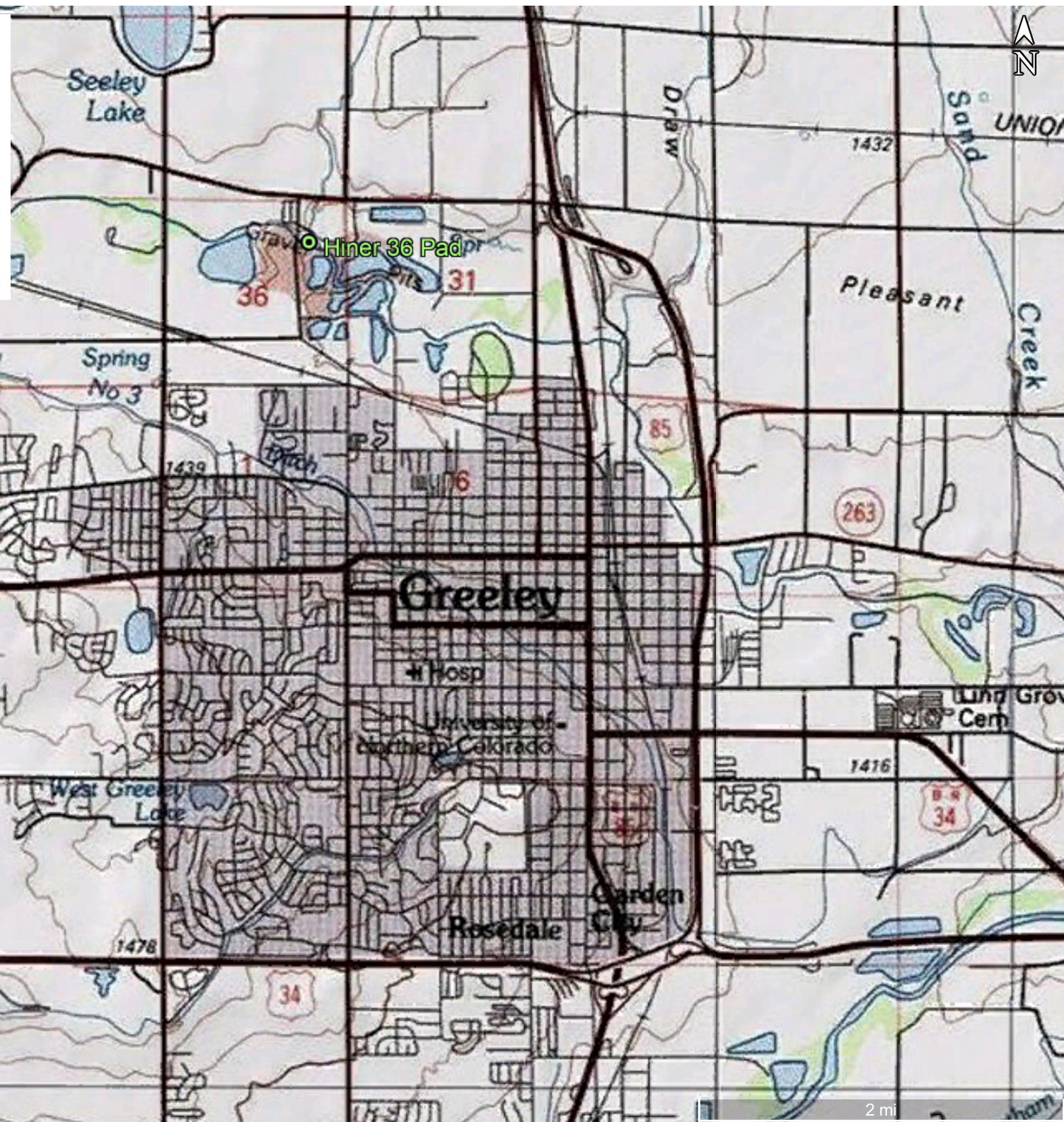
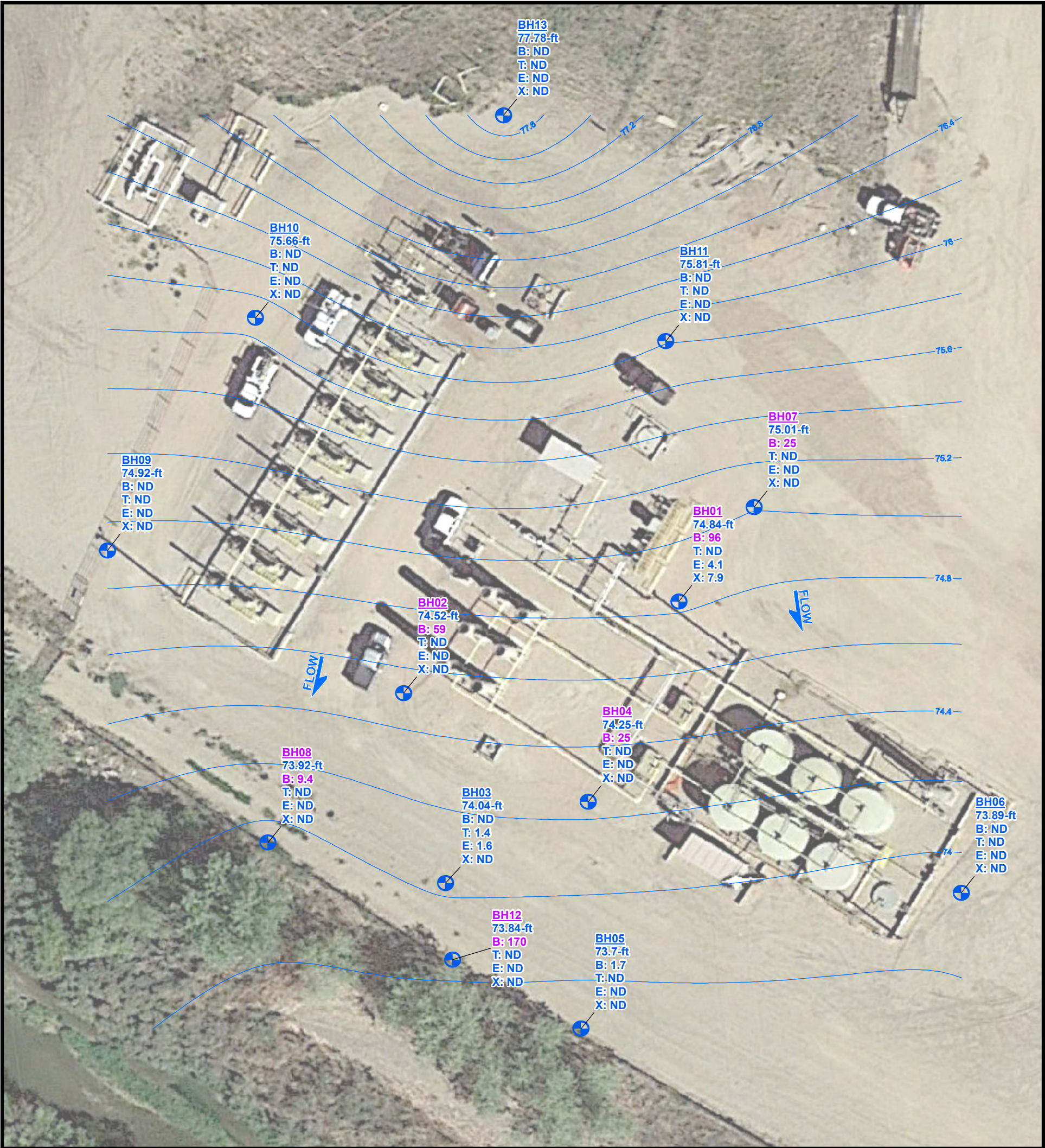




Topographic Location  
Map  
"Hiner Tank Battery"

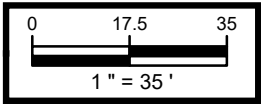






**Extraction Oil & Gas**  
**Hiner 36 Tank Battery**  
**COGCC Location ID: 446538**  
**Temporary Monitoring Well Layout &**  
**GW Elevations for the**  
**5/12/2020 Sampling Event**

Legal Description: NENE, Sec 36, T6N R66W  
County: Weld  
Land Use: Non-Cropland  
Topography: Not Available  
Run-Off Risk: Low  
Soil Type: Aquolls and Aquents  
Receiving Waters: Cache la Poudre River



- BH01 80.60-ft Temp. Monitoring Well Location & Relative GW Elevation
- Estimated Groundwater Contour
- Estimated Groundwater Flow Direction

\* Sample ID in Purple font indicates a regulatory exceedance.

\* Concentration Units in ug/L  
\* ND - Non-Detect



Sample ID	Latitude NAD83	Longitude NAD83	Sample ID	Latitude NAD83	Longitude NAD83
BH01	40.449073	-104.719683	BH08	40.449073	-104.719683
BH02	40.448991	-104.720012	BH09	40.448991	-104.720012
BH03	40.448818	-104.719963	BH10	40.448818	-104.719963
BH04	40.448891	-104.719792	BH11	40.448891	-104.719792
BH05	40.448684	-104.719802	BH12	40.448684	-104.719802
BH06	40.448807	-104.719347	BH13	40.448807	-104.719347
BH07	40.449160	-104.719593			

Spatial data collected for this project was acquired using a GPS with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. To accurately reflect field conditions, illustrated data may have been manually corrected in order to fit with the aerial imagery reference points and other collected data points.





## Laboratory Results Summary Table - Soil Hiner 36

			Organics (mg/kg [ppm])				
COGCC Allowable Concentration (Soil) -->			500	0.17	85	100	175
Location	Sample Date	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO) (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes - total (mg/kg)
Hiner 36 Pad	6/10/2019	BH01@4'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	6/10/2019	BH01@13.5-14'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	6/10/2019	BH02@4'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	6/10/2019	BH02@8-8.5'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	6/10/2019	BH03@4'	1.5	<0.0020	<0.0050	<0.0050	0.023
Hiner 36 Pad	6/10/2019	BH03@13.5-14'	23	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	6/10/2019	BH04@6-8'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	7/10/2019	BH05@13.5-14.0'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	7/10/2019	BH06@2'	<50	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	7/10/2019	BH07@7.5-8.0'	<50	0.0055	<0.0050	<0.0050	<0.010
Hiner 36 Pad	5/1/2020	BH12@15	67	<0.0020	<0.0050	<0.0050	<0.010
Hiner 36 Pad	5/1/2020	BH12@16	<50	<0.0020	<0.0050	<0.0050	<0.010



## Laboratory Results Summary Table - Groundwater Hiner 36

			Organic Compounds (µg/L)			
COGCC Allowable Concentration (Water)			5	1,000	700	10,000
Location	Sample Date	Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes - total
Hiner 36 Pad	6/10/19	BH01 GW	160	11	39	150
Hiner 36 Pad	6/10/19	BH02 GW	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	6/10/19	BH03 GW	1.9	<1.00	1.8	<2.00
Hiner 36 Pad	6/10/19	BH04 GW	280	<1.00	9.3	<2.00
Hiner 36 Pad	7/10/19	BH05 GW	38	<1.00	<1.00	<2.00
Hiner 36 Pad	7/10/19	BH06 GW	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	7/10/19	BH07 GW	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH01	29	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH02	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH03	7.6	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH04	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH05	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH06	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	BH07	7.9	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	SW01	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	SW02	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	8/8/19	SW03	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	11/5/19	BH01	20	<1.00	<1.00	<2.00
Hiner 36 Pad	11/5/19	BH02	<1.00	<1.00	<1.00	<2.00





## Laboratory Results Summary Table - Groundwater Hiner 36

			Organic Compounds (µg/L)			
COGCC Allowable Concentration (Water)			5	1,000	700	10,000
Location	Sample Date	Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes - total
Hiner 36 Pad	11/5/19	BH03	3	<1.00	<1.00	<2.00
Hiner 36 Pad	11/5/19	BH04	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	11/5/19	BH05	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	11/5/19	BH06	<1.00	<1.00	<1.00	<2.00
Hiner 36 Pad	11/5/19	BH07	2.2	<1.00	<1.00	<2.00
Hiner 36 Pad	2/21/20	BH01	21	<1.0	<1.0	<2.0
Hiner 36 Pad	2/21/20	BH02	540	130	9.4	63
Hiner 36 Pad	2/21/20	BH03	700	100	<1.0	<2.0
Hiner 36 Pad	2/21/20	BH04	35	1.6	<1.0	<2.0
Hiner 36 Pad	2/21/20	BH05	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	2/21/20	BH06	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	2/21/20	BH07	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH01	96	<1.0	4.1	7.9
Hiner 36 Pad	5/12/20	BH02	59	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH03	<1.0	1.4	1.6	<2.0
Hiner 36 Pad	5/12/20	BH04	25	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH05	1.7	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH06	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH07	25	<1.0	<1.0	<2.0





## Laboratory Results Summary Table - Groundwater Hiner 36

			Organic Compounds (µg/L)			
COGCC Allowable Concentration (Water)			5	1,000	700	10,000
Location	Sample Date	Sample ID	Benzene	Toluene	Ethylbenzene	Xylenes - total
Hiner 36 Pad	5/12/20	BH08	9.4	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH09	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH10	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH11	<1.0	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH12	170	<1.0	<1.0	<2.0
Hiner 36 Pad	5/12/20	BH13	<1.0	<1.0	<1.0	<2.0



**Attachment A**

**Laboratory Analytical Report**



# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 06, 2020

Maggie Graham

Extraction Oil&Gas

370 17th Street Suite 5300

Denver, CO 80202

RE: Hiner 36

Work Order #2005005

Enclosed are the results of analyses for samples received by Summit Scientific on 05/01/20 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premer". The signature is written in a cursive style with a large, stylized "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury  
President



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH12@15	2005005-01	Soil	05/01/20 12:45	05/01/20 16:10
BH12@16	2005005-02	Soil	05/01/20 12:48	05/01/20 16:10

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Summit Scientific

Page 1 of 1

Sampler Name: Ryan Finley

Project Number:

[www.s2scientific.com](http://www.s2scientific.com)

# Sample Receipt Checklist

S2 Work Order

2005005

Client:

Apex/XOG

Client Project ID:

Hiner 36

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

Matrix (check all that apply):

Air

☒ Soil/Solid

Water

Other:

(Describe)

Temp (°C)

17.1

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ?				m 16
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?			<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	

Additional Comments (if any):

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Custodian Printed Name or Initials

AT

Signature of Custodian

[Signature]

Date/Time

8-1-2020





Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

**BH12@15**  
**2005005-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/01/20 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	2005024	05/04/20	05/04/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>14</b>	0.50	"	"	"	"	"	"	

Date Sampled: **05/01/20 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		172 %	21-167		"	"	"	"	S-02

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/01/20 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>C10-C28 (DRO)</b>	<b>53</b>	50	mg/kg	1	2005039	05/05/20	05/05/20	EPA 8015M	

Date Sampled: **05/01/20 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		80.5 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

**BH12@16**  
**2005005-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/01/20 12:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	2005024	05/04/20	05/04/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/01/20 12:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.2 %	21-167		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **05/01/20 12:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	2005039	05/05/20	05/05/20	EPA 8015M	

Date Sampled: **05/01/20 12:48**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		84.2 %	30-150		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch 2005024 - EPA 5030 Soil MS

##### Blank (2005024-BLK1)

Prepared & Analyzed: 05/04/20

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0361		"	0.0400		90.2	23-173			
Surrogate: Toluene-d8	0.0452		"	0.0400		113	20-170			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0400		93.8	21-167			

##### LCS (2005024-BS1)

Prepared & Analyzed: 05/04/20

Benzene	0.0969	0.0020	mg/kg	0.100		96.9	70-130			
Toluene	0.0710	0.0050	"	0.100		71.0	70-130			
Ethylbenzene	0.0876	0.0050	"	0.100		87.6	70-130			
m,p-Xylene	0.165	0.010	"	0.200		82.6	70-130			
o-Xylene	0.0854	0.0050	"	0.100		85.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0301		"	0.0400		75.2	23-173			
Surrogate: Toluene-d8	0.0404		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400		94.6	21-167			

##### Matrix Spike (2005024-MS1)

Source: 2004407-01

Prepared & Analyzed: 05/04/20

Benzene	0.0741	0.0020	mg/kg	0.100	ND	74.1	70-130			
Toluene	0.0771	0.0050	"	0.100	ND	77.1	70-130			
Ethylbenzene	0.0931	0.0050	"	0.100	ND	93.1	70-130			
m,p-Xylene	0.178	0.010	"	0.200	ND	89.0	70-130			
o-Xylene	0.0901	0.0050	"	0.100	ND	90.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0312		"	0.0400		77.9	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		95.0	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 2005024 - EPA 5030 Soil MS**

Matrix Spike Dup (2005024-MSD1)		Source: 2004407-01			Prepared & Analyzed: 05/04/20					
Benzene	0.0733	0.0020	mg/kg	0.100	ND	73.3	70-130	1.10	30	
Toluene	0.0706	0.0050	"	0.100	ND	70.6	70-130	8.69	30	
Ethylbenzene	0.0883	0.0050	"	0.100	ND	88.3	70-130	5.29	30	
m,p-Xylene	0.168	0.010	"	0.200	ND	83.9	70-130	5.88	30	
o-Xylene	0.0874	0.0050	"	0.100	ND	87.4	70-130	3.04	30	
Surrogate: 1,2-Dichloroethane-d4	0.0298		"	0.0400		74.6	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0374		"	0.0400		93.5	21-167			

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch 2005039 - EPA 3550A**

**Blank (2005039-BLK1)**

Prepared & Analyzed: 05/05/20

C10-C28 (DRO) ND 50 mg/kg

**LCS (2005039-BS1)**

Prepared & Analyzed: 05/05/20

C10-C28 (DRO) 388 50 mg/kg 500 77.6 70-130

**Matrix Spike (2005039-MS1)**

Source: 2005005-01

Prepared & Analyzed: 05/05/20

C10-C28 (DRO) 487 50 mg/kg 500 52.8 86.9 70-130

**Matrix Spike Dup (2005039-MSD1)**

Source: 2005005-01

Prepared & Analyzed: 05/05/20

C10-C28 (DRO) 468 50 mg/kg 500 52.8 83.1 70-130 3.99 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: [none]  
Project Manager: Maggie Graham

**Reported:**  
05/06/20 14:25

### Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 18, 2020

Maggie Graham

Extraction Oil&Gas

370 17th Street Suite 5300

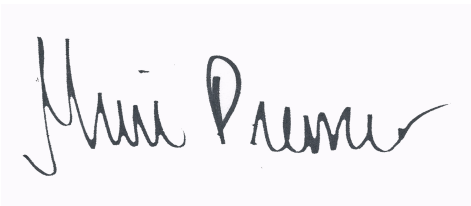
Denver, CO 80202

RE: Hiner 36

Work Order #2005116

Enclosed are the results of analyses for samples received by Summit Scientific on 05/12/20 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Muri Premer", is displayed on a light purple rectangular background.

Muri Premer For Paul Shrewsbury  
President



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2005116-01	Water	05/12/20 15:08	05/12/20 16:00
BH02	2005116-02	Water	05/12/20 14:50	05/12/20 16:00
BH03	2005116-03	Water	05/12/20 14:39	05/12/20 16:00
BH04	2005116-04	Water	05/12/20 14:10	05/12/20 16:00
BH05	2005116-05	Water	05/12/20 13:57	05/12/20 16:00
BH06	2005116-06	Water	05/12/20 13:05	05/12/20 16:00
BH07	2005116-07	Water	05/12/20 13:32	05/12/20 16:00
BH08	2005116-08	Water	05/12/20 13:29	05/12/20 16:00
BH09	2005116-09	Water	05/12/20 13:05	05/12/20 16:00
BH10	2005116-10	Water	05/12/20 12:30	05/12/20 16:00
BH11	2005116-11	Water	05/12/20 14:19	05/12/20 16:00
BH12	2005116-12	Water	05/12/20 13:50	05/12/20 16:00
BH13	2005116-13	Water	05/12/20 14:42	05/12/20 16:00

Summit Scientific

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## 2005116.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310 ♦ 303-374-5933 Fax

Page

1 of 2

Client: APEX Companies, LLC

Address: 1746 Cole Blvd. Suite 250

City/State/Zip: Lakewood, Colorado 80101

Phone: 720-501-5065

Sampler Name: Sage Maher

Project Manager: Maggie Graham 720-501-5065; 907-538-7699c MaggieGraham@ApexCos.com

E-Mail: [DenverRemediation@ApexCos.com](mailto:DenverRemediation@ApexCos.com)

Project Name: Hiner 36

Project Number: 744.2001.01-440538

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:								Special Instructions
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)								
BHD1	5/12/20	1508	3	X				X				BTEX							Call Maggie Graham with questions
BHD2		1450	1									X							
BHD3		1439	1									X							
BHD4		1410										X							
BHD5		1357										X							
BHD6		1305										X							
BHD7		1332										X							
BHD8		1329										X							
BHD9		1305										X							
BHD10		1230										X							
Relinquished by: <i>[Signature]</i> Date/Time: 5/12/20				Received by: <i>[Signature]</i> Date/Time: 5-12-20				Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>											Notes Circle applicable regulatory agency: EOGCC/CDPHE Client Name: <i>XDV</i>
Relinquished by: _____ Date/Time: _____				Received by: _____ Date/Time: _____				Sample Integrity: Temperature Upon Receipt: <i>4.1</i> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>											
Relinquished by: _____ Date/Time: _____				Received in Lab by: _____ Date/Time: _____															

## 2005116.2

Page 2 of 2

Sampler Name: Sage Maier

Project Number: 744-2001.01-446538

[www.s2scientific.com](http://www.s2scientific.com)

## Sample Receipt Checklist

S2 Work Order \_\_\_\_\_

Client: Alex Client Project ID: Ainsel 36

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other\_\_\_\_\_ Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☐ Soil/Solid ☒ Water ☐ Other: \_\_\_\_\_ (Describe)

Temp (°C)

4.1

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?		✓		
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>		✓		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	✓			HCL
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Logan S.  
Custodian Printed Name or Initials

Signature of Custodian

5-14-20  
Date/Time



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH01**  
**2005116-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 15:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>96</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>4.1</b>	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>7.9</b>	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 15:08**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		123 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %		21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH02**  
**2005116-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 14:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>59</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 14:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		120 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH03**  
**2005116-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
<b>Toluene</b>	<b>1.4</b>	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1.6</b>	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/12/20 14:39**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH04**  
**2005116-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>25</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 14:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		97.4 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH05**  
**2005116-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 13:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>1.7</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 13:57**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		102 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH06**  
**2005116-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 13:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/12/20 13:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.5 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH07**  
**2005116-07 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 13:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>25</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 13:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		103 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		21-167		"	"	"	"	

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370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH08**  
**2005116-08 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 13:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>9.4</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 13:29**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		115 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH09**  
**2005116-09 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 13:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 13:05**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		112 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH10**  
**2005116-10 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/12/20 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH11**  
**2005116-11 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 14:19**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/12/20 14:19**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH12**  
**2005116-12 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Benzene</b>	<b>170</b>	1.0		ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/12/20 13:50**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		93.9 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %		21-167		"	"	"	"	

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**BH13**  
**2005116-13 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **05/12/20 14:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	2005179	05/14/20	05/15/20	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/12/20 14:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch 2005179 - EPA 5030 Water MS

##### Blank (2005179-BLK1)

Prepared: 05/14/20 Analyzed: 05/15/20

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	16.1		"	13.3		121	23-173			
Surrogate: Toluene-d8	14.4		"	13.3		108	20-170			
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3		106	21-167			

##### LCS (2005179-BS1)

Prepared: 05/14/20 Analyzed: 05/15/20

Benzene	30.6	1.0	ug/l	33.3		92.0	51-132			
Toluene	29.3	1.0	"	33.3		88.0	51-138			
Ethylbenzene	34.7	1.0	"	33.3		104	58-146			
m,p-Xylene	66.2	2.0	"	66.7		99.3	57-144			
o-Xylene	32.6	1.0	"	33.3		97.8	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.4		"	13.3		100	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		95.6	20-170			
Surrogate: 4-Bromofluorobenzene	14.8		"	13.3		111	21-167			

##### Matrix Spike (2005179-MS1)

Source: 2005116-01

Prepared: 05/14/20 Analyzed: 05/15/20

Benzene	56.1	1.0	ug/l	33.3	96.2	NR	34-141			QM-07
Toluene	30.4	1.0	"	33.3	ND	91.3	27-151			
Ethylbenzene	37.4	1.0	"	33.3	4.12	99.9	29-160			
m,p-Xylene	71.4	2.0	"	66.7	7.91	95.3	20-166			
o-Xylene	33.7	1.0	"	33.3	ND	101	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.3		108	23-173			
Surrogate: Toluene-d8	13.5		"	13.3		101	20-170			
Surrogate: 4-Bromofluorobenzene	14.6		"	13.3		110	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 2005179 - EPA 5030 Water MS**

Matrix Spike Dup (2005179-MSD1)		Source: 2005116-01			Prepared: 05/14/20 Analyzed: 05/15/20					
Benzene	52.1	1.0	ug/l	33.3	96.2	NR	34-141	7.39	30	QM-07
Toluene	32.4	1.0	"	33.3	ND	97.2	27-151	6.30	30	
Ethylbenzene	35.0	1.0	"	33.3	4.12	92.6	29-160	6.68	30	
m,p-Xylene	65.6	2.0	"	66.7	7.91	86.5	20-166	8.52	30	
o-Xylene	33.3	1.0	"	33.3	ND	100	33-159	1.02	30	
Surrogate: 1,2-Dichloroethane-d4	20.9		"	13.3		157	23-173			
Surrogate: Toluene-d8	13.8		"	13.3		104	20-170			
Surrogate: 4-Bromofluorobenzene	15.8		"	13.3		119	21-167			

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Extraction Oil&Gas  
370 17th Street Suite 5300  
Denver CO, 80202

Project: Hiner 36  
Project Number: 744.2001.01-446538  
Project Manager: Maggie Graham

**Reported:**  
05/18/20 12:53

### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

**Attachment B**

**Boring Logs**



# SOIL BORING LOG

Project Number 744.1902.1  
446538

Boring Number BH-01

Sheet 1 of 1

← Boring Location Sketch

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 6/10/19 Water Level ~ 6' Start 1100 Finish 1120 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results	Soil Description	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
				6"/6"/6"/6"	USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor				
5					2' - Clayey sand and gravel, stained grey. moist from potholing HC odor	GC		1.5	
					4' same as above less clayey, HC odor	SP		490	5
10					6-10 poorly graded sands loose, saturated, stained slight odor	GP		6.5	
					10-13 poorly graded sand with gravels, loose, no staining, coarse sands	GP		1.4	10
15					13-15 poorly graded sand stained, fine to medium sands loose	SP		1.1	
								50	15
20									
25									
30									
35									

Total Depth(s) =

151

Soil Sample(s):

BH01 @ 4' 0920  
BH01 @ 13.5-14' 1120

Rationale

client request

Additional Information:

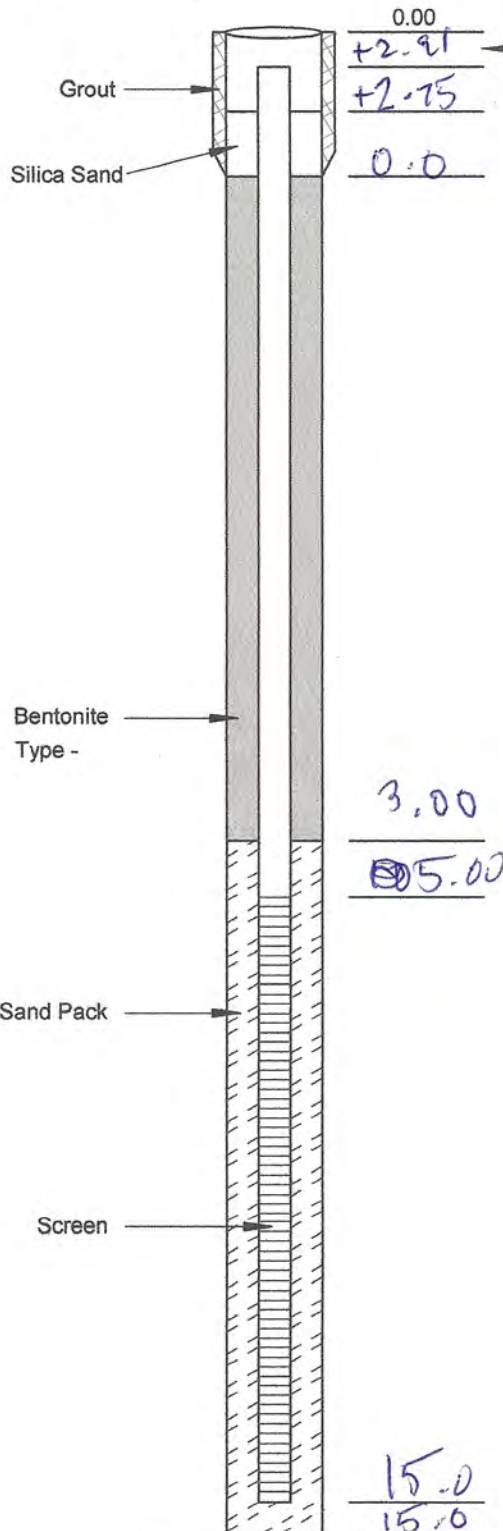


## WELL CONSTRUCTION LOG

### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



Project 744.1902.1  
Number 446538

Well Number B151 B7101

### Drilling Summary

Total Depth of Hole: 15  
Hole Diameter: 2.25  
Drilling Company: Drill Pro  
Driller: Ron  
Rig Type: Direct Push  
Bits: Solid Core  
Geologist: D. Puchrik

### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	6/10/19	1130	6/10/19	1150
Well Completion:	6/10/19	1150	6/10/19	1200
Grouting:	6/10/19	1200	6/10/19	1210

### Depth to Water (Below TOC)

Depth: 11.19 Date: 6/10/19 Time: 1445

### Well Construction Materials

	Grout	Seals	Filter
Quantity:		<u>50</u>	<u>50</u>
Type:		<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>
Area/Ft.:		Comp.: <u>PVC</u>
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>

### Comments

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Total Depth from TOC = 15.0 17.91





# SOIL BORING LOG

Project Number  
744.1902.1  
446538

Boring Number  
BH02

Sheet  
1 of 1

← Boring Location Sketch

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 6/10/19 Water Level ~ 5' Start 1130 Finish 1150 Logger David Puchrik

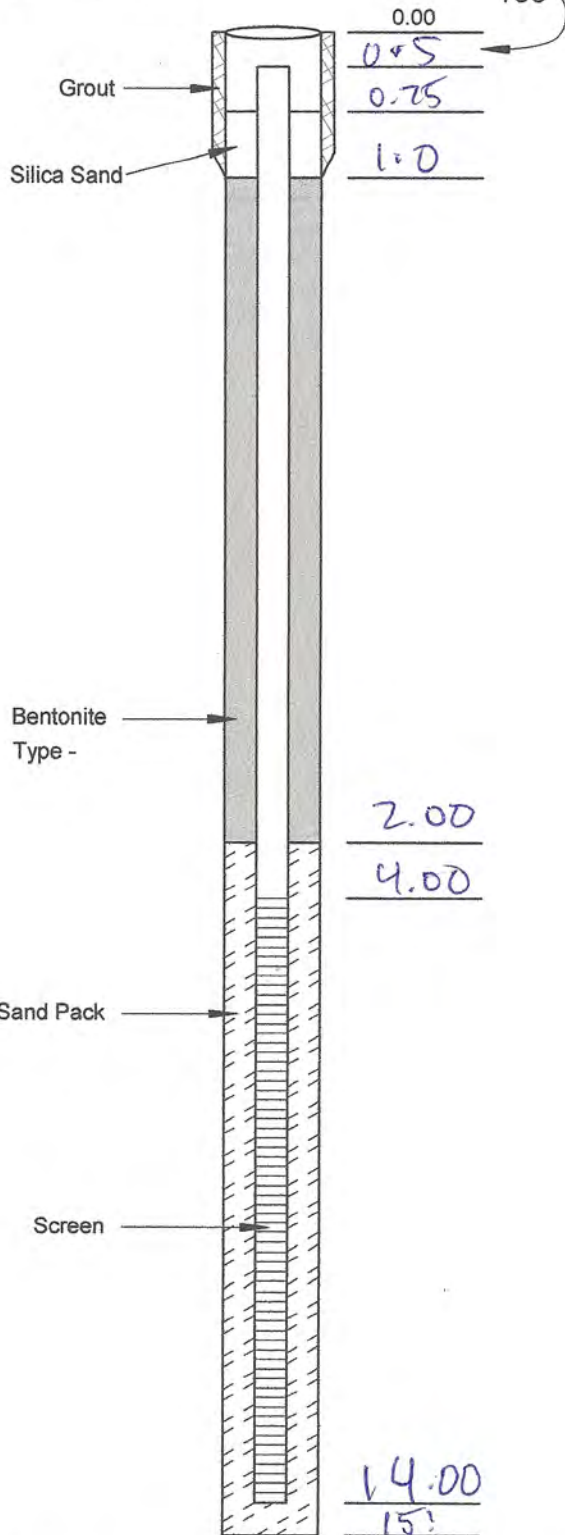
Depth Below Surface	Sample			Standard Penetration Test Results 6" / 6" / 6" / 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5					2' clayey sand and gravel, dark brown, moist from potholing	GP		0.5 <	
					4' same as above, less clayey. Hc odor.			520 <	5
10					6-12 poorly graded sands and gravel			21.9 <	
					stained from 8-10' with Hc odor			49.9 <	10
15					12-15 same as above less gravels, coarse sands. Stained from 13.5-14.5.			5.7 <	
								110 <	15
								15 <	
20									20
25									25
30									30
35									35
Total Depth(s) = <u>15</u>				Soil Sample(s): <u>0940 BH02 @ 4'</u> <u>1140 BH02 @ 8-8.5'</u>		Rationale <u>client request</u>		Additional Information:	



### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 13.50

### WELL CONSTRUCTION LOG

Project 744.1902.1  
Number 446538

Well  
Number BH02

#### Drilling Summary

Total Depth of Hole: 15'

Hole Diameter: 2.25

Drilling Company: Drill Pro

Driller: Ro

Rig Type: Direct Push

Bits: Solid Core

Geologist: D. Puchrik

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	6/10/19	1100	6/10/19	1120
Well Completion:	6/16/19	1120	6/16/19	1130
Grouting:	6/10/19	1130	6/10/19	1140

#### Depth to Water (Below TOC)

Depth: 7.95 Date: 6/16/19 Time: 1415

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50 lbs</u>	<u>50 lbs</u>	<u>10/20 silica</u>
Type:	<u>bentonite</u>	<u>bentonite</u>	<u>50 lbs</u>

	Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>
Area/Ft.:		Comp.: <u>PVC</u>
Inside Diam.:	<u>1.1'</u>	Outside Diam.: <u>Sch 40</u>

#### Comments

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# SOIL BORING LOG

Project Number  
744.1902.1  
446538

Boring Number  
BH03

Sheet  
1 of 1

← Boring Location Sketch

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 6/10/19 Water Level ~5 Start 1215 Finish 1230 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6" / 6" / 6" / 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5					2' Clayey sand and gravel grey, moist from potholing.			1.2 <	
					4' Same as above, less clayey, HC odor			280 <	5
10					6-8.5 same as above			37.3 <	
					staining 6-13.5'			18.2 <	10
15					8.5-15 poorly graded sands and gravels			94.9 <	
					coarsening downward			367 <	15
								12.4 <	
20									20
25									25
30									30
35									35

Total Depth(s) =

15'

Soil Sample(s):

1030 BH03 @ 4'  
1215 BH03 @ 13.5-14'

Rationale

client  
Request

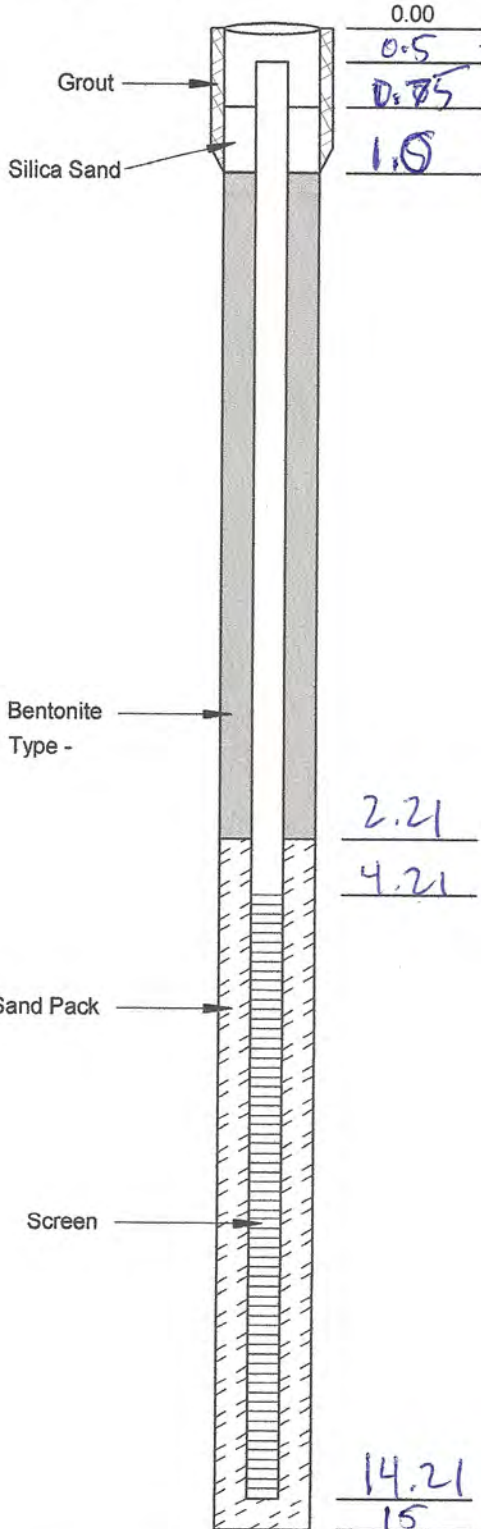
Additional Information:



### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 13.71

### WELL CONSTRUCTION LOG

Project 744.1902.1  
Number 446538

Well  
Number B403

#### Drilling Summary

Total Depth of Hole: 15'  
Hole Diameter: 2.25  
Drilling Company: Drill Pro  
Driller: Ron  
Rig Type: Direct Push  
Bits: Solid Core  
Geologist: D. Puchrik

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	6/10/19	1215	6/10/19	1230
Well Completion:	6/10/19	1230	6/10/19	1240
Grouting:	6/10/19	1240	6/10/19	1250

#### Depth to Water (Below TOC)

Depth: 8.71 Date: 6/10/19 Time: 1350

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:		<u>50</u>	<u>50</u>
Type:		<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>
Area/Ft.:		Comp.: <u>PVC</u>
Inside Diam.:	<u>1 1/4</u>	Outside Diam.: <u>Sch 40</u>

#### Comments

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# SOIL BORING LOG

← Boring Location Sketch

Project Number 744.1902.1  
446538

Boring Number BH04

Sheet 1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 6/10/19 Water Level ~5 Start 1200 Finish 1215 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
				6"/6"/6"/6"					
5					2' clayey sand and gravel, moist from potholing. NO HC odor	GC		0.5 <	
					4' same as above, less clayey, no stain/odor.			3.8 <	5
10					6-15' poorly graded sands with gravel's, saturated stained from 6-12', loose, sands coarser with depth			10.4 <	
								6.7 <	10
15								4.6 <	
								1.1 <	15
20									
25									
30									
35									
Total Depth(s) = 151				Soil Sample(s): BH04 @ 6-8' 1215'		Rationale client request		Additional Information:	

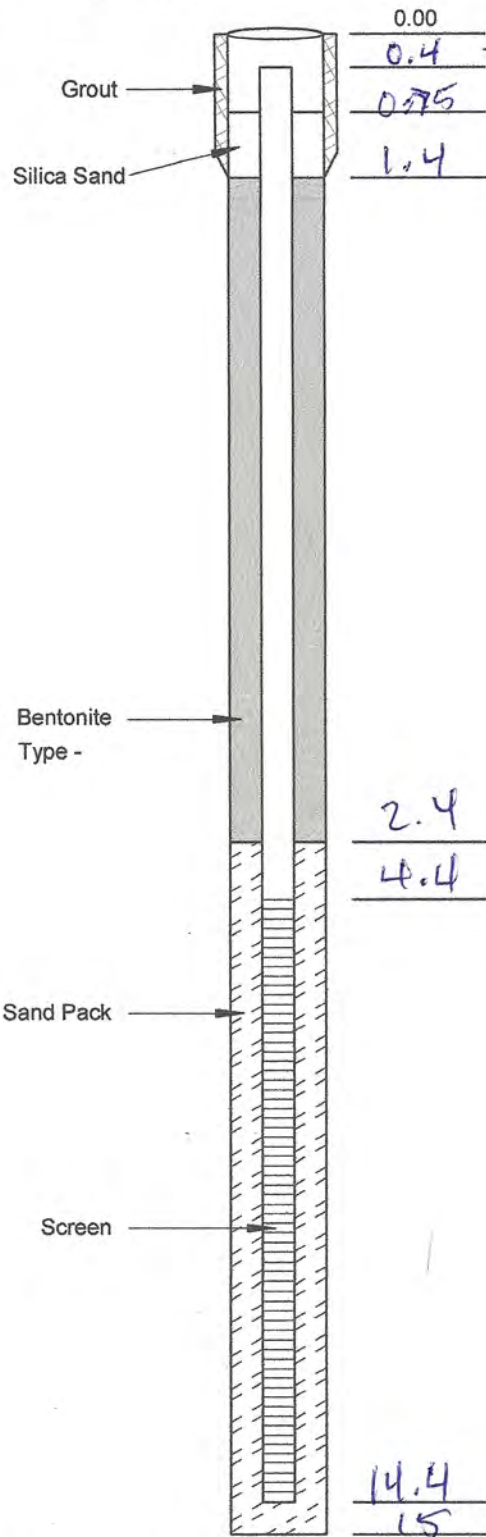


## WELL CONSTRUCTION LOG

### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Project 744.1902.1  
Number 446538

Well  
Number B104

### Drilling Summary

Total Depth of Hole: 15

Hole Diameter: 2.25

Drilling Company: Drill Pro

Driller: Ron

Rig Type: Direct Push

Bits: Solid Core

Geologist: D. Puchrik

### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	6/10/19	1200	6/10/19	1245
Well Completion:	6/10/19	1215	6/10/19	1230
Grouting:	6/10/19	1230	6/10/19	1245

### Depth to Water (Below TOC)

Depth: 8.26 Date: 6/10/19 Time: 1430

### Well Construction Materials

	Grout	Seals	Filter
Quantity:		<u>50</u>	<u>50</u>
Type:		<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>10</u>	Config.: <u>10 Slot</u>
Area/Ft.:		Comp.: <u>PVC</u>
Inside Diam.:	<u>4.1</u>	Outside Diam.: <u>Sch 40</u>

### Comments

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Total Depth from TOC = 14.00





# SOIL BORING LOG

Project Number 744.1902.1  
446538

Boring Number BH05

Sheet 1 of 1

← Boring Location Sketch

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 7/9/19 Water Level ~14' Start 1400 Finish 1415 Logger David Puchrik

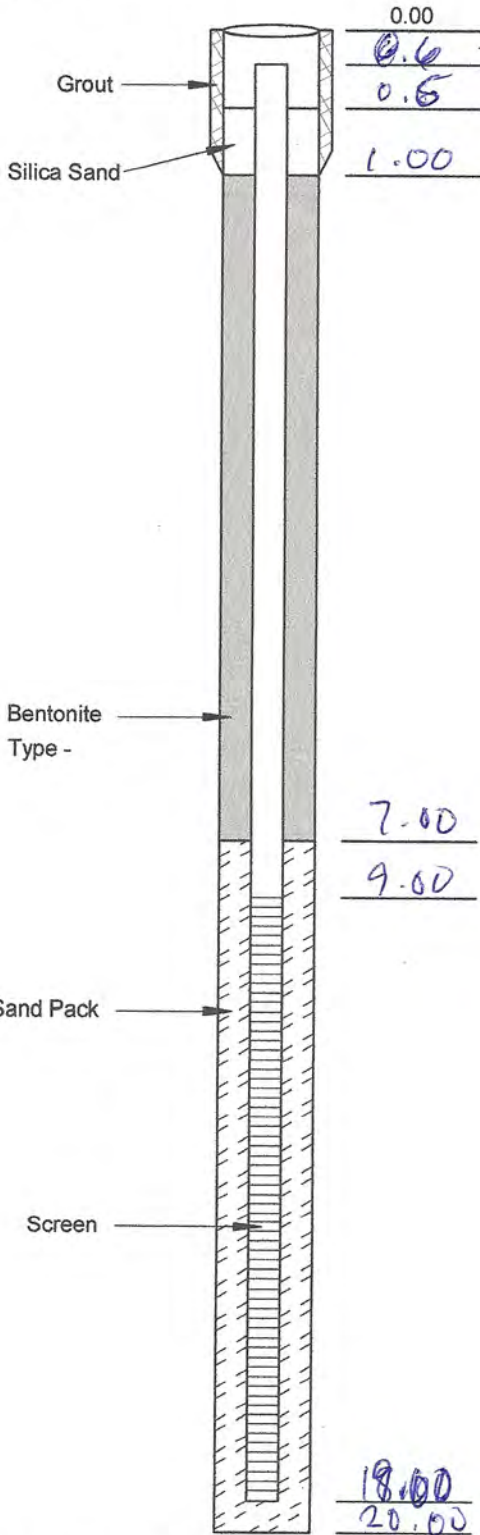
Depth Below Surface	Sample			Standard Penetration Test Results 6"/6"/6"/6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5				N/A	Pothole to 6'			N/A	
					0-3.5' pebbles, cobbles	5m		0.8	5
					No recovery with hand auger.				
10					4'-6.5' brown silty sand with Fe/CaCO <sub>3</sub> , slightly moist, no stain/no odor			2.1	
					6.5'-11' dark brown clay with CaCO <sub>3</sub> , moist stiff, no stain/odor			1.3	10
15					11'-12' poorly graded gravels with sand.			2.4	15
					12'-14' same as			1.1	
20					14'-20' same as except saturated, limited staining at 14'				20
25									25
30									30
35									35
Total Depth(s) = <u>20'</u>				Soil Sample(s): <u>BH05 @ 13.5-14.0'</u> Rationale <u>staining High PID</u>			Additional Information:		



### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 18.60

### WELL CONSTRUCTION LOG

Project 744.1902.1  
Number 446538

Well  
Number BH05

#### Drilling Summary

Total Depth of Hole: 20.0  
Hole Diameter: 2-25  
Drilling Company: Drill Pro  
Driller: Terrance  
Rig Type: Direct Push  
Bits: Solid Core  
Geologist: D. Puchrik

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	7/6/19	1400	7/6/19	1415
Well Completion:	7/6/19	1400	7/6/19	1425
Grouting:	7/6/19	1445	7/6/19	1500

#### Depth to Water (Below TOC)

Depth: 12.10 Date: 7/9/19 Time: 1445

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50</u>	<u>260</u>	<u>150</u>
Type:	<u>Quickcrete</u>	<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>
Area/Ft.:	<u>.04</u>	Comp.: <u>PVC</u>
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>

#### Comments

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# SOIL BORING LOG

← Boring Location Sketch

Project Number  
744.1902.1  
446538

Boring Number  
BH06

Sheet  
1 of 1

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 7/9/19 Water Level ~ 8.5 Start 1335 Finish 1355 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results 6"/6"/6"/6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5	1236			N/A	Pothole to 6' 2' brown silty sand, slightly moist, FE/CACO <sub>3</sub> pockets, no stain, no odor 4' cobbles. Punch through with geoprobe. 4.5' Dark gray (moist from pitholing) clayey sand and gravel, 6-7' same as above 8-11 poorly graded sands no stain, no odor, loose, saturated at 10' 11-16 poorly graded gravels with sands - med to coarse no stain / no odor. Sands coarsens with depth.	SM GC SP GP		3.1 @ 2' 2.1 @ 4' 2.1 @ 10' 2.2 @ 15' 2.2 @ 20'	5

Total Depth(s) =

1236

Soil Sample(s):

BH06 @ 2'  
1230

Rationale

High PIP

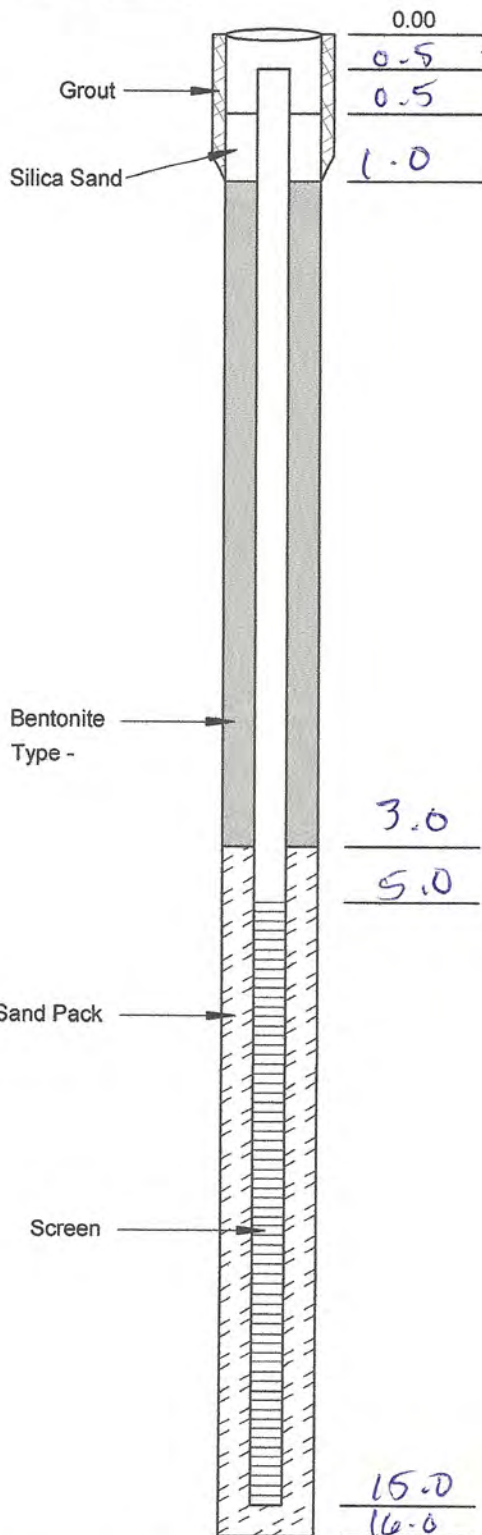
Additional Information:



### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC =

14.5

### WELL CONSTRUCTION LOG

Project 744.1902.1  
Number 446538

Well  
Number BH06

### Drilling Summary

Total Depth of Hole: 16.0

Hole Diameter: 2.25

Drilling Company: Drill Pro

Driller: Terraviva

Rig Type: Direct Push

Bits: Solid Core

Geologist: D. Puchrik

### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	7/9/19	1335	7/9/19	1355
Well Completion	7/9/19	1345	7/9/19	1400
Grouting:	7/9/19	1430	7/9/19	1445

### Depth to Water (Below TOC)

Depth: 9.22 Date: 7/9/19 Time: 1440

### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50</u>	<u>60</u>	<u>75</u>
Type:	<u>Acidcure</u>	<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>10'</u>	Config.: <u>10 Slot</u>
Area/Ft.:	<u>.04</u>	Comp.: <u>PVC</u>
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>

### Comments

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# SOIL BORING LOG

Project Number  
744.1902.1  
446538

Boring Number  
BH07

Sheet  
1 of 1

← Boring Location Sketch

Project Hiner 36 Pad Location N 16th Ave., N 23rd Ave Greeley, CO

Drilling Method & Equipment Direct Push Drilling Contractor Drill Pro

Date 7/19/19 Water Level 28.5 Start 1315 Finish 1330 Logger David Puchrik

Depth Below Surface	Sample			Standard Penetration Test Results	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
				6"/6"/6"/6"					
5				N/A	Pothole to 6'	GC		6.7C	
					2' - Clay with gravel and sand, brown to grey. No odor or stain. Gravel angular to 1", moist from potholing	SM		5.1C	5
10		1325			4' silty sand, brown, slightly moist, trace gravels to 2.5", no stain or odor	SP		2.5C	
					6-7 same as above			2.1C	10
15					7-11 Dark/black stained poorly sorted sands - moist	GP		2.1C	
					At 8' no staining and saturated, loose.			2.3C	15
20					11-16' poorly graded gravel with sands - med to coarse, gravels to 3", no stain				
25									25
30									30
35									35

Total Depth(s) = 16'

Soil Sample(s): BH07 @ 2.5-8.0' Staining  
1325

Rationale

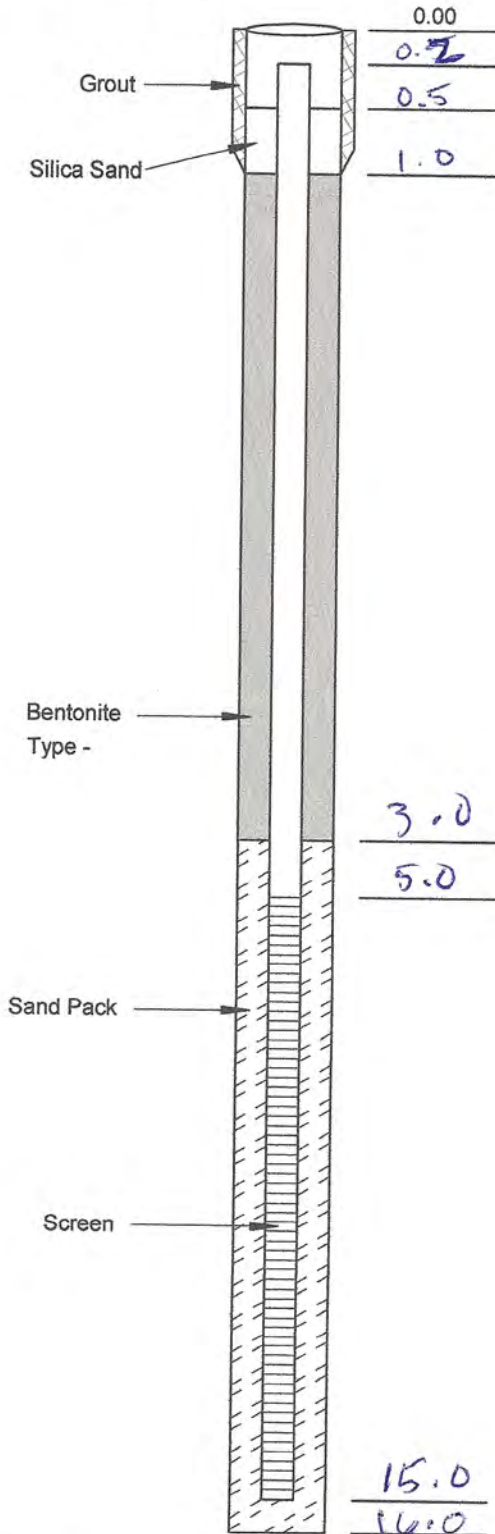
Additional Information:



### Well Completion Detail

Street Box  
Diam. = N/A

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 14.20

### WELL CONSTRUCTION LOG

Project 744.1902.1  
Number 446538

Well  
Number B-107

#### Drilling Summary

Total Depth of Hole: 16.0

Hole Diameter: 2.25

Drilling Company: Drill Pro

Driller: Terrance

Rig Type: Direct Push

Bits: Solid Core

Geologist: D. Puchrik

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	7/6/19	1315	7/6/19	1330
Well Completion:	7/6/19	1330	7/6/19	1345
Grouting:	7/6/19	1415	7/6/19	1430

#### Depth to Water (Below TOC)

Depth: 7.60 Date: 7/9/19 Time: 1435

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>50</u>	<u>60</u>	<u>75</u>
Type:	<u>Quickcrete</u>	<u>bent</u>	<u>10/20</u>

	Screen	
Size:	<u>10</u>	Config.: <u>10 Slot</u>
Area/Ft.:	<u>.04</u>	Comp.: <u>PVC</u>
Inside Diam.:	<u>1"</u>	Outside Diam.: <u>Sch 40</u>

#### Comments

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Boring Location Sketch

## SOIL BORING LOG

Project Number

Boring Number

Sheet

BH#8

4 of 6



Project

Location

Hiner 36

Drilling Method &amp; Equipment

Direct Push 6620DT

Drilling Contractor

DrillPro

Date

5/1/20

Water Level

~15

Start

1152

Finish

1218

Logger

R. Finley

Depth Below Surface	Sample			Standard Penetration Test Results	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
				6" / 6" / 6" / 6"					
5					0-6 Hydrovac potholing for utility clearance				
10					6-11 DK bwn silty sand (Road pad built up ~4ft) vfg-fg. Dense, moist low plastic. Blacky No odor/stain	Sm			
15					11-20 L. bwn poorly sorted sd vfg-mg @ 11, gravel 1" @ 14-15, loose, dry vfg-vcg. Turns saturated @ ~15ft. gravel begins to fine down to pebble, then mg sd @ depth No odor or stain				
20									
25									

Total Depth(s) =

~ 20

Soil Sample(s):



Rationale

Low PID

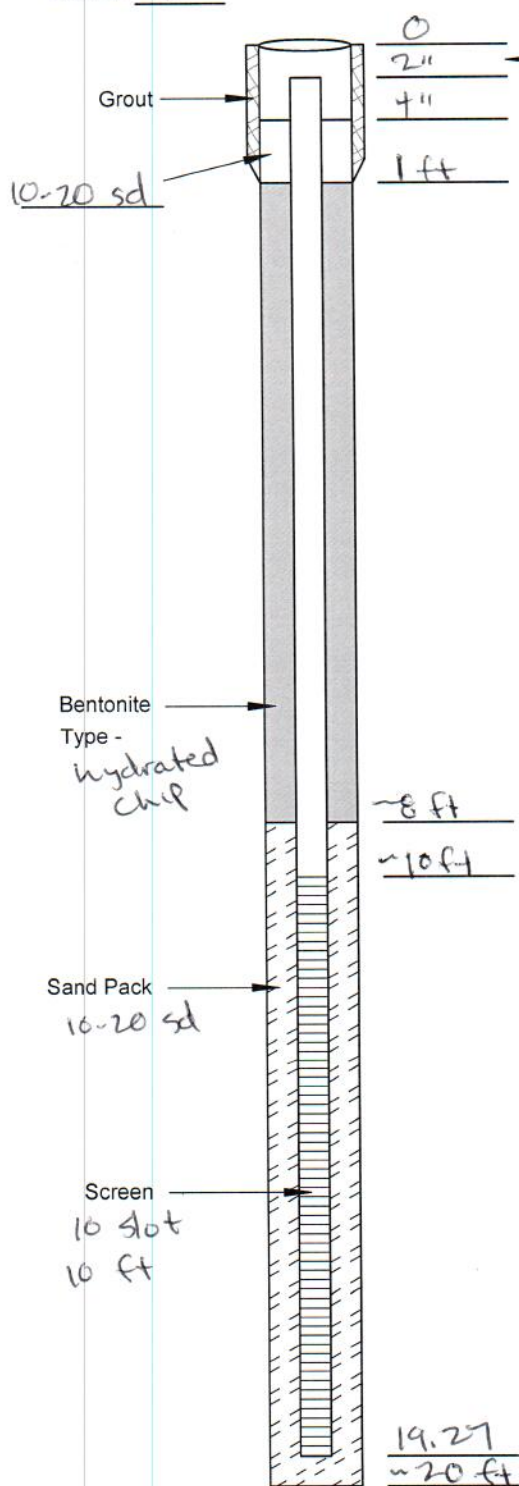
Additional Information:



### Well Completion Detail

Street Box  
Diam. = 6"

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 19.27

### WELL CONSTRUCTION LOG

Project  
Number Hiner 36

Well  
Number B448

#### Drilling Summary

Total Depth of Hole: ~20  
Hole Diameter: 2 1/4  
Drilling Company: DrillPro  
Driller: Terrance Apdaca  
Rig Type: Colo20DT  
Bits: Direct Push  
Geologist: R. Finley

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>5/1/20</u>	<u>1152</u>	<u>5/1/20</u>	<u>1218</u>
Well Completion:	<u>↓</u>	<u>1218</u>	<u>↓</u>	<u>1223</u>
Grouting:	<u>↓</u>	<u>1223</u>	<u>↓</u>	<u>1230</u>

#### Depth to Water (Below TOC)

Depth: 13.85 Date: 5/12/20 Time:

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>1/4 bag</u>	<u>1 bag</u>	<u>1 1/2 bag</u>
Type:	<u>Quikrete</u>	<u>Bent</u>	<u>10-20</u>

	Screen	
Size:	<u>10 slot</u>	Config.: <u>Sch 40</u>
Area/Ft.:	<u>10 ft</u>	Comp.: <u>10-20</u>
Inside Diam.:	<u>1.029</u>	Outside Diam.: <u>1.315</u>

#### Comments

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Boring Location Sketch

## SOIL BORING LOG

Project Number

Boring Number

Sheet

BH09

3 of 6



Project

Location Hiner 36

Drilling Method &amp; Equipment

Direct Push 6620DT

Drilling Contractor

DrillProDate 5/1/20Water Level -10Start 1132Finish 1149Logger R. Finley

Depth Below Surface	Sample			Standard Penetration Test Results 6" / 6" / 6" / 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5					0-6 Hydrovac pothole for utility clearing				
10					6-15 L. brown poorly sorted sand w/ gravel up to 1" fr. veg. Loose, dry no HC odor or stain gravel fines down to pebble 8-10 ft. saturated @ ~10 ft. * GW encountered.	Sp	N	0.9 - 8 1.2 - 10 0.4 - 12 0.4 - 14	
15									
Total Depth(s) =				Soil Sample(s):		Rationale		Additional Information:	
15				Ø		Low PID			





6" Flushmount

Grout

10-20 sd

Hydrated  
chip

## Sand Pack

10-20 sd

Screen

10 slot  
10 ft

$$\begin{array}{r} 0 \\ 2'' \\ 4'' \\ 1ft \end{array}$$
$$\begin{array}{r} 4f + 3f \\ \hline -5f + 4f \end{array}$$

14.03  
~ 15 ft

\* Measuring Point is Below Ground Surface (bgs)

Project Number Hines 3b

Well Number BH09

Total Depth of Hole: 15  
Hole Diameter: 2 1/4  
Drilling Company: Drill Pro  
Driller: Terrance Apodaca  
Rig Type: 6620 DT  
Bits: Direct Push  
Geologist: R. Finley

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>5/1/20</u>	<u>1132</u>	<u>5/1/20</u>	<u>1149</u>
Well Completion:	<u>↓</u>	<u>1149</u>	<u>↓</u>	<u>1154</u>
Grouting:	<u>↓</u>	<u>1154</u>	<u>↓</u>	<u>1201</u>

Depth: 8.81 Date: 5/12/20 Time:

	Grout	Seals	Filter
Quantity:	<u>1/4 bag</u>	<u>1 1/2 bag</u>	<u>1 1/2 bag</u>
Type:	<u>Quikrete</u>	<u>Bent</u>	<u>10-20</u>
	Screen		
Size:	<u>18 slot</u>	Config.:	<u>Sch 40</u>
Area/Ft.:	<u>16 ft</u>	Comp.:	<u>PVC</u>
Inside Diam.:	<u>1.029</u>	Outside Diam.:	<u>1.315</u>

## Comments

Total Depth from TOC = 14.03

Additional Information:



### Well Completion Detail

Street Box  
Diam. = 6"

Surveyed Dif.  
Btwn. GS and  
TOC

Grout

10-20 sd

2"  
4"  
1 ft

Bentonite  
Type - Hydrated chip

Sand Pack  
10-20 sd

Screen  
16 slot  
10 feet

4 ft 2 ft  
~5 ft 3 ft

13.00 ft  
~15 ft

\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 13.00

### WELL CONSTRUCTION LOG

Project  
Number Hiner 36

Well  
Number BH10

### Drilling Summary

Total Depth of Hole: ~15 ft

Hole Diameter: 2 1/4

Drilling Company: DrillPro

Driller: Terrance Arodaca

Rig Type: 6620 DT

Bits: Direct Push

Geologist: R. Finley

### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>5/1/20</u>	<u>1025</u>	<u>5/1/20</u>	<u>1040</u>
Well Completion:	<u>↓</u>	<u>1040</u>	<u>↓</u>	<u>1048</u>
Grouting:	<u>↓</u>	<u>1048</u>	<u>↓</u>	<u>1100</u>

### Depth to Water (Below TOC)

Depth: 7.40 Date: 5/12/20 Time:       

### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>1/4</u>	<u>1/2</u>	<u>1 bg</u>
Type:	<u>Quickcrete</u>	<u>bent</u>	<u>10-20</u>

	Screen	
Size:	<u>10 ft</u>	Config.: <u>Sch 40</u>
Area/Ft.:	<u>10 slot</u>	Comp.: <u>PVC</u>
Inside Diam.:	<u>1.029</u>	Outside Diam.: <u>1.315</u>

### Comments

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Boring Location Sketch

## SOIL BORING LOG

Project Number

Boring Number

Sheet

BH11

2 of 6

Project \_\_\_\_\_ Location Hiner 36Drilling Method & Equipment Direct Push 6620 DT Drilling Contractor Dr. HProDate 5/1/10 Water Level -10 Start 1103 Finish 1118 Logger R. Finley

Depth Below Surface	Sample			Standard Penetration Test Results 6" / 6" / 6" / 6"	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
5					0-6ft Hydovac pothole for utility clearance coarse gravelly Sp No odor / stain				5
10					6-7 med bwn Sp, coarse grain gravel up to 1" loose, dry, no plasticity	SP	N	0.7	0.7
					7-8 med bwn Sp, fg-mg Sp, no gravel, Black layers of organic odor damp v low plastic no HC odor or stain	SP	N	0.3	0.3
15					8-15 med bwn gravelly Sp fg-vcg, gravel fines down to pebbles + smaller - 10 ft. coarsens back up to gravelly @ 14-15ft No HC odor or stain some patches of organic smelling stain @ 8-12ft	SP	N	0.4	0.4
								0.2	0.2
								0.2	0.2
									15

Total Depth(s) =

Soil Sample(s):

Rationale

Additional Information:

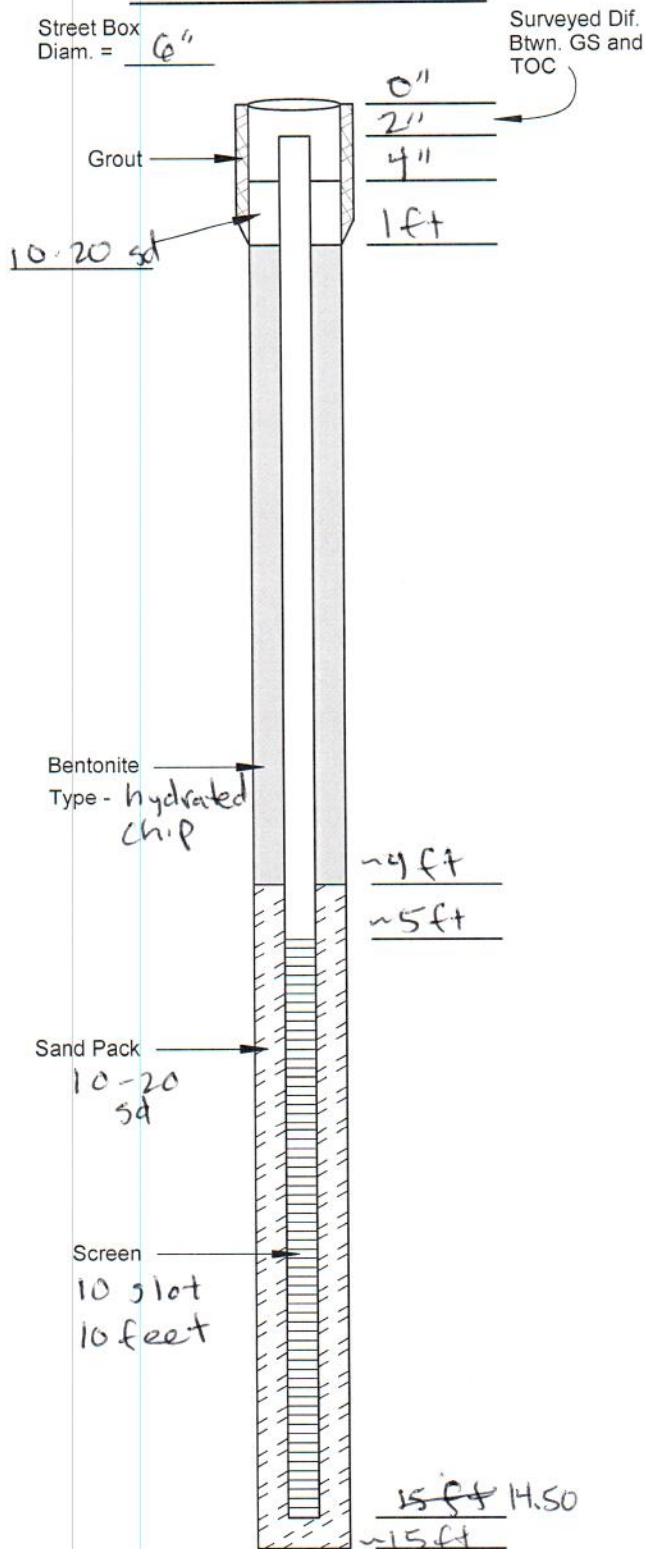
~15



low PID



### Well Completion Detail



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = ~15 ft 14.50

### WELL CONSTRUCTION LOG

Project  
Number Hiner 36

Well  
Number BH11

#### Drilling Summary

Total Depth of Hole: ~15

Hole Diameter: 2 1/4

Drilling Company: DrillPro

Driller: Terrance Apodaca

Rig Type: G620 DT

Bits: Direct Push

Geologist: R. Finley

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>5/1/20</u>	<u>1103</u>	<u>5/1/20</u>	<u>1118</u>
Well Completion:	<u>↓</u>	<u>1118</u>	<u>↓</u>	<u>1122</u>
Grouting:	<u>↓</u>	<u>1122</u>	<u>↓</u>	<u>1130</u>

#### Depth to Water (Below TOC)

Depth: 8.00 Date: 5/12/20 Time:       

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>1/4</u>	<u>1/2</u>	<u>1</u>
Type:	<u>Quickcrete</u>	<u>Bent</u>	<u>10-20 sd</u>

Screen	
Size:	<u>10 slot</u>
Area/Ft.:	<u>10 feet</u>
Inside Diam.:	<u>1.024</u>
Config.:	<u>Sch 40</u>
Comp.:	<u>PVC</u>
Outside Diam.:	<u>1.315</u>

#### Comments

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Boring Location Sketch

## SOIL BORING LOG

Project Number

Boring Number

Sheet

BH12

5 of 6



Project

Location Hiner 36

Drilling Method &amp; Equipment

Direct Push 6020DT

Drilling Contractor

DrillProDate 5/1/20Water Level ~15Start 1232Finish 1250

Logger

R. Finley

Depth Below Surface	Sample			Standard Penetration Test Results	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
				6" 6" 6" 6"					
					0-6 hydrovac pothole for utility clearance				
					6-10 med bwn silty sand, some pebbles, road base (road built up ~4ft above grade) <del>low dense</del> low dense, dry, no plasticity no odor/stain			0.3	8
					10-12 DK bwn silty, vfg-fg no pebbles/gravel med-high dense, low plastic, organic sticks + matter low moist			0.2	10
					12-14 L. bwn poorly sorted sand, sharp delineation @ 12 gravel 1" fg-veg. dry, loose no odor stain			12.7	12
					14- med bwn sp. * Saturated @ 15 * 15-15.5, black, stained soil. grades to med bwn to depth. gravelly @ 16 to 20ft			3.858	15 *
								32.2	16 *

Total Depth(s) =

~20

Soil Sample(s):

2 \* BH12 @ 15  
\* BH12 @ 16

Rationale

High PID

Additional Information:

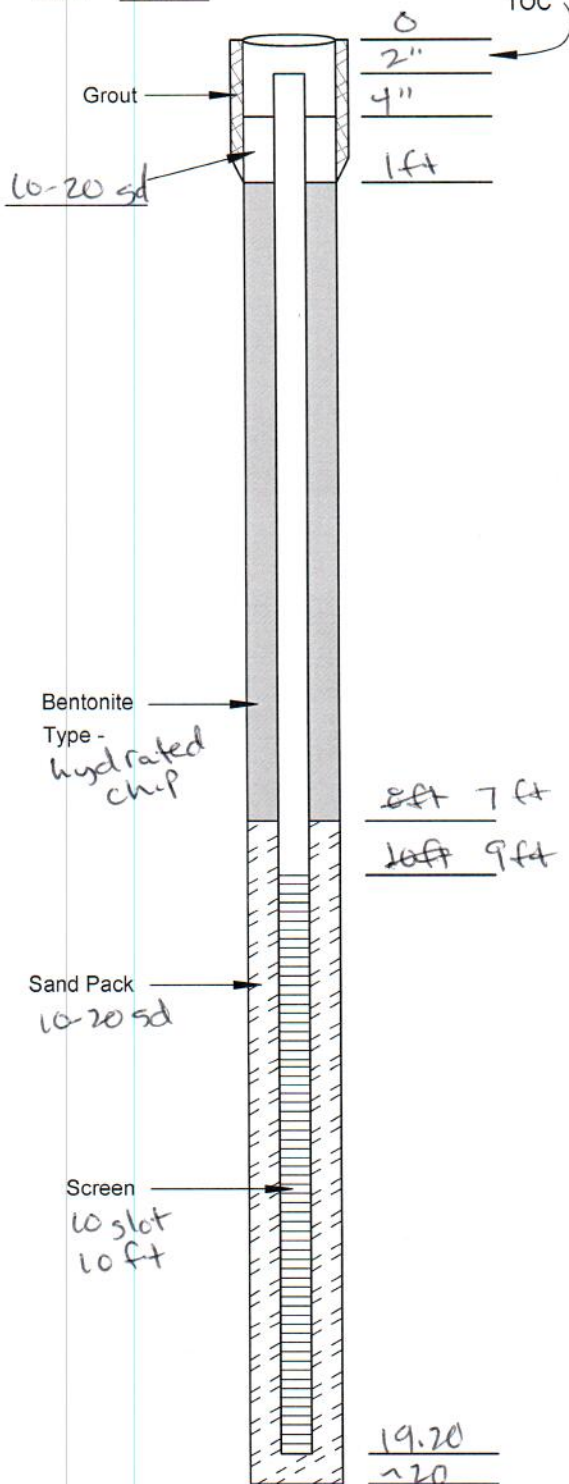


## WELL CONSTRUCTION LOG

### Well Completion Detail

Street Box  
Diam. = 6"

Surveyed Dif.  
Btwn. GS and  
TOC



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 19.20

Project  
Number Hiner 36

Well  
Number BH12

### Drilling Summary

Total Depth of Hole: ~20  
Hole Diameter: 2 1/4  
Drilling Company: DrillPro  
Driller: Terrance Apodaca  
Rig Type: 6620 DT  
Bits: Direct Rush  
Geologist: R. Fink

### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>5/1/20</u>	<u>1232</u>	<u>5/1/20</u>	<u>1250</u>
Well Completion:	<u>↓</u>	<u>1252</u>	<u>↓</u>	<u>1255</u>
Grouting:	<u>↓</u>	<u>1255</u>	<u>↓</u>	<u>1305</u>

### Depth to Water (Below TOC)

Depth: 13.10 Date: 5/12/20 Time:

### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>1/4 bgs</u>	<u>1 bgs</u>	<u>1 1/2 bgs</u>
Type:	<u>Quikrete</u>	<u>Bent</u>	<u>10-20 sd</u>

	Screen
Size:	<u>10 slot</u>
Area/Ft.:	<u>10 ft</u>
Inside Diam.:	<u>1.029</u>
Config.:	<u>Sch 40</u>
Comp.:	<u>PVC</u>
Outside Diam.:	<u>1.315</u>

### Comments

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Boring Location Sketch

## SOIL BORING LOG

Project Number

Boring Number

Sheet

BH13

6 of 6



Project

Location

Hiner 36

Drilling Method &amp; Equipment

Direct Push (DPT)

Drilling Contractor

DrillPro

Date

5/1/20

Water Level

~10 ft

Start

1315

Finish

1335

Logger

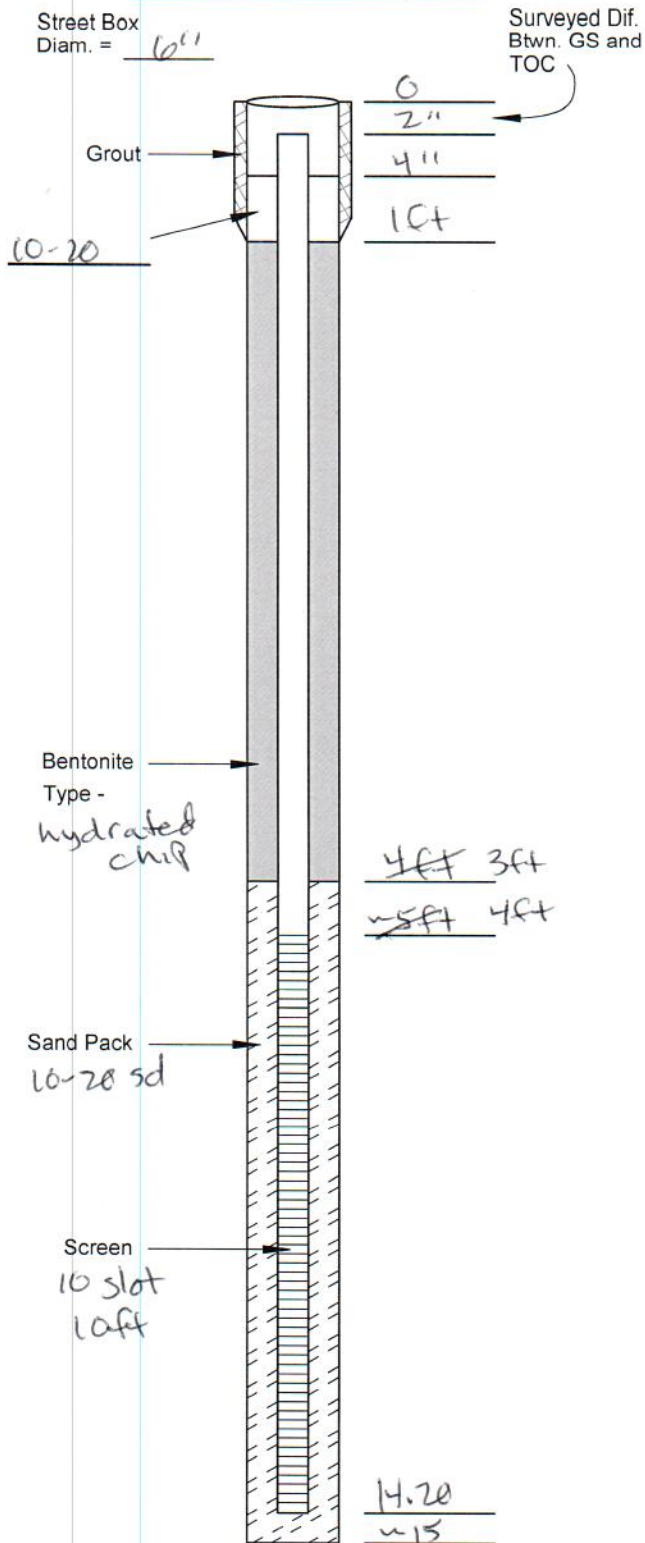
P. Finley

Depth Below Surface	Sample			Standard Penetration Test Results	Soil Description USCS Group Symbol, Name, Gradation or Plasticity, Particle Size Distribution, Color, Moisture Content, Relative Density or Consistency, Soil Structure, Mineralogy, Stain or Odor	Symbol of USCS Log	Staining	PID Readings (ppm)	PID Reading Depths (bgs)
	Interval	Depth/Time	Recovery						
				6"/6"/6"/6"					
					0-6 Hydrovac pothole for utility clearance				
					6-15 med bwn poorly sorted sand. high gravel content w/ layers of fine sand. mg-vcg loose. saturated @ ~10ft. No odor/stn	SP	N	0.7 - 8 1.0 - 10 0.7 - 12 0.4 - 14	
Total Depth(s) =				Soil Sample(s):	Rationale	Additional Information:			
15				0	Low PID				





### Well Completion Detail



\* Measuring Point is Below Ground Surface (bgs)

Total Depth from TOC = 14.20

### WELL CONSTRUCTION LOG

Project  
Number Hiner 36

Well  
Number BH13

#### Drilling Summary

Total Depth of Hole: ~15

Hole Diameter: 2 1/4

Drilling Company: Drill Pro

Driller: Terrance Apodaca

Rig Type: 6620 DT

Bits: Direct Push

Geologist: R. Finley

#### Time Log

	Start		Finish	
	Date	Time	Date	Time
Drilling:	<u>5/1/20</u>	<u>1315</u>	<u>5/1/20</u>	<u>1335</u>
Well Completion:	<u>↓</u>	<u>1335</u>	<u>↓</u>	<u>1340</u>
Grouting:	<u>↓</u>	<u>1340</u>	<u>↓</u>	<u>1349</u>

#### Depth to Water (Below TOC)

Depth: 6.70 Date: 5/12/20 Time:       

#### Well Construction Materials

	Grout	Seals	Filter
Quantity:	<u>1 1/4 bgs</u>	<u>1 1/2 bgs</u>	<u>1 bgs</u>
Type:	<u>Quikrete</u>	<u>bent</u>	<u>10-20</u>

	Screen
Size:	<u>10 slot</u>
Area/Ft.:	<u>10-ft</u>
Inside Diam.:	<u>1.029</u>
Config.:	<u>Sch 40</u>
Comp.:	<u>PVC</u>
Outside Diam.:	<u>1.315</u>

#### Comments

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