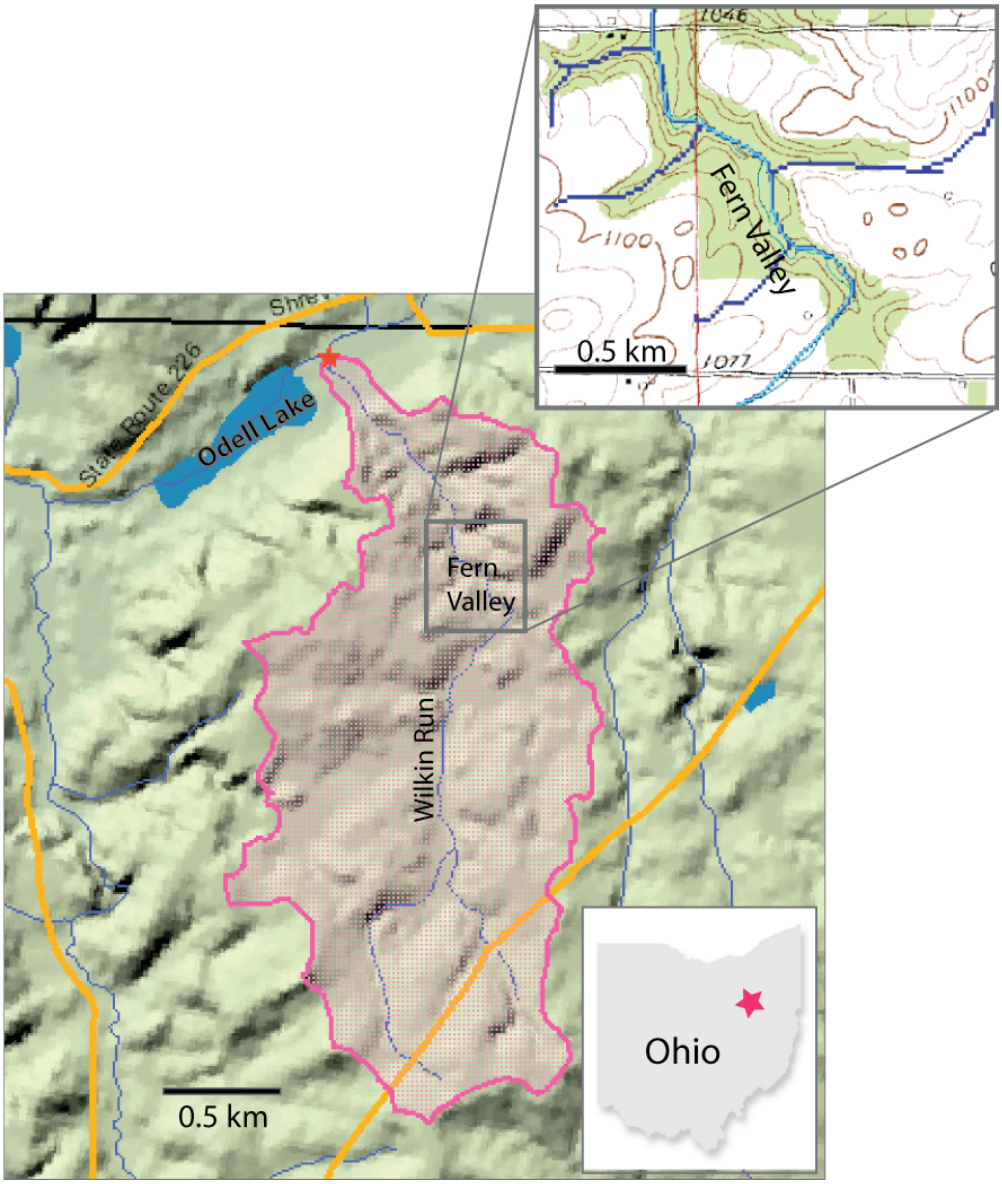
Fern Valley and Your Concept Sketch

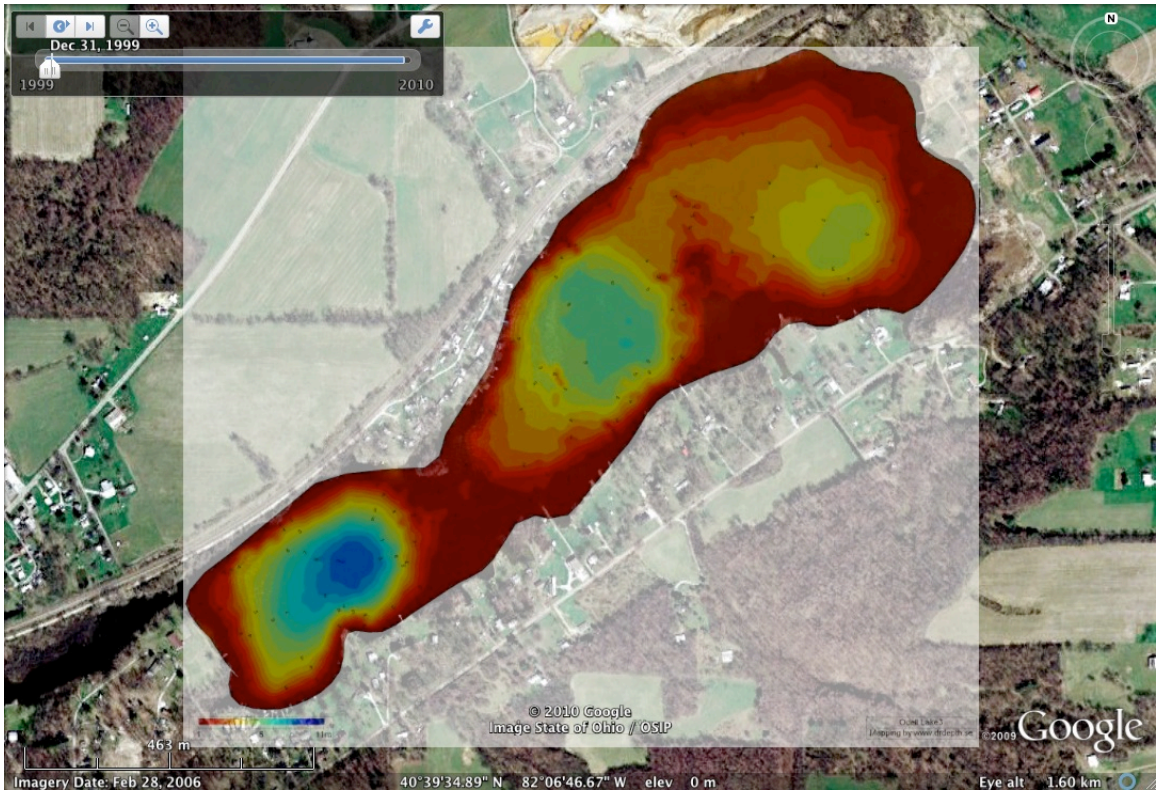
The new College Field Station – Great thanks go to Betty and David Wilkin who donated the property to the college. We will spend two lab periods in the valley – the first as an orientation trip examining the geology and land use from *source* (Fern Valley) to *sink* (Odell Lake).



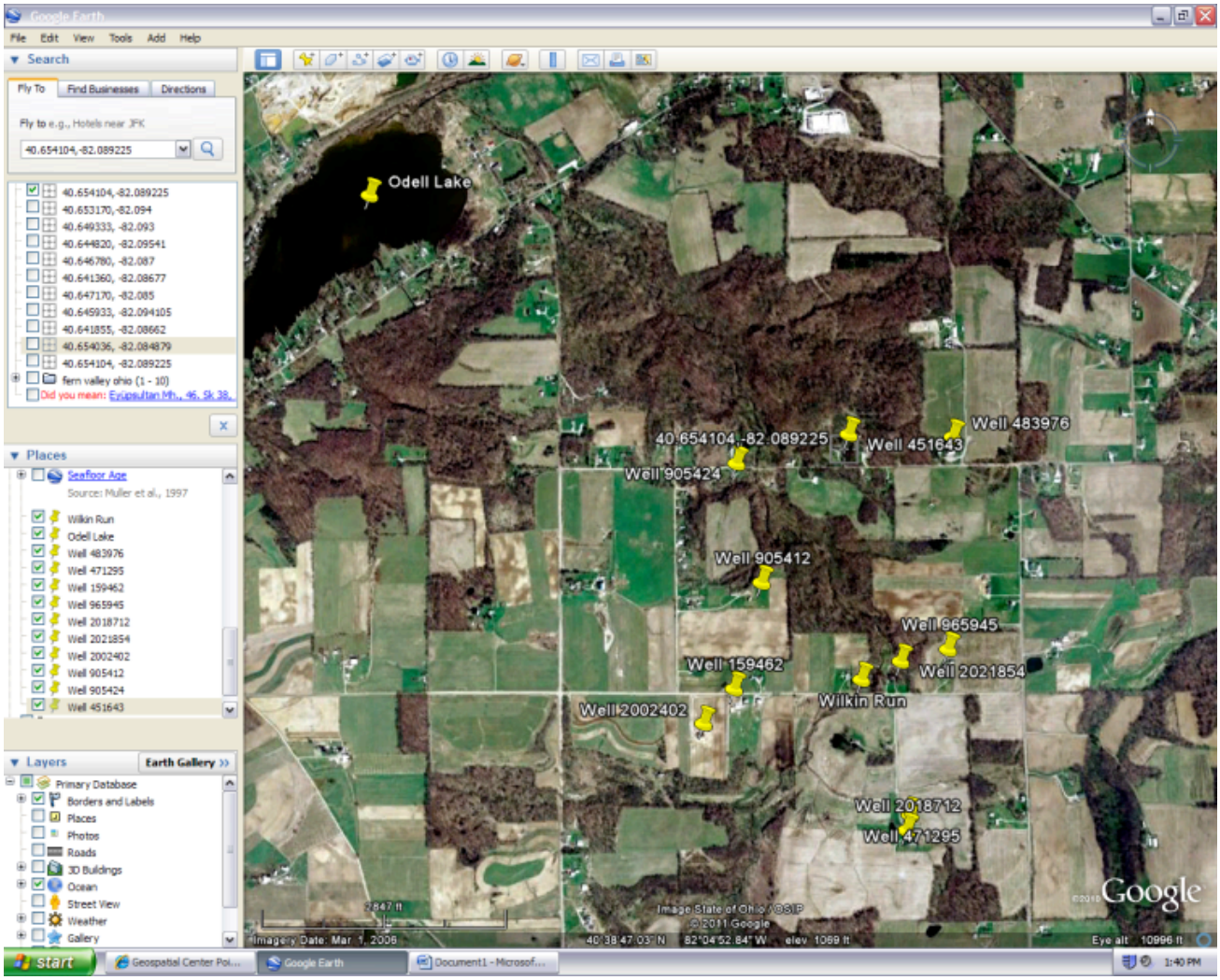
Wilkin Run flows north into Odell Lake - the lake has a large amount of soils eroded into it from the surrounding country.

LaShawna Weeks (above fall 2010) installed three wells in Wilkin Run – this past spring this reach of the stream was scoured and the wells were lost (see below- photo10 April 2011).

Lake data from Odell Lake suggest meters of deposition into the lake over the past few hundred years. What is the source of these sediments and what processes are active in the basin feeding the streams that drain into the basin? Below is the bathymetry of Odell Lake. Wilkin Run flows into the northeast corner of the basin.



Your database for this exercise is primarily observational, photographic and well logs. Read the outline on Concept Sketches on the following page.



Location of wells surrounding Fern Valley – thanks to Lauren Vargo for this index map.

Concept Sketches –Creating the Best Sketch

Concept sketches are an annotated diagram that describes a system and how it works. Concept sketches deal with spatial and temporal information in a variety of ways that not only identifies landforms and features but explains processes and makes predictions while identifying inter-relationships between labeled objects and places.

The best concept sketches will have the following characteristics.

1. The best sketches will be neat, with clear diagrams and readable, concise captions.

2. The best sketches will have concise captions rather than extended transcriptions of field notes. Every caption should include four specific levels of thinking.

a. The caption should identify geomorphic feature in concise terms.
b. The caption should explain the relevant processes and/or history.
c. The caption should make predictions about the future evolution of the feature.
d. The caption should identify inter-relationships and linkages with other features.

3. The best sketches will avoid numerical keying of observations and instead use arrows and balloons to link ideas to locations on the sketch.

4. The best sketches will be attractive, well organized, and easy to read and understand. Some will include small sketches within the overall sketch to illustrate detailed morphology or processes. Others may include the use of color if it clarifies concepts. Captions may be handwritten or typed but must be readable.

File Edit View Insert Selection Tools Help


8/31/2006
1994
2009
N
Image State of Ohio / OSIP
© 2011 Google
225 m
©2010 Google
Township Hwy
Imagery Date: 2/28/2006
1994
40°38'59.85" N 82°05'20.54" W elev 317 m
Eye alt 1.33 km


OpenTopography
9/7/2004
Township Rd 511
N
Image U.S. Geological Survey
225 m
©2010 Google
© 2011 Google
Township Hwy
Imagery Date: 3/20/1994
1994
40°38'59.85" N 82°05'20.54" W elev 317 m
Eye alt 1.33 km

Fern Valley
Gas Well

8151

GEOLOGICAL SURVEY OF OHIO

~~464~~ 20464

OIL AND GAS WELL LOG

State Ohio
County Holmes Township Ripley Quadrangle
Lot 82 Quarter Tract Section 32 NW NE SW
Measured Feet From Line And Feet From Line Of
85 Acres Approx. 475' SL & 925' WL of NW¼ Sec 32 (from OFG map)
Land Owner Wm A. Ross Well No. 1 Date Started Aug 2, 1951
Operator The Ohio Fuel Gas Co. Well No. 8979 Date Completed Sept 21, 1951
Elevation Bar. S. L. Total Depth 3149 Plugged Back
Formation Drilled To Clinton Producing Form Init. Prod. Nat. gas 944MCFG
Shot or Acid Record Prod. A. S. or Acid
Init. Rock Press. Abandoned
Casing Record 10-278, 8¼-360, 6 5/8 - 2255, 5 3/16 - 3010 , 3"-3174'.

Formation	Top	Bottom	Remarks	Formation	Top	Bottom	Remarks
clay & muck	0	150		slate	1545	1574	
sand & muck	150	273	F. Wtr.@ 160'	cin.	1574	1740	
slate	273	447		slate	1740	1865	
shell slate	447	483		cin.	1865	1880	
slate	483	640		slate	1880	1922	
slate	640	730		lime Nia.	1922	2925	salt wtr HF
sand Berea	730	745		slate	2925	2953	
red rock	745	820		shell	2953	2973	
slate	820	1350		slate	2973	3037	
cin.	1350	1405		shell Pkr.	3037	3057	
slate	1405	1420		slate	3057	3085	
cin.	1420	1545		sand Stray	3085	3099	

Formation	Top	Bottom	Remarks	Formation	Top	Bottom	Remarks
slate	3099	3123					
sand Clinton	3123	3143	gas 944M				
slate	3143	3149					
T. D.		3149					

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY- SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

471295

COUNTY Holmes TOWNSHIP Ripley SECTION OF TOWNSHIP OR LOT NUMBER 32

OWNER C. H. Moore ADDRESS R.D. # 1 Big Prairie, Ohio 44611

LOCATION OF PROPERTY ½ mile W. of Rd. 373 on S. side Rd. 374

CONSTRUCTION DETAILS

Casing diameter 4" Length of casing 148'6"

Type of screen ____ Length of screen ____

Type of pump ½ h.p. Webtrol Submersible

Capacity of pump ____

Depth of pump setting 51'

Date of completion ____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 7 gpm Duration of test 24 hrs

Drawdown none ft Date 7-27-74

Static level (depth to water) 24' ft

Quality (clear, cloudy, taste, odor) clear

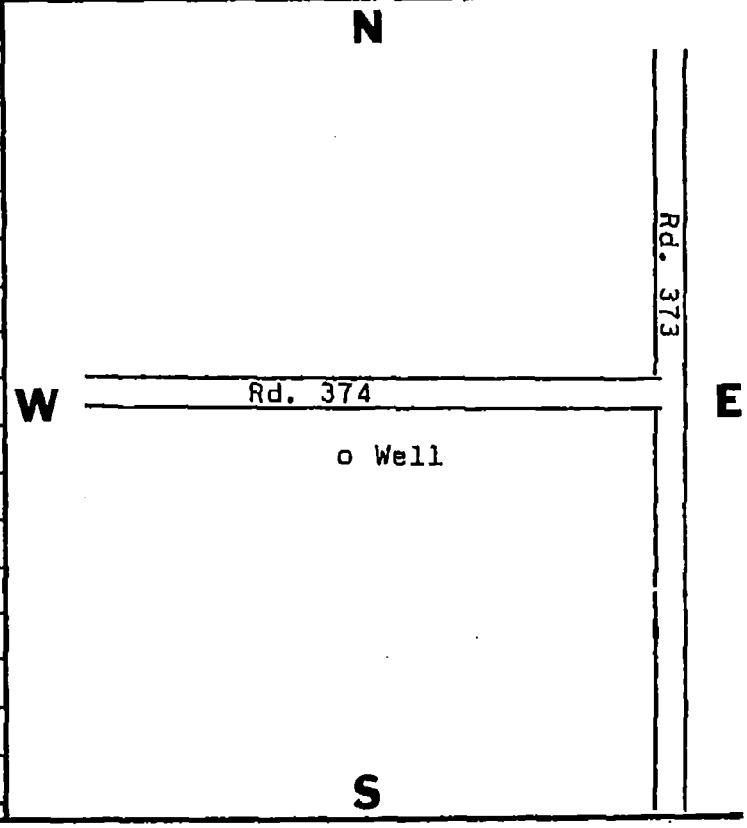
Pump installed by ____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay & Sand	0 ft	20 ft
Sand & Gravel	20	80
Fine Sand	80	140
Sand & Gravel	140	160

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM A-1 Water Service DATE 10-16-74

ADDRESS 207 N. Hillcrest Dr. SIGNED Barry Pollard
Wooster, Ohio 44691

*If additional space is needed to complete well log, use next consecutive numbered form.

LOCATED

5

DNR 7802.98

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Division of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6739 Fax (614) 447-9503

905412

WELL LOCATION

County Holmes Township Ripley

Owner/Builder (Circle One or Both) Deanna Miller (First / Last)

Address of Well Location 8384 TR510 (Number / Street Name)

City Big Prairie Ohio Zip Code +4 44611

Permit No. 125792-00 Section/Lot No. (Circle One or Both) 31

Location of Well in State Plane coordinates, if available: Use of Well Domestic

N ☐ X _____ . _____ +/- _____ ft. or m

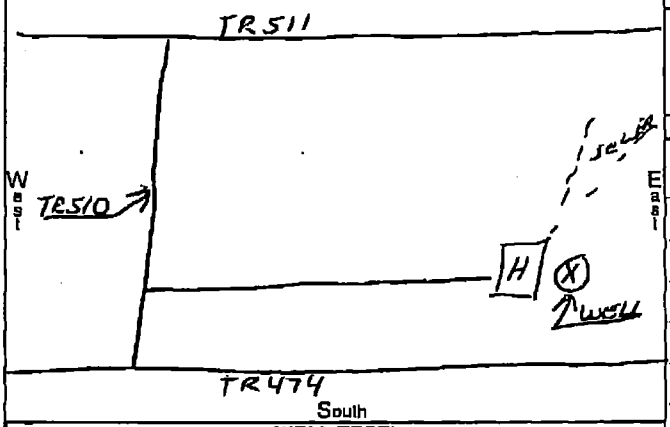
S ☐ Y _____ . _____ +/- _____ ft. or m

Elevation of Well 991 . _____ +/- _____ ft. or m

Datum Plain: ☐ NAD27 ☐ NAD83 Elevation Source GPS

Source of Coordinates: ☒ GPS ☐ Survey ☐ Other

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks. If latitude and longitude are available please include here: Lat: 40.38 96 Long: 082 05.57



WELL TEST*

Pre-Pumping Static Level 55 ft. Date 6-29-00

Measured from: ☒ Top of Casing ☐ Ground Level ☐ Other

☐ Air ☐ Bailing ☒ Pumping* ☐ Other

Test Rate 20 gpm Duration of Test 2 hrs.

Feet of Drawdown 70 ft. Sustainable Yield 20 gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☐ No Flowing Well? ☐ Yes ☐ No

Quality _____

PUMP/PITLESS

Type of pump Sub Capacity 8 gpm

Pump set at 168 ft. Pitless Type Baker

Pump installed by Robison Drilling

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm Robison Drilling

Address 945-TR92

City, State, Zip Millbuck, Ohio 44637

Signed _____ Date 7-7-00

ODH Registration Number 00201

CONSTRUCTION DETAILS

☐ Rotary ☒ Cable ☐ Augered ☐ Driven ☐ Other _____

BOREHOLE/CASING (measured from ground surface)

1 ☐ Borehole Diameter 5 1/2 inches Depth 209 ft.

Casing Diameter 5 1/2 in. Length 203 ft. Thickness .237 in.

2 ☐ Borehole Diameter 4 inches Depth 267 ft.

Casing Diameter 4 in. Length 267 ft. Thickness .219 in.

Casing Height Above Ground 12" ft.

Type 1 ☒ Steel 2 ☒ ; 1 ☐ Galv. 2 ☐ ; 1 ☐ PVC 2 ☐ ; 1 ☐ 2 ☐ Other

Joints 1 ☒ Threaded 2 ☐ ; 1 ☐ Welded 2 ☒ ; 1 ☐ Solvent 2 ☐ ; 1 ☐ 2 ☐ Other

SCREEN

Diameter _____ Slot Size _____ Screen Length _____ ft.

Type _____ Material _____

Set Between _____ ft. and _____ ft.

GRAVEL PACK (Filter Pack)

Material/Size _____ Volume/Weight Used _____

Method of Installation _____

Depth: Placed FROM _____ ft. TO _____ ft.

GROUT

Material Bentolite Volume/Weight Used 450

Method of Installation Pressure Grouted

Depth: Placed FROM 267 ft. TO Surface ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
Topsoil Brown	0	2
Clay Brown	2	4
Sand+Gravel Brown	4	65
Clay Gray	65	196
Sand Brown	196	204
Clay Gray	204	230
Sand Gray	230	240
Clay+Gravel Brown	240	260
Sandstone Gray	260	267
water 265		

*(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion 7-5-00 Total Depth of Well 267 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.

ORIGINAL COPY TO - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224-9971

DNR 7802.96

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Divison of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6739 Fax (614) 447-9503

965945

WELL LOCATION

County HOLMES Township RIPLEY

(Owner/Builder) (Circle One or Both) WILLIAM CLYDE (First Last)

Address of Well Location 12924 TR 474 (Number Street Name)

City BIG PRAIRIE Zip Code +4 44611

Permit No. 126447-03 (Section/Lot No. (Circle One or Both)) 32

Location of Well in State Plane coordinates, if available:

Use of Well SINGLE-FAMILY

N ☐ X _____ . _____ +/- _____ ft. or m

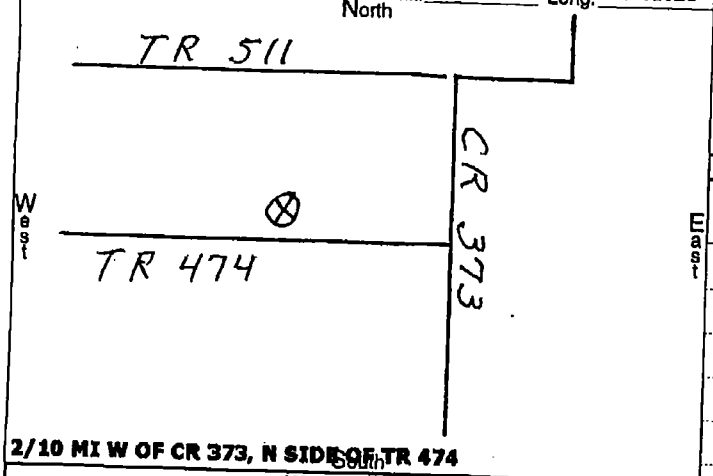
S ☐ Y _____ . _____ +/- _____ ft. or m

Elevation of Well 1080.00 +/- _____ ft. or m

Datum Plain: ☐ NAD27 ☐ NAD83 Elevation Source GPS

Source of Coordinates: ☒ GPS ☐ Survey ☐ Other _____

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks. If latitude and longitude are available please include here: Lat: 40-38.83 Long: 82-05.10



2/10 MI W OF CR 373, N SIDE OF TR 474

WELL TEST*

Pre-Pumping Static Level 47 ft. Date 10-14-03

Measured from: ☐ Top of Casing ☒ Ground Level ☐ Other _____

☒ Air ☐ Bailing ☐ Pumping* ☐ Other _____

Test Rate 15 gpm Duration of Test 1/2 hrs.

Feet of Drawdown _____ ft. Sustainable Yield _____ gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☐ No Flowing Well? ☐ Yes ☒ No

Quality CLEAR

PUMP/PITLESS

Type of pump 3/4 HP SUBM Capacity 10 gpm

Pump set at 100 ft. Pitless Type AQUA-SEAL

Pump Installed by FRONTZ DRILLING, INC.

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm FRONTZ DRILLING, INC.

Address 2031 MILLERSBURG RD

City, State, Zip WOOSTER, OH 44691

Signed Steve Frontz Date 10-22-03

ODH Registration Number 120

CONSTRUCTION DETAILS

☒ Rotary ☐ Cable ☐ Augered ☐ Driven ☐ Other _____

BOREHOLE/CASING (measured from ground surface)

1 ☐ Borehole Diameter 8 inches Depth 78 ft.

Casing Diameter 5 in. Length 79 ft. Thickness .265 in.

2 ☐ Borehole Diameter 5 inches Depth 110 ft.

Casing Diameter _____ in. Length _____ ft. Thickness _____ in.

Casing Height Above Ground 1 ft.

Type: 1 ☐ Steel 1 ☐ Galv. 1 ☒ PVC 1 ☐
2 ☐ 2 ☐ 2 ☐ 2 ☐ Other _____

Joints 1 ☐ Threaded 1 ☐ Welded 1 ☒ Solvent 1 ☐
2 ☐ 2 ☐ 2 ☐ 2 ☐ Other _____

SCREEN

Diameter _____ Slot Size _____ Screen Length _____ ft.

Type _____ Material _____

Set Between _____ ft. and _____ ft.

GRAVEL PACK (Filter Pack)

Material/Size _____ Volume/Weight Used _____

Method of Installation _____

Depth: Placed FROM _____ ft. TO _____ ft.

GROUT

Material BENSEAL Volume/Weight Used 200 LBS

Method of Installation PRESSURE THRU PVC PIPE

Depth: Placed FROM 78 ft. TO SURFACE ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
Brown Clay/Gravel	0	13
Gray Clay/Gravel	13	16
Gray Sand/Gravel	16	28
Gray Silty Clay/Gravel	28	43
Brown Sand/Gravel	43	65
Conglomerate Sandstone	65	68
Gray Sandstone	68	110

*(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion 10-20-03 Total Depth of Well 110 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.
ORIGINAL COPY TO - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224-9971
Blue - Customer's copy Pink - Driller's copy Green - Local Health Dept. copy

DNR 7802.05e

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605
Voice (614) 265-6740 Fax (614) 265-6767

Well Log Number: 2018712

Page 1 of 1 for this record.

WELL LOCATION

County HOLMES Township WASHINGTON

CLARK SPRANG
Owner/Builder

12970 TR 474
Address of Well Location

City BIG PRAIRIE Zip Code +4 44611

Permit No. 127130-08 Section; _____ and/or Lot No. _____

Use of Well DOMESTIC

Coordinates of Well (Use only one of the below coordinate systems)

State Plane Coordinates

N ☐ X _____ +/- _____ ft.

S ☐ Y _____ +/- _____ ft.

Latitude, Longitude Coordinates

Latitude: 40.64136 Longitude: -82.08677

Elevation of Well in feet: 1105 +/- 17 ft.

Datum Plane: ☐ NAD27 ☒ NAD83 Elevation Source GPS

Source of Coordinates: GPS

Well location written description:
APPROX 3/4 MILE WEST OF CR 373 ON THE SOUTH SIDE OF TR 474

Comments on water quality/quantity and well construction:
- THE FLOW RATE OF THE WELL IS 20 GPM.

WELL TEST *

Pre-Pumping Static Level 0 ft. Date 8/28/2008

Measured from TOP OF CASING

Pumping test method AIR

Test Rate 50 gpm Duration of Test 1 hrs.

Feet of Drawdown 0 ft. Sustainable Yield 50 gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☒ No Flowing Well? ☒ Yes ☐ No

PUMP/PITLESS

Type of pump SUBMERSIBLE Capacity 20 gpm

Pump set at 70 ft. Pitless Type WELLS-CLEARWAY

Pump installed by MULLET DRILLING COMPANY INC

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm MULLET DRILLING COMPANY INC.

Address 3530 CR 58

City, State, Zip MILLERSBURG OH 44654

Signed DAVID M. MULLET Date 9/22/2008
(Filed Electronically)

ODH Registration Number 0086

CONSTRUCTION DETAILS

Drilling Method: MUD ROTARY

BOREHOLE/CASING (Measured from ground surface)

1 Borehole Diameter 8 inches Depth 68 ft.
Casing Diameter 5 in. Length 70 ft. Thickness 0.265 in.

2 Borehole Diameter 5 inches Depth 80 ft.
Casing Diameter _____ in. Length _____ ft. Thickness _____ in.

Casing Height Above Ground 2 ft.

Type 1: PVC
Type 2: _____

Joints 1: Solvent
Joints 2: _____

SCREEN

Diameter _____ in. Slot Size _____ in. Screen Length _____ ft.

Type _____ Material _____

Set Between _____ ft. and _____ ft.

GRAVEL PACK (Filter Pack)

Material/Size _____ Vol/Wt. Used _____

Method of Installation _____

Depth: Placed From: _____ ft. To: _____ ft.

GROUT

Material Bentonite slurry Vol/Wt. Used 1750 lbs

Method of Installation Pumped w/Tremie pipe

Depth: Placed From: 0 ft. To: 68 ft.

DRILLING LOG*

FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Color	Texture	Formation	From	To
BROWN		SAND AND CLAY	0	8
		SANDCLAYGRAVEL	8	10
		CLAY & GRAVEL	10	38
		GRAVEL	38	52
		CLAY	52	60
		GRAVEL	60	63
		CLAY	63	66
GRAY	SANDY	SHALE	66	70
GRAY-BROWN		SANDSTONE	70	80
		Water Encountered At	70	80

Aquifer Type (Formation producing the most water.) SANDSTONE

Date of Well Completion 9/15/2008 Total Depth of Well 80 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.
Distribute copies of this record to Customer, and Local Health Deptartment.

WELL LOG AND DRILLING REPORT

47-650

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

451643

County Holmes Township Ripley Section of Township 29

Owner Victor Kaser Address R. D. 1, Big Prairie, Ohio

Location of property 2 miles South of Big Prairie off Co. Rd. 373 on Twp. Rd. 2

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 83'
Type of screen None Length of screen
Type of pump Submersible
Capacity of pump 8 G. P. M.
Depth of pump setting 105'
Date of completion 7/16/73

BAILING OR PUMPING TEST
(Specify one by circling)

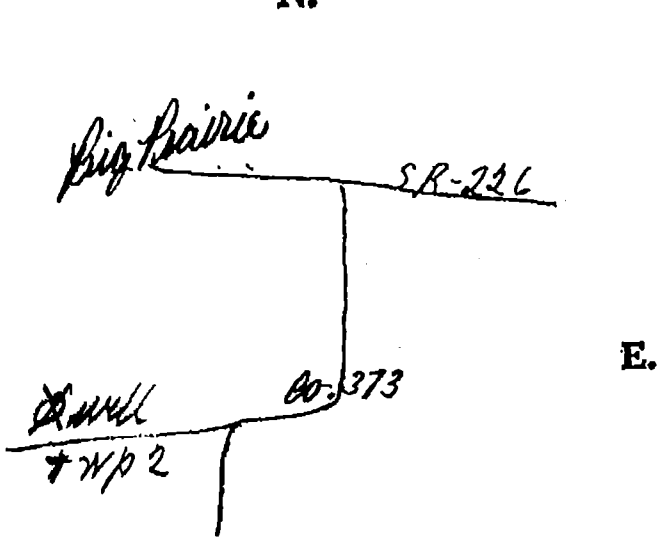
Test Rate 15 G.P.M. Duration of test 1 hrs.
Drawdown 1 ft. Date 7/14/73
Static level-depth to water 57 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by W. G. Roberts

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay, brown	0 Feet	12 Ft.
Clay & gravel	12	35
Clay, gray	35	78
Sandstone, brown	78	106
Shale, gray, sandy	106	121
Shale, soft, gray	121	122
Water (106 to 121)		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm W. G. Roberts Drilling Date 7/16/73
Address 129 S. Mt. Vernon Ave. Loudonville, Ohio 44842 Signed Willard G. Roberts

LOCATED

*If additional space is needed to complete well log, use next consecutive numbered form.

3