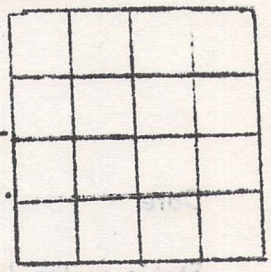
W14548

IOWA GEOLOGICAL SURVEY
In Cooperation with U. S. Geological Survey
RECORD OF WELL

Location:

Town: ELDORA (NE) (SW) County HARDIN (E)

sec. 7 T. 87 N., R. 19 (W) Twp.



Well name and number

Owner ELDORA Town Well #5 Address

Tenant Address

Contractor LAYNE-WESTERN CO. Address AMES, IOWA

Drillers

Drilling dates SPRING 1963

Well data:

Altitudes: Drilling curb feet; Land surface feet 1065 EST

Determined by

Topographic position

Total depth: Reported 292 feet; Measured feet

Drilling method CABLE TOOL

Hole and casing data

Original depth to water ft. above/below Date

Source of data

Sources of water: Principal _____

Others _____

PRODUCTION DATA

Date _____

Static water level 140'

Pumping water level 180'

Yield (g.p.m.) 275 AFTER ACIDIZATION WITH 1000 Gallons HCL

Measuring point _____

Duration of pumping _____

Specific capacity _____

LABORATORY DATA

TL4-923

Well No. WI 14548 Sample range 0-290 No. of samples 58

No. of dupls. and cond. 22 Good Washed range _____

Samples prepared by Johnson Date 6-25-63

Logged by _____ Date _____

Correlations by _____ Date _____

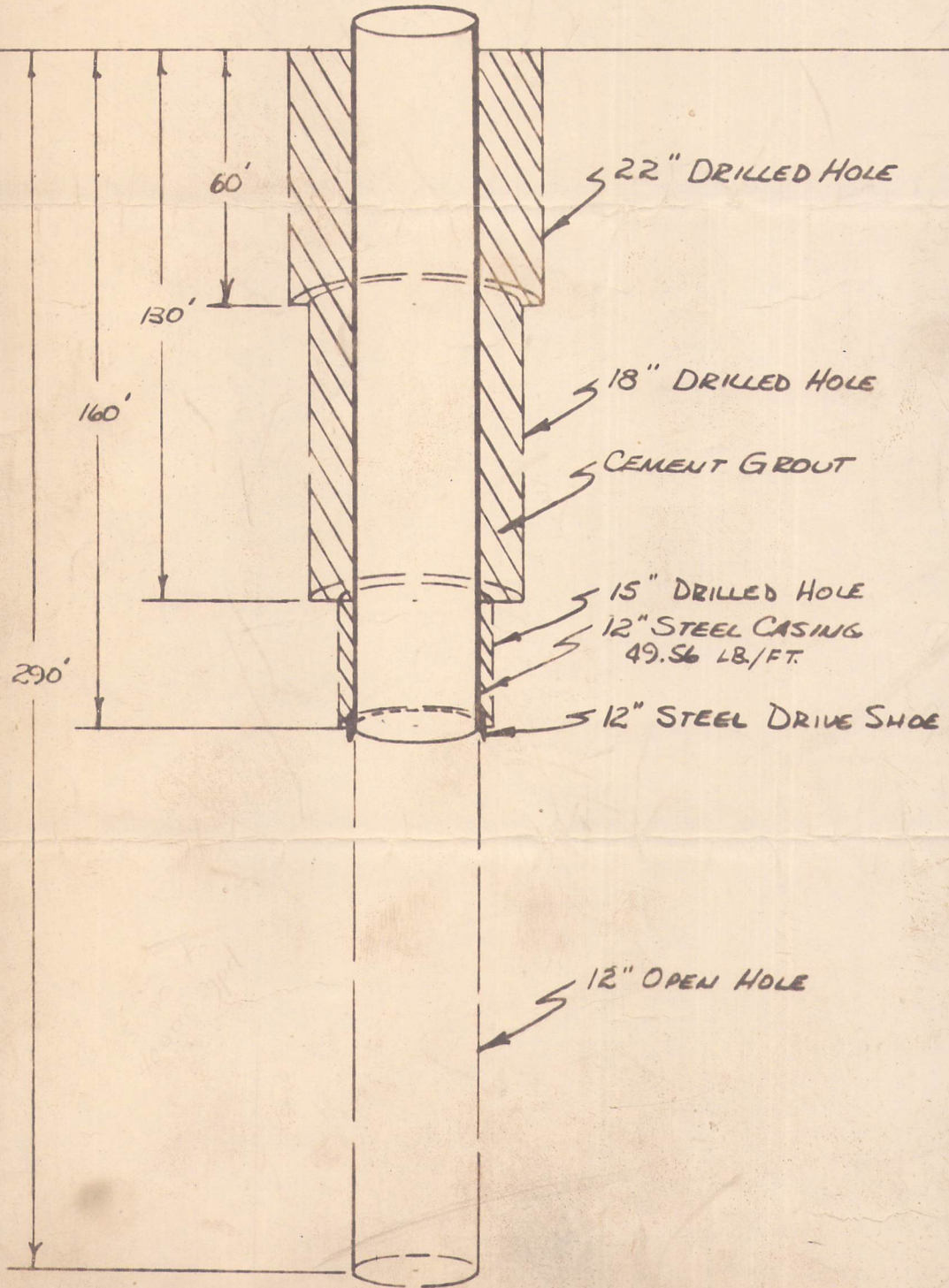
WI-548 -6-27-63 RHJ.
SR - 110-160
N.S - 10 N.D. 10 5000
Gaps - none
Wash - 150-160

SR - 160-290
N.S - 26 N.D 26 Good
GAPS - 7-18-63
WASH - 160-290 Bud

DETAIL OF WELL CONSTRUCTION
FOR
CITY OF ELDORA, IA.
WELL NO. 5

LAYNE-WESTERN COMPANY, AMES, IOWA — AUGUST 1963

CONSTRUCTION



LOG

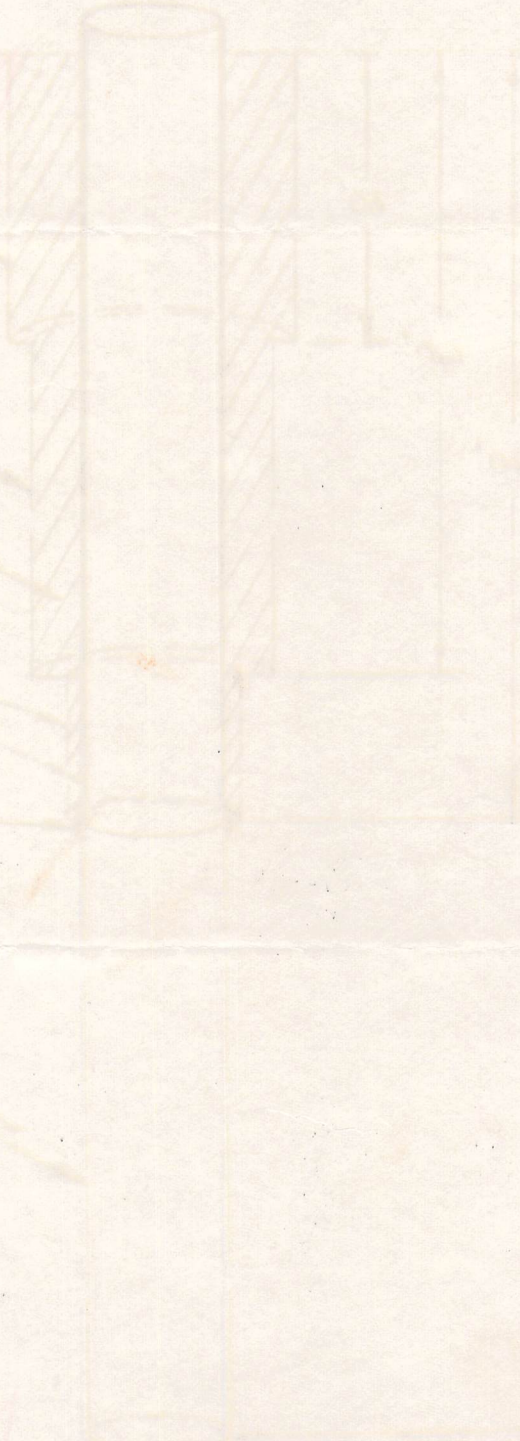
25'	BROWN CLAY
45'	BLUE CLAY
65'	BROWN CLAY SOME SAND
80'	SANDY BLUE CLAY
110'	BLUE CLAY & SHALE
145'	BLACK SHALE
150'	SANDSTONE
245'	LIMESTONE & DOLOMITE
282'	DOLOMITE
290'	SHALE

PUMP SET 200'

STATIC LEVEL 140'	PUMPING RATE 271 GPM	PUMPING LEVEL 174'	DRAWDOWN 34'

S.W.L. 140'

TOTAL DEPTH 287'—



FIDELITY ABSTRACT & TITLE CO.

ABSTRACTS – INSURANCE – REAL ESTATE
1236 EDGE AVE. DIAL 858-2367
ELDORA, IOWA
C. O. RUBOW R. J. RUBOW

T 4 WELL HOUSE S. KIALL CEN.
PUNCH MARK IN LEAD PLUG
5" FROM S.E. COR WEST + IN 1ST
HOR. MOTAR JOINT ELEV 165.45
0.75' ALSD 1063

ELEV AT WEST WINDOW
SILL OF COURT HOUSE
ELEV 1.098.18 FROM CO. ENG

WELL AT AIRSTRIP T.D 185'
DRILLED AUG-60 BY HOEG + AMES
CSG 5" 0 TO 80' SWL 38
105' OPEN HOLE 226PM at 5'DD

GALLONAGE 2 QTR 69 35,527,000
3 " " 42,178,000
4 " " 36,284,000
1 " 70 33,773,000

This info by Leon Steele (USGS) 3/70

FIDELITY ABSTRACT & TITLE CO.

ABSTRACTS – INSURANCE – REAL ESTATE
1236 EDGE AVE. DIAL 858-2367
ELDORA, IOWA
C. O. RUBOW R. J. RUBOW

City BM #5 IN OLD CNW DEPOT
28" ABOVE LS.
CITY ELEV OF 161.82
ABOUT 1 FT DIFFERENCE THAN
IT USED TO BE

CITY BM #7 - TOP OF STONE
WINDOW SILL OF THE
BASEMENT WINDOW AT N W
COR OF COURT HOUSE
ELEV = 200.01'

CURB TOP SE COR FIRE STATION
E. SIDE OF BRICK WALL ELEV 192.89

#3 WELL HOUSE W. OF WASHINGTON
ST ON 16TH AVE CEN. PUNCH IN
LEAD PLUG IN EAST WALL FROM
NE COR 6½'S & 1½' HOR. MTAN
JOINT ELEV 173.98
BM 0.70' ALSD

1071

GW Eldora Gen Data
Hardin Co.

October 31, 1968

Mr. Jurgen Tjaden
City Clerk
Eldora, Iowa

Dear Mr. Tjaden:

Enclosed is a report of the analysis of the material taken from the tail pipe section of the pump from Eldora Well 5.

You will note that iron bacteria was present in light concentration. However, the analyst reports that iron bacteria are extremely difficult to recognize in the dried type of material that was submitted. The recognized presence of even a minor concentration of these bacteria combined with the general appearance of the material indicates that iron bacteria played at least a part in reducing the yield of the well.

On this basis it is suggested that the well be heavily chlorinated and surged lightly with the pump and then be allowed to stand for at least 24 hours. The well should then be pumped to waste until the odor of chlorine disappears. During this pumping it is advisable to create as heavy a surging effect as possible by alternately turning the pump on and off. The purpose of this is to remove the residue that remains from the iron bacteria.

At some later date a sample of the water should be sent to the State Hygenic Laboratory for an iron bacteria analysis.

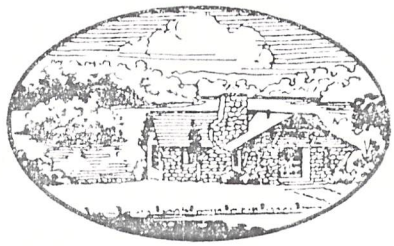
It is believed that this course of treatment will aid in restoring the well to its original yield. If I can be of any other help please let me know.

Very truly yours,

H. G. Hershey

HGH/OVE:njc
Enclosure

GEO. E. JANSSEN, MAYOR
D. W. DICKINSON, ATTORNEY
COUNCILMEN
CALVIN DeVRIES, 1ST WARD
JOHN P. STARR, 2ND WARD
COLIN G. GOULD, AT LARGE



CITY OF ELDORA

Home of Pine Lake State Park

JURGEN TJADEN, CLERK
COUNCILMEN
LEON HERNDON, 3RD WARD
RAYMOND NANCE, 4TH WARD
K. L. ANWAY, AT LARGE

2

ELDORA, IOWA
October 16, 1968

Iowa Geological Survey
State University of Iowa
Iowa City, Iowa
52240

Dear Sirs:

Enclosed find sample bottle containing iron that adhered to the tail pipe section of pump pulled from our No. 5 well. This pump was removed from No. 5 well October 15, 1968, due to the well not providing sufficient gallons per minute.

The well was drilled and put in operation in the Fall of 1963, and at that time we were pumping approximately 260 GPM. In test pumping October 15, the well would produce 150 GPM and pump dry, then recover in one and a half minutes and again pump dry.

On completion of drilling well No. 5 we were test pumping at 300 GPM and our normal pumping rate was 260 GPM.

Mr. Dwayne Garber, of Clapsaddle-Garber Associates, of Conrad, Iowa, asked that we submit the iron sample for your analysis. The sample bottle was rinsed three times with distilled water prior to filling with the iron sample.

The Louis Whitney Pump Company of Cedar Rapids, Iowa, is doing our pump work for us at this time and could be contacted for additional information.

Yours truly,

Jurgen Tjaden

Jurgen Tjaden
City Clerk

JT/rf

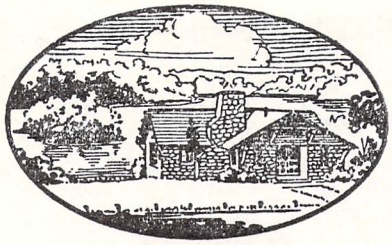
OCT 17 1968

GEO. E. JANSSEN, MAYOR

D. W. DICKINSON, ATTORNEY

COUNCILMEN

CALVIN DEVRIES, 1 ST WARD
JOHN P. STARR, 2ND WARD
COLIN G. GOULD, AT LARGE



JURGEN TJADEN, CLERK

COUNCILMEN

LEON HERNDON, 3RD WARD
RAYMOND NANCE, 4TH WARD
K. L. ANWAY, AT LARGE

CITY OF ELDORA

Home of Pine Lake State Park

ELDORA, IOWA
October 16, 1968

Iowa Geological Survey
State University of Iowa
Iowa City, Iowa
52240

came in 10/18/68 Bud took to Hyg. Lab.

Dear Sirs:

Enclosed find sample bottle containing iron that adhered to the tail pipe section of pump pulled from our No. 5 well. This pump was removed from No. 5 well October 15, 1968, due to the well not providing sufficient gallons per minute.

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Yours truly,

Jurgen Tjaden

Jurgen Tjaden
City Clerk

JT/rf

IOWA GEOLOGICAL SURVEY

OCT 17 1968

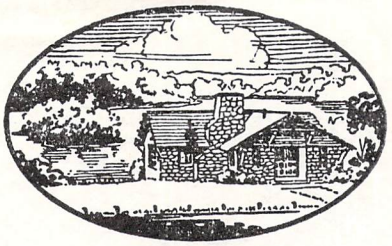
GEO. E. JANSSEN, MAYOR

D. W. DICKINSON, ATTORNEY

COUNCILMEN
CALVIN DeVRIES, 1 ST WARD
JOHN P. STARR, 2ND WARD
COLIN G. GOULD, AT LARGE

IOWA GEOLOGICAL SURVEY

NOV 15 1968



CITY OF ELDORA

Home of Pine Lake State Park

JURGEN TJADEN, CLERK

COUNCILMEN
LEON HERNDON, 3RD WARD
RAYMOND NANCE, 4TH WARD
K. L. ANWAY, AT LARGE

ELDORA, IOWA
November 14, 1968

Iowa Geological Survey
Geological Survey Bldg.
Iowa City, Iowa
52240

Dear Sirs:

In reply to your letter of October 31, 1968, and in reference to our City well No. 5. The pump was removed from well No. 5 and under separate cover are sending your office a sample of iron scrapings for determination of iron bacteria. The column pipe in the well was very clean and this is all the sample I could obtain from the opening of the well casing.

At first it was thought that the well had filled in with shale, but today the pump was pulled and the imaginary shale was not present in the bottom of the well. Consequently the well will be acidized by the Pump Repair Company and try to restore the well to its original pumping capacity of 260 GPM.

Yours truly,

Jurgen Tjaden
City Clerk

JT/rf

IOWA GEOLOGICAL SURVEY
JUL 19 1963

CLAPSADDLE ENGINEERING COMPANY

CONSULTING ENGINEERS PHONE FOrest 6-2620 CONRAD, IOWA

July 17, 1963

Dr. H. Garland Hershey, Director
Iowa Geological Survey
Geology Annex
Iowa City, Iowa

Re: New Municipal Well
Eldora, Iowa

Dear Dr. Hershey:

I wish to report that the construction of the new well in Eldora has been completed. The well terminates about 8 feet into the Maple Mill shale at a total depth of 292 feet. The drill hole is 12" in diameter to the bottom of the well.

An initial pumping test indicated a capacity of only about 85 GPM with a pumping level 246 feet below the ground surface. Static water level was 140 feet; draw-down was 106 feet.

The well was then acidized with 1000 gallons of acid by the surge method. The static water level was not affected. A 5.5 hour test pumping then indicated a capacity of 275 GPM with a 40 foot draw-down and a pumping level of 180 feet. It appears that acidizing has increased the capacity of this well in the neighborhood of 325% as well as reducing the lift considerably.

Drill cutting samples from this well have been delivered to your office. When your analysis is completed, I would appreciate receiving a geological log of this well.

I thank you for the fine assistance your office has given us in connection with this project.

Yours very truly,

CLAPSADDLE ENGINEERING COMPANY

Jack L. Clapsaddle

Jack L. Clapsaddle, P. E.

JLC/dab

JACK L. CLAPSADDLE
PROFESSIONAL ENGINEER

STANLEY E. SCHOLL
PROFESSIONAL ENGINEER

FORM NO. 79—In stock and for sale by Ross-Martin Co., Tulsa. W-14548

STATE IOWA

SE NE NE SE

SEC. 7

TWP. 87N RGE. 19W

ELDORA (HARDIN)

ELDORA CITY WELL #5 (1963)

COMMENCED JUNE COMPLETED 1963

LAYNE-WESTERN CO.

CASING RECORD 12" Hole

LOGGED July 19, 1963 BY NORTHUP

REMARKS Originally SWL 140' 400' TAIL @ 25 GPM

EL 1091.07

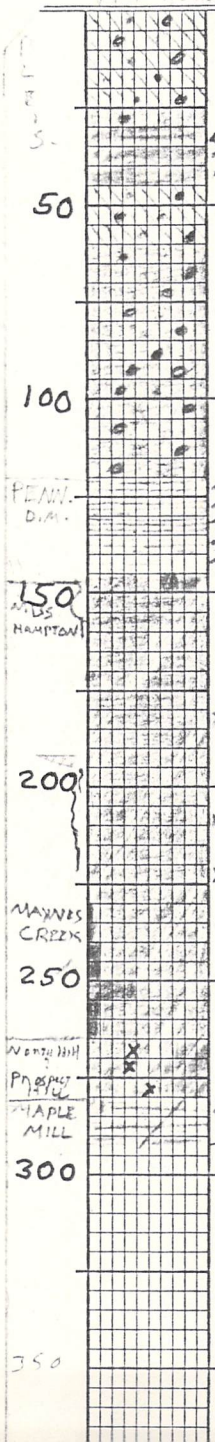
TD 292'

SWL 140'

PL = 180' @ 275 GPM.

AFTER ACIDIZING WITH 1000 GALLONS HCL

DF Tank See below



Till Yellow, OXIDIZED, UNLEACHED

Till Gn., UNOXIDIZED, UNLEACHED

Silt Gn., MICA. - Wood Material

Silt aa

Till Yellow, OXIDIZED, UNLEACHED

Till Gn., UNOXIDIZED, UNLEACHED

Sh. Yellow + LT. Gn., Non Calc., CHUNKY

Sh. DK. Gn., Non Calc., CHUNKY

Sh. LT. To M. Gn.

Sh. LT. Gn., CHUNKY

Dol. LT. To DK. Brn. M.T.f.; SS. LT Gn. M.f. - A-a

D of LT. Brn. f., POROUS

Dol. LT. To DK. Brn. M. To f.

Dol. DK. Brn. M. T. f.

Dol. LT. To DK. Brn. M. T. f. - Few Pieces LT. Gn. f.

Dol. LT. To DK. Brn. Chsy. To f., Calc. - Few Pieces LT. Gn. f.

Dol. LT. To DK. Brn. M. To f.

Dol. LT. To DK. Brn. f., Calc.

Dol. aa - Bolamitized GASTROPOD

Dol. LT. To DK. Brn. f. Calc. - Few Pieces LT. Gn. f.

Dol. LT Brn. f., Calc., Sli. POROUS

Dol. LT. To Dk. Brn. f., Calc., Sli. POROUS

Dol. aa + Chty. f.

Dol. LT. To DK. Brn. f., Calc. - Few Pieces LT Gn. f.

Dol. DK. Brn. f., Calc.

Cht. Wh., ROUGH; Dol. LT. To DK. Brn. f.; Calc.

Cht. Wh. + LG. ROUGH; Dol. aa

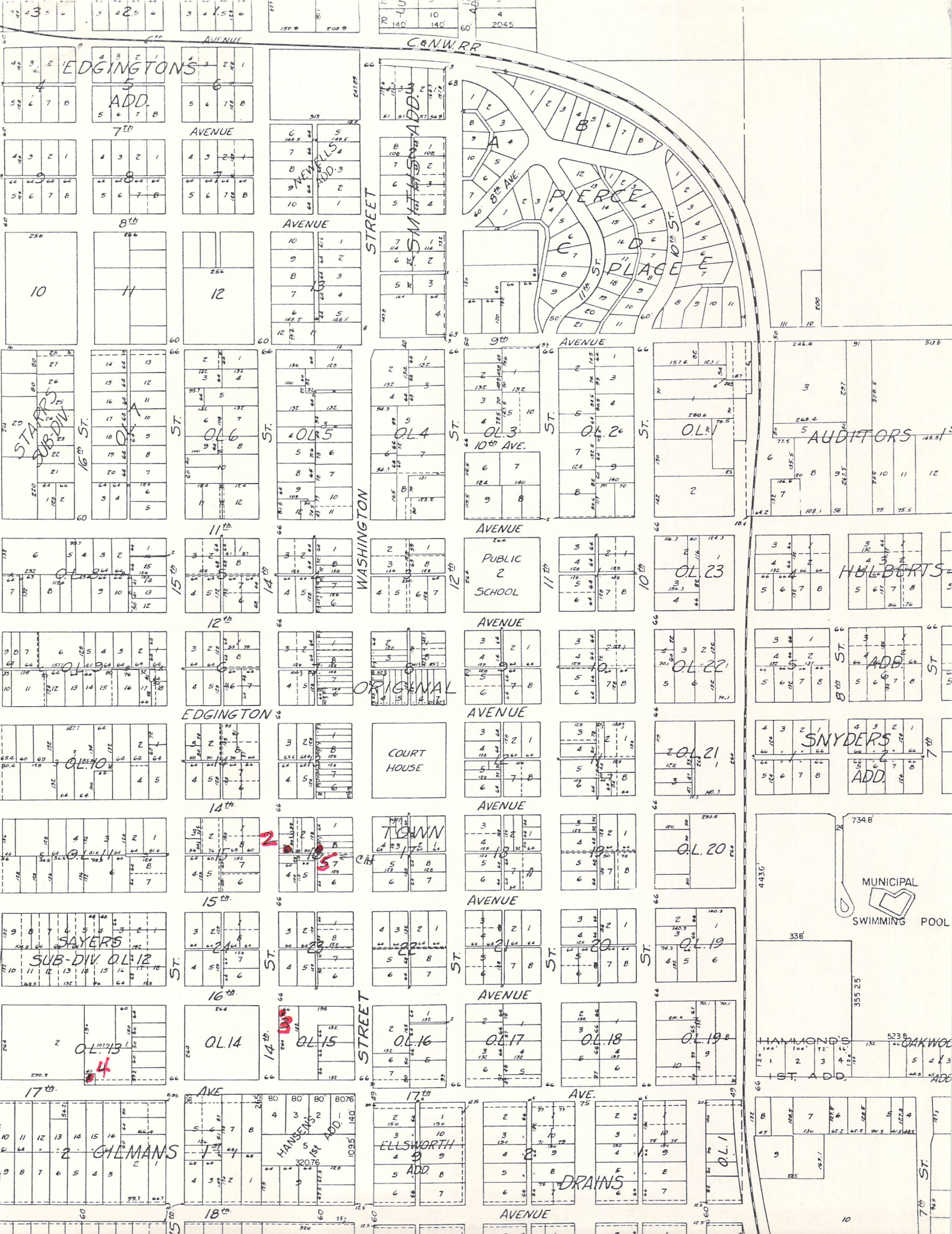
Cht. Wh. GRAYISH WH., ROUGH; Dol. DK. Brn. f. SAC., CALC.

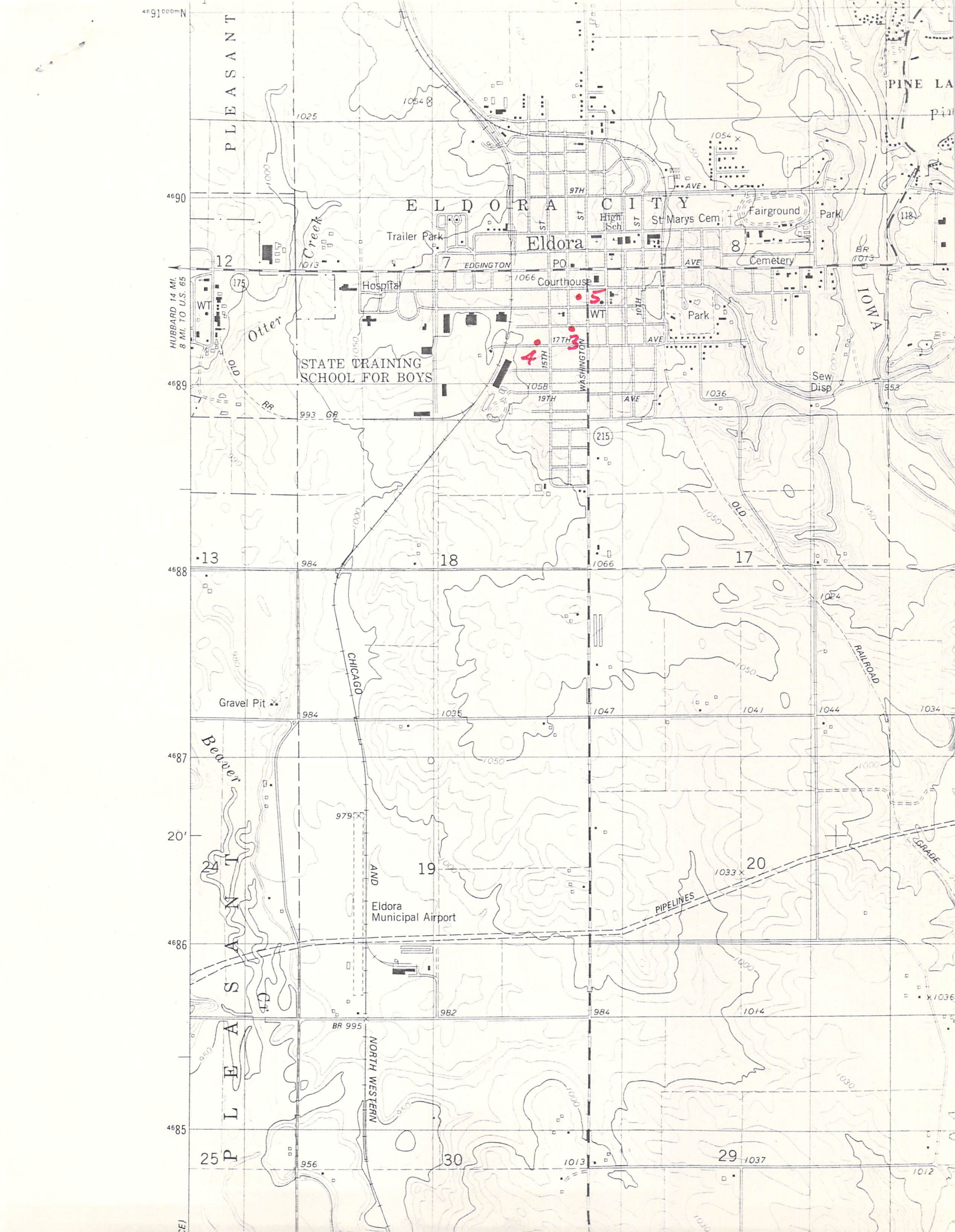
Dol. Brn. Chsy. f. - PARTLY FRAG.; Sls. Gn. Chsy., Dolo.

Dol. Brn. f. Calc.; SH. GRAYISH GRN., Dolo.

SH. GRAYISH GRN., Dolo.

TD 292'


C.&N.W.R.R.
EDGINGTONS ADD.
NEWELLS ADD. 3
SMITHS ADD.
PIERCE PLACE
STAIRS SUB-DIV.
OLA
O.L. 6
O.L. 5
O.L. 4
O.L. 3
O.L. 2
O.L. 1
AUDITORS
PUBLIC SCHOOL
O.L. 23
HULBERTS
O.L. 22
ADD
ORIGINAL EDGINGTON
COURT HOUSE
O.L. 21
SNYDERS ADD.
TOWN
O.L. 20
MUNICIPAL SWIMMING POOL
SAYERS SUB-DIV. O.L. 12
O.L. 19
O.L. 13
O.L. 14
O.L. 15
O.L. 16
O.L. 17
O.L. 18
O.L. 19 B
HAMMOND'S 1ST ADD.
OAKWOOD ADD
HANSEN'S 1ST ADD.
ELLSWORTH ADD.
DRAINS
O.L. 1
6th AVENUE
7th AVENUE
8th AVENUE
9th AVENUE
10th AVE.
11th AVENUE
12th AVENUE
14th AVENUE
15th AVENUE
16th AVENUE
17th AVE.
18th AVENUE
WASHINGTON STREET
11th ST.
8th AVE.
10th ST.
16th ST.
11th ST.
15th ST.
14th ST.
12th ST.
11th ST.
10th ST.
8th ST.
7th ST.
16th ST.
17th ST.
7th ST.
734.8'
443.6'
338'
355.25'
523.8'


4691 000mN
PLEASANT
ELDORA CITY
Eldora
Trailer Park
Hospital
Courthouse
PO
High Sch
St Marys Cem
Fairground
Park
Cemetery
Sew Disp
WT
Otter Creek
STATE TRAINING SCHOOL FOR BOYS
HUBBARD 14 MI. 8 MI. TO U.S. 65
IOWA
OLD
RR
993 GR
9TH ST
EDGINGTON AVE
17TH AVE
15TH
WASHINGTON
19TH AVE
10TH
BR 1013
BR 995
CHICAGO
NORTH WESTERN
RAILROAD
PIPELINES
GRADE
Gravel Pit
Beaver
Eldora Municipal Airport
AND
PLEASANT
12
13
18
17
19
20
20'
25
30
29
4690
4689
4688
4687
4686
4685
1025
1054
1013
1066
1058
1036
953
984
1035
1047
1041
1044
1034
1024
979
982
1033
1014
1037
1012
956
1030
1000
950
1050
215
175
118

Hardin

1

April 23, 1956

Mr. S. R. Ames
Hoeg & Ames, Inc.
Lincoln, Iowa

Dear Mr. Ames:

Following your letter of April 18 concerning information on the municipal wells at Eldora, Iowa we have summarized the pertinent data including water analyses in the files of the State-Federal Geological Survey investigations.

Apparently some mix-up exists on the numbering of the wells, but we have thought it best to copy the information as it occurs in our files. Probably the town officials can correct this for you. We do not have any data on a No. 2 city well that we know about.

A copy of the Eldora Co-op Creamery well log is included here to give you an idea of the stratigraphic section in this locality.

We trust this is the information you wished.

Very truly yours,

H. G. Hershey
by E. H. Walker

HGH:PJH:L
Enclosures
cc: Mr. Jurgen Tjaden
City Clerk
Eldora, Iowa

Name: Eldora City Well No. 3
Location: Center east line NW¼ SW¼ sec. 7, T. 87 N., R. 19 W.
Curb elevation: 1,079 feet
Depth: 1,649 feet
Driller: Thorpe Well Company
Date drilled: 1923
Casing: 132 feet of 16-inch; 432 feet of 12-inch; 284 feet of 10-inch; 525 feet of 8-inch; 606 feet of 6-inch. Lead seal packer at 395 feet sealing 12-inch and 10-inch pipe.
Production data: None
Driller's log:

0-5 feet	soil
5-40	clay
40-100	sand and gravel
100-135	shale
135-395	sand (probably Mississippian limestone)
395-425	shale
425-605	lime
605-645	shale
645- 996	lime
996-1065	shale
1065-1565	lime
1565-1602	shale blue
1602-1649	sand "St. Peter"

Name: Eldora City Well No. 3
Location: On 16th St. west of Washington St.
SE¼ NE¼ SE¼ sec. 7, T. 87 N., R. 19 W.
Curb elevation: 1,066 feet
Depth: 261 feet
Driller: Chas. Nolan, Cedar Rapids
Date drilled: 1934
Casing: No information
Production: Static water level 125 feet
Pumping water level 160 feet
Yield 150 gallons a minute

No geologic log available

Name: Eldora City Well No. 4
Location: 17th Avenue West of 15th St.
SW¼ NE¼ SE¼ sec. 7, T. 87 N., R. 19 W.
Curb elevation: 1,062 feet
Depth: 315 feet
Driller: Chas. Nolan
Date drilled: February 1936
Casing: 12-inch from surface to 137 feet; 9-inch from 160 to 200 feet; 7 5/8-inch perforated from 261 to 315 feet; open hole between 137 and 160 feet and 200 to 261 feet.
Production: Static water level 110 feet
Pumping water level 115 feet
Yield 230 gallons a minute in 4 hours (12/23/36)
Yield 300 gallons a minute in 50 min. (5/10/55)

No geologic log available

IOWA GEOLOGICAL SURVEY
TABULATION OF WATER ANALYSIS
(Dissolved constituents in parts per million)

Town - Well No. Owner	Date of coll.	Depth (ft.)	Geol. source	°F	Diss. solids	Fe	Mn	Ca	Mg	K	Na	CO_3	HCO_3	SO_4	Cl	F	NO_3	Hardness cal. as $CaCO_3$ tot.	carb.	non carb.	pH	Micro-mhos at 25C Cond
Eldora City Well	1910 or 1911	200	Miss.		259+	1		55	24	3	14		300	0	2			236	236	0		
* "	12/23/36	261	Miss	49	285	0.8	.03	78	25	2.	1		346	1.5	4.0	Tr.	1.1	298	284	14	7.1	
"	6/26/34	284	Miss.		271	0.6	Tr.	60	25	16			349	1.1	2.0	Tr.	Tr.	253	253	0.0	7.4	
"	12/23/36	315	Miss.	49	287	1.0	0.5	74	24	0.	3		347	2.9	3.0	Tr.	0.9	284	284	0.0	7.2	
" No. 3	5/10/55	310	Miss.		307	1.0	0	66	26	2.8	10		337	2.7	2.0	0.4	0	272	272	0	7.5	512
" No. 4	5/10/55	315	Miss.		308	1.1	0	69	25	2.6	9.6		339	10	3.0	.45	4.4	275	275	0	7.5	529

NOTES:
Tr. = Trace
*Reported to have strong hydrogen sulfide odor

APR 18 1956

5

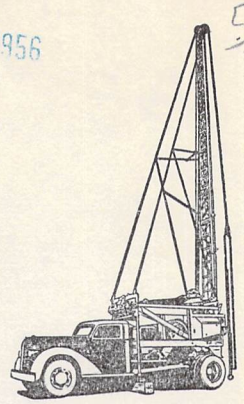
National water well Association
MEMBER

HOEG & AMES, Inc.

WELL CONTRACTORS WELL SUPPLIES

☆ ★ ☆

LINCOLN, IOWA
April 18, 1956



Iowa Geological Survey

Iowa City, Iowa

Gentlemen,

We are planning to drill the No. 2 well deeper for the City of Eldora, Iowa. The information they have on their wells are very limited. If you have any information on any of their wells, we will appreciate having this information.

They would like to have a copy for their files. Please send their copy to Jurgen Tjaden, City Clerk.

I wish to thank you for this information.

Yours very truly,

S. R. Ames
By H. S.

S. R. Ames

SRA:HCS
cc: Mr. Jurgen Tjaden
Eldora, Iowa

GROUND-WATER CONDITIONS AT ELDORA, IOWA

The following statements represent an interpretation of the available hydrologic data in the files of the cooperative investigations of the Iowa and Federal Geological Surveys.

The city of Eldora (1960 pop 3225) is located in a hilly area representing morainic topography at the edge of the Wisconsin drift sheet in eastern Hardin County, Iowa. Most of the city lies near the junction of Highways 57 and 215 in sec.'s 7 and 8, T. 87N., R. 19W., (Eldora township). Based on an estimated surface elevation of 1100 feet above sea level at the drilling site, the following is a generalized log of the strata anticipated to underlie this vicinity down through the St. Lawrence Dolomite:

Formation	Thickness(ft.)	Depth Range(ft.)
Quaternary System		
Pleistocene Series (glacial drift, may contain considerable sand and gravel)	125-150±	0-140±
Pennsylvanian System		
Des Moines Series (shale and sandstone)	80±	140±-220±
Mississippian System		
Hampton Formation (dolomite, some chert)	85±	220±-305±
Prospect Hill Formation (siltstone and dolomite)	10	305±-315
Maple Mill Shale	15	315-330
Devonian System		
Aplington Dolomite	35	330-365
Sheffield Shale	75	365-440
Lime Creek Formation (upper half mostly limestone, lower part mostly shale)	165	440-605
Cedar Valley Formation (limestone at top, underlain by dolomite with some gypsum and chert)	275	605-880
Wapsipinicon Formation (chert, gypsum, silty dolomite)	40	880-920
Silurian System		
Niagaran Series (dolomite with considerable chert)	105	920-1025
Ordovician System		
Maquoketa Formation (upper part mostly shale, some dolomite with chert; lower part mostly limestone with considerable chert)	295	1025-1320

Formation	Thickness(ft.)	Depth Range(ft.)
Galena Formation (mostly limestone, some chert in lower half)	225	1320-1545
Decorah-Platteville Formations (mostly limestone, some shale)	75	1545-1620
St. Peter Sandstone	45	1620-1665
Prairie du Chien Formation (upper part sandy dolomite and sandstone; more sandstone in middle; dolomite, slightly cherty in lower part)	435	1665-2100
Cambrian System		
Jordan Sandstone, some dolomite	80	2100-2180
St. Lawrence Formation (dolomite, silty, glauconite in lower part)	120+	2180-2300+

Some adjustments may be necessary on all these depths owing to local variations in the structure and thickness of the beds. A higher or lower starting elevation will also modify these estimates according to the difference between the assumed and actual elevation at the drilling site.

Currently Eldora obtains its water supply from 3 or 4 drilled wells at depths of approximately 263 to 315 feet. The wells were put down in the period between 1930 and 1943. One well formerly belonged to the Farmer's Co-op Creamery. The principal aquifer appears to be the Hampton Formation of Mississippian age. Several years ago these wells were reported to be capable of producing between 100 and 300 gpm each. Mineral analyses indicate the water to be acceptable for drinking and all other domestic uses although containing excess iron.

The chief sources for large capacity wells yielding potable water in this part of Iowa seem to be the dolomites of Mississippian age such as utilized in the present city wells, and the deep-lying Jordan Sandstone and associated dolomite strata. Several other water zones probably will occur at shallow or intermediate depths, but the production will either be too small or the water objectionably mineralized.

On the basis of the results obtained in the city wells, the chances are fairly good that as much as 350 gpm might be obtained from a new well at Eldora penetrating as far as the top of the Maple Mill Shale. City well No. 4 (1936), 315 feet deep, reportedly had an original static water level of 110 feet and produced 230 gpm with only 5 feet of drawdown during a 4-hour test. The water had a strong odor of hydrogen sulfide, but this did not seem to hinder its use for a municipal supply. In 1955 during a 50-minute pumping test the well produced 300 gpm.

The yield from dolomite rocks is related to the presence of large crevices or solution openings through which the water moves into the pumped well. Where the well fails to intersect a large crevice the production may be disappointingly low. Acidizing and developing the water zones in the well probably will increase the original output from the Mississippian rocks. It would be advisable tollocate the new well as far as possible from the existing wells to reduce the interference effects. Iftthe wells are close together their drawdown cones will overlap resulting in a lower static head and declining yields.

Perhaps the most promising source for large quantities of water acceptable for municipal use is the Jordan Sandstone-St. Lawrence Dolomite aquifer at a depth range of about 2100 to 2300 feet. Highly successful wells have been completed in this aquifer at Iowa Falls, Ackley, and Wellsburg. These wells are capable of producing at least 600 to 1000 gpm with a specific capacity varying between 4 and 10 gallons per foot of drawdown. The non-pumping water level of the Jordan aquifer at Eldora is estimated to lie about 190 to 230 feet below the surface depending on the starting elevation. For a well of this type it is recommended that casing be set from the surface into the upper part of the Prairie du Chien Dolomite and cemented in place with neat cement for its full length. This will assure a complete shut out of the overlying water zones and protect the casing from corrosion. The quality of the water from the Jordan aquifer is shown on a separate sheet appended to this report. Except for the Ralston-Purina well at Iowa Falls the water compares favorably with the water from the Mississippian aquifer at Eldora. The higher sulfate content and greater hardness recorded at Iowa Falls may be due to leakage from the Devonian and Galena-Platteville interval since no data were supplied to indicate the casing was grouted in the well there.

In summary, two possibilities for bringing in adequte supplies of ground water at Eldora are the Mississippian rocks between 220 and 315 feet and the Jordan Sandstone - St. Lawrence Dolomite sequence between 2100 and 2300 feet. The yield from the Mississippian depends on the presence of crevices and joints in the dolomite. Since these openings are impossible to predict, actual drilling and test pumping will provide the most reliable information. A well to the Jordan will be more costly, but probably will be a more dependable source for large supplies.

PJH 2-63

IOWA GEOLOGICAL SURVEY
FEB 19 1963

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CLAPSADDLE ENGINEERING COMPANY

CONSULTING ENGINEERS PHONE FOREST 6-2620 CONRAD, IOWA

February 18, 1963

Dr. H. Garland Hershey, Director
Iowa Geological Survey
Geology Annex
Iowa City, Iowa

Dear Mr. Hershey:

The Eldora, Iowa, City Council has engaged us to handle the engineering for a new municipal water well in Eldora.

The new well will be located in the center of town adjacent to the existing City Water Works. The City hopes to develop a well with a production capacity of 350 to 400 GPM.

Will you kindly give us a forecast for this area and your suggestions as to the aquifer we should tap.

Yours very truly,

CLAPSADDLE ENGINEERING COMPANY

Jack L. Clapsaddle

Jack L. Clapsaddle, P. E.

JLC/dac

JACK L. CLAPSADDLE
PROFESSIONAL ENGINEER

STANLEY E. SCHOLL
PROFESSIONAL ENGINEER

14548

ELDORA-15

J. TJADEN
CITY CLERK

Name Eldora Town No. 5

Loc. SE NE NE SE sec. 7, T. 87N., R. 19W., Hardin County

Elev. SAME AS CITY FIRE STATION 1091.07

Sp. cap. = .8 / 106 / 85.0 / 848

T.D. 292'

Drilled June 1963

Log W-14548

Casing 22" HOLE 0 TO 60' 18" HOLE 60' TO 130' GROUTED AROUND
12" CSG 0 TO 160' 12" OPEN HOLE 160' TO 290'

Prod. data

SWL 140 Well was then acidized SWL 140'

PWL 246 with 1000 gals Hcl: Results PWL 180'

Yield 85 gpm Yield 275 gpm

3-5-76 SWL - 52 - AIRLINE READING (148) Now Pumping 200 GPM

Aquifer: Hampton and Prospect Hill Pump SET AT 200' - 3' DD AFTER 1 HR PUMPING

Analysis: Yes 250,000 TO 390,000 GPD

Need: Loc., elev., casing, pumpage. Also need info from 3 or 4 other town wells

#2 – No Pump T.D. 273 – CAPPED
240' of 12" csg. 90 GPM
Drilled by Charley Nolan in 1930
Elev – 2' below S 1089

#3 – T.D. 261' Measured May '69
120' SWL – 80' DD @ 160 GPM
Drilled 3×4 in 1935 by Nolan
Being Pumped at 210 GPM
Used as STANDBY
125' SWL – 150 GPM with 35' DD – May-69
8-5-70 Airline 86 Pump set at 210
86
124

#4 – T.D. 167 Oct 69
Loc. S1/4/C SW NE SE Sec 7 – 87N.-19W.
SWL 114' Pumping 215 GPM
with 3' in 5' DD
SWL – Airline Read 14
3-5-70 Pump set 130' SWL 116
Pumping 145 mm GPD – 210 GPM with 3' DD

OLD 1923 Well covered with Wood Plug
T.D 1649 Elev 1079
in City Hall

OLD No 1 under Siren Tower in City Hall
T.D 282 Pump pulled out in 1959
Well caped
Gallonage Report to I.N. Natural Resources

Name Eldora city well No. 5 (1963)
Loc. 7-87N-19W
T.D. 292'
Drilled Layne-Western Co. June 1963
Log W# 14548 (Northrup)
Casing 12" hole top to bottom

Prod. data

SWL	140'	Well was	SWL	140'
PWL	246'	acidized with	PWL	180'
Yield	85 gpm	1000 gals HCl	Yield	275 gpm for 5½ hours

Acidizing apparently very successful

Elevation

Formation	Depth	Top	Base
Hampton	145		
Maynes Creek	?		
North Hill and/or Prospect Hill	265		
Maple Mill	280		

IOWA GEOLOGICAL SURVEY
TABULATION OF WATER ANALYSIS
(Dissolved constituents in parts per million)

Town - Well No Owner	Date of coll.	Depth (ft.)	Geol. source	Temp.	Diss. solids	Fe	Mn	Ca	Mg	K	Na	CO_3	HCO_3	SO_4	Cl	F	NO_3	Hardness cal. as $CaCO_3$ tot	Hardness cal. as $CaCO_3$ carb	Hardness cal. as $CaCO_3$ non-carb	pH	Cond
Eldora city	7/20/[illegible]	310	Miss	52	247	1.5	<.05	69	24	2.5	11	0	354	12	<.5	0.4	.89	272	272	0	7.6	520
Eldora City No. 4 (1936)	"	315	"	"	298	1.1	<.05	60	25	2.8	12	0	344	12	2	0.4	.89	253	253	0	7.6	510
Eldora City No. 2 (1934)	7/14/60	273	"	"	283	1.6	<.05	54	26	2.8	13	0	333	5.8	2	.35	<0.1	242	242	0	7.6	500
Ackley city No. 6 (1957)	3/13/57	1919	Jordan		577	.32	<.05	80	34	23	71	0	378	193	15	1.2	<.44	340	310	30	7.6	750
Iowa Falls Ralston-Purina Co. No. 3	3/8/43	1879	"		1096	1.6	0	192	70	119			371	481	144	2.0	0	768	304	464	7.2	-
Wellsburg town No. 3 (1959)	1/15/60	2050	"	56	605	.36	<.05	83	34	22	72	2.4	378	168	11	1.1	.44	347	314	33	8.1	920

NOTES:

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