June 8, 2020

Mr. Chris Holmes
New Mexico Environment Department
Petroleum Storage Tank Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Re: Horizontal Well Installation Report
Atex 394, Pino Fina, and Ross Texaco Sites, Las Vegas, New Mexico
Facility #26519/29980/1866, Release ID #817/879/719, WPID #4137/4138/4139

Dear Mr. Holmes:

Daniel B. Stephens & Associates, Inc. (DBS&A) is pleased to submit this report documenting the installation of the horizontal well at the above-referenced site located in Las Vegas, New Mexico. These activities were described in the final remediation plan (FRP) implementation work plan approved by the New Mexico Environment Department (NMED) Petroleum Storage Tank Bureau (PSTB) on April 10, 2020. Field notes and photographs documenting field activities related to the work described herein are provided in Attachments 1 and 2, respectively. The well was permitted by the New Mexico Office of the State Engineer, and the approved permit is included as Attachment 3.

One horizontal groundwater extraction well was completed at the site from May 12 through 26, 2020 (Figure 1). Directional drilling and horizontal well installation were conducted by Ellingson-DTD (DTD), of Bellefonte, Pennsylvania, and overseen by DBS&A technical staff. The horizontal well was constructed of 6-inch-diameter, 0.025-inch machine-cut, slotted, high density polyethylene (HDPE) screen (Attachment 2, Photograph 17 and 18). The well has 260 feet of well screen. The 1.5-inch-long slots (pipe interior dimension) were cross-cut and spaced in three rows approximately 120 degrees apart (around the pipe diameter). Due to difficult drilling conditions below the water table, the well was drilled deeper than planned in order to keep the well at least 20 feet below ground surface (bgs). The top of the shale was very hard and broke up into rock fragments. The condition of the top of the shale, combined with softer soils in the vadose zone, limited the ability of the directional drill rig to maintain depth. These difficult drilling conditions consistently pushed the drill bit up, and eventually threatened to push well screen above the water table. The driller compensated by drilling slightly deeper to drill into the shale instead of on the top of the shale which allowed the drill bit to maintain depth. The screened portion of the well is at depths of approximately 22 to 25 feet bgs.

Due to the difficult drilling conditions described above, the well boring was drilled using two drilling rigs and a variety of tooling, including a single roller cone drill bit, a 4.5-inch rock bit, and a 5.5-inch tricone bit (Attachment 2, Photographs 3 through 7). To minimize formation damage for planned remediation activities and to control the temperature of the drill bit, Bio-bore™, a biodegradable horizontal directional drilling fluid, was used to improve borehole stability during well installation (Attachment 2, Photograph 9). The drilling fluid concentrate was mixed with water obtained from the City of Las Vegas Water Division through a fire hydrant and hydrant meter located on Douglas

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6020 Academy Rd. NE, Suite 100 505-822-9400
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Avenue, south of the site (Attachment 2, Photograph 10). In order to minimize project water consumption and generated drilling waste, an on-site mud recycling system was used. Drilling waste was collected in roll-off mud boxes provided and transported by Gandy Marley of Roswell, New Mexico (Attachment 2, Photograph 11). A total of two mud boxes were used throughout the course of the drilling program.

Entry and exit pits were used to contain drilling fluids (Attachment 2, Photograph 2). The horizontal well entry pit was located on the property of the former Quality Motor Company. Well entry and exit riser (blank casing) lengths were 94 and 103 feet, respectively. The horizontal well exit pit was located on the northwest corner of the Ross Texaco property, as indicated in the FRP and on Figure 1. The exit pit was covered with trench plates, as additional work at the site will not continue until the week of June 15, 2020 (Attachment 2, Photograph 30). The entry pit, which is located on a fenced piece of private property, was covered with plywood and barricaded with traffic control and caution tape.

Following drilling of the pilot hole, the well was reamed with an 8-inch-diameter reamer bit from the exit back to the entry point (Attachment 2, Photograph 16). The pilot hole tooling was then run back through to the exit point where the reamer was reattached followed by the well materials (Attachment 2, Photographs 22 and 23).

Following installation of the well materials, the well was developed by jetting a solution of water mixed with Cetco LEB-CD, a liquid enzyme breaking solution, through the entire length of the well screen (Attachment 2, Photograph 24 and 25). Well development is described in more detail in the final report from DTD (Attachment 4). The well annulus above the well screen was tremmie-grouted using a cement-bentonite grout with the tremmie pipe placed at approximately 15 feet inside the annulus (Attachment 2, Photograph 26). A temporary polyvinyl chloride (PVC) slip cap was installed at each end of the well until permanent surface completions are installed (Attachment 2, Photographs 28 and 29) The installed well profile is shown in the final report from DTD (Attachment 4), which will also be included as an appendix in the as-built report.

This report constitutes the deliverable for Deliverable ID numbers 4137-2, 4138-2, and 4139-2. DBS&A intends to invoice the full approved amounts for this work.

Please contact us at (505) 822-9400 if you have any questions or require additional information.

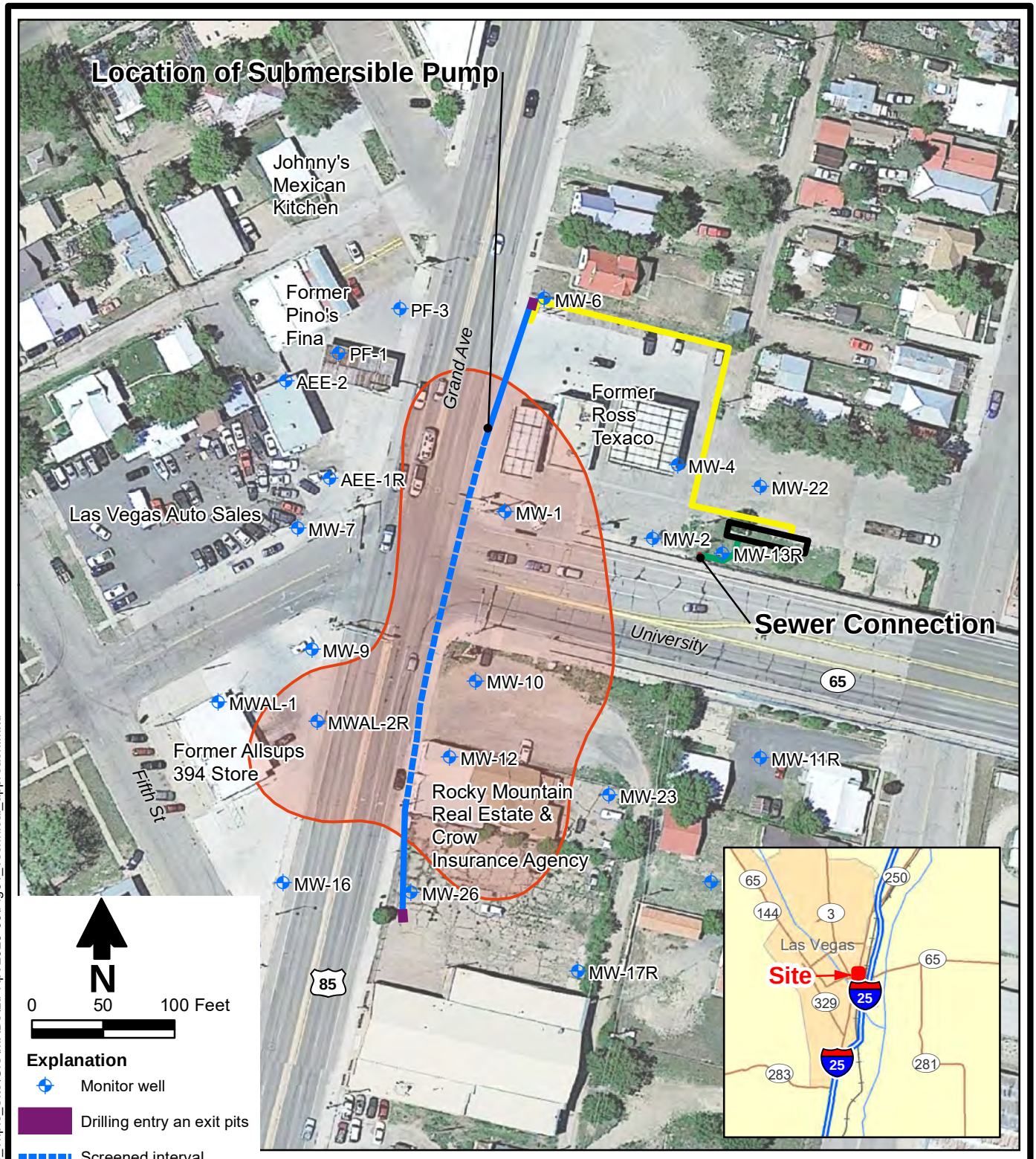
Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Thomas Golden, P.E.	Patrice Feltman, P.G.	Amy Ewing, P.G.
Project Engineer	Project Geologist	Hydrogeologist

PF/TG/ed
Attachment
cc: Katherine MacNeil, NMED PSTB

Figure



Source: Google Earth May 2019

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ATEX 394 (ALLSUP'S), PINO FINA, AND ROSS TEXACO

Installed Horizontal Well

Daniel B. Stephens & Associates, Inc.

6/4/2020

JN DB18.1277

Figure 1

Attachment 1

Field Notes

5/2/20 PMF

0645 PMF onsite
Gate unlocked; site clear of obstruction.
0655 DTD Crew onsite.
0715 Roll off onsite
Begin setting up.
1015 Begin digging pit for entry
1200 PMF offsite while DTD crew goes to Sundate to get generator & water Buffalo
1500 PMF onsite, generator onsite; United Rentals would not let DTD pull the water Buffalo w/ the small truck they have.
1645 Rig mobilized to the site.
1700 PMF & DTD Crew offsite gate secured.

PMF 5/2/20

5/13/20 PLF

0700 PLF & DTD onsite
Tailgate safety meeting.
0720 Continue setting up.
*NOTE: Equipment onsite:
United Rentals: Generator
Sky Trak fork lift 8042
Bobcat trackhoe E26
Water Trailer
DTD: Vermeer D24X40A
Mud mixer trailer
0835 Call to Jodi @ Las Vegas Utilities
We do not need to have a deposit. She will email me a form to fill out to set up the account and they will bill us for the water usage.
1015 Begin drilling.
1855 At approximately 120' the formation keeps trying to kick the drill string up. They are tripping out to change to a different bit that will have less trouble with that.

5/13/20 PLF

1320 ~~Beg~~ Resume drilling
1354 Mud system died.
* The generator shut down several alarms.
1415 Generator back up & running. Resume drilling.
1445 They are still fighting to stay @ 20' Coldenside is to keep pushing downward as deeper is better, but it is ok to ~~keep~~ try pushing past some difficult areas (especially since we will ream w/ 8" or 10" bit which will gain us some depth.
1525 Generator down again.
1615 The hole continues to lose depth (@ ~19' @ 120' length)
1630 PLF offsite

PLF
5/13/20

5/14/20

1230 M. Zbozek onsite w/ DTD Drilling - crew picked up HDPE in Albuquerque to fuze onsite in preparation for arrival of new rig.

1300 Begin Fuzing Pipe
Fuzing machine onsite
- IPS 6" DR11 - 20' 2¼
Also onsite
- IPS 6" SDR11 Machine cut 0.02" slot

1400 4 x 20Ft stands of Blank riser fuzed ~80 Ft.

1435 120 Ft (6 x 20Ft Blank)
Begin Fuzing Slotted Screen.
Fusing temp 450°
All Blank had interior Bead removed

1500 James expressed some concern of Southend riser length reviewed plans to confirm lengths.

1600 5 x 20Ft screen Fused
Total length 220 Ft (120 Blank + 100 Screen)

1630 DTD Begins to secure site + Tools.

1645 DTD + M. Zbozek offsite

5/14/20

PHOTO LOG

1. Measured Blank HDPE length
2-3 HDPE - Pipe stamp details
4 HDPE - Horizontal Slot
5 HDPE - Horizontal Slot measurement
6 HDPE - Diameter
7 HDPE - Thickness.
8 Unloading Blank riser to Fuse - View S
9. Heating HDPE 450°
10. Setup to Fuse Slotted HDPE
11. STAMP on Slotted Screen HDPE
12-13 VIEW E Fusing pipe
14 - Pipe wrapping around lot View NW

5/13/20 Horizontal Well

0700 DTD onsite w/ M. Zbrotek
Tailgate safety meeting
Discuss HDPE Hazards

0715 GM Inc Rolloff onsite at crosscoads gas station
Placed In front of DTD Tool trailer Parallel to University.

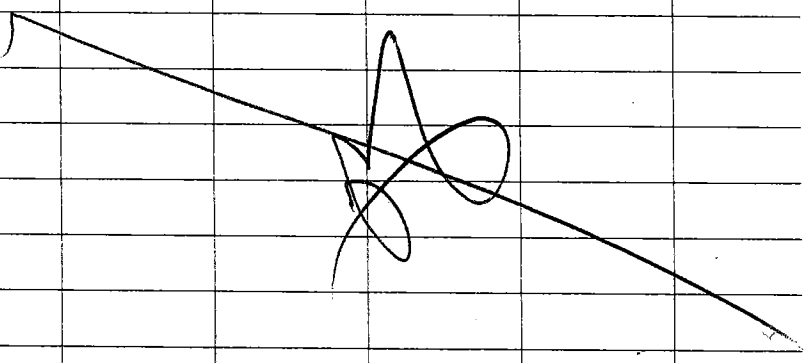
0820 Fusing Blank HDPE 240 screen

930 continue fusing Blank

1145 Finished Fusing HDPE 120' ft Blank casing

1225 Crew Securing site preparing to Rig to Watrous to assist while Waiting For Rig

1235 ~~DTD~~ OFFSITE



5/18/20 PH

0700 PH & DTD Crew onsite
Tailgate Safety meeting
Crew will continue setup of rig.

0915 Resume drilling w/ new rig.

1020 horizontal well @ ~120'
(Where we Stopped on 5/13)

1120 They are drilling slowly to try to gain some depth at the point where they Kicked up on Wed. 5/13. The dual rod rig should help with that because the bit turns with the inner rod independantly of the outer rod allowing better control.

1200 Rental Generator down again
* Call to United Rentals for service

1245 Resume drilling.

1630 the hole is @ 17.5' bgs
the rods have been going up @ 4% for 3 rods.
* Call to Tom to discuss how deep they can go.

5/18/20 PNF

* Cont: He is not concerned about too deep as much as shallow. They will trip back to the last time they were @ 19.75' bgs to try to go deeper and bite into the shale.
* The Clayey sand has also eaten most of their mud.

1750 The well is @ 21' bgs and into the rock
1820 PNF & DTD offsite.

PNF 5/18/20

5/19/20 PNF

0700 PNF onsite; DTD onsite
Tailgate Safety meeting
0805 Pump down on rig / drilling stopped. They will take the drive motor & pump from the other rig and bypass the one on the Ditch Witch to continue drilling.
0915 United rentals onsite to replace generator.
1000 Resume drilling.
1520 Jason Y. reports that the bit kicked out to the left and is on the curb/skirt but they have corrected and are coming back to the sidewalk.
* Signal in Street @ ~ 130'
1740 PNF offsite
180 ft of hole @ 20'

PNF 5/19/20

5/20/20

0655 PMF & DTD onsite
Tailgate Safety meeting.
0815 Tripped out drill string to grease motor for bit.
0820 Tripping back in
1730 Drilled to ~300' (Across the intersection)
1745 PMF off site; DTD off site

PMF 5/20/20

5/21/20 PMF

0700 PMF & DTD onsite
Tailgate Safety meeting.
0710 Check drawings and walk end path to double check length to end and the blank for the pump.
0800 Changing out rack & rods
1115 electrical box smoking on the mud rig. Shut down
1125 Resume work.
1440 Driller reports that the angle is short right now due to the hard layer he will try to make up the angle when he gets to the sediment above.
1710 PMF & DTD off site

PMF

5/22/20 PNF

0655 PNF + DTD ~~offsite~~ onsite
Tailgate Safety meeting
0710 Move to North end to cut and excavate exit.
0830 Move exit roll off into position.
0910 EB onsite
Begin excavating concrete.
1010 Amy E., Jeff S., J. Golden, Heather onsite; H&S briefing.
105 Drill String located
They will NOT daylight in the yard of the vacant house next door.
10:45 Prepping to ream borehole. check with driller = deburr casing inside? pipe tally? / add section of pipe. cap for casing? No clue, no tape.
11:20 Begin reaming, pulling drill pipe back through borehole.
11:30 SW safety onsite to deliver steel plates.
12:00 Amy, Tom + Jeff (DBSA) offsite
12:45 Patrice offsite.

5/22/20 Casing Tally EB

Pipe #	length (ft)	total (ft)	type
South 1	13.70	13.70	Blank 6" HDPE
2	20.05	33.75	"
3	20.12	53.87	"
4	20.09	73.96	"
5	20.10	94.06	Blank
6	20.10	114.16	Screen 0.02 slot HDPE
7	20.10	134.26	add extra screen 5 ft
8	20.06	154.32	
9	20.11	174.43	
10	20.12	194.55	
11	20.10	214.65	
12	20.11	234.76	
13	20.14	254.90	
14	20.11	275.01	
15	20.13	295.14	
16	20.13	315.27	
17	20.07	335.34	screen total = 172.4 ft
18	20.20	355.54	
19	20.10	375.64	Blank
20	20.32	396.96	
21	20.23	417.19	
22	20.06	436.25	
23	20.11	436.36	
North 24	26.33	462.69	North blank 127.15 ft

[2 joints] total = 482.15 ft. + off 11.5' + 13.0' = 458.2 ft

5/22/20 Horizontal Well Drilling EB

13:20 Reaming continues, MUd is pooling at south end, crew transfer drilling fluid to recycle in tank on south end.

14:00 still reaming.

14:45 19 joints out of the hole Crew pumping drilling Fluid out of North side of borehole.

15:30 Crew ~~works on rig~~, stopped loads pipe to trailer, reaming. sheen observed in drilling fluid. [Exchanged rack of pipe]

16:15 Resume pulling drill pipe out of the hole [pipe coming from N → S] Heather offsite.

17:30 ~~Trouble~~ drill rod rack. Unload + load ditch Witch. North end daylight borehole is covered with steel plates.

17:45 Stop for the day. 29 joints out of the hole.

17:50 secure site. DTD / DBSA offsite. Gate locked

EB 5/22/20

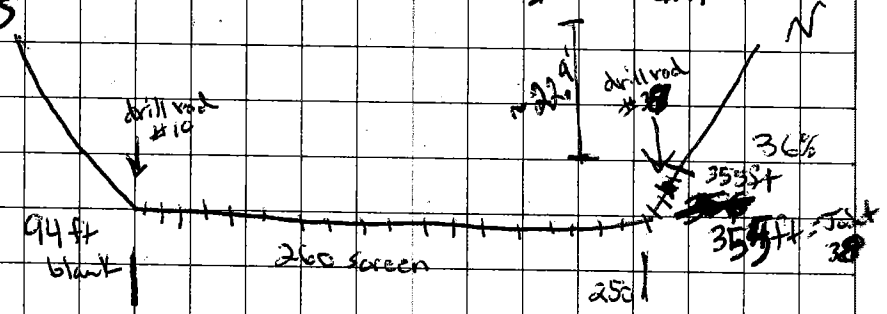
5/23/20 EB

6:50 Onsite. DTD crew setup and ready Tailgate safety meeting w/crew discussed Rod rack safety.

7:00 Begin reaming N-S. ~~from~~ 271 ft out of hole. ~177 ft to pull today total drill pipe = 457.84 ft

		Driller
S entry	- 94'	94
Horizontal	- ~~243~~ 261'	260
N exit	- 112' ~~84~~ 127	126
	482	480

★ need to cutoff ~~25~~ ft blank



N Blank from end is joint 38, + ~~0.5~~ 0.11 pitch depth 22.9 ft

S Blank from end is joint 10, -0.1 18.9 ft

8:20 confirm w/T. Golden to add the extra 20 ft of screen.

Also, Charlie (DTD) informs me that the owner of the adj. lot where pipe is staged asked questions. Seeing OK with usage as long as short term

5/23/20 Horizontal Well Ream EB

8:30 DTD crew fuses extra 20' screen section.
DTD confirmed that they removed the burrs on the inside of all the blanks (not the screen).

9:10 Reaming complete. 8" bit at (TCI-8" bit) southern surface.

9:30 Call w/ T. Golden. Confirm screen location at drill joint 10 – 38. Need ~25 ft of blank cutoff.

9:50 Begin tripping back into borehole with pilot tool (+6 in)

10:45 change out drill rod rack. (pilot tool / sensor near north side intersect)

11:15 resume pass through w/ pilot / tool

12:07 daylight pilot tool. break collar and prepare to pull casing.

12:25 add TCI-8" reamer bit.

12:45 back digging exit location. Removed silt content

13:20 Begin ~~pull~~ installing well casing DTD will get temporary well cap before they leave.

13:38 Begin installing screen section. pull from south end. casing is held straight w/ 4 lift tines.

5/23/20 Horizontal Well Install EB.

14:10 exchange drill rod rack

14:25 resume casing install

15:10 Screen installed. continue installing blank casing

15:45 casing installed. Casing observed at south end, marked length of blank on North end is at the north side of the hole (ie exit location).

15:50 cover exit location with steel plates (3)

16:15 cut off a section casing to terminate pipe at exit point.
cut off = 11.5 ft.

16:30 Secure site / lock gate offsite

EB 5/23/20

5/24/20 Well Development EB

7:00 Onsite.
- fill Pit's?
- site general trash?
- bentonite vs concrete? jetting hours? Planning to run 3 passes (6 runs) 45 ft from the rig = washout zone (sand zone) wall cake held 2 hrs 800 gallons.
- Leave casing near surface ? will Environmentally be able to cut it

Equipment: VACTOR RAMJET

7:30 Project task run through and Health + Safety Meeting
Tasks today: cut casing

7:35 DTD clean Ditch Witch and setup for well development / jetting.

8:20 Begin flushing Well. w/ 800 gallons of fresh water, setup to Jet

8:50 Flush complete. ~~Begin Jetting.~~
Steve gives me threaded blind HDPE cap.
Jet: 3500 PSI ~~Water~~ pressure

9:15 Call with Tom Cudden, responses on next page

EB 5/24/20

5/24/20 EB

9:15 Tom: concrete is fine
leave pits open but covered. Cover both pits w/ trench plates
3 passes for Jetting is great.
DTD responsible for trash.

- Thread end cap with go to Tom's office.

9:15 Begin Jetting through screen zone 380 ~~400~~ ft of Jet hose. down borehole

9:23 600 gallons of water jetted
visual turbidity from purged water exiting pipe entrained back downhole.
install ~1 pint of LED-CD liquid Enzyme breaker.

9:30 Begin 2nd Pass w/ Jet ~~hose~~.
very turbid - dark chocolate milk

9:50 Pause jetting to connect hoses to pump discharged water from exit location pit to rolloff bin.

10:00 start 3rd pass - 900 gallons
Jet btw 100 - 400
down 20 mins for water refill + clean 5 micron filter.
Also digging more in pit.

5/24/20 Well Development EB

10:30 Resume jetting final full pass. Slower pass this time. No discharge out well casing.

~1200 gallons fresh water jetted into well.

10:45 Water discharging ~600 NTU (visual) greyish.

10:50 Begin pull back through well casing. final jetting pass.

South pit:
- ply wood ok
- Call property owner
- use cones + caution tape

11:20 call w/ T. Golden

11:30 DTD ~~completed~~ completed jetting ~1800 gallons of water used. 3 passes ~~made~~.

DTD sets up to grout well casing.

Tom Golden:
south end pit cover with ply wood, use SWS traffic cones and caution tape.

★ Call property owner to notify
- call port-o-potty on Tuesday morning for pickup
- take Hydro meter to Las Vegas City Gas Department

5/24/20 Casing Grout EB

11:35 trench btw exit pit location and well casing termination point on vacate lot.

11:40 DTD dug a trench and is attempting to slide 2 in tremie pipe down the side of the well casing. Using water to flush soil to try to push tremmie.

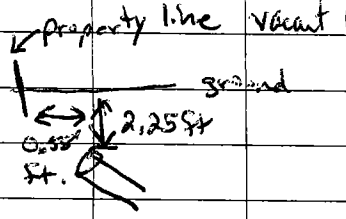
12:30 Review plans with James Ditto and call Tom Golden.
Plan is to grout ~10 ft along blank well casing to the dug pit. Casing will be cut at the property line. well casing is approximately 3ft deeper than designed. Well casing will be set next to ply wood so that we can backfill the trench and clean up the vacant lot.

12:45 cut pipe casing 0.58 ft

12:55 Depth to casing ~~1ft~~ from property line. Casing is ~~1~~ 7 inches. 2.25ft deep ~~Casing~~ Ground surface to well casing ground to well casing = 2.25 ft. South of property line = 7in = 0.58ft

5/24/20 Well Install/Grout EB

13:00 cut ply wood board + 2x4 wood to make border of property



13:15 Set up to grout.
Mix 2 - 94lb sacks quikcrete
couple scopes of type I/II
bentonite gel. 20 gallons grout w 5% bentonite

13:23 Install grout through tremie

13:25 Bentonite grout at surface at edge hole approximately 7.5ft south of property line.

13:30 Backfill vacant lot.
cover exit location with
3 steel plates

Note: Exit location is 12ft North of property line on vacant lot.

14:25 clean + secure North work area.
Cover soil mound

14:45 Load up smaller drill rig.

EB 5/24/20

Lingering items:
- temporary well caps.
- Cones + caution tape
- Roll off bins
- Port-o-pot
- Hydro Meter
- Patch road from drill rig

15:20 James (ODTD) says they stuffed the road on the edge as they moved the drill rig. He will pick up some asphalt for a patch.

15:30 Crew continues to pack up equipment. both North + south pits are secure. gate locked.

15:30 Called Grandy Marley Dispatch for rolloff bin pick-up. Scheduled for 10am Tuesday morning.

17:00 Trailer packed up / secure.

17:05 off site

EB 5/24/20

5/25/20 — Mob / Grout — EB

7:00 Onsite @ south side entry.

7:15 Tailgate Safety Meeting
Plan today: grout south side entry well casing and mob equipment.
- DTD may want to leave equipment onsite. Weather: cloudy, 55°F, raining.

7:20 empty mud tank into roll off bin

7:45 clean drill rig, into pit.

9:00 Ditch Witch JT30 power Washed
DTD crew power washes mud tank

11:30 Clean + pack up mud system
load up 2nd rack of drill Pipe onto trailer.

12:40 Install 3/8" Bentonite hole plug from opening at surface.

13:10 Bentonite seal installed
2 - bags - 50lbs each of 3/8" Hole plug. Installed @ 3 feet ths. in/around casing from surface.

13:15 Power Wash mud tank and other equipment.

14:00 Load up Jetting trailer on flat bed.

14:30 Load trash, finish jet washing equipment.

14:45 Cover South / entry location with ply-wood

5/25/20 — De Mob — EB

Items for Tuesday:
- Port-o-pot
- Roll off pickup
- ✓ Hydro meter to Vegas Gas company
- temporary cap
- SWS chain to lift trench plates.
- final photos of secure site.

15:00 James off to store / gone for day

15:30 collect water meter
Final Reading = 37153 gallons

16:00 Crew off to return rentals
gate locked / offsite

16:30 call w/ James, crew installed asphalt patch

EB 5/25/20

5/26/20 Demob EB

7:00 Onsite w/ James, Scott and Steve (DTD). James is headed to Santa Fe w/ equipment and Scott to ABQ w/ equipment + for airport drop. Scott to be back around 2pm and James to be back around 11/12pm. Equipment onsite. Ditch Witch, mud system, trailer flatbed trailer w/ jet vac system

8:30 Meet Las Vegas Water Dept Travis Herns w/ Hydrometer.

9:40 Grandy Marley onsite for roll off pickup.

10:35 ~~Isareal~~ (DBSA) onsite. - Vegas office ~~with~~ to get address for vacant lot east of crossroads gas (700 grand)

11:00 Grandy Marley offsite. 2 rolloffs picked up

12:20 Ditch Witch rig picked up.

12:30 Scott (DTD) Moves equipment Note: During rolloff pickup at south end about 20-30 gallons

5/26/20 EB

Spilled out of the rolloff bin. This will be clean during Enviroworks remediation system install.

12:35 Scott mobs rental backhoe and vac jet trailer.

13:00 Install 6" PVC well cap at south end (photo taken).

13:35 Install 6" PVC well cap at North end secure site.

14:00 JKS Holding LLC owner of 701 Railroad Ave vacant lot. owner of 700 Grand Ross family trust Ross oil company - JKS Holdings

14:30 Pick up deed from clerks office in Vegas. ~~Site~~ ~~Isareal~~ Israel offsite. Site secure / port-o-pot removed by Royball septic service

15:15 ~~offsite~~

EB 5/26/20

Attachment 2

Photographic Documentation

1. Digging the entry pit

2. Entry pit with pump for mud recycling system

ATEX 394 (ALLSUP'S), PINO FINA, AND ROSS TEXACO
LAS VEGAS, NEW MEXICO
Photographs

3. Drilling with Vermeer rig

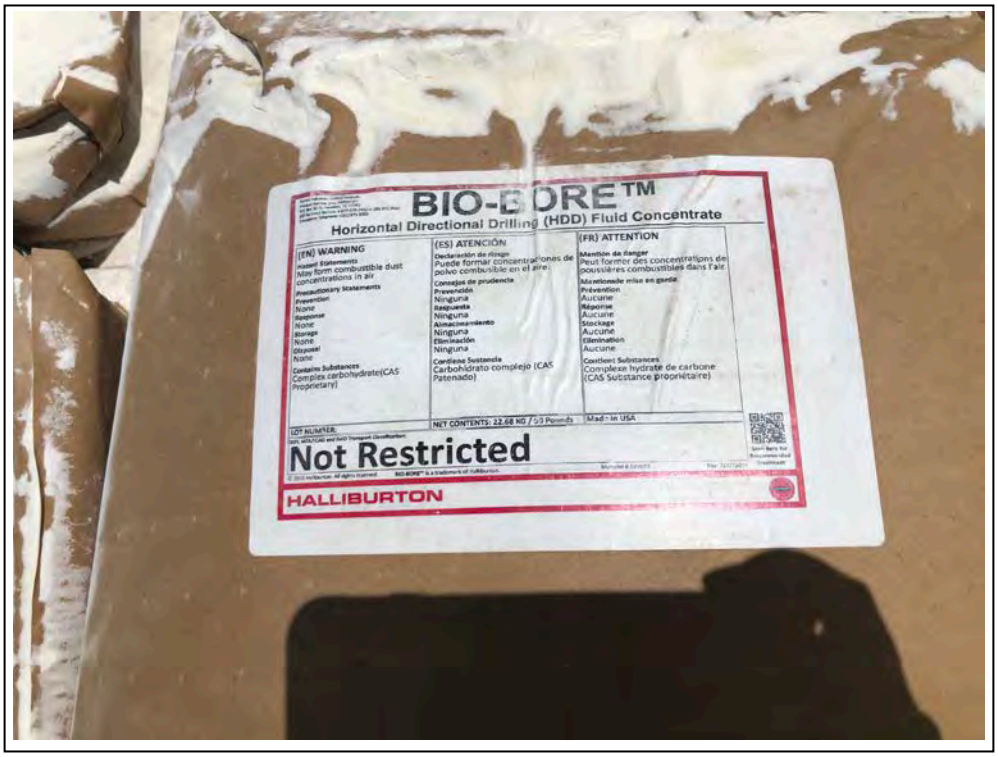
4. Single roller cone bit

5. Rock bit

6. Ditch Witch drill rig

7. Tricone bit and entry pit

8. Walkover locator



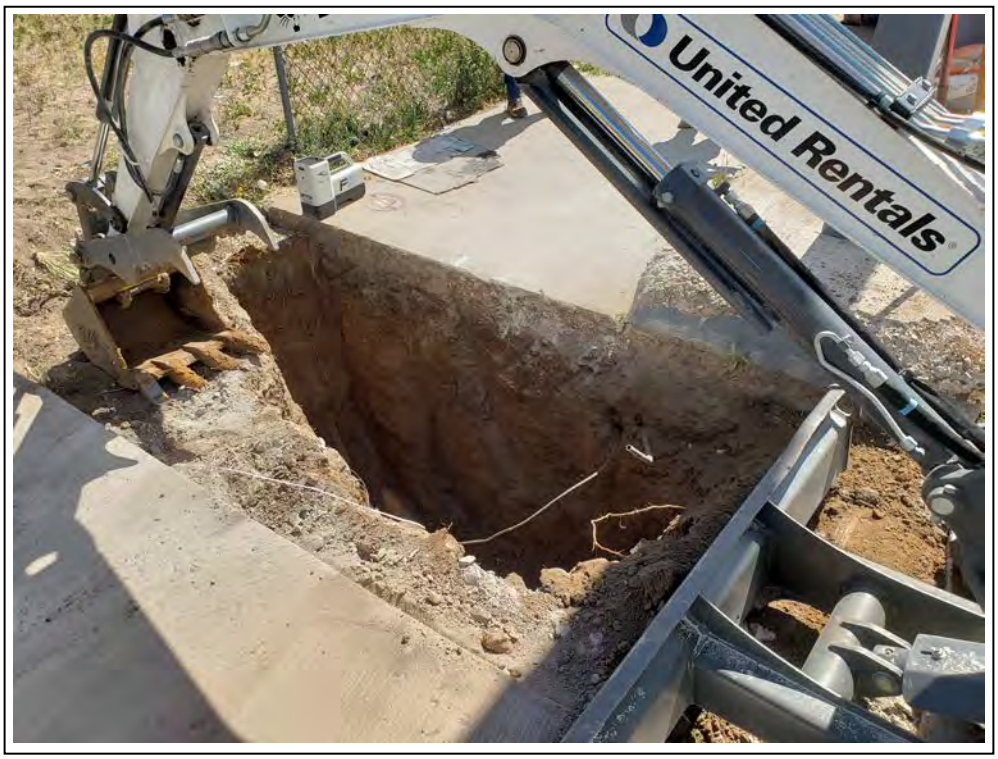
9. Bio-bore drilling mud

10. Water trailer filling from the fire hydrant

11. Mud mixing system with the roll-off bin

12. Cutting concrete for the exit pit

13. Pulling up concrete for the exit pit



14. Excavating the exit pit

15. Roll-off bin set up at the exit to dispose of drilling fluids

16. Installation of the 8-inch reamer bit assembly

17. 6-inch well casing staged on site

18. 0.025-inch slotted well screen

19. Fusing HDPE casing

20. 6-inch well casing with the assembly to pull casing into the borehole

21. Measuring casing materials

22. Reamer assembly with casing attached for installation

23. Reamer assembly with casing attached for installation

24. Jetting the well screen to develop out drilling fluids

25. Liquid enzyme breaking solution for use during development jetting

26. Tremmie installed for grouting casing at the exit pit

27. Removal of the roll-off bin by Gandy Marley

28. Capped casing at the horizontal well entry pit

29. Capped casing at the horizontal well exit pit

30. Exit pit covered with traffic plates

Attachment 3

OSE Well Permit

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
District 6 Office, Santa Fe, NM

John R. D'Antonio Jr., P.E.
State Engineer

PO Box 25102
Santa Fe, New Mexico 87501
(505) 827-6120
FAX: (505) 827-6682

TRN Nbr: 669633
File Nbr: UP-04808

March 18, 2020

Daniel B. Stephens & Associates, Inc.
Attn: Thomas Golden
6020 Academy Rd. NE, Suite 100
Albuquerque, NM 87109

Greetings:

Enclosed is your original copy of the above numbered permit that has been approved subject to the conditions set forth on the approval page. In accordance with the Conditions of Approval, no water shall be appropriated and beneficially used from UP-04808. A Well Record and Log (OSE Form wr-20) shall be filed with this office within twenty (30) days after completion of drilling but no later than 03-18-2021.

Prior to any diversion water from the subject well at the Las Vegas Triple Site, the applicant shall make application to the State Engineer's Office to transfer valid water rights with a consumptive use, for the intended purpose of remediation. Under no circumstances shall any water be appropriated from the subject well without an approved permit from the State Engineer.

Should plugging become necessary, an approved Plugging Plan of Operations is not required as it is part of the conditions of approval for this permit. A Plugging Report shall be filed in this office within twenty (30) days after completion of well plugging.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us or can be mailed upon request.

Please address any questions via- telephone to Chris Thornburg at 505.827.6120 or via e-mail at Christopher.thornbu@state.nm.us.

Sincerely,

Christopher M. Thornburg
District VI Water Master
(505) 827-6120

Enclosure
Cc: Santa Fe Office
Cc: New Mexico Environment Department/Petroleum Storage Tank Bureau

File No. UP-4808

NEW MEXICO OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☒ Pollution Control And / Or Recovery	☐ Geo-Thermal
☐ Exploratory	☐ Construction Site De-Watering	☐ Other (Describe):
☐ Monitoring	☐ Mineral De-Watering	

A separate permit will be required to apply water to beneficial use.

☒ Temporary Request Requested Start Date: **4/1/2020** Requested End Date: **Unknown**

Plugging Plan of Operations Submitted? ☐ Yes ☒ No

---

1. APPLICANT(S)

Name: **New Mexico Environment Department (NMED), Petroleum Storage Tank Bureau**	Name: **Daniel B. Stephens & Assoc., Inc.**
Contact or Agent: **Chris Holmes** check here if Agent ☐	Contact or Agent: **Thomas Golden** check here if Agent ☒
Mailing Address: **2905 Rodeo Park Drive East, Building 1**	Mailing Address: **6020 Academy NE, Suite 100**
City: **Santa Fe**	City: **Albuquerque**
State: **NM** Zip Code: **87505**	State: **NM** Zip Code: **87109**
Phone: ☐ Home ☐ Cell Phone (Work): **505-476-4397**	Phone: ☐ Home ☐ Cell Phone (Work): **505-822-9400**
E-mail (optional):	E-mail (optional): **tgolden@dbstephens.com**

6-45633

FOR OSE INTERNAL USE

Application for Permit, Form wr-07, Rev 8/25/11

File Number: UP-4808	Trn Number: 669633
Trans Description (optional):	
Sub-Basin: GALLINAS RIVER	
PCW/LOG Due Date: 3/18/2021	

2020 MAR 16 PM 2:27

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84)

☒ NM State Plane (NAD83) (Feet)
- ☐ NM West Zone
- ☒ NM East Zone
- ☐ NM Central Zone

☐ UTM (NAD83) (Meters)
- ☐ Zone 12N
- ☐ Zone 13N

☐ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Latitude:	Y or Northing or Longitude:	Optional: Complete boxes labeled "Other" below with PLSS (Public Land Survey System, i.e. Quarters, Section, Township, Range); Hydrographic Survey Map & Tract; Lot, Block & Subdivision; OR Land Grant Name if known.
HRW-1	279723	1673363	

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ Yes ☒ No **If yes, how many**_____

Other description relating well to common landmarks, streets, or other: **Intersection of University and Grand Ave. in Las Vegas, New Mexico**

Well is on land owned by: **Quality Motor Company, Inc.**

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? ☒ Yes ☐ No
If yes, how many_____

Approximate depth of well (feet): **20.00**	Outside diameter of well casing (inches): **6.00**
Driller Name: **Ellingson-Dtd**	Driller License Number:

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

Daniel B. Stephens & Associates, Inc. has been contracted by the New Mexico Environment Department Petroleum Storage Tank Bureau to extract and treat contaminated groundwater at this gasoline release site. The project is the combination of three sites: Atex 394 (Allsup's), Pino's Fina, and Ross Texaco and is referred to as the Las Vegas Triple site. One approximately 500 foot 6" horizontal well will be drilled from the vacant lot to the south under University Ave. to the Crossroads gas station.

The coordinates provided represent the centroid of the horizontal well.

2020 MAR 16 PM 2:27

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number:	Trn Number:
UP-4808	669633

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory:	**Pollution Control and/or Recovery:**	**Construction De-Watering:**	**Mine De-Watering:**
☐ Include a description of any proposed pump test, if applicable.	☒ Include a plan for pollution control/recovery, that includes the following: ☒ A description of the need for the pollution control or recovery operation. ☒ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☒ The annual consumptive use amount. ☒ The maximum amount of water to be diverted and injected for the duration of the operation. ☒ The method and place of discharge.	☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring: ☐ Include the reason for the monitoring well, and, ☐ The duration of the planned monitoring.	☒ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☒ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☒ Proof of any permit required from the New Mexico Environment Department. ☒ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Geo-Thermal:** ☐ Include a description of the geothermal heat exchange project, ☐ The amount of water to be diverted and re-injected for the project, ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), **Thomas Golden, P.E. on behalf of NMED**
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☒ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 18TH day of MARCH 20 20, for the State Engineer.

JOHN R. D'ANTONIO JR., P.E., State Engineer

By: Signature — CHRISTOPHER M. THORNBURG Print

Title: DISTRICT WATER MASTER Print

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number: UP-4808	Trn Number: 669633

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

17-4 No water shall be appropriated and beneficially used under this permit.

17-6D Well pod_basin pod_nbr pod_suffix shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable and approved by the state engineer. The well shall be plugged with an office of the state engineer approved sealant for use in the plugging of non-artesian wells. The well driller shall cut the casing off at least four (4) feet below ground surface and fill the open hole with at least two vertical feet of approved sealant. The driller must fill or cover any open annulus with sealant. Once the sealant has cured, the well driller or well owner may cover the seal with soil. A Plugging Report for said well shall be filed with the Office of the State Engineer in a District Office within 30 days of completion of the plugging, but no later than .

17-B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

17-C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record.
The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.

17-G If artesian water is encountered, the well driller shall comply with all rules and regulations pertaining to the drilling and casing of artesian wells.

17-P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.

17-Q The State Engineer retains jurisdiction over this permit.

LOG The Point of Diversion UP 04808 must be completed and the Well Log filed on or before 03/18/2021.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:	Date Rcvd. Corrected:
Formal Application Rcvd: 03/16/2020	Pub. of Notice Ordered:
Date Returned - Correction:	Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 18 day of Mar A.D., 2020

John R. D Antonio, Jr., P.E. State Engineer

By: Christopher Thornburg

Trn Desc: UP 04808 File Number: UP 04808
Trn Number: 669633

Specific Requirements for Office of the State Engineer Horizontal Extraction Well Permit

Groundwater remediation system summary: The horizontal extraction well will contain approximately 240 feet of 6 inch slotted HDPE screen at a depth of around 20 feet below ground surface (Figure 1 and 2). Groundwater will be extracted with a dedicated submersible pump at the north end of the screen section with a maximum pumping rate of 5 gpm (average of 3 gpm expected). Water will be treated with an air-stripper to remove hydrocarbons on the former Ross Texaco site before discharge to the Las Vegas Utility's sanitary sewer system.

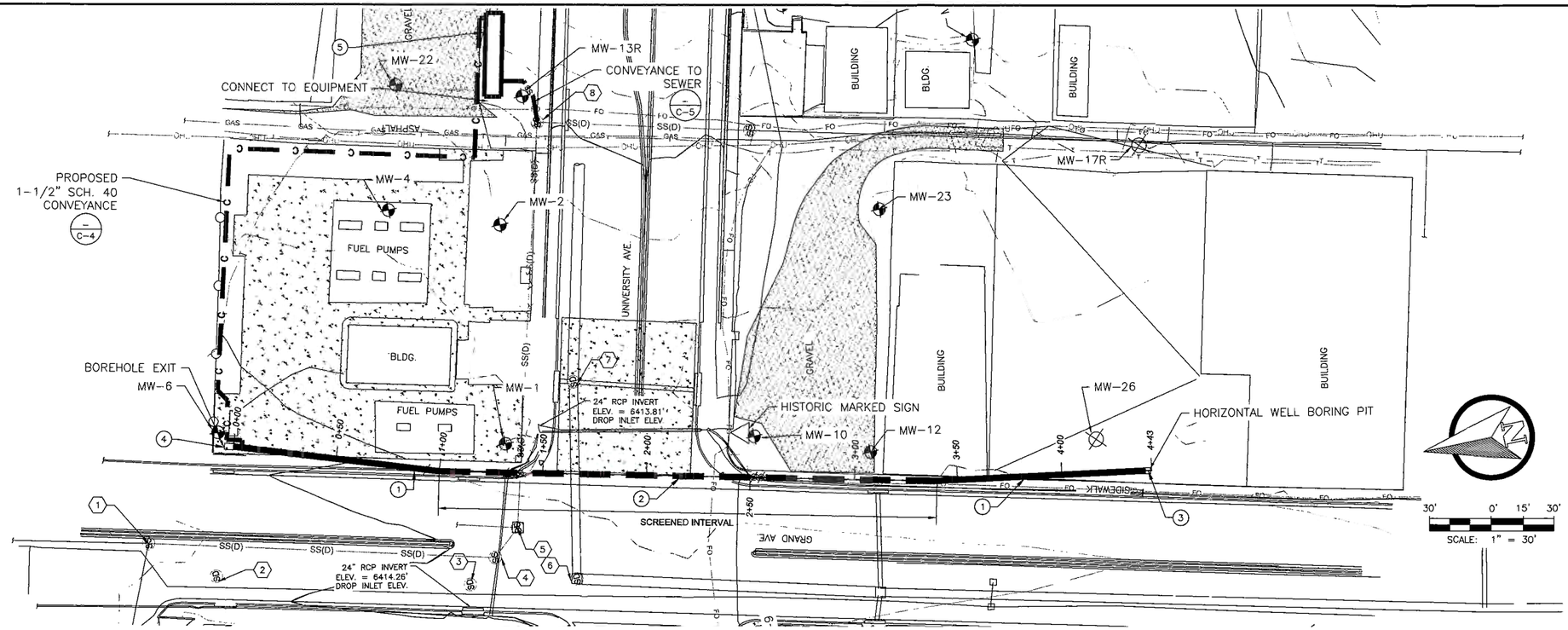
Description of need for contaminated groundwater recovery: A groundwater contamination plume exists under the site centered approximately under the intersection of Grand and East University Ave (Figure 3). Groundwater in this region exceeds New Mexico Water Quality Control Commission standards for Benzene, ethylbenzene, total xylenes, and total naphthalenes.

Maximum time for completion of operation: The duration of groundwater remediation is currently unknown. System operation for approximately three years is planned. More will be known once operation commences.

Method and place of discharge: Treated groundwater will be fed to a sanitary sewer connection on the northeast side of the site.

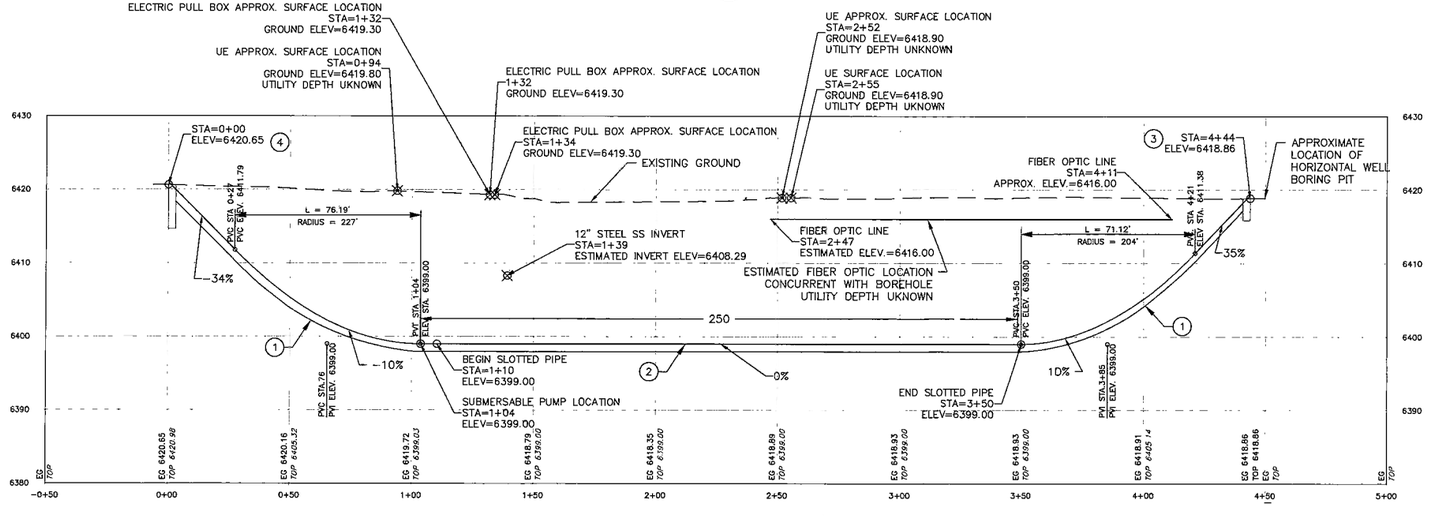
Method of water produced and discharged: Both influent to the air stripper system and discharge will be metered.

Characteristics of the aquifer: The contaminated water is to be extracted from a shallow alluvium aquifer under the site. The water table is approximately 15 feet below ground surface. The lithology consists mainly of weathered clays and shale with gravel and sand lenses. The aquifer is not used for drinking water locally.



PLAN

SCALE: 1" = -



PROFILE

SCALE: 1" = 30'
VERTICAL SCALE: 1"=10'

GENERAL NOTES:

1. UTILITY LOCATIONS ARE BASED ON DETAILED SITE SURVEY COMPLETED BY COBB FENDLEY IN SEPTEMBER 2019. ANY DEVIATIONS FROM THE LOCATIONS SHOWN SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
2. THE GROUND SURFACE SHALL BE RESTORED TO PREVIOUS CONDITIONS OR BETTER AFTER DISTURBANCE.
3. RECEIVE, STORE, AND INSTALL ALL PIPING MATERIAL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

KEY NOTES:

1. 6" HDPE SDR 11
2. 6" HDPE SDR 11 MACHINE-CUT HORIZONTALLY-SLOTTED WELL SCREEN 0.02" SLOT, 2% OPEN AREA
3. INSTALL ENTRANCE VAULT PER DETAIL 5, DWG C-6.
4. INSTALL EXIT VAULT PER DETAILS 2 AND 3, DWG C-6.
5. EQUIPMENT CONTAINER AS SHOWN ON DWG M-2.

KEY NOTES SANITARY/STORM DRAIN MANHOLES:

1. SSMH 200 3896
   RIM ELEV. = 6421.36
   12" PVC INV.(N) = 6410.48
   12" PVC INV.(S) = 6410.57
   12" PVC INV.(W) = 6410.64
2. SDMH 100 3895
   RIM ELEV. = 6420.68
   UNABLE TO OPEN
3. SDMH 101 3928
   RIM ELEV. = 6419.74
   UNABLE TO OPEN
4. SSMH 201 3849
   RIM ELEV. = 6420.02
   12" PVC INV.(N) = 6409.15
   12" PVC INV.(E) = 6409.08
5. SSMH 202 1286
   RIM ELEV. = 6419.48
   PIPE SIZE AND MATERIAL NOT ACCESSIBLE
   (N) = 6409.03
   12" PVC INV.(E) = 6408.43
   12" PVC INV.(NW) = 6408.97
6. SDMH 102 1000
   RIM ELEV. = 6419.61
   UNABLE TO OPEN
7. SDMH 105 4154
   RIM ELEV. = 6418.12
   24" RCP INV.(N) = 6411.68
   60" RCP INV.(E) = 6403.53
   UNABLE TO GET INV.(S)
   48" CMP INV.(W) 6402.92
8. SSMH 203 1448
   RIM ELEV. = 6416.59
   4" STEEL INV.(NE) = 6410.27
   12" STEEL INV.(S) = 6407.19
   12" STEEL INV.(W) = 6407.44

REV NO.	DATE	DESCRIPTION	APPROVED BY

DATE OF ISSUE: 12/31/19
DESIGNED BY: TH
DRAWN BY: JA/RT
CHECKED BY: KJ
APPROVED BY: TG

DBS&A
Daniel B. Stephens & Associates, Inc.
6020 Academy Rd. NE, Suite 100
Albuquerque, NM 87109-3315

NEW MEXICO ENVIRONMENT DEPARTMENT
PETROLEUM STORAGE TANK BUREAU
2905 RODEO PARK DRIVE EAST
SANTA FE, NEW MEXICO 57505

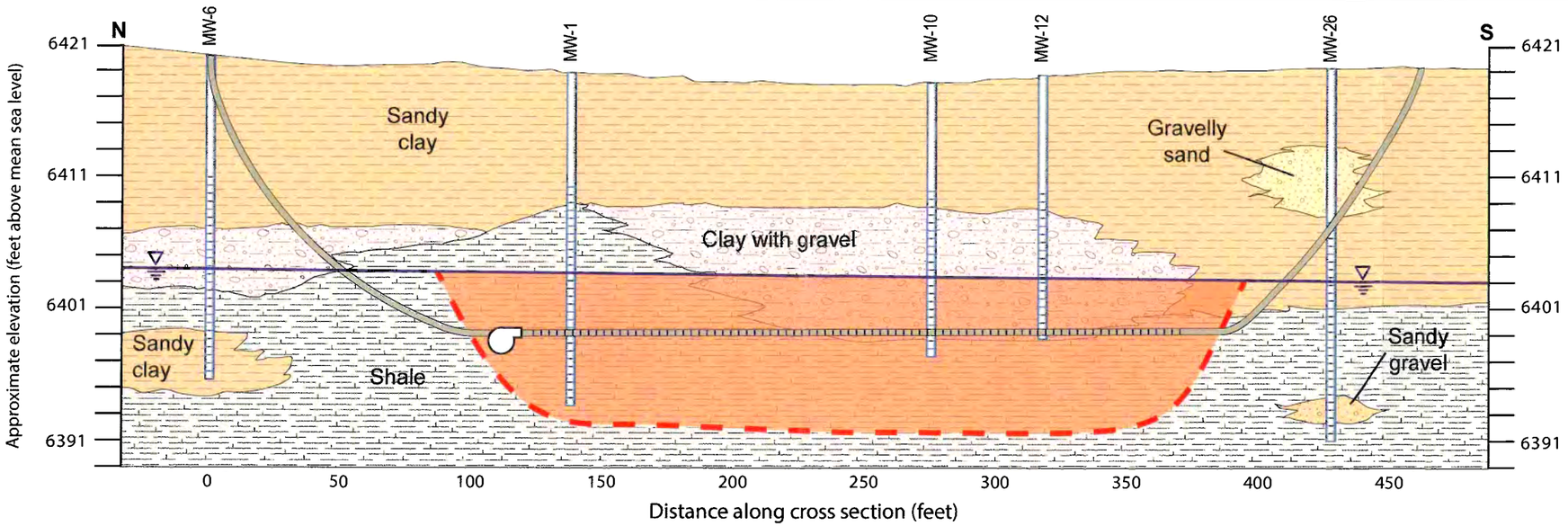
ROSS TEXACO, PINO FINA, AND ATEX 394
GROUNDWATER REMEDIATION SYSTEM INSTALLATION
LAS VEGAS, NEW MEXICO

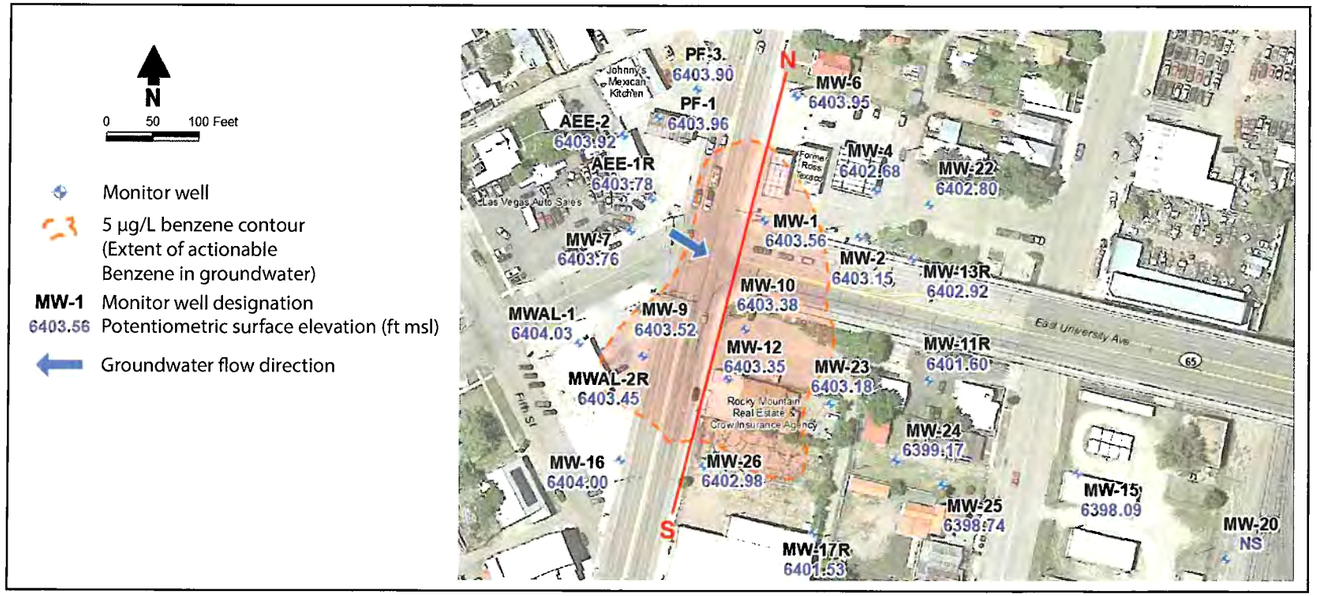
HORIZONTAL WELL PLAN AND PROFILE

SHT. 6 OF 11
DWG NO. C-3

JOB NO. DB18.1277

2020 MAR 16 PM 2:27





Explanation

- Well
- Well Screen
- Bore path (6" casing) Screen
- Approximate July 2019 water table
- Pump

Geology

- Sandy clay
- Gravely sand
- Sandy gravel
- Clay with gravel
- Shale
- Approximate extent of actionable benzene groundwater contamination

5x vertical exaggeration

horizontal: 1 inch = 50 feet vertical: 1 inch = 10 feet

ATEX 394 (ALLSUP'S), PINO FINA, AND ROSS TEXACO
LAS VEGAS, NEW MEXICO

Conceptual Cross Section

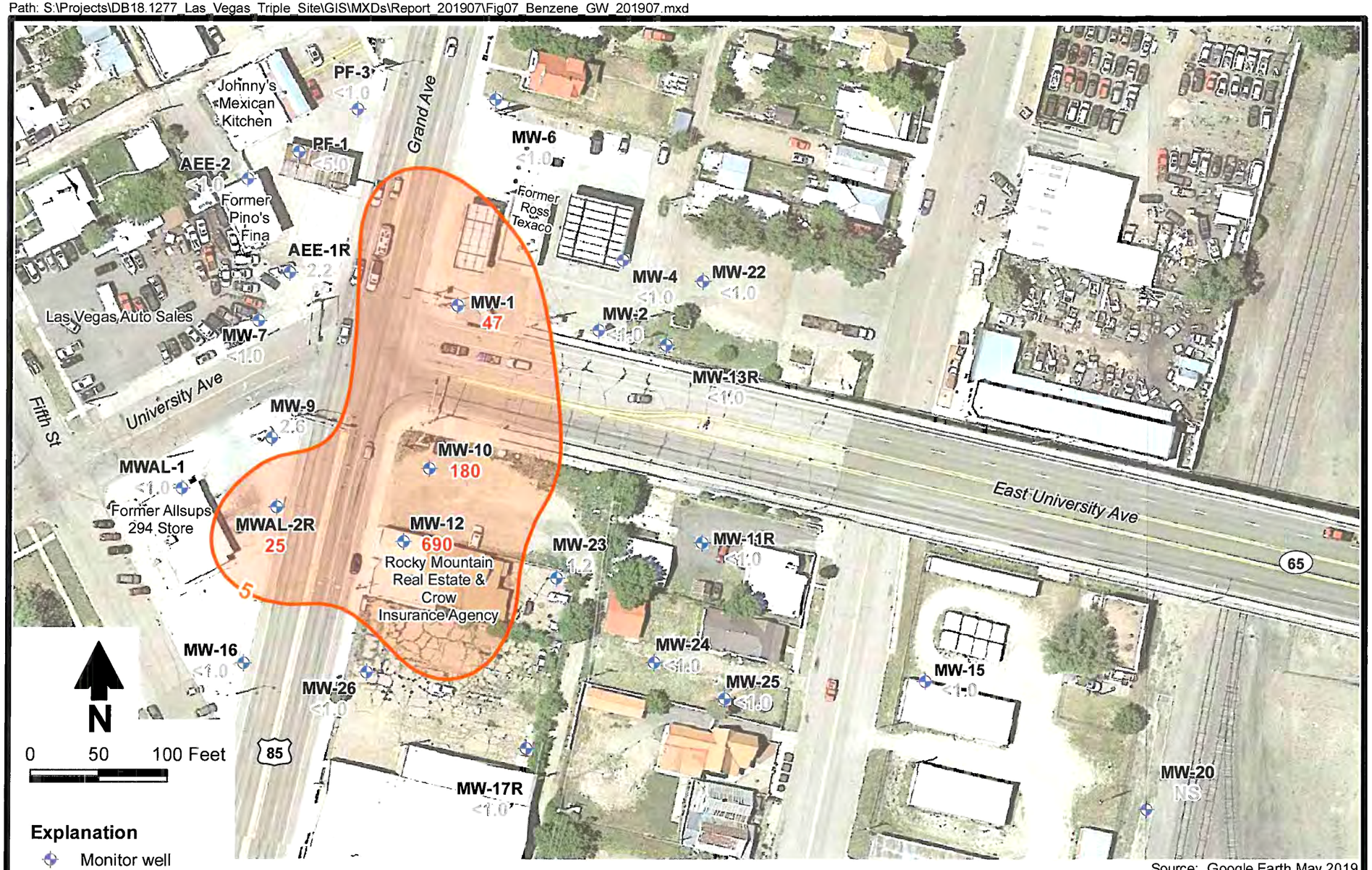
Figure 12

Daniel B. Stephens & Associates, Inc.

12-17-19 JN DB18.1277

S:\Projects\DB18.1277_Las_Vegas_Triple_Site\VR_Drawings\Adobe Illustrator\Cross_Section_20191104\Fig12_Las Vegas Tripple Site Cross Section_20191104.ai

Path: S:\Projects\DB18.1277_Las_Vegas_Triple_Site\GIS\MXDs\Report_201907\Fig07_Benzene_GW_201907.mxd



Explanation

- Monitor well
- Extent of actionable benzene in groundwater
- **MW-1** Monitor well designation
- 47 Benzene concentration (µg/L)

Notes:

1. NS = Well not sampled
2. Gray shading indicates concentration is below laboratory reporting limits.

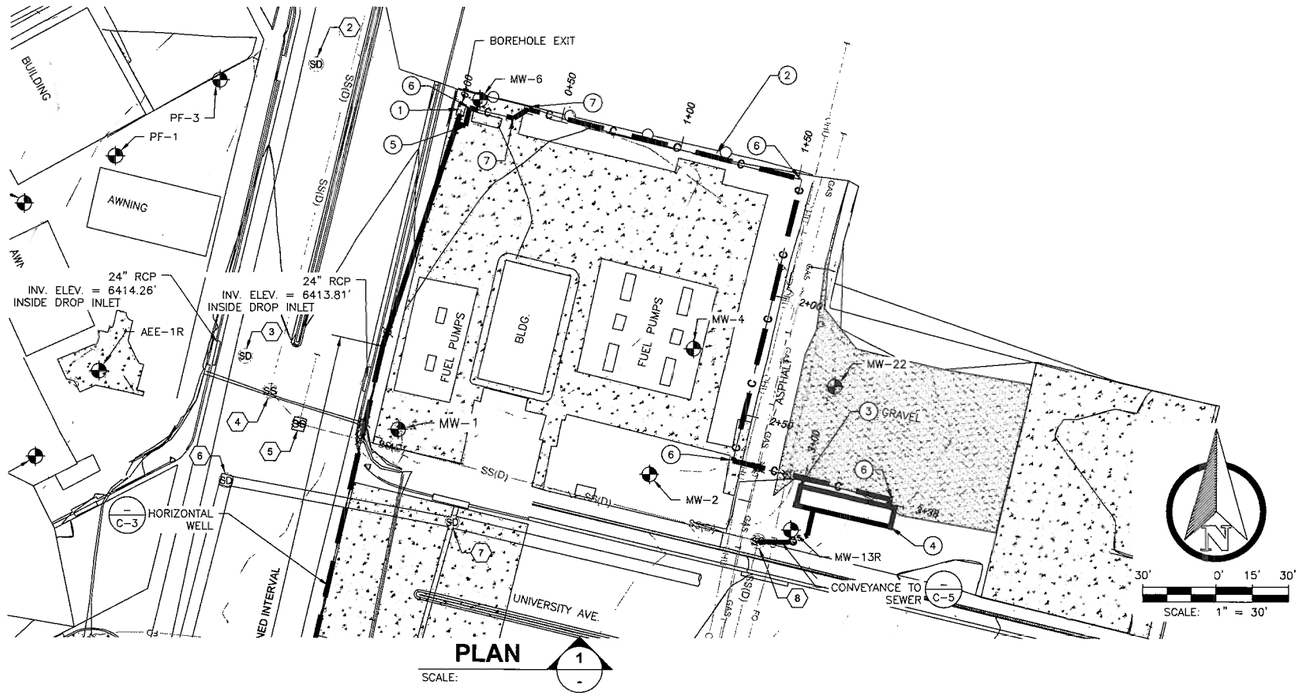
Source: Google Earth May 2019

ATEX 394 (ALLSUP'S), PINO FINA, AND ROSS TEXACO
LAS VEGAS, NEW MEXICO

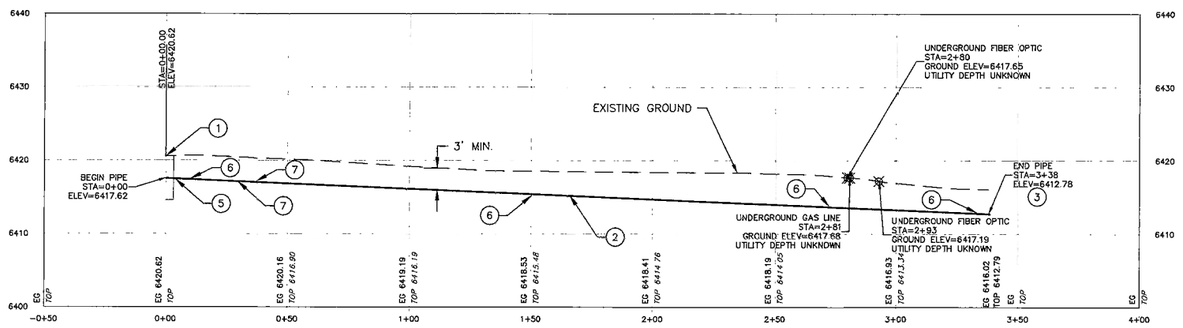
Benzene in Groundwater
July 2019

Figure 7

Daniel B. Stephens & Associates, Inc.
9/24/2019 JN DB18.1277



PLAN 1
SCALE: 1" = 30'



PROFILE 1
SCALE: 1" = 30'
VERTICAL SCALE: 1"=10'

GENERAL NOTES:

1. RECEIVE, STORE, AND INSTALL ALL PIPING MATERIAL IN ACCORDACE WITH MANUFACTURER'S RECOMMENDATIONS.
2. PRESSURE TEST PVC WITH WATER AT 100 PSI FOR ONE HOUR. PRESSURE DEVIATION OF MORE THAN 5 PSI OVER THE HOUR WILL REQUIRE CORRECTIVE ACTION.

KEY NOTES:

(1) WELL VAULT & PITLESS ADAPTER PER DETAILS 2 AND 3, DWG C-6.

(2) INSTALL 1.5" SCH. 40 PVC CONVEYANCE LINE PER DETAIL 1, DWG C-6.

(3) CONNECT CONVEYANCE LINE TO EQUIPMENT CONTAINER AS SHOWN ON DWG. M-2.

(4) EQUIPMENT STORAGE CONTAINER AS SHOWN ON DWG. M-2

(5) 1.5" SS GATE VALVE AND VALVE VAULT

(6) 1.5" SCH 40 PVC 90 DEG ELBOW

(7) 1.5" SCH 40 PVC 45 DEG ELBOW

KEY NOTES SANITARY/STORM DRAIN MANHOLES:

(1) SSMH 200 3896
RIM ELEV. = 6421.36
12" PVC INV.(N) = 6410.48
12" PVC INV.(S) = 6410.57
12" PVC INV.(W) = 6410.64

(2) SDMH 100 3895
RIM ELEV. = 6420.68
UNABLE TO OPEN

(3) SDMH 101 3928
RIM ELEV. = 6419.74
UNABLE TO OPEN

(4) SSMH 201 3849
RIM ELEV. = 6420.02
12" PVC INV.(N) = 6409.15
12" PVC INV.(E) = 6409.08

(5) SSMH 202 1286
RIM ELEV. = 6419.48
PIPE SIZE AND MATERIAL NOT ACCESSIBLE
(N) = 6409.03
12" PVC INV.(E) = 6408.43
12" PVC INV.(NW) = 6408.97

(6) SDMH 102 1000
RIM ELEV. = 6419.61
UNABLE TO OPEN

(7) SDMH 105 4154
RIM ELEV. = 6418.12
24" RCP INV.(N) = 6411.68
60" RCP INV.(E) = 6403.53
UNABLE TO GET INV.(S)
48" CMP INV.(W) 6402.92

(8) SSMH 203 1448
RIM ELEV. = 6416.59
4" STEEL INV.(NE) = 6410.27
12" STEEL INV.(S) = 6407.19
12" STEEL INV.(W) = 6407.44

2020 MAR 16 PM 2:27

REV NO.	DATE	DESCRIPTION	APPROVED BY

DATE OF ISSUE: 12/31/19
DESIGNED BY: TH
DRAWN BY: JA/RT
CHECKED BY: KJ
APPROVED BY: TG

DBS&A
Daniel B. Stephens & Associates, Inc.
6020 Academy Rd. NE, Suite 100
Albuquerque, NM 87109-3315

NEW MEXICO ENVIRONMENT DEPARTMENT
PETROLEUM STORAGE TANK BUREAU
2905 RODEO PARK DRIVE EAST
SANTA FE, NEW MEXICO 57505

ROSS TEXACO, PINO FINA, AND ATEX 394
GROUNDWATER REMEDIATION SYSTEM INSTALLATION
LAS VEGAS, NEW MEXICO

CONVEYANCE LINE PLAN AND PROFILE

SHT. 7 OF 11
DWG NO. C-6

JOB NO.
DB18.1277

March 12, 2020

New Mexico Office of the State Engineer
District VI
P.O. Box 25102
Santa Fe, NM 87504-5102

Re: Application for Permit to Drill a Well with No Consumptive Use of Water

To Whom It May Concern:

Please find enclosed three copies of Application for Permit to Drill a Well with No Consumptive Use of Water and a check for the appropriate permit fees. Daniel B. Stephens & Associates, Inc. (DBS&A) has been contracted by the New Mexico Environment Department (NMED) to drill one (1) horizontal extraction well to treat contaminated groundwater for Underground Storage Tank (UST) sites in Las Vegas, New Mexico.

We are currently hoping to drill the well starting on May 4, 2020. The well would not be put into use until July or August.

Please call me at (505) 822-9400 should you have any questions or need additional paperwork.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Tom Golden
Project Engineer

Enclosures

2020 MAR 16 PM 2:27

Daniel B. Stephens & Associates, Inc.
6020 Academy Rd., NE, Suite 100 505-822-9400
Albuquerque, NM 87109-3315 FAX 505-822-8877

OFFICE OF THE STATE ENGINEER/INTERSTATE STREAM COMMISSION – SANTA FE OFFICE

OFFICIAL RECEIPT NUMBER: 6 - 45633 DATE: 03/16/2020 FILE NO.: HRW-1

TOTAL: $5.00 RECEIVED: Five dollars DOLLARS CHECK NO.: 106348 CASH: _____

PAYOR: Daniel B. Stephens & Assoc. ADDRESS: 6020 Academy Rd NE CITY: Albuquerque STATE: NM

ZIP: _____ RECEIVED BY: MLewis Suite 100

INSTRUCTIONS: Indicate the number of actions to the left of the appropriate type of filing. Complete the receipt information. **Original** to payor; **pink** copy to Program Support/ASD; and **yellow** copy for Water Rights. If a mistake is made, void the original and all copies and submit to Program Support/ASD as part of your daily deposit.

A. Ground Water Filing Fees

___	1. Change of Ownership of Water Right	$ 2.00
___	2. Application to Appropriate or Supplement Domestic 72-12-1 Well	$ 125.00
___	3. Application to Repair or Deepen 72-12-1 Well	$ 75.00
___	4. Application for Replacement 72-12-1 Well	$ 75.00
___	5. Application to Change Purpose of Use 72-12-1 Well	$ 75.00
___	6. Application for Stock Well	$ 5.00
___	7. Application to Appropriate Irrigation, Municipal, or Commercial Use	$ 25.00
___	8. Declaration of Water Right	$ 1.00
___	9. Application for Supplemental Non 72-12-1 Well	$ 25.00
___	10. Application to Change Place or Purpose of Use Non 72-12-1 Well	$ 25.00
___	11. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Ground Water	$ 50.00
___	12. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Ground Water	$ 50.00
___	13. Application to Change Point of Diversion of Non 72-12-1 Well	$ 25.00
___	14. Application to Repair or Deepen Non 72-12-1 Well	$ 5.00
1	15. Application for Test, Expl. Observ. Well	$ 5.00
___	16. Application for Extension of Time	$ 25.00
___	17. Proof of Application to Beneficial Use	$ 25.00
___	18. Notice of Intent to Appropriate	$ 25.00

B. Surface Water Filing Fees

___	1. Change of Ownership of a Water Right	$ 5.00
___	2. Declaration of Water Right	$ 10.00
___	3. Amended Declaration	$ 25.00
___	4. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Surface Water	$ 200.00
___	5. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Surface Water	$ 200.00
___	6. Application to Change Point of Diversion	$ 100.00
___	7. Application to Change Place and/or Purpose of Use	$ 100.00
___	8. Application to Appropriate	$ 25.00
___	9. Notice of Intent to Appropriate	$ 25.00
___	10. Application for Extension of Time	$ 50.00
___	11. Supplemental Well to a Surface Right	$ 100.00
___	12. Return Flow Credit	$ 100.00
___	13. Proof of Completion of Works	$ 25.00
___	14. Proof of Application of Water to Beneficial Use	$ 25.00
___	15. Water Development Plan	$ 100.00
___	16. Declaration of Livestock Water Impoundment	$ 10.00
___	17. Application for Livestock Water Impoundment	$ 10.00

All fees are non-refundable.

C. Well Driller Fees

___	1. Application for Well Driller's License	$ 50.00
___	2. Application for Renewal of Well Driller's License	$ 50.00
___	3. Application to Amend Well Driller's License	$ 50.00

D. Reproduction of Documents

___ @ 0.25¢ $_____

___ Map(s) $_____

E. Certification $_____

F. Other $_____

G. Comments:

NMED Petro. Stor. Tank Bur.
Chris Holmes

Daniel B. Stephens & Assoc.
Thomas Golden

DANIEL B. STEPHENS & ASSOCIATES, INC.

106348

Check Date: 3/12/2020

Invoice Number	Date	Voucher	Amount	Discounts	Previous Pay	Net Amount
CkRqst20200312	3/12/2020	0195451	5.00			5.00
New Mexico Office of the State Engineer		TOTAL	5.00			5.00
Operating Acct - Bank of Alb 1		140219				

Attachment 4

Well Completion Report

June 4, 2020

Tom Golden, PE
Daniel B. Stephens and Associates, Inc.
6020 Academy Road NE, Suite 100
Albuquerque, NM 87109
tgolden@geo-logic.com

RE: Well Completion Report – Horizontal Extraction Well - Ross Texaco, Las Vegas, NM

Dear Tom:

Thank you again for selecting Ellingson-DTD (DTD) to install a single horizontal extraction well at the Ross Texaco site in Las Vegas, NM. We are pleased that the installation was successfully concluded. This letter is to document various aspects of the well completion for your project records.

Prior to mobilization to the site, the DTD and Daniel B Stephens & Associates, Inc. (DBS) project team shared multiple conversations pertaining to planning and logistics for project kickoff. Also, a pre-construction agenda was discussed prior to arrival on the project site.

We have documented construction details for the extraction well in the table below. A summary of the well installation activities is included in this report and the well as-built data is included in Attachment #1.

Well Construction Details – Ross Texaco Extraction Well					
	Well Length	**Screened length**	**Screen Depth (ft MSL)**	**Configuration**	**Grouted Interval**
Extraction Well	450 ft	260 ft	6395.8' to 6398.7	Double ended	Upper 3-5 feet
End Caps: 6-inch diameter slip cap; 6-inch HDPE to NPT transition left for future tie-in.					
Screen and Riser Material: 6-inch diameter SDR-11 HDPE, fusion welded					
Slot Specifications: **0.025"x1.5" slot aperture (as measured on inside of pipe), 3 rows with ½" spacing, rows on 120° centers, ~68 slots/ft**					
Drilling Fluid: Baroid BioBore					
Well Development additives: Cetco LEB-CD (liquid enzyme breaking solution)					
Wellhead completion: Slip cap, then buried below surface					

DTD began the bore using a Vermeer 24x40 drill rig due to mobilization delays with the planned drill rig. The pilot, ream and installation were completed with a Ditch Witch JT30 All-Terrain rig. Locating was accomplished with a Digital Control Digi-Trak F5 Falcon locator and battery powered sonde to provide walkover locating capabilities. Rig type, but more specifically drill tooling was selected on the basis of locality to the jobsite and the geologic formations anticipated. The pilot borings were advanced using Baroid Biobore, a polymer drilling fluid.

Activities Completed

All work was performed during day shifts at the site from Tuesday, May 12 to Wednesday, May 27, 2020. Typical shift hours were from 07:00 through 17:00.

Prior to any on-site work, DTD notified the local One Call services to locate and identify all public and/or private utilities on adjacent rights-of-way.

On May 12, 2020, DTD mobilized to the site and set up to drill. Drilling and support equipment supplied by DTD included:

- Vermeer 24x40 drill rig with 10-foot rods.
- Kemtron Tango 200 mud recycling unit,
- 48' Semi trailer with drilling equipment, pumps, and supplies
- Crew Pickup trucks

Also, the Ditch Witch JT30 All Terrain drill rig (with dual rod technology suited for rock/cobble drilling) was delivered to location on Sunday, May 17th.

In addition to the DTD supplied equipment, DBS, contracted a local waste hauling contractor to supply and deliver 20 cubic yard rolloff boxes to contain drilling waste generated by the project. Two rolloff boxes were supplied and placed at the entry and exit locations DTD moved the boxes as needed to better accommodate equipment locations. The following section provides a daily summary of work activities.

Timeline of Project Tasks

Rig setup began on Tuesday May 12th, after a tailgate safety meeting and basic site orientation. For the remainder of the project, brief safety discussions were completed and documented at the beginning of each workday. Before digging the entry pit and entering the ground, the field crew reviewed the One-Call locates and private utility findings. A single roller cone drill bit was attached to the drill stem on the Vermeer 24x40 and locating equipment calibrated.

Drilling began on May 13, 2020 from the south end of the bore. We navigated through clayey-silt formations and at ~50' from the entry, we saw a reduction of drilling fluid. This zone (depth of ~15' below the entry elevation) continued to be losing while advancing the pilot. After multiple bit trips and swab passes, drilling mud returns ranged from no flow to minimal. We continued to advance the pilot bore and reached the 20' target depth ~96' from the entry. Over the next 40', and despite good penetration rates, we were unable to maintain our depth as the formation present continually pushed the drill bit shallower than planned. The shales present in the area are low in compressive strength, but considering a very flat lying pitch, the drill bit was "glancing" off the layers making it difficult follow the bore plan.

Not able to hold our target depth, we decided to trip from the bore and try a different style of drill bit. This bit has increased surface area on the steering face and again designed for hard/compact materials. Unfortunately, we encountered the same steering issue (formation pushing the tooling more shallow than plan) while trying to advance.

Despite using two different styles of drill bits and multiple attempts to drill at the specified 20' depth, we were unsuccessful. The Vermeer 24x40 was moved out of the way while waiting for delivery of the dual rod drill rig.

On May 14th and May 15th, we prepped the location for the dual rod rig and fused the HDPE well materials. Permission was given to fuse and stage the entire length of the HDPE pipe in a vacant lot to the north of the exit location. Approximately half of the well was fused on the 14th and then completed on the 15th. The combined length includes 120' of riser (south end), 240' of well screen, and 100' of riser (north end). These lengths would later be modified to match the drilled bore.

On May 17th the dual rod drill rig was delivered to location and set up. Drilling of the pilot then continued the next day. For most of the day we followed the existing bore path, purposely slowing our penetration to try and drill/steer along the desired depth target. This method was unsuccessful. Tooling was then tripped back to rod#6 (~50' from entry). At this point we steered down and to the right in an attempt to steer out of the existing bore. This was successful and our new target depth was between 21' and 22' bgs.

Pilot bore drilling continued May 19th with a minor steering deviation due to the dense utility infrastructure located above and parallel with the bore path. The steer was corrected, slowly aiming for the planned exit point. Penetration rates continued to be good, but care was taken to steer through the layered formation which continued to deflect the drill tooling upwards.

Over the next two days, we continued drilling the pilot bore. DTD used traffic cones, signage, and crew trucks to continually monitor the drill head at the surface. Multiple employees and the locating technician managed traffic to ensure signal was kept between the drill rig operator and the drilling tooling.

At the end of the day on May 21st, we navigated through the exit curve. Steering through the rock layers proved to be difficult as we increased pitch. The drill bit continued to glance off the layers as we were building up and out of the ground, requiring continued steering. At the end of the day we stopped at the planned exit location. Current depth at this point was five foot below ground surface and ~12" right of the target.

Arriving on May 22nd we saw cut the concrete pad at the planned exit, excavated to the drill head and verified the five-foot depth and location. After getting the "OK" to temporarily exit on the adjacent property, we drilled two additional rods and exited the ground surface. The pilot bore tooling was detached and an 8-inch rock reamer was attached. After a 20 cubic yard rolloff container was moved into place (to catch any drill cuttings/slurry) we began reaming the bore. 271' was reamed before shutting down for the day.

The next morning, we completed the 8-inch ream pass and then prepared for pullback. The final length of fused well materials for pulling back was 96' of HDPE riser, 260' of HDPE well screen and then 126' of HDPE riser on the tail string. Additional length of HDPE riser on the tail string allowed for the north end of the pipe to be located outside of the pit after pullback, for final completions.

At 13:00 the DTD crew began pullback of the well materials and after approximately three hours, the pipe was successfully pulled into place.

On May 24th thru May 26th the crew completed the remaining tasks. A brief list is identified below:

1. Flushed the well – Total of 800 gallons of fresh water spiked with enzyme breaking solution. Water was pumped from exit to entry, while the entry side was capped. ~250 gallons were pumped into the well before flush water returned.
2. High pressure jetting of the screen – Total of 2,000 gallons of fresh water spiked with enzyme breaking solution. 12 passes through the well/screen zone was completed. Used our Vactor Jet trailer to complete this (~18gpm @ 2,000 psi)
3. Exit side well seal – tremie was only able to be pushed ~10-15 ft inside the annulus between the pipe and bore wall. Grout was mixed and 20 gallons pumped in before seeing at the surface. Borehole was collapsed, hitting refusal with the tremie (even with attempts to water jet the pipe further downhole).

4. Entry side well seal – tremie was only able to be pushed ~10-15 ft inside the annulus between the pipe and bore wall. Grout was mixed and 20 gallons pumped in before seeing at the surface. Borehole was collapsed, hitting refusal with the tremie (even trying to water jet the pipe further).
5. All equipment was cleaned and staged for demob.
6. Rental either returned or staged for pickup.

DTD received final approval on the project completion from DBS on-site supervisor and departed from the site at the end of the day on Wednesday, May 26th.

Project Totals

The following is a list of quantities consumed during the project:

Wells Installed: 1 (double ended well for extraction)

Drilling Length (identifies installed/bored length): 450 feet

Bags of Biodegradable Drilling Mud: 73

Water used: 32,600 gallons

Project Duration: 16 days

Hours Worked On Site: 120 hrs

DTD is pleased to submit this report of the completed well installation at the Ross Texaco project site. If you have any questions, please don't hesitate to call us.

Sincerely,

Ellingson-DTD

Jason Yablonski
Operations Manager

Cc:

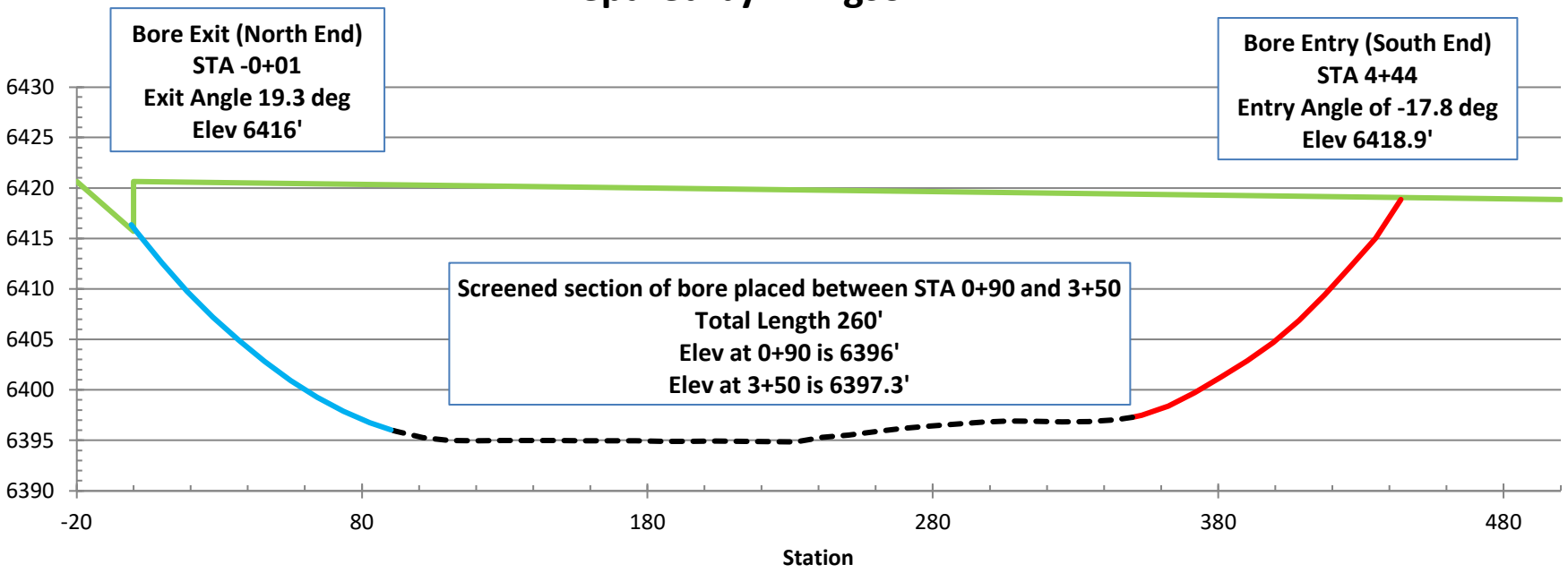
Attachment #1

Well Data and Profiles – 6-inch Extraction Well

Client Name:	DB Stephens & Associates, In					
Job Name:	Ross Texaco HDD					
Location:	Las Vegas, NM					
Drill Rig:	Vermeer 24x40 and DW 30AT					
Drill bit:	5.5-inch jetting assembly and 5.5" Tricone					
Reamer Size:	8-inch TCI cone					
Well Screen:	6" HDPE SDR 11 (1.5"x0.25" slot aperture; 3 rows, 1.28% open area)					
Well Casing:	6" HDPE SDR11					
Length of Drill Rods:	9.33	ft	Rig Entry Angle	-17.8	degrees	
Length of Borehole:	450	ft (Horizontal Distance)	Elevation at Point of Entry	6418.86	ft	
Length of Well:	445	ft	Station at Point of Entry	4+44	station	
Entry Casing Length:	94	ft	Horz distance from Transmitter to Point of Entry	0	ft	
Screen Length:	260	ft	Height of Transmitter above Point of Entry	0	ft	
Exit Casing Length	96	ft				

Rod	Rod Distance from Vices (ft)	Station (#+##)	Description	Bore Elevation (ft amsl)	Percent Slope (%)	Vertical Angle (degrees)	Horizontal Distance (cumulative ft)	Calculated Depth (ft below entry)	Bend Radius (ft)
Point of Entry	0	4+44	Entry at STA 4+44	6418.9	-32.1 %	-17.8	0.0	1.0	NA
1	9.33	4+35		6415.0	-32.0 %	-17.8	8.9	3.8	10691
2	18.66	4+26		6412.2	-32.0 %	-17.8	17.8	6.7	Infinite
3	27.99	4+17		6409.4	-30.0 %	-16.7	26.7	9.5	509
4	37.32	4+08		6406.9	-26.5 %	-14.9	35.7	12.0	289
5	46.65	3+99		6404.7	-21.5 %	-12.2	44.7	14.2	198
6	55.98	3+90		6402.9	-18.0 %	-10.2	53.9	16.0	274
7	65.31	3+81		6401.3	-17.5 %	-9.9	63.1	17.6	1782
8	74.64	3+72		6399.7	-16.0 %	-9.1	72.3	19.1	668
9	83.97	3+62		6398.4	-13.0 %	-7.4	81.5	20.5	314
10	93.3	3+53		6397.5	-6.5 %	-3.7	90.8	21.4	144
10.4	96.6	3+50	Start of screen at STA 3+50	6397.3	-4.9 %	-2.8	94.1	21.6	208
11	102.63	3+44		6397.0	-2.9 %	-1.7	100.1	21.8	261
12	111.96	3+35		6396.8	-1.2 %	-0.7	109.4	22.0	563
13	121.29	3+25		6396.8	0.5 %	0.3	118.8	22.0	535
14	130.62	3+16		6396.9	0.7 %	0.4	128.1	22.0	5346
15	139.95	3+07		6396.9	0.0 %	0.0	137.4	22.0	1336
16	149.28	2+97		6396.8	-2.1 %	-1.2	146.8	22.1	445
17	158.61	2+88		6396.6	-2.4 %	-1.4	156.1	22.3	2673
18	167.94	2+79		6396.4	-2.0 %	-1.2	165.4	22.5	2138
19	177.27	2+69		6396.2	-2.5 %	-1.5	174.7	22.7	1782
20	186.6	2+60		6395.9	-4.4 %	-2.5	184.1	23.0	509
21	195.93	2+51		6395.5	-3.0 %	-1.7	193.4	23.3	668
22	205.26	2+41		6395.3	-1.6 %	-0.9	202.7	23.6	668
23	214.59	2+32		6394.9	0.3 %	0.2	212.1	24.0	486
24	223.92	2+23		6394.9	0.0 %	0.0	221.4	24.0	2673
25	233.25	2+13		6394.9	0.7 %	0.4	230.7	24.0	1336
26	242.58	2+04		6394.9	-0.6 %	-0.4	240.0	23.9	713
27	251.91	1+95		6394.9	0.0 %	0.0	249.4	24.0	1527
28	261.24	1+85		6394.9	0.3 %	0.2	258.7	24.0	3564
29	270.57	1+76		6394.9	0.7 %	0.4	268.0	23.9	2138
30	279.9	1+67		6395.0	-0.3 %	-0.2	277.4	23.9	891
31	289.23	1+57		6395.0	0.3 %	0.2	286.7	23.9	1336
32	298.56	1+48		6395.0	0.0 %	0.0	296.0	23.9	2673
33	307.89	1+39		6395.0	0.0 %	0.0	305.3	23.9	Infinite
34	317.22	1+29		6395.0	0.1 %	0.1	314.7	23.9	10691
35	326.55	1+20		6395.0	-0.4 %	-0.3	324.0	23.9	1782
36	335.88	1+11		6395.0	0.6 %	0.4	333.3	23.9	876
37	345.21	1+01		6395.3	5.6 %	3.2	342.7	23.6	188
38	354.54	+92		6395.9	7.8 %	4.5	352.0	23.0	428
38.2	356.4	+90	End of screen at STA 0+90	6396.0	8.2 %	4.7	353.8	22.8	428
39	363.87	+83		6396.8	11.0 %	6.3	361.3	22.1	297
40	373.2	+73		6397.9	13.5 %	7.7	370.5	21.0	369
41	382.53	+64		6399.3	16.5 %	9.4	379.8	19.6	324
42	391.86	+55		6400.9	19.5 %	11.1	388.9	17.9	314
43	401.19	+46		6402.8	22.0 %	12.4	398.1	16.0	396
44	410.52	+37		6404.9	24.0 %	13.5	407.2	14.0	486
45	419.85	+28		6407.2	26.5 %	14.9	416.2	11.7	396
46	429.18	+19		6409.7	30.0 %	16.7	425.2	9.1	289
47	438.51	+10		6412.6	34.0 %	18.8	434.1	6.3	255
48	447.84	+1		6415.7	36.0 %	19.8	442.9	3.2	535
48.23	450.0	-+1	Dig pit at end of bore	6416.4	35.0 %	19.3	444.9	2.5	246

Ross Texaco Site - DB Stephens
HDD installing 6" HDPE pipe As-Built Profile
Las Vegas, NM
Prepared by Ellingson-DTD



BORE NOTES:

1. Drilled Length 450'
2. Horizontal Length 445'
3. Low Point Elev 6394.9'
4. ~5' deep at identified exit point. Excavated exit pit and pushed tooling an additional 19' to exit the ground
5. Final north end completion places the well end ~26" below ground surface, at the exit location

Ground Surface

South Side Riser

Screen

North Side Riser