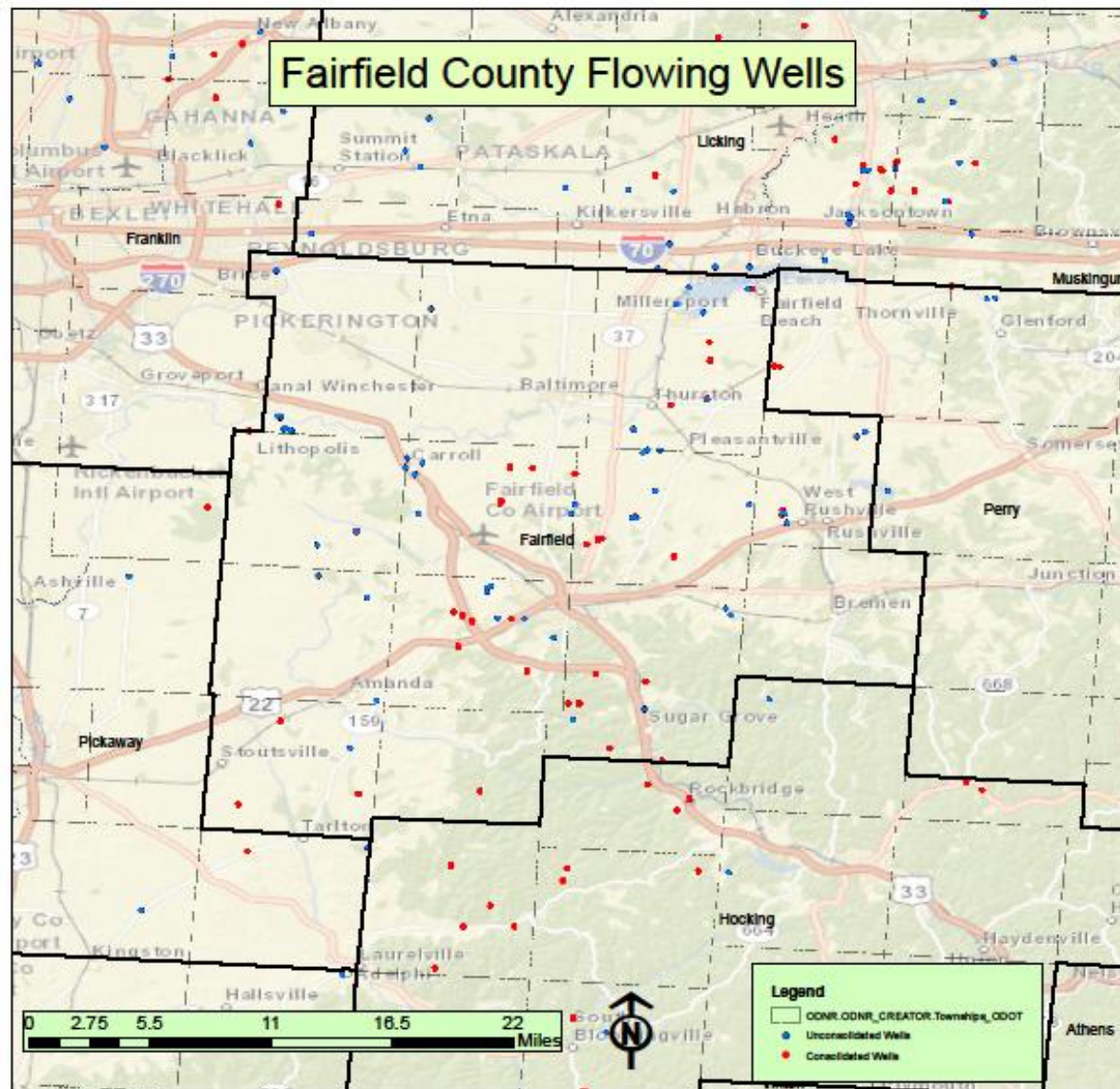
- Unconsolidated Wells (Blue dots)
- Consolidated Wells (Red dots)

Scale: 0 to 14 Miles

Flowing Wells in Logan County

- Flowing wells found on the east side of Indian Lake and near East Liberty
- 71% of the wells completed in the sand and gravel aquifers

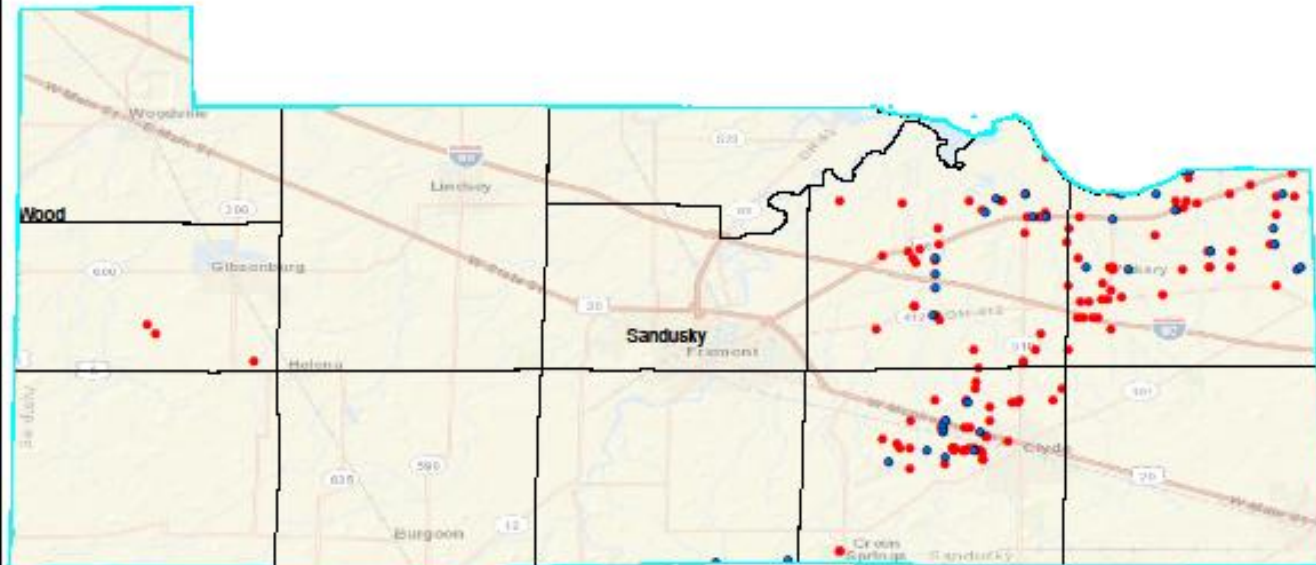
Flowing Wells in Fairfield County



Flowing Wells in Fairfield County

- Flowing wells concentrated from Buckeye Lake to South of Lancaster
- 55% of the wells completed in the sand and gravel aquifers

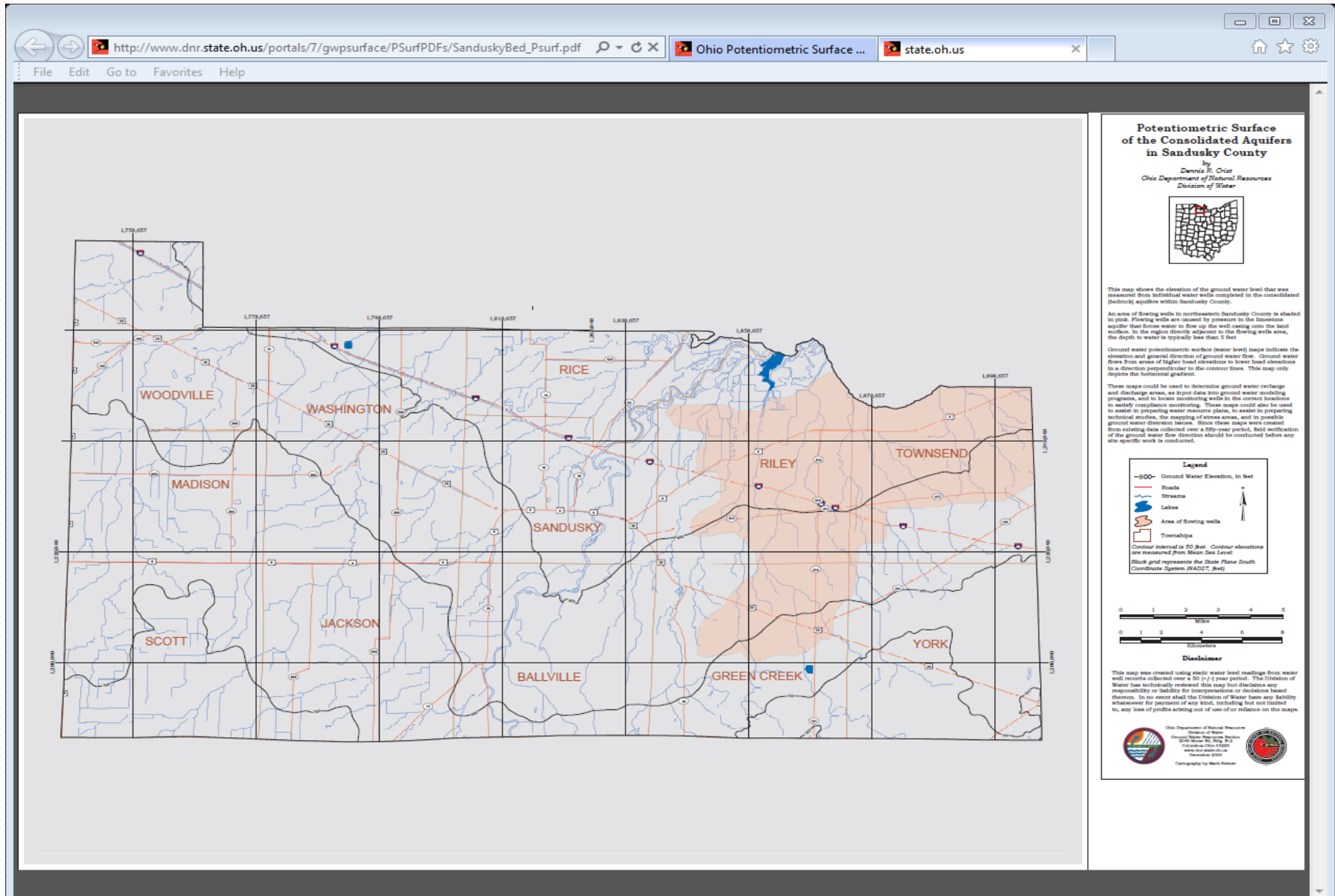
Sandusky County Flowing Wells



Legend

- ODNR.ODNR_CREATOR.Townships_ODOT
- Unconsolidated Wells
- Consolidated Wells

POTENTIOMETRIC SURFACE MAP



Karst Flooding of 2008



Looking Southeast

Ditch

Closure, SR-269

Culvert

Strecker Road





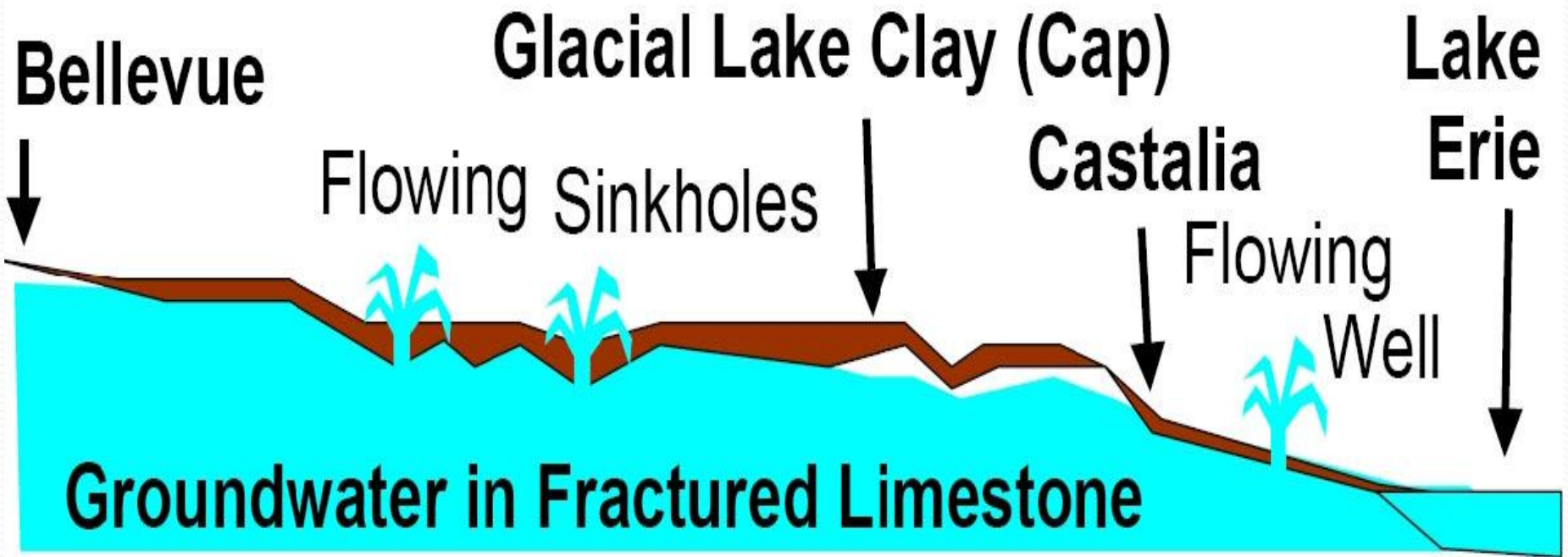


**See Picture 2; This is believed to
be Riddle Road.**



Bellevue Flooding Conclusions

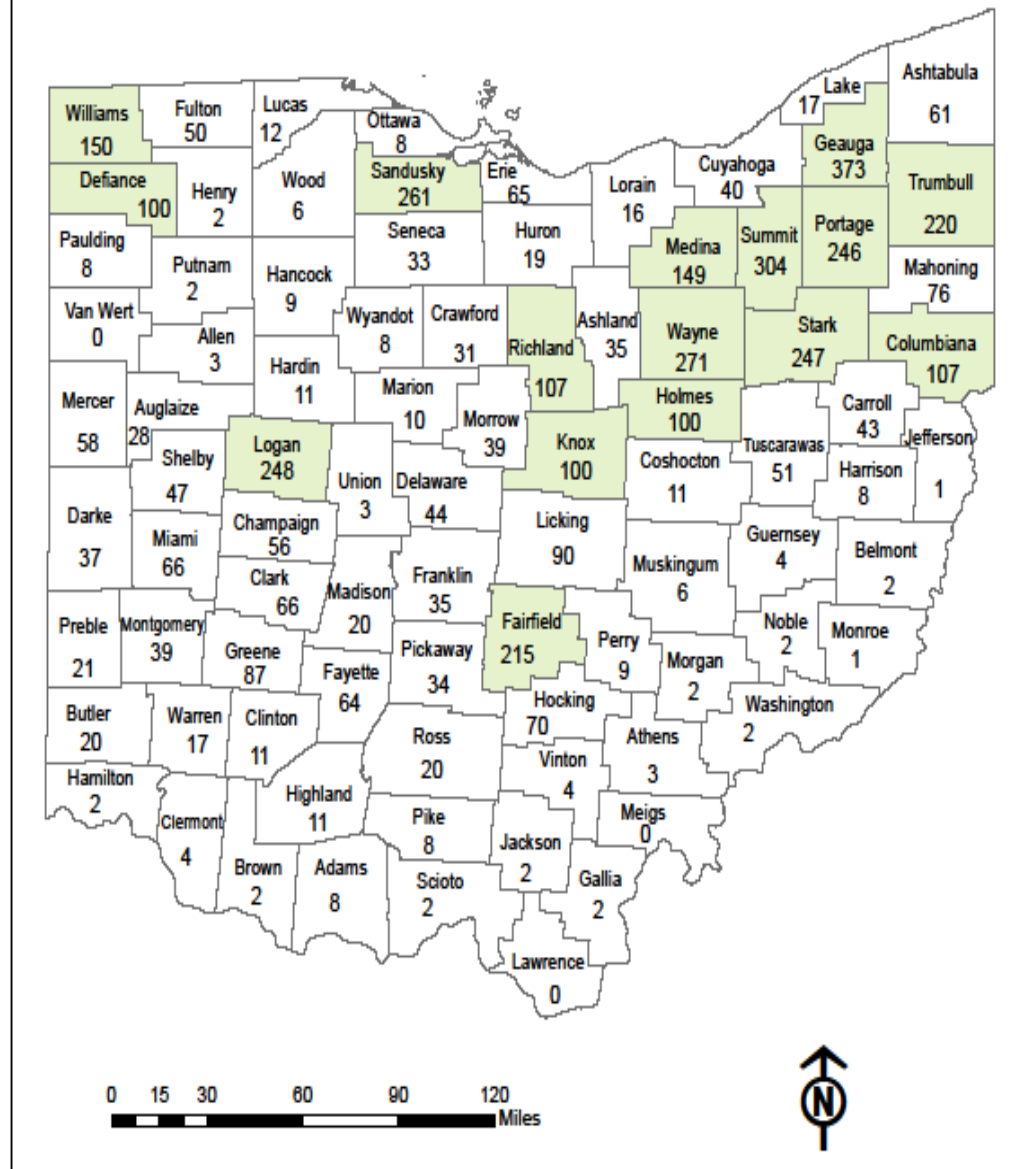
- October – March precipitation was 23.55 inches - 2 in. more than previous record
- March rainfall was 5.61 inches
- Flooding of this magnitude last happened in 1969 and 1937
- In October 2008, ground water levels were 45-65 feet below March 2008 levels
- On average, ground water levels receded 3-4 inches per day from March to October 2008

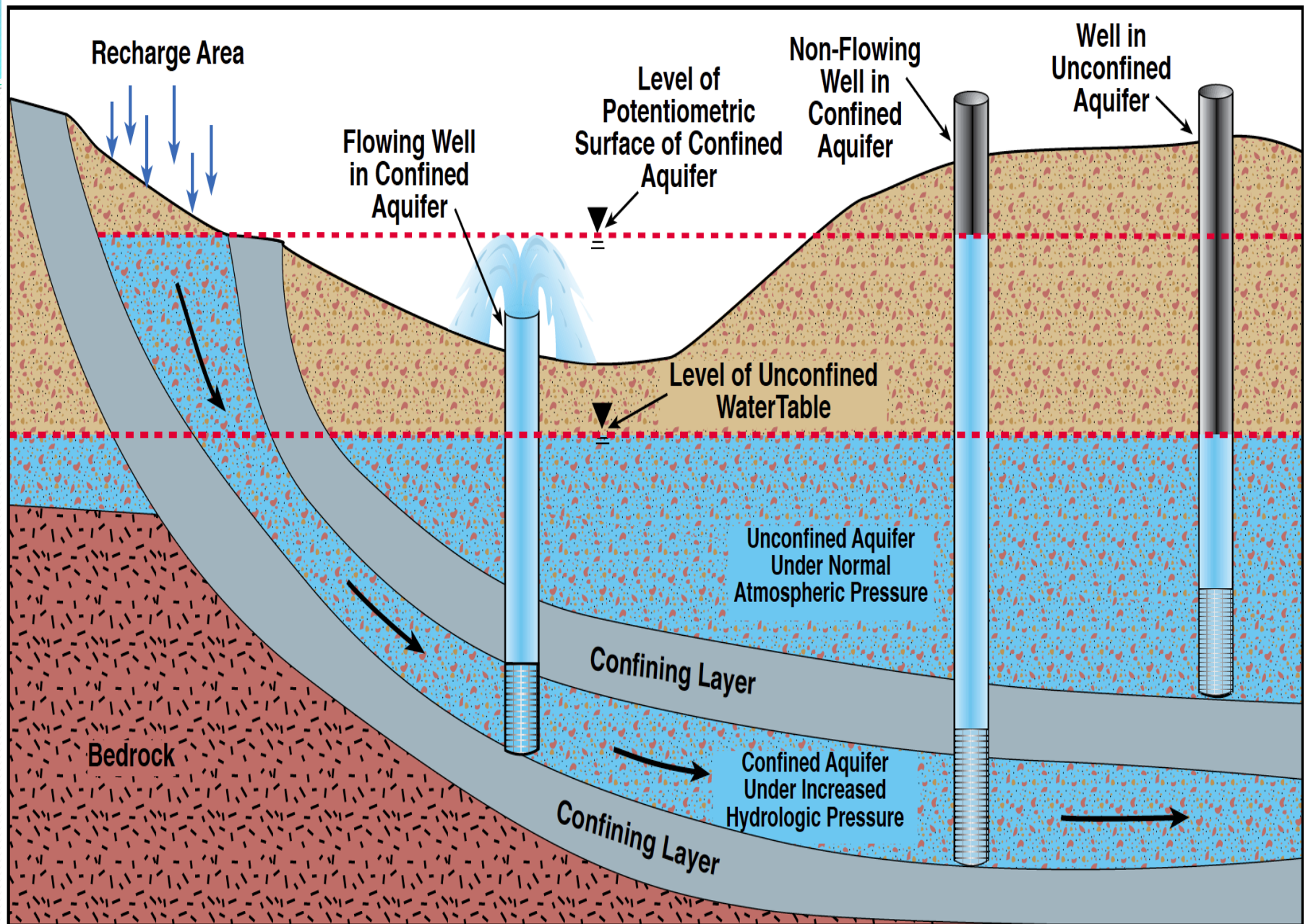


AQUIFER TYPE OF FLOWING WELL

- **51% Sand and Gravel wells**
- **49% Bedrock wells**

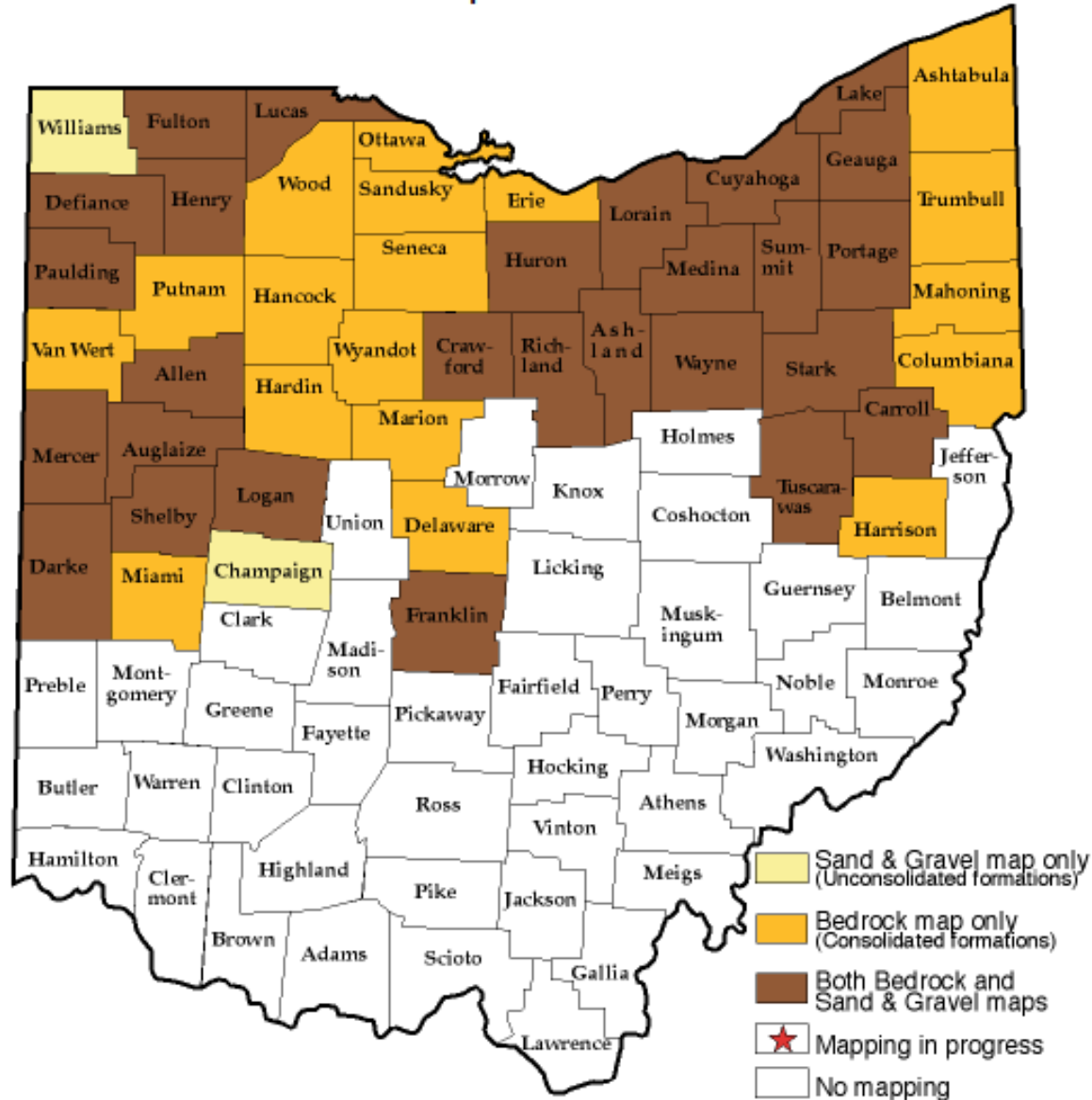
Number of Flowing Wells by County



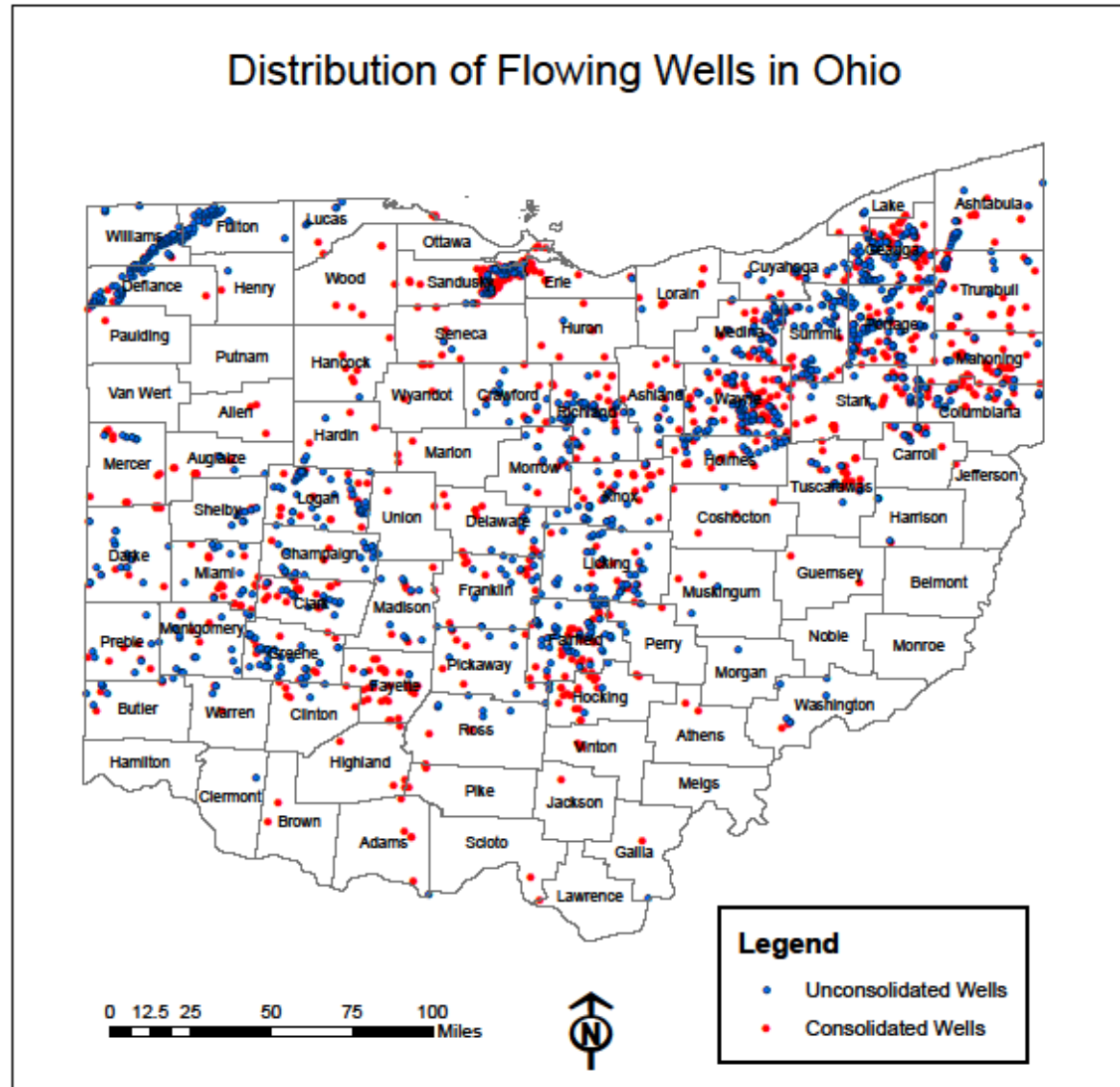


POTENTIOMETRIC SURFACE MAPPING IN OHIO

Last updated 07/03/2011



FLOWING WELL DISTRIBUTION



Questions?

- Jim Raab
- Jim.raab@dnr.state.oh.us
- 614-265-6747

Flowing Wells In Sandusky County

