



WELL INFORMATION

Layne-Western Company, Inc.

| | |
|--|---|
| 1. CONTRACT <u>Gowrie Municipal Utilities</u> | 5. Driller <u>P. Harris, M. Woods</u> |
| 2. City, State <u>Gowrie, Iowa</u> | 6. DATE <u>10/25/91</u> |
| 3. Well No. <u>4</u> at Test Hole No. <u>--</u> | 7. Date Started <u>7/7/91</u> Completed <u>9/26/91</u> |
| 4. Well Location (attach map) <u>86N-30W sec 1 Dec</u> <u>City Park (west of Beek Street)</u> <u>N. of Elect Plant, S of swimming pool</u> | 8. Drill Crew Man Hrs. <u>--</u> |
| | 9. Working Days Drilling <u>--</u> Other <u>--</u> |

| 10. MATERIAL IN WELL | | | WALL THICKNESS IN. | MATERIAL | TYPE | NO. |
|----------------------|----------------|------------|--------------------|--------------|-------------------|------------|
| LENGTH FT. | IN. | DIA. IN. | | | | |
| Screen | <u>n/a</u> | <u>n/a</u> | <u>n/a</u> | <u>n/a</u> | <u>n/a</u> | <u>n/a</u> |
| | | | | | Shutter Wirewound | Openings |
| Inner Casing | <u>476.4'</u> | <u>14"</u> | <u>.375"</u> | <u>Steel</u> | <u>Welded</u> | <u>---</u> |
| | <u>1260.6'</u> | <u>12"</u> | <u>.375"</u> | <u>Steel</u> | <u>Welded</u> | |
| | | | | | XXXXX | |
| Outer Casing | <u>313' 0"</u> | <u>20"</u> | <u>.375"</u> | <u>Steel</u> | <u>Welded</u> | |
| | | | | | <u>Welded</u> | |
| | | | | | XXXXX | |

11. GRAVEL
 Size n/a
 Tons n/a

12. CASING SEALED:
 Puddled Clay (Yes) (No)
 With 20"-53 sacks Bentonite Added
 or 14" & 12" - 1455.5 sacks
 With 1508.5 Bags of Yes. Cement
 Seal Material Placed in Well by Halliburton
 Bottom of Well Screen n/a
 Sealed With _____

13. DIMENSIONS
 A. Total Depth 1862'
 (From Top of Inner Casing to Bottom of Well)
 B. Height of Inner Casing 8'
 (~~Above~~ Ground Level)
 Below
 C. Distance to Top of Gravel n/a
 (From Ground Level) Upper - 24"
Intermediate - 17 1/2"
Lower - 11 1/2"
 D. Diameter of Drill Hole _____
 E. Rig No. D-4
 Comments _____

LW-39B

300' NW of Well #3
 elev ~ 1138
 Scott Ralston Engineer
 1278-2913
 Steve Dalay (KC) - 913 3215000

GOWRIE MUNICIPAL UTILITIES
 GOWRIE, IOWA
 CONSTRUCTION OF WELL NO. 4
 DRILLER'S LOG

| INTERVAL | | DESCRIPTION |
|----------|------|--|
| 0 | 5 | Topsoil |
| 5 | 120 | Gray till clay |
| 120 | 150 | Boulders, sand & gravel |
| 150 | 240 | Gray shale & clay w/traces shale |
| 240 | 250 | Sand & gravel brown dolomite |
| 250 | 265 | Gray clay w/traces of coal chert |
| 265 | 308 | Green, gray & pink shale & clay |
| 308 | 345 | White, brown & gray limestone |
| 345 | 360 | Gray-brown limestone & green shale |
| 360 | 425 | Dark to light gray limestone |
| 425 | 455 | Light gray limestone & chert |
| 455 | 460 | Light gray limestone, gypsum |
| 460 | 470 | Gray shale, hard |
| 470 | 705 | Light gray & brown limestone, dolomite, gypsum |
| 705 | 755 | Dark gray limestone |
| 755 | 980 | Brown gray dolomite, chert, w/shale traces |
| 980 | 990 | Shale & gray limestone |
| 990 | 995 | Gray limestone w/traces sandstone |
| 995 | 1150 | Brown gray dolomite w/traces chert & shale |
| 1150 | 1255 | Gray dolomite, chert & shale |

INTERVAL

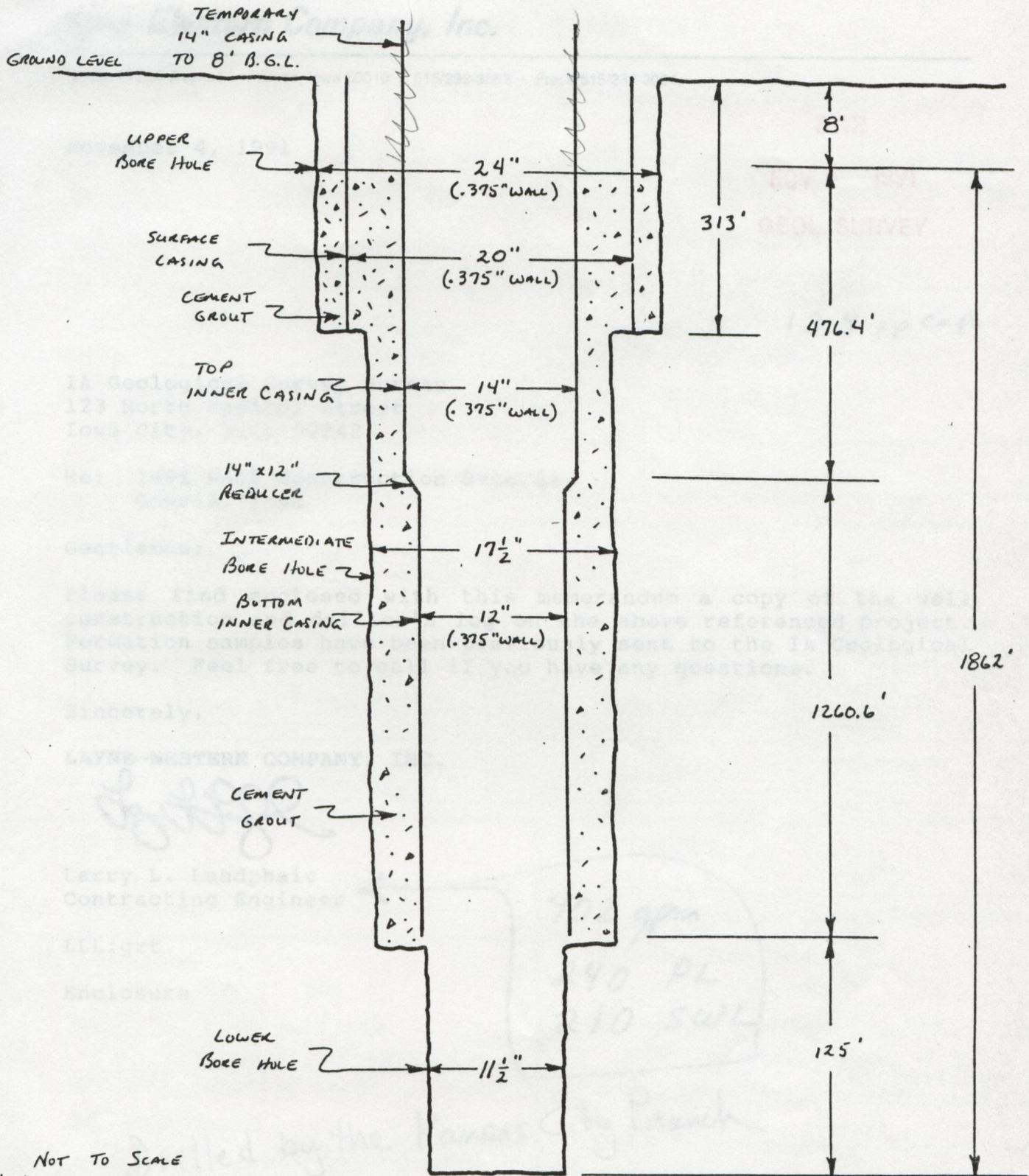
DESCRIPTION

| INTERVAL | DESCRIPTION |
|-----------|---|
| 1255 1425 | Gray & brown dolomite |
| 1425 1450 | Gray dolomite w/traces chert & shale |
| 1450 1475 | Gray sandy dolomite & chert |
| 1475 1585 | Gray dolomite, chert, calcite & trace shale |
| 1585 1610 | Gray brown dolomite w/traces shale |
| 1610 1640 | Gray shale & brown dolomite |
| 1640 1665 | Brown gray dolomite w/traces chert |
| 1665 1675 | Green gray shale w/trace dolomite |
| 1675 1685 | Sandstone, shale, dolomite |
| 1685 1735 | Sandstone |
| 1735 1760 | Gray limestone & dolomite |
| 1760 1870 | Gray dolomite & sandstone |
| 1870 | Total depth |

Layne-Western Company, Inc.

607 26th STREET, P.O. BOX 128

KANSAS CITY, KANSAS



NOT TO SCALE

9/26/91

GOWRIE MUNICIPAL UTILITIES
 GOWRIE, IOWA
 CONSTRUCTION OF WELL NO. 4

Layne-Western Company, Inc.

620 S. 38th STREET, P.O. Bx 6126

KANSAS CITY, KANSAS