

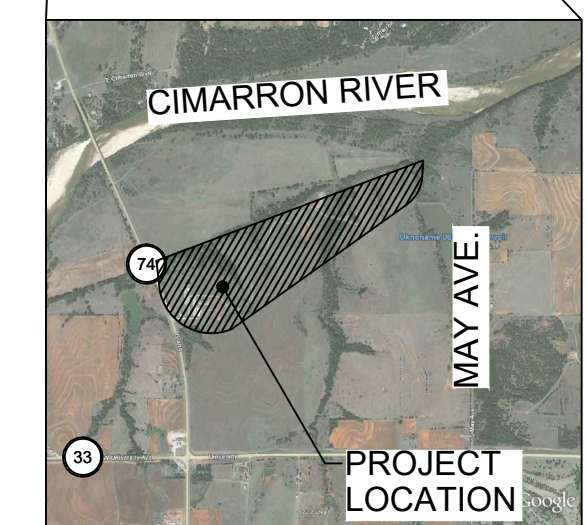
APPENDIX A – CONSTRUCTION RECORD DRAWINGS

Cimarron Environmental Response Trust

Groundwater Remediation Logan County, Oklahoma

March 2017
96785

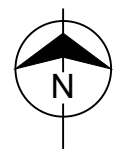
Pilot Test Construction Drawings



PROJECT LOCATION

ADDRESS:
100 NORTH HIGHWAY 74
GUTHRIE, OK 73044

LEGAL DESCRIPTION:
NE, NW, & SW 1/4 Sec. 12, T16N R4W I.M.,
NE 1/4 Sec. 11, T16N R4W I.M., Sec. 1 & 2
South of River, T16N R4W I.M.



NOT TO SCALE

BRIAN WEIS
CIVIL
29173

ONE OR TWO CHARACTER DISCIPLINE DESIGNATOR (MAY NOT BE PRESENT IF CALLOUT AND TITLE ARE ON DRAWINGS WITHIN THE SAME DISCIPLINE)

LETTER OR NUMBER DESIGNATOR

DRAWING SEQUENCE NUMBER INDICATES WHERE TITLE IS LOCATED (MAY NOT BE PRESENT IF CALLOUT AND TITLE ARE ON THE SAME DRAWING)

SECTION, DETAIL, AND ELEVATION SYMBOL IDENTIFIERS

SECTION CALLOUT EXAMPLE

DETAIL CALLOUT EXAMPLE

ELEVATION CALLOUT EXAMPLE

THE WORD "SECTION" MAY BE REPLACED WITH "ELEVATION" OR "DETAIL"

SECTION, DETAIL, OR ELEVATION TITLE EXAMPLE

SECTION, DETAIL, AND ELEVATION IDENTIFICATION SYSTEM

GENERAL DRAWINGS

DWG. NO.	TITLE
	COVER-INDEX
BMCD-GWREMED-G001	GENERAL NOTES, LEGEND, AND ABBREVIATIONS

CIVIL DRAWINGS

DWG. NO.	TITLE
BMCD-GWREMED-C001	OVERALL SITE PLAN
BMCD-GWREMED-C002	WESTERN AREA SITE PLAN
BMCD-GWREMED-C003	BURIAL AREA 1 SITE PLAN
BMCD-GWREMED-C101	UP1 INJECTION TRENCH DETAILS
BMCD-GWREMED-C102	UP2 INJECTION TRENCH DETAILS
BMCD-GWREMED-C103	BA1 INJECTION AND EXTRACTION TRENCH DETAILS
BMCD-GWREMED-C201	CIVIL DETAILS
BMCD-GWREMED-C202	COORDINATES AND CONSTRUCTION SCHEDULE

PROCESS DRAWINGS

DWG. NO.	TITLE
BMCD-GWREMED-P101	P&IDs - GROUNDWATER EXTRACTION AND WATER INJECTION SYSTEM

no.	date	by	ckd	description
0	3/20/17	BTC	BW	ISSUED FOR BID
	8/8/17	BTC	BW	IFC
	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS



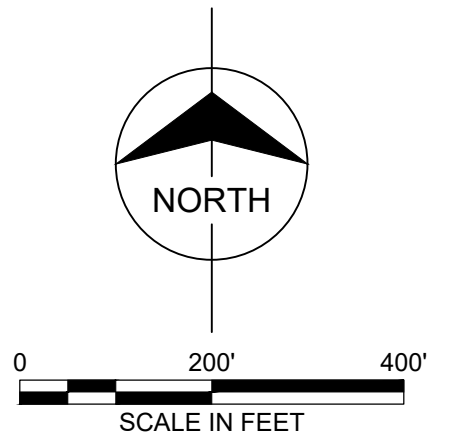
Cover-Index



no.	date	by	ckd	description
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1	8/8/17	BC	BW	IFC
2	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS

NOTES:
 1. TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY CONDUCTED IN MAY 2014.
 2. LOCATIONS OF ALL MATERIAL STOCKPILE AND STAGING AREAS WILL BE DETERMINED AT THE TIME OF CONSTRUCTION AS AGREED UPON BY OWNER, CONTRACTOR, AND SUBCONTRACTOR.

1



9400 WARD PARKWAY
 KANSAS CITY, MO 64114
 816-333-9400
 OKLAHOMA FIRM LICENSEE NO. 421

date	MARCH 2017	detailed	B. CLEMENT
designed	B. CLEMENT	checked	B. WEIS

**Cimarron Environmental Response Trust
 OVERALL SITE PLAN**

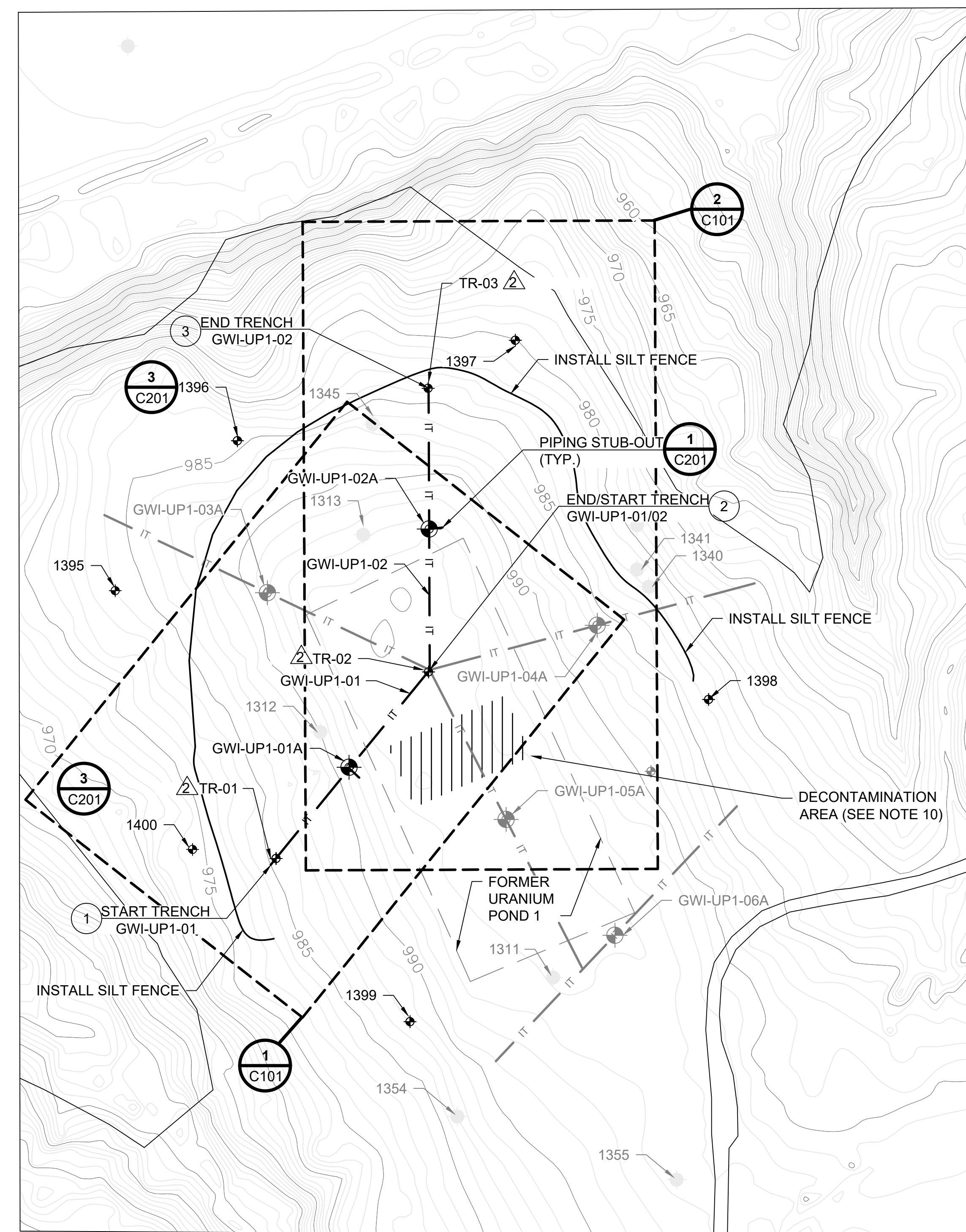
project	96785	contract	8110
drawing	BMCD-GWREMED-C001		rev. 2
sheet	3	of 11	sheets
file	PILOT TEST DESIGN DRAWINGS 032018.DWG		

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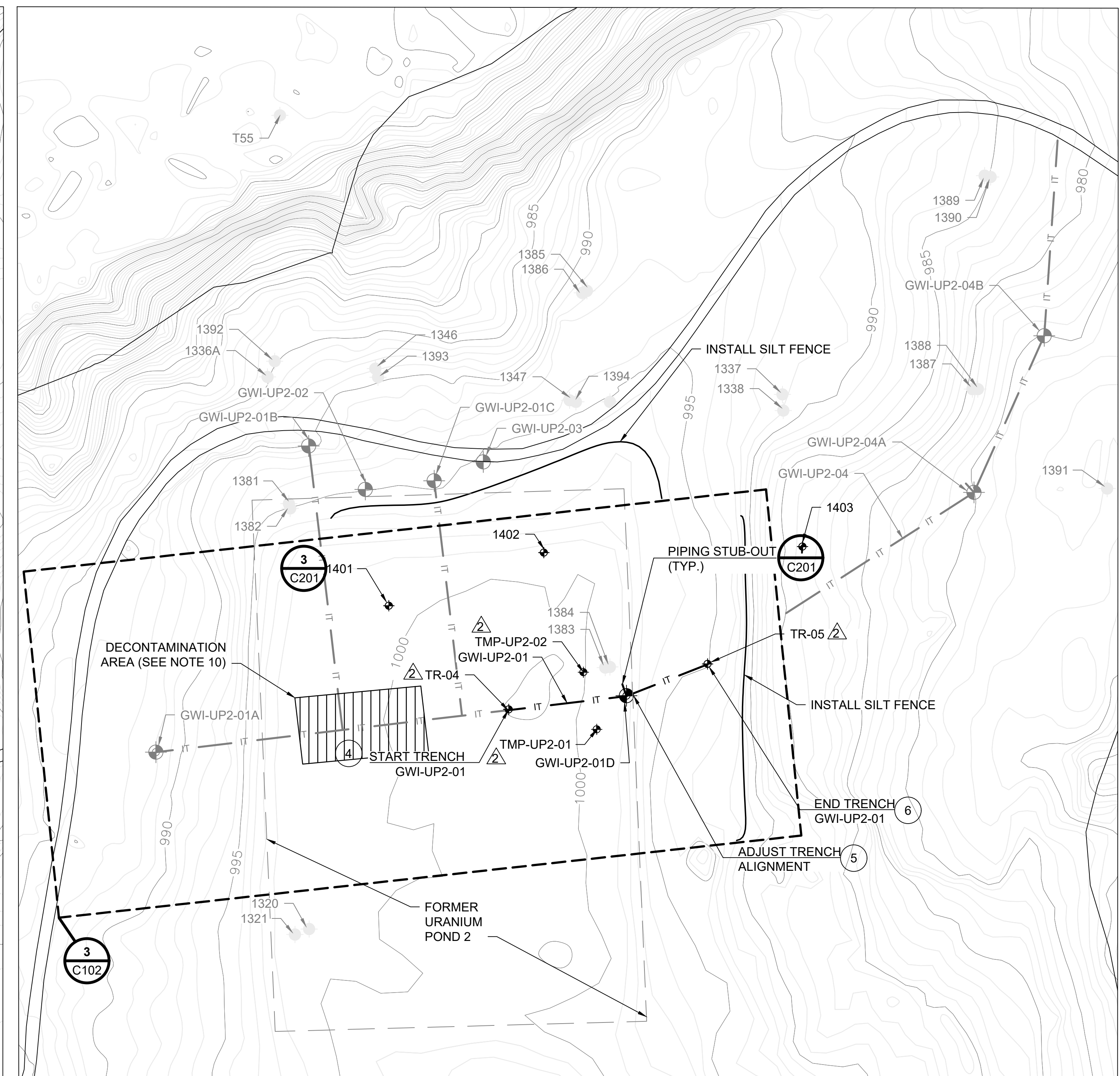
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no.	date	by	ckd	description
0	3/20/17	BC	BW	ISSUED FOR BID
1	8/08/17	BC	BW	IFC
2	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS



UP1 PILOT TESTING AREA



UP2 PILOT TESTING AREA

NOTES:

- SUBCONTRACTOR SHALL DISCHARGE WATER RECOVERED FROM TRENCH INSTALLATION ACTIVITIES THAT HAS NOT CONTACTED POTENTIALLY IMPACTED SOILS TO THE DRY DETENTION BASIN AS INDICATED (SEE SHEET C001). EROSION CONTROL MEASURES SHALL BE INSTALLED AS DETAILED IN THE SWPPP.
- FRAC TANKS, EQUIPMENT, TRENCH SPOILS, ETC. SHALL BE STAGED AT AN ELEVATION ABOVE THE FEMA 100-YEAR FLOOD ELEVATION (APPROXIMATE ELEVATION 965), IN ACCORDANCE WITH THE SWPPP, AT THE END OF EACH WORK DAY.
- MONITOR WELL AND PIEZOMETER CONSTRUCTION AND INSTALLATION SHALL BE COMPLETED BY A DRILLER LICENSED IN THE STATE OF OKLAHOMA AND SHALL BE REGISTERED WITH THE OWRB WITHIN 60 DAYS OF INSTALLATION.
- MONITOR WELLS INSTALLED WITHIN INJECTION TRENCHES SHALL HAVE TOTAL DEPTHS THAT EXTEND TO THE BASE OF THE TRENCH AT THAT LOCATION AND SCREEN INTERVALS THAT EXTEND 10 FEET IN THE UPWARD DIRECTION FROM THE BASE OF THE TRENCH.
- SUBCONTRACTOR IS RESPONSIBLE FOR REGISTERING PIEZOMETER AND ALL MONITOR WELLS AND WITH THE OWRB WITHIN 60 DAYS OF INSTALLATION, AND SHALL PROVIDE COPIES OF REGISTRATION REPORTS TO CONTRACTOR.
- SUBCONTRACTOR SHALL PROTECT EXISTING MONITOR WELLS DURING INJECTION AND EXTRACTION TRENCH INSTALLATION AND PILOT TESTING ACTIVITIES. SUBCONTRACTOR MAY SUBMIT ALTERNATE TRENCH ALIGNMENT FOR CONTRACTOR CONSIDERATION IN EFFORT TO PROTECT EXISTING MONITOR WELLS. ALTERNATE ALIGNMENT MAY OR MAY NOT BE APPROVED.
- TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY CONDUCTED IN MAY 2014.
- SEE SHEET C202 FOR CONSTRUCTION DETAILS AND LOCATION COORDINATES ASSOCIATED WITH PIEZOMETER, TRENCH NODES, MONITOR WELLS AND INJECTION WELLS.
- MONITOR WELLS INSTALLED WITHIN TRENCHES SHALL BE CONSTRUCTED OF THE SAME CASING AND SCREEN MATERIAL AND SHALL HAVE SURFACE COMPLETIONS AS DEPICTED BY DETAIL 3 OF SHEET C201. OTHER TYPICAL CONSTRUCTION DETAILS DEPICTED BY DETAIL 3 OF SHEET C201 SHALL APPLY ONLY TO MONITOR WELLS INSTALLED OUTSIDE OF TRENCHES.
- ACCESS TRENCH SIDE SLOPES SHALL CONFORM TO OSHA REQUIREMENTS AND APPROVED EXCAVATION PLAN
- SUBCONTRACTOR SHALL DECONTAMINATE CONSTRUCTION EQUIPMENT NEAR TRENCH PRIOR TO DEMOBILIZING TO SUBSEQUENT AREAS OR OFF-SITE.



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Cimaron Environmental Response Trust
WESTERN AREA SITE PLAN

project	96785	contract	8110
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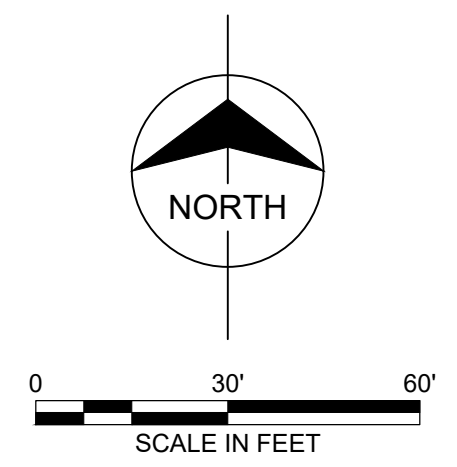
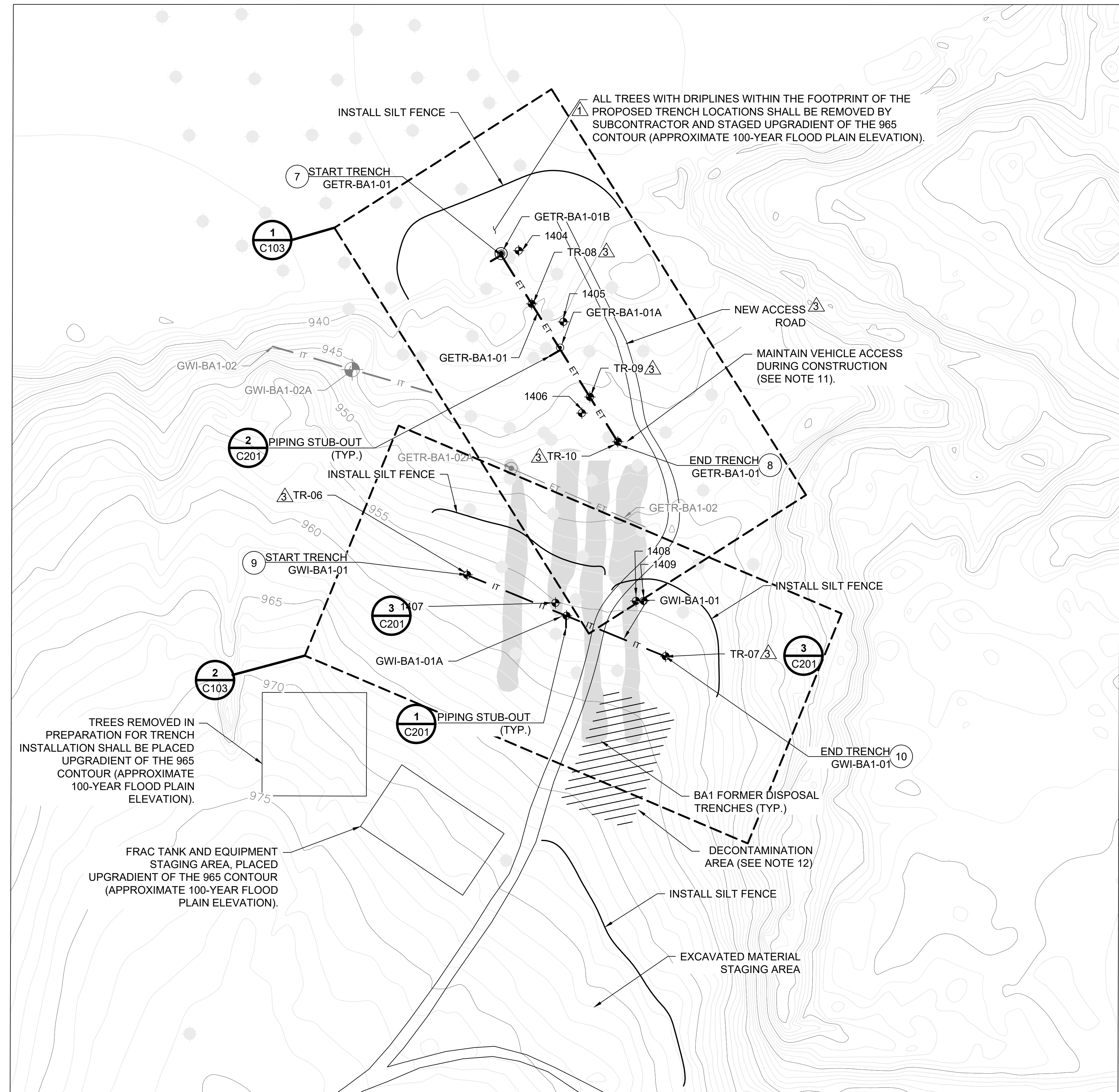
rev. **2**

sheet 4 of 11 sheets
file PILOT TEST DESIGN DRAWINGS 032018.DWG

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no.	date	by	ckd	description
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1	3/31/17	BC	BW	ADDENDUM 1
2	8/8/17	BC	BW	IFC
3	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS

- NOTES:
- FRAC TANKS, EQUIPMENT, TRENCH SPOILS, ETC. SHALL BE STAGED AT AN ELEVATION ABOVE THE FEMA 100-YEAR FLOOD ELEVATION (APPROXIMATE ELEVATION 965), IN ACCORDANCE WITH THE SWPPP, AT THE END OF EACH WORK DAY.
 - MONITOR WELL CONSTRUCTION, INSTALLATION, AND ABANDONMENT SHALL BE COMPLETED BY A DRILLER LICENSED IN THE STATE OF OKLAHOMA AND SHALL BE REGISTERED WITH THE OWRB WITHIN 60 DAYS OF COMPLETION.
 - MONITOR WELLS INSTALLED WITHIN INJECTION AND EXTRACTION TRENCHES SHALL HAVE TOTAL DEPTHS THAT EXTEND TO THE BASE OF THE TRENCH AT THAT LOCATION AND SCREEN INTERVALS THAT EXTEND 10 FEET IN THE UPWARD DIRECTION FROM THE BASE OF THE TRENCH.
 - SUBCONTRACTOR IS RESPONSIBLE FOR REGISTERING ALL MONITOR WELLS WITH THE OKLAHOMA WATER RESOURCES BOARD WITHIN 60 DAYS OF INSTALLATION AND PROVIDING COPIES OF REGISTRATION REPORTS TO CONTRACTOR.
 - THREE EXISTING MONITOR WELLS SHALL BE ABANDONED PRIOR TO GETR-BA1-01 CONSTRUCTION AND REPLACED FOLLOWING CONSTRUCTION (SEE SHEET C103 FOR DETAILS). SUBCONTRACTOR MAY SUBMIT PLAN FOR REMOVAL AND REPLACEMENT OF ADDITIONAL MONITOR WELLS (AT SUBCONTRACTOR'S COST) TO ENGINEER FOR CONSIDERATION. ALTERNATE LOCATIONS MAY OR MAY NOT BE APPROVED.
 - SUBCONTRACTOR SHALL PROTECT EXISTING MONITOR WELLS DURING INJECTION AND EXTRACTION TRENCH INSTALLATION AND PILOT TESTING ACTIVITIES.
 - TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY CONDUCTED IN MAY 2014.
 - SEE SHEET C202 FOR CONSTRUCTION DETAILS AND LOCATION COORDINATES ASSOCIATED WITH TRENCH NODES, TRENCH SUMPS, MONITOR WELLS AND INJECTION WELLS.
 - MONITOR WELLS INSTALLED WITHIN TRENCHES SHALL BE CONSTRUCTED OF THE SAME CASING AND SCREEN MATERIAL AND SHALL HAVE SURFACE COMPLETIONS AS DEPICTED BY DETAIL 3 OF SHEET C201.
 - OTHER TYPICAL CONSTRUCTION DETAILS DEPICTED BY DETAIL 3 OF SHEET C201 SHALL APPLY ONLY TO MONITOR WELLS INSTALLED OUTSIDE OF TRENCHES.
 - ACCESS TRENCH SIDE SLOPES SHALL CONFORM TO OSHA REQUIREMENTS AND APPROVED EXCAVATION PLAN.
 - IMPLEMENT TEMPORARY RE-REROUTING OF ROAD AS REQUIRED TO MAINTAIN VEHICLE ACCESS DURING CONSTRUCTION ACTIVITIES.
 - SUBCONTRACTOR SHALL DECONTAMINATE CONSTRUCTION EQUIPMENT PRIOR TO DEMOBILIZING TO SUBSEQUENT AREAS OR OFF-SITE.



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Cimaron Environmental Response Trust
 BURIAL AREA 1
 SITE PLAN

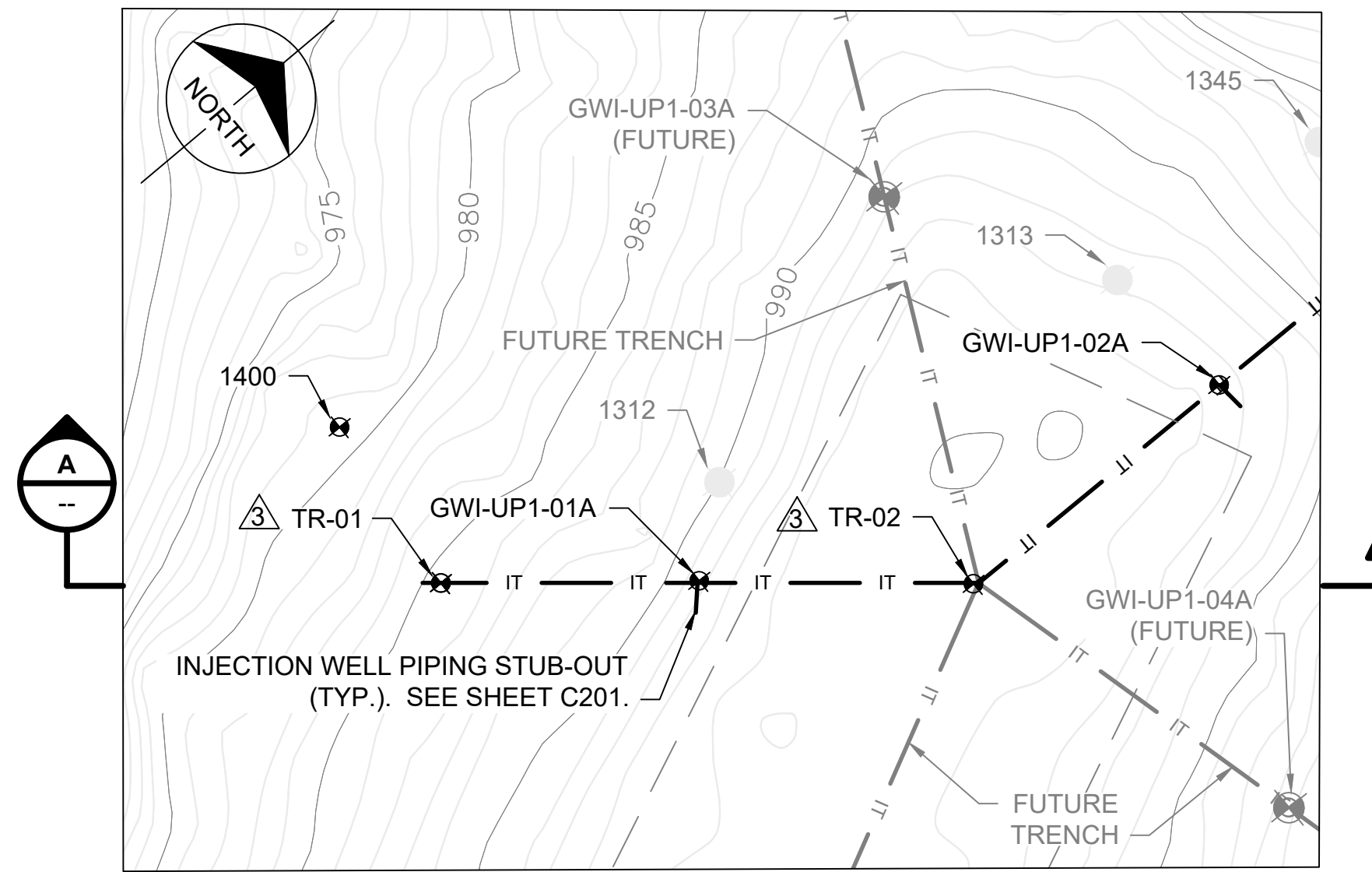
project	96785	contract	8110
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sheet 5 of 11 sheets
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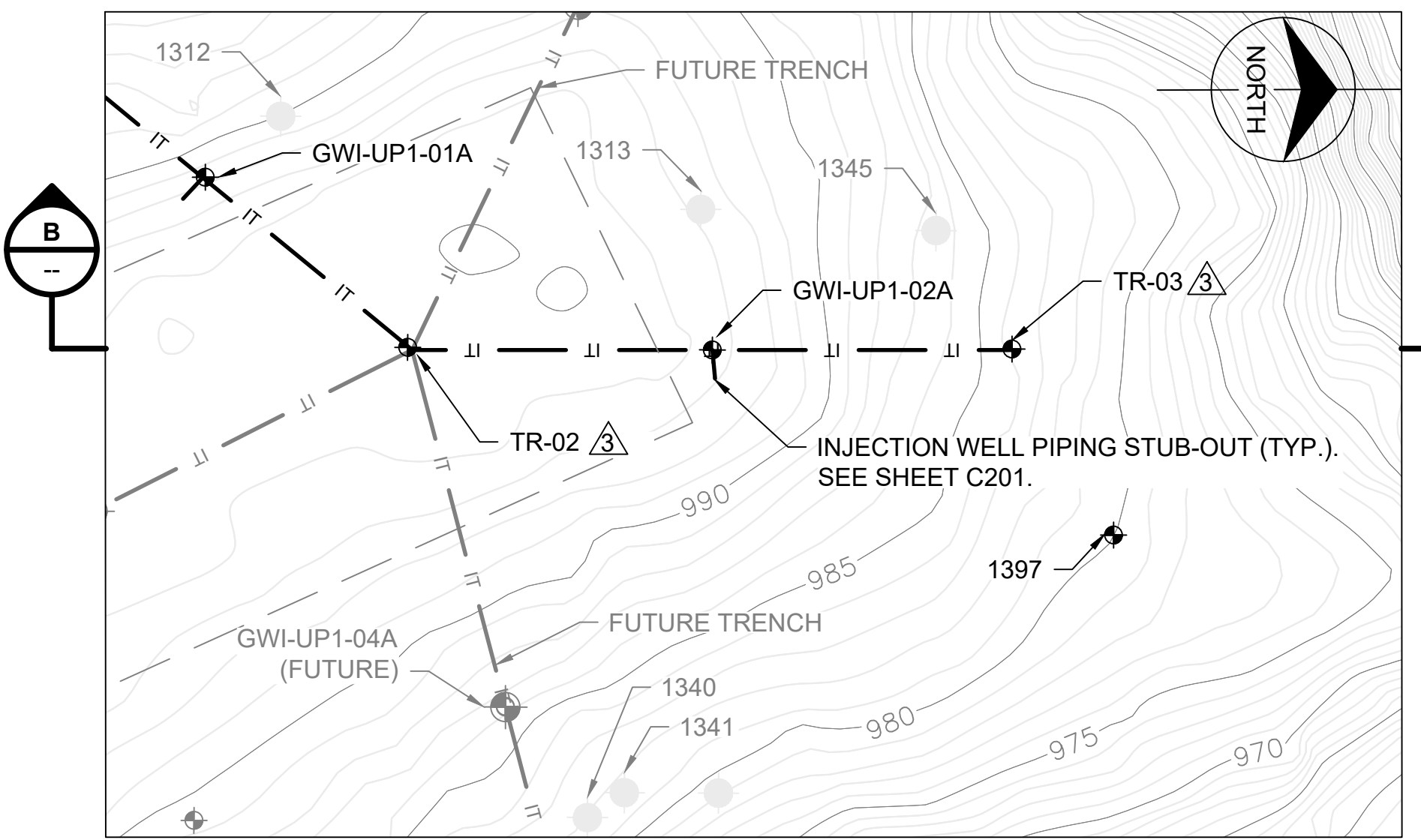
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BA1 PILOT TESTING AREA

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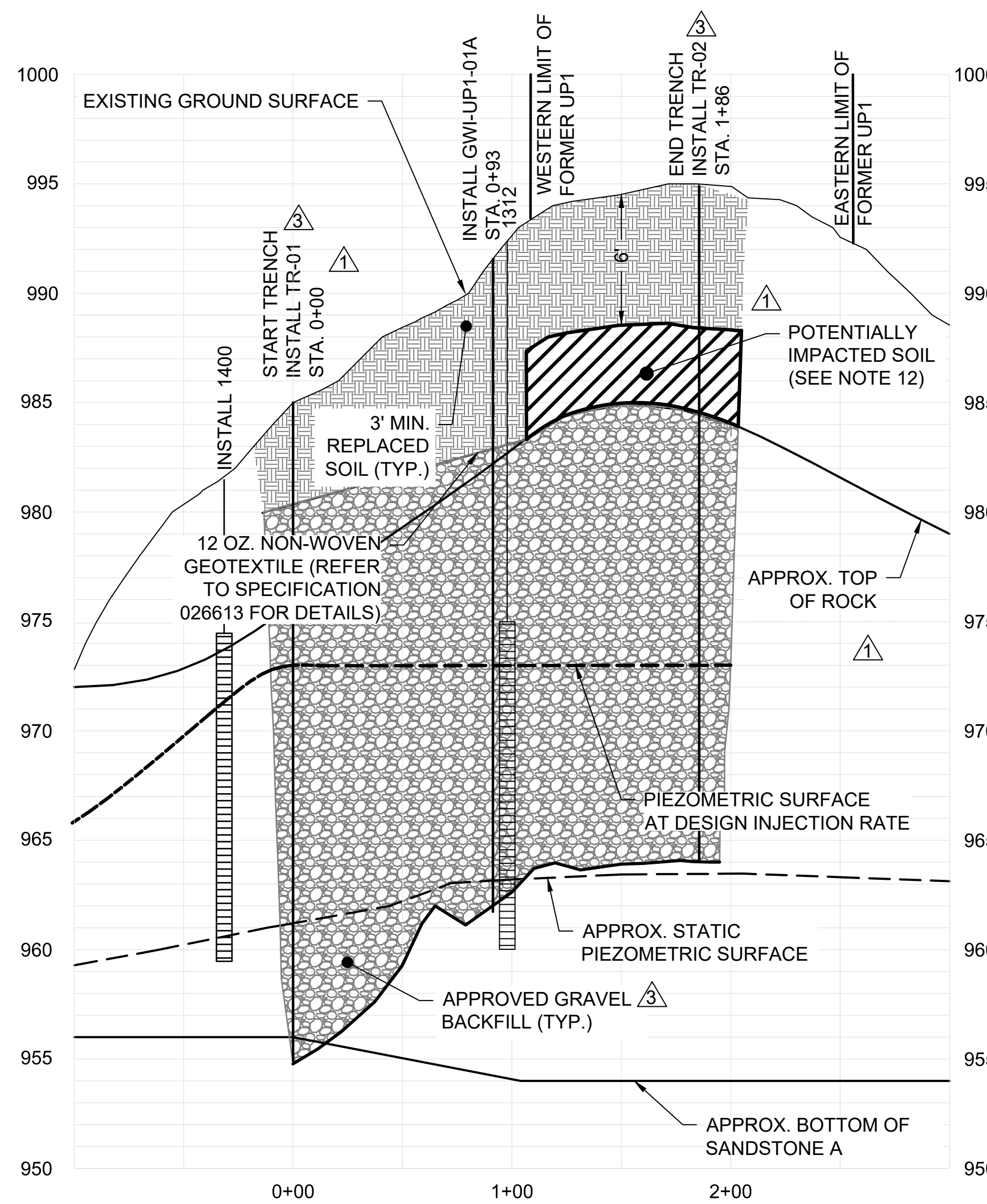


**INJECTION TRENCH GWI-UP1-01
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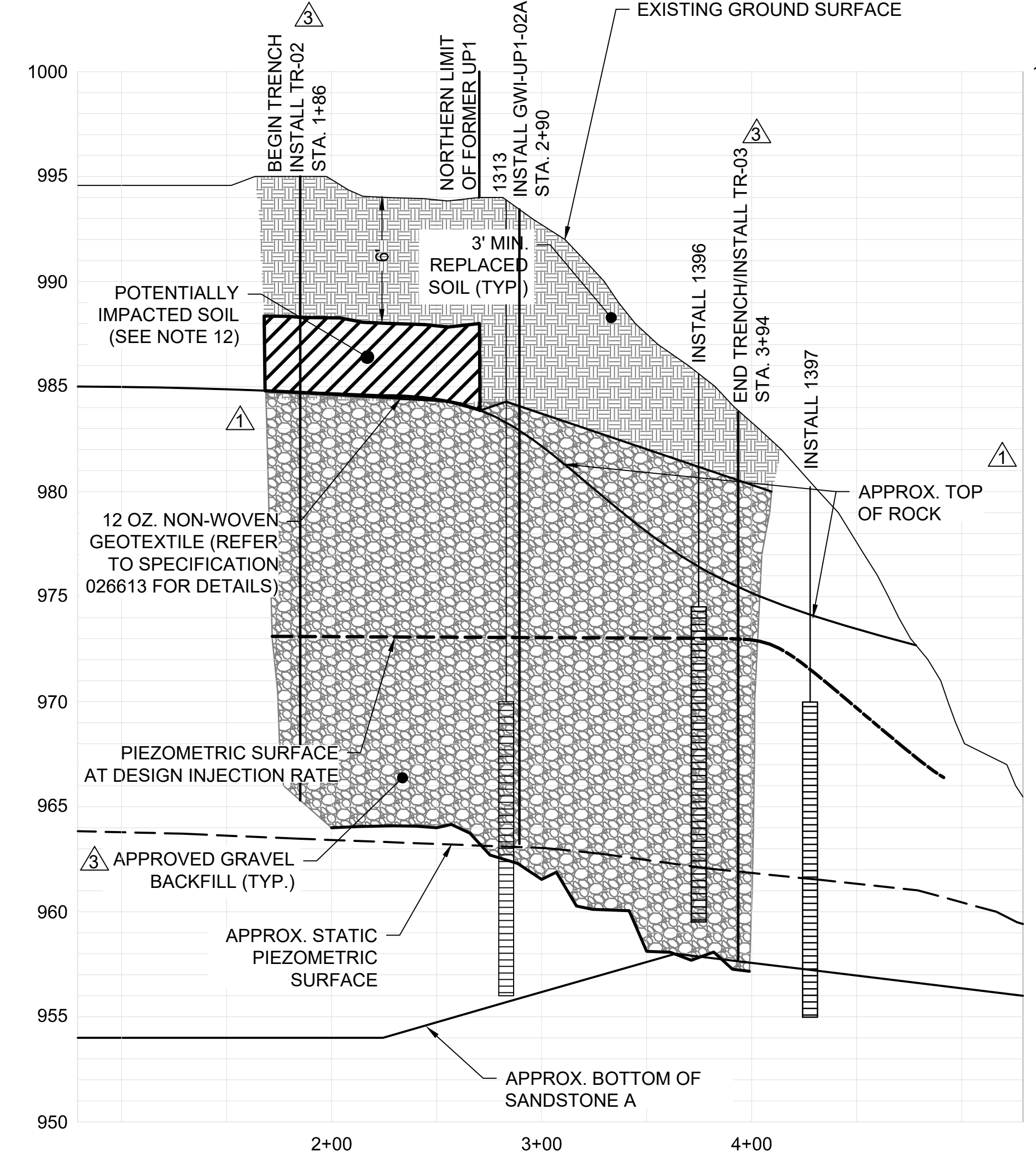


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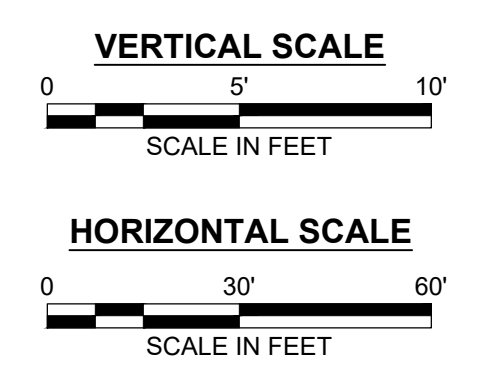
- NOTES:**
1. TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY CONDUCTED IN MAY 2014.
 2. STATIC PIEZOMETRIC SURFACE FOR WESTERN AREA TREATMENT FACILITY CREATED FROM WATER LEVEL MEASUREMENTS RECORDED IN SANDSTONE A MONITOR WELLS ON MARCH 18, 2015.
 3. SUBSURFACE INFORMATION SHOWN IS BASED ON LIMITED DATA AVAILABLE FROM BORING LOGS COMPLETED FOR MONITOR WELLS 1341, 1345, AND 1354. THIS INFORMATION WAS PROJECTED TO THE TRENCH ALIGNMENTS. SUBSURFACE INFORMATION SHOWN SHOULD BE CONSIDERED APPROXIMATE.
 4. EXISTING SANDSTONE A MONITOR WELL LOCATIONS AND SCREEN INTERVALS ARE PROJECTED IN CROSS SECTION.
 5. INJECTION WELLS INSTALLED IN INJECTION TRENCHES WILL BE CONSTRUCTED SO THAT SCREEN INTERVAL EXTENDS UPWARD FROM THE BASE OF THE TRENCH AND TERMINATES APPROXIMATELY ONE FOOT BELOW THE TOP OF THE APPROVED GRAVEL BACKFILL.
 6. MONITOR WELLS INSTALLED WITHIN INJECTION TRENCHES SHALL HAVE TOTAL DEPTHS THAT EXTEND TO THE BASE OF THE TRENCH AT THAT LOCATION AND SCREEN INTERVALS THAT EXTEND 10 FEET IN THE UPWARD DIRECTION FROM THE BASE OF THE TRENCH.
 7. TRENCH DEPTH SHALL EXTEND TO THE BASE OF SANDSTONE A AS ENCOUNTERED IN THE FIELD OR UP TO 30 FEET BELOW GROUND SURFACE, WHICHEVER IS SHALLOWER.
 8. TOTAL DEPTHS AND CONSTRUCTION DETAILS FOR TRENCHES AND MONITOR WELLS ARE SUBJECT TO CHANGE AT CONTRACTOR'S DIRECTION, BASED ON SUBSURFACE MATERIALS ENCOUNTERED DURING DRILLING AND/OR EXCAVATION.
 9. UNLESS OTHERWISE AUTHORIZED BY CONTRACTOR, SUBCONTRACTOR SHALL LIMIT DEPTH OF EXCAVATION BENCHING TO 6 FEET BELOW GROUND SURFACE WITHIN THE FOOTPRINT OF FORMER URANIUM POND 1.
 10. SEE SHEET C202 FOR CONSTRUCTION DETAILS AND LOCATION COORDINATES ASSOCIATED WITH TRENCH NODES, MONITOR WELLS, AND INJECTION WELLS.
 11. ACCESS TRENCH SIDE SLOPES SHALL CONFORM TO OSHA REQUIREMENTS AND APPROVED EXCAVATION PLAN.
 12. POTENTIALLY IMPACTED SOILS EXCAVATED FROM WITHIN THE BOUNDARY OF THE FORMER UP1 FOOTPRINT SHALL BE MANAGED IN ACCORDANCE WITH THE CONCEPTUAL SOIL MANAGEMENT SKETCH.



**INJECTION TRENCH GWI-UP1-01
ELEVATION VIEW**



**INJECTION TRENCH GWI-UP1-02
ELEVATION VIEW**



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designed	B. CLEMENT	checked	B. WEIS

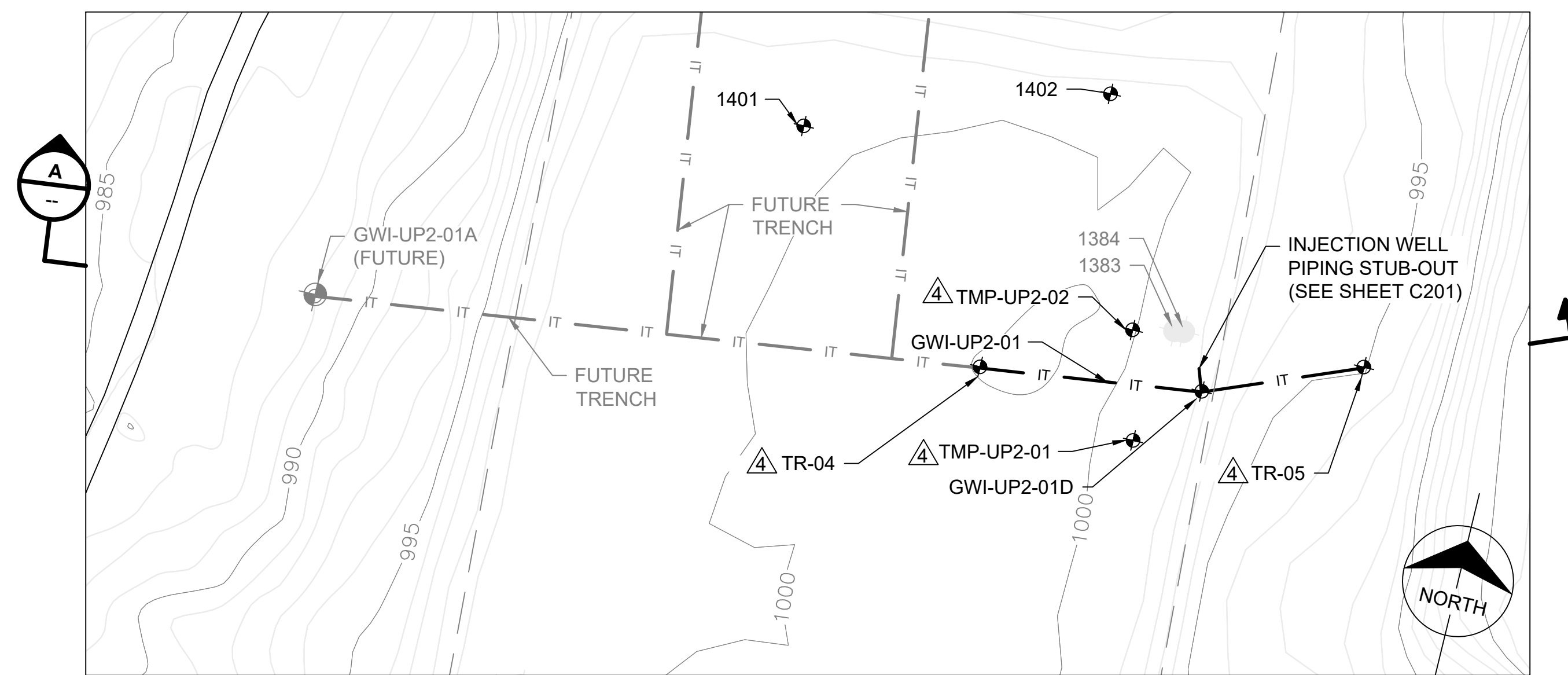
**Cimaron Environmental Response Trust
UP1 INJECTION TRENCH DETAILS**

project	96785	contract	8110
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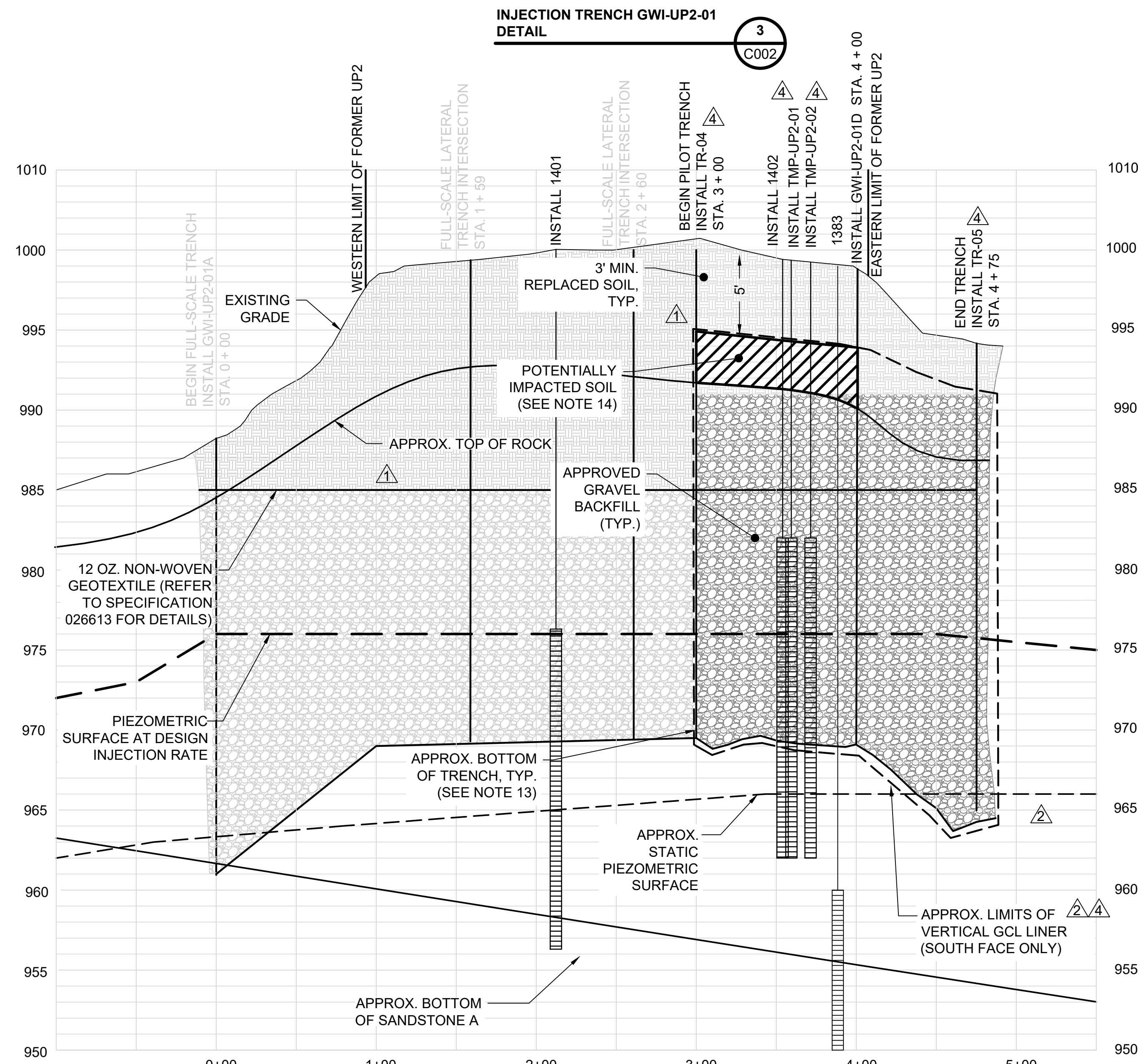
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file	PILOT TEST DESIGN DRAWINGS 032018.DWG			

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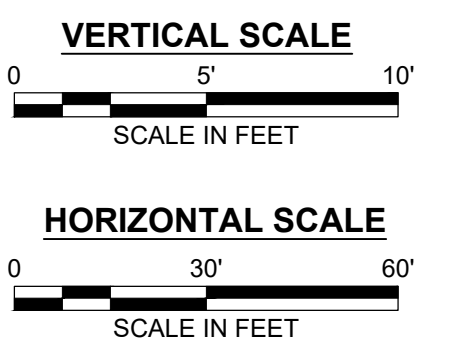
**INJECTION TRENCH GWI-UP2-01
DETAIL**



**INJECTION TRENCH GWI-UP2-01
ELEVATION VIEW**

- NOTES:**
1. TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY CONDUCTED MAY IN 2014.
 2. STATIC PIEZOMETRIC SURFACE CREATED FROM WATER LEVEL MEASUREMENTS RECORDED IN SANDSTONE A MONITOR WELLS ON MARCH 18, 2015.
 3. SUBSURFACE INFORMATION SHOWN IS BASED ON AVAILABLE BORING LOGS FOR NEARBY MONITOR WELLS. THIS INFORMATION WAS PROJECTED TO THE TRENCH ALIGNMENTS. SUBSURFACE INFORMATION SHOWN SHOULD BE CONSIDERED APPROXIMATE.
 4. EXISTING SANDSTONE A MONITOR WELL LOCATIONS AND SCREEN INTERVALS ARE PROJECTED IN CROSS SECTION.
 5. INJECTION WELLS INSTALLED IN INJECTION TRENCHES WILL BE CONSTRUCTED SO THAT SCREEN INTERVAL EXTENDS UPWARD FROM THE BASE OF THE TRENCH AND TERMINATES APPROXIMATELY ONE FOOT BELOW THE TOP OF THE APPROVED GRAVEL BACKFILL.
 6. MONITOR WELLS INSTALLED IN INJECTION TRENCHES SHALL HAVE TOTAL DEPTHS THAT EXTEND TO THE BASE OF THE TRENCH AT THAT LOCATION AND SCREEN INTERVALS THAT EXTEND 10 FEET IN THE UPWARD DIRECTION FROM THE BASE OF THE TRENCH.
 7. TRENCH DEPTH SHALL EXTEND TO THE BASE OF SANDSTONE A AS ENCOUNTERED IN THE FIELD OR UP TO 31 FEET BELOW GROUND SURFACE, WHICHEVER IS SHALLOWER.
 8. TOTAL DEPTHS AND CONSTRUCTION DETAILS FOR PIEZOMETER, INJECTION TRENCHES AND MONITOR WELLS ARE SUBJECT TO CHANGE AT CONTRACTOR'S DIRECTION, BASED ON SUBSURFACE MATERIALS ENCOUNTERED DURING DRILLING AND/OR EXCAVATION.
 9. A GCL LINER SHALL BE INSTALLED ON THE SOUTHERN VERTICAL FACE OF INJECTION TRENCH GWI-UP2-01. REFER TO SECTION A ON DRAWING C202 GCL DETAILS.
 10. SEE SHEET C202 FOR CONSTRUCTION DETAILS AND LOCATION COORDINATES ASSOCIATED WITH PIEZOMETER, TRENCH NODES, MONITOR WELLS, AND INJECTION WELLS.
 11. A RUBBER LINER MAY BE PRESENT BELOW GRADE ALONG THE EASTERN EDGE OF THE FORMER URANIUM POND 2. SUBCONTRACTOR SHALL CUT, REMOVE AND DISPOSE OF LINER DURING EXCAVATION ACTIVITIES.
 12. ACCESS TRENCH SIDE SLOPES SHALL CONFORM TO OSHA REQUIREMENTS AND APPROVED EXCAVATION PLAN.
 - 13.
 14. POTENTIALLY IMPACTED SOILS EXCAVATED FROM WITHIN THE BOUNDARY OF THE FORMER UP1 FOOTPRINT SHALL BE MANAGED IN ACCORDANCE WITH THE CONCEPTUAL SOIL MANAGEMENT SKETCH.
 15. PIEZOMETER PZ-01 SHALL BE CONSTRUCTED WITH 2 FEET OF SCREEN TO A TOTAL DEPTH APPROXIMATELY 4 FEET BELOW THE STATIC WATER TABLE AS OBSERVED DURING DRILLING.

no.	date	by	ckd	description
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1	3/31/17	BC	BW	ADDENDUM 1
2	8/8/17	BC	BW	IFC
3	11/03/17	JB	ED	REV 1
4	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS



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designed	B. CLEMENT	checked	B. WEIS

**Cimaron Environmental Response Trust
UP2 INJECTION TRENCH DETAILS**

project	96785	contract	8110
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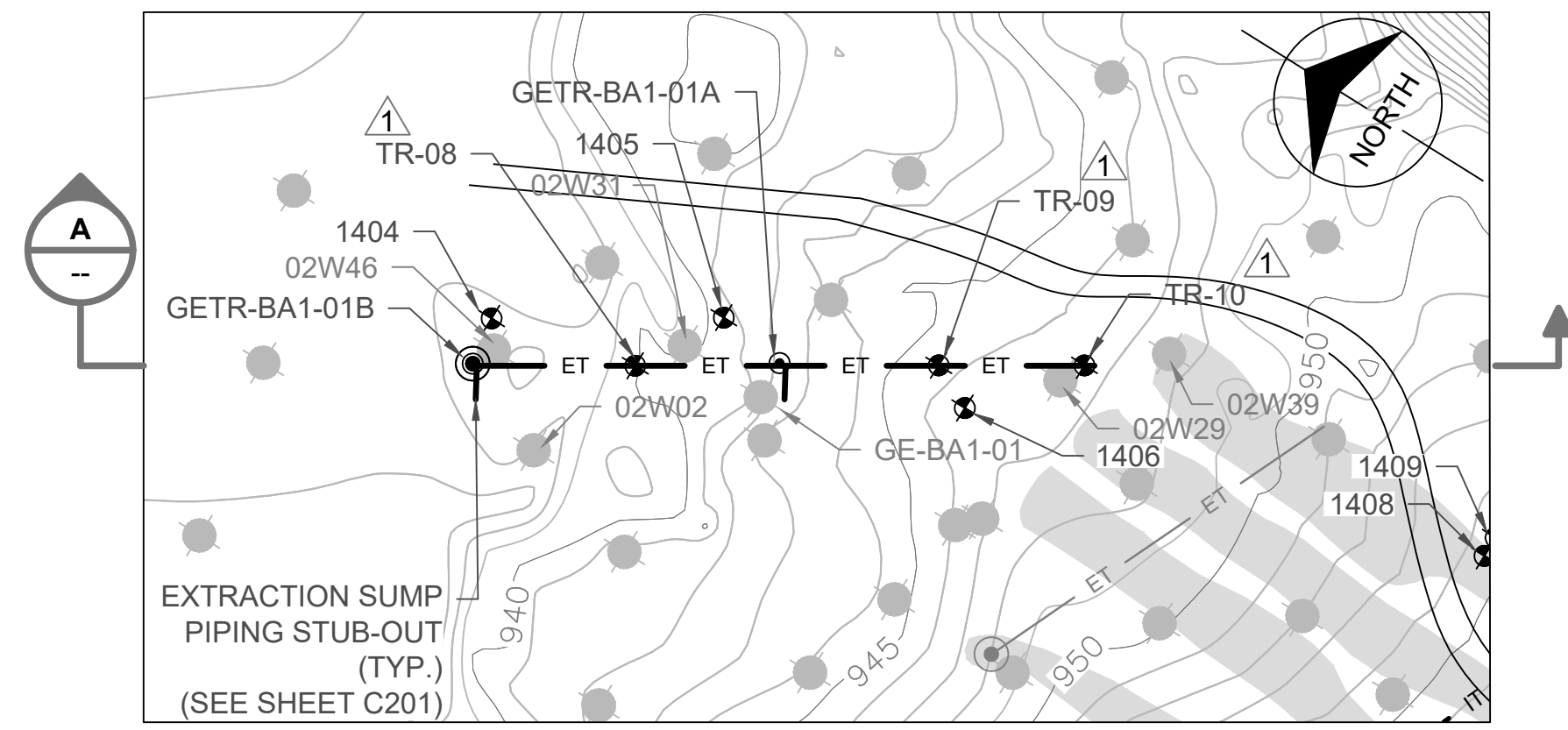
rev. **4**

sheet 7 of 11 sheets
file PILOT TEST DESIGN DRAWINGS 032018.DWG

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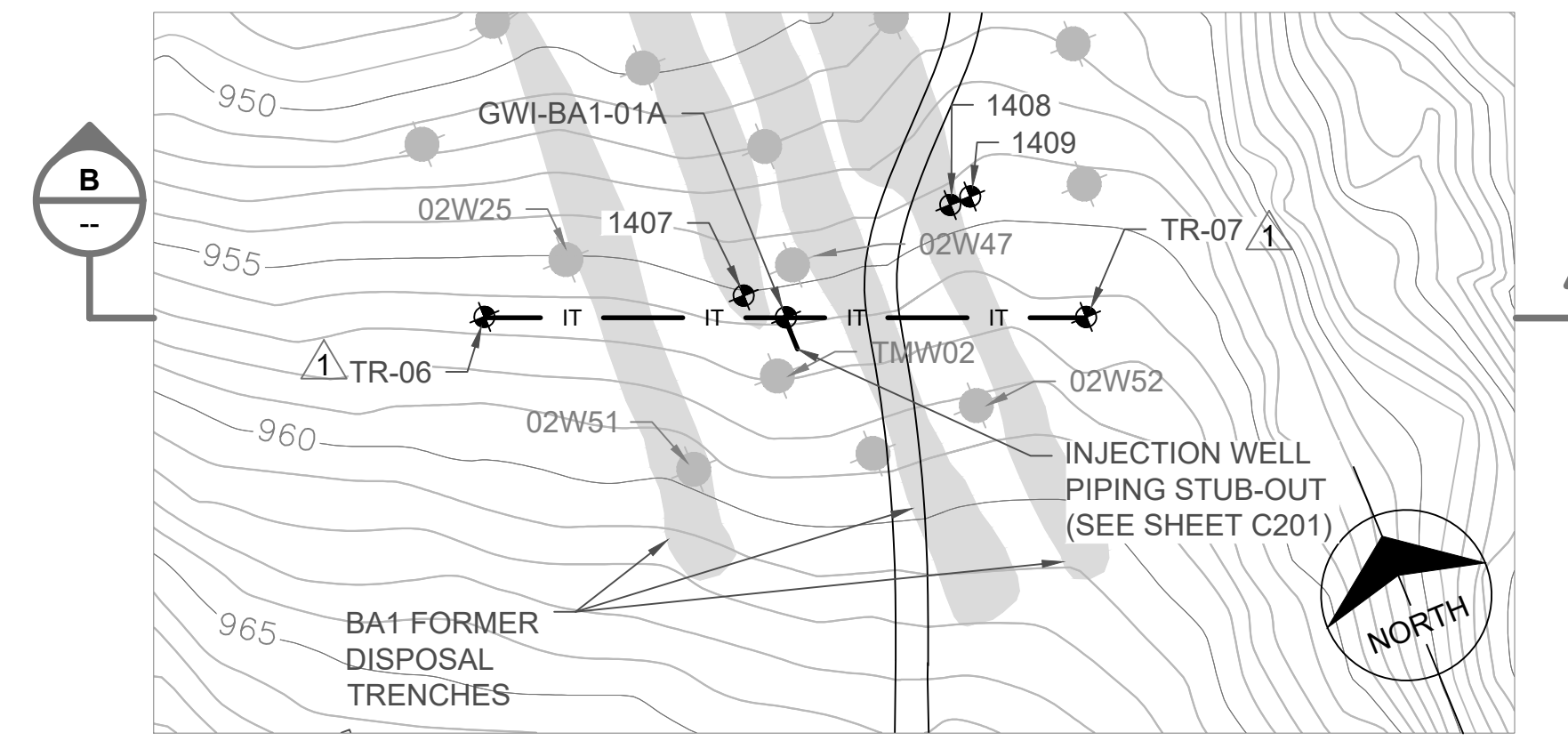
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no.	date	by	ckd	description
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	8/8/17	BC	BW	IFC
1	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS



**EXTRACTION TRENCH GETR-BA1-01
DETAIL**

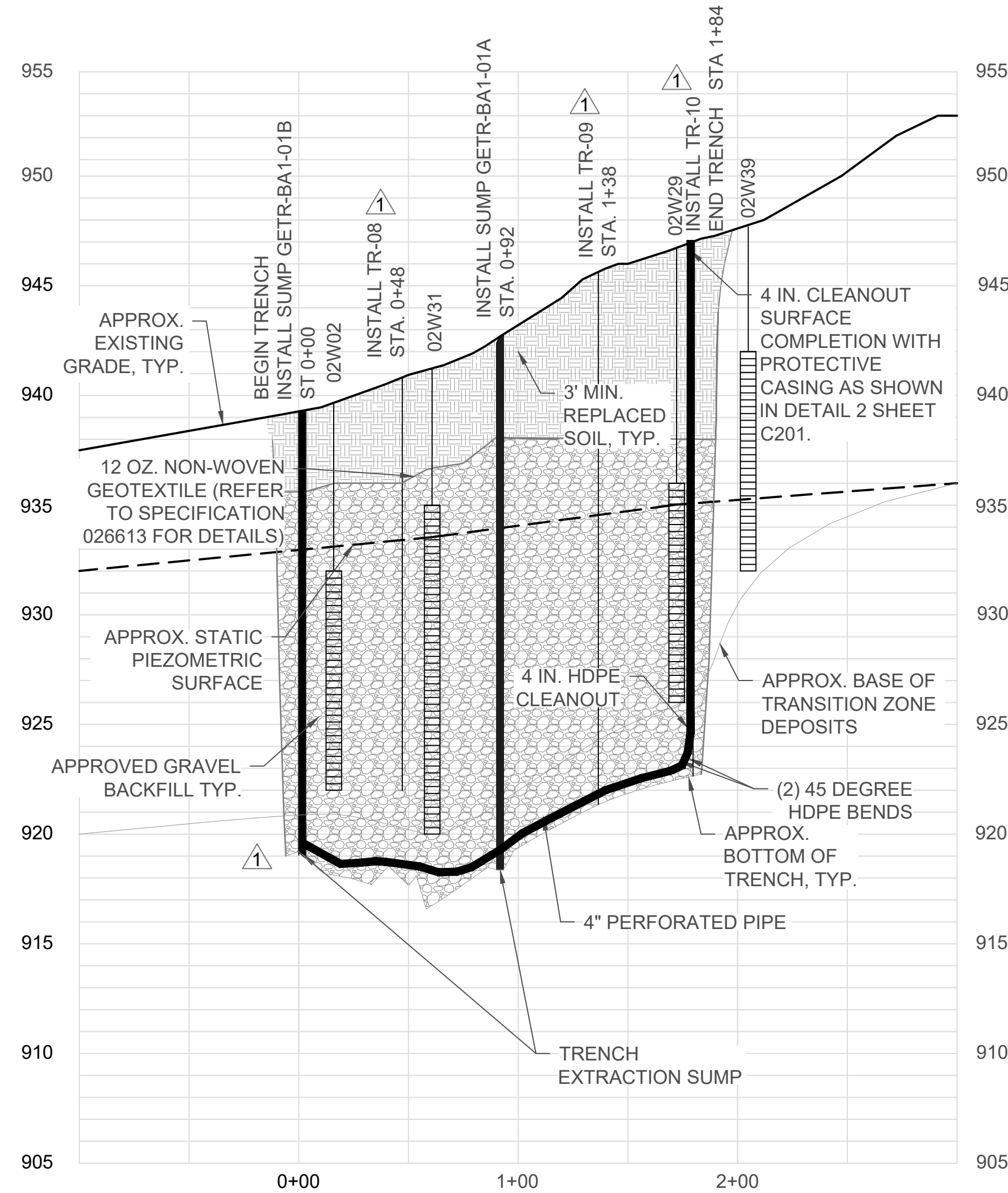
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C003



**INJECTION TRENCH GWI-BA1-01
DETAIL**

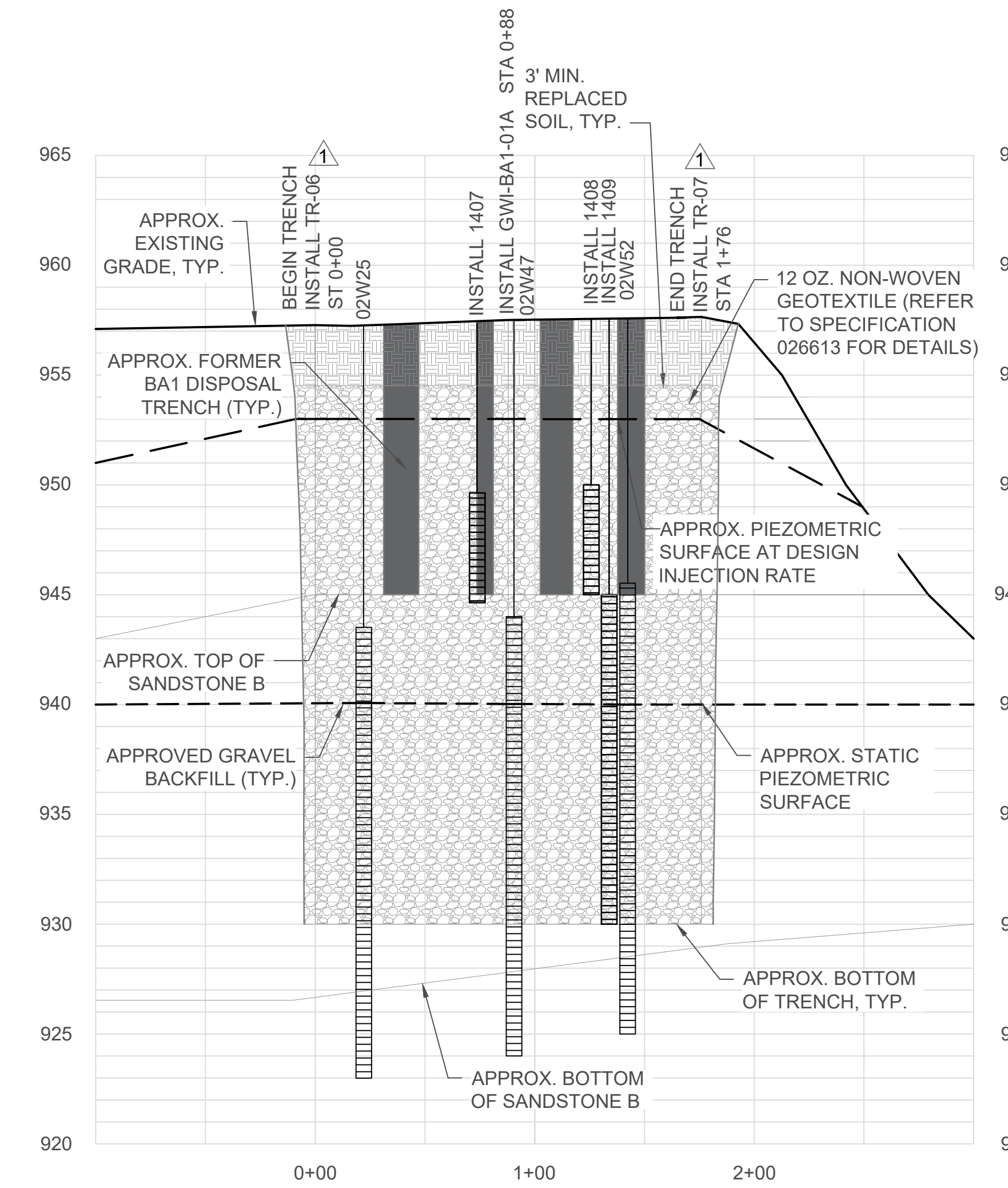
2
C003

- NOTES:**
- TOPOGRAPHY SHOWN IS FROM AN AERIAL SURVEY CONDUCTED IN MAY 2014.
 - STATIC PIEZOMETRIC SURFACE FOR BURIAL AREA 1 CREATED FROM WATER LEVEL MEASUREMENTS RECORDED IN SANDSTONE B AND TRANSITION ZONE MONITOR WELLS ON AUGUST 8, 2016.
 - SUBSURFACE INFORMATION SHOWN IS BASED ON DATA AVAILABLE FROM BORING LOGS COMPLETED FOR NEARBY MONITOR WELLS 02W02, 02W25, 02W29, 02W31, 02W39, 02W51, AND 02W52. THIS INFORMATION WAS PROJECTED TO THE TRENCH ALIGNMENTS. SUBSURFACE INFORMATION SHOULD BE CONSIDERED APPROXIMATE.
 - EXISTING SANDSTONE B AND TRANSITION ZONE MONITOR WELL LOCATIONS AND SCREEN INTERVALS ARE PROJECTED IN CROSS SECTION.
 - SUBCONTRACTOR'S LICENSED DRILLER SHALL ABANDON EXISTING MONITOR WELLS 02W46, 02W31, AND 02W29 AND EXISTING EXTRACTION WELL GE-BA1-01 IN ACCORDANCE WITH TITLE 785 CHAPTER 35 OF THE OKLAHOMA CODE OF STATE REGULATIONS PRIOR TO TRENCH CONSTRUCTION. FOLLOWING COMPLETION OF TRENCH INSTALLATION, SUBCONTRACTOR'S LICENSED DRILLER SHALL RE-INSTALL THESE MONITOR WELLS AND RENAME THEM 1404, 1405, AND 1406 RESPECTIVELY. NEW MONITOR WELL LOCATIONS SHALL BE FINALIZED IN THE FIELD AS DIRECTED BY CONTRACTOR UPON COMPLETION OF TRENCH INSTALLATION. SEE SHEET C202 FOR CONSTRUCTION DETAILS AND APPROXIMATE LOCATION COORDINATES.
 - MONITOR WELLS 1407 AND 1408 SHALL BE CONSTRUCTED WITH SCREEN INTERVALS MEASURING 5 FEET LONG AND TOTAL DEPTHS THAT TERMINATE AT THE TOP OF SANDSTONE B AS ENCOUNTERED DURING DRILLING. MONITOR WELL 1409 SHALL BE CONSTRUCTED WITH A SCREEN INTERVAL THAT TERMINATES BELOW THE TOP OF SANDSTONE B AS ENCOUNTERED DURING DRILLING.
 - INJECTION WELLS INSTALLED IN INJECTION TRENCHES WILL BE CONSTRUCTED SO THAT SCREEN INTERVAL EXTENDS UPWARD FROM THE BASE OF THE TRENCH AND TERMINATES APPROXIMATELY ONE FOOT BELOW THE TOP OF THE APPROVED GRAVEL BACKFILL.
 - MONITOR WELLS INSTALLED WITHIN INJECTION TRENCHES SHALL HAVE TOTAL DEPTHS THAT EXTEND TO THE BASE OF THE TRENCH AT THAT LOCATION AND SCREEN INTERVALS THAT EXTEND 10 FEET IN THE UPWARD DIRECTION FROM THE BASE OF THE TRENCH.
 - TOTAL DEPTHS AND CONSTRUCTION DETAILS FOR TRENCHES AND MONITOR WELLS ARE SUBJECT TO CHANGE AT CONTRACTOR'S DIRECTION, BASED ON SUBSURFACE MATERIALS ENCOUNTERED DURING DRILLING AND/OR EXCAVATION.
 - SEE SHEET C202 FOR CONSTRUCTION DETAILS AND LOCATION COORDINATES ASSOCIATED WITH TRENCH NODES, TRENCH SUMPS, MONITOR WELLS, AND INJECTION WELLS.
 - ACCESS TRENCH SIDE SLOPES SHALL CONFORM TO OSHA REQUIREMENTS AND APPROVED EXCAVATION PLAN.
 - BORING LOGS FOR MONITOR WELLS IN THE VICINITY OF GETR-BA1-01 INDICATED THE PRESENCE OF FLOWING SAND LENSES. SUBCONTRACTOR SHALL EMPLOY METHOD(S) TO PREVENT UNSTABLE SOIL AND/OR FLOWING SANDS FROM ENTERING THE TRENCH.



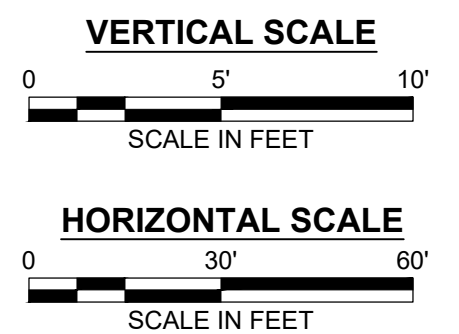
**EXTRACTION TRENCH GETR-BA1-01
ELEVATION VIEW**

A
--



**INJECTION TRENCH GWI-BA1-01
ELEVATION VIEW**

B
--



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OKLAHOMA FIRM LICENSEE NO. 421

date	MARCH 2017	detailed	B. CLEMENT
designed	B. CLEMENT	checked	B. WEIS

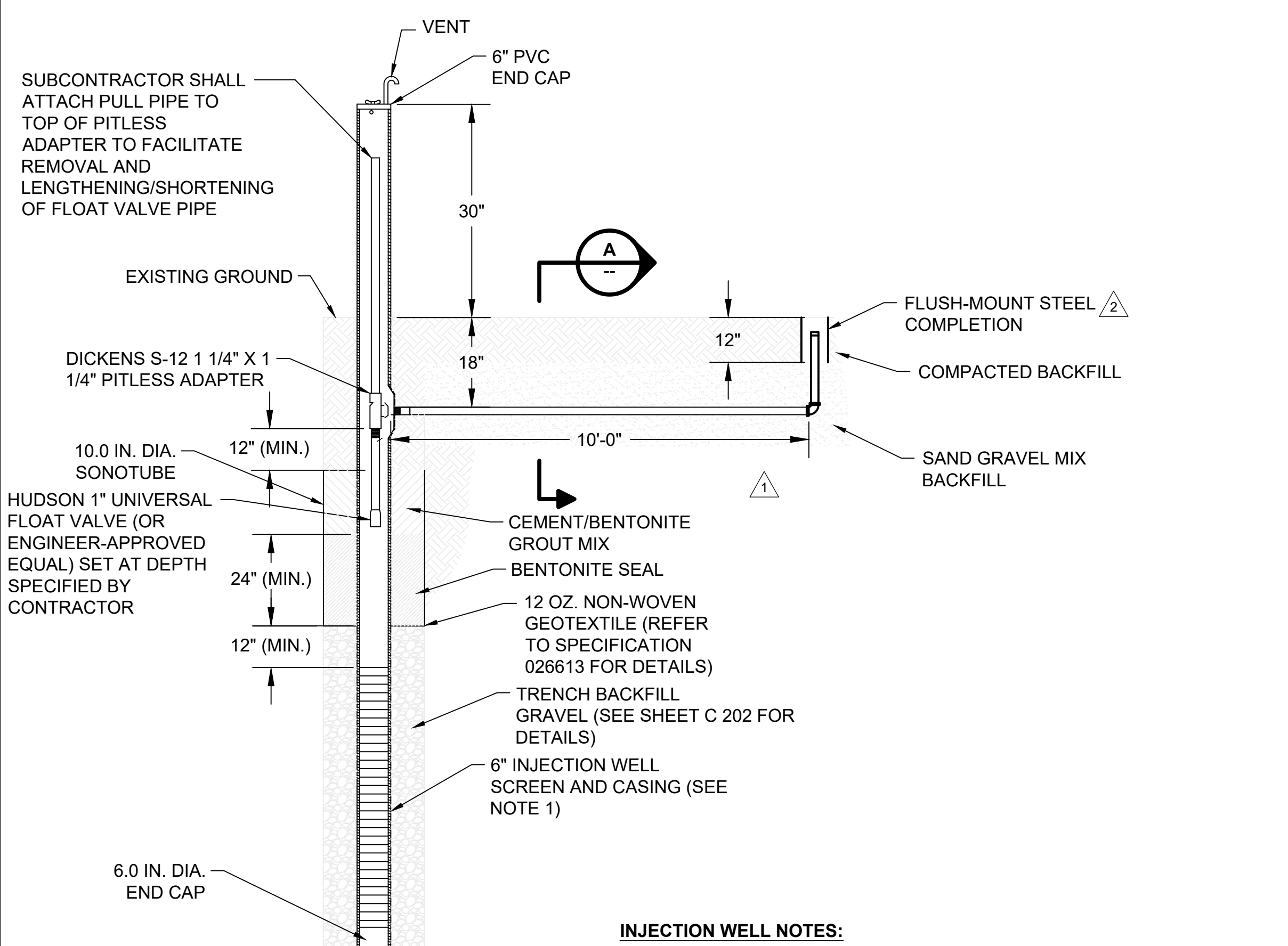
Cimaron Environmental Response Trust
BA1 INJECTION AND EXTRACTION
TRENCH DETAILS

project	96785	contract	8110
rev.			

BMCD-GWREMED-C103 1

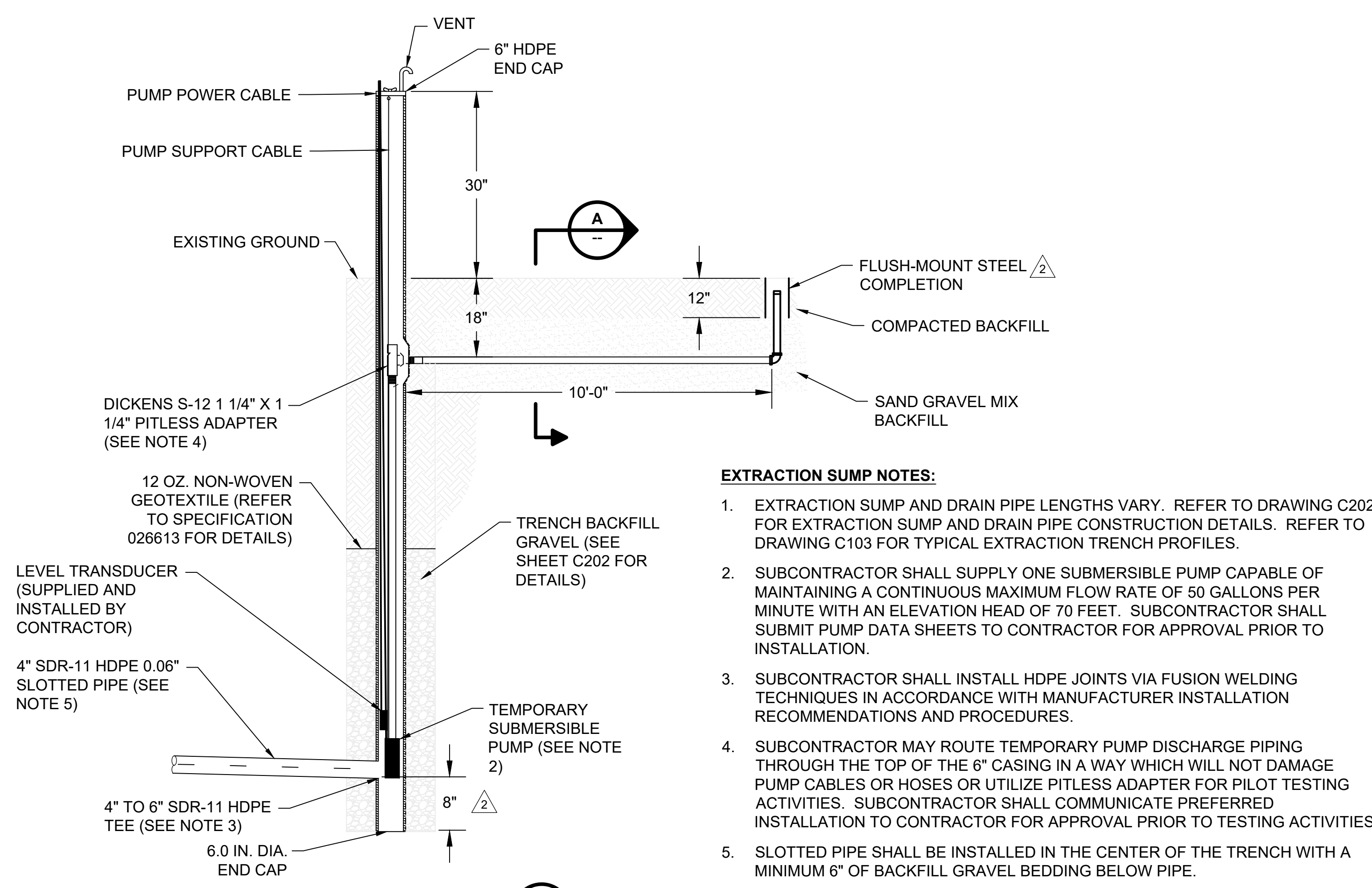
sheet 8 of 11 sheets
file PILOT TEST DESIGN DRAWINGS 032018.DWG

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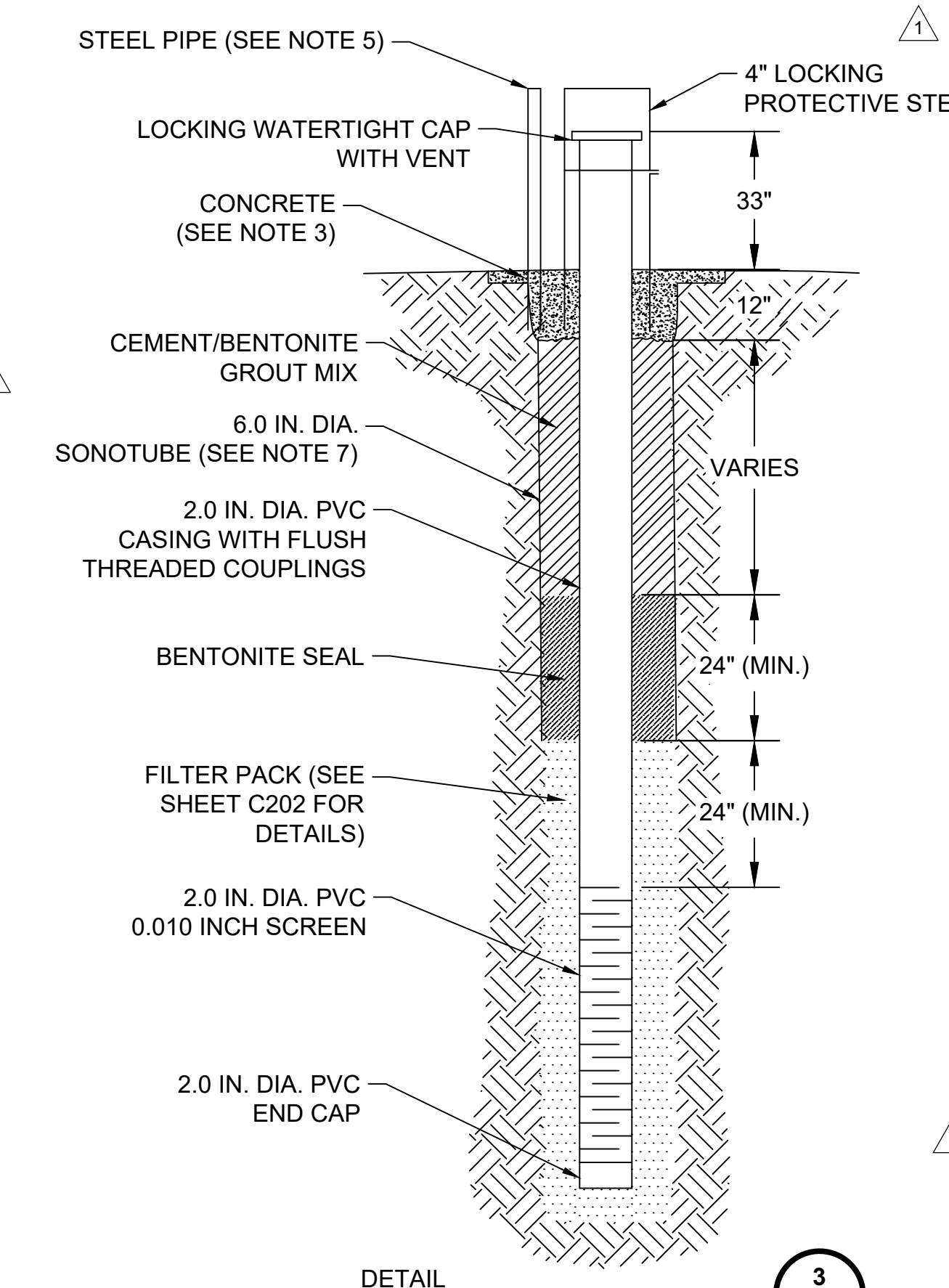
- INJECTION WELL NOTES:**
1. INJECTION WELL SCREEN AND CASING LENGTHS VARY. REFER TO DRAWING C202 FOR INJECTION WELL CONSTRUCTION DETAILS. REFER TO DRAWINGS C101 THROUGH C103 FOR TYPICAL INJECTION TRENCH PROFILES.
 2. PVC PIPE SHALL MEET ASTM F480-14.

DETAIL 1
TYPICAL INJECTION WELL
NOT TO SCALE



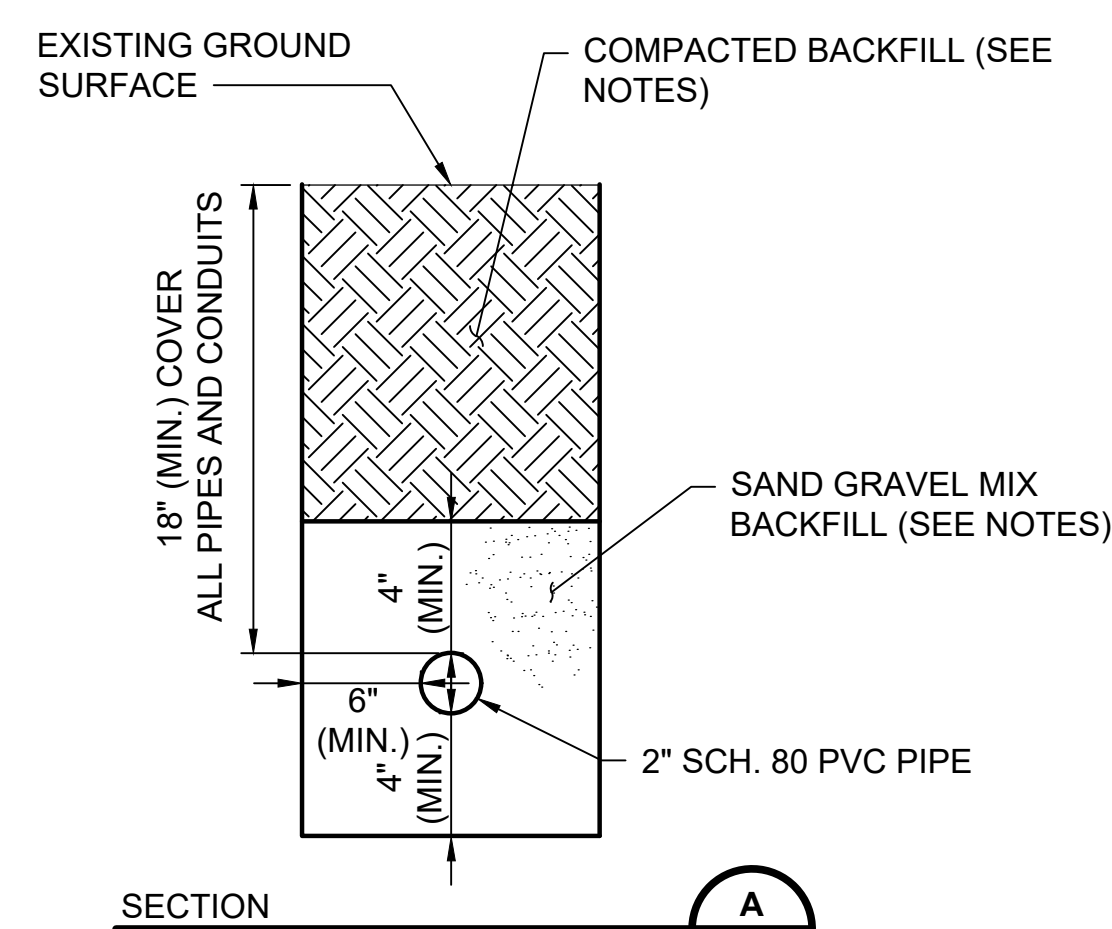
- EXTRACTION SUMP NOTES:**
1. EXTRACTION SUMP AND DRAIN PIPE LENGTHS VARY. REFER TO DRAWING C202 FOR EXTRACTION SUMP AND DRAIN PIPE CONSTRUCTION DETAILS. REFER TO DRAWING C103 FOR TYPICAL EXTRACTION TRENCH PROFILES.
 2. SUBCONTRACTOR SHALL SUPPLY ONE SUBMERSIBLE PUMP CAPABLE OF MAINTAINING A CONTINUOUS MAXIMUM FLOW RATE OF 50 GALLONS PER MINUTE WITH AN ELEVATION HEAD OF 70 FEET. SUBCONTRACTOR SHALL SUBMIT PUMP DATA SHEETS TO CONTRACTOR FOR APPROVAL PRIOR TO INSTALLATION.
 3. SUBCONTRACTOR SHALL INSTALL HDPE JOINTS VIA FUSION WELDING TECHNIQUES IN ACCORDANCE WITH MANUFACTURER INSTALLATION RECOMMENDATIONS AND PROCEDURES.
 4. SUBCONTRACTOR MAY ROUTE TEMPORARY PUMP DISCHARGE PIPING THROUGH THE TOP OF THE 6" CASING IN A WAY WHICH WILL NOT DAMAGE PUMP CABLES OR HOSES OR UTILIZE PITLESS ADAPTER FOR PILOT TESTING ACTIVITIES. SUBCONTRACTOR SHALL COMMUNICATE PREFERRED INSTALLATION TO CONTRACTOR FOR APPROVAL PRIOR TO TESTING ACTIVITIES.
 5. SLOTTED PIPE SHALL BE INSTALLED IN THE CENTER OF THE TRENCH WITH A MINIMUM 6" OF BACKFILL GRAVEL BEDDING BELOW PIPE.
 6. EQUIPMENT SHOWN SHALL BE INSTALLED IN SUMP GETR-BA1-01B. SUMP GETR-BA1-01A SHALL CONSTRUCTED, AS NOTED, BUT WILL NOT BE USED DURING TESTING ACTIVITIES.
 7. HDPE PIPE AND FITTINGS SHALL BE MADE FROM A HIGH DENSITY, EXTRA HIGH MOLECULAR WEIGHT MATERIAL WITH A BROAD MOLECULAR WEIGHT DISTRIBUTION DESIGNATED AS EITHER PE 34083608 WITH ASTM D3350 CELL CLASSIFICATION NUMBER 345464C OR PE 4710 WITH ASTM D3350 CELL CLASSIFICATION NUMBER OF 445574C, AND MANUFACTURED TO ASTM D3035.

DETAIL 2
TYPICAL EXTRACTION SUMP
NOT TO SCALE



- MONITOR WELL/PIEZOMETER NOTES:**
1. MONITOR WELL SCREEN AND CASING LENGTHS VARY. REFER TO DRAWING C202 FOR MONITOR WELL CONSTRUCTION DETAILS.
 2. SUBCONTRACTOR SHALL INSTALL MONITOR WELL USING ROTO-SONIC TECHNIQUES, OR OTHER APPROVED MEANS, WITH A MINIMUM 6-INCH DIAMETER BORING.
 3. CONCRETE PAD SHALL BE A MINIMUM 4' X 4' X 6" DEEP AND SLOPE AWAY FROM THE STEEL CASING. CONCRETE MIXTURE SHALL ACHIEVE A STRENGTH OF 5,000 PSI AFTER 28 DAYS. CONTRACTOR SHALL INSTALL A SURVEYING BOLT OR PIN IN THE CONCRETE PAD TO SERVE AS A SURVEY POINT.
 4. SUBCONTRACTOR DRILL A 1/8" TO 1/4" HOLE THROUGH THE WELL PROTECTOR AT THE TOP OF THE CONCRETE PAD TO ALLOW DRAINAGE.
 5. SUBCONTRACTOR SHALL INSTALL A 3/4" GALVANIZED, CAPPED, STEEL PIPE EXTENDING FROM 1' BELOW THE TOP OF THE PAD TO 5' ABOVE GRADE, AT LEAST 2" AWAY FROM THE STEEL PROTECTOR PIPE.
 6. PVC PIPE SHALL MEET ASTM F480-14.
 7. SUBCONTRACTOR SHALL INSTALL 6.0 IN. MINIMUM DIAMETER SONOTUBE ONLY ON MONITOR WELLS INSTALLED WITHIN INJECTION OR EXTRACTION TRENCHES FOR PURPOSE OF INSTALLING BENTONITE SEAL AND CEMENT/BENTONITE GROUT.

DETAIL 3
TYPICAL MONITOR WELL
NOT TO SCALE



- PIPE TRENCH SECTIONS NOTES:**
1. TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH OSHA STANDARDS.
 2. BACKFILL SHALL BE CLEAN, ACCEPTABLE SOIL EXCAVATED DURING TRENCHING OR FROM BORROW SOURCE.
 3. PLACE BACKFILL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES IN THICKNESS. COMPACT BY HAND OR MECHANICAL METHODS APPROVED BY CONTRACTOR.
 4. PLACE BACKFILL IN LOOSE LIFTS NOT TO EXCEED 6 INCHES IN THICKNESS. 4" BEDDING BELOW PIPING OR CONDUIT TO BE COMPACTED TO A MINIMUM OF 90% OF MAXIMUM DRY DENSITY WITHIN THE MOISTURE RANGE OF +/- 3%. SUBSEQUENT BEDDING TO BE COMPACTED BY HAND OR MECHANICAL METHODS. SUITABLE CLEAN MATERIAL TO BE PROVIDED BY SUBCONTRACTOR.

SECTION A
TYPICAL PIPING TRENCH
NOT TO SCALE

no.	date	by	ckd	description
0	3/20/17	ED	BW	ISSUED FOR BID
1	3/31/17	ED	BW	ADDENDUM 1
	8/8/17	ED	BW	IFC
2	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS

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date	MARCH 2017	detailed	E. DULLE
designed	E. DULLE	checked	B. WEIS

Cimarron Environmental Response Trust
CIVIL DETAILS

project	96785	contract	8110
drawing		rev.	
BMCD-GWREMED-C201		2	
sheet	9	of	11
file	C201.DWG		

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no.	date	by	ckd	description
0	3/20/17	BC	BW	ISSUED FOR BID
1	8/8/17	BC	BW	IFC
2	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS

BA1 EXTRACTION SUMP CONSTRUCTION DETAILS									
EXTRACTION WELL ID	NORTHING	EASTING	TOTAL DEPTH (FT. BGS)	SUMP DIAMETER (IN.)	SUMP MATERIAL	TRENCH DRAIN PIPE MATERIAL	TRENCH DRAIN PIPE DIAMETER (IN.)	TRENCH DRAIN PIPE SLOT SIZE (IN.) ¹	FILTER PACK ¹
GETR-BA1-01A	322833.32	2095511.66	24	6	HDPE	SDR-11-HDPE	4	0.06	GRAVEL BACKFILL
GETR-BA1-01B	322910.53	2095463.29	19	6	HDPE	SDR-11-HDPE	4	0.06	GRAVEL BACKFILL

BA1 INJECTION WELL CONSTRUCTION DETAILS								
INJECTION WELL ID	NORTHING	EASTING	TOTAL DEPTH (FT. BGS)	WELL DIAMETER (IN.)	WELL MATERIAL	SCREEN LENGTH (FT.)	SLOT SIZE (IN.) ¹	FILTER PACK ¹
GWI-BA1-01A	322613.16	2095516.96	26	6	PVC	21	0.06	GRAVEL BACKFILL

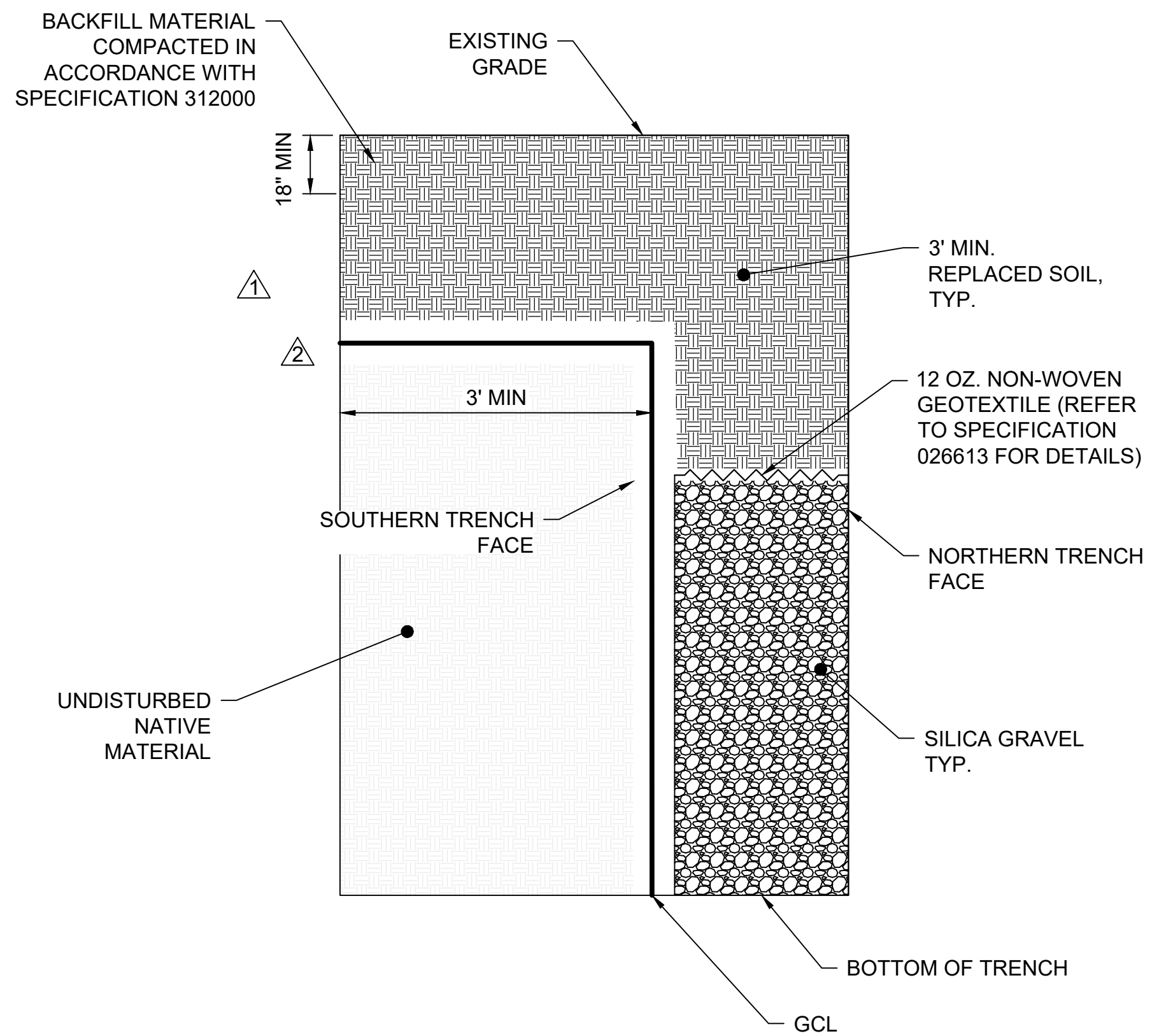
WA INJECTION WELL CONSTRUCTION DETAILS								
INJECTION WELL ID	NORTHING	EASTING	TOTAL DEPTH (FT. BGS)	WELL DIAMETER (IN.)	WELL MATERIAL	SCREEN LENGTH (FT.)	SLOT SIZE (IN.) ¹	FILTER PACK (IN.) ¹
GWI-UP1-01A	321208.38	2092329.09	30	6	PVC	11	0.06	GRAVEL BACKFILL
GWI-UP1-02A	321385.52	2092388.74	30	6	PVC	10	0.06	GRAVEL BACKFILL
GWI-UP2-01D	321577.35	2093413.03	30	6	PVC	15	0.06	GRAVEL BACKFILL

WA MONITOR WELL AND PIEZOMETER CONSTRUCTION DETAILS								
MONITOR WELL ID	NORTHING	EASTING	TOTAL DEPTH (FT. BGS)	WELL DIAMETER (IN.)	WELL MATERIAL	SCREEN LENGTH (FT.)	SLOT SIZE (IN.) ¹	FILTER PACK (IN.) ^{1,3}
TR-01	321140.89	2092275.07	30	2	PVC	10	0.01	GRAVEL BACKFILL
TR-02	321278.86	2092387.87	25	2	PVC	10	0.01	GRAVEL BACKFILL
TR-03	321488.63	2092387.52	26	2	PVC	10	0.01	GRAVEL BACKFILL
TR-04	321565.76	2093313.33	31	2	PVC	10	0.01	GRAVEL BACKFILL
TR-05	321604.33	2093481.69	30	2	PVC	10	0.01	GRAVEL BACKFILL
1395	321338.94	2092156.09	28	2	PVC	15	0.01	12/20
1396	321449.92	2092246.48	25	2	PVC	15	0.01	12/20
1397	321524.14	2092452.01	25	2	PVC	15	0.01	12/20
1398	321258.43	2092595.00	28	2	PVC	20	0.01	12/20
1399	321020.18	2092374.15	33	2	PVC	15	0.01	12/20
1400	321147.57	2092213.24	23	2	PVC	15	0.01	12/20
1401	321653.54	2093211.73	44	2	PVC	20	0.01	12/20
1402	321698.56	2093343.04	40	2	PVC	20	0.01	12/20
1403	321703.64	2093562.05	31	2	PVC	20	0.01	12/20
TMP-UP2-01	321548.93	2093387.84	40	2	PVC	20	0.01	12/20
TMP-UP2-02	321597.31	2093376.51	40	2	PVC	20	0.01	12/20

BA1 MONITOR WELL CONSTRUCTION DETAILS								
MONITOR WELL ID	NORTHING	EASTING	TOTAL DEPTH (FT. BGS)	WELL DIAMETER (IN.)	WELL MATERIAL	SCREEN LENGTH (FT.)	SLOT SIZE (IN.) ¹	FILTER PACK ^{1,3}
TR-08	322869.73	2095488.94	22	2	PVC	10	0.01	GRAVEL BACKFILL
TR-09	322792.88	2095536.12	24	2	PVC	10	0.01	GRAVEL BACKFILL
TR-10	322756.13	2095559.02	24	2	PVC	10	0.01	GRAVEL BACKFILL
TR-06	322646.83	2095435.30	26	2	PVC	10	0.01	GRAVEL BACKFILL
TR-07	322579.93	2095598.25	26	2	PVC	10	0.01	GRAVEL BACKFILL
1404	322912.97	2095477.65	22	2	PVC	10	0.01	12/20
1405	322854.55	2095514.34	27	2	PVC	15	0.01	12/20
1406	322779.58	2095529.47	25	2	PVC	10	0.01	12/20
1407	322623.77	2095507.87	11	2	PVC	5	0.01	12/20
1408	322625.37	2095573.91	11	2	PVC	5	0.01	12/20
1409	322625.43	2095580.25	26	2	PVC	15	0.01	12/20

TRENCH COORDINATE GEOMETRY TABLE (C002 AND C003)			
POINT ID	NORTHING	EASTING	DESCRIPTION
1	321140.89	2092275.07	START TRENCH GWI-UP1-01
2	321278.86	2092387.87	END TRENCH GWI-UP1-01/START TRENCH GWI-UP1-02
3	321488.63	2092387.52	END TRENCH GWI-UP1-02
4	321565.76	2093313.33	START TRENCH GWI-UP2-01
5	321577.35	2093413.03	ADJUST GWI-UP-2-01 TRENCH ALIGNMENT
6	321604.33	2093481.69	END TRENCH GWI-UP2-01
7	322910.53	2095463.29	START TRENCH GETR-BA1-01
8	322756.13	2095559.02	END TRENCH GETR-BA1-01
9	322646.83	2095435.30	START TRENCH GWI-BA1-01
10	322579.93	2095598.25	END TRENCH GWI-BA1-01

- NOTES:
- INJECTION WELL, IN-TRENCH MONITOR WELL, AND EXTRACTION DRAIN PIPE SCREEN SLOT SIZE WILL BE VERIFIED UPON REVIEW OF GRAIN SIZE DISTRIBUTION DATA FOR TRENCH BACKFILL MATERIAL. SUBMIT PROPOSED SLOT SIZE AND FILTER PACK TO CONTRACTOR FOR APPROVAL.
 - ACTUAL DIMENSIONS AND CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE AND WILL BE DETERMINED AT TIME OF CONSTRUCTION.
 - PIEZOMETER AND MONITOR WELL FILTER PACKS SHALL BE QUARTZ OR SILICA OR OTHER MATERIAL THAT WILL NOT AFFECT GROUNDWATER QUALITY AS SPECIFIED BY OWRB 785:35-7-2.(b)(5).



UP2 INJECTION TRENCH TYPICAL HDPE LINER DETAIL
NOT TO SCALE



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COORDINATES AND CONSTRUCTION SCHEDULE

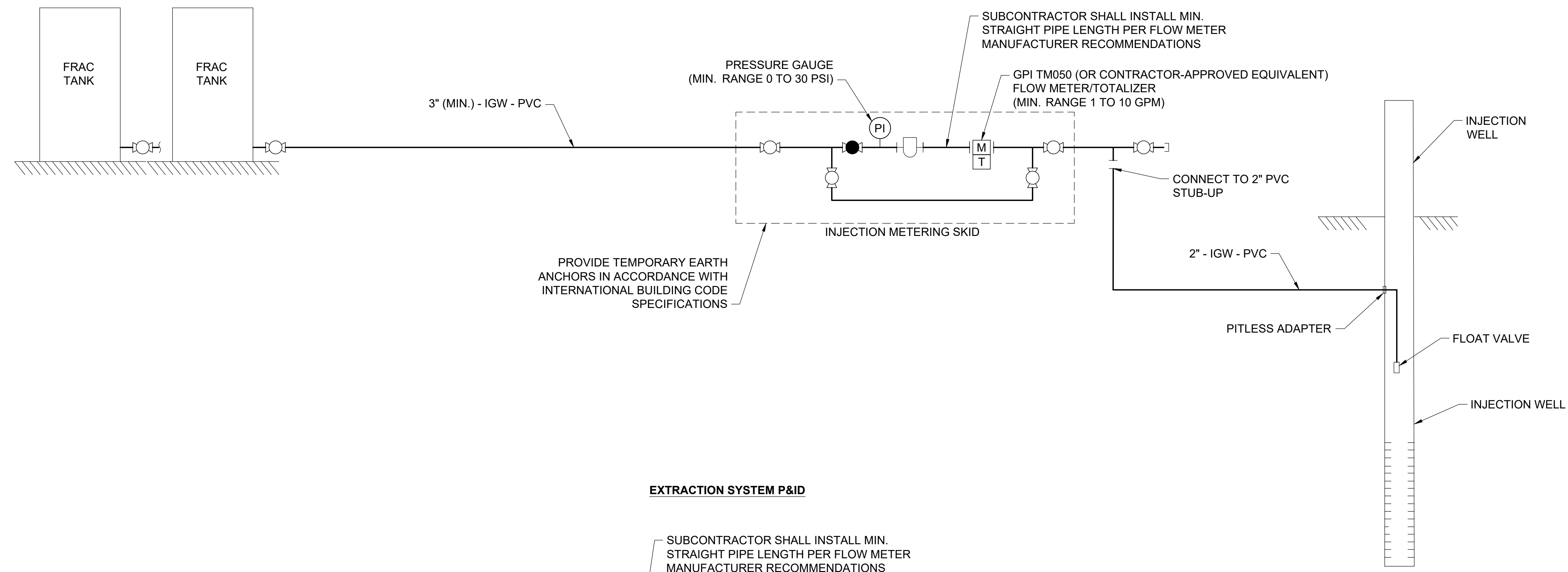
project	96785	contract	8110
drawing	BMCD-GWREMEDI-C202	rev.	2
sheet	10	of	11 sheets
file	C202.DWG		

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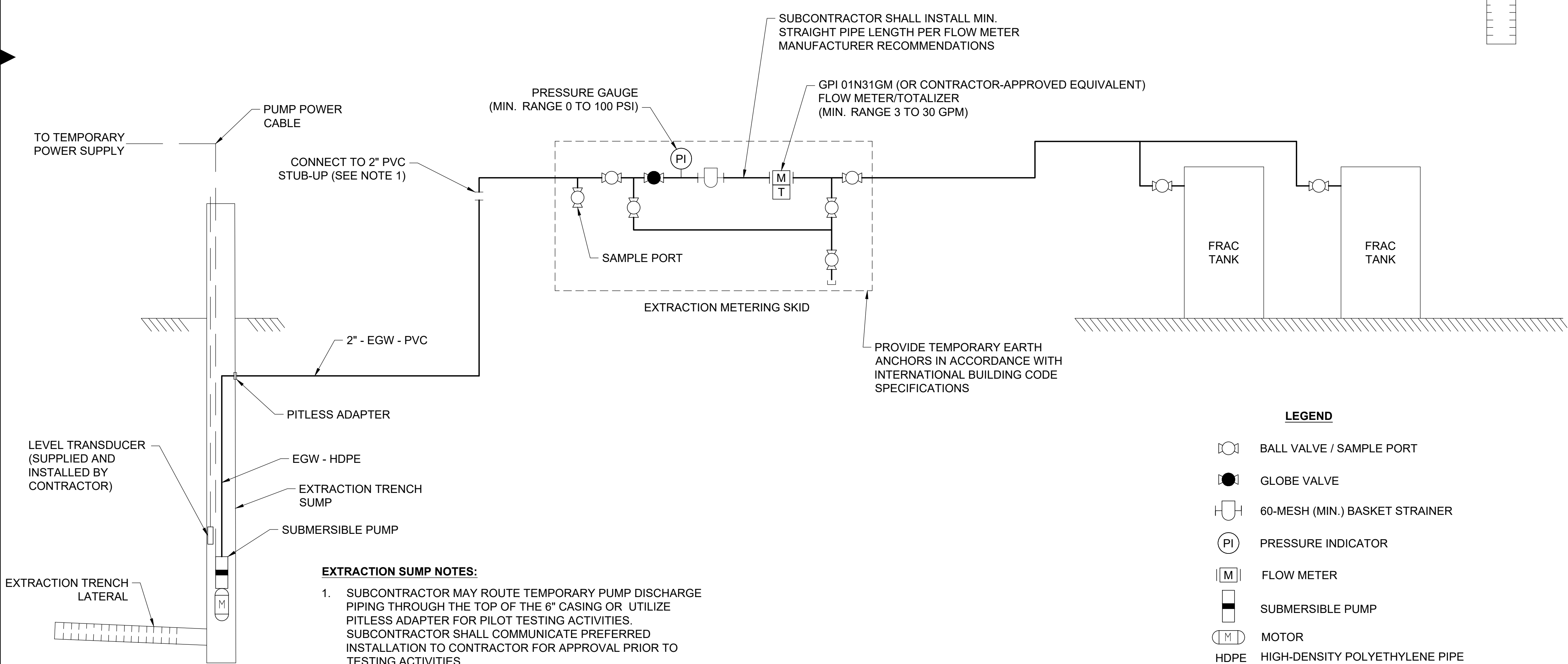
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no.	date	by	ckd	description
0	3/20/17	ED	BW	ISSUED FOR BID
	8/8/17	ED	BW	IFC
	4/17/18	ED	BW	CONFORMING TO CONSTRUCTION RECORDS

INJECTION SYSTEM P&ID



EXTRACTION SYSTEM P&ID



- EXTRACTION SUMP NOTES:**
- SUBCONTRACTOR MAY ROUTE TEMPORARY PUMP DISCHARGE PIPING THROUGH THE TOP OF THE 6" CASING OR UTILIZE PITLESS ADAPTER FOR PILOT TESTING ACTIVITIES. SUBCONTRACTOR SHALL COMMUNICATE PREFERRED INSTALLATION TO CONTRACTOR FOR APPROVAL PRIOR TO TESTING ACTIVITIES.
 - EQUIPMENT SHOWN SHALL BE INSTALLED IN SUMP GETR-BA1-01B. SUMP GETR-BA1-01A SHALL CONSTRUCTED, AS NOTED, BUT WILL NOT BE USED DURING TESTING ACTIVITIES.

LEGEND

	BALL VALVE / SAMPLE PORT
	GLOBE VALVE
	60-MESH (MIN.) BASKET STRAINER
	PRESSURE INDICATOR
	FLOW METER
	SUBMERSIBLE PUMP
	MOTOR
HDPE	HIGH-DENSITY POLYETHYLENE PIPE
PVC	POLYVINYL CHLORIDE PIPE
EGW	EFFLUENT WATER
IGW	INFLUENT GROUNDWATER
GPM	GALLONS PER MINUTE

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date	MARCH 2017	detailed	B. KISTNER
designed	E. DULLE	checked	B. WEIS

Cimmaron Environmental Response Trust
P&IDS - GROUNDWATER EXTRACTION AND WATER INJECTION SYSTEMS

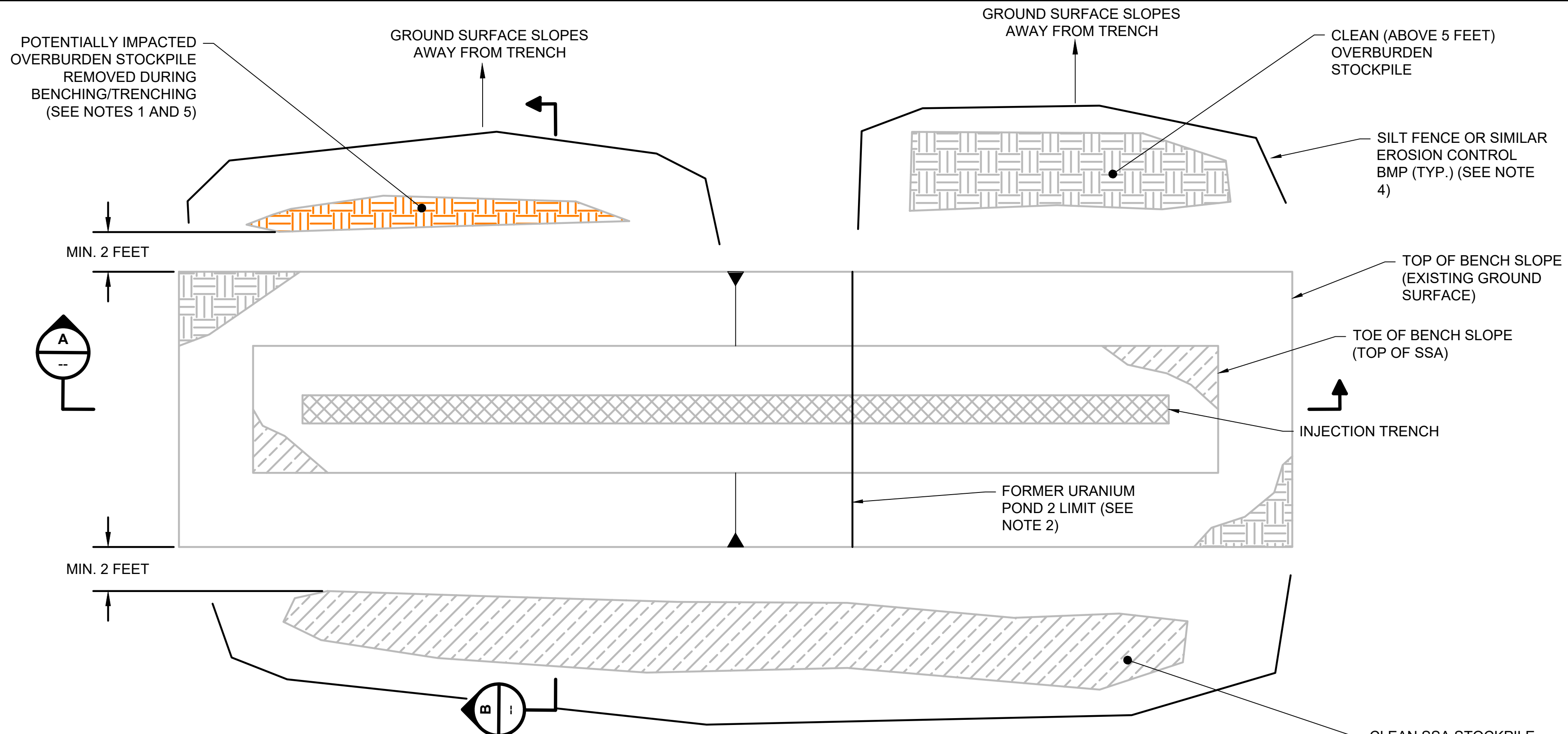
project	96785	contract	8110
drawing		rev.	0
sheet	11	of	11
file	PILOT TRENCH TEST P101.DWG		

Scale For Microfilming
Millimeters
Inches

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APPENDIX B – CONCEPTUAL SOIL MANAGEMENT PLAN

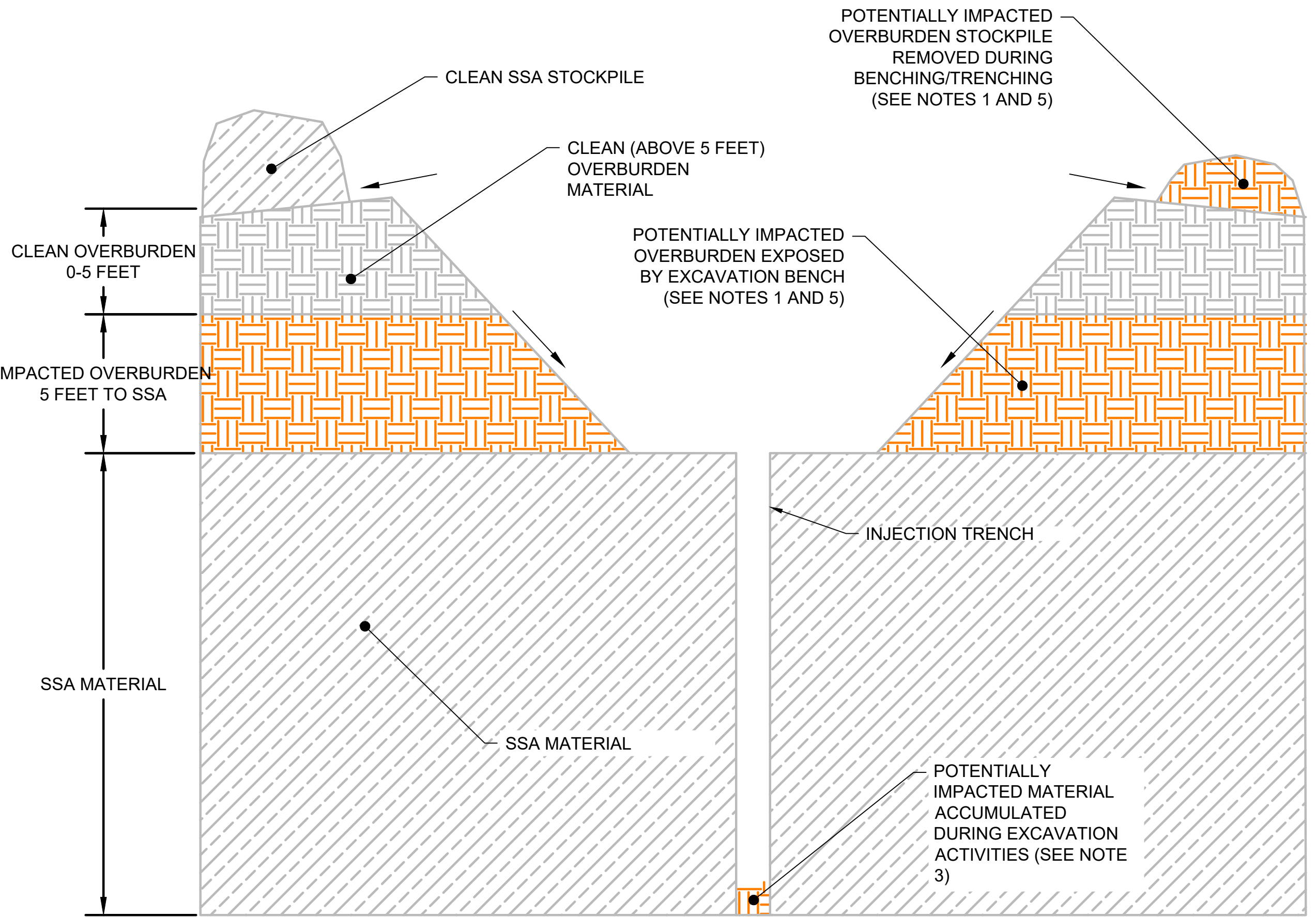
- NOTES:
- OVERBURDEN MATERIAL REMOVED FROM 5 FEET BELOW GROUND SURFACE TO THE TOP OF SANDSTONE A (SSA) SHALL BE SEGREGATED NEAR THE TRENCH SURFACE. THE SURFACE SHALL BE SLOPED SUCH THAT RUNOFF CONTACTING THE STOCKPILE DOES NOT ENTER THE TRENCH OR CONTACT CLEAN STOCKPILES. FOLLOWING TRENCH EXCAVATION AND GRAVEL BACKFILL ACTIVITIES, OVERBURDEN MATERIAL FROM THIS DEPTH INTERVAL SHALL BE PLACED BACK IN THE TRENCH BELOW 5 FEET AND ABOVE THE TOP OF GRAVEL BACKFILL.
 - OVERBURDEN MATERIAL EXCAVATION, SEGREGATION, AND BACKFILL LIMITATIONS ARE ONLY NECESSARY WITHIN THE LIMITS OF FORMER URANIUM POND 2, AS DEPICTED ON SHEET C002.
 - ALL MATERIAL ACCUMULATING IN THE BOTTOM OF THE TRENCH DURING EXCAVATION ACTIVITIES SHALL BE REMOVED WITH A SLOTTED (OR SIMILAR) BUCKET TO MINIMIZE EXCESS WATER REMOVAL. ALL ACCUMULATED MATERIAL SHALL BE HANDLED AS POTENTIALLY IMPACTED OVERBURDEN MATERIAL (SEE NOTES 1 AND 2). SOURCES OF ACCUMULATED MATERIAL INCLUDE (BUT ARE NOT LIMITED TO) INCIDENTAL SEDIMENTATION FROM SURFACE STOCKPILE RUNOFF, COLLAPSED PORTIONS OF TRENCH WALLS, ETC.
 - STORM WATER BMPs, SUCH AS SILT FENCING, TARPS, ETC., SHALL BE DEPLOYED TO PREVENT TRANSPORT OR LOSS OF THE POTENTIALLY IMPACTED SOIL.
 - THIS SKETCH DEPICTS CONDITIONS IF BENCHING WERE REQUIRED TO ACHIEVE THE PROPOSED TRENCH DEPTHS. BENCHING WILL LIKELY RESULT IN THE EXPOSURE OF POTENTIALLY IMPACTED MATERIAL TO STORM WATER RUNOFF AND INCREASED PROBABILITY OF SEDIMENT TRANSPORT INTO THE OPEN TRENCH (SEE NOTE 3). BENCHING MAY NOT BE REQUIRED BASED ON SUBCONTRACTOR'S CHOSEN MEANS AND METHODS.
 - GWI-UP1-01 AND GWI-UP1-02 TRENCHES REQUIRE MANAGEMENT OF IMPACTED SOIL MATERIAL FROM 6 FEET BELOW GROUND SURFACE TO THE TOP OF SSA.



CONCEPTUAL GWI-UP2-01 SOIL MANAGEMENT DETAIL
NOT TO SCALE



CONCEPTUAL GWI-UP2 01 SOIL MANAGEMENT PROFILE AS-CONSTRUCTED
NOT TO SCALE



CONCEPTUAL GWI-UP2 01 SOIL MANAGEMENT PROFILE
NOT TO SCALE

no.	date	by	ckd	description
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DISCLAIMER: THIS SKETCH IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION. THE INTENT OF THIS SKETCH IS TO CONCEPTUALLY ILLUSTRATE SOIL MANAGEMENT REQUIREMENTS ASSOCIATED WITH GWI-UP2-01 (AS AN EXAMPLE). SIMILAR SOIL MANAGEMENT TECHNIQUES WILL BE REQUIRED FOR THE GWI-UP1 TRENCHES, AS DESCRIBED IN THE CONTRACT DOCUMENTS FOR CONSTRUCTION DETAILS.

NOT FOR CONSTRUCTION



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MARCH 2017	E. DULLE
E. DULLE	checked J. HESEMANN

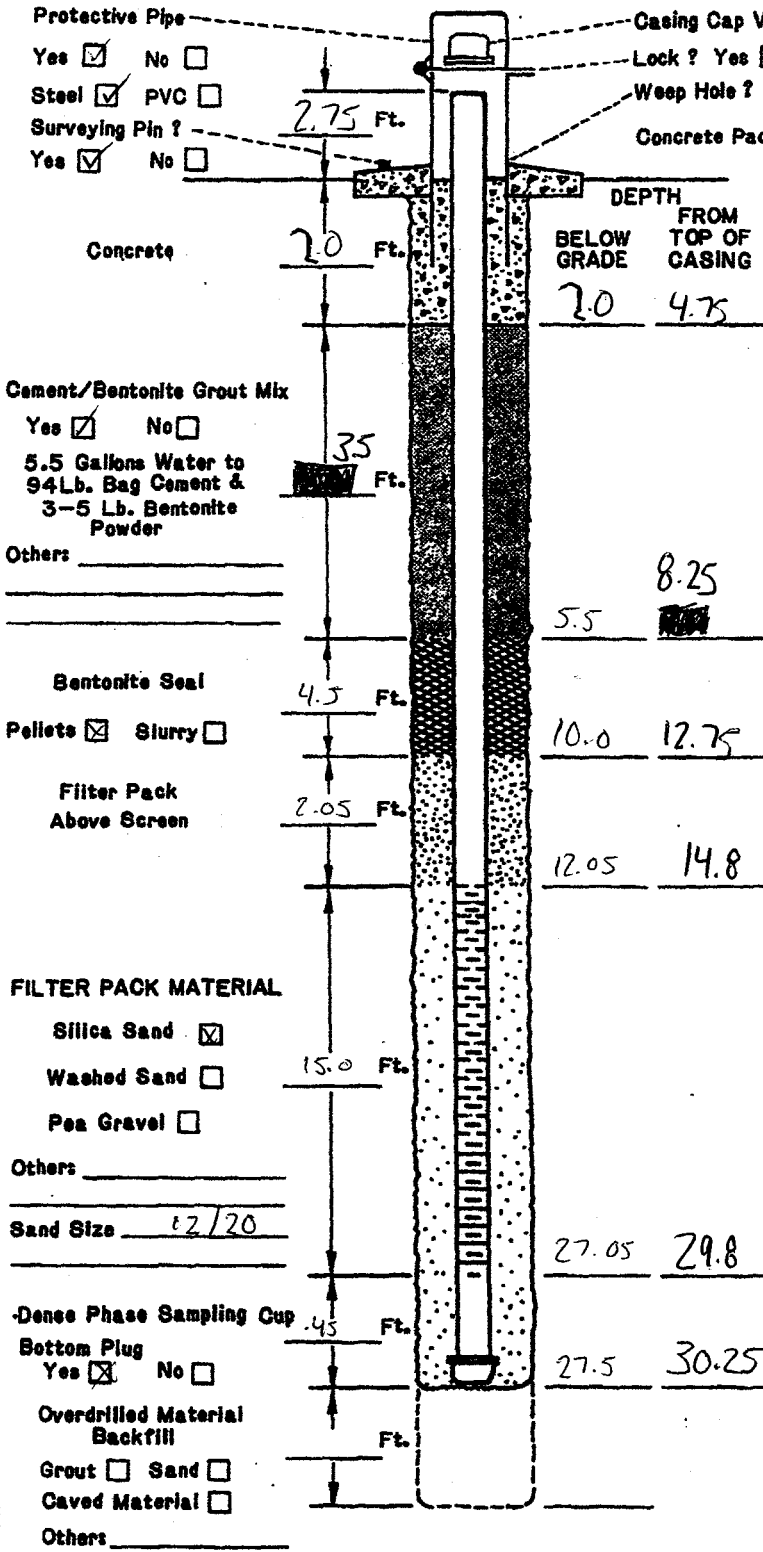
Cimmaron Environmental Response Trust
CONCEPTUAL SOIL MANAGEMENT SKETCH

project	96785	contract	
sheet	1	of	1
file	CONCEPTUAL SOIL MANAGEMENT DWG.DWG		

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APPENDIX C – MONITOR WELL CONSTRUCTION DIAGRAMS

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin?
 Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger **SONIC**
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screen:
 Casing 2 Inches, Screen 2 Inches.
- Slot Size of Screen: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

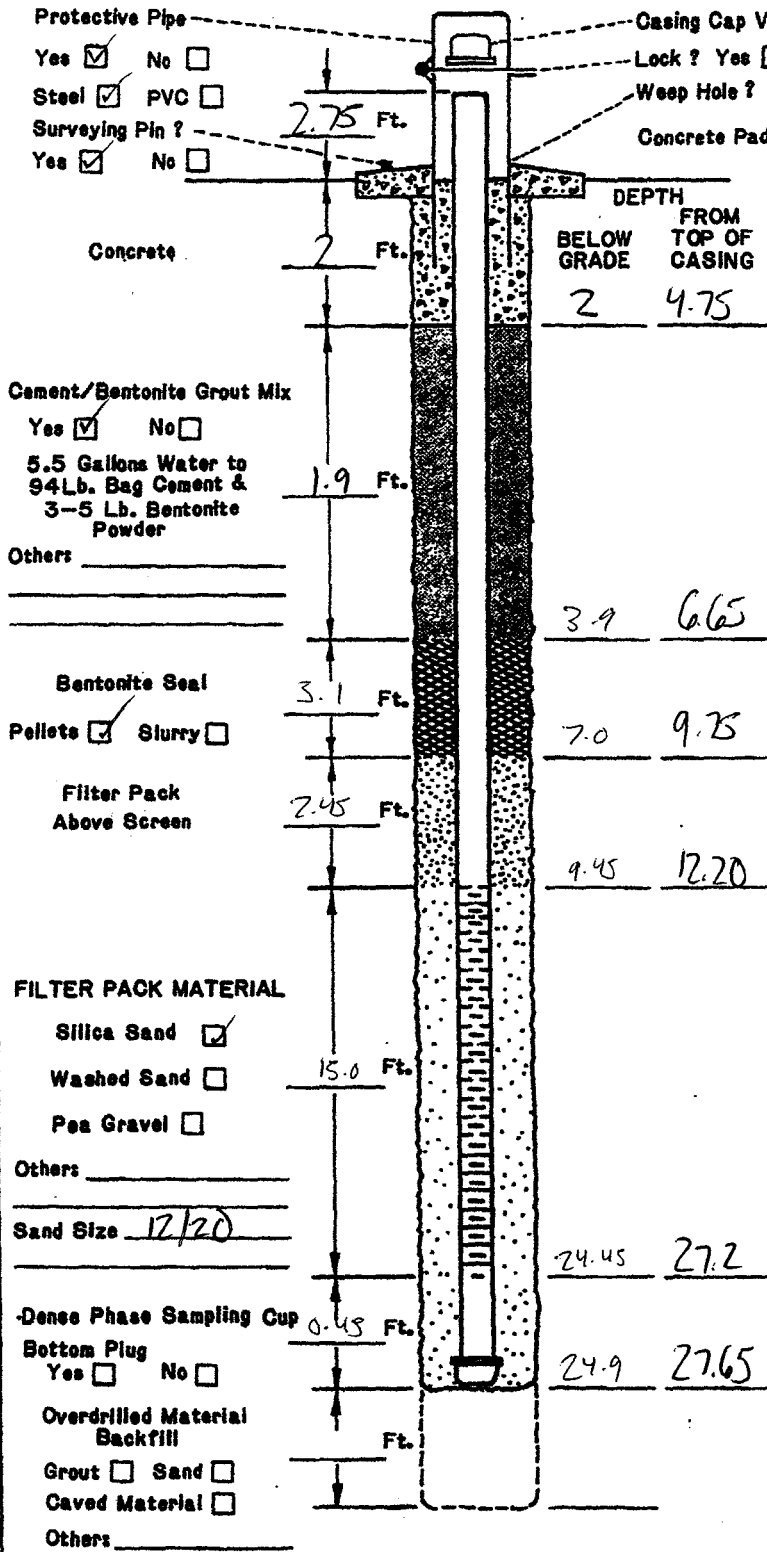
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR / 45 MIN / 0 Hours
- Approximate Water Volume Removed? 30 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 22.35 Ft. Date 11/21/17
 After Development 25.46 Ft. Date 11/22/17

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/18/2017
 Drill Crew B. GRESHAM, J. VILVERIA, C. BOYLE Well No. 1395 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



- Protective Pipe: Yes No
 Steel PVC
 Surveying Pin? Yes No
 Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 6 Inches
- DRILLING INFORMATION:**
- Borehole Diameter = 6 Inches.
 - Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SONIC
 - Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
 - Borehole Diameter for Outer Casing NA Inches.

- WELL CONSTRUCTION INFORMATION:**
- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
 - Type of Casing Joints: Screw-Couple Glue-Couple Other _____
 - Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
 - Diameter of Casing and Well Screen:
 Casing 2 Inches, Screen 2 Inches.
 - Slot Size of Screen: 0.01
 - Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
 - Installed Protector Pipe w/Lock: Yes No

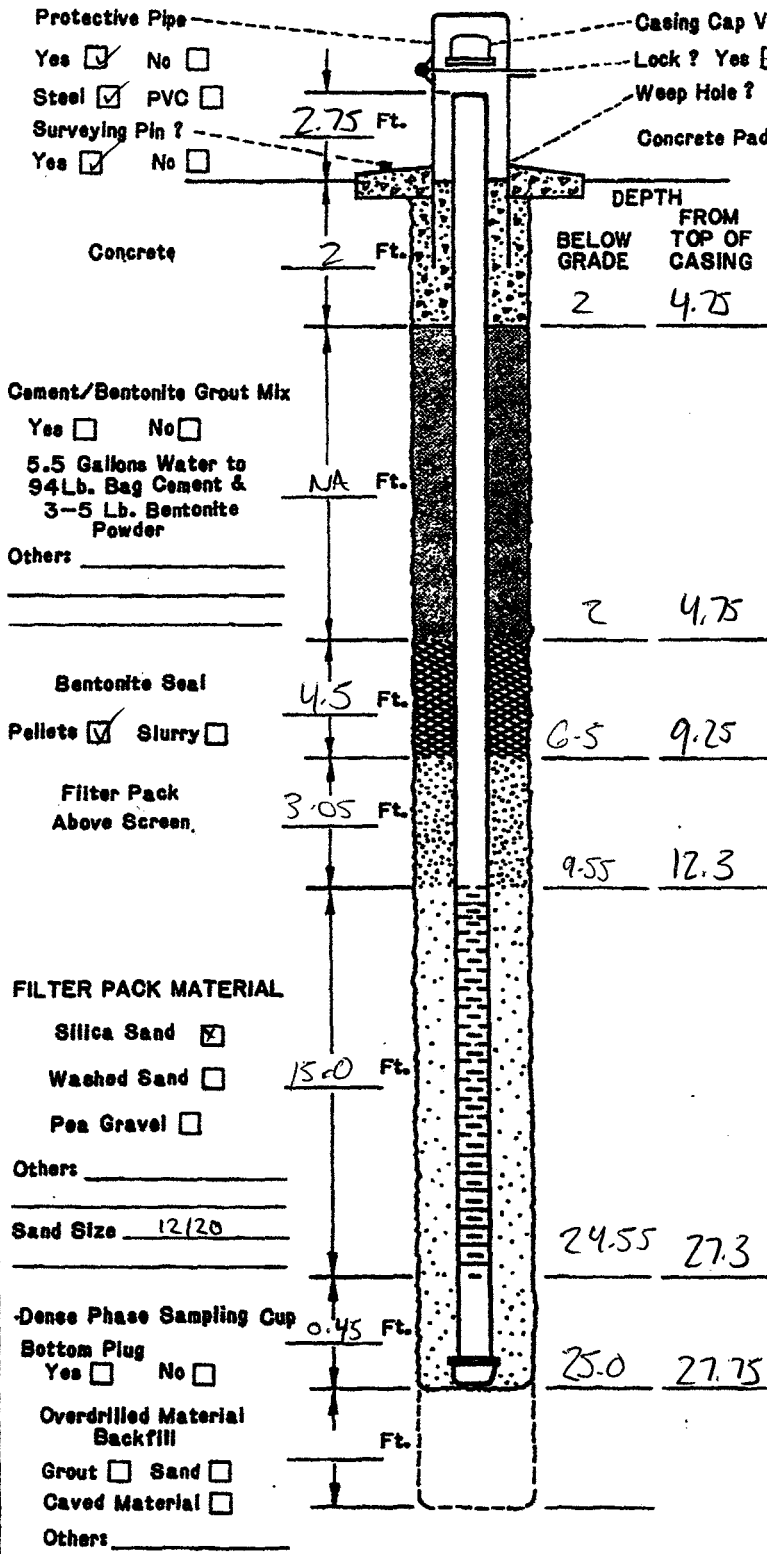
- WELL DEVELOPMENT INFORMATION:**
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
 - Time Spent on Well Development?
1 HR / 20 min Minutes/Hours
 - Approximate Water Volume Removed? 22 Gallons
 - Water Clarity Before Development? Clear
 Turbid Opaque
 - Water Clarity After Development? Clear
 Turbid Opaque
 - Did Water have Odor? Yes No
 If Yes, Describe _____
 - Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 25.15 Ft. Date 11/21/17
 After Development 27.46 Ft. Date 11/22/17

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/18/2017
 Drill Crew B. GRESHAM, J. VIGVERIA, C. BOYLE Well No. 1396 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



- Protective Pipe: Yes No
 Steel PVC
 Surveying Pin? Yes No
 Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 6 Inches
- DRILLING INFORMATION:**
- Borehole Diameter = 6 inches.
 - Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger **SONIC**
 - Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
 - Borehole Diameter for Outer Casing _____ inches.

- WELL CONSTRUCTION INFORMATION:**
- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
 - Type of Casing Joints: Screw-Couple Glue-Couple Other _____
 - Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
 - Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
 - Slot Size of Screens: 0.01
 - Type of Screen Perforations: Factory Slotted
 Hackaw Drilled Other _____
 - Installed Protector Pipe w/Locks: Yes No

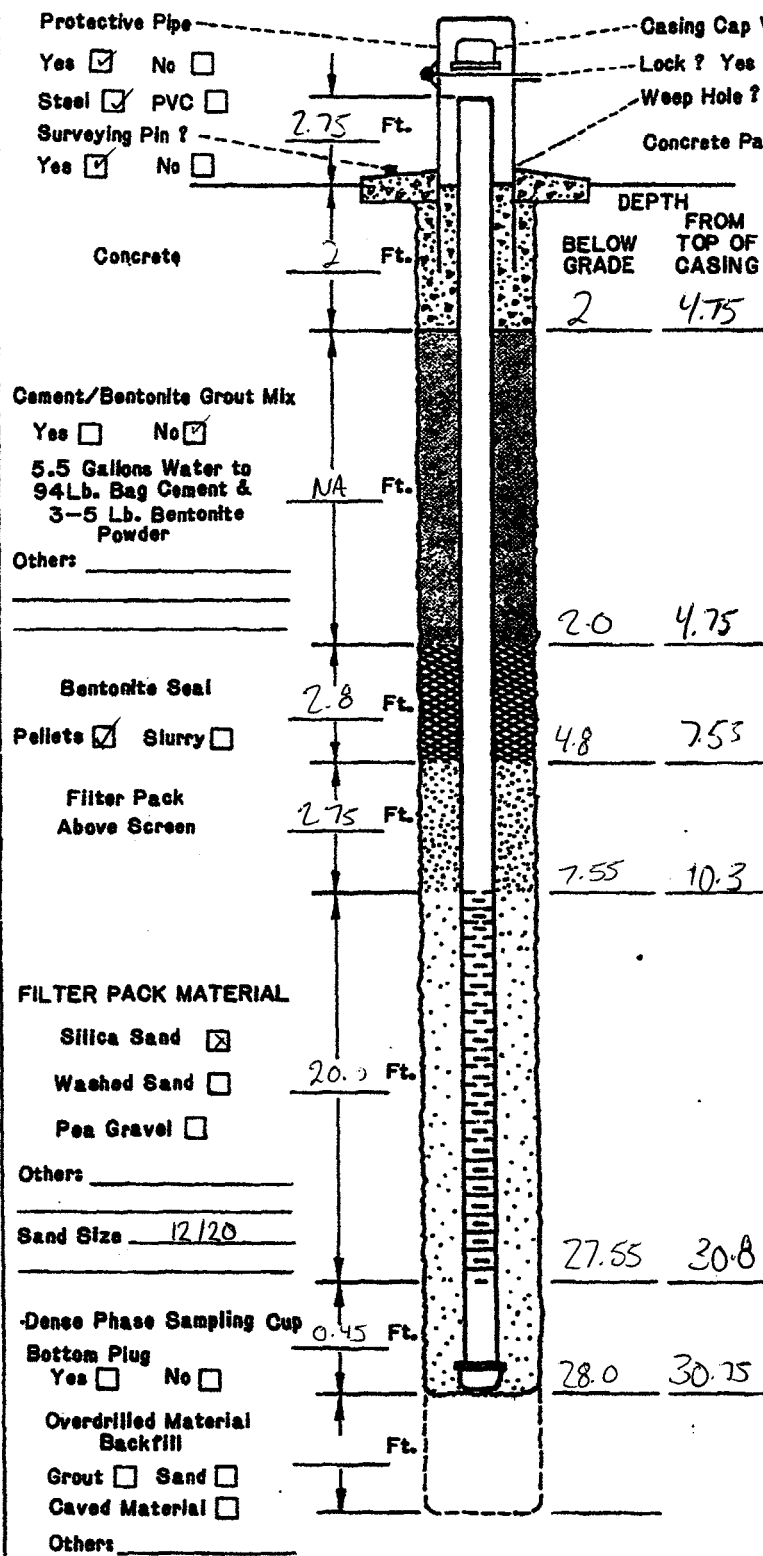
- WELL DEVELOPMENT INFORMATION:**
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
 - Time Spent on Well Development?
1 HR / 40 min Minutes/Hours
 - Approximate Water Volume Removed? 37 Gallons
 - Water Clarity Before Development? Clear
 Turbid Opaque
 - Water Clarity After Development? Clear
 Turbid Opaque
 - Did Water have Odor? Yes No
 If Yes, Describe _____
 - Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 27.22 Ft. Date 11/21
 After Development 24.18 Ft. Date 11/22

Driller/Firm CASCADE Drill Rig Type SONIC Date installed 11/20/2017
 Drill Crew B. GRESHAM, J. VIGUERIA, C. BOYLE Well No. 1397 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin ?
 Yes No

Casing Cap Vent ? Yes No
 Lock ? Yes No
 Weep Hole ? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used ? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SONIC
- Was Outer Steel Casing Used ? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens: ϕ
 Casing 2 Inches, Screen 2 Inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

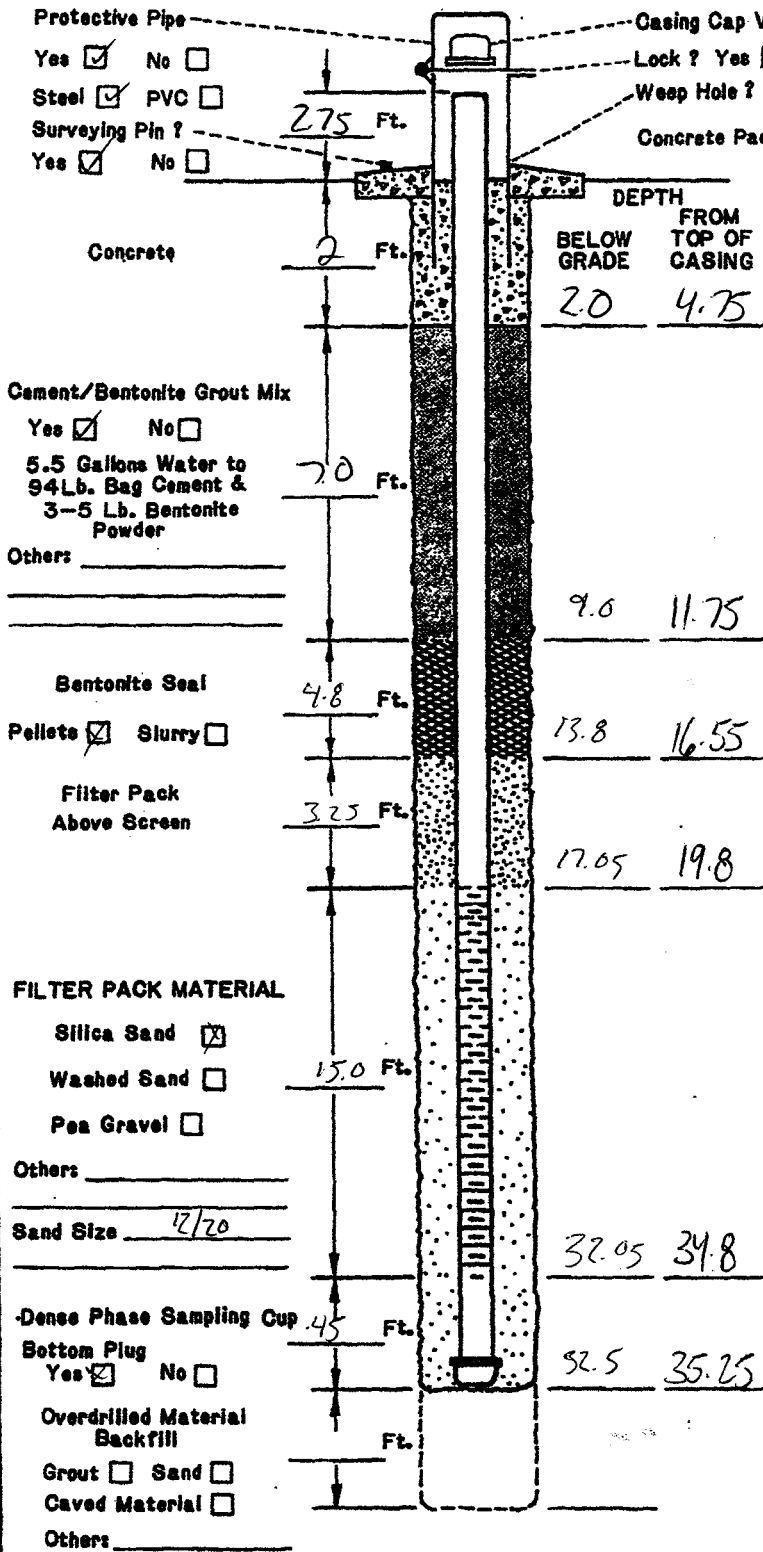
- How was Well Developed ? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development ?
1 hr / 26 min Minutes/Hours
- Approximate Water Volume Removed ? 42 Gallons
- Water Clarity Before Development ? Clear
 Turbid Opaque
- Water Clarity After Development ? Clear
 Turbid Opaque
- Did Water have Odor ? Yes No
 If Yes, Describe _____
- Did Water have any Color ? Yes No
 If Yes, Describe RED/ORANGE

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 20.26 Ft. Date 11/21/17
 After Development 20.65 Ft. Date 11/22/17

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/19/2017
 Drill Crew B. GRESHAM, J. VIGVERIA, C. BOYLE Well No. 1398 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe: Yes No
 Steel PVC
 Surveying Pin: Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 inches

DRILLING INFORMATION:

- Borehole Diameter = 6 inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger **SONIC**
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hack saw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

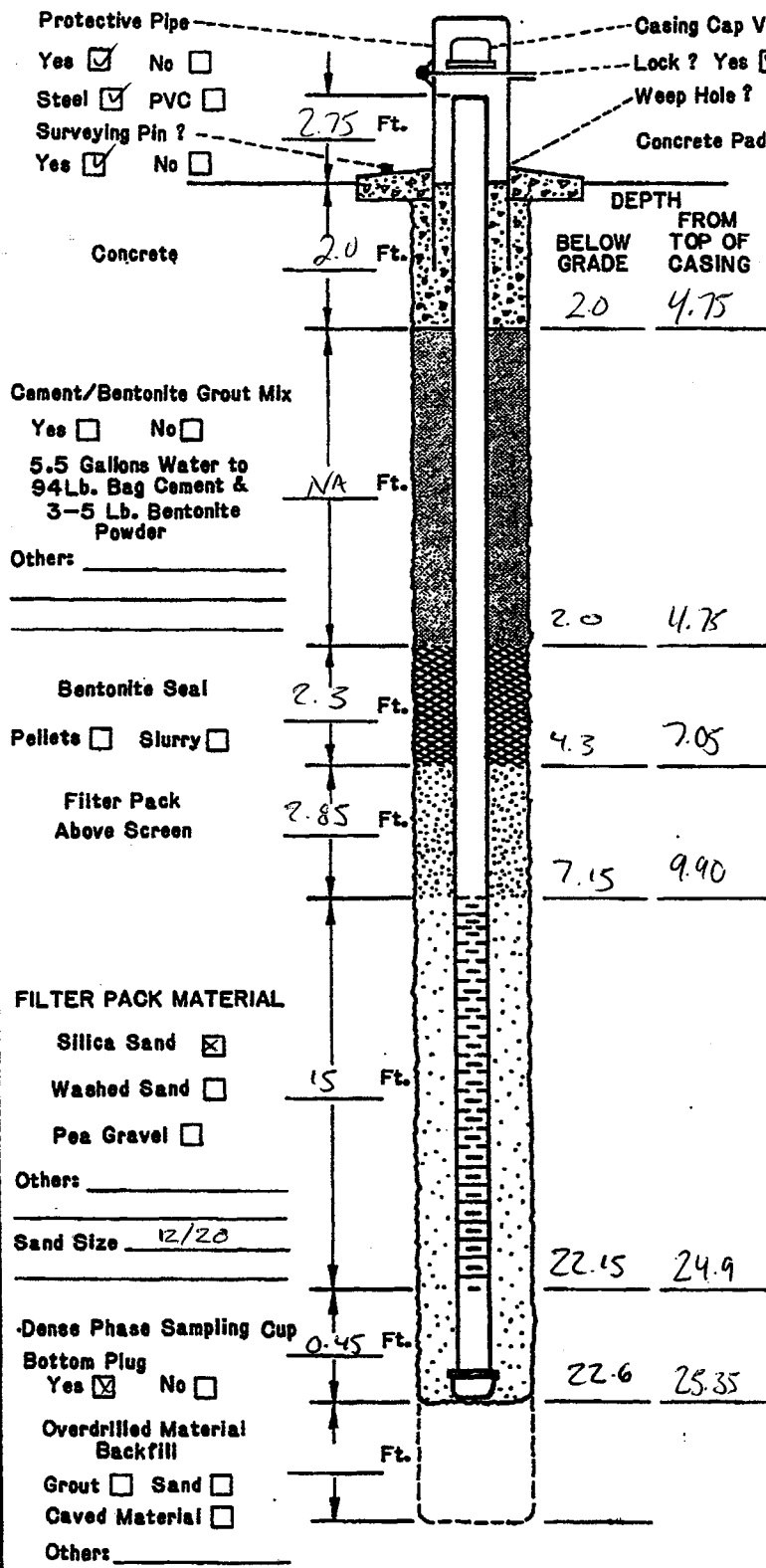
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR / 56 min Minutes/Hours
- Approximate Water Volume Removed? 33 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe pink orange

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 25.62 Ft. Date 11/21/2017
 After Development 28.12 Ft. Date 11/22/2017

Driller/Firm CASLAGE Drill Rig Type SONIC Date Installed 11/18/2017
 Drill Crew B. GRESHAM, J. VIGUERIA, C. BOYLE Well No. 1399 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin?
 Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SONIC
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.010
- Type of Screen Perforation: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

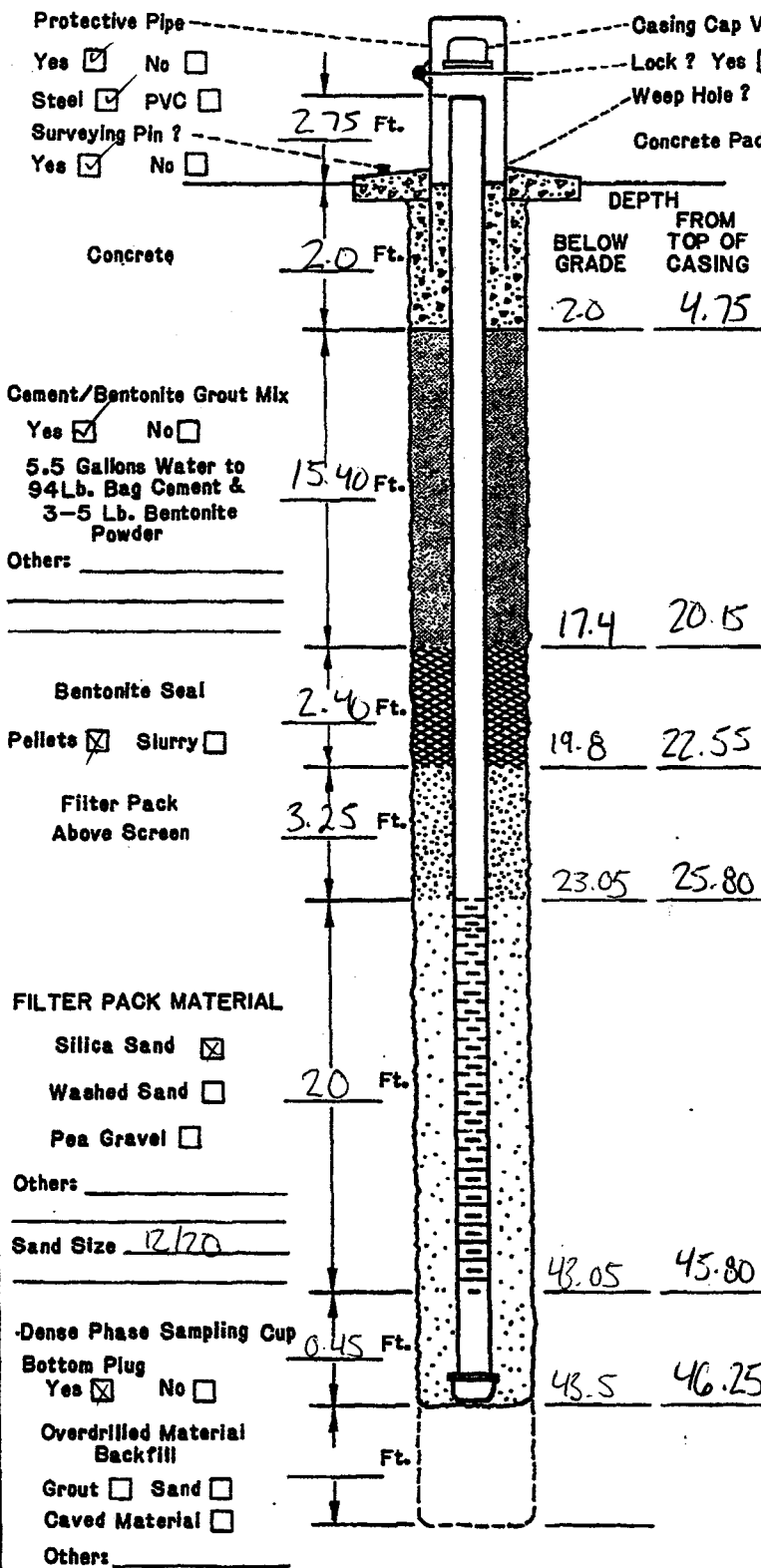
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR / 26 min Minutes/Hours
- Approximate Water Volume Removed? 35 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 18.88 Ft. Date 11/21
 After Development 20.39 Ft. Date 11/21

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/18/2017
 Drill Crew B. GRESHAM J. VIVERIA C. BOYLE Well No. 1400 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SONIC
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR, 41 MIN Minutes/Hours
- Approximate Water Volume Removed? 26 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe light orange

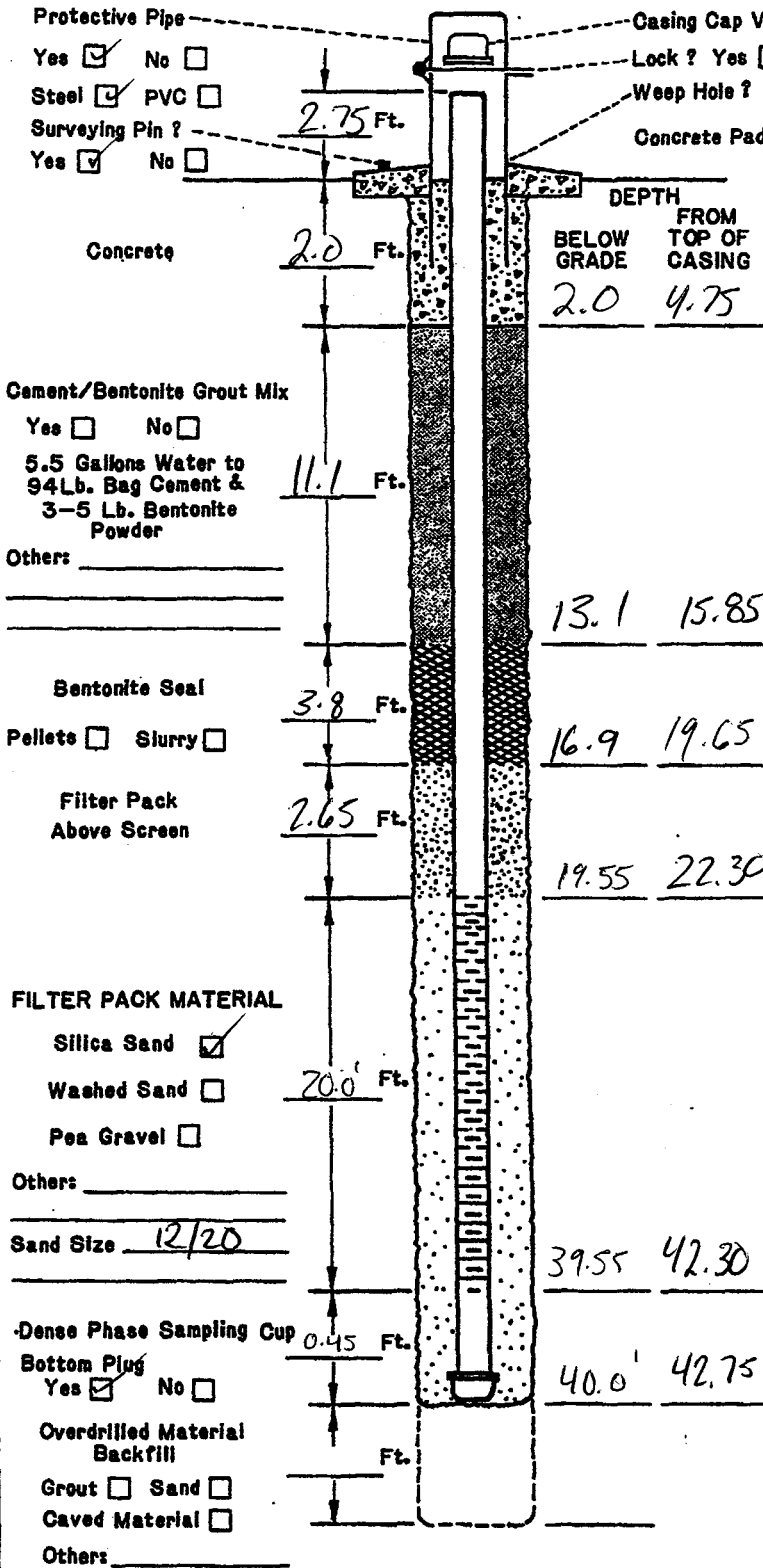
WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 34.95 Ft. Date 11/21/2017
 After Development 38.30 Ft. Date 11/21/2017

Driller/Firm CASCADE Drill Rig Type SONIC Date installed 11/16/2017
 Drill Crew _____ Well No. 1401 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin?
 Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 inches

DRILLING INFORMATION:

- Borehole Diameter = 6 inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger **SONIC**
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA inches.

Cement/Bentonite Grout Mix
 Yes No
 5.5 Gallons Water to
 94 Lb. Bag Cement &
 3-5 Lb. Bentonite
 Powder
 Others: _____

Bentonite Seal
 Pellets Slurry
 Filter Pack
 Above Screen

FILTER PACK MATERIAL
 Silica Sand
 Washed Sand
 Pea Gravel
 Others: _____
 Sand Size 12/20

Dense Phase Sampling Cup
 Bottom Plug
 Yes No
 Overdrilled Material
 Backfill
 Grout Sand
 Caved Material
 Others: _____

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

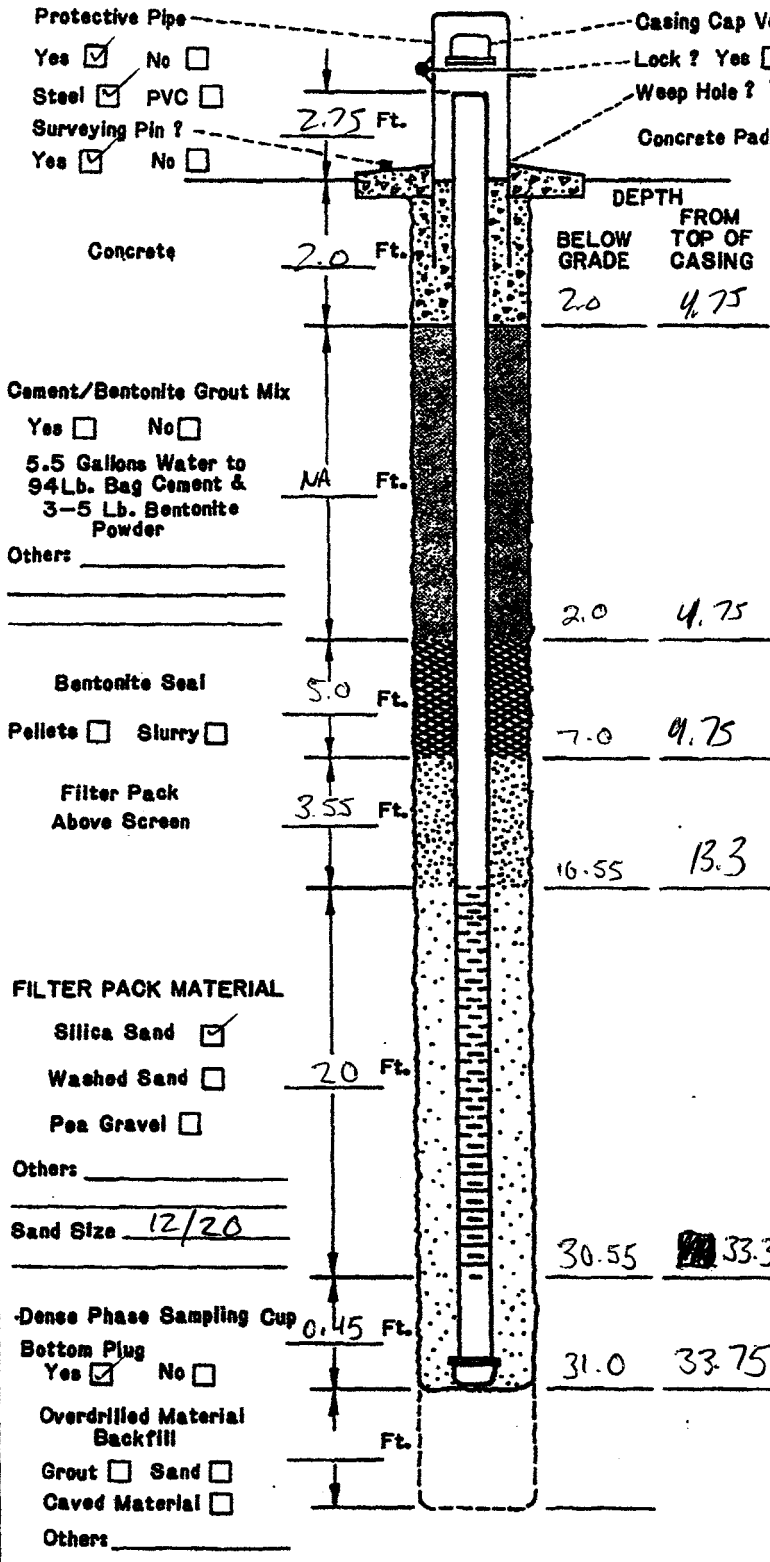
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR, 21 MIN Minutes/Hours
- Approximate Water Volume Removed? 25 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 38.55 Ft. Date 11/21/2017
 After Development 39.71 Ft. Date 11/21/2017

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/17/2017
 Drill Crew B. GRESHAM U. VIGUELLA C. BOYER Well No. 1402 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe: Yes No
 Steel PVC
 Surveying Pin: Yes No
 Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 8 1/4 Inches. * OVERDRILLED
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger **SONIC**
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casing: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 Inches, Screen 2 Inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

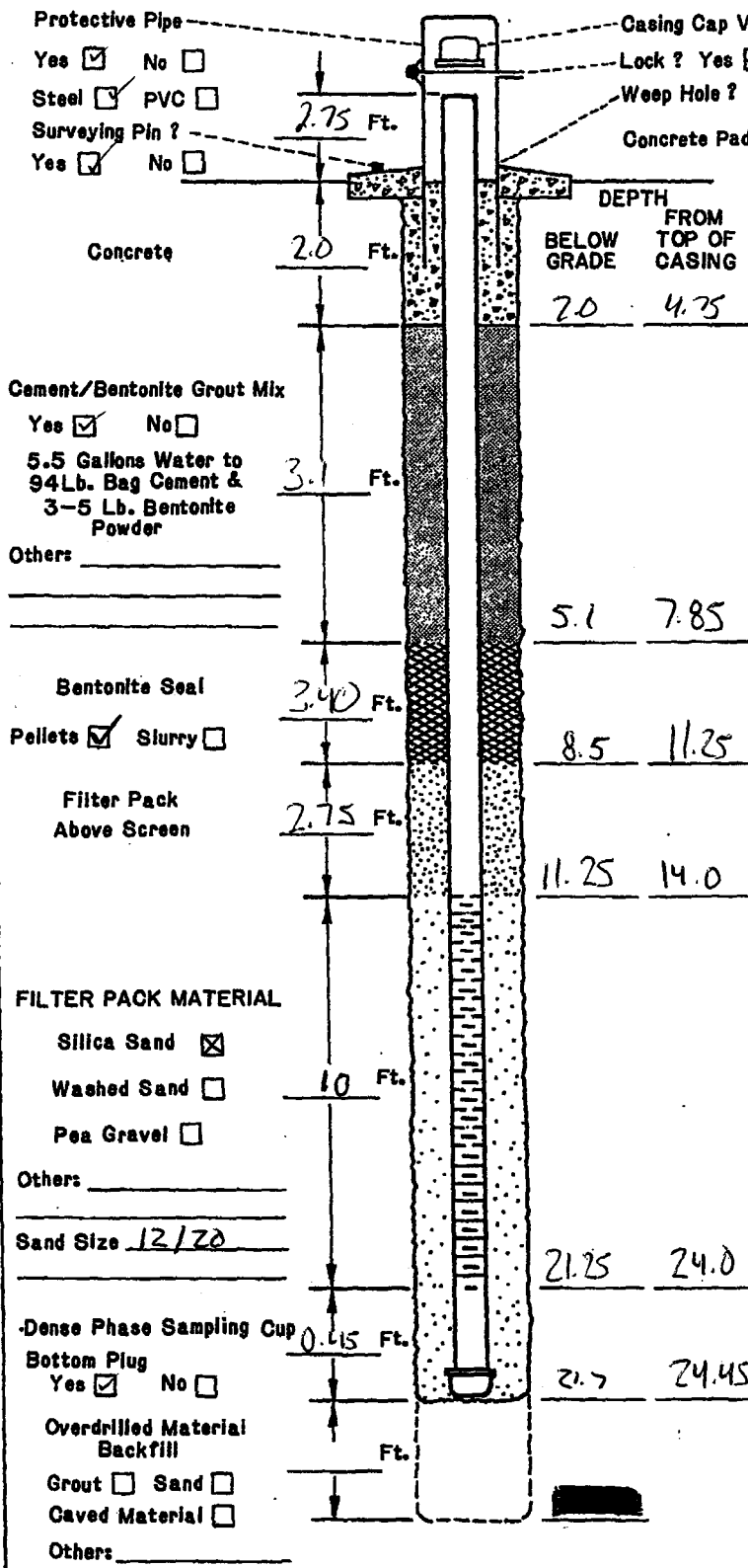
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 Hr / 38 min Minutes/Hours
- Approximate Water Volume Removed? 30 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling	_____ Ft.	Date _____
Before Development	<u>18.97</u> Ft.	Date <u>11/21/2017</u>
After Development	<u>30.73</u> Ft.	Date <u>11/20/2017</u>

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/20/2017
 Drill Crew B. GRESHAM, C. BOYLE, J. VIGUERIA Well No. 1403 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe: Yes No
 Steel PVC
 Surveying Pin: Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger **SONIC**
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casing: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 Inches, Screen 2 Inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR / 53 MIN Minutes/Hours
- Approximate Water Volume Removed? 30 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Oder? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe RED

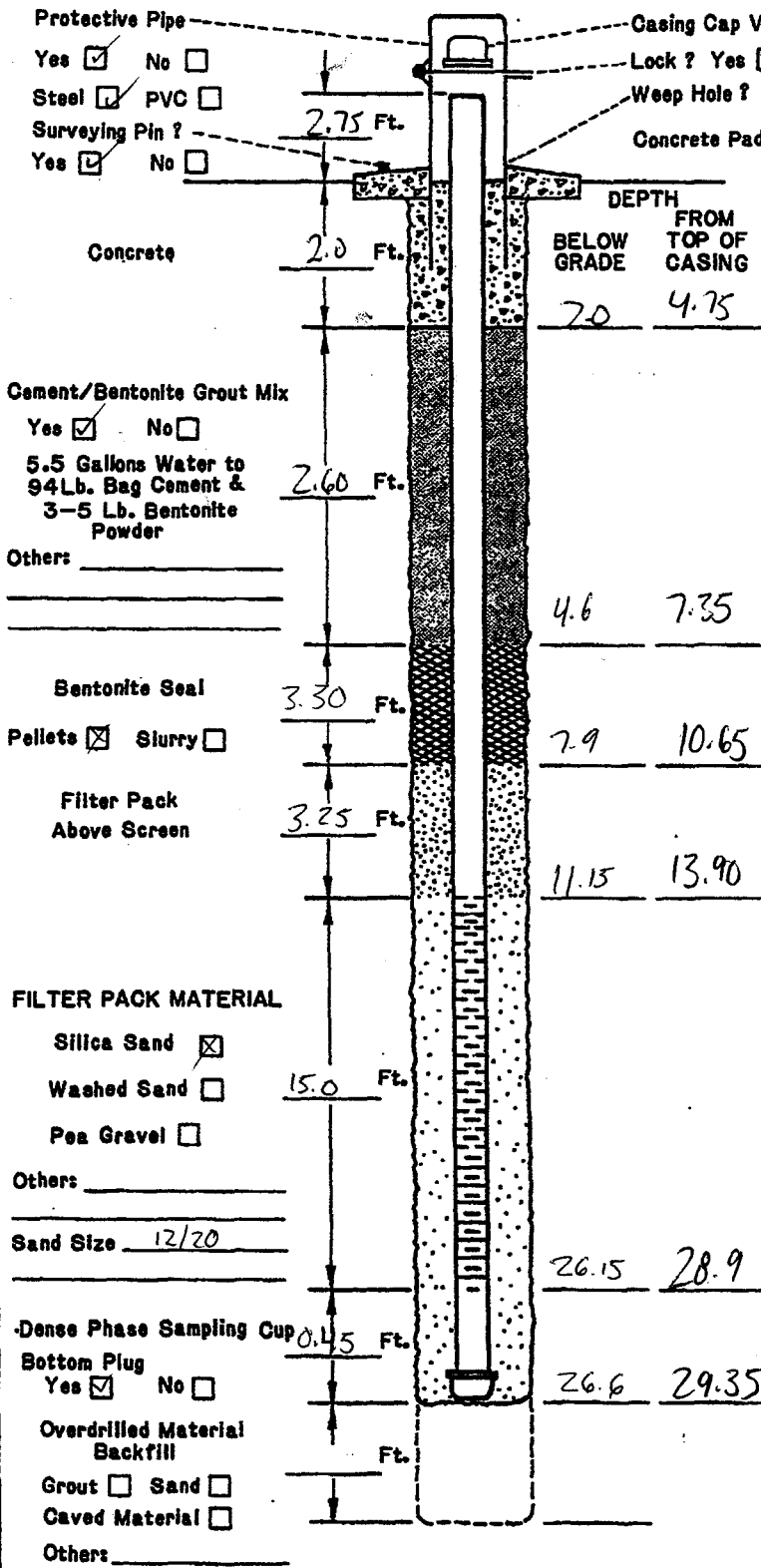
WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 11.43 Ft. Date 11/21/17
 After Development 17.00 Ft. Date 11/21/17

Driller/Firm CASCADE Drill Rig Type Sonic Date Installed 11/14/2017
 Drill Crew B. GRESHAM, C. BOYLE, J. VIGUEIRA Well No. 1404 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin?
 Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SONIC
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screen: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

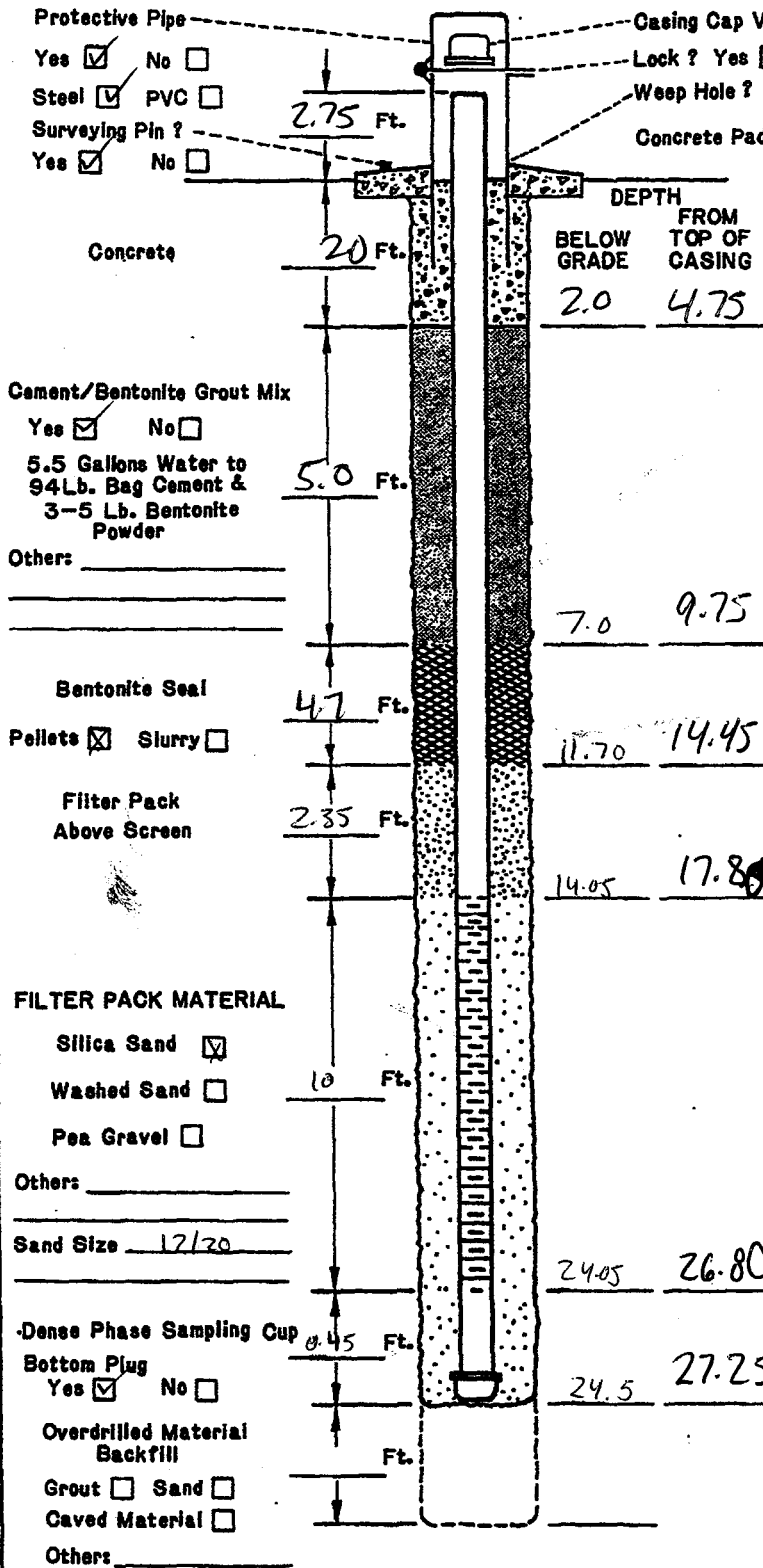
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 HR / 55 MIN Minutes/Hours
- Approximate Water Volume Removed? 40 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 11.65 Ft. Date 11/20/17
 After Development 16.77 Ft. Date 11/21/17

Driller/Firm CASCADE Drill Rig Type SONIC Date Installed 11/14/2017
 Drill Crew B. GRESHAM, J. VIGNERIA, C. BOYLE Well No. 1405 Hydrologist J. BUECH

MONITORING WELL INSTALLATION DIAGRAM



- DRILLING INFORMATION:**
- Borehole Diameter = 6 Inches.
 - Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SOME
 - Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
 - Borehole Diameter for Outer Casing NI Inches.

- WELL CONSTRUCTION INFORMATION:**
- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
 - Type of Casing Joints: Screw-Couple Glue-Couple Other _____
 - Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
 - Diameter of Casing and Well Screen: 0.01
 Casing 2 inches, Screen 2 inches.
 - Slot Size of Screens: 0.01
 - Type of Screen Perforations: Factory Slotted
 Hack saw Drilled Other _____
 - Installed Protector Pipe w/Locks: Yes No

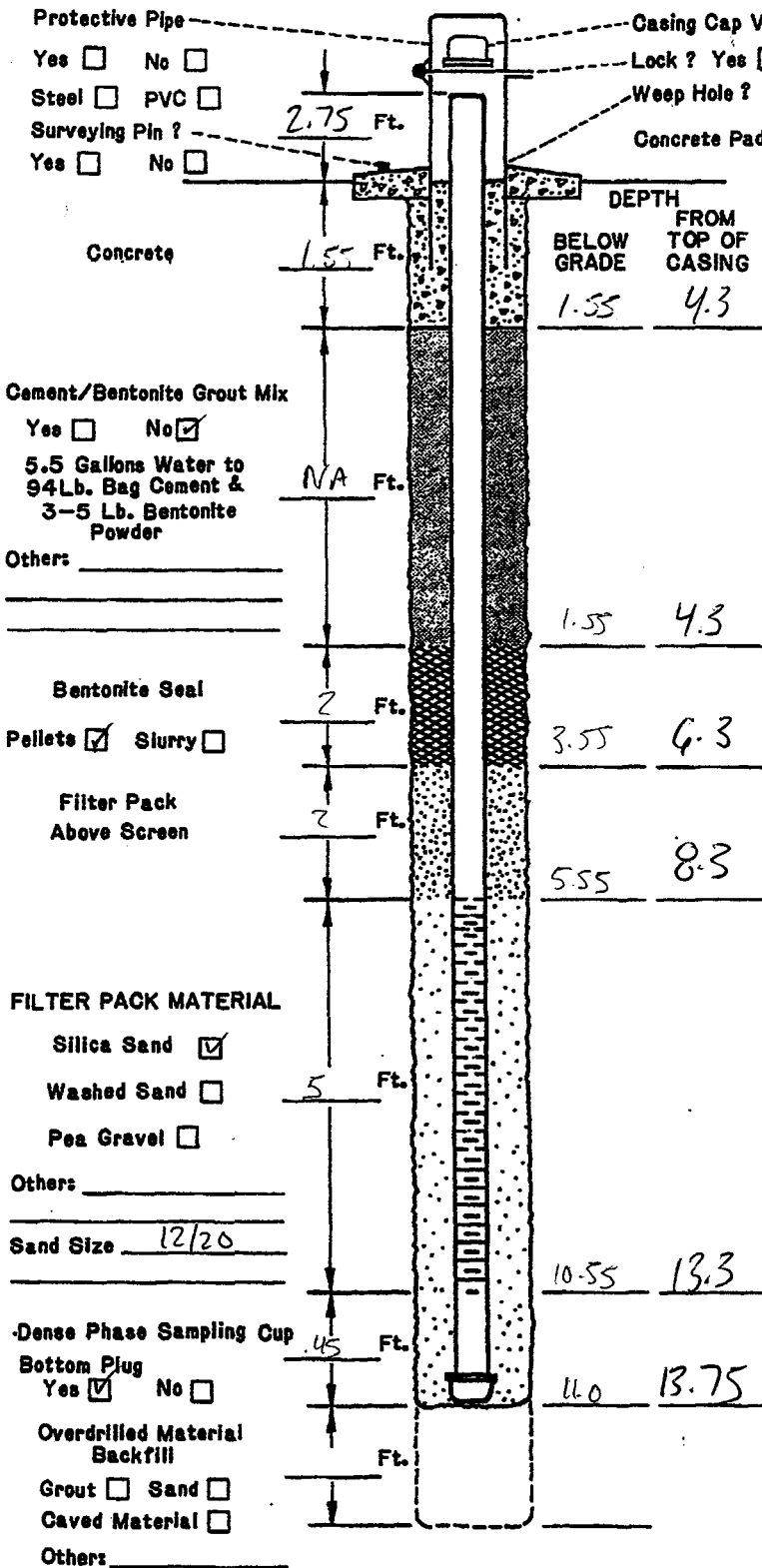
- WELL DEVELOPMENT INFORMATION:**
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
 - Time Spent on Well Development?
2 HR / 36 MIN Minutes/Hours
 - Approximate Water Volume Removed? 23 Gallons
 - Water Clarity Before Development? Clear
 Turbid Opaque
 - Water Clarity After Development? Clear
 Turbid Opaque
 - Did Water have Odor? Yes No
 If Yes, Describe _____
 - Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 15.84 Ft. Date 11/21/2017
 After Development 19.80 Ft. Date 11/21/2017

Driller/Firm CASCADE Drill Rig Type Sonic Date installed 11/15/2017
 Drill Crew B. GRESHAM, J. VIGORIA, C. BOYLE Well No. 1406 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe

Yes No

Steel PVC

Surveying Pin ?

Yes No

Casing Cap Vent ? Yes No

Lock ? Yes No

Weep Hole ? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used ? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger Sonic
- Was Outer Steel Casing Used ? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casing: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screen: ~~6.3~~
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screen: 0.01
- Type of Screen Perforations: Factory Slotted
 Hack saw Drilled Other _____
- Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

- How was Well Developed ? Bailing Pumping
 Air Surging (Air or Nitrogen) Other NOT DEVELOPED. TOO LITTLE WATER
- Time Spent on Well Development ?
 _____ Minutes/Hours
- Approximate Water Volume Removed ? _____ Gallons
- Water Clarity Before Development ? Clear
 Turbid Opaque
- Water Clarity After Development ? Clear
 Turbid Opaque
- Did Water have Odor ? Yes No
 If Yes, Describe _____
- Did Water have any Color ? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____

Before Development 13.21 Ft. Date 11/21/2017

After Development NA Ft. Date NA

Driller/Firm CASCADE

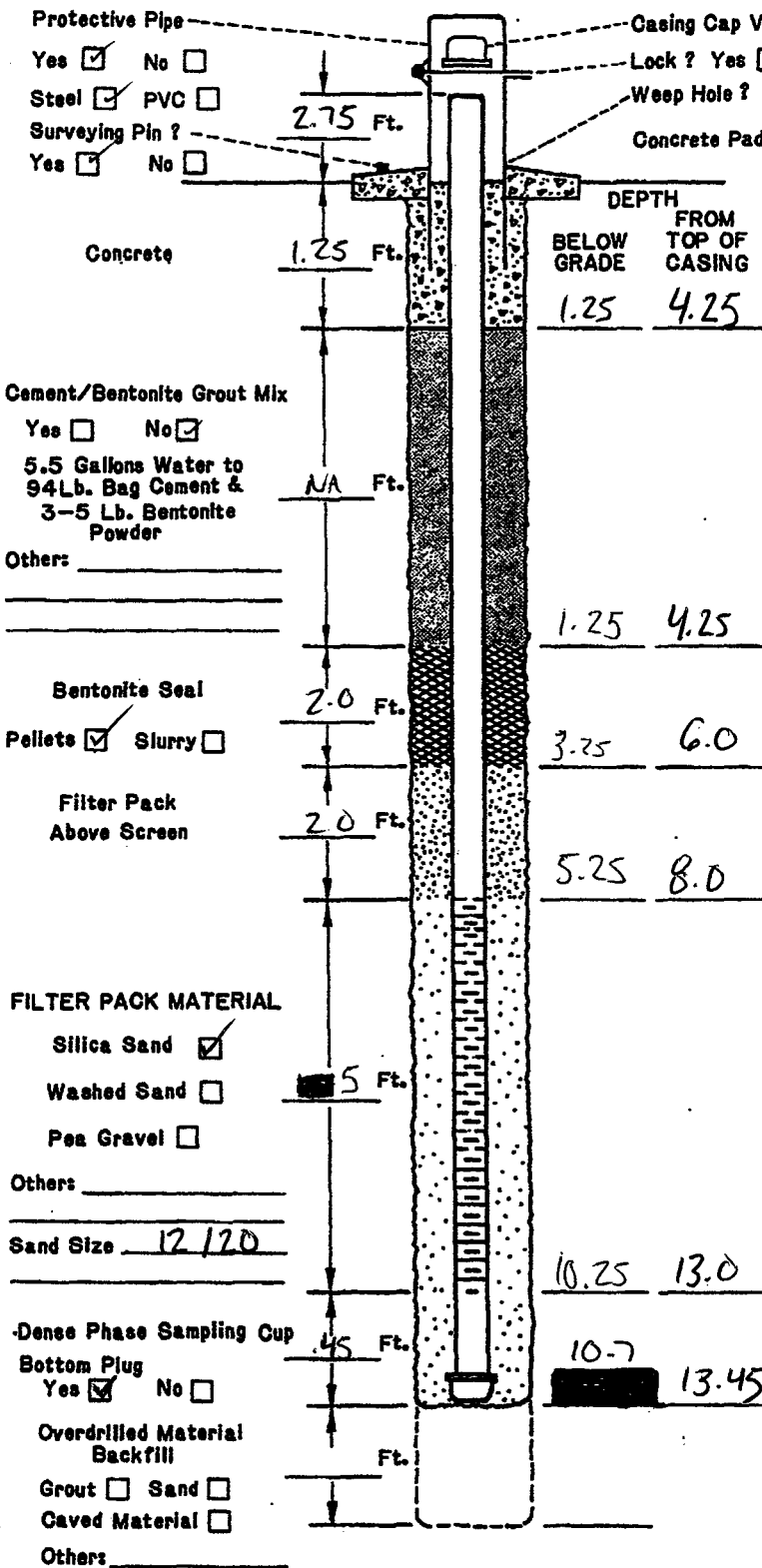
Drill Rig Type Sonic

Date installed 11/15/2017

Drill Crew B. Gessman J. VIGUERIA C. Boyle Well No. 1407

Hydrologist J. Buent

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin?
 Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 6 inches

Concrete
 1.25 Ft.
 Cement/Bentonite Grout Mix
 Yes No
 5.5 Gallons Water to
 94Lb. Bag Cement &
 3-5 Lb. Bentonite
 Powder
 Others: _____

Bentonite Seal
 Pellets Slurry
 Filter Pack
 Above Screen
 2.0 Ft.
 2.0 Ft.

FILTER PACK MATERIAL
 Silica Sand
 Washed Sand
 Pea Gravel
 Others: _____
 Sand Size 12/20

Dense Phase Sampling Cup
 Bottom Plug
 Yes No
 Overdrilled Material
 Backfill
 Grout Sand
 Caved Material
 Others: _____

DRILLING INFORMATION:

- Borehole Diameter = 6 inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger SONIC
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

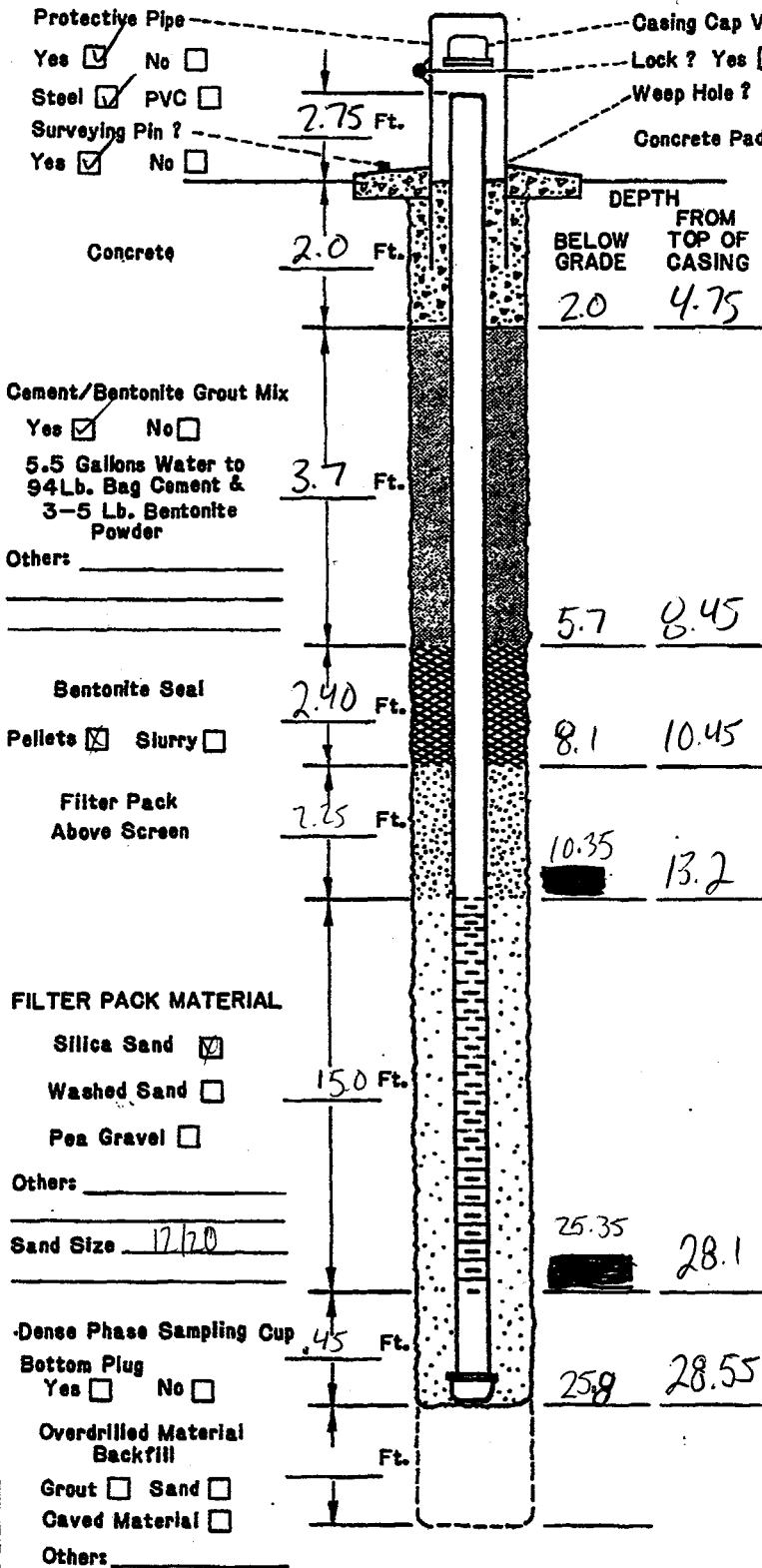
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other NOT DEVELOPED. TOO LITTLE WATER
- Time Spent on Well Development?
 _____ / _____ Minutes/Hours
- Approximate Water Volume Removed? _____ Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 13.31 Ft. Date 11/21/2017
 After Development NA Ft. Date NA

Driller/Firm CASCADA Drill Rig Type Sonic Date Installed 11/15/2017
 Drill Crew B. GRESHAM J. VIGUERIA C. BOYLE Well No. 1408 Hydrologist J. Braut

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 6 Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 Inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger Sonic
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screen: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

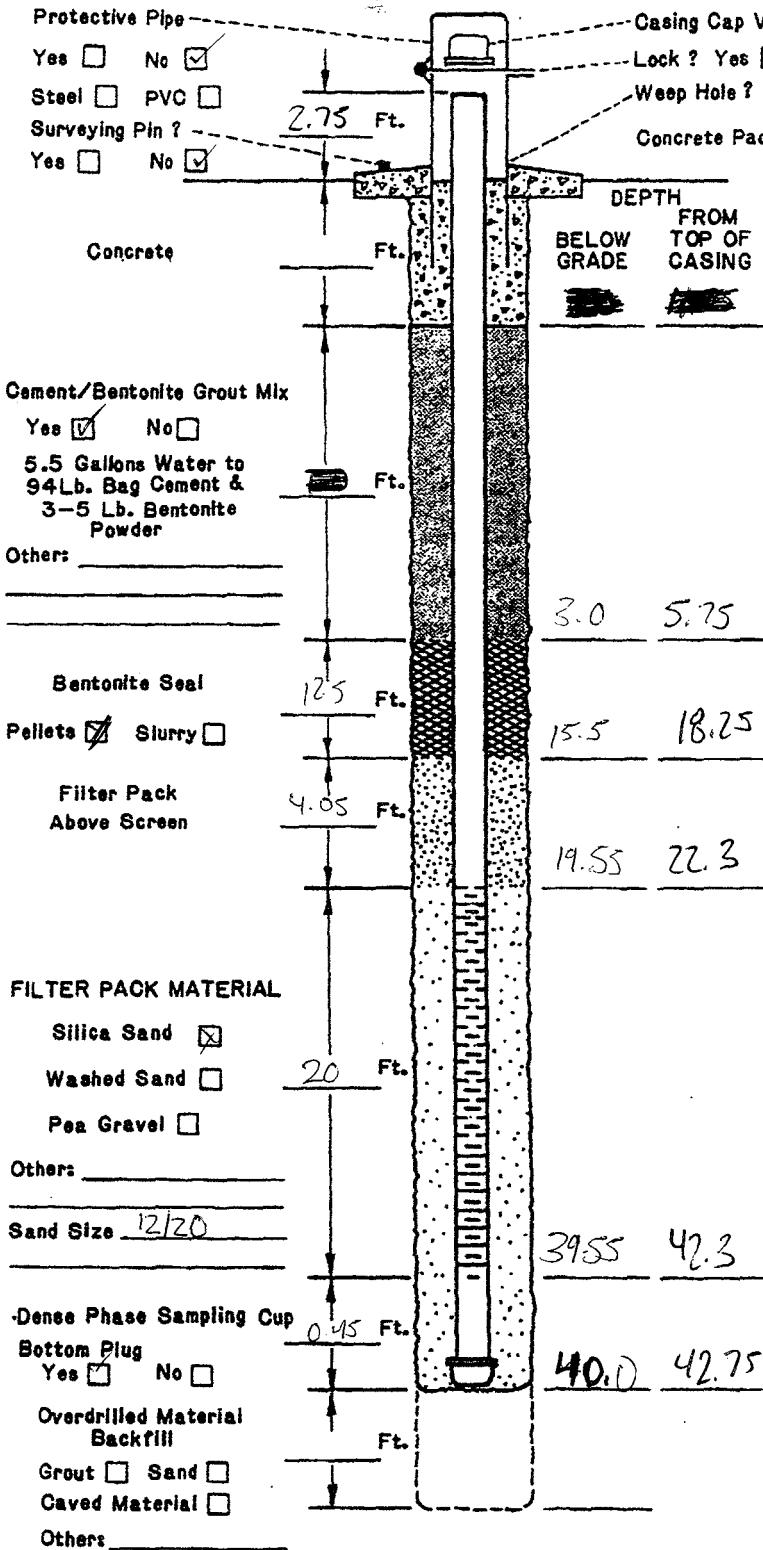
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 Hr / 31 min Minutes/Hours
- Approximate Water Volume Removed? 35 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 18.90 Ft. Date 4/21/2017
 After Development 18.34 Ft. Date 11/21/2017

Driller/Firm CASCADE Drill Rig Type Sonic Date Installed 11/15/2017
 Drill Crew B. GRESHAM, J. VIGNERA, C. BOYLE Well No. 1409 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad NA Ft. x NA Ft. x NA Inches

DRILLING INFORMATION:

- Borehole Diameter = 6 inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger Sonic
- Was Outer Steel Casing Used? Yes No
 Depth = NA to NA Feet.
- Borehole Diameter for Outer Casing NA inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casing: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screen: 0.01
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

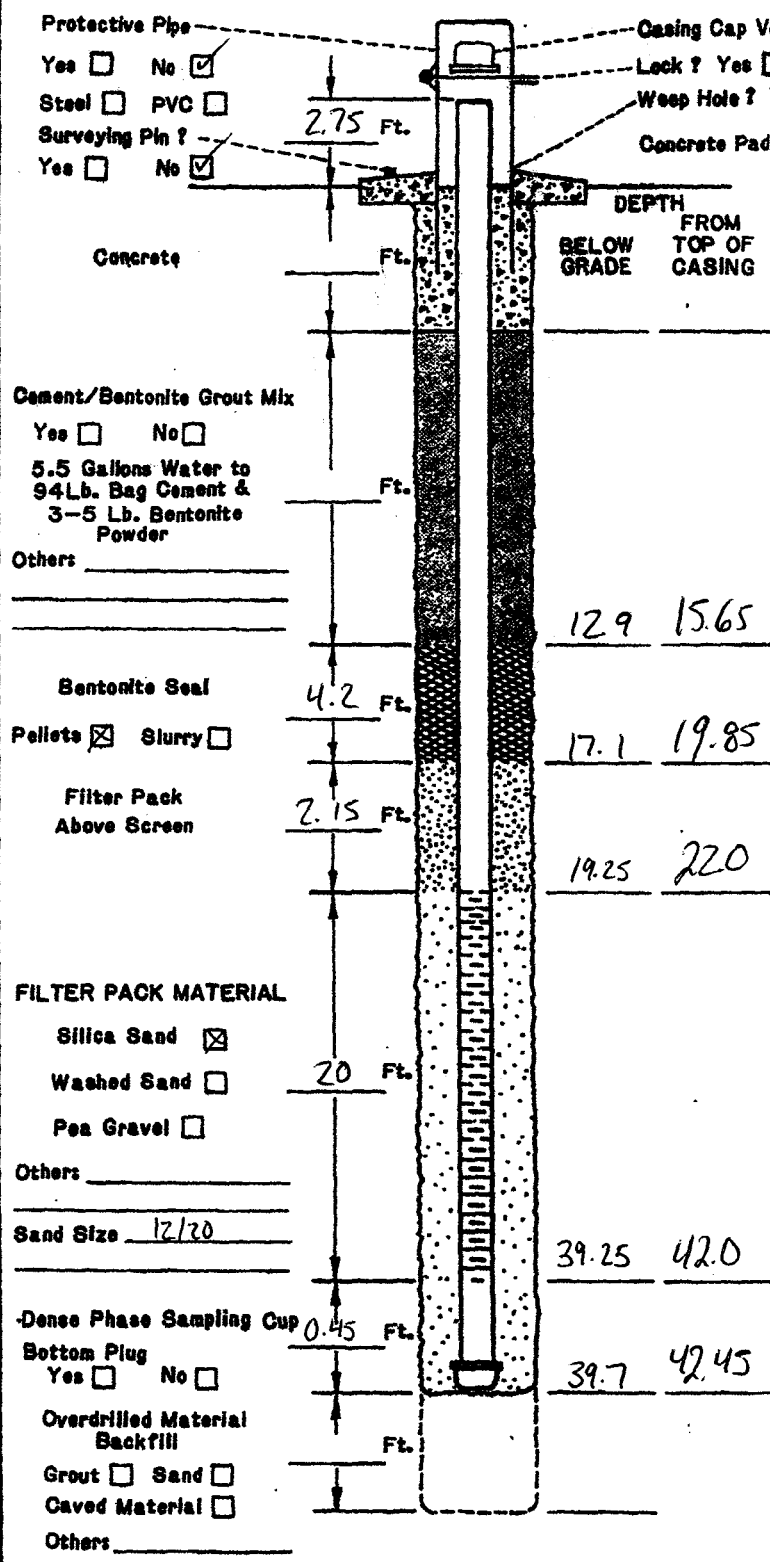
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 hr, 35 min Minutes/Hours
- Approximate Water Volume Removed? 43 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe light orange

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development 53.93 Ft. Date 11/21/17
 After Development 39.30 Ft. Date 11/21/17

Driller/Firm CASCADE Drill Rig Type SONIC Date installed 11/20/2017
 Drill Crew B. GRESHAM, J. VIGUECIA, C. BOYLE Well No. TMP-VP2-01 Hydrologist J. BUECH

MONITORING WELL INSTALLATION DIAGRAM



- Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad NA Ft. x NA Ft. x NA Inches
- DRILLING INFORMATION:**
- Borehole Diameter= 6 Inches.
 - Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
 - Was Outer Steel Casing Used? Yes No
 Depth= NA to NA Feet.
 - Borehole Diameter for Outer Casing NA Inches.

- WELL CONSTRUCTION INFORMATION:**
- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
 - Type of Casing Joints: Screw-Couple Glue-Couple Other _____
 - Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
 - Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
 - Slot Size of Screens: 0.01
 - Type of Screen Perforations: Factory Slotted
 Hack saw Drilled Other _____
 - Installed Protector Pipe w/Locks: Yes No

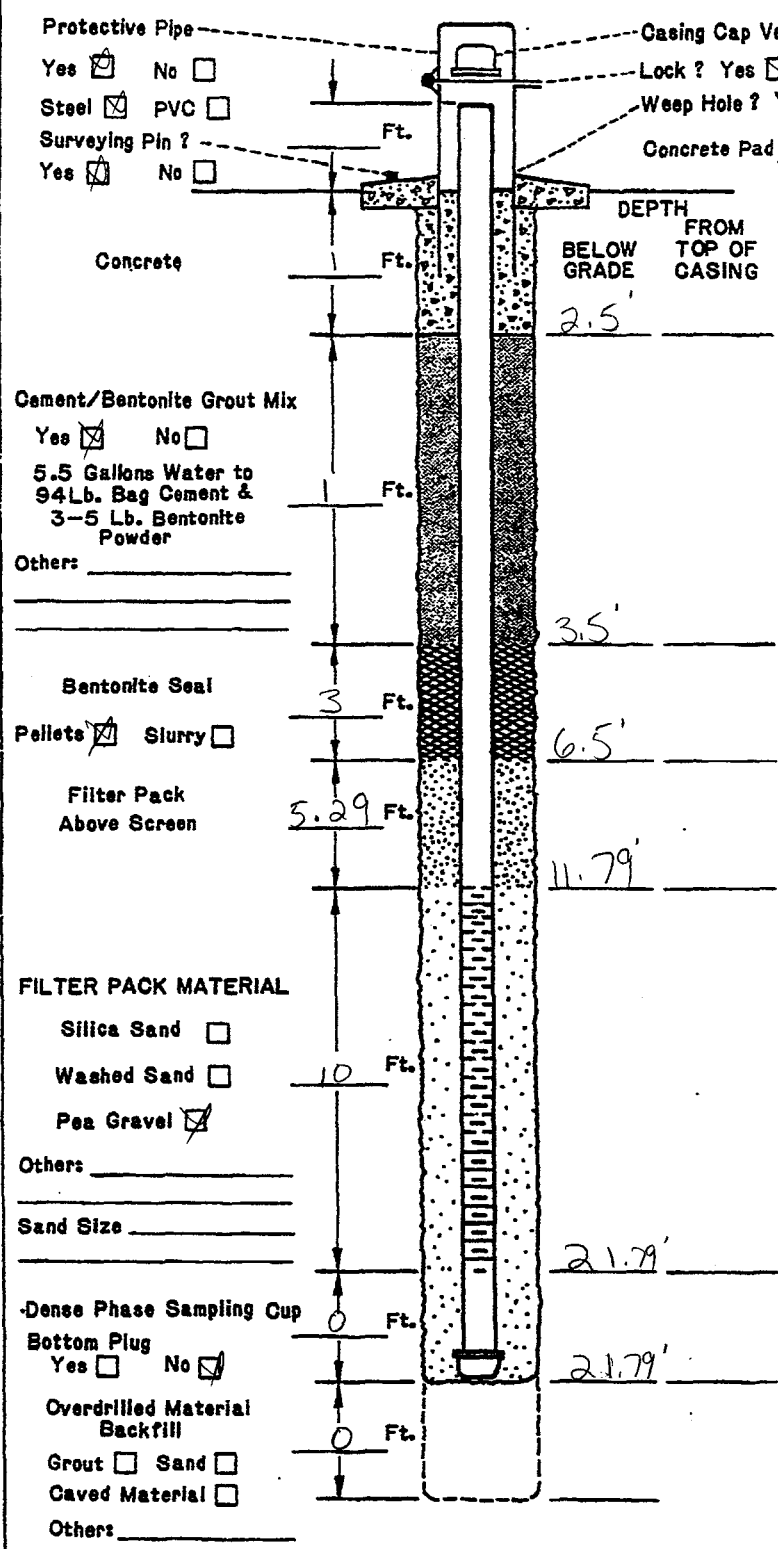
- WELL DEVELOPMENT INFORMATION:**
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
 - Time Spent on Well Development?
1 HR 30 min Minutes/Hours
 - Approximate Water Volume Removed? 25 Gallons
 - Water Clarity Before Development? Clear
 Turbid Opaque
 - Water Clarity After Development? Clear
 Turbid Opaque
 - Did Water have Odor? Yes No
 If Yes, Describe _____
 - Did Water have any Color? Yes No
 If Yes, Describe ORANGE

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development 34.71 Ft. Date 11/21/17
 After Development 38.53 Ft. Date 11/21/17

Driller/Firm CASCADE Drill Rig Type SONIC Date installed 11/17/2017
 Drill Crew B. GRESHAM J. VIGUERIA C. BOYLE Well No. TMP-UP2-02 Hydrologist J. BURCH

MONITORING WELL INSTALLATION DIAGRAM



Protective Pipe
 Yes No
 Steel PVC
 Surveying Pin?
 Yes No

Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 12 inches

Cement/Bentonite Grout Mix
 Yes No
 5.5 Gallons Water to
 94Lb. Bag Cement &
 3-5 Lb. Bentonite
 Powder
 Others: _____

Bentonite Seal
 Pellets Slurry
 Filter Pack
 Above Screen

FILTER PACK MATERIAL
 Silica Sand
 Washed Sand
 Pea Gravel
 Others: _____
 Sand Size _____

Dense Phase Sampling Cup
 Bottom Plug
 Yes No
 Overdrilled Material
 Backfill
 Grout Sand
 Caved Material
 Others: _____

Driller/Firm RSI Drill Rig Type Komatsu 650 Date installed 10/20/17
 Drill Crew RSI Well No. GETR-BAI-01-MW01 Hydrologist Jody Warkart

DRILLING INFORMATION:

- Borehole Diameter = French inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water Slurry
 Solid Auger Hollow Stem Auger
- Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
- Borehole Diameter for Outer Casing _____ inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.010
- Type of Screen Perforations: Factory Slotted
 Hack saw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

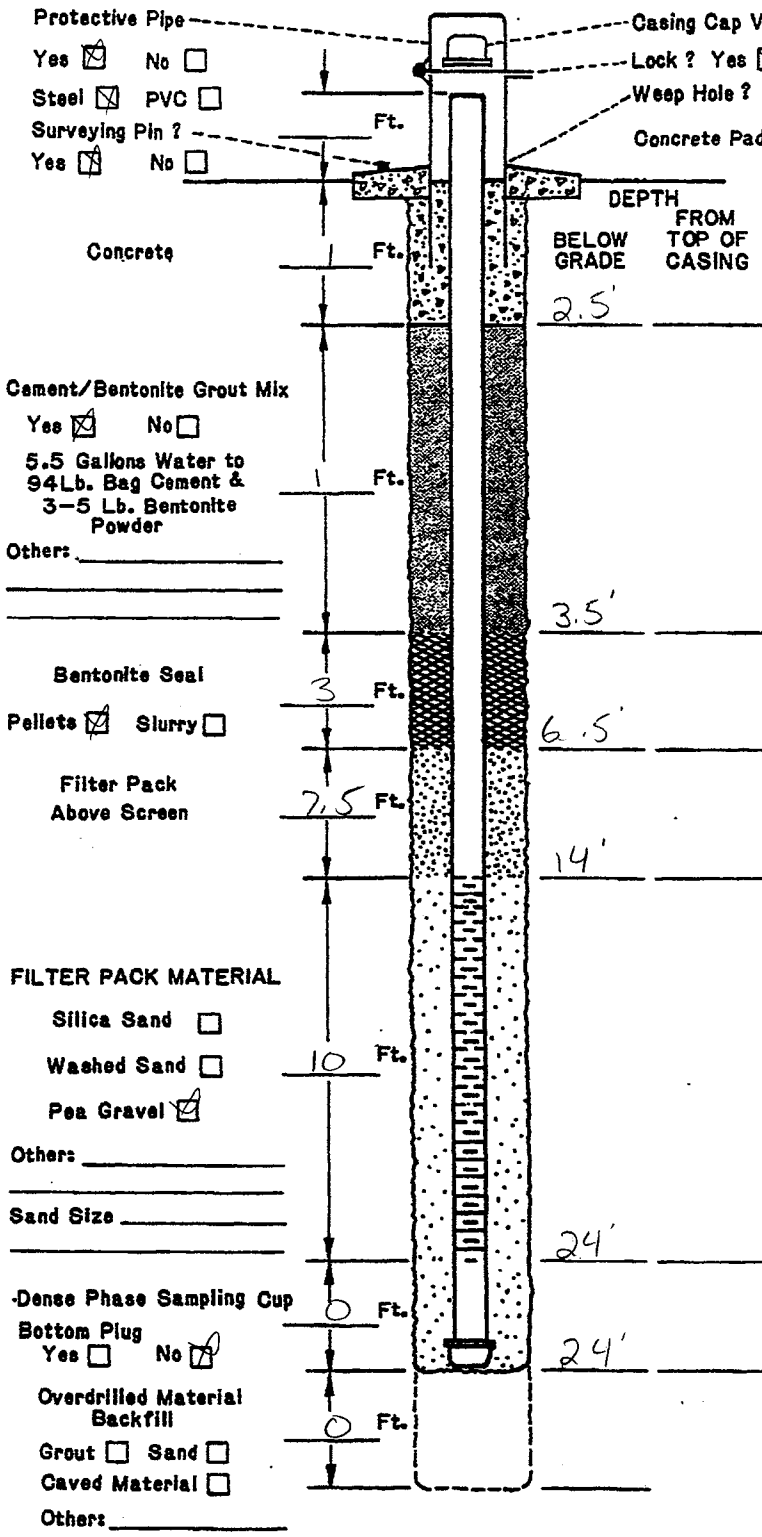
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 30 Minutes/Hours
- Approximate Water Volume Removed? 15 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe sulfur like
- Did Water have any Color? Yes No
 If Yes, Describe yellow

WATER LEVEL INFORMATION: Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

939.5
 917.71
 21.79

MONITORING WELL INSTALLATION DIAGRAM



DRILLING INFORMATION:

- Borehole Diameter = trench inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water Slurry
 Solid Auger Hollow Stem Auger
- Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
- Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.010"
- Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development? 1 30 Minutes/Hours
- Approximate Water Volume Removed? 15 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe sulfur like
- Did Water have any Color? Yes No
 If Yes, Describe yellow

WATER LEVEL INFORMATION:

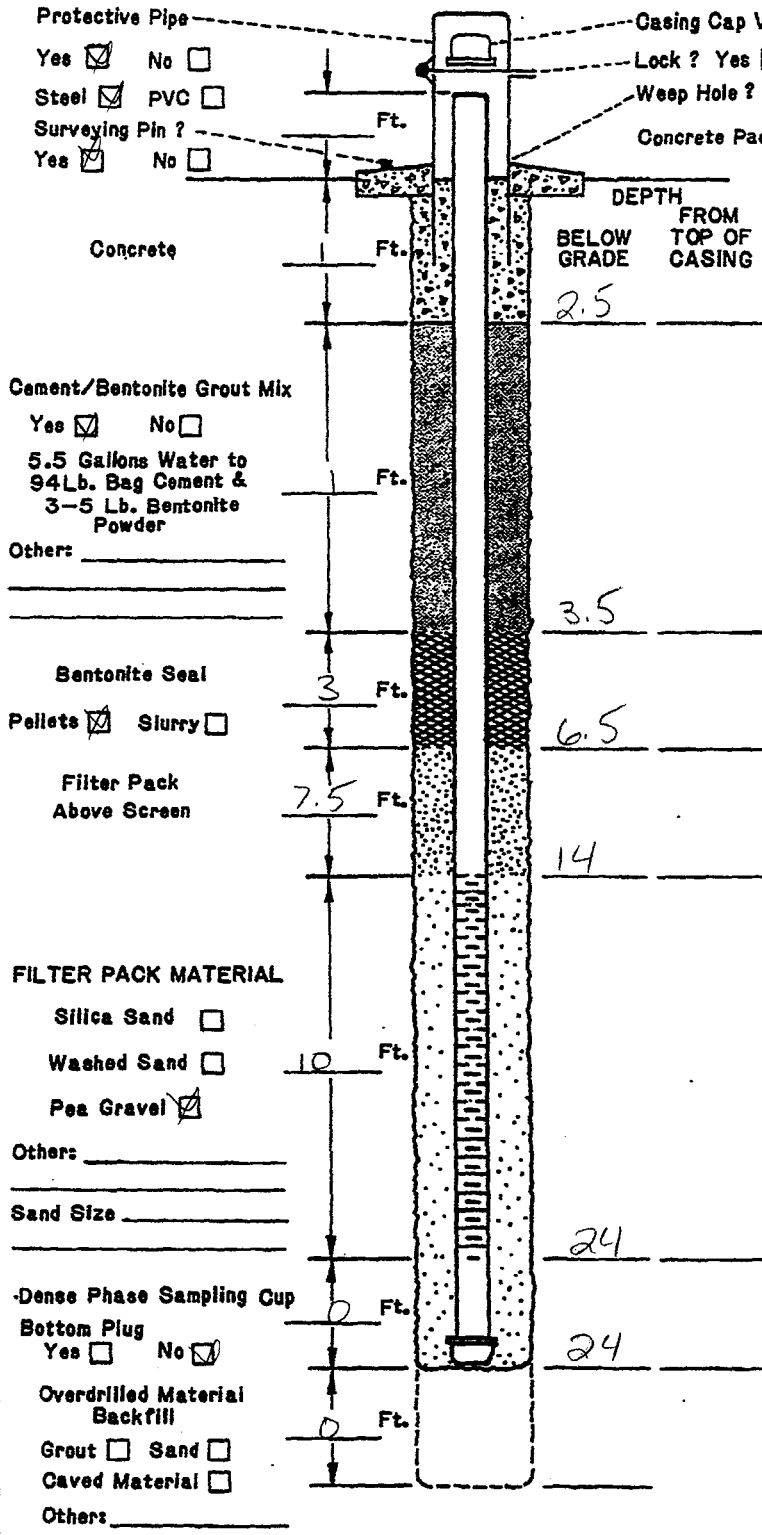
Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu G50 Date installed 10/20/17

Drill Crew RSI Well No. GETR-BAI-01-MW02 Hydrologist Jody Weikart

MONITORING WELL INSTALLATION DIAGRAM



- DRILLING INFORMATION:**
- Borehole Diameter = trench inches.
 - Were Drilling Additives Used? Yes No
 Revert Bentonite Water X Slurry
 Solid Auger Hollow Stem Auger
 - Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
 - Borehole Diameter for Outer Casing _____ inches.

- WELL CONSTRUCTION INFORMATION:**
- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
 - Type of Casing Joints: Screw-Couple Glue-Couple Other _____
 - Type of Well Screen: PVC Galvanized
 Stainless Teflon Other _____
 - Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
 - Slot Size of Screens: 0.010"
 - Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
 - Installed Protector Pipe w/Locks: Yes No

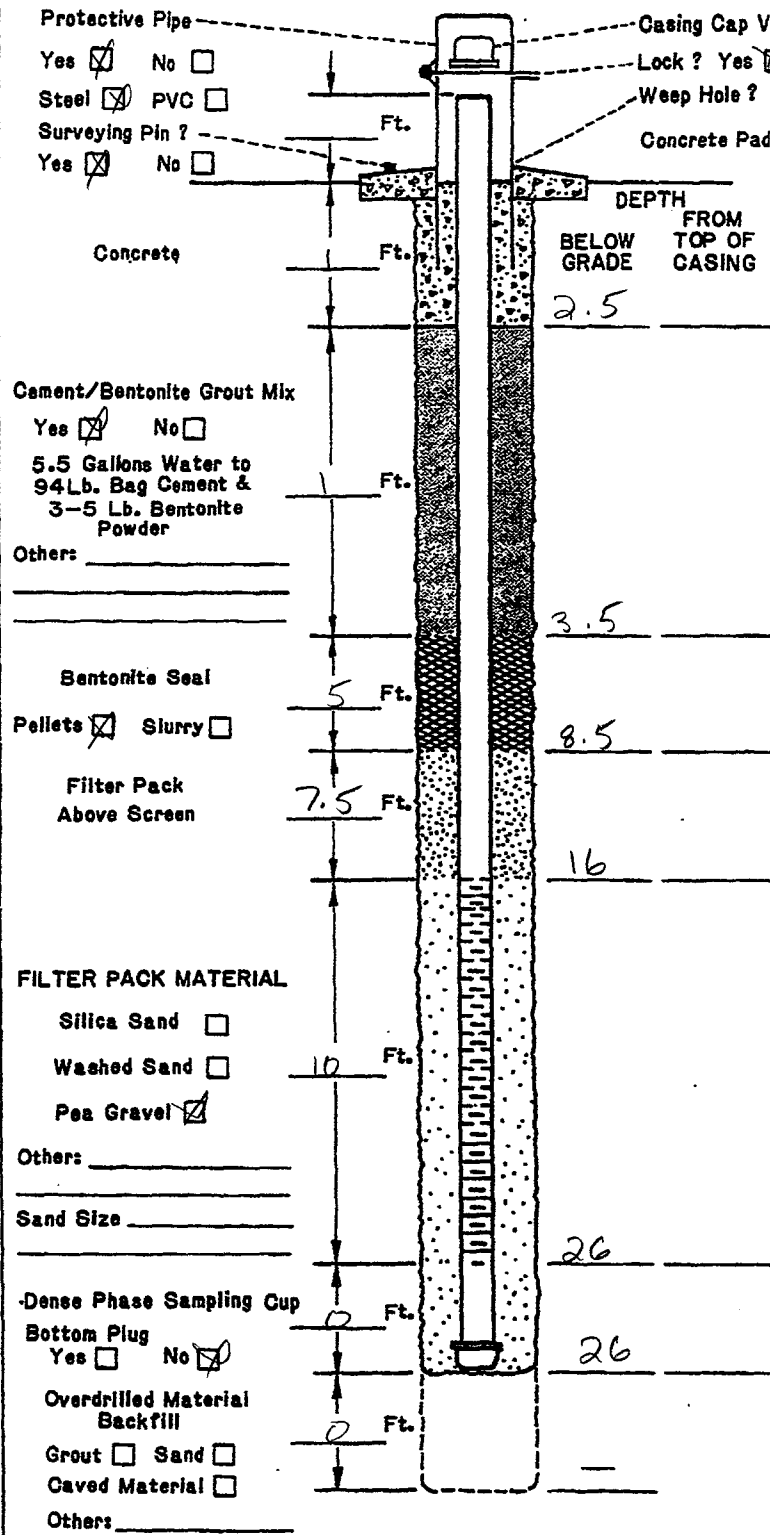
- WELL DEVELOPMENT INFORMATION:**
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
 - Time Spent on Well Development? 1 30 Minutes/Hours
 - Approximate Water Volume Removed? 15 Gallons
 - Water Clarity Before Development? Clear
 Turbid Opaque
 - Water Clarity After Development? Clear
 Turbid Opaque
 - Did Water have Odor? Yes No
 If Yes, Describe sulfur like odor
 - Did Water have any Color? Yes No
 If Yes, Describe yellow

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu 650 Date Installed 10/20/17
 Drill Crew RSI Well No. GETR-BAI-01-MW03 Hydrologist Jody Weikart

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 12 inches

DRILLING INFORMATION:

1. Borehole Diameter= trench inches.
2. Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
3. Was Outer Steel Casing Used? Yes No
 Depth= _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
2. Type of Casing Joints: Screw-Couple Glue-Couple Other _____
3. Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
4. Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
5. Slot Size of Screens: 0.010"
6. Type of Screen Perforation: Factory Slotted
 Hacksaw Drilled Other _____
7. Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

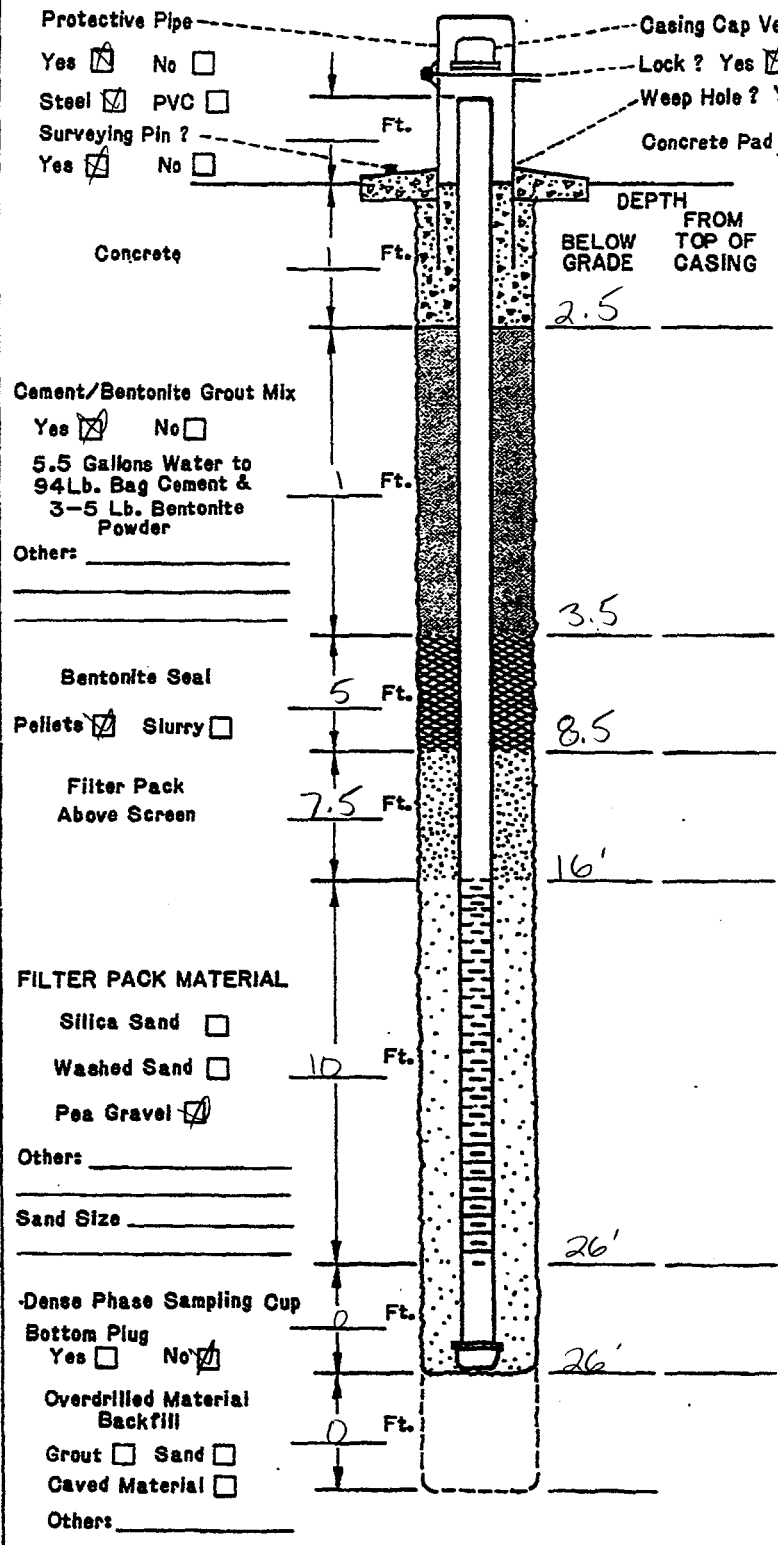
1. How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
2. Time Spent on Well Development?
1 30 Minutes/Hours
3. Approximate Water Volume Removed? 15 Gallons
4. Water Clarity Before Development? Clear
 Turbid Opaque
5. Water Clarity After Development? Clear
 Turbid Opaque
6. Did Water have Odor? Yes No
 If Yes, Describe _____
7. Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu G50 Date installed 10/13/17
 Drill Crew RSI Well No. 6W1-BA1-01-MW01 Hydrologist Jody Weikart

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No
 Concrete Pad 4 Ft. x 4 Ft. x 12 inches

DRILLING INFORMATION:

1. Borehole Diameter = French inches.
2. Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
3. Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
2. Type of Casing Joints: Screw-Couple Glue-Couple Other _____
3. Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
4. Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
5. Slot Size of Screens: 0.010"
6. Type of Screen Perforation: Factory Slotted
 Hackaw Drilled Other _____
7. Installed Protector Pipe w/Lock: Yes No

WELL DEVELOPMENT INFORMATION:

1. How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
2. Time Spent on Well Development?
1 30 Minutes/Hours
3. Approximate Water Volume Removed? 15 Gallons
4. Water Clarity Before Development? Clear
 Turbid Opaque
5. Water Clarity After Development? Clear
 Turbid Opaque
6. Did Water have Odor? Yes No
 If Yes, Describe _____
7. Did Water have any Color? Yes No
 If Yes, Describe _____

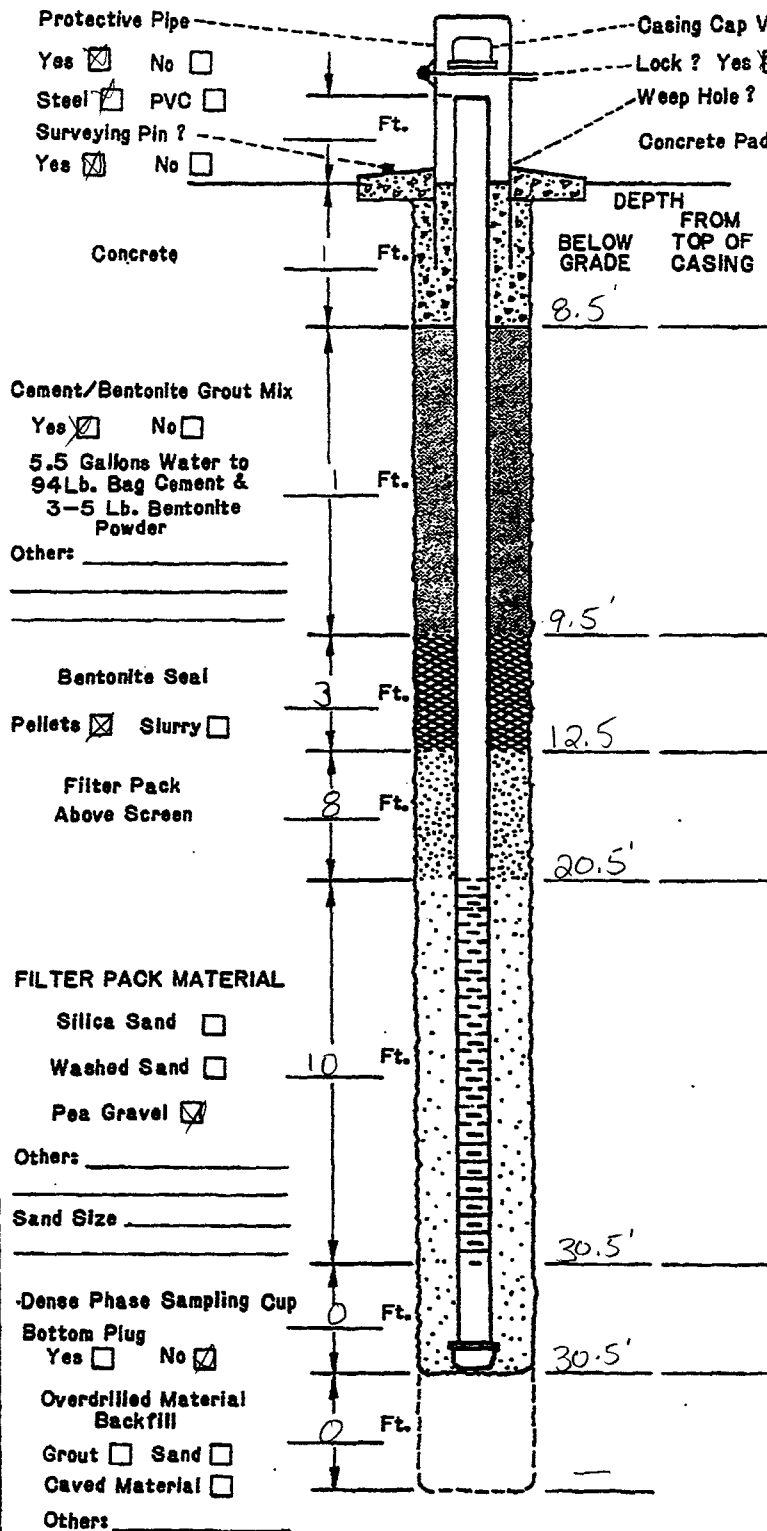
WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu 650 Date installed 10/10/17
 Drill Crew RSI Well No. GWI-BAI-01-MW02 Hydrologist Jody Waitart

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No

Lock? Yes No

Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 12 Inches

DRILLING INFORMATION:

1. Borehole Diameter = 2.00ch Inches.
2. Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
3. Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
2. Type of Casing Joints: Screw-Couple Glue-Couple Other _____
3. Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
4. Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
5. Slot Size of Screen: 0.010"
6. Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
7. Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

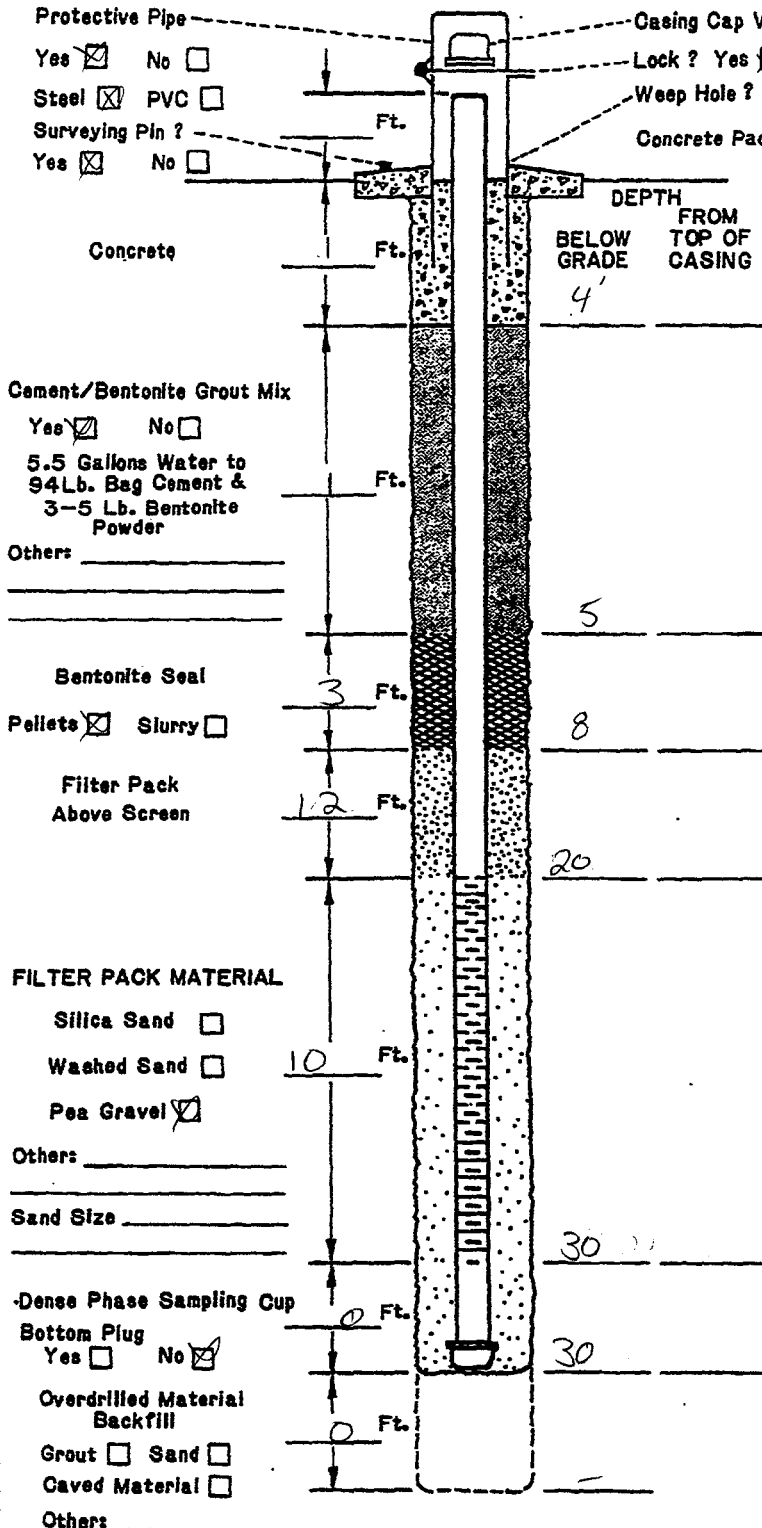
1. How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
2. Time Spent on Well Development?
1 30 Minutes/Hours
3. Approximate Water Volume Removed? 15 Gallons
4. Water Clarity Before Development? Clear
 Turbid Opaque
5. Water Clarity After Development? Clear
 Turbid Opaque
6. Did Water have Oder? Yes No
 If Yes, Describe _____
7. Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION: Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu G50 Date installed 11/21/17
 Drill Crew RSI Well No. GW-UP2-01-MW01 Hydrologist Jody Weikart

MONITORING WELL INSTALLATION DIAGRAM



Casing Cap Vent? Yes No
 Lock? Yes No
 Weep Hole? Yes No

Concrete Pad 4 Ft. x 4 Ft. x 12 Inches

DRILLING INFORMATION:

1. Borehole Diameter = trench inches.
2. Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
3. Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
4. Borehole Diameter for Outer Casing _____ inches.

WELL CONSTRUCTION INFORMATION:

1. Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
2. Type of Casing Joints: Screw-Couple Glue-Couple Other _____
3. Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
4. Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
5. Slot Size of Screen: 0.010
6. Type of Screen Perforations: Factory Slotted
 Hackaw Drilled Other _____
7. Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

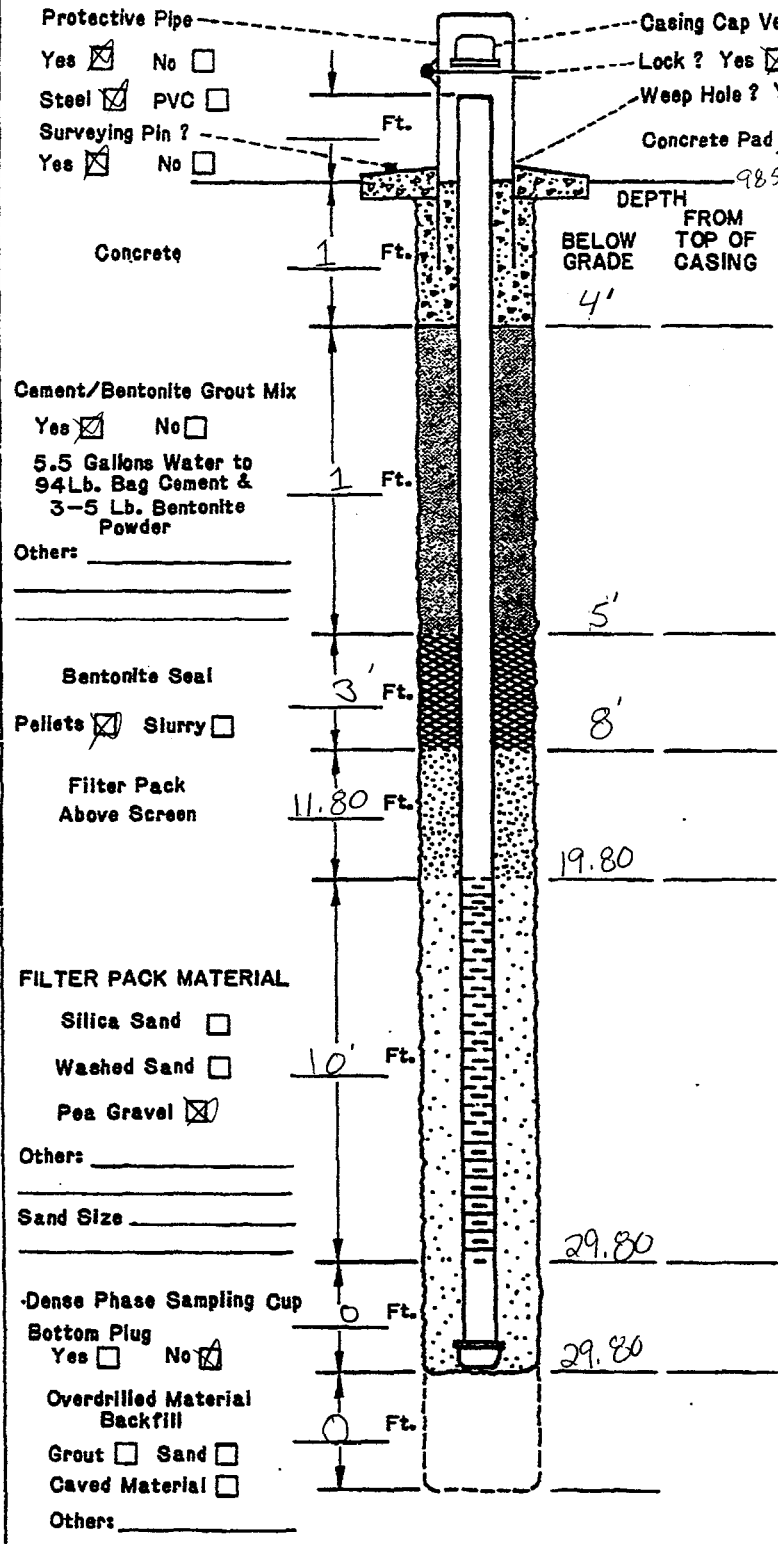
1. How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
2. Time Spent on Well Development?
1 30 Minutes/Hours
3. Approximate Water Volume Removed? 15 Gallons
4. Water Clarity Before Development? Clear
 Turbid Opaque
5. Water Clarity After Development? Clear
 Turbid Opaque
6. Did Water have Odor? Yes No
 If Yes, Describe _____
7. Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)
 During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu G50 Date Installed 11/6/17
 Drill Crew RSI Well No. GWI-02-01-MW02 Hydrologist Jody Warkent

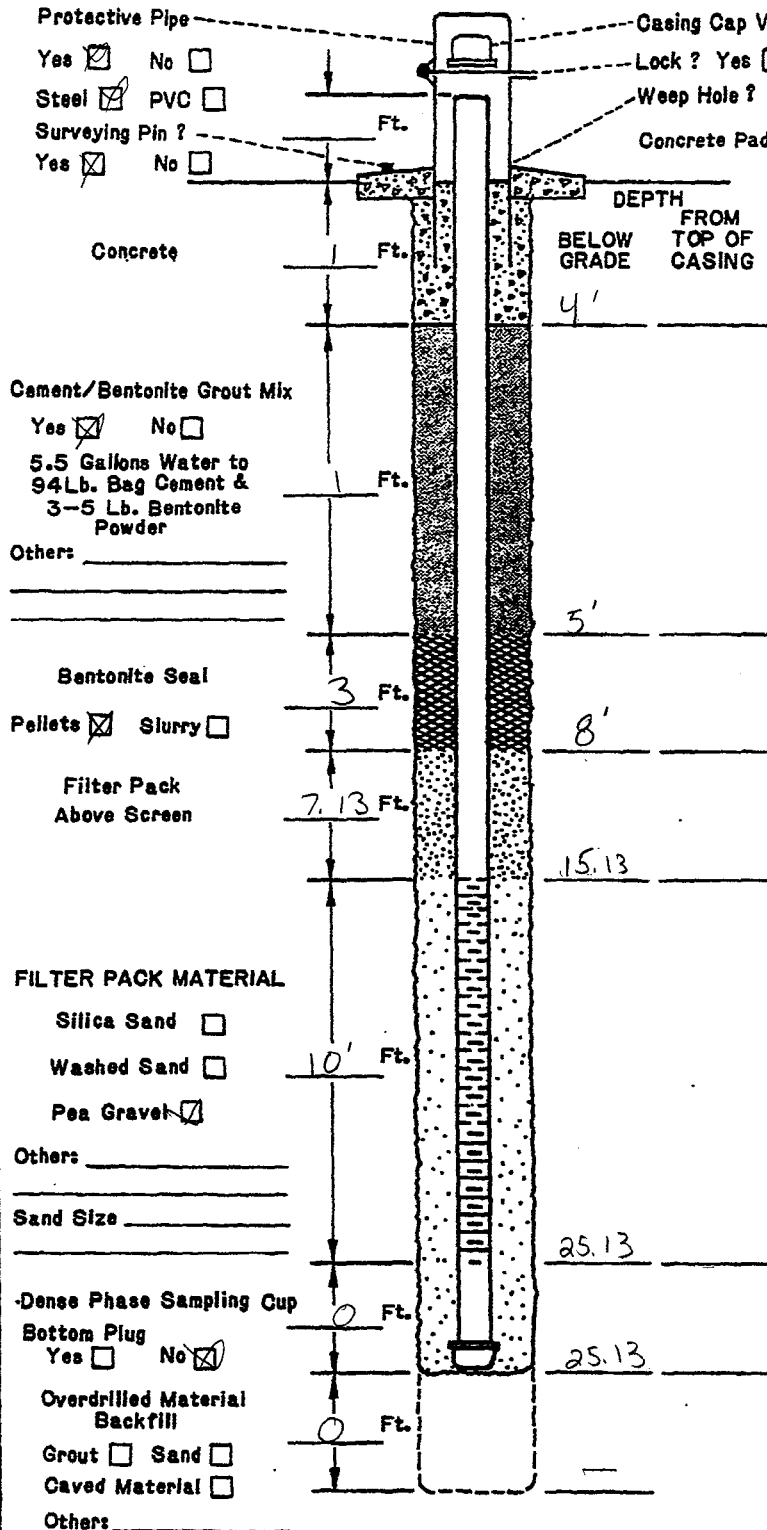
MONITORING WELL INSTALLATION DIAGRAM



- DRILLING INFORMATION:**
- Borehole Diameter = french inches.
 - Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
 - Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
 - Borehole Diameter for Outer Casing _____ inches.
- WELL CONSTRUCTION INFORMATION:**
- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
 - Type of Casing Joints: Screw-Couple Glue-Couple Other _____
 - Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
 - Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
 - Slot Size of Screens: 0.010"
 - Type of Screen Perforations: Factory Slotted
 Hacksaw Drilled Other _____
 - Installed Protector Pipe w/Locks: Yes No
- WELL DEVELOPMENT INFORMATION:**
- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
 - Time Spent on Well Development? _____
 1 30 Minutes/Hours
 - Approximate Water Volume Removed? 15 Gallons
 - Water Clarity Before Development? Clear
 Turbid Opaque
 - Water Clarity After Development? Clear
 Turbid Opaque
 - Did Water have Odeur? Yes No
 If Yes, Describe _____
 - Did Water have any Color? Yes No
 If Yes, Describe _____
- WATER LEVEL INFORMATION:**
 Water Level Summary (From Top of Casing)
- During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu G50 Date installed 11/21/17
 Drill Crew RSI Well No. GWS-UP1-01-MW01 Hydrologist Jody Weikart

MONITORING WELL INSTALLATION DIAGRAM



DRILLING INFORMATION:

- Borehole Diameter = trench inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
- Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
- Borehole Diameter for Outer Casing _____ inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screens:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.010"
- Type of Screen Perforations: Factory Slotted
 Hack saw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development?
1 30 Minutes/Hours
- Approximate Water Volume Removed? 15 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe _____

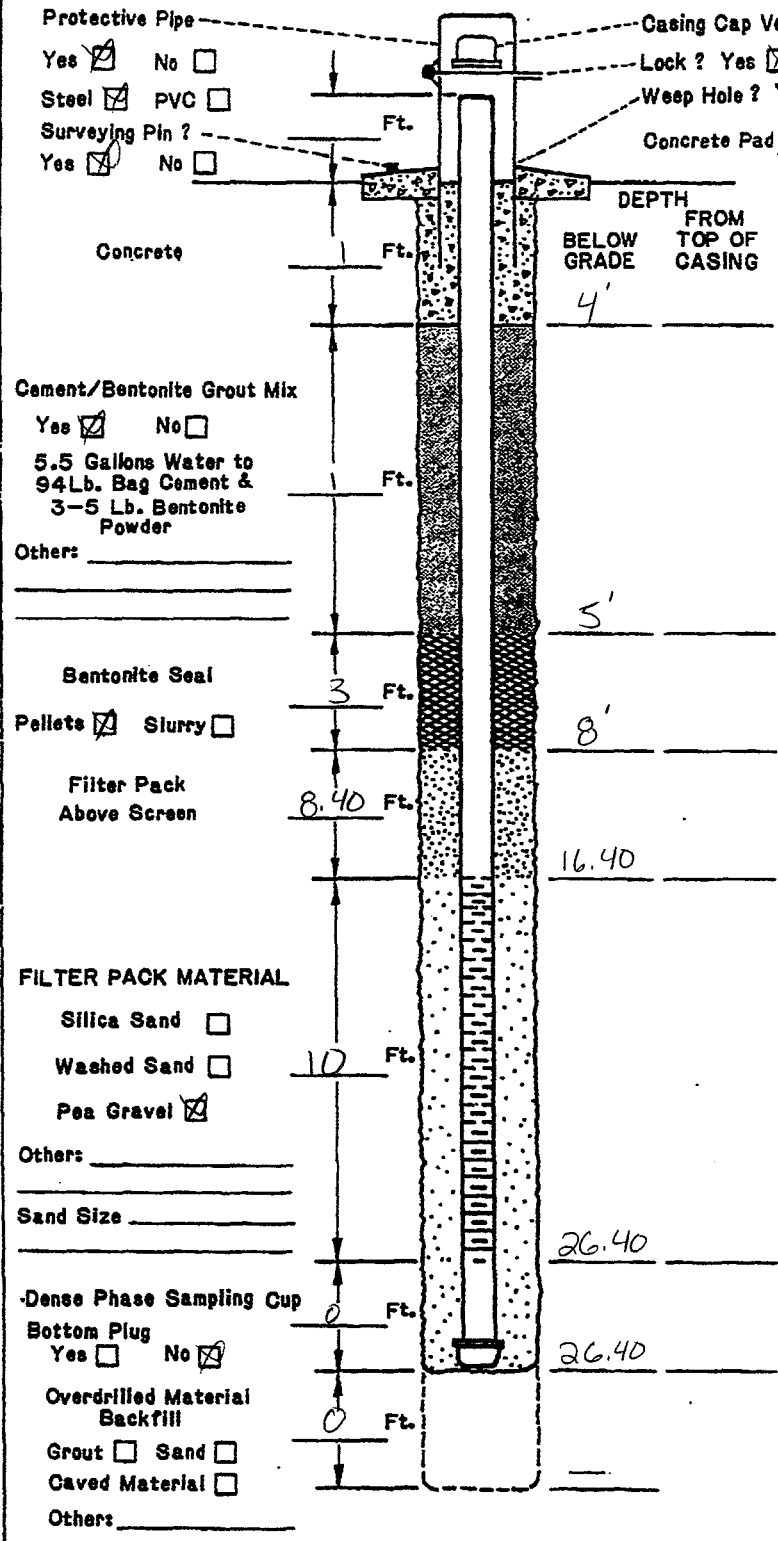
WATER LEVEL INFORMATION:

Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Yomatsu 650 Date Installed 11/16/17
 Drill Crew RSI Well No. GWI-UP1-01-MW02 Hydrologist Jody Weikart

MONITORING WELL INSTALLATION DIAGRAM



DRILLING INFORMATION:

- Borehole Diameter = 4 inches.
- Were Drilling Additives Used? Yes No
 Revert Bentonite Water
 Solid Auger Hollow Stem Auger
- Was Outer Steel Casing Used? Yes No
 Depth = _____ to _____ Feet.
- Borehole Diameter for Outer Casing _____ Inches.

WELL CONSTRUCTION INFORMATION:

- Type of Casings: PVC Galvanized Teflon
 Stainless Other _____
- Type of Casing Joints: Screw-Couple Glue-Couple Other _____
- Type of Well Screens: PVC Galvanized
 Stainless Teflon Other _____
- Diameter of Casing and Well Screen:
 Casing 2 inches, Screen 2 inches.
- Slot Size of Screens: 0.010"
- Type of Screen Perforation: Factory Slotted
 Hacksaw Drilled Other _____
- Installed Protector Pipe w/Locks: Yes No

WELL DEVELOPMENT INFORMATION:

- How was Well Developed? Bailing Pumping
 Air Surging (Air or Nitrogen) Other _____
- Time Spent on Well Development? 1 30 Minutes/Hours
- Approximate Water Volume Removed? 15 Gallons
- Water Clarity Before Development? Clear
 Turbid Opaque
- Water Clarity After Development? Clear
 Turbid Opaque
- Did Water have Odor? Yes No
 If Yes, Describe _____
- Did Water have any Color? Yes No
 If Yes, Describe _____

WATER LEVEL INFORMATION:
 Water Level Summary (From Top of Casing)

During Drilling _____ Ft. Date _____
 Before Development _____ Ft. Date _____
 After Development _____ Ft. Date _____

Driller/Firm RSI Drill Rig Type Komatsu 650 Date installed 11/14/17
 Drill Crew RSI Well No. 6W1-UP1-02-MW01 Hydrologist Jody Weikart

APPENDIX D – DRILLING LOGS

SOIL BORING LOG

COMPANY BURNS & MCDONNELL	PROJECT 96785 - CERT	LOCATION UP - 1	BORING NUMBER 1395
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
0	Grass / Roots / TOPSOIL		ML							
1	SILT Some Sand and clay, dark reddish brown (5 YR 3/4) soft. low plasticity, dry		ML						3.4 / 5.0	
2			ML							
3			ML							
4	SANDSTONE, red (10R 4/6) v. Fine grained. Poorly graded, well rounded. Highly weathered weak. crumbles easily, dry. quartz. Some silt.		SS						6.0 / 6.0	
5			SS							
6			SS							
7			SS							
8			SS							

1306

1308

EXPLANATION	▼ Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/18/2017	PAGE 1 of 4
	▽ Water Table (Time of Boring)		DRILLING METHOD SONIC	
	PID NO. Photoionization Detection (ppm)	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>▨ CLAY</p> <p>▨ SILT</p> <p>▨ SAND</p> <p>▨ GRAVEL</p> <p>▨ SILTY CLAY</p> <p>▨ CLAYEY SILT</p> </div> <div style="width: 50%;"> <p>▨ DEBRIS FILL</p> <p>▨ HIGHLY ORGANIC (PEAT)</p> <p>▨ SANDY CLAY</p> <p>▨ CLAYEY SAND</p> </div> </div>	DRILLED BY CASCADE - B. GRESHAM	
	Identifies Sample by Number		LOGGED BY J. BURCH	
TYPE Sample Collection Method	EXISTING GRADE ELEVATION (FT. AMSL)			
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>⊗ SPLIT-BARREL</p> <p>■ THIN-WALLED TUBE</p> </div> <div style="width: 30%;"> <p>▬ AUGER</p> <p>▬ CONTINUOUS SAMPLER</p> </div> <div style="width: 30%;"> <p>▬ ROCK CORE</p> <p>▬ NO RECOVERY</p> </div> </div>	LOCATION OR GRID COORDINATES			
DEPTH. Depth Top and Bottom of Sample				
REC. Actual Length of Recovered Sample in Feet				

SOIL BORING LOG

COMPANY BURNS & McDONNELL	PROJECT 96785 - CERT	LOCATION UP-2	BORING NUMBER 1395							
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
8	(CONT.) SANDSTONE, red (10R4/6) v. Fine grained Poorly graded, well rounded, highly weathered Weak. Crumbles easily, dry, Quartz Some Silt.		SS						6.0	
9									6.0	
10	BECOMES MOIST.		SS						4.0	
11									4.0	
12			SS						7.0	
13									7.0	
14			SS						7.0	
15									7.0	
16			SS							

1316

1323

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/18/2017	PAGE 2 of 4	
	▽	Water Table (Time of Boring)	▨	CLAY	DRILLING METHOD SONIC		
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▨	DRILLED BY CASCADE - B. GRESHAM	
	⊗	SPLIT-BARREL	▨	SAND	▨	LOGGED BY J. BURCH	
	■	THIN-WALLED TUBE	▨	GRAVEL	▨	EXISTING GRADE ELEVATION (FT. AMSL)	
	■	AUGER	▨	SILTY CLAY	LOCATION OR GRID COORDINATES		
	■	CONTINUOUS SAMPLER	▨	CLAYEY SAND			
	■	ROCK CORE	▨	CLAYEY SILT			
	■	NO RECOVERY	▨				
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet							

SOIL BORING LOG

COMPANY BURNS & McDONNELL	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1395
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
16	(CONT.) SANDSTONE. red (10R4/6) v. fine grained, poorly graded, well rounded. highly weathered. weak crumbles easily. moist: quartz. Some silt.	[Vertical line with dots]								
17										
18										
19										
20										
21	BECOMES WET									
22										
23	MUDSTONE red (10R4/6) thinly laminated silt and clay. strong fractured fissile, highly weathered dry. Some interbedded white (10Y 8.5/1)	~	MS							
24		~								

1335

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/18/2017	PAGE 3 of 4
		Water Table (Time of Boring)		CLAY		DEBRIS FILL
		Photoionization Detection (ppm)		SILT		HIGHLY ORGANIC (PEAT)
		Identifies Sample by Number		SAND		SANDY CLAY
		Sample Collection Method		GRAVEL		CLAYEY SAND
	SPLIT-BARREL		AUGER		SILTY CLAY	
	THIN-WALLED TUBE		CONTINUOUS SAMPLER		CLAYEY SILT	
	ROCK CORE		NO RECOVERY			
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet					DRILLING METHOD SONIC	
					DRILLED BY CASCADE - B GRESHAM	
					LOGGED BY J. BURCH	
					EXISTING GRADE ELEVATION (FT. AMSL)	
					LOCATION OR GRID COORDINATES	

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1395
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
24	(CONT.) MUDSTONE red (10R 4/8) thinly laminated silt and clay. Strong. Fractured, fissile, highly weathered: some interbedded white (10Y 8.5/1)	~	MS							
25		~								
26		~							6.0 6.0	
27		~								
28										TD = 27.5'

1349

EXPLANATION	▼ Water Table (24 Hour) ▽ Water Table (Time of Boring) PID Photoionization Detection (ppm) NO. Identifies Sample by Number TYPE Sample Collection Method	GRAPHIC LOG LEGEND 	DATE DRILLED 11/18/2017	PAGE 4 of 4		
	⊗ SPLIT-BARREL ■ THIN-WALLED TUBE		■ AUGER ■ CONTINUOUS SAMPLER	■ ROCK CORE ▭ NO RECOVERY	DRILLING METHOD SONIC	DRILLED BY CASLADE - B GRESHAM
					LOGGED BY J. BURCH	EXISTING GRADE ELEVATION (FT. AMSL)
					LOCATION OR GRID COORDINATES	
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet					

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96875-CECT	LOCATION UP-1	BORING NUMBER 1396
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS		
						NO.	TYPE	DEPTH	REC.			
1	SANDSTONE, red (10R 4/8). Fine grained well rounded. poorly graded. weak crumbles easily. Quartz. dry. trace silt and clay	[Dashed line pattern]	SS	[Vertical scale]	[Vertical scale]							
2											4.8	5.0
3												
4												
5												
6											2.0	2.0
7												
8											6.0	8.0

1542

1546

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/18/2017	PAGE 1 of 4
		Water Table (Time of Boring)		CLAY		DEBRIS FILL
		PID		SILT		HIGHLY ORGANIC (PEAT)
		NO.		SAND		SANDY CLAY
		TYPE		GRAVEL		CLAYEY SAND
		SPLIT-BARREL		SILTY CLAY		
	AUGER		CLAYEY SILT			
	ROCK CORE					
	THIN-WALLED TUBE					
	CONTINUOUS SAMPLER					
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample		DRILLING METHOD SONIC				
REC. Actual Length of Recovered Sample in Feet		DRILLED BY CASCADE B. GRESHAM				
		LOGGED BY J. BURCIV				
		EXISTING GRADE ELEVATION (FT. AMSL)				
		LOCATION OR GRID COORDINATES				

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785 CERT	LOCATION UP-1	BORING NUMBER 1396							
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
8	(cont.) SANDSTONE red (10 R 4) Fine grained. well rounded. Poorly graded. weak. Crumbles easily. Quartz. dry. trace silt and clay.	[Dotted pattern]								
9										
10									6.0	
11			SS						6.0	
12										
13										
14										
15									3.0	
16									3.0	

1551

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/18/2017	PAGE 2 of 4	
		Water Table (Time of Boring)		CLAY		DEBRIS FILL	
		Photoionization Detection (ppm)		SILT		HIGHLY ORGANIC (PEAT)	DRILLING METHOD SONIC
		Identifies Sample by Number		SAND		SANDY CLAY	DRILLED BY CASCADE - B. GRESHAM
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	LOGGED BY J. BURCH
		THIN-WALLED TUBE		SILTY CLAY		EXISTING GRADE ELEVATION (FT. AMSL)	
	AUGER		CLAYEY SILT		LOCATION OR GRID COORDINATES		
	ROCK CORE						
	CONTINUOUS SAMPLER						
	NO RECOVERY						
	DEPTH. Depth Top and Bottom of Sample						
	REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY BURNS & McDONNELL	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1396
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
16	SEE ABOVE.									
17	BECOMES MOIST. increasing Silt and clay									
18			SS						60	
19									60	
20	SANDSTONE. red (10 R 4/8) fine grained. poorly graded. weak. Crumbles easily. dry. Some silt and clay									
21										
22	MUDSTONE. red (10 R 4/8) thinly laminated silt and clay. Fissile Fractured. strong. some white (2.5 YR 8/1) interbedded		MS							
23									3.0	
24									3.0	

1616

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/18/2017	PAGE 3 of 4												
		Water Table (Time of Boring)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table>													DRILLING METHOD SONIC
	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>							DRILLED BY CASCADE - B GRESHAM								
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet		LOGGED BY J. BURCH															
		EXISTING GRADE ELEVATION (FT. AMSL)		LOCATION OR GRID COORDINATES													

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
Burns & McDonnell		96785 CERT		UP-1		1396			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE		DEPTH
24	(CONT.) MUDSTONE. red (10R 4/8) thinly laminated silt and clay. Fissile Fractured. Strong. some white (2.5 YR/1B/1) interbedded	~ ~ ~	MS					3.0 3.0	
25									TD = 24.9'

1626

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
		Water Table (Time of Boring)	CLAY	DEBRIS FILL	11/18/2017	4 of 4
		PID	SILT	HIGHLY ORGANIC (PEAT)	DRILLING METHOD	
		NO.	SAND	SANDY CLAY	SONIC	
		TYPE	GRAVEL	CLAYEY SAND	DRILLED BY	
	SPLIT-BARREL	SILTY CLAY		CASCADE - B. GRESHAM		
	AUGER	CLAYEY SILT		LOGGED BY		
	ROCK CORE			J. BURCH		
	THIN-WALLED TUBE			EXISTING GRADE ELEVATION (FT. AMSL)		
	CONTINUOUS SAMPLER			LOCATION OR GRID COORDINATES		
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample						
REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY BURNS & McDONNELL	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1397
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
1	TOPSOIL / GRASS / ROOTS									
2	SILT some sand and clay. reddish brown (SR 4/4) soft. dry. low plasticity		ML						2.3 4.0	0800
3										
4										
5	SANDSTONE. red (10 R 4/8) fine grained well rounded poorly graded weak crumbles easily. dry								6.0 6.0	0801
6			SS							
7										
8										

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE	
		Water Table (Time of Boring) Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			11/19/2017	1 of 4
		SPLIT-BARREL		SILT	DRILLING METHOD	
		AUGER		SAND	SONIC	
		THIN-WALLED TUBE		GRAVEL	DRILLED BY	
	ROCK CORE		SILTY CLAY	CASCADE - B. CRESHAM		
	CONTINUOUS SAMPLER		CLAYEY SAND	LOGGED BY		
	NO RECOVERY		DEBRIS FILL	J. BURCH		
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet				EXISTING GRADE ELEVATION (FT. AMSL)		
				LOCATION OR GRID COORDINATES		

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER				
Burns & McDonnell		96785 - CERT		UP-1		1397				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS		
						NO.	TYPE		DEPTH	REC.
8	(cont.) SANDSTONE red (10 R 4/8) Fine grained, well rounded, Poorly graded, weak, crumbles easily dry	[Hand-drawn graphic log symbols]								
9									6.0	6.0
10									0806	
11			SS					8.0	8.0	
12										
13										
14										
15	BECOMES MOIST									
16										

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE		
		Water Table (Time of Boring)		CLAY		DEBRIS FILL	11/19/2017	2 of
		PID		SILT		HIGHLY ORGANIC (PEAT)	DRILLING METHOD	
		NO.		SAND		SANDY CLAY	SONIC	
		TYPE		GRAVEL		CLAYEY SAND	DRILLED BY	
	SPLIT-BARREL		AUGER		SILTY CLAY	CASCADE - B. GRESHAM		
	THIN-WALLED TUBE		CONTINUOUS SAMPLER		CLAYEY SAND	LOGGED BY		
	ROCK CORE		NO RECOVERY			J. Buech		
						EXISTING GRADE ELEVATION (FT. AMSL)		
						LOCATION OR GRID COORDINATES		
DEPTH. Depth Top and Bottom of Sample								
REC. Actual length of Recovered Sample in Feet								

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785 - CEET	LOCATION UP-1	BORING NUMBER 1397
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
16	(CONT.) SANDSTONE red (10R $\frac{4}{8}$) Fine grained, well rounded, poorly graded, weak, crumbles easily dry	-								
17										80 80
18										
19			SS						5.0 5.0	
20										
21										
22	BECOMES WET.									
23										
24	BECOMES SOME Silt and clay								20 20	

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED 11/19/2017	PAGE 3 of 4
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (PEAT)
		PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY CASCADIA - B. GRESHAM	
		SPLIT-BARREL		AUGER		CLAYEY SAND	LOGGED BY J. BURCH	
		THIN-WALLED TUBE		CONTINUOUS SAMPLER		SILTY CLAY	EXISTING GRADE ELEVATION (FT. AMSL)	
			ROCK CORE		CLAYEY SILT	LOCATION OR GRID COORDINATES		
			NO RECOVERY					

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 - CEET			LOCATION UP-1		BORING NUMBER 1397	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	
24	(Cont.) SANDSTONE red (OR 4)		SS					
25	Fine grained well rounded, poorly graded. weak, crumbles easily wet. Some silt and clay						70 70	

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/19/2017	PAGE 4 of 4	
	▽	Water Table (Time of Boring)	▨	CLAY	▩	DEBRIS FILL	
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▨	HIGHLY ORGANIC (PEAT)	DRILLING METHOD Some
	⊗	SPLIT-BARREL	▨	SAND	▨	SANDY CLAY	DRILLED BY CASCADE - B GRESHAM
	■	THIN-WALLED TUBE	▨	GRAVEL	▨	CLAYEY SAND	LOGGED BY J. BURCH
	■	AUGER	▨	SILTY CLAY	□	EXISTING GRADE ELEVATION (FT. AMSL)	
	■	CONTINUOUS SAMPLER	▨	CLAYEY SILT	□	LOCATION OR GRID COORDINATES	
	▨	ROCK CORE					
	▨	NO RECOVERY					
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY: **BURNS & McDONNELL** PROJECT: **96785 - CEET** LOCATION: **UP-1** BORING NUMBER: **1398**

DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
1	CLAY with some Sand and SILT. red (10 R 4/8). med stiff. med plasticity. dry	/ / / / /	CL						3.5	
2	SILT with some Sand. red (10 R 4/8) soft. low plasticity dry.		ML						5.0	
3										
4										
5	SANDSTONE. dark red (10 R 3/8) Fine grained, well rounded. Poorly graded. weak. Crumbles easily. highly weathered. dry Some silt.	SS							
6									4.0 4.0	
7	BECOMES (10 R 7/8) light red trace silt.									
8										

1034

1035

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND			DATE DRILLED 11/19/2017	PAGE 1 of 4
		Water Table (Time of Boring)		CLAY		DEBRIS FILL	DRILLING METHOD SONIC
		PID NO. TYPE Identifies Sample by Number Sample Collection Method		SILT		HIGHLY ORGANIC (PEAT)	DRILLED BY CASCADE - B. GRESHAM
		SPLIT-BARREL		SAND		SANDY CLAY	LOGGED BY J. BURCH
	THIN-WALLED TUBE		GRAVEL		CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)	
	AUGER		SILTY CLAY		NO RECOVERY	LOCATION OR GRID COORDINATES	
	CONTINUOUS SAMPLER		CLAYEY SILT				
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet							

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER		
Burns & McDonnell		96785-CERT		VP-1		1398		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	
8	(cont.) SANDSTONE. light red (10 R 7/8) fine grained, well rounded. poorly graded. weak crumbles easily. highly weathered. dry, trace silt.							
9							4.0 4.0	1044
10								
11							4.0 4.0	
12								
13								1051
14	BECOMES MOIST						8.0 8.0	
15								
16								

EXPLANATION	Water Table (24 Hour)		GRAPHIC LOG LEGEND		DATE DRILLED 11/19/2017	PAGE 2 of 4
	Water Table (Time of Boring) Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		CLAY	DEBRIS FILL	DRILLING METHOD SONIC	
	SPLIT-BARREL AUGER ROCK CORE		SILT	HIGHLY ORGANIC (PEAT)	DRILLED BY CASCADE - B. CIPESHAM	
	THIN-WALLED TUBE CONTINUOUS SAMPLER NO RECOVERY		SAND	SANDY CLAY	LOGGED BY J. Breen	
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet		GRAVEL	CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)	
		SILTY CLAY		LOCATION OR GRID COORDINATES		
		CLAYEY SILT				

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785-CERT	LOCATION UP 1	BORING NUMBER 1398
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
10	((CONT.) SANDSTONE. light red (10R 7/8) Fine grained. well rounded. poorly graded. weak crumbles easily. highly weathered moist. trace silt.									
17										
18									80	
									80	
19										
20										
21										
22									80	
									80	
23	BECOMES wet									
24										

1102

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/19/2017	PAGE 3 of 4	
		Water Table (Time of Boring)		CLAY		DEBRIS FILL	
		PID	Photoionization Detection (ppm)		SILT		HIGHLY ORGANIC (PEAT)
		NO. TYPE	Identifies Sample by Number		SAND		SANDY CLAY
			Sample Collection Method		GRAVEL		CLAYEY SAND
	SPLIT-BARREL		AUGER		SILTY CLAY		
	ROCK CORE		CONTINUOUS SAMPLER		CLAYEY SILT		
	THIN-WALLED TUBE		NO RECOVERY				
DEPTH. Depth Top and Bottom of Sample		REC. Actual Length of Recovered Sample in Feet		DRILLING METHOD SONIC			
				DRILLED BY CASCADE - B. GRESHAM			
				LOGGED BY J. BUREN			
				EXISTING GRADE ELEVATION (FT. AMSL)			
				LOCATION OR GRID COORDINATES			

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96705 CEET			LOCATION VP-1			BORING NUMBER 1398		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
24	(Cont.) SANDSTONE. light red (10R 7/8) Fine graind well rounded poorly graded. weak crumbles easily. highly weathered. Wet. trace silt. INCREASING silt and clay	SS							$\frac{8.0}{8.0}$	
25										
26										
27										
28										
29										

1119

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/19/2017	PAGE 4 of 4																								
		Water Table (Time of Boring)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td><td>CLAY</td> <td></td><td>DEBRIS FILL</td> </tr> <tr> <td></td><td>SILT</td> <td></td><td>HIGHLY ORGANIC (PEAT)</td> </tr> <tr> <td></td><td>SAND</td> <td></td><td>SANDY CLAY</td> </tr> <tr> <td></td><td>GRAVEL</td> <td></td><td>CLAYEY SAND</td> </tr> <tr> <td></td><td>SILTY CLAY</td> <td></td><td></td> </tr> <tr> <td></td><td>CLAYEY SILT</td> <td></td><td></td> </tr> </table>		CLAY		DEBRIS FILL		SILT		HIGHLY ORGANIC (PEAT)		SAND		SANDY CLAY		GRAVEL		CLAYEY SAND		SILTY CLAY				CLAYEY SILT			DRILLING METHOD SONIC
		CLAY			DEBRIS FILL																								
		SILT		HIGHLY ORGANIC (PEAT)																									
		SAND		SANDY CLAY																									
	GRAVEL		CLAYEY SAND																										
	SILTY CLAY																												
	CLAYEY SILT																												
	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SPLIT-BARREL	DRILLED BY CASCADE - B. GRESHAM																									
	THIN-WALLED TUBE		AUGER	LOGGED BY J. BURCH																									
	ROCK CORE		CONTINUOUS SAMPLER	EXISTING GRADE ELEVATION (FT. AMSL)																									
	NO RECOVERY		NO RECOVERY	LOCATION OR GRID COORDINATES																									

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785-CERT	LOCATION UP-1	BORING NUMBER 1399
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
1	GRASS / ROOTS / TOPSOIL									
2	SILT with some sand and clay dark brown (7.5 yr 3/4) soft, dry, low plasticity		ML						5.0 5.0	1711
4	SANDSTONE red (10 R 4/8) med fine grained well rounded, poorly graded. weak. trace silt. dry									
5										
6			SS						5.0 5.0	1713
7										
8										

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND				DATE DRILLED 11/17/2017	PAGE 1 of 5
		Water Table (Time of Boring)		CLAY		DEBRIS FILL	DRILLING METHOD SONIC	
		PID		SILT		HIGHLY ORGANIC (PEAT)	DRILLED BY CASCADIA - B. GRESHAM	
		NO. TYPE		SAND		SANDY CLAY	LOGGED BY J. BURCH	
				GRAVEL		CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)	
	SPLIT-BARREL		AUGER		SILTY CLAY	LOCATION OR GRID COORDINATES		
	THIN-WALLED TUBE		CONTINUOUS SAMPLER		CLAYEY SILT			
	ROCK CORE		NO RECOVERY					
	DEPTH. Depth Top and Bottom of Sample							
	REC. Actual length of Recovered Sample in Feet							

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER					
Burns & McDowell		96785 - CERT		UP-1		1399					
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS		
						NO.	TYPE	DEPTH		REC.	
8	(CONT.) SANDSTONE. red (OR ^y) med-fine grained well rounded poorly graded. weak trace silt dry	[Hand-drawn graphic log symbols]	SS								
9									5.0	5.0	
10										1716	
11											
12									5.0	5.0	
13	BECOMES reddish yellow (SR 6/6)										
14											
15											
16									5.0	5.0	1721

EXPLANATION	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	Water Table (Time of Boring)			11/17/2017	2 of 5
	PID	CLAY	DEBRIS FILL	DRILLING METHOD	
	NO.	SILT	HIGHLY ORGANIC (PEAT)	SONIC	
	TYPE	SAND	SANDY CLAY	DRILLED BY	
SPLIT-BARREL	AUGER	GRAVEL	CASCADE - B GRESHAM		
THIN-WALLED TUBE	CONTINUOUS SAMPLER	SILTY CLAY	LOGGED BY		
ROCK CORE	NO RECOVERY	CLAYEY SAND	J Burch		
		CLAYEY SILT	EXISTING GRADE ELEVATION (FT. AMSL)		
			LOCATION OR GRID COORDINATES		
	DEPTH. Depth Top and Bottom of Sample				
	REC. Actual Length of Recovered Sample in Feet				

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER						
Burns & McDonnell		96785-CERT		UP-1		1399						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS				
						NO.	TYPE		DEPTH	REC.		
16	(cont.) SANDSTONE. reddish yellow (SR 6/6) med-fine grained well rounded, poorly graded, weak, trace silt, dry	[Hand-drawn graphic log symbols]	SS	[Hand-drawn blow count scale]	[Hand-drawn PID scale]	[Hand-drawn sample no. scale]	[Hand-drawn sample type scale]	[Hand-drawn sample depth scale]	[Hand-drawn sample rec. scale]			
17											5.0	5.0
18												
19												
20	BECOMES MOIST											
21												
22												
23												
24												

1733

EXPLANATION	<input checked="" type="checkbox"/>	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	<input checked="" type="checkbox"/>	Water Table (Time of Boring)	CLAY	DEBRIS FILL	11/17/2017	3 of 5
	<input checked="" type="checkbox"/>	PID	SILT	HIGHLY ORGANIC (PEAT)	DRILLING METHOD	
	<input checked="" type="checkbox"/>	NO. Identifies Sample by Number	SAND	SANDY CLAY	DRILLED BY	CASCADE B GRESHAM
	<input checked="" type="checkbox"/>	TYPE Sample Collection Method	GRAVEL	CLAYEY SAND	LOGGED BY	J BURCH
<input checked="" type="checkbox"/>	SPLIT-BARREL	AUGER	SILTY CLAY	EXISTING GRADE ELEVATION (FT. AMSL)		
<input checked="" type="checkbox"/>	THIN-WALLED TUBE	CONTINUOUS SAMPLER	CLAYEY SILT	LOCATION OR GRID COORDINATES		
<input checked="" type="checkbox"/>	ROCK CORE	NO RECOVERY				

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1399
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
24	(cont.) SANDSTONE reddish yellow (5 R 6/6) med-fine grained, well rounded poorly graded, weak trace silt. moist.	SS							
25										
26										
27										
28	MUDSTONE. red (10R 4/8) thinly laminated clay & silt. Strong fissile fractured, dry. Some white interbedding (2.5 yb/1)	~	MS							
29										
30										
31										
32										

1745

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		CLAY		DEBRIS FILL	DATE DRILLED 11/17/2007	PAGE 4 of 5
		Water Table (Time of Boring)			SILT		HIGHLY ORGANIC (PEAT)	DRILLING METHOD SONIC	
		PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY CASCADE - B. GRESHAM		
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	LOGGED BY J. BURCH		
		AUGER		SILTY CLAY		NO RECOVERY	EXISTING GRADE ELEVATION (FT. AMSL)		
	THIN-WALLED TUBE		CLAYEY SILT			LOCATION OR GRID COORDINATES			

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY BURNS & McDONNELL	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1399						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
32	(CONT.) MUDSTONE, red (10R 4/8) + thinly laminated clay & silt. Strong, Fissile, Fract. dry. white interbedding (2.5 Y 8/1)	~ ~	MS					4.0 4.5	
33									

0888

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/17/2017	PAGE 5 of 5
		Water Table (Time of Boring)			DRILLING METHOD SONIC
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			DRILLED BY CASCADE - B. GRESHAM
					LOGGED BY J BUREN
					EXISTING GRADE ELEVATION (FT. AMSL)
				LOCATION OR GRID COORDINATES	

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY BURNS & Mc DONNELL	PROJECT 96785 - CERT	LOCATION UP-1	BORING NUMBER 1400
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
1	TOPSOIL / GRASS / ROOTS									
2	SANDSTONE, light red (2-5 yr $\frac{6}{8}$) Fine grained, well rounded, poorly graded highly weathered, weak, dry, quartz								5.0 5.0	
3										
4			SS							
5										
6									5.0 5.0	
7										
8										

1028

1032

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE
		Water Table (Time of Boring)		11/18/2017	1 of 3
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		DEBRIS FILL	DRILLING METHOD
		SPLIT-BARREL		HIGHLY ORGANIC (PEAT)	Sonic
		AUGER		SANDY CLAY	DRILLED BY
	THIN-WALLED TUBE		CLAYEY SAND	CASCADE - B. GRESHAM	
	CONTINUOUS SAMPLER			LOGGED BY	
	ROCK CORE			J. BURCH	
	NO RECOVERY			EXISTING GRADE ELEVATION (FT. AMSL)	
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet				LOCATION OR GRID COORDINATES	

SOIL BORING LOG

COMPANY SURNS E. McDONNELL		PROJECT 96785 - CERT		LOCATION UP-1			BORING NUMBER 1400		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
8	SANDSTONE light red (2.5 YR 6/8) Fine grained, well rounded, poorly graded, highly weathered, weak moist quartz	-							
9								5.0 5.0	
10									1041
11			SS					5.0 5.0	
12									
13	BECOMES SOME SILT								
14									
15	BECOMES red (10R 4/8)							7.0 7.0	1043
16									

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/18/2017	PAGE 2 of 3
		Water Table (Time of Boring)		CLAY SILT SAND GRAVEL SILTY CLAY CLAYEY SILT	DRILLING METHOD SOUL
		PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	DEBRIS FILL HIGHLY ORGANIC (PEAT) SANDY CLAY CLAYEY SAND		DRILLED BY CASCADE - B. GRESHAM
		SPLIT-BARREL		AUGER	LOGGED BY J. Buech
		THIN-WALLED TUBE		CONTINUOUS SAMPLER	EXISTING GRADE ELEVATION (FT. AMSL)
			ROCK CORE	LOCATION OR GRID COORDINATES	
			NO RECOVERY		

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER				
Brens Mc Donnell		96785 - CERT		UP-1		1400				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
16	SANDSTONE, red (10R 4/8) Fine grained well rounded, poorly graded highly weathered, weak, moist. quartz. Some silt.	[Hand-drawn graphic log for sandstone]	SS	[Hand-drawn blow count]	[Hand-drawn PID]	[Hand-drawn sample no.]	[Hand-drawn sample type]	[Hand-drawn sample depth]	[Hand-drawn sample rec.]	
17										
18										
19										
20	MUDSTONE red (10R 4/8) thinlly laminated silt and clay. Fissile, Fractured strong. Some white inner bedding (25 Y 8/1)	[Hand-drawn graphic log for mudstone]	MS	[Hand-drawn blow count]	[Hand-drawn PID]	[Hand-drawn sample no.]	[Hand-drawn sample type]	[Hand-drawn sample depth]	[Hand-drawn sample rec.]	
21										
22										
23										

1057

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		CLAY		DEBRIS FILL	DATE DRILLED	PAGE
		Water Table (Time of Boring)			SILT		HIGHLY ORGANIC (PEAT)	11/18/2017	3 of 3
		PID		SAND		SANDY CLAY	DRILLING METHOD		
		SPLIT-BARREL		AUGER		CLAYEY SAND	SONIC		
		THIN-WALLED TUBE		CONTINUOUS SAMPLER		GRAVEL	DRILLED BY		
	NO RECOVERY		ROCK CORE		SILTY CLAY	CASCAOE - B. GRESHAM			
DEPTH. Depth Top and Bottom of Sample						CLAYEY SILT	LOGGED BY		
REC. Actual Length of Recovered Sample in Feet							J. Burch		
							EXISTING GRADE ELEVATION (FT. AMSL)		
							LOCATION OR GRID COORDINATES		

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER		
Burns & Mc DONNELL		96785 CERT		UP-2		1401		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	
1	GRASS / ROOFS / TOPSOIL SILT with some Sand (fine grained) dark reddish brown, soft, low Plasticity. dry (5YR 3/4)		ML					
2							5.0 5.0	
3	SILT with some Clay and fine Sand red (10R 4/6) med stiff med Plasticity dry							
4								
5			ML					
6							4.8 5.0	
7								
8	SANDSTONE light red (7.5 YR 7/6) v. fine grains, well rounded, with sorted poorly graded, weak, highly weathered quartz. dry		SS					

EXPLANATION

▼ Water Table (24 Hour)

▽ Water Table (Time of Boring)

∇ PID
NO. Photoionization Detection (ppm)
TYPE Identifies Sample by Number
Sample Collection Method

SPLIT-BARREL	AUGER	ROCK CORE
THIN-WALLED TUBE	CONTINUOUS SAMPLER	NO RECOVERY

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY	DEBRIS FILL
SILT	HIGHLY ORGANIC (PEAT)
SAND	SANDY CLAY
GRAVEL	CLAYEY SAND
SILTY CLAY	
CLAYEY SILT	

DATE DRILLED: 11/16/19

PAGE: 1 of 6

DRILLING METHOD: SONIC

DRILLED BY: CASCADE - B. GRESHAM

LOGGED BY: J. BURN

EXISTING GRADE ELEVATION (FT. AMSL):




















LOCATION OR GRID COORDINATES:

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER				
Burns & McDonnell		96785 - CERT		UP-2		1401				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
8	(CONT.) SANDSTONE light red (2.5 yr 7/8) v. fine grains, well rounded, poorly graded, weak, highly weathered, quartz-dry	[Dotted pattern]	SS							
9										4.8 5.0
10										
11										
12	BECOMES red (10R 4/8)									
13										
14										
15										
16										
								5.0 5.0		
								5.0 5.0		

1131

1140

EXPLANATION	 Water Table (24 Hour)  Water Table (Time of Boring)  PID NO. TYPE  SPLIT-BARREL  AUGER  THIN-WALLED TUBE  CONTINUOUS SAMPLER  ROCK CORE  NO RECOVERY	GRAPHIC LOG LEGEND  CLAY  SILT  SAND  GRAVEL  SILTY CLAY  CLAYEY SILT  DEBRIS FILL  HIGHLY ORGANIC (PEAT)  SANDY CLAY  CLAYEY SAND	DATE DRILLED: 11/16/17 PAGE: 2 of 6 DRILLING METHOD: SMC DRILLED BY: CASCADE - B. GRESHAM LOGGED BY: J. BUREH EXISTING GRADE ELEVATION (FT. AMSL): LOCATION OR GRID COORDINATES:
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet		

SOIL BORING LOG

COMPANY Buens & McDonnell		PROJECT 96785 - CERT			LOCATION UP-2			BORING NUMBER 1401	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	DEPTH	REC.	
16	(Com.) SANDSTONE, Red Red (10 R 4/4) v. Fine grains, well rounded poorly graded, weak, highly weathered Quartz. dry								
17									
18								5.0 5.0	
19									
20	BECOMES PINK (2.5 YR 8/3)		SS						1147
21									
22								4.0 4.0	
23									
24	BECOMES light red (10 R 6/8)								1337

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/16/17	PAGE 3 of 6	
	▽	Water Table (Time of Boring)			▨	CLAY	▩
	PID NO. TYPE	Photoionization Detection (ppm)	▨▨▨	SILT	▨▨▨▨	HIGHLY ORGANIC (PEAT)	DRILLING METHOD SONIC
	Identifies Sample by Number	Sample Collection Method	▨▨▨▨	SAND	▨▨▨▨▨	SANDY CLAY	DRILLED BY CASCADE - B. GRESHAM
Identifies Sample by Number	Sample Collection Method	▨▨▨▨▨	GRAVEL	▨▨▨▨▨▨	CLAYEY SAND	LOGGED BY J. BURCH	
X	SPLIT-BARREL	▨▨▨▨▨▨	SILTY CLAY	▨▨▨▨▨▨▨	CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)	
▨	THIN-WALLED TUBE	▨▨▨▨▨▨▨	CLAYEY SILT	▨▨▨▨▨▨▨▨	CLAYEY SAND	LOCATION OR GRID COORDINATES	
▨▨	AUGER	▨▨▨▨▨▨▨▨		▨▨▨▨▨▨▨▨▨			
▨▨▨	CONTINUOUS SAMPLER	▨▨▨▨▨▨▨▨▨▨		▨▨▨▨▨▨▨▨▨▨▨			
▨▨▨▨	ROCK CORE	▨▨▨▨▨▨▨▨▨▨▨▨		▨▨▨▨▨▨▨▨▨▨▨▨▨			
▨▨▨▨▨	NO RECOVERY	▨▨▨▨▨▨▨▨▨▨▨▨▨▨		▨▨▨▨▨▨▨▨▨▨▨▨▨▨▨			

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 CERT		LOCATION UP-2		BORING NUMBER 1401			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
24	(Cont.) SANDSTONE. light red (10R 6/8) v. Fine grained. well rounded. poorly graded. weak, highly weathered. Quartz dry.								
25	BECOMES RED (10R 4/6)								
26									
27			SS					8.0 8.0	
28									
29									
30									
31									
32									

1344

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/16/2017	PAGE 4 of 6
		Water Table (Time of Boring)			DRILLING METHOD SONIC	
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			DRILLED BY CASCADE - B. GESHAN	
		SPLIT-BARREL			LOGGED BY J. Buech	
		AUGER			EXISTING GRADE ELEVATION (FT. AMSL)	
	THIN-WALLED TUBE			LOCATION OR GRID COORDINATES		
	CONTINUOUS SAMPLER					
	ROCK CORE					
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample						
REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
Burns & McDonnell		96785-CERT		UP-2		1461			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
32	MUDSTONE, light greenish gray (5 G 7/1) thinly laminated silt & clay fissile, highly weathered. Strong dry	~							
33		~							
34		~							
35	BECOMES red (10 R 4/6)	~	MS					7.0 7.0	
36		~							
37		~							
38	BECOMES light greenish gray (5 G 8) some sand.	~							
39		~							
40		~						4.0 4.5	

1356

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE	
		Water Table (Time of Boring)		11/16/2017	5 of 6	
		PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		CLAY		DEBRIS FILL
		SPLIT-BARREL		SILT		HIGHLY ORGANIC (PEAT)
		AUGER		SAND		SANDY CLAY
	ROCK CORE		GRAVEL		CLAYEY SAND	
	THIN-WALLED TUBE		SILTY CLAY			
	CONTINUOUS SAMPLER		CLAYEY SILT			
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample						
REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY BURNS & McDONNELL		PROJECT 96785 - CERT			LOCATION UP-2			BORING NUMBER 140	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
40	SANDSTONE. red (10 YR 5/8) v. Fine grained, poorly graded, weak, dry. quartz.								
41								4.0 4.5	
42									
43	BECOMES MOIST.								1430
44									

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/16/2017	PAGE 6 of 6
	▽	Water Table (Time of Boring)			▨	CLAY
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▩	HIGHLY ORGANIC (FEAT)
	⊗	SPLIT-BARREL	▨	SAND	▩	SANDY CLAY
	▨	AUGER	▨	GRAVEL	▩	CLAYEY SAND
▨	ROCK CORE	▨	SILTY CLAY	□		
▨	THIN-WALLED TUBE	▨	CLAYEY SILT	□		
▨	CONTINUOUS SAMPLER	▨		□		
▨	NO RECOVERY	▨		□		

DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet	DRILLING METHOD Sonic DRILLED BY CASCADE - B GRESHAM LOGGED BY J BURCH EXISTING GRADE ELEVATION (FT. AMSL) LOCATION OR GRID COORDINATES
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SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 - CERT		LOCATION UP-2		BORING NUMBER 1402			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
0	Grass / Roots / Topsoil								
1	SILT with some sand. dark reddish brown (2.5 yr 3/3) Soft. low plasticity. dry								
2			ML					2.3	
3								5.0	
4									
5	SILT with some Fine Sand and Clay red (2.5 yr 4/6) med stiff. med plasticity dry								
6			ML					5.0	
7								5.0	
8	SILT with some Sand (fine grains) red (10R 4/8) Soft. low plasticity dry								
			ML						

1649

1650

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		CLAY		DEBRIS FILL	DATE DRILLED 11/16/17 - 11/17/17	PAGE 1 of 5
		Water Table (Time of Boring)			SILT		HIGHLY ORGANIC (PEAT)	DRILLING METHOD SONIC	
		PID No. Type Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY CASCADE - B. GRESHAM		
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	LOGGED BY J. BURCH		
		THIN-WALLED TUBE		SILTY CLAY			EXISTING GRADE ELEVATION (FT. AMSL)		
	AUGER		CLAYEY SILT			LOCATION OR GRID COORDINATES			
	ROCK CORE								
	CONTINUOUS SAMPLER								
	NO RECOVERY								
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet								

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
Burns & McDonnell		96785 - CERT		UP-2		1402			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
8	(cont.) SILT with some sand (fine grained) red (10R 4/8) soft low plasticity - dry.	u	ML						
9		o						5.0 5.0	
10	SANDSTONE. red (10R 4/8) fine grained, well rounded, poorly graded, highly weathered, weak, dry	- - -							1656
11		- - -							
12		- - -	SS					5.0 5.0	
13		- - -							
14	BECOMES pale red (10R 7/4)	- - -							
15		- - -						5.0 5.0	1704
16		- - -							

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE	
	▽	Water Table (Time of Boring)			11/16/17 - 11/17/17	2 of 5	
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	CLAY	▩	DEBRIS FILL	DRILLING METHOD
	⊗	SPLIT-BARREL	▨	SILT	▩	HIGHLY ORGANIC (PEAT)	Sonic
	▬	AUGER	▨	SAND	▩	SANDY CLAY	DRILLED BY
▬	THIN-WALLED TUBE	▨	GRAVEL	▩	CLAYEY SAND	CASCADE - B. GRESHAM	
▬	CONTINUOUS SAMPLER	▨	SILTY CLAY	▩	CLAYEY SAND	LOGGED BY	
▬	NO RECOVERY	▨	CLAYEY SILT	▩		J. BURCH	
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet					EXISTING GRADE ELEVATION (FT. A.M.S.L.)		
					LOCATION OR GRID COORDINATES		

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785 - GERT	LOCATION UP-2	BORING NUMBER 1402						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
16	(LOW.) SANDSTONE. pale red (10 R 7/8) Fine grained, well rounded, poorly graded, highly weathered, weak, dry.								
17									
18								5.0 5.0	
19									
20	BECOMES Red (10 R 5/8)		SS						1710
21									
22								4.0 4.0	
23									
24	BECOMES pale red (10 R 7/8)								0810

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/16/17 - 11/17/17	PAGE 3 of 5
	▽	Water Table (Time of Boring)	▨	CLAY	▩	DEBRIS FILL
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▩	HIGHLY ORGANIC (PEAT)
	⊗	SPLIT-BARREL	▨	SAND	▨	SANDY CLAY
	▬	AUGER	▨	GRAVEL	▨	CLAYEY SAND
▬	THIN-WALLED TUBE	▬	SILTY CLAY	□		
▬	CONTINUOUS SAMPLER	▬	CLAYEY SILT	□		
▬	NO RECOVERY	▬		□		
DEPTH. Depth Top and Bottom of Sample						
REC. Actual Length of Recovered Sample in Feet						
				DRILLING METHOD SONIC		
				DRILLED BY CASCADE - B. GRESHAM		
				LOGGED BY J. BUELL		
				EXISTING GRADE ELEVATION (FT. AMSL)		
				LOCATION OR GRID COORDINATES		

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
Burns & McDonnell		96785 - CEPT		UP-2		1402			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
24	MUDSTONE (10 R $\frac{4}{8}$) red. thinly laminated silt and clay. Fractured. Fissile, strong. Some fine - v. fine sand	~	MS						
25		~							
26		~						4.0 4.0	
27	BECOMES WHITE (10 YR 8/1)	~							
28	SANDSTONE (10 R $\frac{4}{8}$) red vs. fine grained, well rounded. poorly graded highly weathered, weak, dry	~	SS						827
29		~						3.0 3.0	
30	BECOMES pale red (10 R $\frac{7}{4}$)	~							
31	BECOMES RED. (10 R $\frac{4}{8}$)	~						2.0 2.0	
32		~							850

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE	
		Water Table (Time of Boring)		11/16/17 - 11/17/17	4 of 5	
		PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		CLAY		DEBRIS FILL
		SPLIT-BARREL		SILT		HIGHLY ORGANIC (PEAT)
		AUGER		SAND		SANDY CLAY
	THIN-WALLED TUBE		GRAVEL		CLAYEY SAND	
	ROCK CORE		SILTY CLAY			
	CONTINUOUS SAMPLER		CLAYEY SILT			
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet			DRILLING METHOD SOMIC DRILLED BY CASCADE - B. GRESHAM LOGGED BY J. BURCH EXISTING GRADE ELEVATION (FT. AMSL) LOCATION OR GRID COORDINATES			

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96785-CERT	LOCATION UP-2	BORING NUMBER 1402						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
32	SANDSTONE (10 R $\frac{4}{8}$) red. V. Fine grained. well rounded poorly graded. highly weathered weak. moist	[Symbol]	SS	[Symbol]	[Symbol]	[Symbol]	[Symbol]	[Symbol]	
33									
34	BECOMES light red (25 YR $\frac{6}{6}$) trace silt	[Symbol]							
35		[Symbol]							
36		[Symbol]							
37		[Symbol]							
38		[Symbol]							
39		[Symbol]							
40		[Symbol]							

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE	
		Water Table (Time of Boring)			11/16/17 - 11/17/17	5 of 5
		PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			DRILLING METHOD	
		SPLIT-BARREL			Sonic	
		AUGER			DRILLED BY	
	THIN-WALLED TUBE			CASCADE - B GRESHAM		
	CONTINUOUS SAMPLER			LOGGED BY		
	ROCK CORE			J. BURCH		
	NO RECOVERY			EXISTING GRADE ELEVATION (FT. A.M.S.L.)		
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet				LOCATION OR GRID COORDINATES		

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875 - CERT		LOCATION UP-2		BORING NUMBER 1403			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
1	TOPSOIL GRASS ROOTS SILT and some sand. red (10 R $\frac{4}{8}$) sH low plasticity dry		ML					36 40	1252
2									
3									
4	SANDSTONE. red (10 R $\frac{4}{8}$) Fine grained. well rounded, poorly graded weak. highly weathered, dry							60 60	1253
5			SS						
6	BECOMES light red (2.5 YR $\frac{7}{8}$)								
7									
8									

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/20/2017	PAGE 1 of 4
	▽	Water Table (Time of Boring)			<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>CLAY</p><p>SILT</p><p>SAND</p><p>GRAVEL</p><p>SILTY CLAY</p><p>CLAYEY SILT</p> </div> <div style="width: 50%;"> <p>DEBRIS FILL</p><p>HIGHLY ORGANIC (PEAT)</p><p>SANDY CLAY</p><p>CLAYEY SAND</p> </div> </div>	
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <p>SPLIT-BARREL</p><p>THIN-WALLED TUBE</p> </div> <div style="width: 50%;"> <p>AUGER</p><p>CONTINUOUS SAMPLER</p> </div> <div style="width: 50%;"> <p>ROCK CORE</p><p>NO RECOVERY</p> </div> </div>			
	<p>DEPTH. Depth Top and Bottom of Sample</p> <p>REC. Actual Length of Recovered Sample in Feet</p>				LOGGED BY J. BURCH	
			LOCATION OR GRID COORDINATES			

SOIL BORING LOG

COMPANY Buens & McDonnell		PROJECT 96875 - CERT		LOCATION UP-2		BORING NUMBER 1403				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
8	(CONT.) SANDSTONE. light red (2.5 YR 7/8) fine grained, well rounded, poorly graded. weak highly weathered. dry	-								
9									6.0	
10										
11	BECOMES interbedded clay v. dusky red (10 R 2.5/2) soft. med plasticity								4.0	
12	END interbedded clay		SS						4.0	
13										
14										
15	BECOMES MDIST								6.0	
16									6.0	

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/20/2017	PAGE 2 of 4
		Water Table (Time of Boring)			DRILLING METHOD Sonic	
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		CLAY		DEBRIS FILL
		SPLIT-BARREL		SILT		HIGHLY ORGANIC (PEAT)
		AUGER		SAND		SANDY CLAY
	THIN-WALLED TUBE		GRAVEL		CLAYEY SAND	
	ROCK CORE		SILTY CLAY			
	CONTINUOUS SAMPLER		CLAYEY SILT			
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet			LOGGED BY J. BURCH			
			EXISTING GRADE ELEVATION (FT. ABLJ)			
			LOCATION OR GRID COORDINATES			

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875 - CERT		LOCATION UP-2		BORING NUMBER 1405				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
16	SANDSTONE light red (2.5 YR 7/8) fine grained, well rounded, poorly graded weak moist.	-								
17										
18								6.0		
19								6.0		
20			SS							1316
21								9.0		
22	BECOMES WET							9.0		
23										
24										

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/20/2017	PAGE 3 of 4	
	▽	Water Table (Time of Boring)	▨	CLAY	DRILLING METHOD SONIC		
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▨	DRILLED BY CASCADE - B. GRESHAM	
	⊗	SPLIT-BARREL	▨	SAND	▨	LOGGED BY J. BURCH	
	■	THIN-WALLED TUBE	▨	GRAVEL	▨	EXISTING GRADE ELEVATION (FT. AMSL)	
	■	AUGER	▨	SILTY CLAY	LOCATION OR GRID COORDINATES		
	■	CONTINUOUS SAMPLER	▨	CLAYEY SAND			
	■	ROCK CORE	▨	CLAYEY SILT			
	■	NO RECOVERY	▨	DEBRIS FILL			
			▨	HIGHLY ORGANIC (PEAT)			
			▨	SANDY CLAY			
			▨	CLAYEY SAND			

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
Burns & McDonnell		96875 - CERT		UP - 2		1403			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
24	(Cont.) Sandstone light red (2.5 yr 2/8) Fine grained, well rounded, poorly graded, weak. wet.		SS						
25	MUDSTONE RED (10 R 4/8) thinly laminated silt and clay. Fissile highly weathered. strong. dry.	~	MS					9.0	
26		~						9.0	
27	SANDSTONE white (10 yr 8/1) v. Fine grained, well rounded, poorly graded weak. wet		SS						
28									
29	MUDSTONE RED (10 R 4/8) thinly laminated silt and clay; dry fissile, strong	~							
30		~	MS						
31		~						1.0 2.0	

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED	PAGE
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (PEAT)
		PID Photoionization Detection (ppm) identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLING METHOD	
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	DRILLED BY	SOMC
		THIN-WALLED TUBE		SILTY CLAY			LOGGED BY	CASCADE - B. GRESHAM
	AUGER		CLAYEY SILT			EXISTING GRADE ELEVATION (FT. AMSL)		
	ROCK CORE					LOCATION OR GRID COORDINATES		
	CONTINUOUS SAMPLER							
	NO RECOVERY							

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

1331

1338

SOIL BORING LOG

COMPANY BURNS & McDONNELL		PROJECT 96875 - CERT			LOCATION BA-1		BORING NUMBER 1404		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
0	SILT: dark reddish brown (2.5 YR 3/3) med stiff, med plasticity damp		ML					4.8 <hr/> 5.0	
1									
2									
3	SAND: reddish yellow (5 YR 6/6) fine grained, well rounded poorly graded		SP					5.0 <hr/> 5.0	
4									
5	SILT: reddish brown (5R 4/3) soft, med-low plasticity wet some fine sand		ML						
6									
7									
8									

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	▽	Water Table (Time of Boring)			11/13/2017	1 of 3
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	CLAY	▣	DEBRIS FILL
	☒	SPLIT-BARREL	▨	SILT	▨	HIGHLY ORGANIC (PEAT)
	▬	AUGER	▨	SAND	▨	SANDY CLAY
	▬	THIN-WALLED TUBE	▨	GRAVEL	▨	CLAYEY SAND
▬	CONTINUOUS SAMPLER	▨	SILTY CLAY	□		
▬	NO RECOVERY	▨	CLAYEY SILT	□		

DEPTH. Depth Top and Bottom of Sample
REC. Actual length of Recovered Sample in Feet

1355

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 - CERT		LOCATION BA-1		BORING NUMBER 1404			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	RE TYPE	DEPTH	
8	(CONT.) SILT, reddish brown (SR 4/3) Soft, med-low plasticity wet, some Fine Sand		ML					5.0	
9								5.0	
10	BECOMES med Stiff								1406
11	CLAY, reddish brown (SR 4/2) highly plastic, med Stiff Wet	/ / /	CH					3.0	
12								3.0	
13	SILT, red (OR 4/6) v. Stiff, low plasticity dry		ML					2.0	
14								2.0	
15	SAND, reddish yellow (SR 4/6) Fine grained, poorly graded Subrounded, dry	. . .	SP					4.0	
16								4.0	1427

EXPLANATION

Water Table (24 Hour)
 Water Table (Time of Boring)
 PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method
 SPLIT-BARREL
 AUGER
 ROCK CORE
 THIN-WALLED TUBE
 CONTINUOUS SAMPLER
 NO RECOVERY

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY	DEBRIS FILL
SILT	HIGHLY ORGANIC (PEAT)
SAND	SANDY CLAY
GRAVEL	CLAYEY SAND
SILTY CLAY	_____
CLAYEY SILT	_____

DATE DRILLED 11/13/2017	PAGE 2 of 3
DRILLING METHOD SONIC	
DRILLED BY CASCADE - B. GRESHAM	
LOGGED BY J. BURCH	
EXISTING GRADE ELEVATION (FT. AMSL)	
LOCATION OR GRID COORDINATES	

SOIL BORING LOG

COMPANY <i>Buens & McDowell</i>	PROJECT <i>96785 - CERT</i>	LOCATION <i>BA-1</i>	BORING NUMBER <i>1481</i>						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
16	<i>(cont.) Sand. reddish yellow (5 yr 4/6) fine grained. poorly graded, subrounded, dry</i>	-	SP	-	-	-	-	-	
17									
18	<i>SILT red (10 R 4/6) v. STIFF low plasticity dry</i>			-	-	-	-	-	
19									
20	<i>BECOMES SATURATED</i>		ML	-	-	-	-	-	
21									
22	<i>SANDSTONE red (2.5 yr 4/6) fine grain weak highly weathered. poorly graded</i>	-	SS	-	-	-	-	-	
23									

EXPLANATION

▼ Water Table (24 Hour)
▽ Water Table (Time of Boring)
PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method

SPLIT-BARREL	AUGER	ROCK CORE
THIN-WALLED TUBE	CONTINUOUS SAMPLER	NO RECOVERY

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY	DEBRIS FILL
SILT	HIGHLY ORGANIC (PEAT)
SAND	SANDY CLAY
GRAVEL	CLAYEY SAND
SILTY CLAY	
CLAYEY SILT	

DATE DRILLED: *11/13/2017* PAGE: *3 of 3*

DRILLING METHOD: *SONIC*

DRILLED BY: *CASCADE - B. GRESHAM*

LOGGED BY: *J. BURCH*

EXISTING GRADE ELEVATION (FT. AMSL):

LOCATION OR GRID COORDINATES:

1436

1457

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
Burns & McDonnell		96785 - CERT		BA-1		1405			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
0	Roots / topsoil								
1	SILT dark red (2.5 YR 3/6) Soft. low plasticity - dry								
2								2.7 — 5.0	
3			ML						
4	BECOMES yellowish red (5 YR 4/6)								
5									6940
6	SILT dark reddish brown (5 YR 3/3) v. Soft. low plasticity moist Some v. Fine Sand							1.5 — 5.0	
7			ML						
8									

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE	
	▽	Water Table (Time of Boring)	▨	CLAY	▩	11/14/2017	1 of 4
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▩	DRILLING METHOD	
	⊗	SPLIT-BARREL	▨	SAND	▩	Sonic	
	■	AUGER	▨	GRAVEL	▩	DRILLED BY	CASCADE - B. GRESHAM
■	THIN-WALLED TUBE	▨	SILTY CLAY	▩	LOGGED BY	J. BROWN	
■	CONTINUOUS SAMPLER	▨	CLAYEY SAND	▩	EXISTING GRADE ELEVATION (FT. AMSL)		
▨	ROCK CORE	▨	CLAYEY SILT	▩	LOCATION OR GRID COORDINATES		
▨	NO RECOVERY	▨		▩			
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 - CERT		LOCATION BA-1		BORING NUMBER 1405			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
8	(cont.) SILT dark reddish brown v. soft, low plasticity moist. Some v. fine sand.		ML						
9								7.5 5.0	
10	CLAY. red (2.5 YR 5/6) highly plastic. v. soft some silt and v. fine sand. moist.		CH						945
11								4.5 5.0	
12									
13	SILT very dark brown (7.5 YR 5/3) med stiff, low plasticity, dry.		ML						
14									
15								7.5 2.0	952
16									

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED 11/14/2017	PAGE 2 of 4
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (PEAT)
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY CASCADE - B. GRESHAM	
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	LOGGED BY J. BURCH	
		AUGER		SILTY CLAY		NO RECOVERY	EXISTING GRADE ELEVATION (FT. AMLJ)	
	THIN-WALLED TUBE		CLAYEY SILT			LOCATION OR GRID COORDINATES		

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 - CERT		LOCATION BA-1		BORING NUMBER 1405			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
16	CLAY: yellowish red (5 yr $\frac{5}{6}$) med stiff, high plasticity moist	[Hatched pattern]	CH						
17									
18									
19	SLT. Red (10R $\frac{4}{6}$) medium stiff low plasticity, dry, partially lithified some white (2.5 yr $\frac{8.5}{7}$)	[Vertical lines]	ML						7.5 8.0
20									
21	SANDSTONE. red (2.5 yr $\frac{4}{6}$) med - fine grains, poorly graded rounded, highly weathered weak	[Dotted pattern]	SS						4.0 4.0
22									
23									
24									

1002

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/14/2017	PAGE 3 of 4	
		Water Table (Time of Boring)		CLAY		DEBRIS FILL	
		PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SILT		HIGHLY ORGANIC (PEAT)
			SPLIT-BARREL		SAND		SANDY CLAY
			AUGER		GRAVEL		CLAYEY SAND
		CONTINUOUS SAMPLER		SILTY CLAY			
		ROCK CORE		CLAYEY SILT			
		NO RECOVERY					
		DEPTH. Depth Top and Bottom of Sample REC. Actual length of Recovered Sample in Feet					

DRILLING METHOD
Sonic

DRILLED BY
CASCADE - B. CRESHAM

LOGGED BY
J. Burch

EXISTING GRADE ELEVATION (FT. AMSL)

LOCATION OR GRID COORDINATES

SOIL BORING LOG

COMPANY Buens & McDonnell		PROJECT 96785 CERT		LOCATION BA-1		BORING NUMBER 1405			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
24	(cont.) SANDSTONE red (25 yr $\frac{1}{8}$) med fine grains. poorly graded rounded, highly weathered, weak.	-	SS						
25		-						4.0	
26	MUDSTONE. red (102 yr $\frac{1}{8}$) thinly laminated silt and clay. Fistsle highly weathered strong	~	MS					4.0	
27									

1021

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/14/2017	PAGE 4 of 4
		Water Table (Time of Boring)				
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			DRILLED BY CASCAOE - B. GRESHAM	
		SPLIT-BARREL			LOGGED BY J. Burch	
		AUGER			EXISTING GRADE ELEVATION (FT. AMSL)	
	THIN-WALLED TUBE			LOCATION OR GRID COORDINATES		
	ROCK CORE					
	CONTINUOUS SAMPLER					
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875		LOCATION BA-1		BORING NUMBER 1406				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	DATE	DEPTH		
1	SILT red (2.5 YR 4/6) Soft. dry, low plasticity. Some Sand & Clay		ML							
2										4.6 — 5.0
3										
4										
5	SILT. light red (2.5 YR 6/6) Soft, dry, low plasticity, Some Sand		ML						1020	
6										3.5 — 5.0
7										
8										

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/15/17	PAGE 1 of 4
		Water Table (Time of Boring)		CLAY SILT SAND GRAVEL SILTY CLAY CLAYEY SILT DEBRIS FILL HIGHLY ORGANIC (PEAT) SANDY CLAY CLAYEY SAND	DRILLING METHOD SONIC
		PID No. TYPE	SPLIT-BARREL THIN-WALLED TUBE AUGER CONTINUOUS SAMPLER ROCK CORE NO RECOVERY		DRILLED BY CASCADE - B. GRESHAM
		DEPTH. Depth Top and Bottom of Sample		EXISTING GRADE ELEVATION (FT. AMSL)	
		REC. Actual Length of Recovered Sample in Feet		LOCATION OR GRID COORDINATES	

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER				
Burns & McDonnell		96875-CERT		BA-1		1406				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
8	(cont.) SILT. light red (25 YR 5/6) Soft, dry, low plasticity, Some Sand									
9										
10	BECOMES MOIST									1027
11			ML							
12										
13										
14										
15	BECOMES wet.									1031
16										

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED	PAGE
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (PEAT)
		PID NO. TYPE		SAND		SANDY CLAY	DRILLING METHOD	
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	Sonic	
		AUGER		SILTY CLAY			DRILLED BY	
	THIN-WALLED TUBE		CLAYEY SILT			CASCADÉ - B. GRESHAM		
	ROCK CORE					LOGGED BY		
	CONTINUOUS SAMPLER					J. Burch		
	NO RECOVERY					EXISTING GRADE ELEVATION (FT. AMSL)		
						LOCATION OR GRID COORDINATES		

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY BURNS & Mc DONNELL		PROJECT 96785-CERT			LOCATION BA-1			BORING NUMBER 1406	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
16	(CONT) SILT. light red (2.5 YR 6/6) Soft, dWet, low plasticity Some Sand		ML						
17	SILT yellowish red (5 YR 5/6) Soft wet med plasticity Some Sand and silt clay								
18							4.0 5.0		
19			ML						
20									1048
21							4.0 4.5		
22	MUDSTONE red (10R 4/6) thinly laminated silt and clay. Strong fissile, highly weathered, dry, Some white (2.5 Y 8/1)		MS						
23									
24									

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/15/2017	PAGE 3 of 4	
	▽	Water Table (Time of Boring)			▨	DEBRIS FILL	DRILLING METHOD SONIC
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▨	HIGHLY ORGANIC (PEAT)	DRILLED BY CASCADE - B. CRESTMAN
	⊗	SPLIT-BARREL	▨	SAND	▨	SANDY CLAY	LOGGED BY J. BURCH
	■	THIN-WALLED TUBE	▨	GRAVEL	▨	CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)
	■	AUGER	▨	SILTY CLAY		LOCATION OR GRID COORDINATES	
	■	CONTINUOUS SAMPLER	▨	CLAYEY SILT			
	■	ROCK CORE					
	■	NO RECOVERY					
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875 - CEET		LOCATION BA-1		BORING NUMBER 1406			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
25	(om.) MUDSTONE red (10R 4/6) thin laminated silt and clay, strong fissile highly weathered, dry some white (25 v 81)	~	MS					4.0 4.5	1056
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
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<p>EXPLANATION</p> <p> <input type="checkbox"/> Water Table (24 Hour) <input type="checkbox"/> Water Table (Time of Boring) <input type="checkbox"/> PID Photoionization Detection (ppm) <input type="checkbox"/> NO. Identifies Sample by Number <input type="checkbox"/> TYPE Sample Collection Method </p> <p> <input type="checkbox"/> SPLIT-BARREL <input type="checkbox"/> AUGER <input type="checkbox"/> ROCK CORE <input type="checkbox"/> THIN-WALLED TUBE <input type="checkbox"/> CONTINUOUS SAMPLER <input type="checkbox"/> NO RECOVERY </p> <p> DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet </p>	<p style="text-align: center;">GRAPHIC LOG LEGEND</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> CLAY</td> <td><input type="checkbox"/> DEBRIS FILL</td> </tr> <tr> <td><input type="checkbox"/> SILT</td> <td><input type="checkbox"/> HIGHLY ORGANIC (PEAT)</td> </tr> <tr> <td><input type="checkbox"/> SAND</td> <td><input type="checkbox"/> SANDY CLAY</td> </tr> <tr> <td><input type="checkbox"/> GRAVEL</td> <td><input type="checkbox"/> CLAYEY SAND</td> </tr> <tr> <td><input type="checkbox"/> SILTY CLAY</td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> CLAYEY SILT</td> <td><input type="checkbox"/></td> </tr> </table>	<input type="checkbox"/> CLAY	<input type="checkbox"/> DEBRIS FILL	<input type="checkbox"/> SILT	<input type="checkbox"/> HIGHLY ORGANIC (PEAT)	<input type="checkbox"/> SAND	<input type="checkbox"/> SANDY CLAY	<input type="checkbox"/> GRAVEL	<input type="checkbox"/> CLAYEY SAND	<input type="checkbox"/> SILTY CLAY	<input type="checkbox"/>	<input type="checkbox"/> CLAYEY SILT	<input type="checkbox"/>	<p>DATE DRILLED: 11/15/2017 PAGE: 4 of 4</p> <p>DRILLING METHOD: SONIC</p> <p>DRILLED BY: CASCADE - B. GRESHAM</p> <p>LOGGED BY: J. BURCH</p> <p>EXISTING GRADE ELEVATION (FT. AMSL):</p> <p>LOCATION OR GRID COORDINATES:</p>
<input type="checkbox"/> CLAY	<input type="checkbox"/> DEBRIS FILL													
<input type="checkbox"/> SILT	<input type="checkbox"/> HIGHLY ORGANIC (PEAT)													
<input type="checkbox"/> SAND	<input type="checkbox"/> SANDY CLAY													
<input type="checkbox"/> GRAVEL	<input type="checkbox"/> CLAYEY SAND													
<input type="checkbox"/> SILTY CLAY	<input type="checkbox"/>													
<input type="checkbox"/> CLAYEY SILT	<input type="checkbox"/>													

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875-CERT		LOCATION BA-1		BORING NUMBER 1407			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
1 2 3 4 5 6 7 8	SILT. red (10R 4/6) soft. dry. low plasticity. Some Fine Sand		ML					2.9 — 5.0	1331
	SANDSTONE. red (10R 4/8) Fine grained. Subrounded. poorly graded, weak. highly weathered. Some white (2.5 y 8.5/1) dry.		SS					2.0 — 2.0	1335
								3.0 — 3.0	1339

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/15/2017	PAGE 1 of 2
		Water Table (Time of Boring)		CLAY SILT SAND GRAVEL SILTY CLAY CLAYEY SILT DEBRIS FILL HIGHLY ORGANIC (PEAT) SANDY CLAY CLAYEY SAND	DRILLING METHOD SONIC
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			SPLIT-BARREL
		THIN-WALLED TUBE		AUGER	LOGGED BY J. Burch
		CONTINUOUS SAMPLER		ROCK CORE	EXISTING GRADE ELEVATION (FT. AMLB)
			NO RECOVERY	LOCATION OR GRID COORDINATES	
	DEPTH. Depth Top and Bottom of Sample REC. Actual length of Recovered Sample in Feet				

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875 - CERT		LOCATION BA - A		BORING NUMBER 1407						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS			
						NO.	TYPE	DEPTH		REC.		
8	(CONT.) SANDSTONE - red (10R 4/8) Fine grained, subrounded. Poorly graded. weak. highly weathered Some white (2S Y 8E) dry.	-	SS	-	-							
9										3.0		
10											1.0	
11							1.0		1350			

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/15/2017	PAGE 2 of 2	
	▽	Water Table (Time of Boring)			▨	CLAY	▩
	PID NO. TYPE	Photoionization Detection (ppm)	▨	SILT	▩	HIGHLY ORGANIC (PEAT)	
	X	Identifies Sample by Number	▨	SAND	▨	SANDY CLAY	
		Sample Collection Method	▨	GRAVEL	▨	CLAYEY SAND	
X	SPLIT-BARREL		AUGER	▨	SILTY CLAY	□	DRILLED BY CASCADÉ - B GRESHAM
	THIN-WALLED TUBE		CONTINUOUS SAMPLER	▨	CLAYEY SAND	□	LOGGED BY J. BURCH
	ROCK CORE		NO RECOVERY	▨	CLAYEY SILT	□	EXISTING GRADE ELEVATION (FT. AMSL)
DEPTH. Depth Top and Bottom of Sample			LOCATION OR GRID COORDINATES				
REC. Actual Length of Recovered Sample in Feet							

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875-CERT		LOCATION BA-1		BORING NUMBER 1408				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	DEPTH	REC.		
0	SILT. dark reddish brown (5V ₂ 4) Soft. dry. low plasticity. some Fine Sand		ML							
1										
2										5.0
3										5.0
4	SANDSTONE. red (10R 4/8) Fine grained. Subrounded. poorly graded highly weathered, weak, dry.		SS							
5										
6										4.0
7										4.0
8										

1443

1444

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/15/2017	PAGE 1 of 2																							
		Water Table (Time of Boring)		<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>CLAY</td> <td></td> <td>DEBRIS FILL</td> </tr> <tr> <td></td> <td>SILT</td> <td></td> <td>HIGHLY ORGANIC (PEAT)</td> </tr> <tr> <td></td> <td>SAND</td> <td></td> <td>SANDY CLAY</td> </tr> <tr> <td></td> <td>GRAVEL</td> <td></td> <td>CLAYEY SAND</td> </tr> <tr> <td></td> <td>SILTY CLAY</td> <td></td> <td></td> </tr> <tr> <td></td> <td>CLAYEY SILT</td> <td></td> <td></td> </tr> </table>		CLAY		DEBRIS FILL		SILT		HIGHLY ORGANIC (PEAT)		SAND		SANDY CLAY		GRAVEL		CLAYEY SAND		SILTY CLAY				CLAYEY SILT		
		CLAY			DEBRIS FILL																							
		SILT		HIGHLY ORGANIC (PEAT)																								
		SAND		SANDY CLAY																								
	GRAVEL		CLAYEY SAND																									
	SILTY CLAY																											
	CLAYEY SILT																											
	PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SPLIT-BARREL		AUGER																							
	THIN-WALLED TUBE		ROCK CORE		CONTINUOUS SAMPLER																							
	NO RECOVERY	DRILLED BY CASCADÉ - B. GRESHAM LOGGED BY J. BURCH EXISTING GRADE ELEVATION (FT. AMSL) LOCATION OR GRID COORDINATES																										

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875 - CERT		LOCATION BA-1		BORING NUMBER 1408						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS			
						NO.	TYPE	DEPTH		REC.		
8	(CONT.) SANDSTONE - red (10R 4/6) Fine grained Subrounded, poorly graded, highly weathered, weak, dry	SS										
9	BECOMES SOME WHITE (2.5 Y 8.5/1)									4.0 4.0		1448
10											2.0 2.0	
11												

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED 11/15/2017	PAGE 2 of 2
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (PEAT)
		PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY CASCADE - B. GRESHAM
		SPLIT-BARREL		AUGER		ROCK CORE	LOGGED BY J. BURCH	EXISTING GRADE ELEVATION (FT. ABLJ)
		THIN-WALLED TUBE		CONTINUOUS SAMPLER		NO RECOVERY	LOCATION OR GRID COORDINATES	

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96875 - CERT	LOCATION BA-1	BORING NUMBER 1409
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
0	GRASS / ROOTS								
0.5	SILT dark reddish brown (5 YR 5/3) Soft, dry, low plasticity,								
1									
2								4.5 5.0	
3			ML						
4	BECOMES red (10R 4/8) increasing Sand								
5	SANDSTONE. red (10R 4/8) v. fine grained. poorly graded. Subrounded, weak. highly weathered. quartz								
6			SS					4.6 5.0	
7									
8									

0817

0818

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE	
		Water Table (Time of Boring)			11/16/2017	1 of 4
		PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			DRILLING METHOD	
		SPLIT-BARREL			SONIC	
		AUGER			DRILLED BY	
	THIN-WALLED TUBE			CASCADE - B. GRESHAM		
	CONTINUOUS SAMPLER			LOGGED BY		
	ROCK CORE			J. BURCH		
	NO RECOVERY			EXISTING GRADE ELEVATION (FT. AMSL)		
	DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet			LOCATION OR GRID COORDINATES		

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785-CERT		LOCATION BA-2		BORING NUMBER 1409				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
8	SANDSTONE, red (10 R 4/8) v. fine grained, poorly graded, subrounded, weak, highly weathered, quartz some white (0 yr BS/1)	[Symbol]								
9									4.6	
10										
11			SS							
12	BECOMES light red (10 R 7/6)									
13										
14	INCREASING SILT									
15										
16	SANDSTONE yellow (10 YR 7/8) v. fine grained, well rounded, poorly graded, highly weathered, weak		SS							

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED 11/16/2017	PAGE 2 of 4
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (FEAT)
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY CASCADIA - B. GRESHAM	
		SPLIT-BARREL		GRAVEL		CLAYEY SAND	LOGGED BY J. BURCH	
		THIN-WALLED TUBE		SILTY CLAY			EXISTING GRADE ELEVATION (FT. AMSL)	
	AUGER		CLAYEY SILT			LOCATION OR GRID COORDINATES		
	ROCK CORE							
	CONTINUOUS SAMPLER							
	NO RECOVERY							
DEPTH. Depth Top and Bottom of Sample								
REC. Actual length of Recovered Sample in Feet								

0826

0835

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96785 - CERT			LOCATION BA - 1			BORING NUMBER 1409	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
16	(CONT.) SANDSTONE. Yellow (10 yr 3/8) V. Fine grained, well rounded, Poorly graded, highly weathered, weak	~	SS					7.0 7.0	
17		~							
18		~							
19	BECOMES dark red (2.5 yr 3/8)	~							
20	MUDSTONE. red (10R 4/8) thin laminated silt and clay. Some V. Fine Sand, highly weathered, Strong, dry	~	MS					5.0 5.0	0845
21		~							
22		~							
23		~							
24		~							

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/16/2017	PAGE 3 of 4	
	▽	Water Table (Time of Boring)			▨	DEBRIS FILL	DRILLING METHOD Sonic
	PID NO. TYPE	Photoionization Detection (ppm)	▨	SILT	▨	HIGHLY ORGANIC (PEAT)	DRILLED BY CASCADE - B. GRESHAM
	Identifies Sample by Number	Sample Collection Method	▨	SAND	▨	SANDY CLAY	LOGGED BY J. BURCH
X	SPLIT-BARREL	▨	GRAVEL	▨	CLAYEY SAND	EXISTING GRADE ELEVATION (FT. AMSL)	
▨	THIN-WALLED TUBE	▨	SILTY CLAY	▨		LOCATION OR GRID COORDINATES	
▨	AUGER	▨	CLAYEY SILT	▨			
▨	CONTINUOUS SAMPLER	▨		▨			
▨	ROCK CORE	▨		▨			
▨	NO RECOVERY	▨		▨			

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96875 - CERT	LOCATION BA - 1	BORING NUMBER 1409						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
24 25 26	(cont.) MUDDSTONE - red (10R 4/8) thinly laminated silt and clay. Some v. fine sand, highly weathered. strong dry.	~ ~ ~ ~	MS					5-0 5-0	
26									

0858

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/16/2017	PAGE 4 of 4
		Water Table (Time of Boring)				
		Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method			DRILLING METHOD SONIC	
		SPLIT-BARREL			DRILLED BY CASCADE - B. GRESHAM	
	AUGER			LOGGED BY J. BURCH		
	THIN-WALLED TUBE			EXISTING GRADE ELEVATION (FT. AMSL)		
	CONTINUOUS SAMPLER			LOCATION OR GRID COORDINATES		
	ROCK CORE					
	NO RECOVERY					
DEPTH. Depth Top and Bottom of Sample						
REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY Burns & McDonnell	PROJECT 96875 - CERT	LOCATION UP-2	BORING NUMBER TMP-UP2-01
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DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
0	TOPSOIL, Grass, roots								
1	SILT. red (10 R 4/8) soft dry. low plasticity, some some sand and clay								
2								5.0	
3	BECOMES med stiff, med plasticity		ML					5.0	
4									
5									
6								6.8	
7								7.0	
8									

1515

1516

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED	PAGE	
		Water Table (Time of Boring)			11/19/2017 - 11/20/17	1 of 5
		PID Photoionization Detection (ppm)			DRILLING METHOD	
		Identifies Sample by Number			SONIC	
		Sample Collection Method			DRILLED BY	
	SPLIT-BARREL			CASCADE - B. GRESHAM		
	AUGER			LOGGED BY		
	ROCK CORE			J. BURCH		
	THIN-WALLED TUBE			EXISTING GRADE ELEVATION (FT. AMSL)		
	CONTINUOUS SAMPLER			LOCATION OR GRID COORDINATES		
	NO RECOVERY					
	DEPTH. Depth Top and Bottom of Sample					
	REC. Actual length of Recovered Sample in Feet					

SOIL BORING LOG

COMPANY <i>BURNS & McDONNELL</i>		PROJECT <i>96875 - CERT</i>			LOCATION <i>UP-2</i>			BORING NUMBER <i>TMP-UP2-01</i>	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
8	(low) SILT. red (10 R 4/8) Soft. dry, low plasticity. Some Some sand and clay		ML						
9	SILT. red (10 R 4/8) Soft. med stiff. low plasticity moist Some sand and clay							6.8 7.0	
10									
11	INCREASING Sand (Fine)		ML						
12	SANDSTONE. red (10 R 4/8) Fine grained, well rounded Poorly graded. dry. weak highly weathered							7.9 8.0	
13			SS						1523
14									
15									
16									

EXPLANATION

Water Table (24 Hour)
 Water Table (Time of Boring)
 PID NO. TYPE
 Photoionization Detection (ppm)
 Identifies Sample by Number
 Sample Collection Method

SPLIT-BARREL
 AUGER
 ROCK CORE
 THIN-WALLED TUBE
 CONTINUOUS SAMPLER
 NO RECOVERY

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY	DEBRIS FILL
SILT	HIGHLY ORGANIC (PEAT)
SAND	SANDY CLAY
GRAVEL	CLAYEY SAND
SILTY CLAY	
CLAYEY SILT	

DATE DRILLED *11/19/17 - 11/20/17* PAGE *2 of 5*

DRILLING METHOD
Sonic

DRILLED BY
CASCADE - B. GRESHAM

LOGGED BY
J. Burch

EXISTING GRADE ELEVATION (FT. AMSL)

LOCATION OR GRID COORDINATES

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875 - CERT			LOCATION UP-2			BORING NUMBER TMP-UP2-01	
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
16	(cont.) SANDSTONE. red (10R 4/8) Fine grained, well rounded, poorly graded. dry. weak. highly weathered	-							
17		-							
18		-						7.9 8.0	
19		-							
20		-	SS						1543
21		-						2.0 2.0	
22		-							1602
23		-						3.0 3.0	
24		-							

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/19/17 - 11/20/17	PAGE 3 of 5	
	▽	Water Table (Time of Boring)	▨	CLAY	DRILLING METHOD Sonic		
	PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	▨	SILT	▨	DRILLED BY CASADOE - B. GRESHAM	
	⊗	SPLIT-BARREL	▨	SAND	▨	LOGGED BY J. BURCH	
	■	THIN-WALLED TUBE	▨	GRAVEL	▨	EXISTING GRADE ELEVATION (FT. AMSL)	
	■	AUGER	▨	SILTY CLAY	LOCATION OR GRID COORDINATES		
	■	CONTINUOUS SAMPLER	▨	CLAYEY SAND			
	■	ROCK CORE	▨	CLAYEY SILT			
	■	NO RECOVERY	▨				
		DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet					

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER			
BURNS & McDONNELL		96875 - CERT		UP-2		TMP-UP2-01			
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	
24	(cont.) SANDSTONE - red (10 R 4/8) Fine grained, well rounded, poorly graded, dry, weak, highly weathered								
25	BECOMES white (2.5 Y 8.5/1)							3.0 3.0	1615
26									
27	BECOMES red (10 R 4/8)		SS					4.0 4.0	
28									
29									1642
30	SANDSTONE reddish yellow (7.5 YR 6/7) Fine grained, well rounded, poorly graded, weak, moist, highly weathered		SS					6.0 6.0	
31									
32	BECOMES Red (2.5 YR 6/8)								

EXPLANATION	▼	Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED	PAGE
	▽	Water Table (Time of Boring)	▨	CLAY	11/19/17 - 11/20/17	4 of 5
	PID	Photoionization Detection (ppm)	▨	SILT	DRILLING METHOD	
	NO.	Identifies Sample by Number	▨	SAND	SONIC	
TYPE	Sample Collection Method	▨	GRAVEL	DRILLED BY		
⊗	SPLIT-BARREL	▨	SANDY CLAY	CASCADE - B. GRESHAM		
▨	AUGER	▨	CLAYEY SAND	LOGGED BY		
▨	ROCK CORE	▨	SILTY CLAY	J. BURCH		
▨	THIN-WALLED TUBE	▨	CLAYEY SILT	EXISTING GRADE ELEVATION (FT. AMSL)		
▨	CONTINUOUS SAMPLER	▨		LOCATION OR GRID COORDINATES		
▨	NO RECOVERY	▨				
DEPTH. Depth Top and Bottom of Sample						
REC. Actual Length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY <i>Burns & McDonnell</i>	PROJECT <i>96875 - CERT</i>	LOCATION <i>UP-2</i>	BORING NUMBER <i>TMP-UP2-01</i>							
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
32	<i>(CONT.) SANDSTONE - red (25 YR 6/8) Fine grained, well rounded, poorly graded, weak, moist - highly weathered</i>									
33										
34										
35										<i>0808</i> <i>10/1/17</i>
36	<i>BECOMES WET.</i>		<i>SS</i>							
37										
38										<i>025</i>
39										
40										<i>042</i>

EXPLANATION		Water Table (24 Hour)		CLAY		DEBRIS FILL	DATE DRILLED <i>11/19/17 - 11/20/17</i>	PAGE <i>5 of 5</i>
		Water Table (Time of Boring)				SILT		HIGHLY ORGANIC (PEAT)
		PID NO. TYPE	Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SAND		SANDY CLAY	DRILLED BY <i>CASCADE - B. GRESHAM</i>
		SPLIT-BARREL		AUGER		GRAVEL	CLAYEY SAND	LOGGED BY <i>J. Burett</i>
	THIN-WALLED TUBE		CONTINUOUS SAMPLER		SILTY CLAY		EXISTING GRADE ELEVATION (FT. AMSL)	
	ROCK CORE		NO RECOVERY		CLAYEY SILT		LOCATION OR GRID COORDINATES	
DEPTH. Depth Top and Bottom of Sample		REC. Actual length of Recovered Sample in Feet						

SOIL BORING LOG

COMPANY BURNS & Mc DONNELL		PROJECT 96875-CERT			LOCATION UP-2			BORING NUMBER TMP-UP2-02		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE				REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	DEPTH	REC.	
0	ROOTS/TOPSOIL SILT reddish brown (2.5 YR 5/4) Soft. dry - low plasticity. some sand									
1										
2									5.0 5.0	
3			ML							
4										
5										
6									4.1 5.0	
7	SANDSTONE. red (2.5 YR 4/6) fine grained. poorly graded, well rounded, highly weathered, weak, crumbles easily. dry.		SS							
8										

1132

1136

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND		DATE DRILLED 11/17/2017	PAGE 1 of 5
		Water Table (Time of Boring)			DRILLING METHOD SONIC	
		PID Photoionization Detection (ppm) identifies Sample by Number Sample Collection Method			DRILLED BY CASCADE - B. GRESHAM	
		SPLIT-BARREL			LOGGED BY J. BURCH	
	AUGER			EXISTING GRADE ELEVATION (FT. AMSL)		
	ROCK CORE			LOCATION OR GRID COORDINATES		
	THIN-WALLED TUBE					
	CONTINUOUS SAMPLER					
	DEPTH. Depth Top and Bottom of Sample REC. Actual length of Recovered Sample in Feet					

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875-CERT		LOCATION UP-2		BORING NUMBER TMP-UP2-02				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
8	(cont.) SANDSTONE, red (2.5 VR 4) Fine grained. Poorly graded, well rounded, highly weathered, weak Crumbles easily. dry.	[Dotted pattern]								
9										4.1 5.0
10			SS							
11										
12								5.0 5.0		1144
13										
14										
15										
16								3.0 3.0		1242

EXPLANATION		Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/17/2017	PAGE 2 of 5	
		Water Table (Time of Boring)			CLAY	
		PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method		SILT		HIGHLY ORGANIC (PEAT)
		SPLIT-BARREL		SAND		SANDY CLAY
	AUGER		GRAVEL		CLAYEY SAND	
	CONTINUOUS SAMPLER		SILTY CLAY			
	ROCK CORE		CLAYEY SILT			
	NO RECOVERY					
	THIN-WALLED TUBE					
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet			DRILLING METHOD SOMC DRILLED BY CASCADE - B. GRESHAM LOGGED BY J. BURCH EXISTING GRADE ELEVATION (FT. AMSL) LOCATION OR GRID COORDINATES			

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 96875-CERT		LOCATION UP-2		BORING NUMBER TMP-UP2-02				
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS	
						NO.	TYPE	DEPTH		REC.
16	(CONT.) SANDSTONE. red (2.5 YR 4/6) Fine grained, poorly graded, well rounded, highly weathered, weak crumbles easily, dry.	[Graphic Log Pattern]	SS							
17									3.0	
18										1256
19								2.0		
20	BECOMES white (2.5 Y 8)							2.0		1310
21	BECOMES pale red (10 R 7/4)									
22								4.0		
23								4.0		
24										1339

EXPLANATION

Water Table (24 Hour)
 Water Table (Time of Boring)
 PID Photoionization Detection (ppm)
 Identifies Sample by Number
 Sample Collection Method

SPLIT-BARREL
 AUGER
 ROCK CORE
 THIN-WALLED TUBE
 CONTINUOUS SAMPLER
 NO RECOVERY

DEPTH. Depth Top and Bottom of Sample
REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY	DEBRIS FILL
SILT	HIGHLY ORGANIC (PEAT)
SAND	SANDY CLAY
GRAVEL	CLAYEY SAND
SILTY CLAY	_____
CLAYEY SILT	_____

DATE DRILLED 11/17/2017	PAGE 3 of 5
DRILLING METHOD Sonic	
DRILLED BY CASCADE - B. GRESHAM	
LOGGED BY J. Burch	
EXISTING GRADE ELEVATION (FT. AMSL)	
LOCATION OR GRID COORDINATES	

SOIL BORING LOG

COMPANY Burns & McDonnell		PROJECT 98875-CERT		LOCATION UP-2		BORING NUMBER TMP-UP2-02						
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE			REMARKS OR FIELD OBSERVATIONS			
						NO.	TYPE	DEPTH		REC.		
24	(LOM.) SANDSTONE. pale red (10R7) Fine grained, poorly graded, well rounded, highly weathered, weak, crumbles easily. dry.	[Dotted pattern]	SS							1339		
25											4.0	
26												4.0
27												
28	BECOMES red (2.5 YR 4/8) Some silt.	[Dotted pattern]								1352		
29											7.0	
30												7.0
31	MUDSTONE. red (2.5 YR 4/6) thinly laminated silt and clay, fissile, highly weathered. strong. dry	[Wavy pattern]	MS									
32												

EXPLANATION

Water Table (24 Hour)
 Water Table (Time of Boring)
 PID Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method
 SPLIT-BARREL
 AUGER
 ROCK CORE
 THIN-WALLED TUBE
 CONTINUOUS SAMPLER
 NO RECOVERY

DEPTH. Depth Top and Bottom of Sample
 REC. Actual Length of Recovered Sample in Feet

GRAPHIC LOG LEGEND

CLAY	DEBRIS FILL
SILT	HIGHLY ORGANIC (PEAT)
SAND	SANDY CLAY
GRAVEL	CLAYEY SAND
SILTY CLAY	
CLAYEY SILT	

DATE DRILLED 4/17/2017	PAGE 4 of 5
DRILLING METHOD SONIC	
DRILLED BY CASCADE - B. GRESHAM	
LOGGED BY J. BURCH	
EXISTING GRADE ELEVATION (FT. AMSL)	
LOCATION OR GRID COORDINATES	

SOIL BORING LOG

COMPANY		PROJECT		LOCATION		BORING NUMBER		
BURNS & Mc DONNELL		46875 - CERT		UP - 2		TMP - UP2 - 02		
DEPTH IN FEET	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	UNIFIED SOIL FIELD CLASS.	BLOWS PER FOOT	PID (ppm)	SOIL SAMPLE		REMARKS OR FIELD OBSERVATIONS
						NO.	TYPE	
32	(cov.) MUDSTONE. red (2.5 yr 4/6) thinly laminated silt and clay. Fissile, highly weathered. strong. dry	~ ~ ~	MS					
33							7.0 7.0	
34	SANDSTONE light red (7.5 yr 6/8) Fine grained, poorly graded, well rounded. weak, highly weathered moist							
35								1426
36			SS				4.7 4.7	
37	BECOMES WET							
38	BECOMES red (10 R 4)							
39								
40								1436

EXPLANATION	Water Table (24 Hour)	GRAPHIC LOG LEGEND	DATE DRILLED 11/17/2017	PAGE 5 of 5
	Water Table (Time of Boring)		DRILLING METHOD Sonic	
	PID NO. TYPE Photoionization Detection (ppm) Identifies Sample by Number Sample Collection Method	DRILLED BY CASCAOE - B. GRESHAM		
	SPLIT-BARREL AUGER ROCK CORE	LOGGED BY J. BURCH		
	THIN-WALLED TUBE CONTINUOUS SAMPLER NO RECOVERY	EXISTING GRADE ELEVATION (FT. AMSL)		
DEPTH. Depth Top and Bottom of Sample REC. Actual Length of Recovered Sample in Feet		LOCATION OR GRID COORDINATES		

APPENDIX E – MONITOR WELL INSTALL PHOTO LOG



Photo 1: Monitor well installation



Photo 2: Monitor well installation



Photo 3: Monitor well installation



Photo 4: Soil Cuttings

APPENDIX F – OWRB MONITOR WELL COMPLETION REPORT

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184598

		X							

«———— One Mile —————»
 Each square is 10-acres

Quarters NE-SW-NW

Section 12

Township 16N

Range 04WI

Latitude <u>35.88205</u>	Longitude <u>-97.5825833</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/18/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name 1395

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/18/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 27.5 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 12.5 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 12.5 ft to 27.5 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 10 ft to 27.5**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 7 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 7 ft to 10 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	27.5	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184597

	X						

«———— One Mile —————»
 Each square is 10-acres

Quarters SE-NW-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8823667</u>	Longitude <u>-97.5822833</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/18/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location ____
 Well Name 1396

Phone _____
 Zip 73044
 Water Rights #: ____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/19/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 25 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 10 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 10 ft to 25 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 25**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 3 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 3 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	25	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

WELL ID NUMBER: 184596

Legal Location

North

X							

«————— One Mile —————»
Each square is 10-acres

Quarters SE-NW-NW

Section 12

Township 16N

Range 04WI

Latitude 35.8825333

Longitude -97.5815833

Date collected(latitude and longitude), if different from date the well was drilled: 11/19/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location ____

Well Name 1397

Water Rights #: ____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/19/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 25 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 10 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 10 ft to 25 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 6.5 ft to 25**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Interval: From 2 ft to 6.5 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	25	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184595

«----- One Mile -----»
Each square is 10-acres

Quarters NE-SW-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8818167</u>	Longitude <u>-97.5811</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/19/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name 1398

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/19/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 28 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 8 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 8 ft to 28 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 4.8 ft to 28**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Interval: From 2 ft to 4.8 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	28	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

WELL ID NUMBER: 184601

Legal Location

North

		X						

«———— One Mile —————»
 Each square is 10-acres

Quarters NE-SW-NW

Section 12

Township 16N

Range 04WI

Latitude 35.8811667 Longitude -97.58235

Date collected(latitude and longitude), if different from date the well was drilled: 11/18/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location

Well Name 1399

Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/18/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 32.5 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From 3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 17.5 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 17.5 ft to 32.5 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 13.8 ft to 32.5

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 9 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 9 ft to 13.8 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	32.5	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184600

X							

«————— One Mile —————»
 Each square is 10-acres

Quarters NE-SW-NW **Section** 12 **Township** 16N **Range** 04WI

Latitude 35.8815333 Longitude -97.5823833

Date collected(latitude and longitude), if different from date the well was drilled: 11/18/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name 1400

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/18/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 22.5 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 7.5 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 7.5 ft to 22.5 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 4.3 ft to 22.5**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 4.3 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	22.5	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184604

		X					

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-NE-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8829</u>	Longitude <u>-97.5790333</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/16/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name 1401

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/16/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 43.5 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 23.5 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 40 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 19.8 ft to 43.5

WELL SEAL INFORMATION

Type of Surface Seal n/a

Type of Annular Seal Cement Grout

Filter Pack Seal Material Bentonite Granules/Chips

Surface Seal Interval: From n/a ft to n/a ft

Annular Seal Interval: From 0 ft to 14.8 ft

Filter Pack Seal Interval: From 14.8 ft to 19.8 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	43.5	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184603

		X					

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-NE-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8830167</u>	Longitude <u>-97.5785833</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/17/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name 1402

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/17/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 40 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 20 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 40 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 16.9 ft to 40

WELL SEAL INFORMATION

Type of Surface Seal n/a

Type of Annular Seal Cement Grout

Filter Pack Seal Material Bentonite Granules/Chips

Surface Seal Interval: From n/a ft to n/a ft

Annular Seal Interval: From 0 ft to 13.1 ft

Filter Pack Seal Interval: From 13.1 ft to 16.9 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	40	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184612

			X				

«———— One Mile —————»
 Each square is 10-acres

Quarters SE-NE-NW Section 12 Township 16N Range 04W1

Latitude <u>35.8830167</u>	Longitude <u>-97.5778167</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/20/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name 1403

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 7 ft to 31

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 7 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184610

							X

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-SE-SE Section 01 Township 16N Range 04W

Latitude 35.8863333 Longitude -97.5713333

Date collected(latitude and longitude), if different from date the well was drilled: 11/14/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name 1404

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/14/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 21.7 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11.7 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11.7 ft to 21.7 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 8.5 ft to 21.7

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 5.1 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 5.1 ft to 8.5 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	21.7	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11.6 ft to 26.6 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7.9 ft to 26.6**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 4.6 ftFilter Pack Seal Interval: From 4.6 ft to 7.9 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	26.6	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

WELL ID NUMBER: 184608

Legal Location

North

					X

«———— One Mile —————»

Each square is 10-acres

Quarters SW-SE-SE

Section 01

Township 16N

Range 04W1

Latitude 35.8859667

Longitude -97.5712

Date collected(latitude and longitude), if different from date the well was drilled: 11/15/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location ____

Well Name 1406

Water Rights #: ____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/15/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 24.5 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 14.5 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 14.5 ft to 24.5 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 11.7 ft to 24.5**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 7 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 7 ft to 11.7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	24.5	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184607

					X

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-NE Section 12 Township 16N Range 04WI

Latitude <u>35.8855167</u>	Longitude <u>-97.5712667</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/15/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name 1407

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/15/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 11 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 6 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 6 ft to 11 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 4 ft to 11

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 4 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	11	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184606

					X

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-NE Section 12 Township 16N Range 04WI

Latitude <u>35.8855167</u>	Longitude <u>-97.57105</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/15/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name 1408

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/15/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 10.5 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 5.5 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 5.5 ft to 10.5 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 3.5 ft to 10.5**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 1.5 ftFilter Pack Seal Interval: From 1.5 ft to 3.5 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	10.5	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184605

					X

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-NE

Section 12

Township 16N

Range 04WI

Latitude <u>35.88555</u>	Longitude <u>-97.571</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/16/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name 1409

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/16/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 25.8 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 10.8 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 10.8 ft to 25.8 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 8.1 ft to 25.8**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 5.7 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 5.7 ft to 8.1 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	25.8	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184586

«———— One Mile —————»
 Each square is 10-acres

Quarters NE-SW-NW

Section 12

Township 16N

Range 04WI

Latitude 35.8818833 Longitude -97.5818167

Date collected(latitude and longitude), if different from date the well was drilled: 10/20/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name GETR-BA1-01-MW1

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 10/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 24 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 4 ft

2) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 4 ft to 14 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 14 ft to 24 ft.

FILTER PACK INFORMATION

Filter Pack Material: Coarse Gravel

Filter Pack Interval: From 4 ft to 24

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 4 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	24	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/18/2018

Comments: GETR-BA1-01-MW01

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

WELL ID NUMBER: 184587

Legal Location

North

							X

«————— One Mile —————»

Each square is 10-acres

Quarters SW-SE-SE

Section 01

Township 16N

Range 04W1

Latitude 35.886

Longitude -97.57115

Date collected(latitue and longitude), if different from date the well was drilled: 10/20/2017

Method latitue and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name GETR-BA1-01-MW2

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 10/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 24 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 4 ft

2) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 4 ft to 14 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 14 ft to 24 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 4 ft to 24**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Interval: From 2 ft to 4 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	24	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: GETR-BA1-01-MW02

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

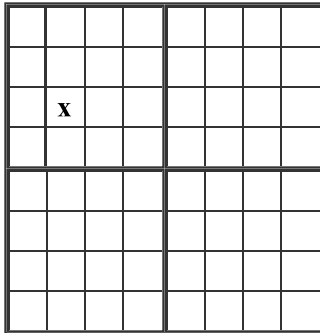


Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184585



«———— One Mile ————»

Each square is 10-acres

Quarters NE-SW-NW

Section 12

Township 16N

Range 04WI

Latitude 35.8818833

Longitude -97.5818167

Date collected(latitude and longitude), if different from date the well was drilled: 10/20/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name GETR-BA1-01-MW3

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 10/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 24 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 4 ft

2) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 4 ft to 14 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 14 ft to 24 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 4 ft to 24**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 4 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	24	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: GETR-BA1-01-MW03

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184589

					X

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-NE Section 12 Township 16N Range 04WI

Latitude <u>35.8855833</u>	Longitude <u>-97.5715167</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>10/13/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name GWI-BA1-01-MW01

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 10/13/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 26 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 6 ft

2) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 6 ft to 16 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 16 ft to 26 ft.

FILTER PACK INFORMATION

Filter Pack Material: Coarse Gravel

Filter Pack Interval: From 6 ft to 26

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 6 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	26	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/18/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184588

					X

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-NE Section 12 Township 16N Range 04WI

Latitude <u>35.8854</u>	Longitude <u>-97.5709667</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>10/10/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name GWI-BA1-01-MW02

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 10/10/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 26 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 6 ft

2) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 6 ft to 16 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 16 ft to 26 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 6 ft to 26**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 6 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	26	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184581

«———— One Mile —————»
 Each square is 10-acres

Quarters NE-SW-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8818833</u>	Longitude <u>-97.5818167</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/14/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name GWI-UP1-01-MW01

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/14/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 30 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 0 ft to 20 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 30 ft.

FILTER PACK INFORMATION

Filter Pack Material: Coarse Gravel

Filter Pack Interval: From 6 ft to 30

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 6 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	30	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? No

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged n/a

Total Depth of well being plugged ft.

Was the well contaminated or was it plugged as though it was contaminated? n/a

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/a

Was the grout tremied? n/a

Backfilled with n/a

Backfilled from ft. to ft.

Grouted with n/a

Grouted from ft. to ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/18/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

WELL ID NUMBER: 184580

Legal Location
North

	X						

«———— One Mile —————»
Each square is 10-acres

Quarters NE-SW-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8818833</u>	Longitude <u>-97.5818167</u>
Date collected (latitude and longitude), if different from date the well was drilled: <u>11/16/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name GWI-UP1-01-MW02

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/16/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 30 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 0 ft to 20 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 30 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 6 ft to 30**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 6 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	30	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184579

		X					

Quarters SE-NW-NW

Section 12

Township 16N

Range 04WI

Latitude 35.88245

Longitude -97.5818

Date collected (latitude and longitude), if different from date the well was drilled: 11/21/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

«———— One Mile —————»

Each square is 10-acres

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name GW1-UP1-02-MW01

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/21/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 26 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 6 ft

2) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 6 ft to 16 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 16 ft to 26 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 6 ft to 26**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 6 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	26	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184584

X							

«———— One Mile —————»

Each square is 10-acres

Quarters NE-SW-NW

Section 12

Township 16N

Range 04WI

Latitude 35.8818833

Longitude -97.5818167

Date collected(latitude and longitude), if different from date the well was drilled: 11/02/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location ____

Well Name GWI-UP2-01-MW01

Water Rights #: ____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/02/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 30 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material Stainless Steel Casing Diameter 2 inches Casing From 0 ft to 20 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 30 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 6 ft to 30**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 6 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	30	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: Stainless Steel Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 30 ft.

FILTER PACK INFORMATIONFilter Pack Material: Coarse GravelFilter Pack Interval: From 6 ft to 30**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 6 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	30	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184590

		X					

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-NE-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8826167</u>	Longitude <u>-97.5784167</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/20/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name TMP-UP2-01

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 40 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 20 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 40 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 15.5 ft to 40**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 3 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 3 ft to 15.5 ft**TYPE OF COMPLETION:** Flush Mounted**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	40	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? NoAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/18/2018Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184602

		X					

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-NE-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8827333</u>	Longitude <u>-97.5784667</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/17/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name TMP-UP2-02

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/17/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 40 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 20 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 20 ft to 40 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 17.1 ft to 40**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 12.9 ftFilter Pack Seal Interval: From 12.9 ft to 17.1 ft**TYPE OF COMPLETION:** Flush Mounted**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	40	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged n/aTotal Depth of well being plugged ft.Was the well contaminated or was it plugged as though it was contaminated? n/aIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? n/aWas the grout tremied? n/aBackfilled with n/aBackfilled from ft. to ft.Grouted with n/aGrouted from ft. to ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018Comments: n/a

APPENDIX G – OWRB MONITOR WELL ABANDONMENT FORMS

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184722

					X

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-NE Section 12 Township 16N Range 04WI

Latitude <u>35.8858867</u>	Longitude <u>-97.5710961</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>01/21/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location
 Well Name 02W-29

Phone
 Zip 73044
 Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: Surface Pipe Diameter inches Surface Pipe From ft to ft

SCREEN OR PERFORATION INFORMATION

FILTER PACK INFORMATIONFilter Pack Material: **WELL SEAL INFORMATION**Type of Surface Seal n/a Surface Seal Interval: From n/a ft to n/a ftType of Annular Seal n/a Annular Seal Interval: From n/a ft to n/a ftFilter Pack Seal Material n/a Filter Pack Seal Interval: From n/a ft to n/a ftTYPE OF COMPLETION: **HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
no lithological description obtained			

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/a Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a Distance of Well is n/a from possible source. Type of possible source: n/a **PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/15/2017 Total Depth of well being plugged 20.2 ft.Was the well contaminated or was it plugged as though it was contaminated? No If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? Yes Was the grout tremied? Yes Backfilled with Native Materials Backfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement Grout Grouted from 3 ft. to 13 ft.Grouted with Cement Grouted from 13 ft. to 20.2 ft.Firm Name CASCADE DRILLING LP D/PC No. DPC-0894 Operator Name CURTIS WRIGHT OP No. OP-2021 Date 01/23/2018

Comments: 13ft - 20.2ft was filled with bent. chips

FILTER PACK INFORMATIONFilter Pack Material: **WELL SEAL INFORMATION**Type of Surface Seal n/a Surface Seal Interval: From n/a ft to n/a ftType of Annular Seal n/a Annular Seal Interval: From n/a ft to n/a ftFilter Pack Seal Material n/a Filter Pack Seal Interval: From n/a ft to n/a ftTYPE OF COMPLETION: **HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
no lithological description obtained			

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/a Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a Distance of Well is n/a from possible source. Type of possible source: n/a **PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/15/2017 Total Depth of well being plugged 20.2 ft.Was the well contaminated or was it plugged as though it was contaminated? No If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? Yes Was the grout tremied? Yes Backfilled with Native Materials Backfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement Grout Grouted from 3 ft. to 13 ft.Grouted with Cement Grouted from 13 ft. to 20.2 ft.Firm Name CASCADE DRILLING LP D/PC No. DPC-0894 Operator Name CURTIS WRIGHT OP No. OP-2021 Date 01/23/2018

Comments: 13ft - 20.2ft was filled with bent. chips

FILTER PACK INFORMATION

Filter Pack Material:

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal n/a

Annular Seal Interval: From n/a ft to n/a ft

Filter Pack Seal Material n/a

Filter Pack Seal Interval: From n/a ft to n/a ft

TYPE OF COMPLETION:

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
no lithological description obtained			

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged 11/16/2017

Total Depth of well being plugged 18.7 ft.

Was the well contaminated or was it plugged as though it was contaminated? No

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? Yes

Was the grout tremied? Yes

Backfilled with Native Materials

Backfilled from 0 ft. to 3 ft.

Grouted with Bentonite/Cement Grout

Grouted from 3 ft. to 13 ft.

Grouted with Cement

Grouted from 13 ft. to 18.7 ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/23/2018

Comments: 13ft - 18.7ft was filled with bent. chips

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 20 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 20 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location
 North

WELL ID NUMBER: 184642

	X				

«———— One Mile —————»
 Each square is 10-acres

Quarters NW-NE-SW

Section 12

Township 16N

Range 04WI

Latitude 35.87855

Longitude -97.5793667

Date collected (latitude and longitude), if different from date the well was drilled: 11/29/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name CDW-1A

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 45 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 45 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 14.5 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 14.5 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 7 ft to 31

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 7 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged 11/29/2017

Total Depth of well being plugged 39 ft.

Was the well contaminated or was it plugged as though it was contaminated? No

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? No

Was the grout tremied? Yes

Backfilled with Native Materials

Backfilled from 0 ft. to 3 ft.

Grouted with Bentonite/Cement Grout

Grouted from 3 ft. to 39 ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT

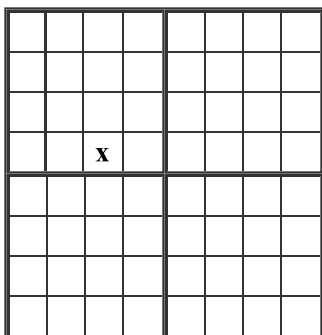


Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184633



«———— One Mile —————»

Each square is 10-acres

Quarters SW-SE-NW

Section 12

Township 16N

Range 04WI

Latitude <u>35.8791667</u>	Longitude <u>-97.5783667</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/29/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name CDW-3

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aType of Annular Seal Cement GroutFilter Pack Seal Material Bentonite Granules/ChipsSurface Seal Interval: From n/a ft to n/a ftAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 14 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 14 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 35 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 35 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184628

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-SE-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8794167</u>	Longitude <u>-97.5800333</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/27/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name CDW-4

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/27/2017Total Depth of well being plugged 14 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 14 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location
 North

WELL ID NUMBER: 184624

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-SE-NW Section 12 Township 16N Range 04WI

Latitude <u>35.8794167</u>	Longitude <u>-97.5800333</u>
Date collected(latitude and longitude), if different from date the well was drilled: <u>11/29/2017</u>	
Method latitude and longitude was collected: <u>GPS - corrected data (WAAS)</u>	

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name CDW-4A

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 54 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 54 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

WELL ID NUMBER: 184622

Legal Location

North

«———— One Mile —————»

Each square is 10-acres

Quarters SW-SE-NW

Section 12

Township 16N

Range 04WI

Latitude 35.8795667

Longitude -97.5783667

Date collected(latitude and longitude), if different from date the well was drilled: 11/29/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone _____

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location _____

Well Name CDW-5

Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 15 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 15 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATION

Filter Pack Material: Sand 10-20 (coarse)

Filter Pack Interval: From 7 ft to 31

WELL SEAL INFORMATION

Type of Surface Seal n/a

Surface Seal Interval: From n/a ft to n/a ft

Type of Annular Seal Cement Grout

Annular Seal Interval: From 0 ft to 2 ft

Filter Pack Seal Material Bentonite Granules/Chips

Filter Pack Seal Interval: From 2 ft to 7 ft

TYPE OF COMPLETION: Above Ground

HYDROLOGIC INFORMATION

Depth to water at time of drilling ft

Estimated yield of well gpm

First water zone ft

LITHOLOGY DESCRIPTION

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTION

Has this well been disinfected after completion of work? n/a

Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a

Distance of Well is n/a from possible source. Type of possible source: n/a

PLUGGING INFORMATION

Date Well or Boring Was Plugged 11/29/2017

Total Depth of well being plugged 43 ft.

Was the well contaminated or was it plugged as though it was contaminated? No

If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? No

Was the grout tremied? Yes

Backfilled with Native Materials

Backfilled from 0 ft. to 3 ft.

Grouted with Bentonite/Cement Grout

Grouted from 3 ft. to 43 ft.

Grouted with Cement

Grouted from ft. to ft.

Firm Name CASCADE DRILLING LP

D/PC No. DPC-0894

Operator Name CURTIS WRIGHT

OP No. OP-2021

Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 14 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 14 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
 3800 North Classen Boulevard
 Oklahoma City, OK 73118
 Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184616

«———— One Mile —————»
 Each square is 10-acres

Quarters SW-SE-NW **Section** 12 **Township** 16N **Range** 04WI

Latitude 35.8795667 Longitude -97.5796333

Date collected(latitude and longitude), if different from date the well was drilled: 11/29/2017

Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux
 Address/City/State 100 N. Hwy 74 Guthrie OK
 Finding Location _____
 Well Name CDW-6A

Phone _____
 Zip 73044
 Water Rights #: _____

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017
 Number of wells or borings represented by this log 1
 * (Borings are within the same 10 acre-tract and with the same general depths and lithologies)
 Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft
 1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 54 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 54 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

MULTI-PURPOSE WELL COMPLETION & PLUGGING REPORT



Oklahoma Water Resources Board
3800 North Classen Boulevard
Oklahoma City, OK 73118
Telephone (405) 530-8800

Legal Location

North

WELL ID NUMBER: 184615

Grid map showing a 10x10 grid with an 'X' in the 2nd row, 2nd column from the top-left corner.

«———— One Mile —————»

Each square is 10-acres

Quarters SW-SE-NW

Section 12

Township 16N

Range 04WI

Latitude 35.87995 Longitude -97.5796167
Date collected(latitude and longitude), if different from date the well was drilled: 11/29/2017
Method latitude and longitude was collected: GPS - corrected data (WAAS)

County Logan

Variance Request No. (if applicable) n/a

WELL OWNER - NAME AND ADDRESS

Well Owner Jeff Lux

Phone

Address/City/State 100 N. Hwy 74 Guthrie OK

Zip 73044

Finding Location

Well Name CDW-7

Water Rights #:

TYPE OF WORK: Monitoring Well

USE OF WELL: Site Assessment

NEW WELL CONSTRUCTION DATA

Date Well or Boring Was Completed 11/20/2017

Number of wells or borings represented by this log 1

* (Borings are within the same 10 acre-tract and with the same general depths and lithologies)

Hole Diameter 6 inches to a depth of 31 ft.

CASING INFORMATION *Note: If surface casing is used please indicate that on the appropriate well casing information line.

Surface Pipe Material: PVC / Plastic Surface Pipe Diameter 2 inches Surface Pipe From -3 ft to 0 ft

1) Well Casing Material PVC Casing Diameter 2 inches Casing From 0 ft to 11 ft

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 16.2 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 16.2 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

SCREEN OR PERFORATION INFORMATION

Type of Screen: PVC Type of Slots or Openings: Factory Slotted - 10 slot (0.010 inch) From 11 ft to 31 ft.

FILTER PACK INFORMATIONFilter Pack Material: Sand 10-20 (coarse)Filter Pack Interval: From 7 ft to 31**WELL SEAL INFORMATION**Type of Surface Seal n/aSurface Seal Interval: From n/a ft to n/a ftType of Annular Seal Cement GroutAnnular Seal Interval: From 0 ft to 2 ftFilter Pack Seal Material Bentonite Granules/ChipsFilter Pack Seal Interval: From 2 ft to 7 ft**TYPE OF COMPLETION:** Above Ground**HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
none	0	31	N

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/aAre there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/aDistance of Well is n/a from possible source. Type of possible source: n/a**PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/29/2017Total Depth of well being plugged 55.2 ft.Was the well contaminated or was it plugged as though it was contaminated? NoIf the well or boring was plugged as if it was contaminated, was the casing removed or perforated? NoWas the grout tremied? YesBackfilled with Native MaterialsBackfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement GroutGrouted from 3 ft. to 55.2 ft.Grouted with CementGrouted from ft. to ft.Firm Name CASCADE DRILLING LPD/PC No. DPC-0894Operator Name CURTIS WRIGHTOP No. OP-2021Date 01/19/2018

Comments: n/a

FILTER PACK INFORMATIONFilter Pack Material: **WELL SEAL INFORMATION**Type of Surface Seal n/a Surface Seal Interval: From n/a ft to n/a ftType of Annular Seal n/a Annular Seal Interval: From n/a ft to n/a ftFilter Pack Seal Material n/a Filter Pack Seal Interval: From n/a ft to n/a ft**TYPE OF COMPLETION:** **HYDROLOGIC INFORMATION**Depth to water at time of drilling ftEstimated yield of well gpmFirst water zone ft**LITHOLOGY DESCRIPTION**

MATERIAL	ENCOUNTERED		SATURATED
	FROM (ft.)	TO (ft.)	
no lithological description obtained			

WELL LOCATION TO POTENTIAL SOURCES OF POLLUTIONHas this well been disinfected after completion of work? n/a Are there any potential sources of pollution or wastewater lagoons within 300 ft. of the well? n/a Distance of Well is n/a from possible source. Type of possible source: n/a **PLUGGING INFORMATION**Date Well or Boring Was Plugged 11/15/2017 Total Depth of well being plugged 23 ft.Was the well contaminated or was it plugged as though it was contaminated? No If the well or boring was plugged as if it was contaminated, was the casing removed or perforated? Yes Was the grout tremied? Yes Backfilled with Native Materials Backfilled from 0 ft. to 3 ft.Grouted with Bentonite/Cement Grout Grouted from 3 ft. to 13 ft.Grouted with Cement Grouted from 13 ft. to 23 ft.Firm Name CASCADE DRILLING LP D/PC No. DPC-0894 Operator Name CURTIS WRIGHT OP No. OP-2021 Date 01/23/2018

Comments: 13ft - 23ft was filled with bent. chips

APPENDIX H – MONITOR WELL ABANDONMENT PHOTO LOG



Photo 1: Tremie grouting monitor well



Photo 2: Removal of monitor well



Photo 3: Enercon scanning equipment and removed monitor well for radiological activity



Photo 4: Area backfilled after monitor well removal

APPENDIX I – GWI-BA1-01 CONSTRUCTION PHOTO LOG



Photo 1: Working platform for GETR-BA1-01



Photo 2: Excavating GETR-BA1-01



Photo 3: Excavating GETR-BA1-01



Photo 4: Excavating GETR-BA1-01



Photo 5: Backfilling GETR-BA1-01 with trench gravel



Photo 6: GETR-BA1-01



Photo 7: Backfilling GETR-BA1-01 with trench gravel transporting slurry to frac tanks



Photo 8: Circulating slurry breaking agent in GETR-BA1-01



Photo 5: Placing geotextile in GETR-BA1-01



Photo 6: Backfilled GETR-BA1-01

APPENDIX J – GETR-BA1-01 CONSTRUCTION PHOTO LOG



Photo 1: Excavating GWI-BA1-01



Photo 2: Backfilling GWI-BA1-01 with trench gravel



Photo 3: Excavating GWI-BA1-01



Photo 4: Backfilling GWI-BA1-01 with trench gravel



Photo 5: Confirming depth of GWI-BA1-01



Photo 6: Backfilling GWI-BA1-01 with trench gravel



Photo 7: Placing geotextile in GWI-BA1-01



Photo 8: Backfilled GWI-BA1-01

APPENDIX K – GWI-UP2-01 CONSTRUCTION PHOTO LOG



Photo 1: Excavating GWI-UP2-01



Photo 2: Excavating GWI-UP2-01



Photo 3: Confirming depth of GWI-UP2-01



Photo 4: Side walls of GWI-UP2-01



Photo 5: Installing Geosynthetic Clay Liner on the south wall of GWI-UP2-01



Photo 6: Installing Geosynthetic Clay Liner on the south wall of GWI-UP2-01



Photo 7: Pressure washing the north wall of GWI-UP2-01 from Station 4+00 to Station 4+75



Photo 8: Backfilling GWI-UP2-01 with trench gravel



Photo 5: Placing geotextile in GWI-UP2-01



Photo 6: Backfilling GWI-UP2-01 with native material

APPENDIX L – GWI-UP1-01-02 CONSTRUCTION PHOTO LOG



Photo 1: Excavating GWI-UP1-01



Photo 2: Junction of GWI-UP1-01 and GWI-UP1-01



Photo 3: Excavating GWI-UP1-01



Photo 4: Side walls of GWI-UP1-01



Photo 5: Excavated GWI-UP1-01



Photo 6: Backfilling GWI-UP1-01 with native material



Photo 7: Backfilling GWI-UP1-01 with native material



Photo 8: Backfilled GWI-UP1-01



Photo 1: Excavating GWI-UP1-01



Photo 2: Junction of GWI-UP1-01 and GWI-UP1-01



Photo 3: Excavating GWI-UP1-01



Photo 4: Side walls of GWI-UP1-01



Photo 5: Excavated GWI-UP1-01



Photo 6: Backfilling GWI-UP1-01 with native material



Photo 7: Backfilling GWI-UP1-01 with native material



Photo 8: Backfilled GWI-UP1-01



Photo 1: Non-native material identified in GWI-UP1-02

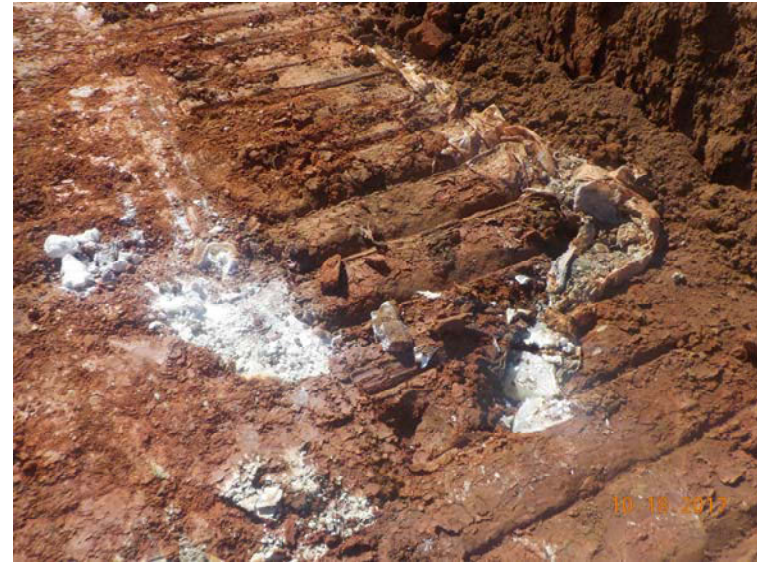


Photo 2: Non-native material identified in GWI-UP1-02



Photo 3: Concrete removed from GWI-UP1-02



Photo 4: Staging area for potentially impacted materials



Photo 5: Excavating GWI-UP1-02



Photo 6: Backfilling GWI-UP1-02 with trench gravel



Photo 7: Backfilling with trench gravel and excavating GWI-UP1-02



Photo 8: Excavating GWI-UP1-02



Photo 9: Placing geotextile in GWI-UP1-02



Photo 10: Backfilling GWI-UP1-02 with native material



Photo 11: Backfilled GWI-UP1-02



Photo 1: Non-native material identified in GWI-UP1-02



Photo 2: Non-native material identified in GWI-UP1-02



Photo 3: Concrete removed from GWI-UP1-02



Photo 4: Staging area for potentially impacted materials



Photo 5: Excavating GWI-UP1-02



Photo 6: Backfilling GWI-UP1-02 with trench gravel



Photo 7: Backfilling with trench gravel and excavating GWI-UP1-02



Photo 8: Excavating GWI-UP1-02



Photo 9: Placing geotextile in GWI-UP1-02



Photo 10: Backfilling GWI-UP1-02 with native material



Photo 11: Backfilled GWI-UP1-02

APPENDIX M – 1206 CLEARING PHOTO LOG



Photo 1: SWPPP BMP installation



Photo 2: Clearing and grubbing



Photo 3: Clearing and grubbing



Photo 4: Clearing and grubbing



Photo 5: Seed and erosion control mats



Photo 6: Seed and erosion control mats