McCLELLAND CONSULTING ENGINEERS, INC.
DESIGNED TO SERVE

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August 19, 2025

Arkansas Department of Corrections
1302 Pike Avenue, Suite C
Little Rock, Arkansas 72114

ATTN: Mr. Beecher Brodnax
Construction Division Manager

RE: Statement of Findings
Water Well Assessment &
Test Well Installation Oversight
6310 AR Highway 215
Charleston, Arkansas
MCE Project Number: 25-5752

Dear Mr. Brodnax:

We are submitting herewith this Statement of Findings relevant to the assessment of the existing water well and the oversight & reporting of the onsite test well(s) construction of the subject property located at 6310 AR Highway 215 in Charleston, Arkansas.

Specifically, this Statement of Findings includes information obtained through observations and discussion relevant to the existing domestic water well located near the residential structure as well as information obtained through observation, discussion and shared documentation of the two (2) test wells conducted on the property.

1.0 Location Information

All three (3) of the wells discussed in this Statement of Findings are located at the subject property of 6310 AR Highway 215 in Charleston, Arkansas. All three (3) wells are located within Section 1, Township 8 North, Range 29 West, Fifth Principal Meridian in Franklin County Arkansas. The locations of the wells may also be referenced by Figure 1 on the following page as well as the following latitude and longitude coordinates:

- Existing Water Well – 35.404297°N, -94.027627°W
- New Water Well #1 – 35.404789°N, -94.030445°W
- New Water Well #2 – 35.405163°N, -94.026814°W

Figure 1: Google Earth Aerial Imagery (2024) showing the location of the existing water well and the recently conducted test wells on the subject property.

2.0 Assessment Overview

This assessment consisted of the assessment of the existing water well located on the subject property (Figure 1) as well as the observation and reporting on the installation of two (2) test wells located on the subject property (Figure 1).

2.1 Personnel Involved

Gilbert's Hard Rock Drilling (Gilbert's) of Mena, Arkansas was retained to assess the existing well and install two (2) test wells. Gilbert's is a licenses Water Well Contractor in the State of Arkansas (Contractor No. 001098). The wells were installed by Mr. Ryan Gilbert, a licensed Water Well Driller in the State of Arkansas (Driller No. D002540). McClelland Consulting Engineers, Inc. (MCE) personnel were onsite during the assessment of the existing well and during the installation of the first test well for the purpose of collecting data and observing the operations.

3.0 Assessment of the Existing Water Well

Gilbert's arrived on-site on July 23, 2025 to assess the existing water well. The digital elevation model provided by Google Earth would suggest that this well has a surface elevation of approximately 636 feet above mean sea level. The existing well was observed to have a pump remaining, in-place. The existing pump system was evaluated on-site and determined to be a down-hole pump in working condition. The pump was operational when connected to existing on-site electrical infrastructure. Further, the existing pump was determined to be approximately ½-horsepower based on the understood depth of the well compared to known pump ratings as well as the amount of power being drawn from the pump while in operation.

At the time of the assessment, the static water level was measured to be approximately 26.0 feet below the top of pipe. The well was measured to a depth of 63.0 feet below the top of pipe when an obstruction would not allow for measurement tooling to extend to deeper depths. The onsite Gilbert technician, estimated that the well is on the order of 100 to 120 feet in total depth.

Once the existing pump was in operation, an initial flow rate was calculated. The flow rate was calculated based on the elapsed time required to fill a five (5) gallon bucket with water. The pump was then left in operation continuously for 3.5 hours (210 minutes). This operation was conducted to determine the drop in water level over time which provided data with respect to the recharge rate. Additionally, the flow rate was calculated periodically during this time. Table 1 on the following page provides the measured and/or calculated reading from this operation.

Elapsed Time from Start (minutes)	Measured Flow Rate (gal per min)	Drop in Groundwater Level (in)	Depth to Groundwater from Top of Pipe (ft)
0 (initial start)	15	N/A	26.0
8	--	13.0	27.1
15	16	20.0	27.7
25	--	29.0	28.4
30	16	36.0	29.0
52	16	46.5	29.9
73	--	57.0	30.8
96	16	67.0	31.6
120	--	79.0	32.6
159	--	87.0	33.3
170	16	94.0	33.8
195	16	99.0	34.3
210	16	102.0	34.5

Table 1: Observations from Existing Water Well Assessment (Collected on July 23, 2025)

The water level within the existing well was drawn down to a level of 34.5 feet below the top of pipe. The estimated amount of water pumped during this time is 3,360 gallons based on the relatively stable flow rate of 16 gallons per minute. After 3.5 hours of continuous pumping, the pump was shut down in an attempt to calculate the recharge rate. Once the pump was shut down, the water level within the well rebounded to 30.0 feet below the top of pipe rather quickly with an estimated recharge rate of 12.5 gallons per minute. The water level stabilized at 30.0 feet below the top of pipe and then exhibited a minimal rate of recharge.

When the pump initially began pumping, the produced raw water exhibited a strong sulfur odor and reddish-brown to reddish-orange color. After approximately five (5) minutes of running the pump, the water color cleared up and the sulfur smell dissipated significantly. However, constituents could still be observed within the raw water sample. Gilber's on-site personnel collected a sample of the raw water for laboratory analysis at their office and with the Arkansas Department of Health. Table 2 below provides the data collected from the analysis of the collected raw water sample.

Raw Water Analysis – Sample #1	
Collection Date	07/23/2025
Collection Location	35.404297°N, -94.027627°W
Gilbert's Hard Rock Analysis	
Hardness	3
pH	5.5
Parts per Million (PPM)	10
Arkansas Department of Health Analysis	
Total coliform presence / absence	Present
E. Coli presence / absence	Absent

Table 2: Raw Water Analysis, Sample #1, Existing Water Well

Laboratory data reports from Gilbert's and from the Arkansas Department of Health may be referenced in Appendix A – Laboratory Data Reports.

4.0 Test Well Installation

On July 30, 2025 Gilbert's Hard Rock Drilling mobilized their drilling rig and support equipment to the subject property to conduct two (2) test wells. The locations of the conducted test wells, New Water Well #1 and New Water Well #2, may be referenced in Figure 1. New Water Well #1 was completed on July 30, 2025 and New Water Well #2 was completed on July 31, 2025.

Each of the conducted test wells were drilled to completion depths just over 200 feet. Both wells were completed utilizing "mist drilling techniques" that incorporate an air powered down-hole hammer in conjunction with a limited amount of water being added to flush drill cuttings and help to cool the bit and tooling. Six (6) inch diameter surface casing was installed in each of the completed test wells. Both test wells were sealed with a cement and bentonite mixture from 20 feet to 10 feet below the surface. Drill cuttings were backfilled from 10 feet back to the surface in both test wells. Table 3 and Table 4 below provide a brief overview of the formations encountered during drilling operations, as reported by Gilbert's on-site drill crew.

4.1 New Water Well #1

Upon completion of New Water Well #1, the Gilbert's on-site crew determined that the static water level was 20 feet below the existing surface elevation. New Water Well #1 was determined to have a flow rate of ten (10) gallons per minute. Groundwater producing horizons were noted at depths of 20, 40, and 110 feet below the existing surface elevations. The digital elevation model provided by Google Earth would suggest that this well has a surface elevation of approximately 648 feet above mean sea level. The completion report for this test well may be referenced in Appendix B – Test Well Completion Reports.

New Water Well #1 – Formation Log	
Depth (ft)	**Formation Type**
0' to 10'	Red Clay
10' to 20'	Red Sandstone
20' to 110'	Blue Sandstone
110' to 200'	Gray Shale

Table 3: New Water Well #1 – Formation Log

4.2 New Water Well #2

Upon completion of New Water Well #2, the Gilbert's on-site crew determined that the static water level was 20 feet below the existing surface elevation. New Water Well #2 was determined to have a flow rate of two (2) gallons per minute. Groundwater producing horizons were noted at depths of 20 and 90 feet below the existing surface elevations. The digital elevation model provided by Google Earth would suggest that this well has a surface elevation of approximately 621 feet above mean sea level. The completion report for this test well may be referenced in Appendix B – Test Well Completion Reports.

New Water Well #2 – Formation Log	
Depth (ft)	**Formation Type**
0' to 2	Red Clay
2' to 90'	Brown Sandstone
90' to 200'	Gray Shale

Table 4: New Water Well #2 – Formation Log

5.0 Closing Comments

We appreciate the opportunity to provide this service to you. If there are any questions regarding this Statement of Findings, please do not hesitate to contact us.

Respectfully Submitted,
McClelland Consulting Engineers, Inc.

Cody L. Traywick, P.G.
Geotechnical Supervisor | Project Manager

Steven J. Head, P.E.
Principal | Geotechnical Department Head

Enclosures: Appendix A – Laboratory Data Reports
Appendix B – Test Well Completion Reports

Water Micobiology Laboratory
Arkansas Public Health Laboratory
201 South Monroe
Little Rock AR 72205

FINAL REPORT

LIMS Sample Number: W2513707-1 Bottle ID: 21198256 Site ID:

GILBERTS HARD ROCK
908 4TH STREET
MENA, AR 71953

Collected by: KARSON
Collected on: 07/30/2025 15:00
Source: Well
Sampling Site:6310 HWY 215

Received by: Pat Biddle
Received on: 07/31/2025 10:43
Purpose: Raw Water

Total coliform-E. coli PA - Colilert Batch Run #: 3498

Total coliform presence/absence	Present
E.coli presence/absence	Absent

Approved by: Rakara Wrightner Date Approved: 08/01/2025

STATE OF ARKANSAS
REPORT ON WATER WELL CONSTRUCTION & PUMP INSTALLATION

MAIN MENU | RESET | SUBMIT

A

1. Contractor Name & Number: 1098 GILBERTS HARD ROCK DRILLING
2. Driller Name & Number: 2540 RYAN GILBERT
3. Pump Installer Name & Number:
4. Date Well Completed: 01-Aug-25 New Well

5. COUNTY: FRANKLIN (047)

6 FRACTION ¼ of ¼ of
7 SECTION: 1

8 TOWNSHIP 8 N
9 RANGE 29 W

11. LONGITUDE 94149 12. LATITUDE 352417

NUMBER OF FORMATIONS : 5 + Add Formation

B

DESCRIPTION OF FORMATION	DEPTHS IN FEET FROM	TO	WATER BEARING	IF YES.. DEPTH
-- Red Clay	0	10	No	
-- Red Sandstone	10	20	Yes	20
-- Blue Sandstone	20	110	Yes	40
-- Gray Shale	110	200	Yes	110

2. TOTAL DEPTH OF WELL 200

3. STATIC WATER LEVEL 20 Ft. below land surface

4. YIELD 10 gallons per (•) min ( ) hr

5. DIAMETER OF BORE HOLE 6 IN

C PUMP REPORT

1 TYPE PUMP SUBMERSIBLE ( ) TURBINE ( ) JET ( )

2 SETTING DEPTH FEET

3 BRAND NAME AND SERIAL NUMBERS:

4 RATED CAPACITY gallons per minute

5 TYPE LUBRICATION

6 DROP PIPE OR COLUMN PIPE SIZE

7 WIRE SIZE

8 PRESSURE TANK:
SIZE: MAKE: MODEL:

9 DATE OF INSTALLATION OR REPAIR

10 Is there an abandoned water well on the property?
( ) Yes (•) No

D

1 LAND OWNER OR OTHER CONTACT PERSON
NAME Breecher Brodnax
STREET ADDRESS 7800 Corrections Circle
CITY Pine Bluff ,Arkansas 71603

CASING FROM 0 TO 20 W/ 6 Inner Diameter
CASING FROM TO W/ Inner Diameter
TYPE CASING PVC

3. SCREEN
TYPE: -- DIA SLOT/GA
SET FROM FT TO FT
TYPE: -- DIA SLOT/GA
SET FROM FT TO FT

4. GRAVEL PACK FROM: FT TO: FT

5. BACK FILLED WITH: CUTTINGS
FROM: 0 FT TO: 10 FT

6. SEALED WITH: CEMENT/BENTONITE
FROM: 10 FT TO: 20 FT
FROM: FT TO: FT

7. DISINFECTED WITH: HTH

8. USE OF WELL:
DOMESTIC ( ) COMMERCIAL ( ) IRRIGATION ( )
MONITOR ( ) COMMERCIAL ( ) TEST WELL (•)
OIL/GAS SUPPLY ( ) SEMI-PUBLIC ( ) PUBLIC SUPPLY ( )
OTHER N

A/C HEATPUMP TYPE WELLS
SOURCE [ ] RETURN [ ] CLOSED LOOP [ ]

(For A/C only)Will system also be used for purposes other than Heating and Air Conditioning?
Yes ( ) No (•) If yes, name use:

(For A/C open-loop only) Into what medium is water returned?

11. REMARKS
N/A

12. SIGNED DATE

STATE OF ARKANSAS
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MAIN MENU | RESET | SUBMIT

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1. Contractor Name & Number: 1098 GILBERTS HARD ROCK DRILLING
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5. COUNTY: FRANKLIN (047)

6 FRACTION: ¼ of ¼ of

7 SECTION: 1

8 TOWNSHIP 8 N

9 RANGE 29 W

11. LONGITUDE 94136

12. LATITUDE 352418

NUMBER OF FORMATIONS : 5 + Add Formation

B

DESCRIPTION OF FORMATION	DEPTHS IN FEET FROM	TO	WATER BEARING	IF YES.. DEPTH
-- Red Clay	0	2	No	
-- Brown Sandstone	2	90	Yes	70
-- Gray Shale	90	200	Yes	90

2. TOTAL DEPTH OF WELL 200

3. STATIC WATER LEVEL 20 Ft. below land surface

4. YIELD 2 gallons per (•) min ( ) hr

5. DIAMETER OF BORE HOLE 6 IN

C PUMP REPORT

1 TYPE PUMP SUBMERSIBLE ( ) TURBINE ( ) JET ( )

2 SETTING DEPTH FEET

3 BRAND NAME AND SERIAL NUMBERS:

4 RATED CAPACITY gallons per minute

5 TYPE LUBRICATION

6 DROP PIPE OR COLUMN PIPE SIZE

7 WIRE SIZE

8 PRESSURE TANK:
SIZE: MAKE: MODEL:

9 DATE OF INSTALLATION OR REPAIR

10 Is there an abandoned water well on the property?
( ) Yes (•) No

D

1 LAND OWNER OR OTHER CONTACT PERSON
NAME Beecher Brodnax
STREET ADDRESS 7800 Corrections circle
CITY Pine Bluff,Arkansas 71603

CASING FROM 0 TO 20 W/ 6 Inner Diameter
CASING FROM TO W/ Inner Diameter
TYPE CASING PVC

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TYPE: -- DIA SLOT/GA
SET FROM FT TO FT
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FROM: 0 FT TO: 10 FT

6. SEALED WITH: CEMENT/BENTONITE
FROM: 10 FT TO: 20 FT
FROM: FT TO: FT

7. DISINFECTED WITH: HTH

8. USE OF WELL:
DOMESTIC ( ) COMMERCIAL ( ) IRRIGATION ( )
MONITOR ( ) COMMERCIAL ( ) TEST WELL (•)
OIL/GAS SUPPLY ( ) SEMI-PUBLIC ( ) PUBLIC SUPPLY ( )
OTHER N

A/C HEATPUMP TYPE WELLS
SOURCE [ ] RETURN [ ] CLOSED LOOP [ ]

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11. REMARKS

12. SIGNED DATE