

Final Technical Report

Award Number: G14AP00125

Completion of Preservation and digital conversion of DGS Paper Well and Outcrop Records

William S. Schenck, P. G., Delaware Geological Survey
University of Delaware, Newark, DE 19716-7501
Phone: (302) 831-8262; Fax: (302) 831-3579

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Abstract

This project proposal focused on the completion of the conversion of paper well and outcrop records to a digital format so that they can both be preserved and made available through the internet. The DGS Paper well schedules were created in such a way that they serve as a folder on which data about the well/boring geographic position, construction, depth, samples taken, water quality information, and finishing are written. Much of these data are keyed into our Oracle WATSYS database. However, a fair amount of ancillary data that have great historical significance are put into the well schedule and then filed with the schedule in a cataloged binder system for retrieval. The same is true of our outcrop records, but they are single sheets where the back of the sheets hold description data for outcrops and sketches that are impossible to data base, but are historically valuable as many locations are now lost to development. These “extras” along with margin notations and comments from decades of researchers stand a chance of being lost if a disaster such as a fire or water damage were to affect these records. If we could scan these records now, there would be a digital copy of the data and this could serve as a backup in case of irreparable damage. It would also allow the DGS to begin making these older historical data available to researchers and our stakeholders through the internet.

Comparison of Actual Accomplishments to the Goals for the Established Period

The original goal of this G14AP00125 Data Preservation grant was to complete the scanning of our entire collection of approximately 5,000 outcrop description records and approximately 31,000 well description records. These records were scanned to TIF and then converted to PDF by a contractor. The contractor used a bar code system to track files from our office to their facility and through the scanning process. By doing this, the contractor was also able to tell us if paper records were missing from any of the outcrop or well data books/binders. This will prove helpful to us in making sure our database of outcrops and wells (WATSYS) will accurately reflect both missing paper records and missing database entries.

The binders were taken from the DGS room 208 (Data Room) in shipments of 20-25 binders per visit. Over the course of 15 weeks, all of the outcrop and well binders were logged out of the room by Laura Wisk and sent to the Data Management Incorporated (DMI, contractor) facility. The pages were taken from the binders, coded, cleaned and tears repaired and then scanned. Many extra documents and sketches were scanned in association with the outcrop or well description so that the completed PDFs would document any and all available data for that particular outcrop or well. The binders were then reassembled and brought back to DGS and Laura Wisk checked them back into the data room and sent out the next shipment. Funding for FY13 and FY14 allowed DGS to completely scan the 5,000 outcrop and 31,000 well descriptions as PDFs. Metadata for each record of both these collections have been uploaded to the NGGDPP data base; a total of 36,000 metadata records.

Attached is an example of a DGS outcrop and well description.

TS

polished section

P244
#58175

DELAWARE GEOLOGICAL SURVEY OUTCROP OR EXPOSURE SCHEDULE

DGS ID Ad43b

Date Observed

Record By W. S. Schenck

WSS
code

GENERAL SITE DATA

County 1 3 5
Kent New Sussex
Castle

Quadrangle Wilmington North

WIN
code

Latitude 39 51 41

Longitude 75 32 19

Altitude 370

Delaware Mod. Grid

Altitude Method A L (M) R

OWNER IDENTIFICATION

First

M. I.

Last

Address

code

City

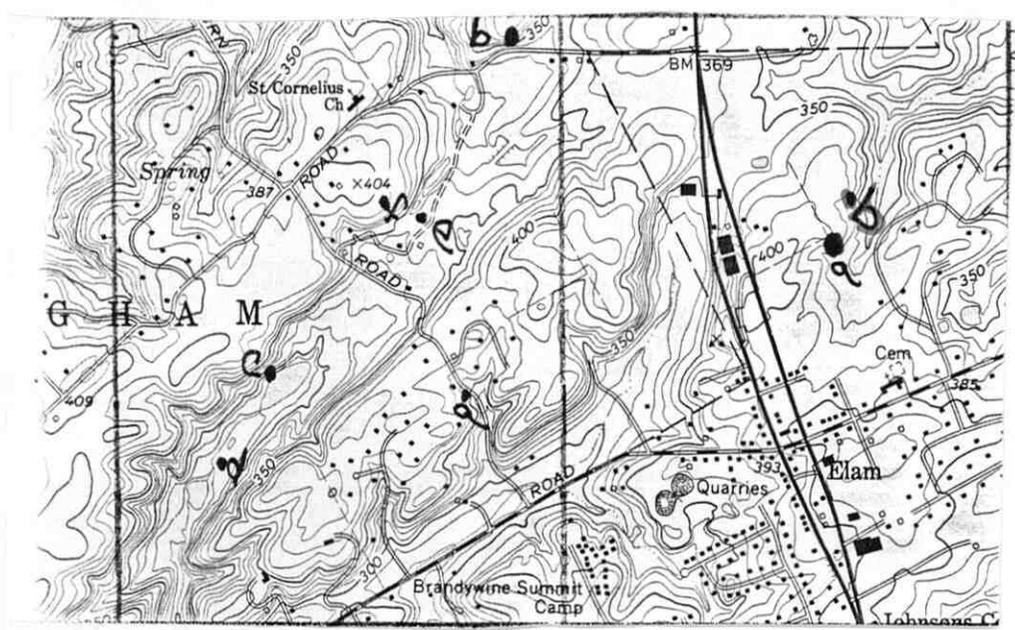
State

Zip Code

Telephone Number

Ad43-b


LOCATION SKETCH MAP OR LOCATION DESCRIPTION



SAMPLES,
PHOTOS

NOTED BY
→

DGS ID A1d431b1

DEPTH INTERVAL SYMBOL DESCRIPTION

DESCRIPTION, COMMENTS, SKETCH OF OUTCROP

• Regular
• Thin section

P244 Wetherholt WNC
off Smith's B. Concord Creek Rd
Smith's Bridge
Village -
Pleasant Hill Rd.
Smith Bridge Estates

RT 202
outcrop → x Concord Creek Rd
Pleasant Hill Rd
Elam + Smiths Bridge Estate
Smiths Bridge Road
W E

N35E - N40E
80°

Pelitic Gneiss / much sillimanite
Wonderful outcrop on corner of
Concord Creek Rd x Pleasant Hill Rd

Wissachucan - foliations - ~~the~~ wrap
around gty lens - pegmatites with
prob F. - very small garnets - no layer

lots of sill - Very Aluminous rocks.
migmatitic - lots of
sillimanite & partial melting
iron sulfide present -
(pyrite, chalcopyrite).

Chertic Hwy W

Strike Fol N 35E
DIP 80SE

UNITS EXPOSED

WISS

(PD)

(MI)

DGS ID: Ad43b

SAMPLE NO.: 58175

QUAD: WIN

DATE:

FIELD NO.: P244

SLIDE PREPARED FOR:

LOCATION: Smiths Bridge Estate

ROCK UNIT: *Wissahickon*

ORIEN. SEC.:

STAINED: K-feldspar: Plagioclase: Calcite: Cordierite:

LITHOLOGY: pelitic gneiss

MAJOR MINERALS

MODE (%)

ACCESSORY MINERALS

pla
qtz
ksp
bio
sil
opaques
gar

sphene

RETROGRADE MINERALS

COMMENTS

myrmekites
deuteric alteration of plagioclase

TEXTURES

Garnet: rotated; quartz pressure shades; inclusions are biotite and ksp (not an earlier Ass.); elongated; inclusions of mus?, qtz, bio?, sil
Quartz: rexld; poly boundaries; some grains no U.E.
Sillimanite: prisms and blades
Plagioclase: twinned; some deuteric alteration; deformation twins; antiperthitic
K-feldspar: porphyroblasts; edges; not clean; biotite/sillimanite/quartz; fine-grain quartz
Biotite: dark brown; sheared; light brown
Myrmekites

FABRIC

foliated; phyroblasts of k-feldspar (rotated?); porphyroclasts; granulated rims; cataclastic; shear

DELAWARE GEOLOGICAL SURVEY WELL SCHEDULE



DGS ID Ad53-11

DNREC Id 51116

Record By _____

KWR
(code)

Date Filed 04-16-02

GENERAL SITE DATA

Data Source D G (N) O R S U
driller DGS DNREC owner other reported USGS unknown

Local Id _____

DRBC Id _____

N 4409667.7 E 453534.3

Lat _____

Long _____

Lat-Long Method S L (M) F
gps loran map field

Lat-Long Accuracy (S) F T W
sec 5 sec 10 sec 20sec

County 1 (3) 5
Kent New Castle Sussex

Quadrangle WILMINGTON NORTH WIN
(code)

Topo Setting C D E (F) H K L M O S U V
stream channel depression dune flat hilltop sink lake marsh offshore hillside upland draw valley flat

Drainage Basin _____

101
(code)

Altitude 365.

Altitude Method A L (M) R
altimeter level map relative

Delaware Mod. Grid 12003780

Project SMP02

OWNER IDENTIFICATION

First _____

Middle Initial _____

Last _____

Address _____

805 WOODRILL
(code)

Address _____

City _____

State _____

Zip Code _____

WELL DESCRIPTION

Drilling Contractor POWELL

74

Date Drilled 06-21-82

Depth Drilled 180.

Drill Method (A) B C D E J M P R U V W
air rotary bored cable tool dug augered jetted hydraulic rotary air percussion reverse rotary unknown driven wash-drive

Well Finish C H N (O) P S T U W
concrete horizontal gallery not finished open hole perforated or slotted screen sand point unknown walled

Ad53-11



Site Use: A E G O P R T **W** Z
 anode eng. test boring geo/hydro research observation oil or gas recharge test withdrawal other

Site Status: A D I N S U
 abandoned destroyed in use not in use standby unknown

Water Use: A C **D** F G I M O P R U
 agricultural commercial domestic fire geothermal industrial observation other public supply irrigation unknown

Replacement Well: Y **N**
 Replacement Reason: CL FE IW NI OT WF
 chlorides iron inadequate quantity nitrate other well failure

Geologic Unit: [] [] (code)

Aquifer Name: [] [] (code)

CASING

	top of casing	bottom of casing	diameter	material
1	[0]	[21]	[6]	[S]
2	[]	[]	[]	[]
3	[]	[]	[]	[]
4	[]	[]	[]	[]

Casing Material: B C F G O P R S U
 brick concrete fiber-glass galvanized other PVC rock or stone steel unknown

OPENINGS

	top of opening	bottom of opening	diameter	material
1	[]	[]	[]	[]
2	[]	[]	[]	[]
3	[]	[]	[]	[]
4	[]	[]	[]	[]

Opening Material: A B C F G M N P R S U
 brass bronze concrete fiber-glass galvanized monel none PVC stainless steel steel unknown

806 Woodliff

RECEIVED

Ad 53-11

Press Hard - Write Clearly - Use Ball-Point Pen or Typewriter - Press Hard

JUN 1 1982

Division of Environmental Control
P.O. Box 1401
Dover Delaware 19901

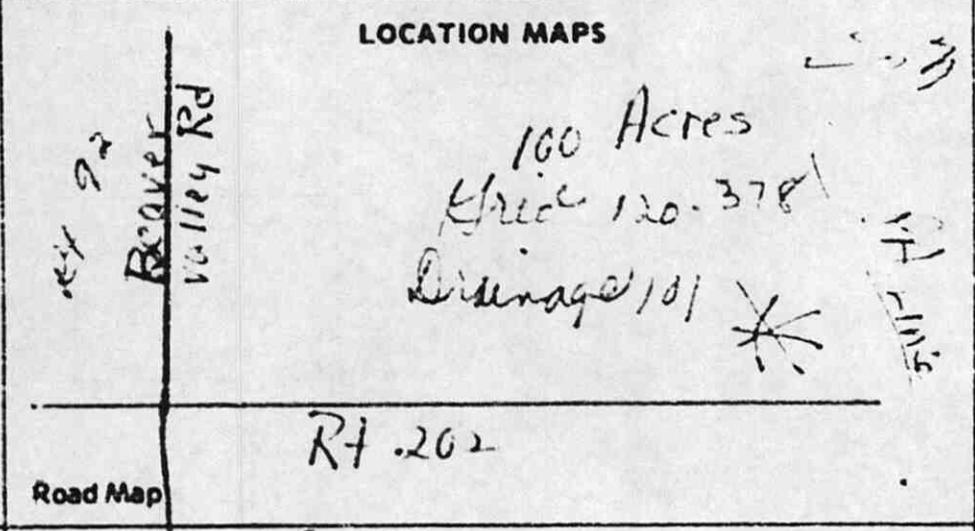
STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
APPLICATION FOR A PERMIT TO DRILL A WELL
(To be completed by a licensed water well driller)

APPLICATION MUST BE SUBMITTED AND RECEIVED BEFORE DRILLING IS STARTED.

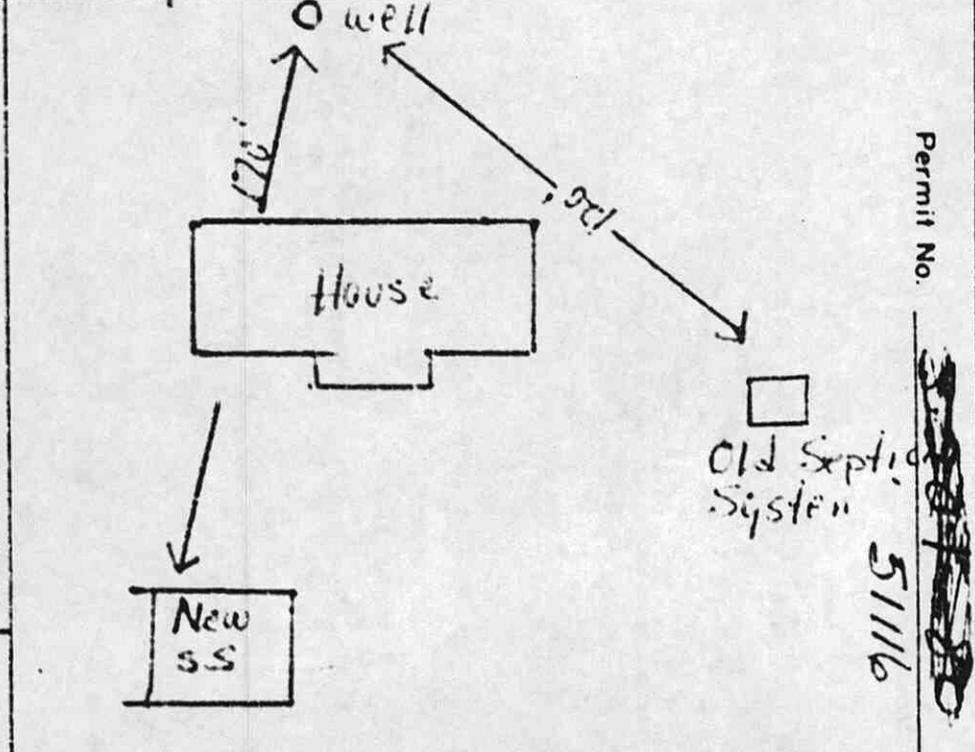
Property Name: Woodlawn Trustees
Number: 652-1805
Address: 610 N. Bancroft Park.
Wilmington, Del.
Wood Castle 19806

Date of Application: 5 Mon. 28 Day 82 Year
Estimated Date of Construction: 6-3-82
Driller: Calvin E. Powell License No. 74
Pump Installer: Owner License No. _____

ALL INFORMATION (circle one)
Type of Well: Permanent Well Option to convert to Public - Commercial
Use: Residential - Agriculture - Other
Replacement well? yes no
Replacement: Old Spring House
Sealed well is to be sealed: _____
Location been made for an approved sewage system? yes no S 201-80



PROPOSED WELL CONSTRUCTION
Drilling: Air Rotary
Total depth of well: 150 ft.
Casing: Diabase
Casing diameter (s): 6"
Casing material: Black Iron
Screen material: None
Screen Setting: between _____ and _____ ft.
Screen length: _____ ft.
Will be gravel packed? yes no
Gravel: Cement From: 3 ft. to 27 ft.
Capacity of the well: 8 gpm
Daily use: 1000 gpd



I affirm the information I have furnished is true and correct.
Applicant (circle) Representative

For Official Use Only. -- Do Not Write Below This Line.

Under the provisions of 7 Delaware Code, Chapter 60, permission is hereby granted to construct and use a well as described above. All current regulations governing well construction and water resource use must be followed. The following conditions must be observed: (6/2/83)

PLEASE RETURN TO:

WATER SUPPLY BRANCH
Blue Hen Mail Office
Box 1401
Dover, Delaware 19901

DOCUMENT 46-08/78/01/3

Ad53-11

□□□□□□ □□□□□□



WELL COMPLETION REPORT

Number: 51114
well:
Alam Trustee

11. Gravel pack: Type none
From _____ to _____ feet.

12. Static Water Level: Date 6-21-82
31 Ft. (Below, Above) Ground Surface

Water: Domestic Public
Agricultural Irrigation
Other

13. Pumping Water Level: 130 Ft. below grade
after 1 hours at 8 gpm

14. Well Head Completion: Owner installed pump
Type: Pitless Adapter Other _____
_____ inches above grade

Drilling: Jet Dug
Rotary: Mud Rev. Air

15. Type of Permanent Pump Installed:
Pump Manuf. _____
Rated capacity _____
Pump intake setting _____ Ft. below grade

Observation Production

Depth: 180 feet
Completed 6 / 21 / 82
Month Day Year

16. The completed well is
a. at least 5' from any overhang
b. at least 50' from any septic tank
c. at least 10' from town sewer line
d. at least 100' from the nearest edge of any tilefield.
(if well is cased less than 50')
e. at least 50' from the edge of any tilefield if casing (not including screen) is more than 50' in depth

Is a replacement well, how was well abandoned?

Material: Steel PVC Concrete
6 in. From 0 to 21 feet

17. The nearest neighbors (circle one) 100 Acre
septic tank tile field, cesspool, or Farm
privy is _____ from completed well.

Material: Steel PVC Concrete
Diameter None inches
Setting from _____ to _____ feet

18. Is completed well located as shown on application form?
If no, describe location change.....

Material: Cement Bentonite Clay
_____ to 16 feet

51114

Ad53-11

DRILLERS LOG

THICKNESS OF STRATUM

DEPTH TO BOTTOM OF STRATUM

Soil

8"

8"

Clay with traces sand & gravel

16'

16'8"

Diabase

164'

180'

RECEIVED

SEP 2 1992

DGSID	Ad53-11
Depth top	0.0
Date	4/17/02
Record by	KWR
LSE	365
Strat unit	Tbm
Depth bottom	16.75
Confidence	L
Pick method	DLG
Comments	0-16.75 Clay with trace of sand & gravel Could be partly saprolite

DGSID	Ad53-11
Depth top	16.8
Date	4/17/02
Record by	KWR
LSE	365
Strat unit	Bsmt rk
Depth bottom	180
Confidence	H
Pick method	DLG
Comments	16.75-180 Diabase

GRAVEL PACK

Y N

Top

Bottom

GROUT

Y N

DGS ID

Top

Bottom

Type B C G O U
bentonite cement cuttings other unknown

WATER-LEVEL DATA

Date 06-21-82

Time

Water Level 31

Correction

Water Level A M O R S T W
air line m-scope other reported static level tape down water-level recorder

WELL YIELD DATA

Pumping Rate

Duration

Static Level

Pumping Level

LOG, TEST, AND SAMPLE DATA

Geologist's Log

Water Quality

Ditch Samples

Driller's Log

Supplemental File

Core Samples

Aquifer Test

GEOPHYSICAL LOG DATA

Caliper

Gamma-Density

Single Point Electric

Differential Single Point

Gamma Spectral

Sonic

Differential Temperature

Induction

Spherically Focused

Flowmeter

Multiple Point

Temperature

Gamma

Neutron

Other

Date Filed

		-			-		
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NOTES

LOCATION MAP