Souder, Miller & Associates ♦ 401 West Broadway ♦ Farmington, NM 87401
(505) 325-7535 ♦ fax (505) 326-0045

TO ALL HOLDERS OF CONTRACT DOCUMENTS FOR:

The Navajo Nation
Tohatchi East Flats Individual Wells

ADDENDUM NO. 1
February 4, 2022

This Addendum shall be incorporated into the Contract Documents for the above referenced project.

Item No. 1 – Pre-Bid Conference
The Pre-Bid Conference was held on January 21, 2022. The meeting minutes and sign-in sheet are attached to this addendum. This meeting was mandatory.

Item No. 2 – Plan Holder's List
The Plan Holder's list is attached to this addendum. The Plan Holder's list is up to date as of February 4, 2022, at 9:00 a.m.

Item No. 3 – Last Day for Questions
The last day for questions is Tuesday, February 8, 2022, at 12:00 p.m. MST.

Item No. 4 – Bid Opening Call-in Number
Bidders may dial into the bid opening using the conference call details below.
Phone number: (319) 527-3512
Access code: 473610#

Item No. 5 – Engineer's Opinion of Probable Construction Cost (EOPCC)
The EOPCC as of 10/05/2021 for the Base Bid is $1,891,649, excluding Navajo Nation Tax.

Item No. 6 – Bid Form – Addition of base course bid item and Change to Mobilization Unit
An additional bid item has been added to the bid form to furnish and install compacted base course (per Cubic Yard) to protect existing culvert crossings. The revised bid form has been attached to this addendum. More or less base course may be required to properly protect existing culverts.

37	**Furnish and install compacted aggregate base course (Type A) to protect existing culverts, per direction of Engineer.**	**CU. YD**	**500**

The Mobilization/Demobilization bid item has been modified to include traffic control, if required, for the culvert crossing protection work.
Mobilization/Demobilization unit has been modified to be per well (Item No. 1) and per service connection (Item No. 25) respectively.

1	Drill and Equipment Mobilization (75%)/Demobilization (25%), includes all equipment necessary to construct and equip the well, coordination, protection of the well throughout project, driller's logs, as-builts, **traffic control (if required)**, and site restoration, **per well.**	**EA**	**9**
25	Equipment Mobilization (75%)/Demobilization (25%), ~~not to exceed 5% of service line connection work,~~ includes as-builts, **per service connection**.	**EA**	**9**

Item No. 7 – Electrical Plans

Electrical plans were added to the soudermiller.com website on 01/20/2022. Electrical plans have been included in this addendum.

Item No. 8 – Well Detail

A check valve has been added to Sheet DT-1. Check valve shall be incidental to control vault plumbing. Revised plans have been attached to this addendum. The bid form has been updated to reference the check valve.

29	Furnish and Install Multi-Residence Control Vault, includes 60" ID concrete vault, pressure tank, pressure gauge, pressure switch, pressure relief valve, **check valve near well,** appurtenances, excavation, bedding, backfill, compaction, pressure testing, and site restoration, CIP	EA	2
30	Furnish and Install Single-Residence Control Vault, includes 18" ID PVC meter box, pressure tank, pressure gauge, pressure transducer, pressure relief valve, **check valve near well,** appurtenances, excavation, bedding, backfill, compaction, pressure testing, and site restoration, CIP	EA	7

Item No. 9 – Well Screen Change

Technical Specification 33 21 13 Public Water Supply Wells: Section 2.2.C.1: *Well screen slot spacing shall be standard 0.25" spacing instead of 1" spacing. Revised language:*

Well screens shall be Certa-lok, or approved equal, SDR 17 PVC, with ~~1 inch~~ **0.25-inch** slot spacing and 0.032-inch slot size. Screen shall be placed as indicated in the Design Drawings, or as directed by the Engineer.

Item No. 10 – Access to homes

The map on G-3 has been updated to provide greater clarity for most probable access routes. Revised plans have been attached to this addendum.

This Addendum constitutes clarifications, changes, additions, modifications and/or deletions to the Contract Documents. All provisions of the Contract Documents not affected by this Addendum shall

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remain in full force. This Addendum is hereby made a part of the Contract Documents to the same extent as those provisions contained in the original Contract Documents and previous Addenda, if any. Receipt of this Addendum shall be acknowledged on the Bid Form.

Colin Daly, P.E.

2/4/2022

Date

Meeting Notes for:

Mandatory Pre-Bid Meeting Agenda and Discussion Items

Tohatchi East Flats Individual Wells Project
Meeting Date – Friday January 21, 2022
Meeting Time – 10:30 am
Meeting Place – Tohatchi Chapter House

DISCLAIMER: *This Agenda and meeting notes are not an addendum and is not part of the Bid / Contract Documents. It is not intended to modify, update or interpret the Bid / Contract Documents in any way. In the event of any discrepancy between the Bid/Contract Documents and this Agenda, the Bid/Contract Documents shall govern.*

Note: Notes or modifications to thus text where feasible are written in blue italic text. Some items asked by bidders, the responses to which were already in agenda have been highlighted yellow for emphasis rather than re-written as additional notes.

CONTRACTORS: Please state your name and company when you ask a question, so we can document it in the meeting notes.
Contractors present: KP Ventures Drilling, Rain for Rent, E-T Drilling, Stewart Brothers Drilling Co., HGS, File Construction, Bear Creek, and NDWR.

A copy of the sign-in sheet is attached, including contractor information.

1. **Introductions**
   Owner - Navajo Nation – Water Management Branch
   Tohatchi Chapter
   Navajo Department of Labor
   Navajo Business Regulatory Department
   Navajo Office of Labor Relations
   Engineer – Souder, Miller & Associates (SMA)

2. **Purpose** – Mandatory Pre-Bid Meeting and Site Visit. Be sure to sign in to ensure eligibility to bid.

3. **Project Description**
   Work of the Project includes drilling, testing, and construction nine (9) private water supply wells, to be located within the Tohatchi community of the Tohatchi Chapter, McKinley County, New Mexico for the Navajo Nation (herein referred to as Owner).

Work of the Project will begin with the construction and sampling of one approximately 800-feet deep production well. Pending the results of well sampling and testing, the first well's construction will be followed by construction, development, and testing of up to eight additional production wells of depths of approximately 800-feet. All wells will be furnished with a 5-inch diameter casing and well screen.

Pitless adapter, pump and appurtenances will also be installed in completed wells. The project will also furnish service lines and either a single residence control vault or a multi-residence control for the homes that will share a well. Electrical work is included in the project.

The scope of work completed will also depend on the outcome of water quality and quantity sampling results obtained from the pilot well, each subsequent production well, and analysis of those results by the Owner and Engineer.

Location and land status: All work will be located within the Tohatchi Chapter of the Navajo Nation. All well sites are located on Navajo Tribal Trust lands.

4. **Contract Documents may be examined** at the following locations:
    a. Contract documents may be downloaded from Engineer's website, www.soudermiller.com.
    b. Please note that addenda will be posted to the website.
    c. Please note that the electrical plans were missing from the construction plans and have been added to the website.
    d. Has anyone had issues accessing or downloading contract/bid documents to date?
5. **Bid Requirements**
    a. Refer to Bid Documents, particularly required attachments to Bid (Article 6 of Bid Form), required acknowledgements to Bid (Article 8 of Bid Form), and Instructions to Bidders.
    b. A well drilling license must be submitted by the Bidder. Drillers shall be licensed in NM, AZ, UT, or CO.
6. **Submission of Bid**
    a. Bids Due: Friday, February 11th at 2:00 p.m. (MDT) at the office of the Engineer in Farmington (401 West Broadway Street, Farmington, NM 87401)
    b. Be sure to include all required attachments listed in Article 7 of the Bid Form.

c. List of equipment required to be submitted with bid per Article 1.7 of Technical Specifications 33 21 13.

d. Any Bid that does not include all required documentation may be rejected.

e. 6% Navajo sales tax is not to be included in bid prices.

7. Bidder Preference

a. Preference will be given in accordance with the Navajo Nation Business Opportunities Act, N.N.C. Title 5, Chapter 2.

b. Navajo Business Regulatory Dept. may discuss Navajo Business Opportunity Act, as it applies to general contractors and sub-contractors.

c. A list of certified Priority #1 and Priority #2 businesses is available online at www.navajobusiness.com.

8. Wage Decision/ Labor Laws

a. Wages to be paid on the Project are established by Navajo Nation's Wage Decision.

b. Contractor must abide by Navajo Office of Labor Relations regulations. Refer to Appendix B of Bid Documents.

c. Additional details may be presented by Office of Labor during meeting.

***9.* Bid Schedule**

a. Work items are divided into groups, generally aligned chronologically (some exceptions) for anticipated phases of construction:

1. Production well site mob (Item 1)
2. Construction, development, and testing of nine (9) 5-inch cased, approx. 800-FT deep production wells (Items 2 – 13)
3. Downhole pumping equipment, surface completion & appurtenances for nine (9) 5-inch wells (Items 14 – 22)
4. Material testing and stand-by (Item 23 – 24)
5. Service line installation, control vault for single & multi-residence, and yard hydrant install (Item 25 – 32)
6. Well control and electrical installation (Item 33 – 34)
7. Cistern demolition, if requested (Item 35)

8. Storm Water Pollution Prevention Plan (Item 36)
9. Additive Alternate No. 1 – additional cost to furnish and install 304 stainless steel pipe and fittings and appurtenances in lieu of galvanized or other materials as noted in plans. (Items 1.1 - 1.2)

b. Multiply Est. Qty. by Unit Price to calculate Total Price.

c. Owner's budget may not be sufficient to complete all wells. If bids received are substantially higher than the Owner's available budget, the Owner may choose to compare bids based on modified quantities for one or more items.

   i. *Anticipated approach would be to reduce the amount of private water supply wells from the work list above.*

a. Once in construction, items and quantities to be completed during each phase may change as production well results and observations are evaluated by Owner and Engineer.

10. Contract Time & Liquidated Damages

From Issuance of Notice to Proceed:

Substantial Completion:	240 Calendar Days
Final Completion:	270 Calendar Days

Approximate anticipated Notice to Proceed: May2022, assuming bids opened as scheduled February 11th and a 2-month Contract review and approval process by Owner following Recommendation of Award. Actual timeline may vary.

Liquidated Damages of $1,385/day will be assessed for each day that the work extends beyond the agreed time.

11. Project Insurance

Required insurance coverages are listed in Article 6 of the Standard General Conditions and Navajo Nation Supplemental Conditions of the Construction Contract (EJCDC C-700 NN).

12. Navajo Nation Jurisdiction

By entering into this contract, Contractor consents to Navajo Nation jurisdiction. Disputes will be resolved by arbitration under the Navajo Nation Arbitration Act. Bidders should consult with their bonding companies to ensure there are no problems with this. Refer to Article 12 of EJCDC C-700 NN.

13. Monthly Pay Requests

a. Owner has 45 days after submission of undisputed pay request to make payment.

b. 6% Navajo sales tax will be added to each pay request and withheld by the Navajo Nation. In other words, the Owner will pay the taxes directly to the Navajo Tax Commission on the Contractor's behalf. However, Contractor is still responsible for all required tax filings, documentation, etc.

c. 10% retainage will be withheld on all pay requests paid for with Navajo Nation funds. The Owner may waive additional retainage after 50% of work is completed and satisfactory.

d. No retainage will be held on State funded work, if applicable.

i. As of pre-bid meeting, 100% of Contractor's work is anticipated to be funded by the Navajo Nation.

e. Final Completion and final payment will be made contingent upon acceptance of the project by the Owner.

14. Navajo Nation Modifications to Standard General Conditions

a. The EJCDC C-700 Standard General Conditions for this contract have been modified by the Navajo Nation. All Bidders are strongly encouraged to read and familiarize themselves the EJCDC C-700 NN, Standard General Conditions and Navajo Nation Supplemental Conditions, as well as EJCDC C-800 Supplementary Conditions of the Construction Contract.

15. Navajo Nation permits and approvals being acquired by the Owner or Engineer

a. The project is located on Navajo Tribal Trust Land

b. Well Drilling Permits and Water Use Permits have been requested and applications will be updated with the winning bidders information prior to issuance.

c. It is anticipated that all of the above will be granted or issued prior to or near the execution of the Contract between Owner and the winning Bidder and are unlikely to delay Notice to Proceed. However, unless waived by the Owner, all of the above must be acquired prior to issuance of Notice to Proceed.

i. The Engineer and Owner will coordinate closely with the winning bidder to select a date for Notice to Proceed agreeable to both Owner and Contractor.

ii. Submittal review can begin prior to issuance of Notice to Proceed if agreeable to Owner, Contractor, and Engineer and in the best interest of project.

16. Permits and approvals to be acquired by the Contractor

a. SWPPP related permits

b. EPA Low Threat General Discharge Permit and/or 402 discharge permit

c. Any permits associated with hauling or disposal of drilling mud

d. Other permits necessary, whether or not indicated in Contract Documents.

17. Site visit by bidders

a. A mandatory site visit/tour will follow this meeting.

i. Bidders may request to make additional site visits through the Engineer during bidding. Bidders should not go beyond established roadways or flagged well sites unaccompanied by either the Engineer or Owner.

18. Addenda #1 will include:

a. Meeting minutes for this meeting.
b. Well screen slot spacing will be changed from 1-inch spacing to 0.25-inch standard slot spacing.
c. A check valve will be added after pitless to facilitate pressure testing.
d. Answers to questions received up to midnight today, January 21, 2022.

Items of Interest in Technical Specifications – <u>This is NOT a comprehensive list of all issues.</u>

19. Special Considerations – Section 01 00 00, Article 1.3

a. Contractor will contact Owner's Representative a minimum of 10 days prior to mobilization to the site and coordinate work schedules with the Owner's Representative throughout the completion of the work.

b. Contractor is responsible for restoring the site to original or better condition at the Contractor's expense. Site restoration including temporary erosion control provisions, if required, is a prerequisite for periodic and final payment.

c. Contractor shall contact New Mexico One Call a minimum of 3 days prior to activity on site, for utility locations.

d. Contractor shall abide by all permit stipulations and requirements, including but not necessarily limited to BIA and Navajo Nation environmental and archaeological stipulations and Navajo Nation Water Code Administration permits, regardless of whether such permits are obtained by the Owner, Engineer or Contractor.

i. Permits already obtained by the Owner or Engineer are found in Appendix C of these Bid Documents.

e. Construction water:

i. Construction water is available at a local artesian well called "Hot Springs" by community members located at 35.851290 N, 1098.668703 W. Contractor shall

verify that the water is of sufficient quality and quantity for their operations prior to construction.

ii. An NNWCA Water Use Permit is required, see Section 1.3.G.

f. It is the Contractor's responsibility to apply for and obtain all permits required for the Work that have not already been obtained by the Owner or Engineer. No additional compensation will be provided for obtaining permits and all costs will be considered incidental to the Project. It is anticipated the Contractor will need to obtain, at a minimum, a 402 permit from U.S. EPA for discharge of construction water and water produced from the well. Contractor is wholly responsible to determine what additional permits may be required.

g. Contractor must comply with all requirements as defined by NNWCA Water Use Permit and Water Well Drilling Permit/Application.

i. Copies of permits are included in Appendix C to the Bid Documents.
ii. The Owner will pay Water Well Drilling Permit application fee.
iii. The Owner will pay NNWCA Water Use permit application fees and initial estimated water use fees for this project.
    1. Should the Contractor use more water than the estimated amount, the Contractor shall pay additional water use fees based on actual usage.
iv. Contractor shall be responsible for updating permits or obtaining new permits as required.
    1. Changing water sources or purchasing additional water will require the Contractor to submit a new permit.

h. Contractor shall submit a Testing and Disinfection schedule to the Engineer for approval prior to performing the respective activities. Hydrostatic testing of the waterline, disinfection and bacteriological testing shall follow specifications outlined in Section 33 12 13 Water Service Connections, 33 13 00 Disinfection of Water Distribution, 33 21 13 Public Water Supply Wells, AWWA C600, AWWA C605, AWWA C651, AWWA C654, and New Mexico Standard Specifications for Public Works Construction.

i. The contractor may leave material and equipment at the Tohatchi Chapter compound at their own risk. Owner and Chapter make no guarantee to security of site.

j. Prior to beginning construction activities, the Contractor must furnish full-coverage video documentation of the entire construction site, per SC-2.05.B of the EJCDC C-800 Supplementary Conditions. The video must include coverage of all areas and adjacent features that may potentially be impacted by the impending construction work. Contractor must submit two (2) copies of the video documentation on DVD format as part of the submittal process.

k. Contractor must have a copy of the Well Drilling Permit and Water Use Permit at the construction site at all times throughout the construction process.

l. Contractor shall coordinate with Owner and residents for tie-in to existing infrastructure such as house plumbing. Contractor shall notify Engineer prior to performing the respective activities.

m. Contractor shall abandon existing cisterns and cistern pumphouses in place unless the Owner and resident request that the cistern and pump house be demolished. Contractor shall coordinate with Owner and residents on which cisterns and pump houses shall be demolished.
    i. Contractor shall abandon existing cistern and cistern pump in place by the following method.
        1. Disconnect cistern pump discharge from the pump.
        2. Cut and securely cap line from cistern pump to house plumbing. Mark cut line with 2x4 cut to 12" above ground.
        3. Abandoning cistern in place shall be incidental to 1" PEX service line installation from domestic stop to existing plumbing stub out.
    ii. Owner and residents may elect to have cistern and cistern pump demolished by the following method. All of the work below shall be included in the contractor's bid price for cistern abandonment. Contractor shall notify Engineer prior to performing any demolition.
        1. Notify resident/homeowner in accordance with specifications.
        2. Locate existing cistern.
        3. Empty cistern of water.
        4. Remove all equipment and salvage to the resident or dispose as directed by the Owner, including any above ground equipment.
        5. Remove cistern pumphouse and slab, if applicable.
        6. Break open the tank bottom so that the tank won't hold surface runoff.
        7. Fill in cistern with dirt. Contractor to submit fill material for engineer approval.
        8. Document the location of the cistern on as-built drawings.
        9. Return any existing improvements or landscaping to their original condition, or better. The contractor is responsible for documentation of existing conditions.

    iii. Contractor must maintain a full set of Drawings and Technical Specifications at the construction site at all times throughout the construction process. All subcontractors must possess at least all Drawings and Technical Specifications pertaining to their portion of the work while on the construction site at all times.

n. Contractor shall be responsible for notifying residents of construction. Access to driveways must be maintained at all times.

o. Cultural Resources Requirements:

    i. Archaeological Discovery in the Presence or Absence of Archaeological Monitoring: If, in its operations, the contractor discovers any previously

unidentified historic or prehistoric cultural resources, then all work within 100 feet of the discovery will be suspended and the discovery promptly reported to the Engineer. The Navajo Nation Historic Preservation Department (for Navajo lands) will then specify what action is to be taken. If the discovery is evaluated as being significant, treatment of the discovery may be required prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any required treatment is completed.

p. Construction work will generally not be permitted on the following Federal-recognized holidays: New Year's Day, Martin Luther King, Jr.'s Birthday, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. When any of the above holidays fall on a Saturday and the preceding Friday is established as a holiday for Government employees, or when any of the above holidays fall on a Sunday and the Monday following that day is established as a holiday for Government employees, no construction will be permitted on those days. However, the Owner, when in his/her opinion it is justified, may grant the Contractor permission to work on any of the above days upon advance written request by the Contractor.

q. Should nesting of a species protected under the Migratory Bird Treaty Act be identified in the construction zone, construction will be limited to a time of year outside the general migratory bird nesting season of March through August, avoided until nesting is complete, or the nest will be relocated by a properly trained and authorized expert.

r. Contractor shall confine operations to the construction site, which will be within the homesite lease unless otherwise noted. Contractor shall be responsible for obtaining permission for any activity outside of the established and approved construction areas.

s. Contractor shall propose and get approval from Owner of an area to store construction debris including unsuitable material from site grading and/or excavation where it will not be a nuisance. All debris shall be contained in such a manner that will prevent scattering. All debris, including trees and undergrowth, shall be disposed of properly within a properly permitted landfill. All debris shall be removed from the site prior to substantial completion. The handling, storage, and disposal of debris is incidental to the project.

t. Contractor shall provide access to the site to the Owner and Owner's Representative at all times. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

u. Some sites have no electric service on site. The Contractor is responsible for providing a suitable temporary power source adequate for running all equipment needed to perform the work. Providing this temporary power source is incidental to the work.

v. Site access:

i. Site access to drilling sites may include existing unpaved residential roads with areas of sand.

1. Access to driveways and other roads along the project site access route must be maintained at all times.

a. Contractor will be responsible for maintaining the existing unpaved road during the course of construction, and for returning the road to its original or better condition at the completion of the project.
b. Cost of maintaining existing roadways and returning to original or better condition is incidental to the work.

w. Contractor shall implement the necessary site erosion control devices for inhibiting dust, wind, and air sediment movement offsite throughout construction in accordance with NPDES Best Management Practices and in accordance with the project SWPPP, if applicable.

20. Public Water Supply Wells – Sections 33 21 13

a. Anticipated geology:

i. The wells shall be completed in the Late Cretaceous Menefee Formation, which is anticipated to consist of interbedded claystone, carbonaceous siltstone and shale, coal, and sandstone. Alluvial sediments or soil may be present at surface, underlain by the Menefee Formation.

ii. The Menefee Formation is expected to be underlain by the Point Lookout Formation. The Point Lookout Formation is anticipated to be an artesian aquifer. The Engineer notes that all effort shall be made to avoid drilling into the Point Lookout Formation.

iii. The first water in the area is anticipated to be encountered at approximately 250 to 700 feet below the ground surface. If during the drilling or completion stage of well construction, the borehole or well starts to flow, the Contractor shall control the flow. Costs associated with this control of flow, the Contractor shall be reimbursed by the Owner at the customary rates for time and materials.

b. Contractor shall provide proposed schedule of work within 5 days of award of contract.

c. The Contractor shall drill the well by the air-rotary method.

d. Cuttings shall be disposed of onsite in an area approved by the Owner's Representative.

e. Owner's Representative can assist with delivering water samples to laboratory selected by Engineer in Farmington.

f. System Description:

1. Move equipment on-site and rig up.
2. Maintain drilling-time and daily drilling reports.
3. Drill 20-inch hole to accommodate a nominal 12-inch steel conductor casing to 20 feet, or deeper if directed by Engineer. Collect drill cuttings at 10-foot intervals, or as directed by the Engineer.
4. Install 20 feet of 12-inch surface conductor casing and grout in place. Allow for pitless adapter in cementing.
5. Drill 9 7/8-inch borehole and collect drill cuttings from bottom of surface casing (anticipated 20 feet) to 805 feet.
6. Complete geophysical logging of borehole, if determined advantageous by the Engineer. This work shall be conducted by a sub-contractor.
7. Plug and Abandon Pilot hole per Navajo Nation requirements, if directed by the Engineer.
8. After reviewing geophysics data, Engineer or Engineer's representative onsite must approve final design of casing, screen and casing set depths prior to Contractor commencing installation of production casing.
9. Install 700 feet (plus minimum of 2 feet stick up) of 5-inch Schedule 80 PVC production casing, 100 feet of PVC well screen, and end cap, as shown on the Design Drawings or as directed by the Engineer.
10. Install centralizers every 100 feet, except directly over well screen.
11. Install filter pack in the annulus from total depth to 10 feet above screen, as shown in the Design Drawings or as directed by the Engineer.
12. Install 20-foot thick bentonite seal above the screen, as shown in the Design Drawings or as directed by the Engineer.
13. Install pea gravel from top of bentonite seal to 55 feet below ground surface.
14. Install cement grout from 55 feet to 60 inches below ground surface.
15. Develop the well by swabbing, zoned-air-lift pumping and bailing.
16. Supply and install test pump and transducer line if directed by Engineer.
17. Develop the well by pumping.
18. Conduct pumping test (including required recovery periods), monitor equipment during tests, and record results as specified. Pumping tests may be completed for one well or more than one well, as determined by the Engineer.
19. Assist Engineer with water quality constituent analysis sample collection and collect initial bacteriological test sample to ensure adequate disinfection.
20. Bail accumulated sediments from well.
21. Install welded cap to protect well from contamination.
22. If directed by Owner, construct surface completion including installation of pitless adapter.
23. If directed by Owner, install production pump, drop pipe, drop pipe centralizers, check valves, wire, and other downhole appurtenances.

24. Disinfect the well, as specified.
25. Complete wellhead surface, as specified.
26. Clean-up and restore well site.
27. Collect final sample for bacteriological testing to ensure adequate disinfection.

21. Deadline for questions

a. Additional questions, comments, or requests for information must be received by SMA no later than Midnight on Friday, February 4th to allow the Engineer time to provide a sufficient response to all plan-holders before the bid-opening.

b. Please direct any questions or comments prior to bidding to the Project Engineer at (505) 317-5098 or colin.daly@soudermiller.com.

i. *Bidders are strongly encouraged to submit their questions in writing, in addition to any questions asked by phone.*

c. Responses to questions will be provided to all plan holders by Wednesday, February 9th, at the latest.

22. A copy of the sign in sheet, pre-bid meeting notes, and any addenda will be uploaded to SMA's website. Notifications of uploads will be emailed to all on planholders list.

23. Thank you for attending and your interest in bidding this project. Please make sure you have signed in before you leave.

24. Notes

- *Is there an engineer's estimate?*
  - *Yes. EOPCC from 10/5/21 without Navajo Nation Sales Tax is $1,891,649.*
- *What is the first home on the list?*
  - *The following is a list of homes in anticipated order of construction.*

Well #	House #	Applicant Name
1	6	Mathilda Todachene
2	1	Martha Barney
2	2	Lucinda Barney
3	8	Laverne Wyaco
4	7	Caroline Manuelito
5	3	Teresa Bryant
6	9	Leonard Notah Jr
7	4	Harrison Badonie
7	5	Benson Badonie
8	11	Charlene Manuelito
9	10	Christopher Natanabah

- *Working Hours:*
  - *The Tohatchi Chapter indicated that residents would need to be notified about 24-hour drilling work.*
- *How many homes does the Engineer anticipate will be served with the available budget.*
  - *The engineer anticipates serving 3 wells and 4 homes with the available budget.*
- *Some bidders expressed concern about culverts with minimal along access routes*
  - *An additional bid item has been added to the bid form to furnish and install compacted base course (per Cubic Yard) to protect existing culverts.*
- *Access to homes.*
  - *The map has been revised with access routes designate by bold line and is included in Addendum No. 1.*

Tohatchi East Flats Individual Wells Project
Mandatory Pre-bid Meeting & Site Visit
Friday, January 21st, 2022 at 10:30 am.
Tohatchi Chapter House

Sign-In Sheet

No.	Name	Company	Telephone No.	Email
1	COLIN DALY	SMA	734-347-9866	colin.daly@soudermiller.com
2	CLAYTON THAYER	KP VENTURES Drilling	505. 240. 0833	Claytont@kpvents.com
3	Tyrell Jones	Rain For Rent	970-529-6306	tjones@rainforrent.com
4	Tom Fox	E-T Drilling	970 560-1248	E.t drilling01@gmail.com
5	Elisa Fox	E-T Drilling	435-459-9520	"
6	Terry Beck	E-T Drilling	435-260-8834	"
7	Jessica Velasco	Stewart Brother Drilling	(505)257-2986	jessica@stewardbrothers.com
8	Roger Huser	Stewart Brothers	940 367 3897	roger@stewartbrothers.com
9	Bill Whaley	HGS	505-866-6495	billwhaley@qwestoffice.net
10	JOHN RAWLINGS	FIG Const	505-414-4383	JohR@FConst.com
11	Lowell J Scott	Bear Creek	505-427-7427	lscott505@yahoo.com
12	Jason John	NDWR	928-729-4004	jasonj.hne@navajonsn.gov
13				
14				
15				
16				
17				
18				

First Name	Last Name	Company	Address	City	State	Zip	Phone	Fax	Email	Interest	Date Access Requested
Colin	Daly	Souder, Miller & Associates	5454 Venice Avenue NE, Suite D	Albuquerque	NM	87113	5053257595		colin.daly@soudermiller.com		1/6/2022 6:46
AMY	Majors	Hydro Resources	3795 West Jones Ave	Garden City	KS	67846	800-401-9092		amajors@hydroresources.com		1/6/2022 7:23
Michael	Smith	TLC Plumbing and Utility	5000 Edith Blvd NE	Albuquerque	NM	87107	505-313-1966	505-761-5559	msmith@tlcplumbing.com		1/6/2022 7:44
Bryan	Adams	Yellow Jacket Drilling Services, Inc.	1515 Wynkoop Street, Suite 360	Denver	CO	80202	3039210616		bryan@yjdrilling.com		1/6/2022 10:57
Jane	wood	Construction Reporter	4901 McLeod	Albuquerque	NM	87109	5052439793	505-242-4758	rebecca@constructionreporter.com	PLAN ROOM	1/6/2022 12:19
David	Brinkerhoff	Complete Water Solutions	4898 S 4625 E	Vernal	Utah	84078	3038018915		completewater@mbtinc.net		1/6/2022 12:52
Mayra	Gaxiola	File Construction LLC	109 Industrial Ave NE	ALBUQUERQUE	New Mexico	87107	505.554.1780	505.554.3195	mayrag@fconst.com		1/6/2022 13:54
Jaime	Cruz	File Construcion	109 Industrial Ave NE	Albuququerque	NM	87107	505-554-1780	505-554-3195	JaimeC@fconst.com		1/6/2022 13:54
thomas	fox	E-T Drilling llc	po box 449	Montezuma Creek	Utah	84534	970-560-1248	n/a	e.tdrilling01@gmail.com	water well drilling company	1/6/2022 15:28
April	Hamilton	Dodge Data and Analytics	4300 Beltway Place Ste 150	ARLINGTON	TX	76018	4133042008	253-537-3597	dodge.docs@construction.com		1/7/2022 2:53
Joel	Stewart	Stewart Brothers Drilling Co	PO BOX 2067	MILAN	NM	87021	5052400681	8442739079	joel@stewartbrothers.com		1/7/2022 7:10
clay	rathjen	Dak drilling	po box 1577	ignacio	CO	81137	19707598533		clay@dakdrilling.com		1/7/2022 10:01
Construct	Connect	ConstructConnect	3825 Edwards Road	Cincinnati	OH	45209	800-364-2059	866-570-8187	content@constructconnect.com	Plan Room	1/7/2022 14:49
carl	coriz	CF Padilla LLC	62A Tribal Road 90	Albuquerque	NM	87105	5055896563		carl@cfpadillallc.com		1/10/2022 9:09
Brandon	Garcia	PureOps	748 West Palms	Las Cruces	NM	88007	575-644-0571	480-772-4795	brandon@pureops.com		1/10/2022 9:25
Cecilia	Hernandez	The PlanIt Room	1155 Westmoreland Suite 109	El Paso	TX	79925	(915) 781-2900	(915) 781-2902	projects@theplanitroom.com	Plan Room	1/11/2022 10:17
Bill Whaley		HydroGeologic Services, Inc.	P.O. Box 94716	Albuquerque	NM	87124	(505) 856-6498	(505) 856-6501	billwhaley@qwestoffice.net		1/12/2022 15:31
Pamela	Exton	Construction Journal	400 SW 7th Street	Stuart	Florida	34994	8007855165	8007855165	bids@thecj.com	construction reporting	1/13/2022 7:18
Christopher	Bitsilly	iina' ba', Inc.	1812 Schofield Lane	Farmington	New Mexico	87401	5053200428		cbitsilly@iinaba.com		1/13/2022 9:52
Clayton	Thayer	KP Ventures Well Drilling and Pump Company LLC	4715 Old Highway 279	Camp Verde	AZ	86322	5052400833		claytont@kpvent.com		1/17/2022 7:52
Eric	Johnson	North America Procurement Council Inc., PBC	PO Box 40445,	Grand Junction	Colorado	81504	302-450-1923		sourcemanagement@napc.me	Bid Lead Service	1/17/2022 21:35
TYT		TYT							lavina.lamone@tiisyatoh.com		1/18/2022 8:41
Jose	Cordova	McDade-Woodcock Inc	2404 Claremont Ave. NE	Albuquerque	NM	87107	505-884-0155		JoseC@mwieic.com		1/27/2022 8:32
Dan	Minich	Pipestone Equipment Company	676 Moss Street	Golden	CO	80401	303-278-9660	303-567-2861	dminich@pipestoneeq.com		1/31/2022 15:46

BID FORM

Tohatchi East Flats Individual Wells Project

TABLE OF CONTENTS

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Navajo Nation – Water Management Branch
C/O Souder, Miller & Associates
Attention: Colin Daly, P.E.
401 West Broadway
Farmington, New Mexico 87401

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date
Addendum No. 1	01/25/2022

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Technical Specifications, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Note: Navajo Nation tax not included.

BASE BID					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**QTY.**	**UNIT PRICE**	**TOTAL PRICE**
Well Drilling					
1	Drill and Equipment Mobilization (75%)/Demobilization (25%), includes all equipment necessary to construct and equip the well, coordination, protection of the well throughout project, driller's logs, as-builts, **traffic control (if required),** and site restoration, **per well.**	**EA**	**9**		
2	Drill 20-inch Borehole and Furnish and Install 12-inch Steel Surface Casing (0.375" wall thickness) to 20 feet, Collect Drill Cutting Samples Every 10 feet, does not include neat cement grout, CIP	LF	180		
3	Drill 10-inch Production Well Borehole, anticipated from 20 to 805 feet, includes collecting Drill Cutting Samples Every 10 feet, equipment costs, labor, deviation surveys, materials, and construction water costs associated with completion of borehole, CIP	LF	7065		
4	Furnish and Install 5-inch Sch 80 PVC Production Well Casing, including 2-foot stickup and centralizers, CIP	LF	6318		
5	Furnish and Install 5-inch SDR 17 PVC Well Screen, includes end cap and centralizers, CIP	LF	900		
6	Furnish and Install Filter Pack (anticipated to be 125' total per well), anticipated to be 10-20 filter pack, final size to be determined by Engineer, includes materials, disinfection and placement with tremie pipe, CIP	CU. FT	466		
7	Furnish and Install 20-foot Bentonite Seal Above Filter Pack, includes materials and placement with tremie pipe, CIP	CU. FT	75		
8	Furnish and Install Pea-Gravel from Top of Bentonite Seal to 55 ft bgs, includes materials and placement with tremie pipe, CIP	CU. FT	2257		

BASE BID					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**QTY.**	**UNIT PRICE**	**TOTAL PRICE**
9	Furnish and Install Neat Cement Grout between borehole and surface casing/production casing and between surface casing and production casing, as indicated in Drawings, from 5 ft to 55 ft bgs, includes materials and placement with tremie pipe, CIP	CU. FT	430		
10	Develop Screened Interval by Swabbing and Air-Lift Pumping and Bailing, includes any labor, materials and equipment needed that are not separately listed on bid form. Required recovery periods after pumping are incidental.	HR	126		
11	Develop Screened Intervals by Pumping, includes any labor, materials and equipment needed that are not separately listed on bid form. Required recovery periods after pumping are incidental.	HR	72		
12	Perform Pump Test on Well(s) per direction of Engineer, 300 min step test and 24-hour constant rate test, includes any labor, materials and equipment needed that are not separately listed on bid form. Required recovery periods after pumping are incidental. A pump test may not be conducted at each well.	HR	87		
13	Disinfect Well and Perform Bacteriological Testing, includes disinfection of equipment and materials placed in the well, and collection and delivery of bacteriological samples to laboratory. In the event of failed bacteriological tests, contractor is responsible for up to two additional disinfection/testing procedures at no cost to the Owner.	EA	9		

BASE BID					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**QTY.**	**UNIT PRICE**	**TOTAL PRICE**
14	Furnish 1-inch Boreline Flexible Drop Pipe and Pump Wire, includes furnishing of pipe, pipe couplings, pipe fittings, centralizers, fasteners, connections and terminations for drop pipe.	LF	4865		
15	Furnish 1-1/4 inch Boreline Flexible Drop Pipe and Pump Wire, includes furnishing of pipe, pipe couplings, pipe fittings, centralizers, fasteners, connections and terminations for drop pipe.	LF	1390		
16	Furnish 1-inch Check Valve with Fittings	EA	7		
17	Furnish 1 1/4-inch Check Valve with Fittings	EA	2		
18	Furnish #6 Pump Wire	LF	4970		
19	Furnish #4 Pump Wire	LF	1420		
20	Furnish and Install 1.5 HP Grundfos 5SQE15-450 Submersible Production Pump and Motor (single residence), final size and model to be determined by Engineer based on Pump Test results, Includes installation, testing, and startup of pump, motor, drop pipe, drop pipe centralizers, check valves, pump wire, and appurtenances. Excludes furnishing of materials.	EA	7		
21	Furnish and Install 3HP Grundfos 10S30-34 Submersible Production Pump and Motor (multi-residence), final size and model to be determined by Engineer based on Pump Test results, Includes installation, testing, and startup of pump, motor, drop pipe, drop pipe centralizers, check valves, pump wire, transducer, transducer pipe and appurtenances. Excludes furnishing of materials.	EA	2		

BASE BID					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**QTY.**	**UNIT PRICE**	**TOTAL PRICE**
22	Complete Wellhead, includes pitless adapter, connection from drop pipe to 1-inch PE service line, stub-out electrical conduit, 4'x4' concrete pad around well seal, appurtenances, excavation, backfill, compaction, and site restoration, CIP	EA	9		
23	Testing Allowance, includes down-hole geophysical, water quality testing, material testing and bacteriological testing.	ALLOW	1	$45,000	$45,000
24	Standby at the Written Request of Owner or Engineer.	HR	24		
Service Line Connections					
25	Equipment Mobilization (75%)/Demobilization (25%), ~~not to exceed 5% of service line connection work,~~ includes as-builts, **per service connection**.	**EA**	**9**		
26	Furnish and install 1-inch PE Service Line, includes connection to control vault, all material, trenching, bedding, backfilling, compaction, pressure testing, and site restoration, CIP	LF	1305		
27	Furnish and Install 1-inch PEX Service Line from domestic stop to existing plumbing stub out, includes connection to domestic stop and existing plumbing, abandoning existing cistern and cistern pump in place, all material, up to 20 LF of trenching, bedding, backfilling, compaction, and site restoration, CIP	EA	6		
28	Furnish and Install 1-inch PEX Service Line from domestic stop with 10 ft coiled at residence, connection to domestic stop and existing plumbing, all material, up to 20 ft of trenching, bedding, backfilling, and site restoration, CIP	EA	3		

BASE BID					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**QTY.**	**UNIT PRICE**	**TOTAL PRICE**
29	Furnish and Install Multi-Residence Control Vault, includes 60" ID concrete vault, pressure tank, pressure gauge, pressure switch, pressure relief valve, **check valve near well,** appurtenances, excavation, bedding, backfill, compaction, pressure testing, and site restoration, CIP	EA	2		
30	Furnish and Install Single-Residence Control Vault, includes 18" ID PVC meter box, pressure tank, pressure gauge, pressure transducer, pressure relief valve, **check valve near well,** appurtenances, excavation, bedding, backfill, compaction, pressure testing, and site restoration, CIP	EA	7		
31	Furnish and Install Sanitary Frost-Free Yard Hydrant, includes connection to 1" PE, materials, labor, fittings, excavation, bedding, backfill, compaction, and pressure testing, CIP	EA	11		
32	Furnish and Install Domestic Stop Assembly, includes connection to 1" PE, materials, labor, fittings, excavation, bedding, backfill, compaction, and pressure testing, CIP	EA	24		
33	Furnish and Install Grundfos CU301 Well Controller for Wells with 5SQE15-450 Pump, includes materials, installation, mounting inside or outside of home, conduit, trenching, wiring from well to control vault to controller, startup, and testing, CIP	EA	7		
34	Furnish and Install Franklin Pumptec-Plus Pump Controller, OAE, for Wells with 10S30-34 Pump, includes materials, installation, mounting inside or outside of home, conduit, trenching, wiring from well to control vault to controller, startup, and testing, CIP	EA	2		

BASE BID					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**QTY.**	**UNIT PRICE**	**TOTAL PRICE**
35	Demolish Cistern and Cistern pump, if directed by Owner, includes notifying resident/homeowner, locating existing cistern, emptying cistern of water, removing all equipment and salvaging or disposing as directed by owner, removing cistern pumphouse and slab, breaking open tank bottom, filling cistern with approved fill dirt, documentation of cistern location, and site restoration.	EA	5		
36	Storm Water Pollution Prevention Plan, including preparation of plan, implementation and maintenance plan, and all discharge permits.	LS	1		
37	**Furnish and install compacted aggregate base course (Type A) to protect existing culverts, per direction of Engineer.**	**CU. YD**	**500**		

TOTAL OF BASE BID: $_____

IN WORDS: _____

_____

ADDITIVE ALTERNATE NO. 1					
ITEM NO.	**ITEM DESCRIPTION**	**UNIT**	**EST. QTY.**	**UNIT PRICE**	**TOTAL PRICE**
1.1	Additional Cost to Furnish and Install 304 Stainless Steel Pipe and fittings in lieu of galvanized or other material in multi-residence Control Vault (base bid item #29). See notes on DT-2 identifying which items shall be replaced.	EA	2		
1.2	Additional Cost to Furnish and Install 304 Stainless Steel Pipe and fittings in lieu of galvanized or other material in single-residence Control Vault (base bid item #30). See notes on DT-3 identifying which items shall be replaced.	EA	7		

TOTAL OF ADDITIVE ALTERNATE NO. 1 BID: $_____

IN WORDS: _____

_____

Bidder acknowledges that (1) each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete within 240 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 270 calendar days after the date when the Contract Times commence to run.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. Bidder's Qualifications Statement with Supporting Data;

C. List of Proposed Subcontractors;

D. Navajo Nation Certification Regarding Debarment and Suspension;

E. Affidavit of Responsibility for Subcontractors;

F. Affidavit of Non-Collusion;

G. New Mexico Contractor's License No.: _____;

H. Documentation of eligibility for certification as Priority 1 or 2 business entity under the Navajo Business Opportunity Act (if applicable);

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the Standard General Conditions, and Navajo Nation Supplementary Conditions of the Construction Contract.

ARTICLE 9 – BID SUBMITTAL

Bidder acknowledges that the document known as EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee® has been substantially modified by the Owner and such modified document has been given the label of "C-700 NN"

Yes _____

No _____

and forms part of the present Agreement.

Bidder hereby attests that Bidder is in good standing with the State of New Mexico and the Navajo Nation, and will provide such certification if selected for Contract award following the bidding process and prior to execution of the Contract.

Yes _____

No _____

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

New Mexico Department of Workforce Solutions Registration No. _____

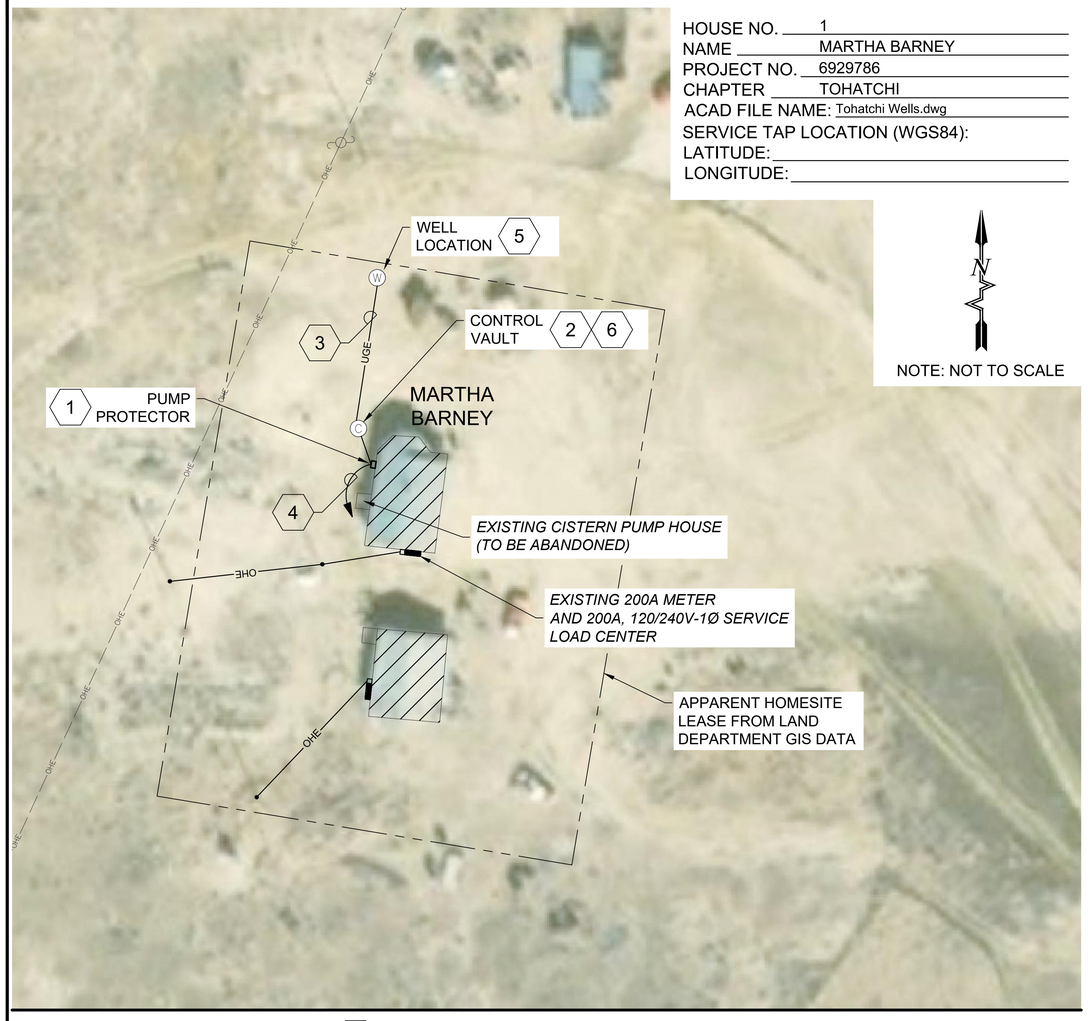
Is Bidder certified as a Priority 1 or 2 business entity under the Navajo Business Opportunity Act?

Yes, Priority 1 _____

Yes, Priority 2 _____

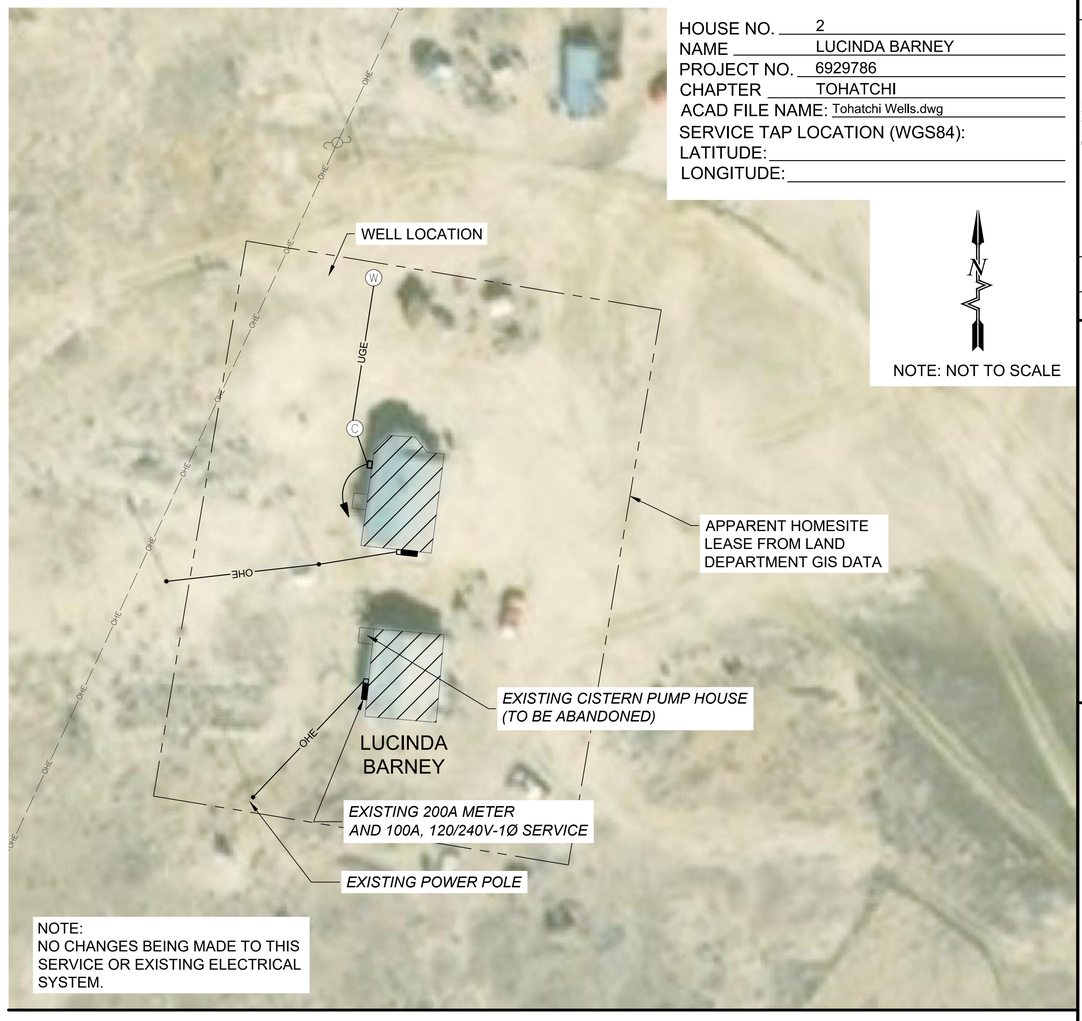
No _____

If yes, attach documentation of Indian Preference eligibility.



HOUSE NO. 1
NAME MARTHA BARNEY
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

NOTE: NOT TO SCALE



HOUSE NO. 2
NAME LUCINDA BARNEY
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

NOTE: NOT TO SCALE

NOTE:
NO CHANGES BEING MADE TO THIS SERVICE OR EXISTING ELECTRICAL SYSTEM.

KEYED NOTES

1. PUMP PROTECTION SYSTEM. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER SHALL BE RATED FOR INDOOR/OUTDOOR USE. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL INFORMATION.
2. EXTEND CONDUIT FROM CONTROL VAULT TO PUMP PROTECTOR AT HOUSE. COORDINATE ROUTING IN THE FIELD.
3. EXTEND CONDUIT FROM PITLESS ADAPTER TO CONTROL VAULT. COORDINATE ROUTING IN THE FIELD.
4. EXTEND CONDUIT FROM PUMP PROTECTOR TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.
6. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL INFORMATION.

Rev #	Date	Description	By	Chk'd

SOUDER, MILLER & ASSOCIATES
Engineering • Environmental • Geomatics
Serving the Southwest & Rocky Mountains
401 West Broadway Avenue
Farmington, NM 87401
Phone (505) 325-7535 Toll-Free (800) 519-0098 Fax (505) 326-0045
www.soudermiller.com

CLIENT TOWN

TOHATCHI EAST FLATS
INDIVIDUAL WELLS
TOHATCHI, NEW MEXICO
INDIVIDUAL INSTALLATIN DETAIL HOMES 1 & 2

THOMAS F. TRUEHLE — NEW MEXICO — 25211 — PROFESSIONAL ENGINEER — 10/5/21

21040

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

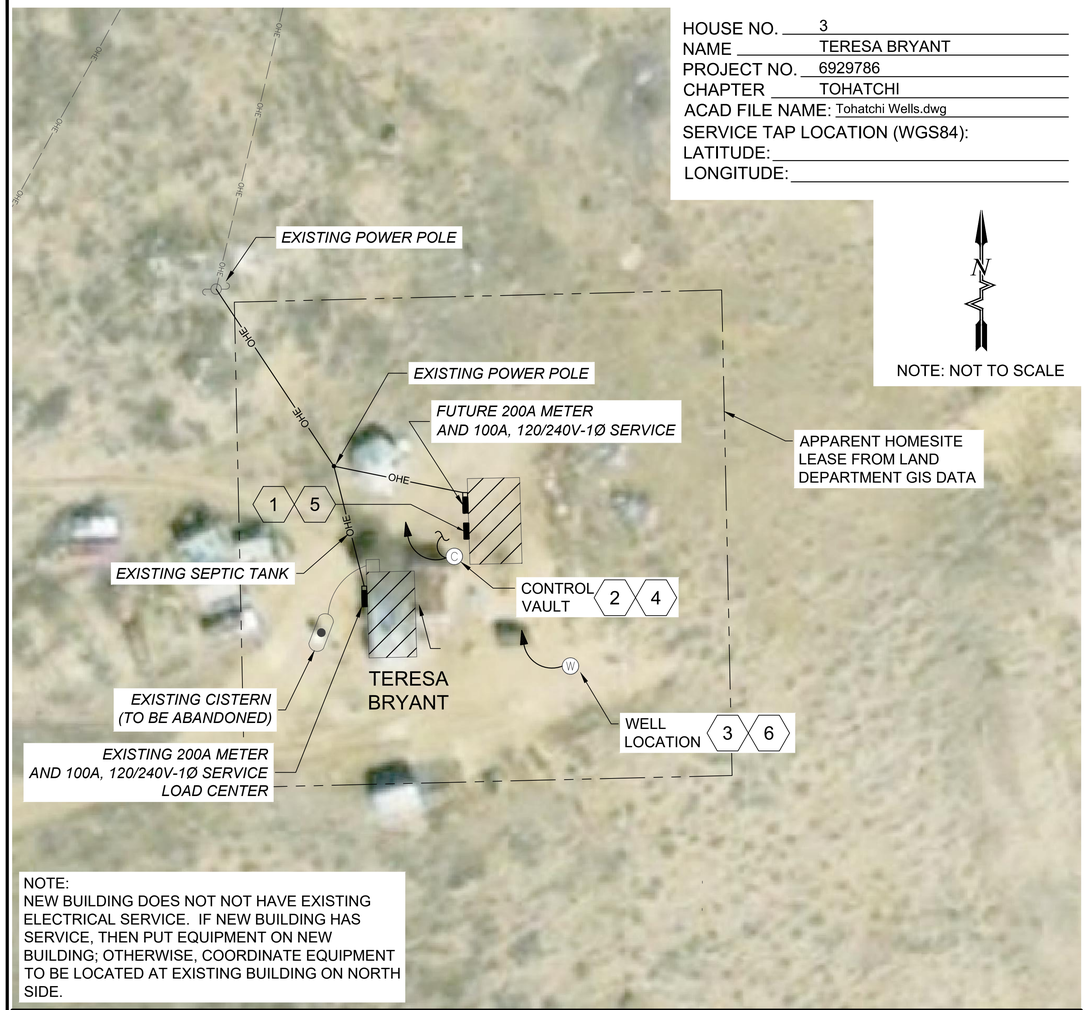
Designed	Drawn	Checked
TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-1

F:\21040 Tohatchi Wells\00000 CADD\Constructs\Electrical\Tohatchi Wells (6929786).dwg, 10/5/2021 4:15:13 PM TRUEHLE

HOUSE NO. 3
NAME TERESA BRYANT
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

NOTE: NOT TO SCALE



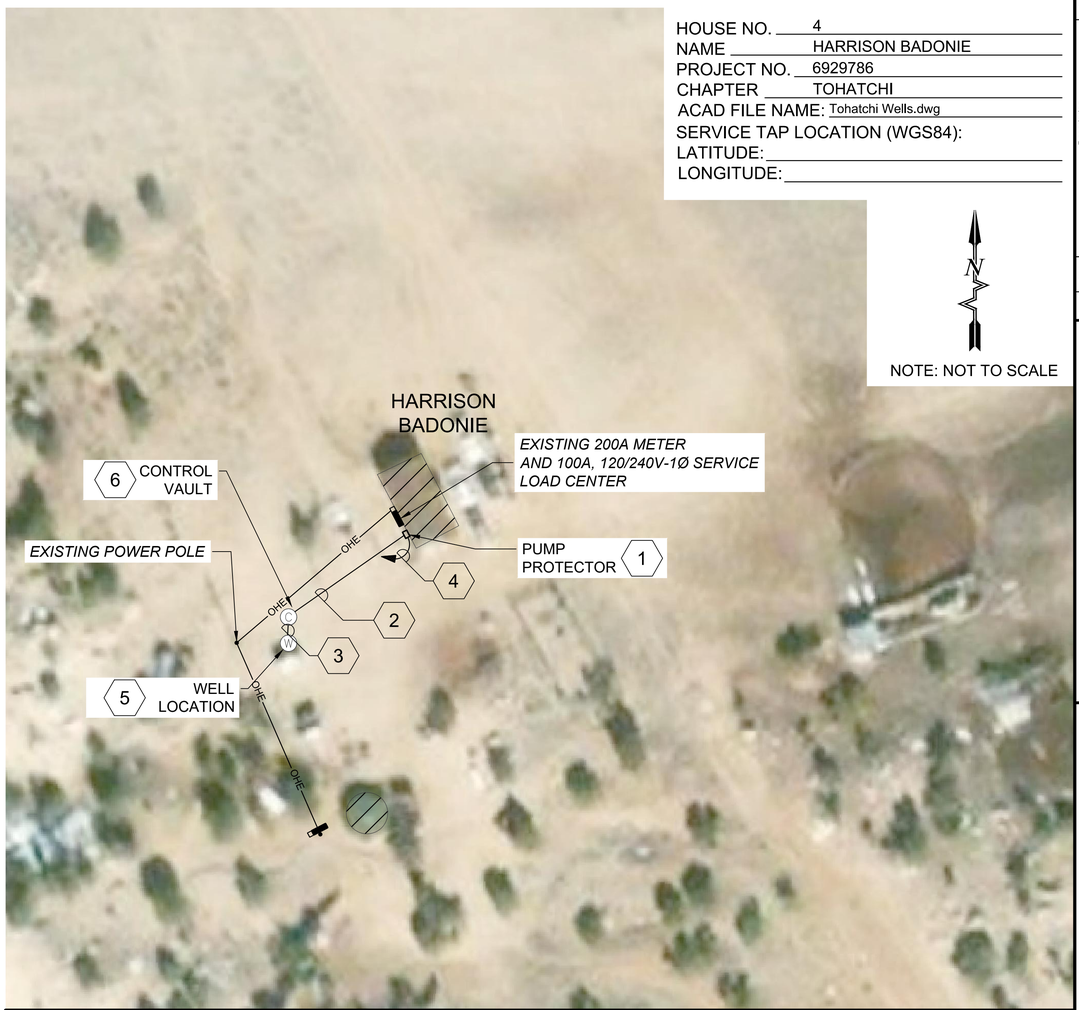
NOTE:
NEW BUILDING DOES NOT NOT HAVE EXISTING ELECTRICAL SERVICE. IF NEW BUILDING HAS SERVICE, THEN PUT EQUIPMENT ON NEW BUILDING; OTHERWISE, COORDINATE EQUIPMENT TO BE LOCATED AT EXISTING BUILDING ON NORTH SIDE.

KEYED NOTES

1. GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER CAN BE LOCATED ON THE INTERIOR OR EXTERIOR OF BUILDING. CU-301 IS RATED FOR INDOOR/OUTDOOR USE. CONTROLLER SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT PER MANUFACTURERS RECOMMENDATIONS. PROVIDE AND INSTALL BIRD COVER ENCLOSURE IF MOUNTED OUTDOORS.
2. EXTEND CONDUIT FROM PRESSURE TRANSDUCER IN CONTROL VAULT TO GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE ROUTING IN THE FIELD.
3. EXTEND CONDUIT FROM PITLESS ADAPTER TO GRUNDOFOS CU-301 PUMP CONTROLLER. COORDINATE ROUTING IN THE FIELD.
4. EXTEND CONDUIT FROM GRUNFOS CU-301 PUMP CONTROLLER TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX BELOW GRUNDFOS CU-301 PUMP CONTROLLER FOR WIRE SPLICE. COORDINATE FINAL LOCATION IN THE FIELD.
6. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.

HOUSE NO. 4
NAME HARRISON BADONIE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

NOTE: NOT TO SCALE



KEYED NOTES

1. PUMP PROTECTION SYSTEM. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER SHALL BE RATED FOR INDOOR/OUTDOOR USE. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL INFORMATION.
2. EXTEND CONDUIT FROM CONTROL VAULT TO PUMP PROTECTOR AT HOUSE. COORDINATE ROUTING IN THE FIELD.
3. EXTEND CONDUIT FROM PITLESS ADAPTER TO CONTROL VAULT. COORDINATE ROUTING IN THE FIELD.
4. EXTEND CONDUIT FROM PUMP PROTECTOR TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.
6. REFER TO POWER RISER DIAGRAM FOR ADDITIONAL INFORMATION.

Rev #	Date	Description	By	Chk'd

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INDIVIDUAL INSTALLATIN DETAIL HOMES 3 & 4

THOMAS F. RUEHLE
NEW MEXICO
25211
PROFESSIONAL ENGINEER
10/5/21

21040

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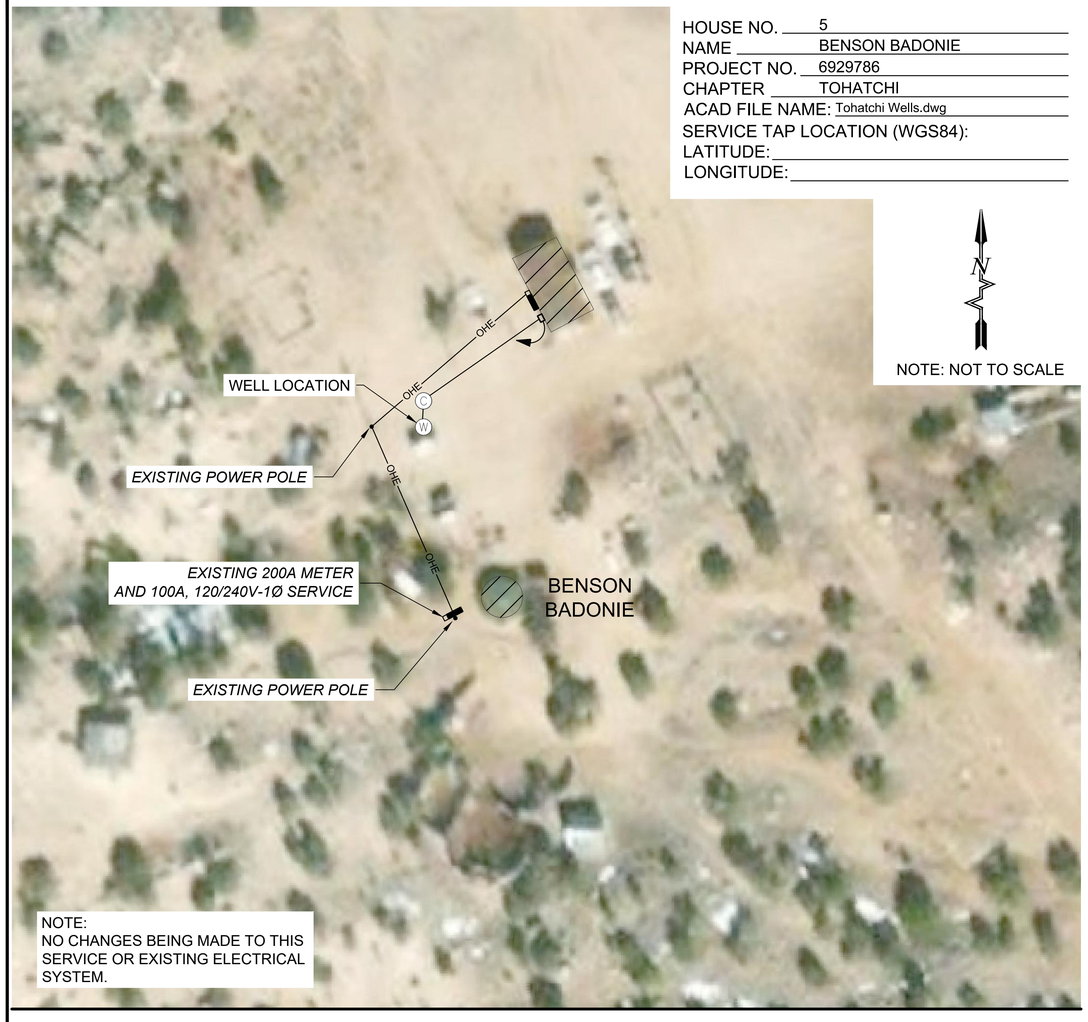
Designed	Drawn	Checked
TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-2

F:\21040 Tohatchi Wells\00000 CADD\Constructs\Electrical\Tohatchi Wells (6929786).dwg, 10/5/2021 4:15:25 PM TRUEHLE

HOUSE NO. 5
NAME BENSON BADONIE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



N

NOTE: NOT TO SCALE

NOTE:
NO CHANGES BEING MADE TO THIS SERVICE OR EXISTING ELECTRICAL SYSTEM.

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THOMAS F. RUEHLE
NEW MEXICO
25211
PROFESSIONAL ENGINEER
10/5/21

21040

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Designed	Drawn	Checked
TFR	TFR	TFR

Date: October 2021
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Vert: N/A
Project No: 6929786
Sheet: E-3

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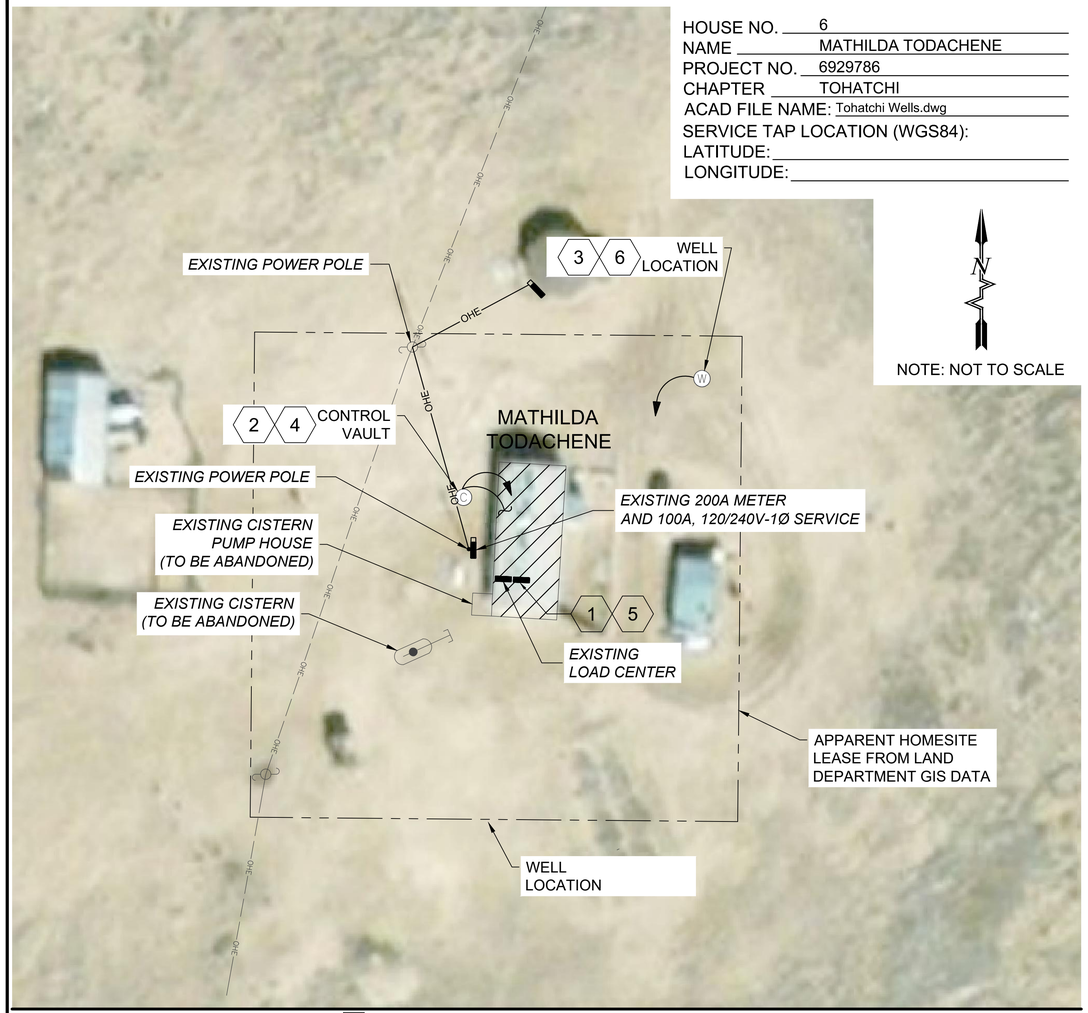
HOUSE NO. 6
NAME MATHILDA TODACHENE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

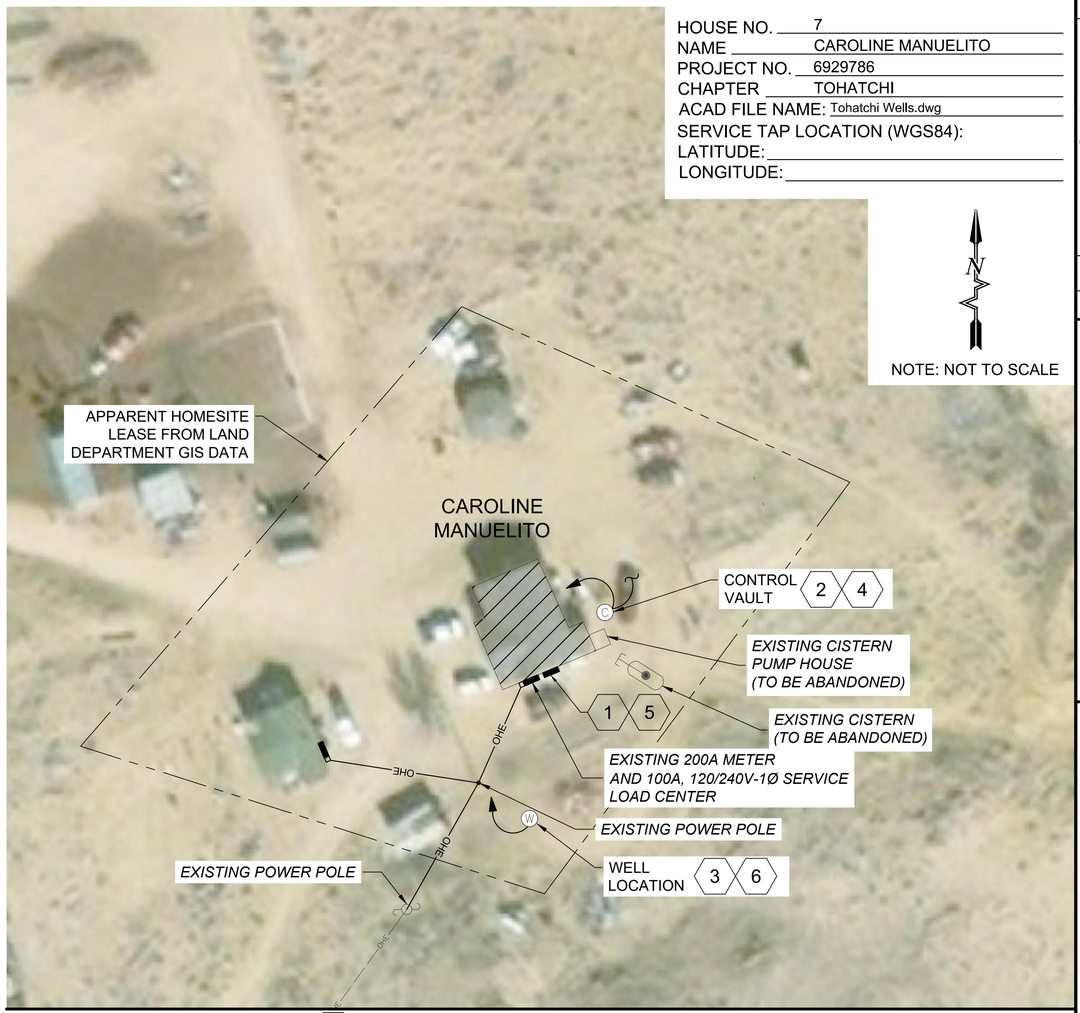


NOTE: NOT TO SCALE

KEYED NOTES

1. GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER CAN BE LOCATED ON THE INTERIOR OR EXTERIOR OF BUILDING. CU-301 IS RATED FOR INDOOR/OUTDOOR USE. CONTROLLER SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT PER MANUFACTURERS RECOMMENDATIONS. PROVIDE AND INSTALL BIRD COVER ENCLOSURE IF MOUNTED OUTDOORS.
2. EXTEND CONDUIT FROM PRESSURE TRANSDUCER IN CONTROL VAULT TO GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE ROUTING IN THE FIELD.
3. EXTEND CONDUIT FROM PITLESS ADAPTER TO GRUNDOFOS CU-301 PUMP CONTROLLER. COORDINATE ROUTING IN THE FIELD.
4. EXTEND CONDUIT FROM GRUNFOS CU-301 PUMP CONTROLLER TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX BELOW GRUNDFOS CU-301 PUMP CONTROLLER FOR WIRE SPLICE. COORDINATE FINAL LOCATION IN THE FIELD.
6. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.

HOUSE NO. 7
NAME CAROLINE MANUELITO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

KEYED NOTES

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4. EXTEND CONDUIT FROM GRUNFOS CU-301 PUMP CONTROLLER TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX BELOW GRUNDFOS CU-301 PUMP CONTROLLER FOR WIRE SPLICE. COORDINATE FINAL LOCATION IN THE FIELD.
6. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.

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25211
PROFESSIONAL ENGINEER
21040 10/5/21

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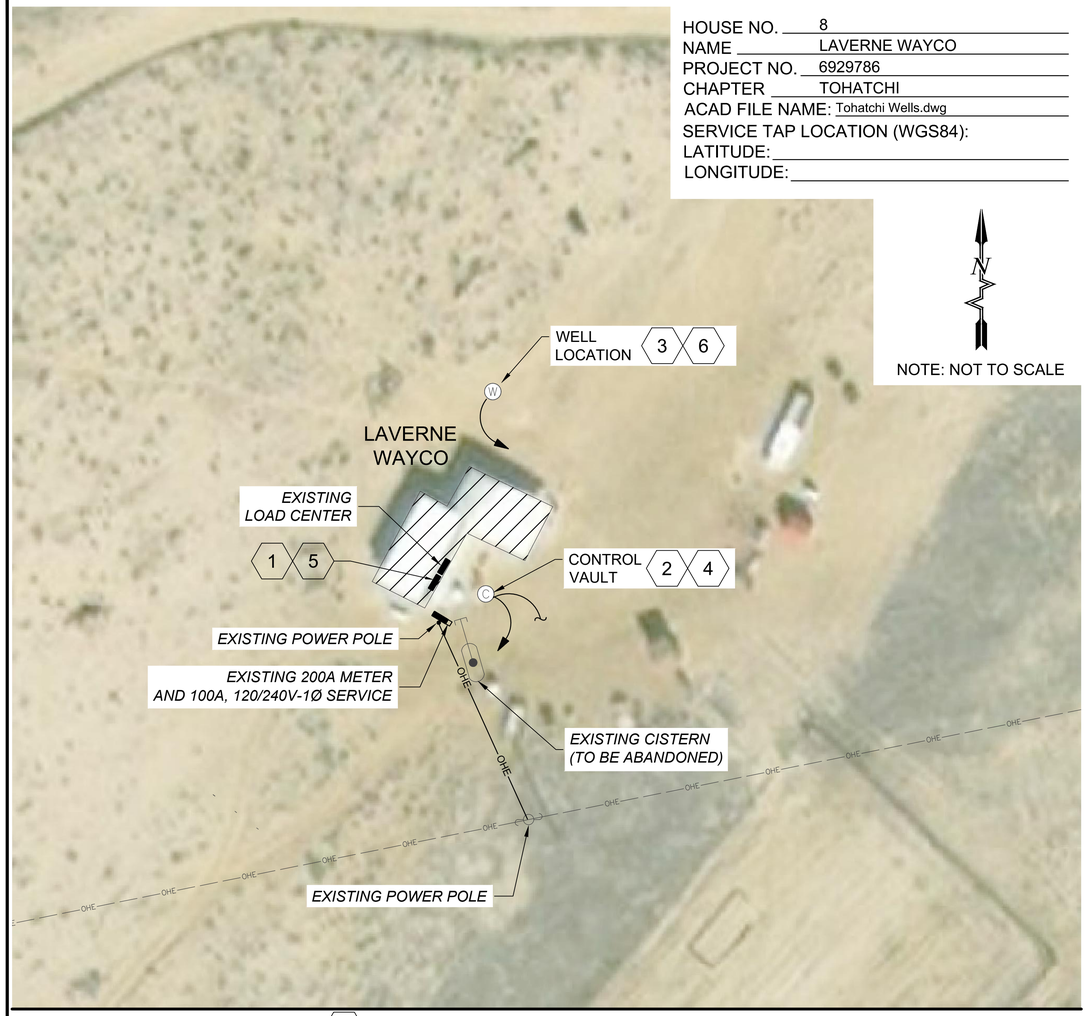
TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-4

HOUSE NO. 8
NAME LAVERNE WAYCO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

NOTE: NOT TO SCALE



KEYED NOTES

1. GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER CAN BE LOCATED ON THE INTERIOR OR EXTERIOR OF BUILDING. CU-301 IS RATED FOR INDOOR/OUTDOOR USE. CONTROLLER SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT PER MANUFACTURERS RECOMMENDATIONS. PROVIDE AND INSTALL BIRD COVER ENCLOSURE IF MOUNTED OUTDOORS.
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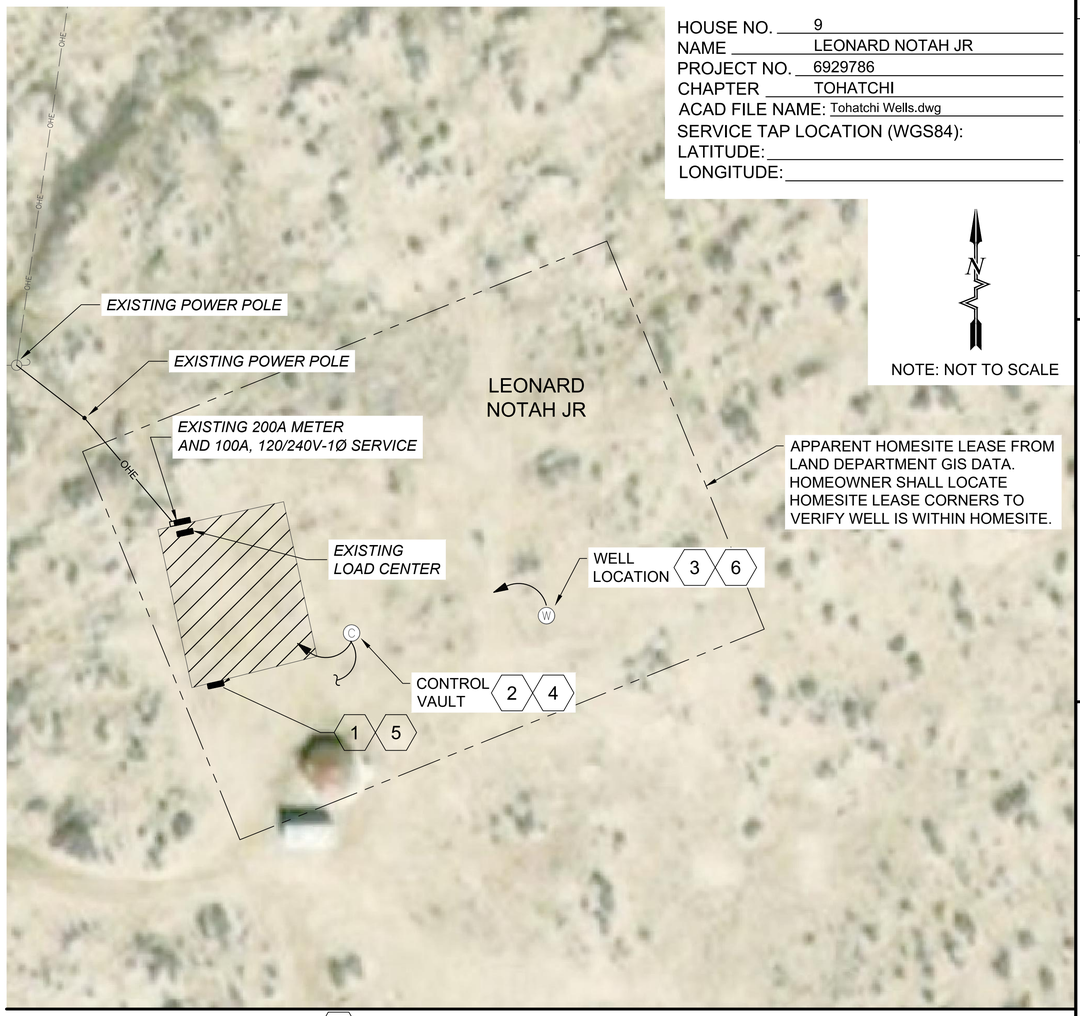
4. EXTEND CONDUIT FROM GRUNFOS CU-301 PUMP CONTROLLER TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX BELOW GRUNDFOS CU-301 PUMP CONTROLLER FOR WIRE SPLICE. COORDINATE FINAL LOCATION IN THE FIELD.
6. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.

HOUSE NO. 9
NAME LEONARD NOTAH JR
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:

NOTE: NOT TO SCALE



KEYED NOTES

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THOMAS F. TRUEHLE NEW MEXICO 25211 PROFESSIONAL ENGINEER
21040 10/5/21

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TFR	TFR	TFR

Date: October 2021
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Project No: 6929786
Sheet: E-5

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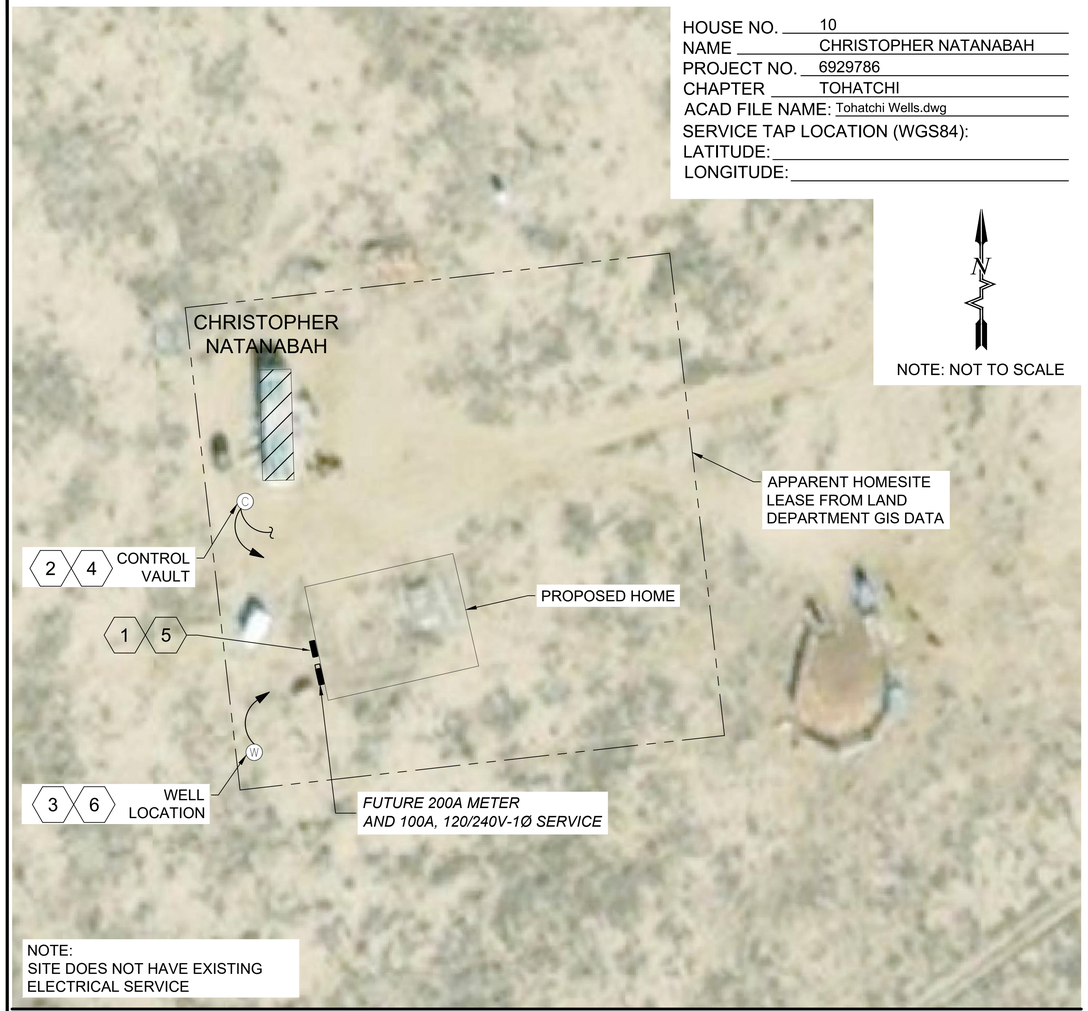
HOUSE NO. 10
NAME CHRISTOPHER NATANABAH
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

KEYED NOTES

1. GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER CAN BE LOCATED ON THE INTERIOR OR EXTERIOR OF BUILDING. CU-301 IS RATED FOR INDOOR/OUTDOOR USE. CONTROLLER SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT PER MANUFACTURERS RECOMMENDATIONS. PROVIDE AND INSTALL BIRD COVER ENCLOSURE IF MOUNTED OUTDOORS.
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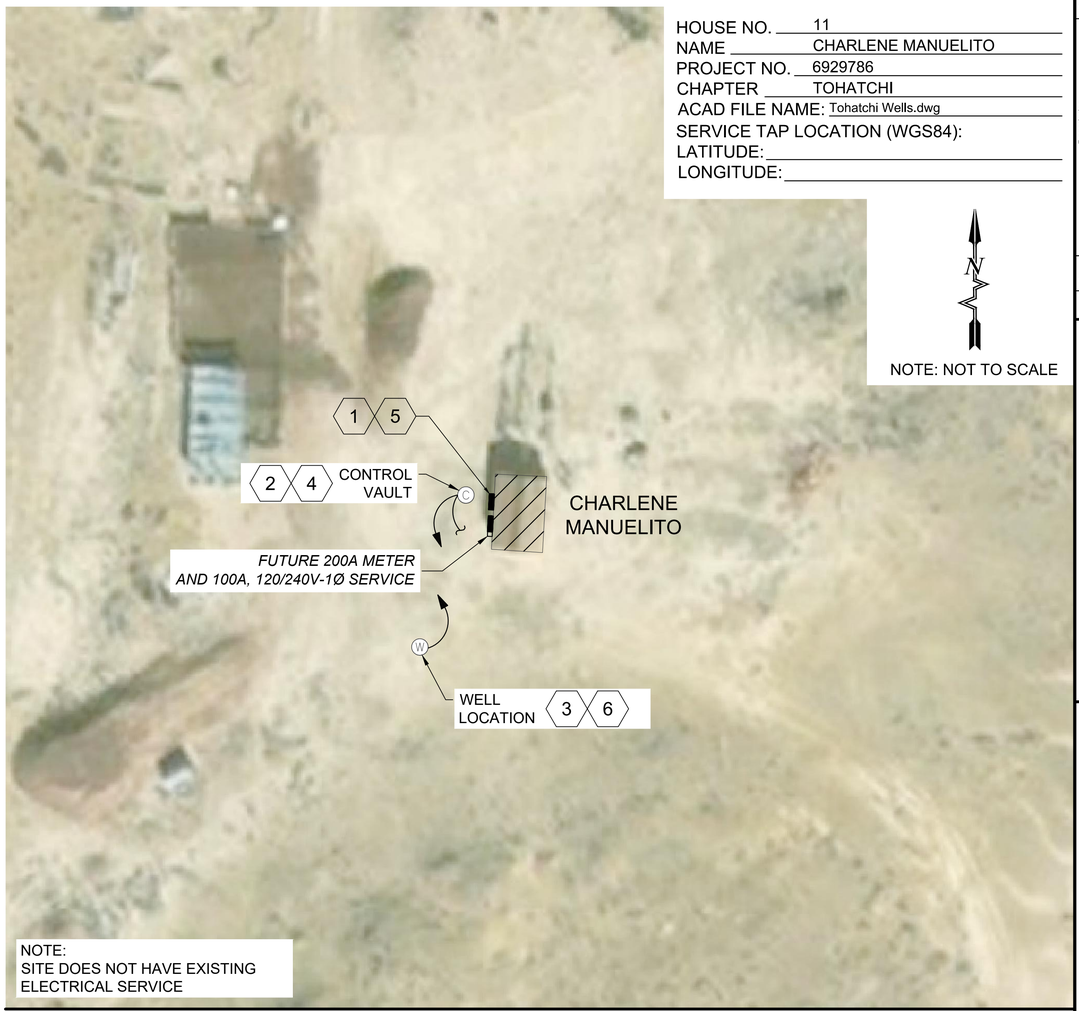
4. EXTEND CONDUIT FROM GRUNFOS CU-301 PUMP CONTROLLER TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
5. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX BELOW GRUNDFOS CU-301 PUMP CONTROLLER FOR WIRE SPLICE. COORDINATE FINAL LOCATION IN THE FIELD.
6. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.

HOUSE NO. 11
NAME CHARLENE MANUELITO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

KEYED NOTES

1. GRUNDFOS CU-301 PUMP CONTROLLER. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER CAN BE LOCATED ON THE INTERIOR OR EXTERIOR OF BUILDING. CU-301 IS RATED FOR INDOOR/OUTDOOR USE. CONTROLLER SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT PER MANUFACTURERS RECOMMENDATIONS. PROVIDE AND INSTALL BIRD COVER ENCLOSURE IF MOUNTED OUTDOORS.
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4. EXTEND CONDUIT FROM GRUNFOS CU-301 PUMP CONTROLLER TO CIRCUIT BREAKER. COORDINATE ROUTING IN THE FIELD.
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6. CONTRACTOR SHALL SPLICE PUMP POWER CONDUCTORS TO SUBMERSIBLE PUMP CABLE AT PITLESS ADAPTER. COORDINATE WITH PUMP INSTALLER.

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THOMAS F. TRUEHLE — NEW MEXICO — 25211 — PROFESSIONAL ENGINEER
21040 10/5/21

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Project No: 6929786
Sheet: E-6

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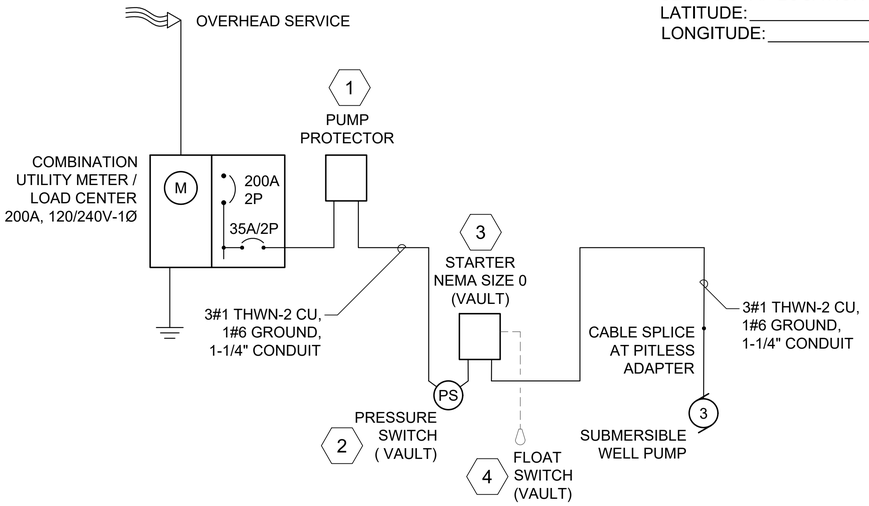
HOUSE NO. 1
NAME MARTHA BARNEY
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

1,350 SQ FT. X 3 VA		4,050 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,928 VA
	SUBTOTAL:	33,728 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		9,491 VA
	SUBTOTAL:	19,491 VA
WINDOW A/C		1,840 VA
	TOTAL:	21,331 VA

TOTAL LOAD = 89 AMPERES @ 120/240, 1Ø

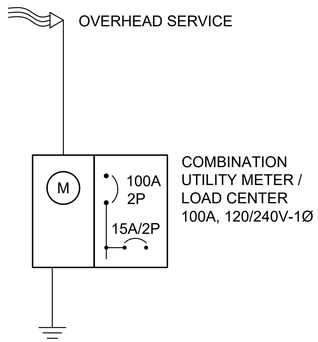
EXISTING SERVICE SIZE = 100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL PUMP PROTECTION SYSTEM. FRANKLIN PUMPTEC-PLUS #580030100 OR OWNER AND ENGINEER APPROVAL EQUAL. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER SHALL BE RATED FOR INDOOR/OUTDOOR USE.
2. PROVIDE AND INSTALL WATER PUMP PRESSURE SWITCH. 240V-1Ø, 3HP RATED, ADJUSTABLE DIFFERENTIAL. SET PER OWNERS REQUIREMENTS. WHEN PRESSURE IS HIGH SETPOINT, TURN OFF PUMP. WHEN PRESSURE IS LOW SETPOINT, TURN ON PUMP. SQUARE D PUMPTROL PRESSURE SWITCH OR OWNER AND ENGINEER APPROVED EQUAL.
3. PROVIDE AND INSTALL MAGNETIC, NON-REVERSING, 240V, 3HP, 1 NO / 1 NC AUXILIARY CONTACTS, STARTER IN NEMA 3R ENCLOSURE. SQUARE D LC1D12 OR ENGINEER APPROVED EQUAL. CONNECT FLOAT SWITCH CONTROL WIRING TO AUXILIARY CONTACTS TO TURN OFF PUMP WHEN FLOAT SWITCH DETECTS WATER IN VAULT.
4. PROVIDE AND INSTALL 3-WIRE, SPDT, NO/NC FLOAT SWITCH FOR LEAK DETECTION. PROVIDE AND INSTALL MOUNTING LOCATION FOR FLOAT SWITCH IN CONTROL VAULT. SWITCH SHALL TURN OFF STARTER WHEN WATER LEVEL PRESENT. COORDINATE HEIGHT ADJUSTMENT IN THE FIELD.

HOUSE NO. 2
NAME LUCINDA BARNEY
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

NOTE:
NO CHANGES BEING MADE TO THIS SERVICE OR EXISTING ELECTRICAL SYSTEM.

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

1,150 SQ FT. X 3 VA		3,450 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
	SUBTOTAL:	30,200 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		8,080 VA
	SUBTOTAL:	18,080 VA
WINDOW A/C		1,840 VA
	TOTAL:	19,920 VA

TOTAL LOAD = 83 AMPERES @ 120/240, 1Ø

RECOMMENDED SERVICE SIZE = 100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

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21040 10/5/21

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TFR	TFR	TFR

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Project No: 6929786
Sheet: E-7

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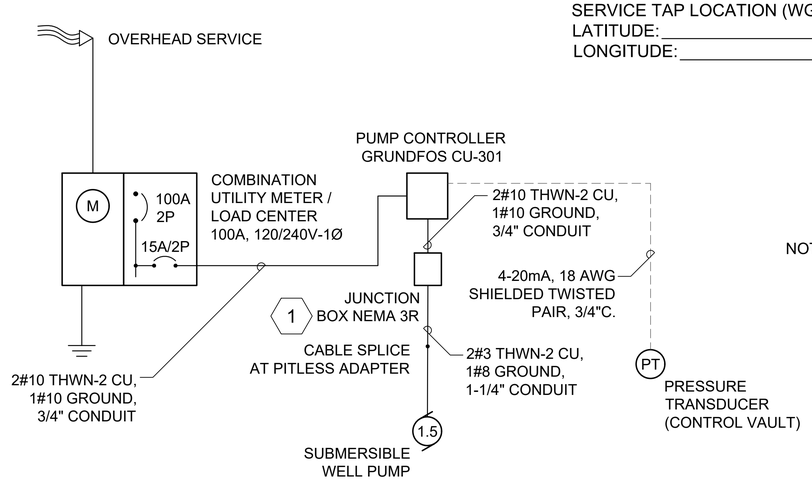
HOUSE NO. 3
NAME TERESA BRYANT
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

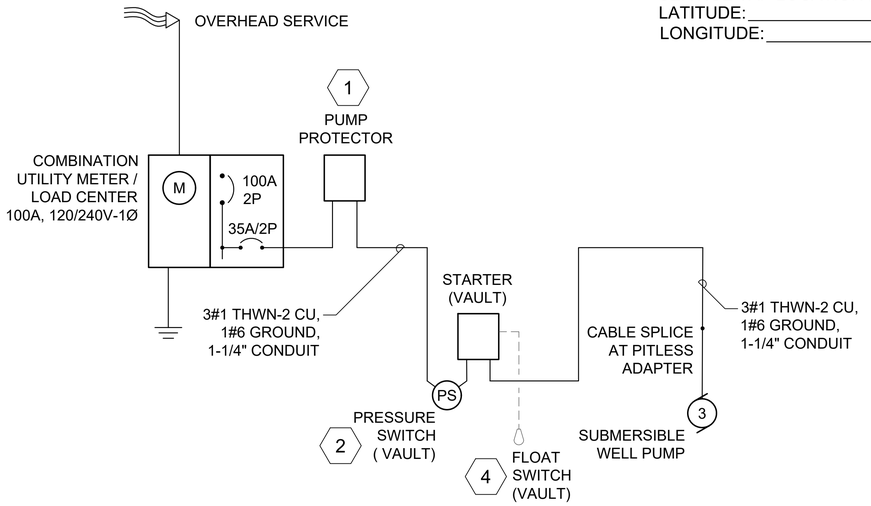
600 SQ FT. X 3 VA		1,800 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,208 VA
	SUBTOTAL:	30,758 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		8,303 VA
	SUBTOTAL:	18,303 VA
WINDOW A/C		1,840 VA
	TOTAL:	20,143 VA
TOTAL LOAD = 84 AMPERES @ 120/240, 1Ø		
RECOMMENDED SERVICE SIZE =		100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

HOUSE NO. 4
NAME HARRISON BADONIE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

700 SQ FT. X 3 VA		2,100 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,928 VA
	SUBTOTAL:	31,778 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		8,711 VA
	SUBTOTAL:	18,711 VA
WINDOW A/C		1,840 VA
	TOTAL:	20,551 VA
TOTAL LOAD = 86 AMPERES @ 120/240, 1Ø		
RECOMMENDED SERVICE SIZE =		100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL PUMP PROTECTION SYSTEM. FRANKLIN PUMPTEC-PLUS #580030100 OR OWNER AND ENGINEER APPROVAL EQUAL. COORDINATE FINAL LOCATION IN THE FIELD. CONTROLLER SHALL BE RATED FOR INDOOR/OUTDOOR USE.
2. PROVIDE AND INSTALL WATER PUMP PRESSURE SWITCH. 240V-1Ø, 3HP RATED, ADJUSTABLE DIFFERENTIAL. SET PER OWNERS REQUIREMENTS. WHEN PRESSURE IS HIGH SETPOINT, TURN OFF PUMP. WHEN PRESSURE IS LOW SETPOINT, TURN ON PUMP. SQUARE D PUMPTROL PRESSURE SWITCH OR OWNER AND ENGINEER APPROVED EQUAL.
3. PROVIDE AND INSTALL MAGNETIC, NON-REVERSING, 240V, 3HP, 1 NO / 1 NC AUXILIARY CONTACTS, STARTER IN NEMA 3R ENCLOSURE. SQUARE D LC1D12 OR ENGINEER APPROVED EQUAL. CONNECT FLOAT SWITCH CONTROL WIRING TO AUXILIARY CONTACTS TO TURN OFF PUMP WHEN FLOAT SWITCH DETECTS WATER IN VAULT.
4. PROVIDE AND INSTALL 3-WIRE, SPDT, NO/NC FLOAT SWITCH FOR LEAK DETECTION. PROVIDE AND INSTALL MOUNTING LOCATION FOR FLOAT SWITCH IN CONTROL VAULT. SWITCH SHALL TURN OFF STARTER WHEN WATER LEVEL PRESENT. COORDINATE HEIGHT ADJUSTMENT IN THE FIELD.

Rev #	Date	Description	By	Chk'd

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CLIENT

THOMAS F. RUEHLE
NEW MEXICO
25211
PROFESSIONAL ENGINEER
10/5/21
21040

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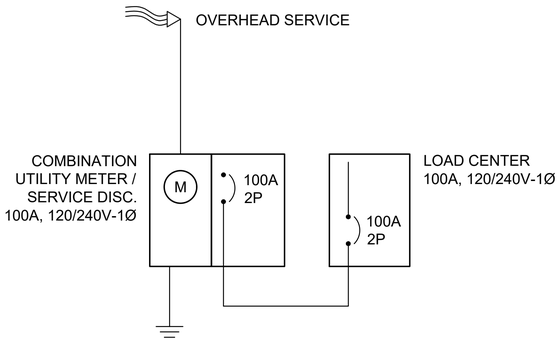
Designed	Drawn	Checked
TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-8

HOUSE NO. 5
NAME BENSON BADONIE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

NOTE:
NO CHANGES BEING MADE TO THIS SERVICE OR EXISTING ELECTRICAL SYSTEM.

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

300 SQ FT. X 3 VA	900 VA
SMALL APPLIANCE LOAD	3,000 VA
LAUNDRY LOAD	1,500 VA
WATER HEATER	4,500 VA
REFRIGERATOR	1,400 VA
DISHWASHER	1,030 VA
DISPOSAL	690 VA
MICROWAVE	1,630 VA
CLOTHES DRYER	5,000 VA
OVEN/RANGE	8,000 VA
SUBTOTAL:	27,650 VA
1st 10 KVA AT 100%	10,000 VA
REMAINING @ 40%	7,060 VA
SUBTOTAL:	17,060 VA
WINDOW A/C	1,840 VA
TOTAL:	18,900 VA

TOTAL LOAD = 79 AMPERES @ 120/240, 1Ø

RECOMMENDED SERVICE SIZE = 100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

Rev #	Date	Description	By	Chk'd

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TOHATCHI, NEW MEXICO
INDIVIDUAL INSTALLATIN DETAIL HOME 5

THOMAS F. RUEHLE NEW MEXICO 25211 PROFESSIONAL ENGINEER
10/5/21

21040

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TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-9

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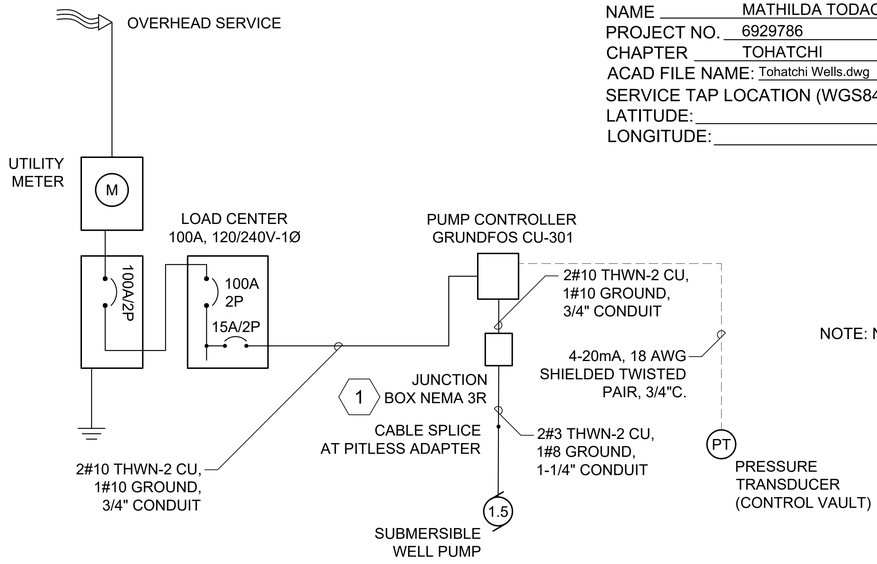
HOUSE NO. 6
NAME MATHILDA TODACHENE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

1,800 SQ FT. X 3 VA		5,400 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,928 VA
	SUBTOTAL:	35,078 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		10,031 VA
	SUBTOTAL:	20,031 VA
WINDOW A/C		1,840 VA
	TOTAL:	21,871 VA

TOTAL LOAD = 91 AMPERES @ 120/240, 1Ø

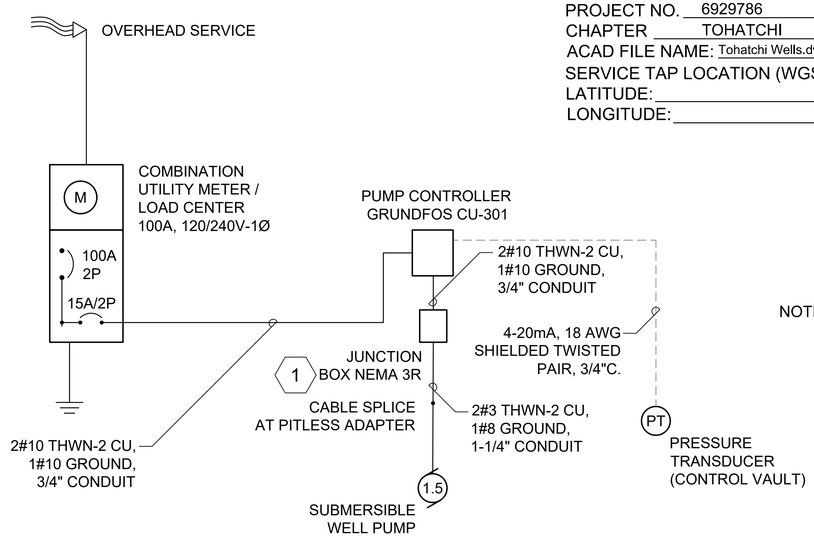
RECOMMENDED SERVICE SIZE =	100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

HOUSE NO. 7
NAME CAROLINE MANUELITO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

1,500 SQ FT. X 3 VA		4,500 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,208 VA
	SUBTOTAL:	33,458 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		9,383 VA
	SUBTOTAL:	19,383 VA
WINDOW A/C		1,840 VA
	TOTAL:	21,223 VA

TOTAL LOAD = 88 AMPERES @ 120/240, 1Ø

RECOMMENDED SERVICE SIZE =	100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

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THOMAS F. TRUEHLE — NEW MEXICO — 25211 — PROFESSIONAL ENGINEER — 10/5/21

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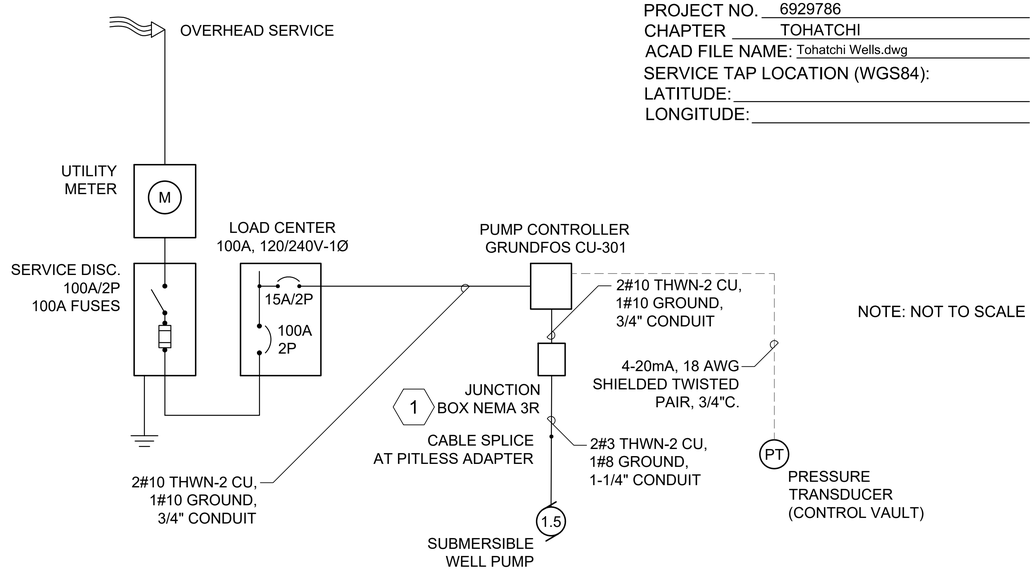
TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-10

HOUSE NO. 8
NAME LAVERNE WAYCO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

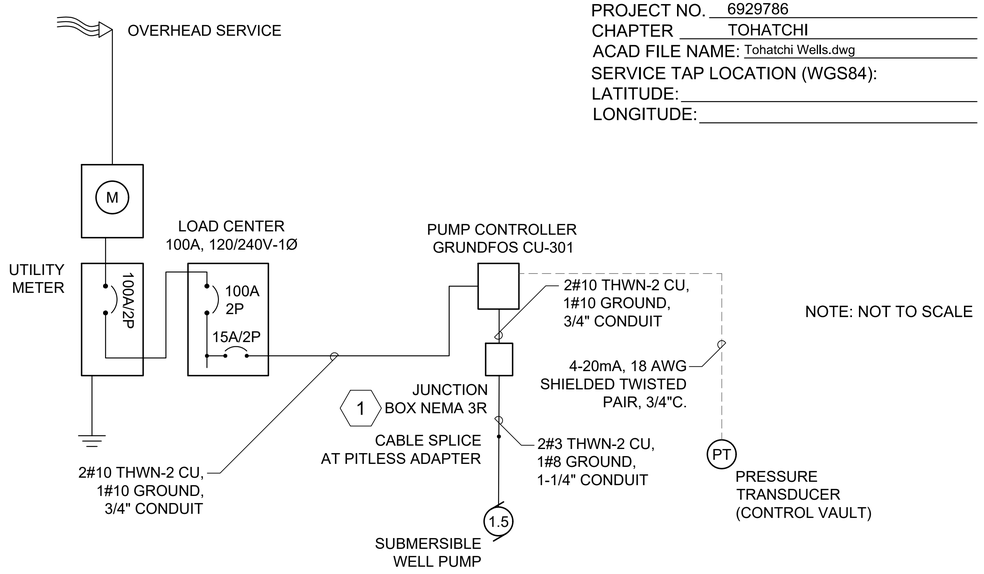
1,900 SQ FT. X 3 VA	5,700 VA
SMALL APPLIANCE LOAD	3,000 VA
LAUNDRY LOAD	1,500 VA
WATER HEATER	4,500 VA
REFRIGERATOR	1,400 VA
DISHWASHER	1,030 VA
DISPOSAL	690 VA
MICROWAVE	1,630 VA
CLOTHES DRYER	5,000 VA
OVEN/RANGE	8,000 VA
WELL	2,208 VA
SUBTOTAL:	34,658 VA
1st 10 KVA AT 100%	10,000 VA
REMAINING @ 40%	9,863 VA
SUBTOTAL:	19,863 VA
WINDOW A/C	1,840 VA
TOTAL:	21,703 VA
TOTAL LOAD = 90 AMPERES @ 120/240, 1Ø	
RECOMMENDED SERVICE SIZE =	100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

HOUSE NO. 9
NAME LEONARD NOTAH JR
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

1400 SQ FT. X 3 VA	4,200 VA
SMALL APPLIANCE LOAD	3,000 VA
LAUNDRY LOAD	1,500 VA
WATER HEATER	4,500 VA
REFRIGERATOR	1,400 VA
DISHWASHER	1,030 VA
DISPOSAL	690 VA
MICROWAVE	1,630 VA
CLOTHES DRYER	5,000 VA
OVEN/RANGE	8,000 VA
WELL	2,208 VA
SUBTOTAL:	33,158 VA
1st 10 KVA AT 100%	10,000 VA
REMAINING @ 40%	9,263 VA
SUBTOTAL:	19,263 VA
WINDOW A/C	1,840 VA
TOTAL:	21,103 VA
TOTAL LOAD = 88 AMPERES @ 120/240, 1Ø	
RECOMMENDED SERVICE SIZE =	100 AMPS

*ESTIMATE OF EXISTING AND FUTURE LOADS

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

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Project No: 6929786
Sheet: E-11

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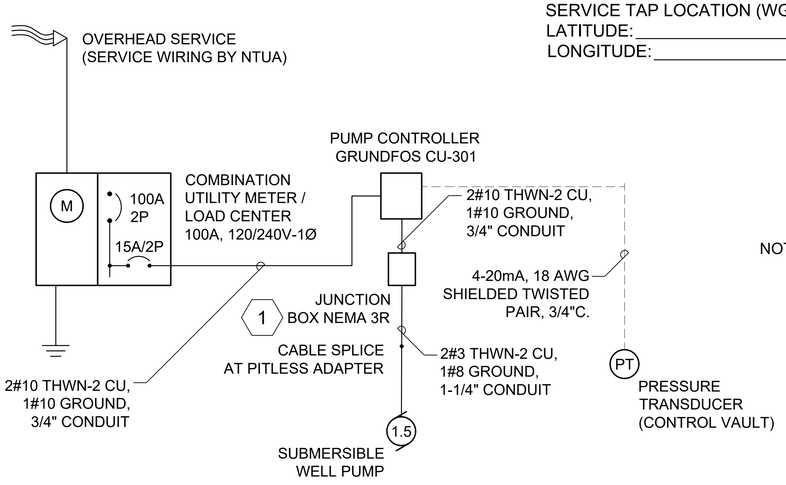
HOUSE NO. 10
NAME CHRISTOPHER NATANABAH
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

600 SQ FT. X 3 VA		1,800 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,208 VA
	SUBTOTAL:	30,761 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		8,304 VA
	SUBTOTAL:	18,304 VA
WINDOW A/C		1,840 VA
	TOTAL:	20,144 VA

TOTAL LOAD FUTURE = 89 AMPERES @ 120/240, 1Ø

RECOMMENDED SERVICE SIZE = 100 AMPS

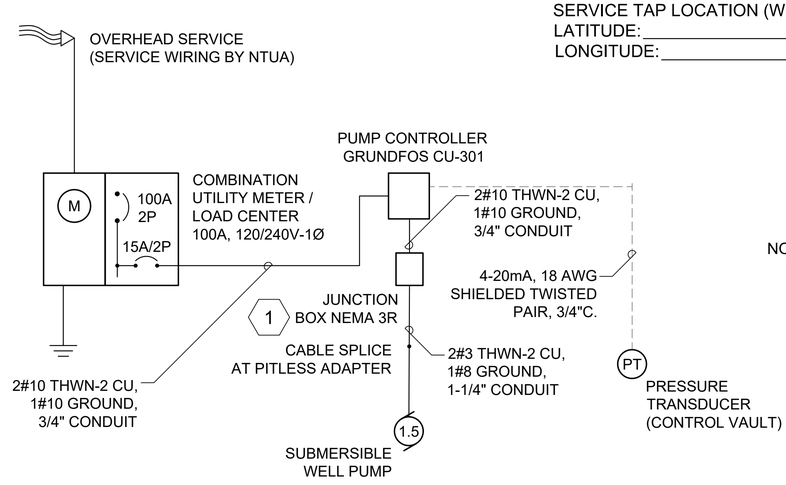
*ESTIMATE OF FUTURE LOADS

NOTE:
SITE DOES NOT HAVE EXISTING
ELECTRICAL SERVICE

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

HOUSE NO. 11
NAME CHARLENE MANUELITO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
SERVICE TAP LOCATION (WGS84):
LATITUDE:
LONGITUDE:



NOTE: NOT TO SCALE

LOAD SUMMARY*-PER 2020 NEC

OPTIONAL DWELLING UNIT CALCULATION - NEC 220.82

750 SQ FT. X 3 VA		2,250 VA
SMALL APPLIANCE LOAD		3,000 VA
LAUNDRY LOAD		1,500 VA
WATER HEATER		4,500 VA
REFRIGERATOR		1,400 VA
DISHWASHER		1,030 VA
DISPOSAL		690 VA
MICROWAVE		1,630 VA
CLOTHES DRYER		5,000 VA
OVEN/RANGE		8,000 VA
WELL		2,208 VA
	SUBTOTAL:	31,208 VA
1st 10 KVA AT 100%		10,000 VA
REMAINING @ 40%		8,483 VA
	SUBTOTAL:	18,483 VA
WINDOW A/C		1,840 VA
	TOTAL:	20,323 VA

TOTAL LOAD FUTURE = 85 AMPERES @ 120/240, 1Ø

RECOMMENDED SERVICE SIZE = 100 AMPS

*ESTIMATE OF FUTURE LOADS

NOTE:
SITE DOES NOT HAVE EXISTING
ELECTRICAL SERVICE

KEYED NOTES

1. PROVIDE AND INSTALL JUNCTION BOX BELOW PUMP CONTROLLER AS REQUIRED FOR CONNECTIONS / SPLICES.

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THOMAS FRANKLIN TRUEHLE
NEW MEXICO
25211
PROFESSIONAL ENGINEER
10/5/21

21040

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TFR	TFR	TFR

Date: October 2021
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: E-12

GENERAL NOTES

SPECIFICATIONS

G1) IF THERE IS A CONFLICT BETWEEN PLANS/SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY IN WRITING THE ENGINEER FOR CLARIFICATION.

G2) THE CONTRACTOR SHALL FAMILIARIZE HIM/HERSELF WITH THE PLANS, AND THE SITE CONDITIONS PRIOR TO BID OPENING AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY AMBIGUITIES, CONTRADICTIONS OR IRREGULARITIES IN THE PLANS.

G3) IF, DURING BIDDING OR CONSTRUCTION, THE CONTRACTOR IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE PLANS, SPECIFICATIONS, OR OTHER CONTRACT DOCUMENTS, OR DISCREPANCIES IN OR POSSIBLE OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS, THEY SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND REQUEST AN INTERPRETATION OF CORRECTION THEREOF. DURING THE BIDDING PROCESS AN ADDENDUM (IF NEEDED) WILL BE ISSUED.

G3.1) THE CONTRACT, IF AWARDED, WILL BE ON THE BASIS OF MATERIAL AND EQUIPMENT SPECIFIED OR DESCRIBED IN THE BIDDING DOCUMENTS WITHOUT CONSIDERATION OF POSSIBLE SUBSTITUTE OR "OR EQUAL" ITEMS. WHEREVER A BRAND NAME IS SPECIFIED OR DESCRIBED IN THE BIDDING DOCUMENTS A SUBSTITUTE OR "OR EQUAL" ITEM OF MATERIAL OR EQUIPMENT MAY BE FURNISHED OR USED BY CONTRACTOR IF ACCEPTABLE TO ENGINEER. APPLICATION FOR SUCH ACCEPTANCE WILL NOT BE CONSIDERED BY ENGINEER UNTIL AFTER THE EFFECTIVE DATE OF AGREEMENT. THE PROCEDURE FOR SUBMISSION OF ANY SUCH APPLICATION BY CONTRACTOR AND CONSIDERATION BY ENGINEER IS SET FORTH IN THE GENERAL CONDITIONS.

EXISTING UTILITIES + OBSTACLES TO WORK

G4) THE CONTRACTOR IS RESPONSIBLE TO INSTALL ALL ITEMS DESCRIBED IN THESE PLANS IN A MANNER THAT PROTECTS THE EXISTING FACILITY. THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY IF HE IS UNABLE TO PERFORM THIS WORK WITHOUT DAMAGE TO THE EXISTING FACILITY. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING INFORMATION SHOWN ON THESE PLANS. DESIGN ELEMENTS OF THIS PROJECT WILL NOT CHANGE WITHOUT CHANGE ORDER UNLESS THE CONTRACTOR NOTIFIES THE ENGINEER IN A TIMELY MANNER REGARDING ITEMS DESCRIBED IN THIS NOTE. CHANGES IN ALIGNMENT CAUSED BY UNKNOWN OR UNANTICIPATED SITE CONDITIONS SHALL BE ACCOUNTED FOR BY THE APPROPRIATE UNIT PRICES, AS RECOMMENDED BY THE ENGINEER AND APPROVED BY THE OWNER.

G5) THE EXISTENCE, CONDITION AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS WAS OBTAINED BY A CAREFUL SEARCH OF AVAILABLE RECORDS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THEIR LOCATING, PROTECTION OF, OR ANY DAMAGE TO THESE LINES OR STRUCTURES. THIS DOES NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND OBTAIN LINE SPOTS.

G6) THE FOLLOWING IS A LIST OF POSSIBLE OBSTRUCTIONS AND SHALL NOT BE CONSIDERED A COMPLETE LIST OF POSSIBLE OBSTRUCTIONS: EXISTING UTILITIES, STRUCTURE, GEOTECHNICAL FEATURES, ALL CONDUIT, CABLES, PIPES, WATERLINES, SEWER LINES, GAS LINES, POWER LINES, TELEPHONE AND TELEGRAPH LINES, TREES, MONUMENTS, TRAFFIC CONTROL DEVICES AND OTHER STRUCTURES, BOTH BELOW AND ABOVE GROUND.

G7) CONTRACTOR SHALL BE HELD RESPONSIBLE FOR COSTS OF REPAIR OF ANY AND ALL DAMAGE TO ANY UTILITY (WHICH IS PREVIOUSLY KNOWN AND DISCLOSED TO HIM BY THE UTILITY OR SHOWN ON THESE PLANS) AS MAY BE CAUSED BY HIS OPERATIONS.

G8) FIVE (5) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE-CALL SYSTEM, INC. (505) 260-1990, FOR LOCATION OF EXISTING UTILITIES.

G9) CONTRACTOR SHALL GIVE ALL PUBLIC AND PRIVATE UTILITY COMPANIES NOTICE AS SOON AS POSSIBLE, IN NO EVENT LESS THAN FORTY EIGHT (48) HOURS, FOR ANY WORK THAT IS UNDERSTOOD TO INTERFERE WITH THE SERVICE OF ANY EXISTING PUBLIC OR PRIVATE UTILITY. IF SUCH PUBLIC OR PRIVATE UTILITY DOES NOT COOPERATE FOR THE PROTECTION OF ITS SERVICES, CONTRACTOR SHALL NOTIFY ENGINEER.

G10) CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGES TO PUBLIC OR PRIVATE PROPERTY TO THE OWNER OF THE PROPERTY INVOLVED AND TO THE ENGINEER. CONTRACTOR SHALL REPAIR OR RESTORE AT HIS OWN EXPENSE ANY DAMAGE TO PUBLIC OR PRIVATE PROPERTY, FOR WHICH THEY ARE DIRECTLY OR INDIRECTLY RESPONSIBLE, TO A CONDITION EQUAL TO THAT EXISTING BEFORE DAMAGE. CONTRACTOR SHALL PROMPTLY NOTIFY HIS INSURANCE CARRIER OF SUCH DAMAGE. IF CONTRACTOR FAILS TO GIVE SUCH NOTICE TO HIS INSURANCE CARRIER OR REFUSES TO EFFECT SUCH REPAIRS OR RESTORATION UPON RECEIPT OF NOTICE, THE ENGINEER MAY CAUSE SUCH REPAIRS OR RESTORATION AND DEDUCT THE COST THEREOF FROM MONEYS DUE, OR WHICH MAY BECOME DUE, TO THE CONTRACTOR.

G11) CONTRACTOR IS RESPONSIBLE FOR RECORDING EXISTING CONDITIONS IN ACCORDANCE WITH THE SUPPLEMENTARY CONDITIONS OF THE CONTRACT BEFORE CONSTRUCTION BEGINS. THE RECORD OF EXISTING CONDITIONS SHALL BE USED AS THE "EQUAL CONDITION BEFORE DAMAGE" IN THE EVENT OF DAMAGE TO PUBLIC OR PRIVATE PROPERTY. CONTRACTOR FAILURE TO RECORD EXISTING CONDITIONS WILL MAKE THE OWNERS CLAIM OF "EQUAL CONDITION BEFORE DAMAGE" THE STANDARD THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING AND THE ENGINEER WILL BE IN THE POSITION OF NOT BEING ABLE TO SUPPORT THE CONTRACTOR IN THE MEDIATION OF ANY DISPUTE.

G12) UTILITY LOCATION CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF LOCATION OF ALL EXISTING UTILITIES.

SITE CONDITIONS

G13) CONTRACTOR SHALL MAINTAIN ACCESS TO ALL FACILITIES ADJACENT TO THE CONSTRUCTION AREA.

G14) EPA STORM WATER DISCHARGE REGULATIONS. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE TO APPLICABLE PORTIONS OF THE EPA STORM WATER DISCHARGE REGULATIONS.

G15) DUST ABATEMENT. THE CONTRACTOR SHALL USE WATERING EQUIPMENT FOR DUST POLLUTION ABATEMENT AS REQUIRED OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND SUPPLYING WATER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

SITE DESIGN

G16) SUBGRADE. ALL ELECTRICAL SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO 95 % OF STANDARD PROCTOR. ALL SUBGRADE AND BACKFILL SHALL BE COMPACTED IN MAXIMUM 8" LOOSE LIFTS. MOISTURE CONTENT AT THE TIME OF COMPACTION SHALL NOT EXCEED OPTIMUM OR BE LESS THAN 5 PERCENTAGE POINTS BELOW OPTIMUM. DRIVEWAYS, APRONS, FILLETS, CURB AND GUTTER, AND OTHER CONCRETE PAVEMENT SHALL BE PLACED ON 6" OF COMPACTED SUBGRADE.

G17) RESTORE SURFACE AT TRENCH TO EXISTING CONDITIONS.

COMMUNICATION

G18) CONTRACTOR SHALL KEEP THE OWNER AND THE ENGINEER UPDATED WEEKLY ON THE CONSTRUCTION SCHEDULE AND/OR PHASE SCHEDULE, AND PROGRESS TO DATE.

STAGING STORAGE + DEBRIS DISPOSAL

G19) DEBRIS GENERATED BY CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF AT A PERMITTED LANDFILL OR OTHER DULY CERTIFIED REFUSE FACILITY. THE DISPOSAL OF DEBRIS IS NOT A PAY ITEM.

RECORD DRAWINGS

G20) THE CONTRACTOR SHALL PROVIDE A RECORD SKETCH ON THESE PLANS FOR THE AS-CONSTRUCTED CONDITIONS.

PHASE AND SCHEDULE

G21) CONTRACTOR SHALL PHASE AND SCHEDULE WORK IN SUCH A WAY AS TO PROVIDE MINIMAL POWER OUTAGES AT THE FACILITY. A PROJECT SCHEDULE SHALL BE SUBMITTED TO THE OWNER FOR REVIEW PRIOR TO ISSUANCE OF NOTICE-TO-PROCEED. CHANGES IN SCHEDULE SHALL BE PRESENTED TO OWNER AND ENGINEER AT LEAST 7 DAYS PRIOR TO PROPOSED IMPLEMENTATION. THESE SCHEDULES, SCHEMATICS AND DIAGRAMS SHALL BE UPDATED WEEKLY AS THE WORK PROGRESSES. MOST CHANGE OVER SHALL BE DONE ON WEEKENDS OR AFTER HOURS.

SUBMITTALS

G22) CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL EQUIPMENT, MATERIALS, PROCESSES AND SCHEDULES AND AS REQUESTED BY ENGINEER.

PROGRAMMING

G23) CONTRACTOR RESPONSIBLE FOR PROVIDING, INSTALLING, AND PROGRAMMING A COMPLETE AND WORKING SYSTEM.

Rev #	Date	Description	By	Chk'd

SOUDER, MILLER & ASSOCIATES
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Serving the Southwest & Rocky Mountains
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TOWN

CLIENT

TOHATCHI EAST FLATS
INDIVIDUAL WELLS
TOHATCHI, NEW MEXICO
ELECTRICAL PROJECT NOTES

THOMAS F. RUEHLE — NEW MEXICO — 25211 — PROFESSIONAL ENGINEER

21040 10/5/21

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

Designed	Drawn	Checked
TFR	TFR	TFR

Date: October 2021

Scale: Horiz: NONE
Vert: N/A

Project No: 6929786

Sheet: E-13

F:\21040 Tohatchi Wells\00000 CADD\Constructs\Electrical\Tohatchi Wells (6929786) - Copy.dwg, 10/5/2021 4:17:30 PM TRUEHLE

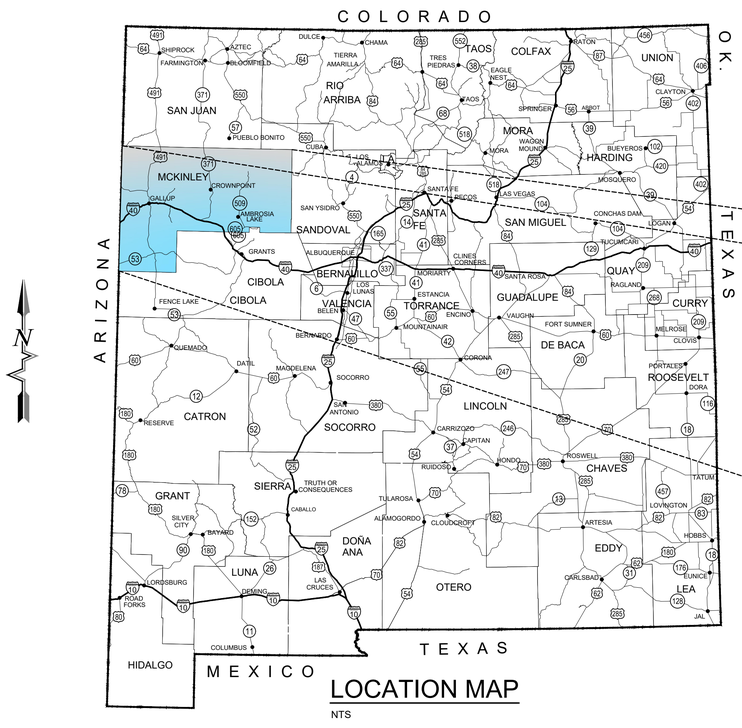
TOHATCHI EAST FLATS

INDIVIDUAL WELLS

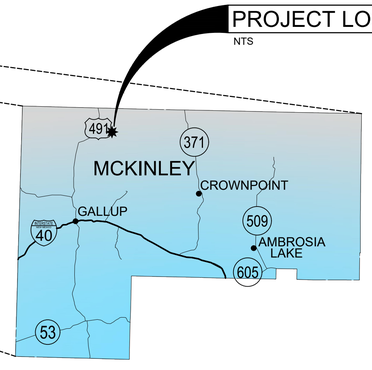
TOHATCH, NEW MEXICO

January 2022

PROJECT DESCRIPTION:
CONSTRUCTION OF 9 WELLS AND ASSOCIATED WATER SERVICES LINES



LOCATION MAP
NTS



VICINITY MAP
NTS

DRAWING INDEX

SHEET NO.	SHEET TITLE
G-1	COVER SHEET AND DRAWING INDEX
G-2	GENERAL NOTES AND LEGEND
G-3	PROJECT SITE PLAN
C-1	INDIVIDUAL INSTALLATION DETAIL HOMES 1 & 2
C-2	INDIVIDUAL INSTALLATION DETAIL HOMES 3 & 4
C-3	INDIVIDUAL INSTALLATION DETAIL HOME 5
C-4	INDIVIDUAL INSTALLATION DETAIL HOMES 6 & 7
C-5	INDIVIDUAL INSTALLATION DETAIL HOMES 8 & 9
C-6	INDIVIDUAL INSTALLATION DETAIL HOMES 10 & 11
DT-1	WELL DESIGN DETAIL
DT-2	MULTI RESIDENCE VAULT & YARD HYD. DETAILS
DT-3	SINGLE RESIDENCE VAULT
E-1 TO E-13	ELECTRICAL DETAILS

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION ON BEHALF OF SOUDER, MILLER & ASSOCIATES.

12/27/29

COLIN DALY, P.E. DATE
PROJECT MANAGER

THE SEAL AND SIGNATURE OF THE PROFESSIONAL REGISTRANT IDENTIFIED ON THIS COVER SHEET DOES NOT SUGGEST RESPONSIBLE CHARGE FOR ALL SHEETS CONTAINED WITHIN THIS PACKAGE; PLAN SHEETS NOT SIGNED AND SEALED ARE NOT THE RESPONSIBILITY OF THE PROFESSIONAL REGISTRANT IDENTIFIED ON THIS COVER SHEET. PLEASE REFER TO PROFESSIONAL REGISTRANTS IDENTIFIED ON INDIVIDUAL PLAN SHEETS.

COLIN M. DALY NEW MEXICO 20923 12/27/2021 PROFESSIONAL ENGINEER

Rev #	Date	Description	By	Chk'd

SOUDER, MILLER & ASSOCIATES
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811 Know what's below. Call before you dig.

GENERAL NOTES

GENERAL

1. SOUDER, MILLER AND ASSOCIATES SHALL HEREINAFTER BE KNOWN AS THE ENGINEER. THERE WILL BE A PERSON PROVIDED BY THE ENGINEER THAT WILL ACT AS A CONSTRUCTION OBSERVER WHO WILL BE THE CONTACT BETWEEN THE CONTRACTOR AND THE ENGINEER.
2. THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND IS NOT LIABLE FOR PROBLEMS THAT ARISE FROM FAILURE TO FOLLOW THESE DRAWINGS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY OR FOR PROBLEMS THAT ARISE FROM FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS.
3. ALL SCALES ARE BASED ON 11"X17" SHEET SIZE.

CONSTRUCTION REQUIREMENTS

4. CONTACT "NEW MEXICO ONE CALL" AT 1-800-321-2537, THREE (3) WORKING DAYS IN ADVANCE OF CONSTRUCTION FOR UTILITY DEMARCATION.
5. ALL WATERLINES SHALL BE INSTALLED TO A MINIMUM COVER OF FORTY-EIGHT (48) INCHES
6. THE CONTRACTOR IS REQUIRED TO PROVIDE DUST AND EROSION PROTECTION TO INHIBIT DUST, WIND, AND AIR SEDIMENT MOVEMENT OFFSITE, AS PART OF GRADING WORK, THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
7. CONTRACTOR MUST CONTACT AND COORDINATE AS NECESSARY WITH LOCAL ELECTRIC SERVICE PROVIDER REGARDING REQUIREMENTS FOR PIPELINE CONSTRUCTION WITHIN 20 (TWENTY) FEET OF ELECTRIC POLES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASING, HAULING AND DISPOSAL OF WATER FOR THE DRILLING WORK. THE OWNER HAS INDICATED THAT WATER MAY BE AVAILABLE FROM A LOCAL WELL, SEE SPECIFICATIONS.

WELL CONSTRUCTION

9. WELL DESIGNS ARE PRELIMINARY AND MAY CHANGE ONCE CONSTRUCTION, SAMPLING AND TESTING OF THE FIRST BOREHOLE PROVIDES ADDITIONAL DATA. DATA GATHERED DURING THE DRILLING AND SURVEY OF EACH BOREHOLE MAY ALSO IMPACT CASING DESIGN. FINAL PRODUCTION PUMP AND APPURTENANCES SELECTION WILL BE BASED ON PUMP TEST RESULTS. FINAL WELL DESIGN FOR EACH PRODUCTION WELL INCLUDING ANY CHANGES TO QUANTITIES, DIMENSIONS OR EQUIPMENT MUST BE APPROVED BY THE ENGINEER PRIOR TO COMPLETION OF A PERMANENT PRODUCTION WELL. PAYMENT FOR WORK COMPLETED WITHOUT APPROVAL OF THE ENGINEER CANNOT BE GUARANTEED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING ENTRY OF UNWANTED OBJECTS AND CONTAMINANTS INTO THE WELL, WELL CASING, TRANSDUCER PIPE, OR ANNULAR SPACE AT ALL TIMES.

CONSTRUCTION PERMITS

11. ALL PERMITS REQUIRED FOR CONSTRUCTION, INCLUDING ALL IRRIGATION DISTRICT, LOCAL, CITY, COUNTY, STATE, TRIBAL, AND FEDERAL PERMITS, ARE THE RESPONSIBILITY OF THE CONTRACTOR, UNLESS ALREADY PROVIDED BY THE ENGINEER IN THE CONTRACT DOCUMENTS.
12. ALL PERMIT FEES ARE PAYABLE BY THE CONTRACTOR, AND SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION UNLESS A SPECIFIC BID ITEM EXISTS FOR THE PERMIT WORK.
13. NO TIME EXTENSIONS WILL BE ALLOWED DUE TO THE NORMAL PERMITTING PROCESSES.
14. ANY FINES ASSOCIATED WITH NOT OBTAINING NECESSARY PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
15. IT IS THE ENGINEER'S RECOMMENDATION THAT ALL BIDDERS CONTACT THE APPROPRIATE AGENCIES PRIOR TO BIDDING TO ENSURE THAT ALL APPROPRIATE FEES, COSTS, AND SCHEDULES FOR THE PERMITS REQUIRED ARE KNOWN PRIOR TO BIDDING.
    THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TERMS OF THE PERMITS RELATED TO CONSTRUCTION. COST OF COMPLIANCE WITH THESE PERMITS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, AND NO ADDITIONAL PAYMENT SHALL BE MADE THEREFOR.

UTILITY LOCATION

16. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR UTILITY LOCATION, PROTECTION AND VERIFICATION PER STATE LAW. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES AND THE ENGINEER WITH REGARD TO RELOCATING, ADJUSTING, REPLACING AND/OR REPAIRING UTILITIES DURING CONSTRUCTION. ADDITIONALLY, THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES AND OTHER OBSTRUCTIONS IN RELATION TO THE PROPOSED IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT CAN BE RESOLVED WITH MINIMAL DELAY. DELAYS CAUSED OR COSTS INCURRED BECAUSE OF UTILITY CONFLICTS OR OTHER OBSTRUCTIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
17. UTILITIES SHOWN IN THESE CONSTRUCTION PLANS ARE SHOWN IN THEIR APPROXIMATE LOCATION ONLY, AND SHALL NOT BE RELIED UPON BY THE CONTRACTOR. FIELD MARKS MADE BY THE INDIVIDUAL UTILITIES SHALL OVERRIDE ANY LOCATION SHOWN IN THESE PLANS. UTILITIES LOCATED BY THE CONTRACTOR SHALL BE ANNOTATED AND THE LOCATION IDENTIFIED IN THE CONTRACTOR'S AS-BUILTS KEPT AND MAINTAINED ONSITE.
18. THE EXISTING UTILITIES, STRUCTURES, AND APPURTENANCES SHOWN ON THESE PLANS ARE SHOWN FOR INFORMATION ONLY. THE ENGINEER AND CONTRACTOR SHALL PERFORM A FIELD REVIEW OF THE PROPOSED WORK AFTER EXISITNG UTILITIES HAVE BEEN LOCATED AND TWO WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ALLOW APPROPRIATE TIME FOR REDESIGN IF NECESSARY. ALL MODIFICATIONS TO THE LOCATION OF IMPROVEMENTS MUST BE APPROVED BY THE ENGINEER. ANY CONSTRUCTION DELAYS CAUSED BY THE CONTRACTOR'S FAILURE TO PERFORM THE FIELD REVIEW, OR BY THE CONTRACTOR'S FAILURE TO NOTIFY THE ENGINEER OF ANY CONFLICTS TWO WEEKS PRIOR TO CONSTRUCTION SHALL BE DEEMED TO BE DELAYS CAUSED BY THE CONTRACTOR, AND THE CONTRACT TIME WILL NOT BE EXTENDED FOR SUCH DELAYS.
19. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT A COMPREHENSIVE CONSTRUCTION SEQUENCE AND SCHEDULE PRIOR TO COMMENCEMENT OF CONSTRUCTION THAT TAKES INTO ACCOUNT THE FIELD LOCATIONS OF EXISTING UTILITIES AND ANY CONFLICTS WITH THE PROPOSED IMPROVEMENTS.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE OWNER, ENGINEER AND POWER COMPANY FOR ANY ELECTRICAL UPGRADES REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL BEGIN THIS COORDINATION EFFORT WITH SUFFICIENT TIME IN ADVANCE OF CONSTRUCTION TO AVOID DELAYS. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING ELECTRICAL SERVICES THROUGHOUT DEMOLITION AND CONSTRUCTION.

EXISTING HOMEOWNER FACILITIES

21. THROUGHOUT THE LIFE OF THE PROJECT, THE CONTRACTOR SHALL KEEP THE EXISTING CISTERN SYSTEM OPERATING. THE CONTRACTOR SHALL REPORT WATER SHUTOFFS TO THE ENGINEER THREE (3) OR MORE DAYS IN ADVANCE OF THE SHUT-OFFS. RESIDENTS SHALL BE CONTACTED BEFORE ANY DISCONNECTION OF WATER SERVICE. ANY INTERRUPTION OF WATER SERVICE SHALL BE KEPT TO THE MINIMUM LENGTH OF TIME POSSIBLE.
22. THE EXISTING CISTERN SYSTEM IS TO REMAIN OPERATIONAL UNTIL THE NEW SYSTEM IS ACCEPTED BY THE OWNER AND ANY DAMAGE TO THE EXISTING SYSTEM SHALL BE IMMEDIATELY REPAIRED BY CONTRACTOR.

PROTECTION OF EXISTING CONDITIONS

23. THE CARE AND PROTECTION OF ALL OTHER STRUCTURES, FENCING, LANDSCAPING, UTILITIES, PAVEMENT, DRAINAGE, STRUCTURES AND OTHER APPURTENANCES IS THE RESPONSIBILITY OF THE CONTRACTOR. IF DAMAGED, LOST IN TRENCH, OR OTHERWISE DISTURBED, THESE ITEMS WILL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. WHERE TRENCHING BENEATH EXISTING UTILITY LINES OCCURS, THE CONTRACTOR WILL BE RESPONSIBLE FOR SUPPORTING THE LINE DURING CONSTRUCTION AND ENSURE THAT IT IS ADEQUATELY BACKFILLED AND COMPACTED.
24. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THE NECESSARY ADJUSTMENTS IN THE COMPACTION EQUIPMENT OR OPERATION FOR COMPACTION REQUIREMENTS SO THAT UNDERGROUND UTILITIES AND PERMANENT STRUCTURES ARE NOT DAMAGED.
25. ALL IMPROVEMENTS (INCLUDING FENCES, DITCHES, DRIVEWAYS, LANDSCAPING, ORNAMENTS, ETC.) THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE RETURNED TO THEIR ORIGINAL CONDITION OR BETTER. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING THE EXISTING CONDITIONS OF THE PROJECT SITE THROUGH VIDEO AS DESCRIBED IN THE PROJECT MANUAL.

PLAN CHANGES, AS-BUILTS, RECORD DRAWINGS

26. IF THERE IS A CONFLICT BETWEEN THE PLANS, SPECIFICATIONS AND/OR MANUFACTURER'S INSTRUCTIONS OR RECOMMENDATIONS FOR ANY DEVICE, PART, OR MATERIAL USED IN THE PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, FOR CLARIFICATION AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION OF SAID DEVICE, PART, OR MATERIAL.
27. THE CONTRACTOR SHALL MAINTAIN AN UP-TO-DATE SET OF AS-BUILT PLANS FOR THE PROJECT. THESE PLANS SHALL BE KEPT CURRENT, WITHIN TWO WEEKS, AT ALL TIMES. THESE PLANS SHALL BE SUBJECT TO REVIEW BY THE ENGINEER THROUGHOUT THE PROJECT AND WILL BE REVIEWED BY THE ENGINEER FOR ACCURACY AND COMPLETENESS AT LEAST ONCE EVERY 30 DAYS. PAYMENT MAY BE WITHHELD UNTIL AS-BUILT PLANS ARE CURRENT. THE CONTRACTOR SHALL PHOTOGRAPH THE CONSTRUCTION AND AREA OF DISTURBANCE ON A DAILY BASIS. THESE PHOTOS, A LOG OF THE DAILY PHOTOS AND THREE (3) SETS OF THE FINAL AS-BUILT PLANS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL PAYMENT.

CONSTRUCTION DEBRIS/DISPOSAL

28. THE CONTRACTOR SHALL PROVIDE AN AREA TO STORE CONSTRUCTION DEBRIS WHERE IT WILL NOT BE A NUISANCE. ALL DEBRIS SHALL BE CONTAINED IN SUCH A MANNER THAT WILL PREVENT SCATTERING. ALL DEBRIS, INCLUDING TREES AND UNDERGROWTH, SHALL BE DISPOSED OF PROPERLY WITHIN A PROPERLY PERMITTED LANDFILL. ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM SITE PRIOR TO SUBSTANTIAL COMPLETION.
29. UNSUITABLE MATERIAL FROM SITE GRADING AND REMOVAL OPERATIONS SHALL BE DISPOSED OF BY THE CONTRACTOR AND CONSIDERED INCIDENTAL.
30. ITEMS DESIGNATED FOR REMOVAL WITHOUT SALVAGE, UNSUITABLE CONSTRUCTION MATERIALS AND DEBRIS FROM CLEARING AND GRUBBING ARE TO BE PLACED IN AN ENVIRONMENTALLY SUITABLE DISPOSAL SITE SECURED AND COORDINATED BY THE CONTRACTOR, WITH THE APPROPRIATE REGULATORY AGENCIES' APPROVAL AND IN ACCORDANCE WITH THE SPECIFICATIONS FOR THIS PROJECT. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, IN WRITING, OF THE DETAILS OF THE DISPOSAL OPERATIONS.
31. CONTRACTOR IS HEREBY GRANTED SALVAGE RIGHTS TO ANY AND ALL CONSTRUCTION DEBRIS (EXCEPT AS SHOWN IN THE PLANS AND SPECIFICATIONS), PROVIDED THE CONTRACTOR USES SAID DEBRIS IN A LAWFUL MANNER. A LIST OF ITEMS SALVAGED SHALL BE REPORTED IN WRITING TO THE ENGINEER AND THE OWNER PRIOR TO SALVAGE ITEMS LEAVING THE SITE. EQUIPMENT, PUMPS, ETC. SHALL BE SALVAGED BACK TO THE OWNER OR DISPOSED OF AS DIRECTED BY THE OWNER.
32. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ROAD AND DRIVEWAYS FREE AND CLEAR OF ANY DEBRIS THAT IS TRACKED TO AND FROM THE SITE.

SITE ACCESS AND PROTECTION

33. THE CONTRACTOR IS RESPONSIBLE FOR SECURING A LOCATION FOR THE STAGING AND STORAGE OF EQUIPMENT AND SUPPLIES. THE OWNER SHALL NOT BE RESPONSIBLE FOR THE THEFT, LOSS, OR DAMAGE OF ANY CONTRACTOR EQUIPMENT OR SUPPLIES.
34. THE CONTRACTOR SHALL PROVIDE BARRIERS OR FENCING OR DIRECT OVERSIGHT TO PREVENT UNAUTHORIZED ENTRY TO CONSTRUCTION AREAS AND TO PROTECT EXISTING FACILITIES AND ADJACENT PROPERTIES FROM DAMAGE. ACCESS TO EXISTING FACILITIES ADJACENT TO THE CONSTRUCTION AREA SHALL BE SAFELY MAINTAINED THROUGHOUT CONSTRUCTION UNLESS APPROVED BY THE ENGINEER AND UNLESS PROPER NOTICE HAS BEEN GIVEN TO AFFECTED PARTIES.

ENVIRONMENTAL AND HISTORICAL PRESERVATION

35. IN THE EVENT THE CONTRACTOR ENCOUNTERS ITEMS OF ENVIRONMENTAL, CULTURAL AND/OR HISTORICAL IMPORTANCE, THE ENGINEER AND OWNER SHALL BE NOTIFIED IMMEDIATELY AND WORK IN THE AREA SHALL IMMEDIATELY CEASE UNTIL THE CONTRACTOR RECEIVES WRITTEN AUTHORIZATION TO PROCEED FROM THE OWNER/ENGINEER.

SITE RESTORATION

36. SITE RESTORATION, INCLUDING TEMPORARY EROSION CONTROL PROVISIONS, IS A PREREQUISITE FOR PERIODIC AND FINAL PAYMENT.
37. ALL AREAS DISTURBED BY THE CONSTRUCTION ACTIVITIES OF THIS PROJECT SHALL BE RESTORED AND RE-GRADED IN A MANNER ACCEPTABLE TO THE OWNER, ENGINEER, AND LAND OWNER.

CONSTRUCTION STANDARDS

38. THE CONSTRUCTION OF THE PROJECT WILL BE GOVERNED BY THE FOLLOWING SPECIFICATIONS AND GUIDELINES COPIES OF WHICH SHALL BE KEPT AT THE CONSTRUCTION SITE BY THE CONTRACTOR AT ALL TIMES.
    A. THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
    B. NEW MEXICO ENVIRONMENT DEPARTMENT'S RECOMMENDED STANDARDS FOR WATER AND WASTEWATER FACILITIES.
    C. WHERE NOT COVERED BY LOCAL ORDINANCE, THE "INTERNATIONAL BUILDING CODE" LATEST EDITION (IBC) FOR APPLICABLE WORK.
    D. OCCUPATIONAL SAFETY HEALTH ADMINISTRATION REGULATIONS FOR TRENCHING, SHORING & EXCAVATION.
    E. AWWA SPECIFICATIONS
    F. NAVAJO NATION STANDARDS
    G. SUPPLEMENTAL TECHNICAL SPECIFICATIONS. ANY CONFLICT BETWEEN THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE RESOLVED BY THE ENGINEER. IN GENERAL, THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
39. ALL COMPONENTS, MATERIALS AND TREATMENT CHEMICALS THAT COME INTO CONTACT WITH DRINKING WATER SHALL BE CERTIFIED FOR CONFORMANCE TO ANSI/NSF STANDARD 60 OR 61, AS APPLICABLE.

CONSTRUCTION LIMITS

40. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND SHALL IN NO WAY ENCROACH ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE PROVIDED OR SECURED BY THE CONTRACTOR. ALL FILL AND CUT SLOPES FOR STRUCTURES SHALL BE SET BACK FROM THE PROPERTY LINE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AGREEMENTS NECESSARY OR DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.
41. THE LIMITS OF CONSTRUCTION AND LOCATIONS OF THE CONTRACTORS STAGING AREAS SHALL BE IDENTIFIED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE LIMITS OF CONSTRUCTION SHALL BE CLEARLY DELINEATED AND SHALL BE THE MINIMUM REQUIRED TO MAINTAIN ALL WORKERS IN A SAFE CONDITION, TO PROVIDE ACCESS, AND TO MEET OSHA REGULATIONS.

SAFETY

42. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPORTING AND CLEANUP OF SPILLS ASSOCIATED WITH PROJECT CONSTRUCTION AND SHALL REPORT AND RESPOND TO SPILLS OF HAZARDOUS MATERIALS SUCH AS GASOLINE, DIESEL, MOTOR OILS, SOLVENTS, CHEMICALS, TOXIC AND CORROSIVE SUBSTANCES, AND OTHER MATERIALS WHICH MAY BE A THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT. REPORTS SHALL BE MADE IMMEDIATELY TO THE NEW MEXICO ENVIRONMENT DEPARTMENT EMERGENCY RESPONSE TEAM AT (505) 827-4308 OR (505) 470-3657, THE NATIONAL RESPONSE TEAM AT 1-800-424-8802 AND TO THE ENGINEER.
43. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AND FOR KNOWLEDGE AND COMPLIANCE WITH APPLICABLE OSHA STANDARDS. THE CONTRACTOR SHALL MAINTAIN ALL TRENCHES IN A SAFE CONDITION PROTECTING THE WORKERS AND THE GENERAL PUBLIC. TRENCH PROTECTION SHALL BE IN ACCORDANCE WITH APPLICABLE OSHA REGULATIONS. EXCAVATIONS SHALL BE SLOPED, BRACED, OR SHORED AS REQUIRED BY OSHA REGULATIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFE HANDLING OF CONSTRUCTION EQUIPMENT AND MATERIALS TO AND FROM THE STAGING/STORAGE AREA AND FOR SITE SECURITY. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND NO ADDITIONAL COMPENSATION SHALL BE MADE THEREFOR.
44. PRIOR TO AND DURING CONSTRUCTION, ALL ACCESS ROADS SHALL BE SERVICEABLE AND MAINTAINED FOR FIRE PROTECTION AND EMERGENCY VEHICLE ACCESS.

SWPPP

45. A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED FOR THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR ITS PREPARATION AND IMPLEMENTATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
46. THE CONTRACTOR IS REQUIRED TO PROVIDE DUST AND EROSION CONTROL PROTECTION, AS A PART OF GRADING WORK, THROUGHOUT CONSTRUCTION IN ACCORDANCE W/ NPDES BEST MANAGEMENT PRACTICES AND PER THE PROJECT SWPPP, IF APPLICABLE. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE NECESSARY SITE EROSION CONTROL DEVICES FOR INHIBITING DUST, WIND, AND AIR SEDIMENT MOVEMENT OFFSITE THROUGHOUT CONSTRUCTION.

CONTACT INFORMATION:

NAVAJO NATION (OWNER):

JASON JOHN (928) 729-4004

SOUDER, MILLER & ASSOCIATES (ENGINEER):

COLIN DALY, P.E (OFFICE) (505) 317-5098
(CELL) (734) 347-9866

NAVAJO TRIBAL UTILITY AUTHORITY (NTUA):
HEADQUARTERS (800) 528-5011

TOHATCHI CHAPTER:
(505) 733-2845

LEGEND
EXISTING

- WV — ISOLATION VALVE
- W — WATER VAULT
- WM — WATER METER
- HYDRANT
- POWER POLE
- GUY ANCHOR
- ELECTRICAL J-BOX
- TELEPHONE PEDESTAL
- STORM DRAIN INLET / OUTLET
- BUILDING
- CATTLE GUARD
- ROAD SIGN
- EXISTING DRAINAGE WASH
- GUARD RAIL
- PAVED ROAD EDGE
- DIRT ROAD EDGE
- FENCE
- OHE — OVERHEAD POWER LINE
- UGE — UNDERGROUND POWER LINE
- OHT — OVERHEAD TELEPHONE LINE
- UGF'O — UNDERGROUND TELEPHONE LINE
- W — WATER LINE
- G — GAS LINE

LEGEND
PROPOSED

- W — WATER SERVICE LINE
- W — MAIN WATER LINE
- SS — SEWERLINE
- WELL
- CONTROL VAULT (SINGLE RESIDENCE)
- CONTROL VAULT (MULTI RESIDENCE)
- DOMESTIC STOP
- YARD HYDRANT
- DISTRIBUTION BOX
- SEPTIC TANK
- CISTERN TANK
- CLEAN OUT #1
- CLEAN OUT #2
- INFILTRATOR W/ INSPECTION PORT
- MARKER POST

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
A.C.	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
AC.	ACRE
AC-FT.	ACRE FEET
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALIGN.	ALIGNMENT
ALUM	ALUMINUM
AMSL	ABOVE MEAN SEA LEVEL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX.	APPROXIMATE
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BFV	BUTTERFLY VALVE
B.G.S.	BELOW GROUND SURFACE
BIA	BUREAU OF INDIAN AFFAIRS
BLDG	BUILDING
BLM	BUREAU OF LAND MANAGEMENT
BV	BALL VALVE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
CL	CENTERLINE
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CLR.	CLEARANCE
CMP	CORRUGATED METAL PIPE
COMM.	COMMUNICATION
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONT.	CONTINUED
COR.	CORNER
COUP.	COUPLING
CP	CONTROL POINT
CTR	CENTER
CU	CUBIC
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
DIMS	DIMENSIONS
DR	DIMENSION RATIO
DW	DRIVEWAY
E	EAST
E	EASTING
EA.	EACH
ED.	EDITION
EG	EXISTING GRADE
ELEC.	ELECTRICAL
EL., ELEV.	ELEVATION
ELL	ELBOW/BEND
EOP	EDGE OF PAVEMENT
EQ.	EQUAL
ESMT.	EASEMENT
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX, EXIST.	EXISTING
FBE	FUSION BONDED EPOXY
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FIG.	FIGURE
FL	FLANGE
FND.	FOUND
FNPT	FEMALE NATIONAL PIPE THREAD
FRP	FIBER REINFORCED PLASTIC
FT.	FEET
FV	FLUSH VALVE
GA.	GAUGE
GALV.	GALVANIZED
GI	GALVANIZED IRON
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HDD	HORIZONTAL DIRECTIONAL DRILLING
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ.	HORIZONTAL
HP	HORSE POWER
HT	HEIGHT
HWY	HIGHWAY
I.A.	INDIAN ALLOTMENT
I.D.	INNER DIAMETER
I.E.	THAT IS, FOR EXAMPLE
IHS	INDIAN HEALTH SERVICE
IN.	INCH
INV	INVERT
IPS	IRON PIPE SIZE
KSI	KILO POUNDS PER SQUARE INCH
LAT	LATITUDE
L, LEN	LENGTH
LF	LINEAR FEET
LT	LEFT
LONG	LONGITUDE
LVC	LENGTH VERTICAL CURVE
MANUF	MANUFACTURER
MAX.	MAXIMUM
MIL	ONE THOUSANDTHS OF AN INCH
MIN.	MINIMUM
M.J.	MECHANICAL JOINT
MNPT	MALE NATIONAL PIPE THREAD
M.S.L.	MEAN SEA LEVEL
N	NORTH
N	NORTHING
NEC	NATIONAL ELECTRICAL CODE
NG	NATURAL GAS
NM	NEW MEXICO
NMDOT	NEW MEXICO DEPARTMENT OF TRANSPORTATION
NMED	NEW MEXICO ENVIRONMENT DEPARTMENT
NN	NAVAJO NATION
NO.	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OAE	OR APPROVED EQUAL
O.C.	ON CENTER
O.C.E.W.	ON CENTER EACH WAY
O.D.	OUTER DIAMETER
OHE	OVERHEAD ELECTRICAL
PE	PLAIN END
P.G.P.	PER GRADING PLAN
PI	POINT OF INFLECTION
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLY VINYL CHLORIDE
PVI	POINT VERTICAL INFLECTION
PVT	PRIVATE
Q	FLOW
QTY.	QUANTITY
R	RADIUS
R-	RANGE
REF	REFERENCE
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SCH	SCHEDULE
SDR	STANDARD DIMENSION RATIO
SEC.	SECTION
SF	SAFETY FACTOR
SHT	SHEET
SPECS.	SPECIFICATIONS
SS	STAINLESS STEEL
STA	STATION
STD.	STANDARD
SW	SIDEWALK
T	TOWNSHIP
TBD	TO BE DETERMINED
TBR	TO BE REMOVED
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TELE.	TELEPHONE
TEMP.	TEMPORARY
THK	THICK
TNT	NAVAJO TRIBAL TRUST
T.O.	TOP OF
TRANS	TRANSFORMER
TW	TOP OF WALL
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VOLUME
VB	VACUUM BREAKER
VERT.	VERTICAL
VLV	VALVE
VR	VACUUM RELIEF
W	WATER
W	WEST
W/	WITH
WL	WATERLINE
WP	WORKING PRESSURE
WT	WALL THICKNESS
WV	WATER VALVE
YDS	YARDS
Z	ZENITH

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TOHATCHI EAST FLATS
INDIVIDUAL WELLS
TOHATCHI, NEW MEXICO
GENERAL NOTES AND LEGEND

COLIN M. DALY
NEW MEXICO
20923
12/27/2021
PROFESSIONAL ENGINEER

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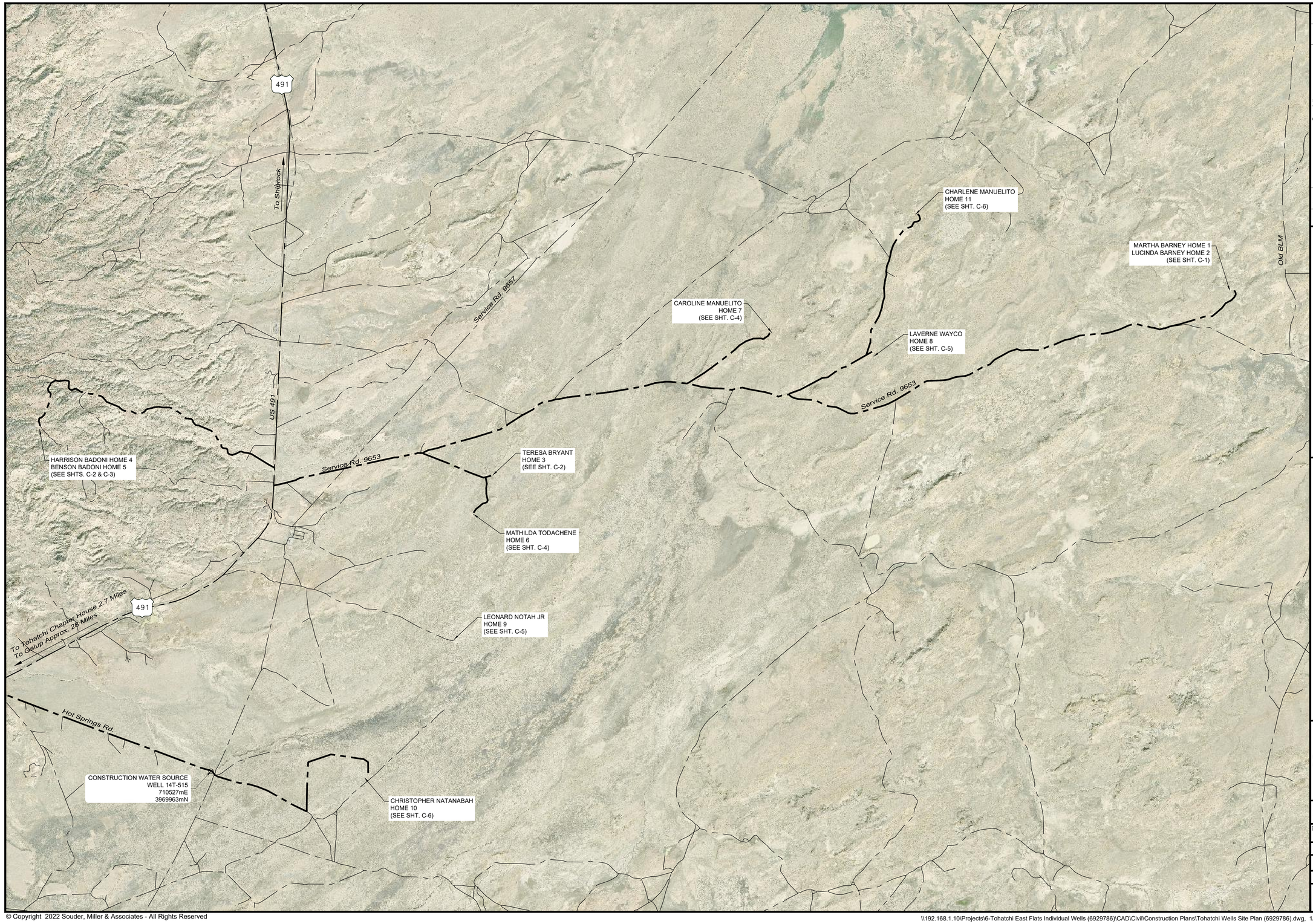
Designed	Drawn	Checked
CMD	AAV	JMG

Date: January 2022

Scale: Horiz: NONE
Vert: N/A

Project No: 6929786

Sheet: G-2



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TOHATCHI EAST FLATS INDIVIDUAL WELLS TOHATCHI, NEW MEXICO PROJECT SITE PLAN

COLIN M. DALY
NEW MEXICO
20923
12/27/2021
PROFESSIONAL ENGINEER

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Designed	Drawn	Checked
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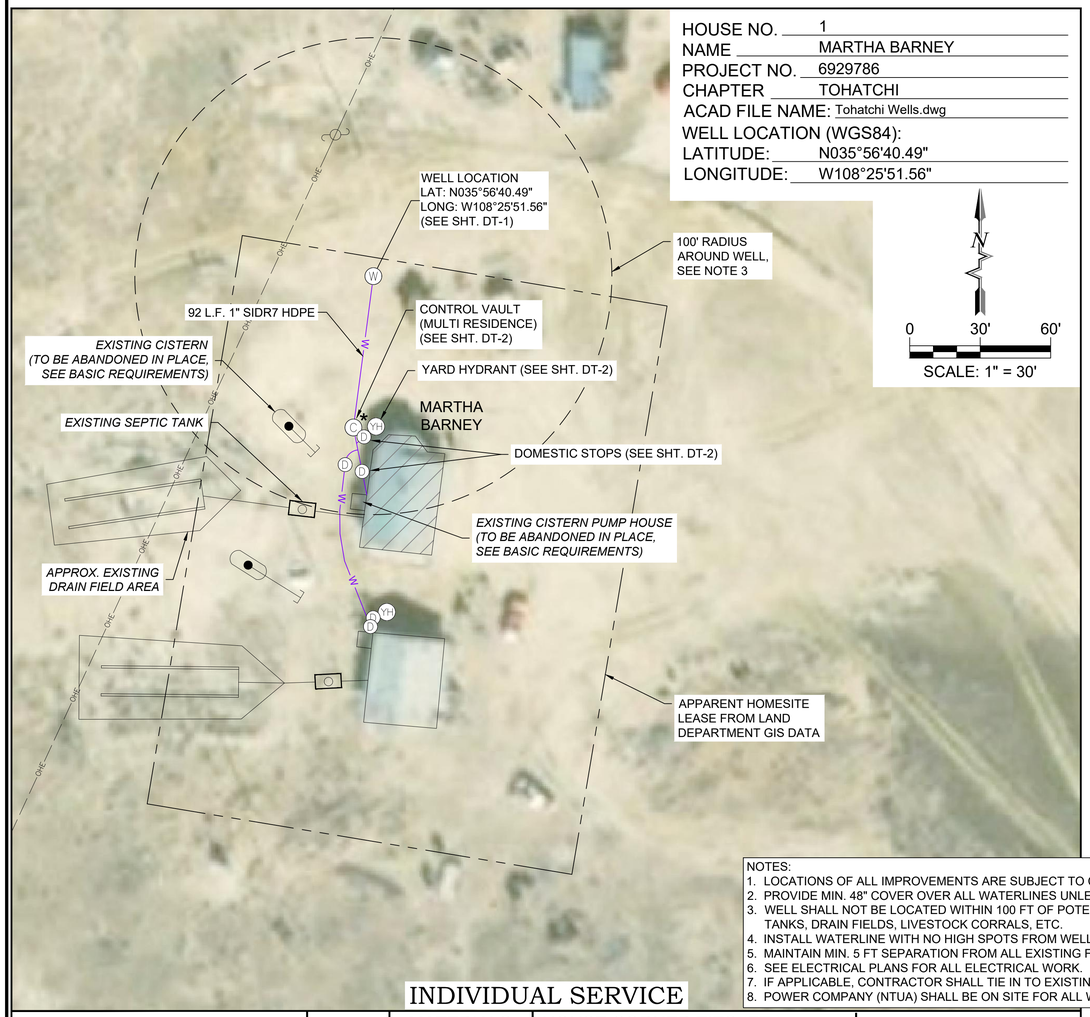
Date: January 2022

Scale: Horiz: 1" = 6000'
Vert: N/A

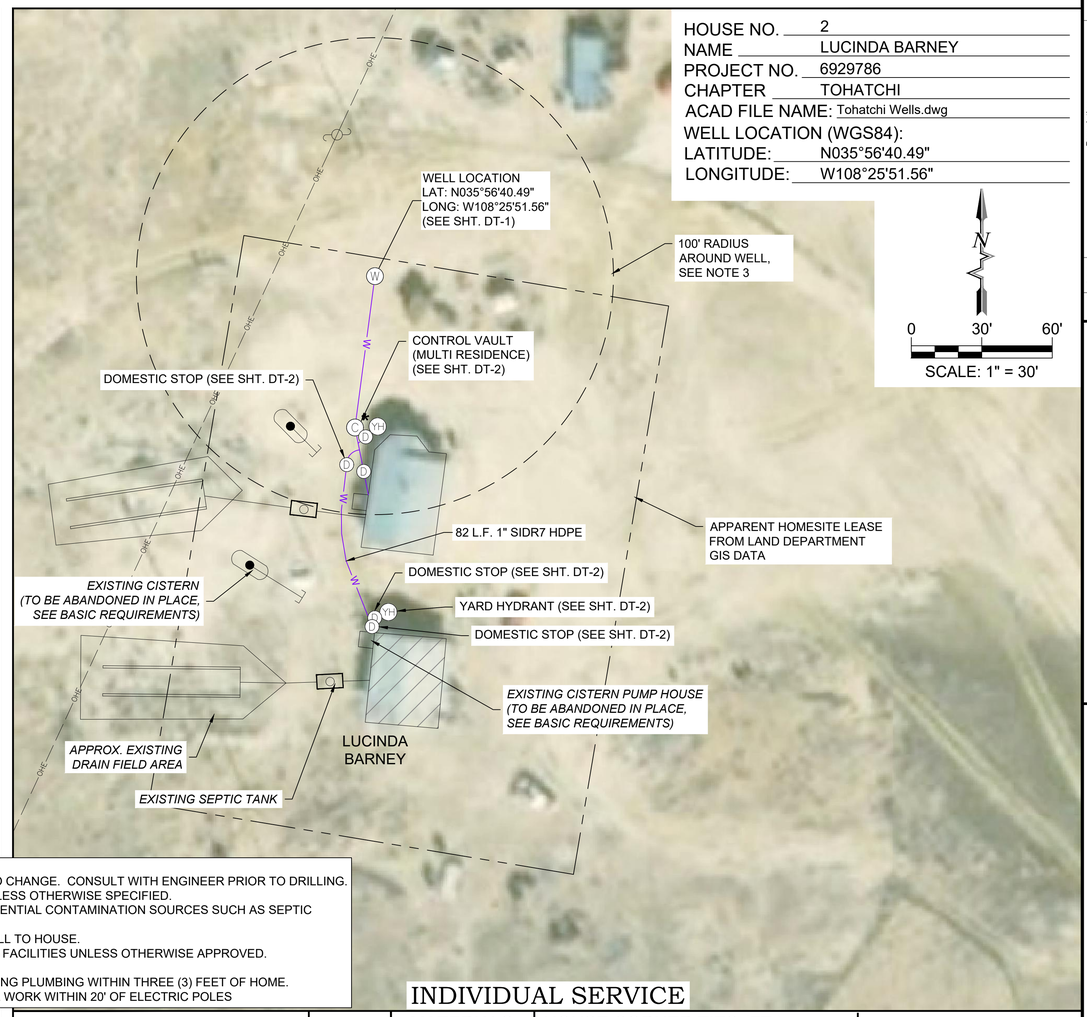
Project No: 6929786

Sheet: G-3

\\192.168.1.10\Projects\6-Tohatchi East Flats Individual Wells (6929786)\CAD\Civil\Construction Plans\Tohatchi Wells Site Plan (6929786).dwg, 1/26/2022 10:55:09 AM AAV



HOUSE NO. 1
NAME MARTHA BARNEY
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°56'40.49"
LONGITUDE: W108°25'51.56"



HOUSE NO. 2
NAME LUCINDA BARNEY
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°56'40.49"
LONGITUDE: W108°25'51.56"

NOTES:
1. LOCATIONS OF ALL IMPROVEMENTS ARE SUBJECT TO CHANGE. CONSULT WITH ENGINEER PRIOR TO DRILLING.
2. PROVIDE MIN. 48" COVER OVER ALL WATERLINES UNLESS OTHERWISE SPECIFIED.
3. WELL SHALL NOT BE LOCATED WITHIN 100 FT OF POTENTIAL CONTAMINATION SOURCES SUCH AS SEPTIC TANKS, DRAIN FIELDS, LIVESTOCK CORRALS, ETC.
4. INSTALL WATERLINE WITH NO HIGH SPOTS FROM WELL TO HOUSE.
5. MAINTAIN MIN. 5 FT SEPARATION FROM ALL EXISTING FACILITIES UNLESS OTHERWISE APPROVED.
6. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK.
7. IF APPLICABLE, CONTRACTOR SHALL TIE IN TO EXISTING PLUMBING WITHIN THREE (3) FEET OF HOME.
8. POWER COMPANY (NTUA) SHALL BE ON SITE FOR ALL WORK WITHIN 20' OF ELECTRIC POLES

INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE
WELL	W	SEE WELL DETAIL					
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC					
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE					
DOMESTIC STOP	D	1"					
YARD HYDRANT	YH	1"					
DISTRIBUTION BOX (EX.)		CONCRETE					
SEPTIC TANK (EX.)		1000 GAL. CONCRETE					
CISTERN TANK (EX.)		1000 GAL. PE					
CLEAN OUT #1 (EX.)		4"	PVC				
CLEAN OUT #2 (EX.)		4"	PVC				
HOUSE SERVICE LINE	W	1" SIDR7	P.E.				
MAIN WATER LINE (EX.)	W	Varies	PVC				
SEWERLINE (EX.)	SS	4"	PVC				
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.				
DWELLING, OTHER BLDGS							
MARKER POST		T-POST STEEL					

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

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INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE
WELL	W	SEE WELL DETAIL					
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC					
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE					
DOMESTIC STOP	D	1"					
YARD HYDRANT	YH	1"					
DISTRIBUTION BOX (EX.)		CONCRETE					
SEPTIC TANK (EX.)		1000 GAL. CONCRETE					
CISTERN TANK (EX.)		1000 GAL. PE					
CLEAN OUT #1 (EX.)		4"	PVC				
CLEAN OUT #2 (EX.)		4"	PVC				
HOUSE SERVICE LINE	W	1" SIDR7	P.E.				
MAIN WATER LINE (EX.)	W	Varies	PVC				
SEWERLINE (EX.)	SS	4"	PVC				
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.				
DWELLING, OTHER BLDGS							
MARKER POST		T-POST STEEL					

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

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COLIN M. DALY
NEW MEXICO
20923
12/27/2021
PROFESSIONAL ENGINEER

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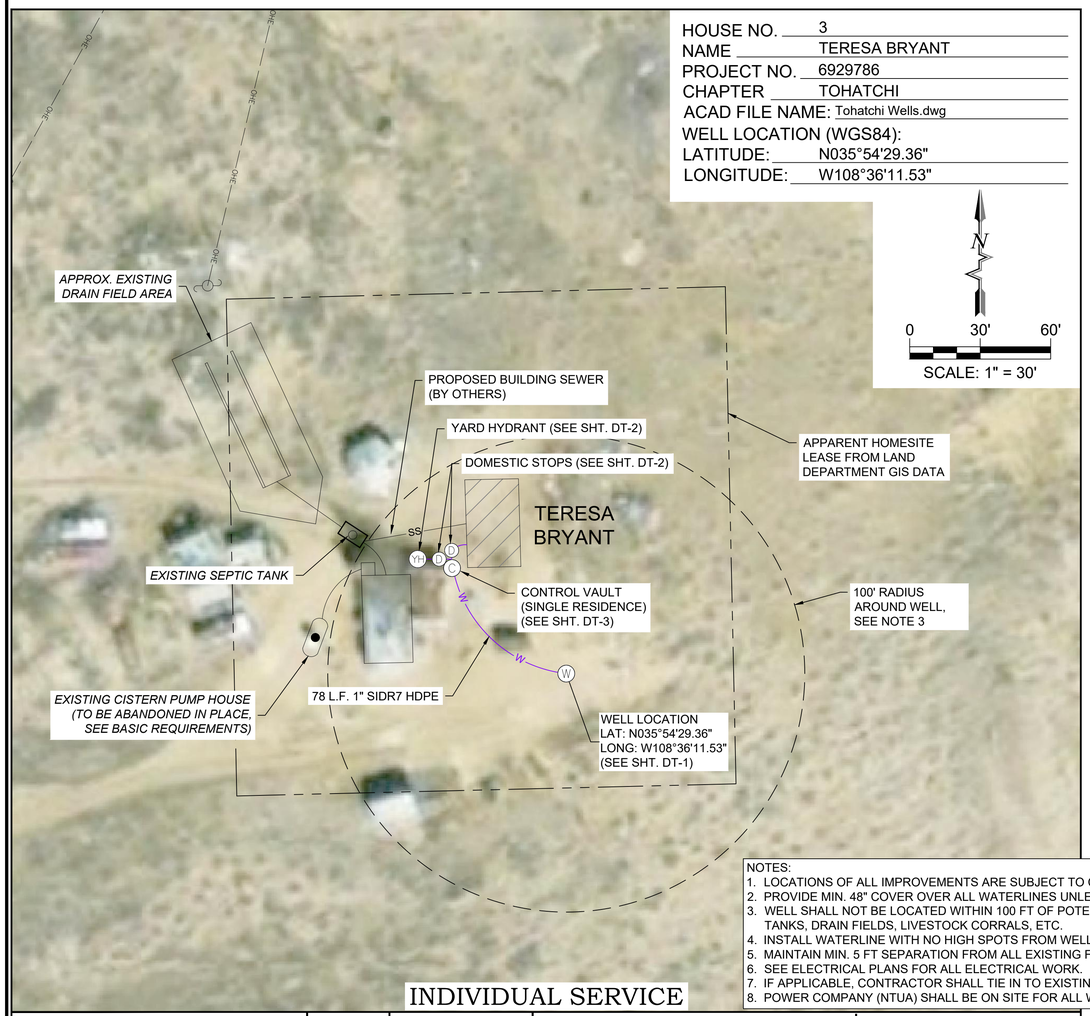
Designed	Drawn	Checked
CMD	AAV	JMG

Date: January 2022
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: C-1

HOUSE NO. 3
NAME TERESA BRYANT
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°54'29.36"
LONGITUDE: W108°36'11.53"



INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE		
WELL	W	SEE WELL DETAIL							
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC							
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE							
DOMESTIC STOP	D	1"							
YARD HYDRANT	YH	1"							
DISTRIBUTION BOX (EX.)		CONCRETE							
SEPTIC TANK (EX.)		1000 GAL. CONCRETE							
CISTERN TANK (EX.)		1000 GAL. PE							
CLEAN OUT #1 (EX.)		4"	PVC						
CLEAN OUT #2 (EX.)		4"	PVC						
HOUSE SERVICE LINE	W	1" SIDR7	P.E.						
MAIN WATER LINE (EX.)	W	Varies	PVC						
SEWERLINE (EX.)	SS	4"	PVC						
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.						
DWELLING, OTHER BLDGS									
MARKER POST		T-POST STEEL							

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

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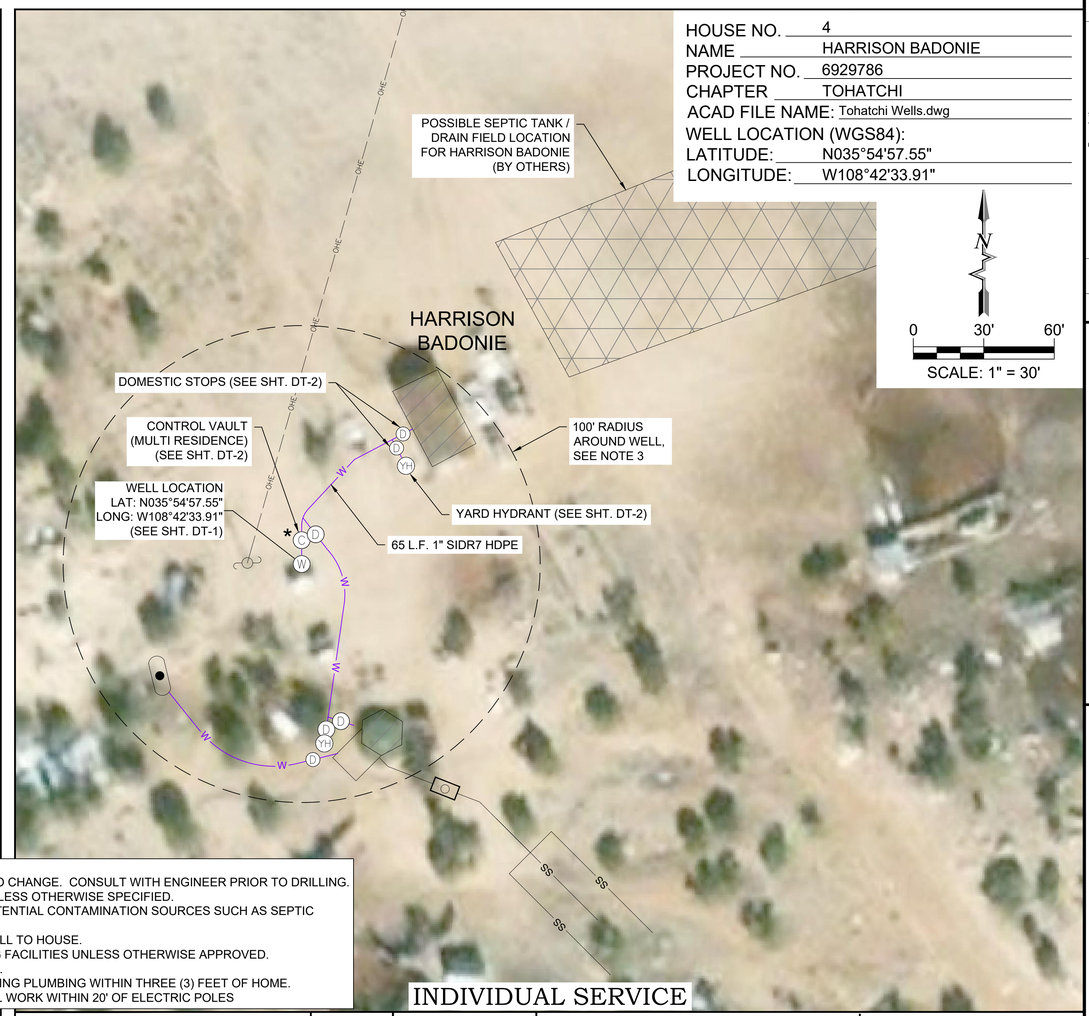
HOUSE NO. 4
NAME HARRISON BADONIE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°54'57.55"
LONGITUDE: W108°42'33.91"



INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE		
WELL	W	SEE WELL DETAIL							
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC							
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE							
DOMESTIC STOP	D	1"							
YARD HYDRANT	YH	1"							
DISTRIBUTION BOX (EX.)		CONCRETE							
SEPTIC TANK (EX.)		1000 GAL. CONCRETE							
CISTERN TANK (EX.)		1000 GAL. PE							
CLEAN OUT #1 (EX.)		4"	PVC						
CLEAN OUT #2 (EX.)		4"	PVC						
HOUSE SERVICE LINE	W	1" SIDR7	P.E.						
MAIN WATER LINE (EX.)	W	Varies	PVC						
SEWERLINE (EX.)	SS	4"	PVC						
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.						
DWELLING, OTHER BLDGS									
MARKER POST		T-POST STEEL							

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

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DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

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NOTES:
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4. INSTALL WATERLINE WITH NO HIGH SPOTS FROM WELL TO HOUSE.
5. MAINTAIN MIN. 5 FT SEPARATION FROM ALL EXISTING FACILITIES UNLESS OTHERWISE APPROVED.
6. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK.
7. IF APPLICABLE, CONTRACTOR SHALL TIE IN TO EXISTING PLUMBING WITHIN THREE (3) FEET OF HOME.
8. POWER COMPANY (NTUA) SHALL BE ON SITE FOR ALL WORK WITHIN 20' OF ELECTRIC POLES

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INDIVIDUAL WELLS
TOHATCHI, NEW MEXICO
INDIVIDUAL INSTALLATION DETAIL HOMES 3 & 4

COLIN M. DALY NEW MEXICO 20923 12/27/2021 PROFESSIONAL ENGINEER

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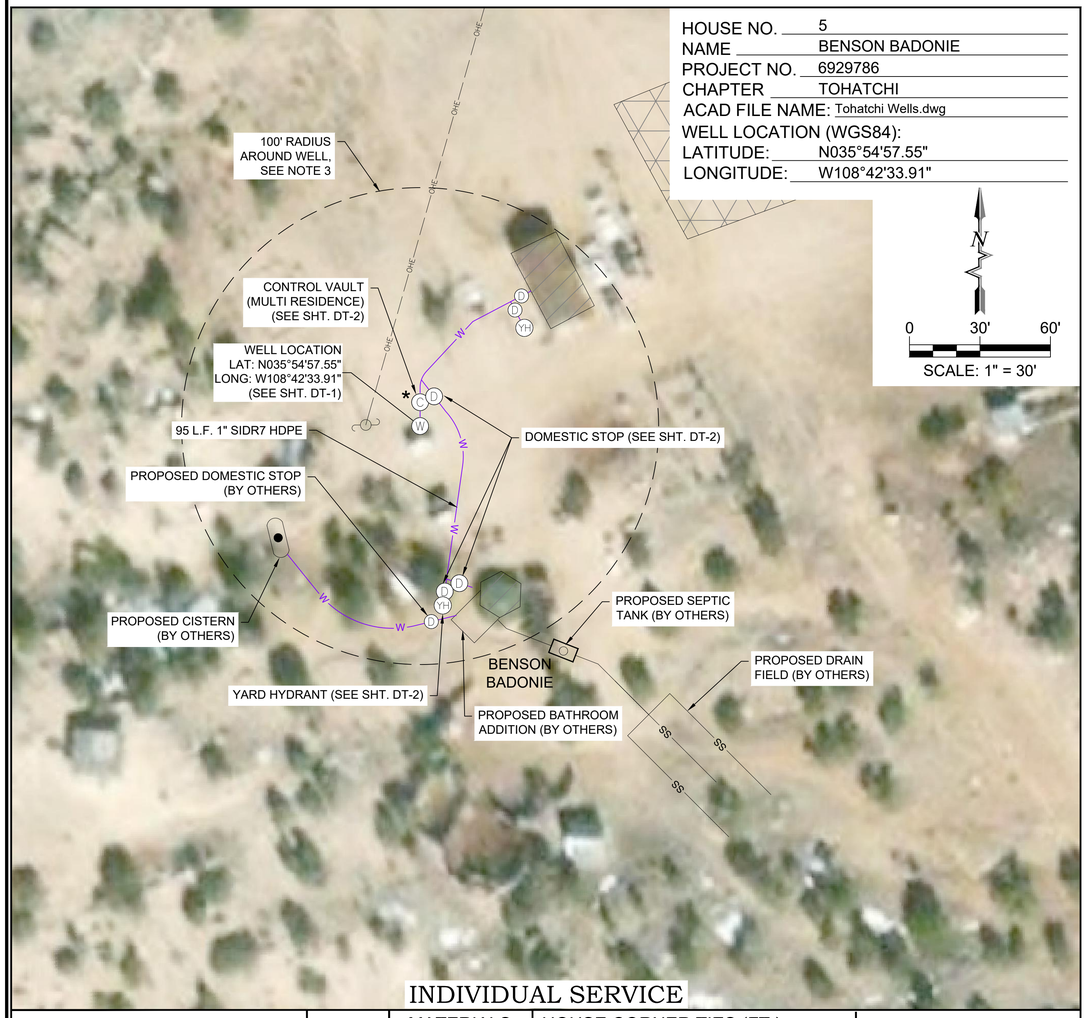
Designed	Drawn	Checked
CMD	AAV	JMG

Date: January 2022
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: C-2



HOUSE NO. 5
NAME BENSON BADONIE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°54'57.55"
LONGITUDE: W108°42'33.91"

INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L
WELL	W	SEE WELL DETAIL	
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC	
CONTROL VAULT (MULTI RESIDENCE)	C *	48" DIA. CONCRETE	
DOMESTIC STOP	D	1"	
YARD HYDRANT	YH	1"	
DISTRIBUTION BOX (EX.)		CONCRETE	
SEPTIC TANK (EX.)		1000 GAL. CONCRETE	
CISTERN TANK (EX.)		1000 GAL. PE	
CLEAN OUT #1 (EX.)		4"	PVC
CLEAN OUT #2 (EX.)		4"	PVC
HOUSE SERVICE LINE	W	1" SIDR7	P.E.
MAIN WATER LINE (EX.)	W	Varies	PVC
SEWERLINE (EX.)	SS	4"	PVC
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.
DWELLING, OTHER BLDGS			
MARKER POST		T-POST STEEL	

HOUSE CORNER TIES (FT.)

NW	NE	SW	SE		

DRAINFIELD INFORMATION

SOIL TYPE: _____

AREA _____ SQ. FT.

TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022

AS-BUILT: ☐

REMARKS: _____

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6. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK.
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8. POWER COMPANY (NTUA) SHALL BE ON SITE FOR ALL WORK WITHIN 20' OF ELECTRIC POLES

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TOHATCHI, NEW MEXICO
INDIVIDUAL INSTALLATION DETAIL HOME 5

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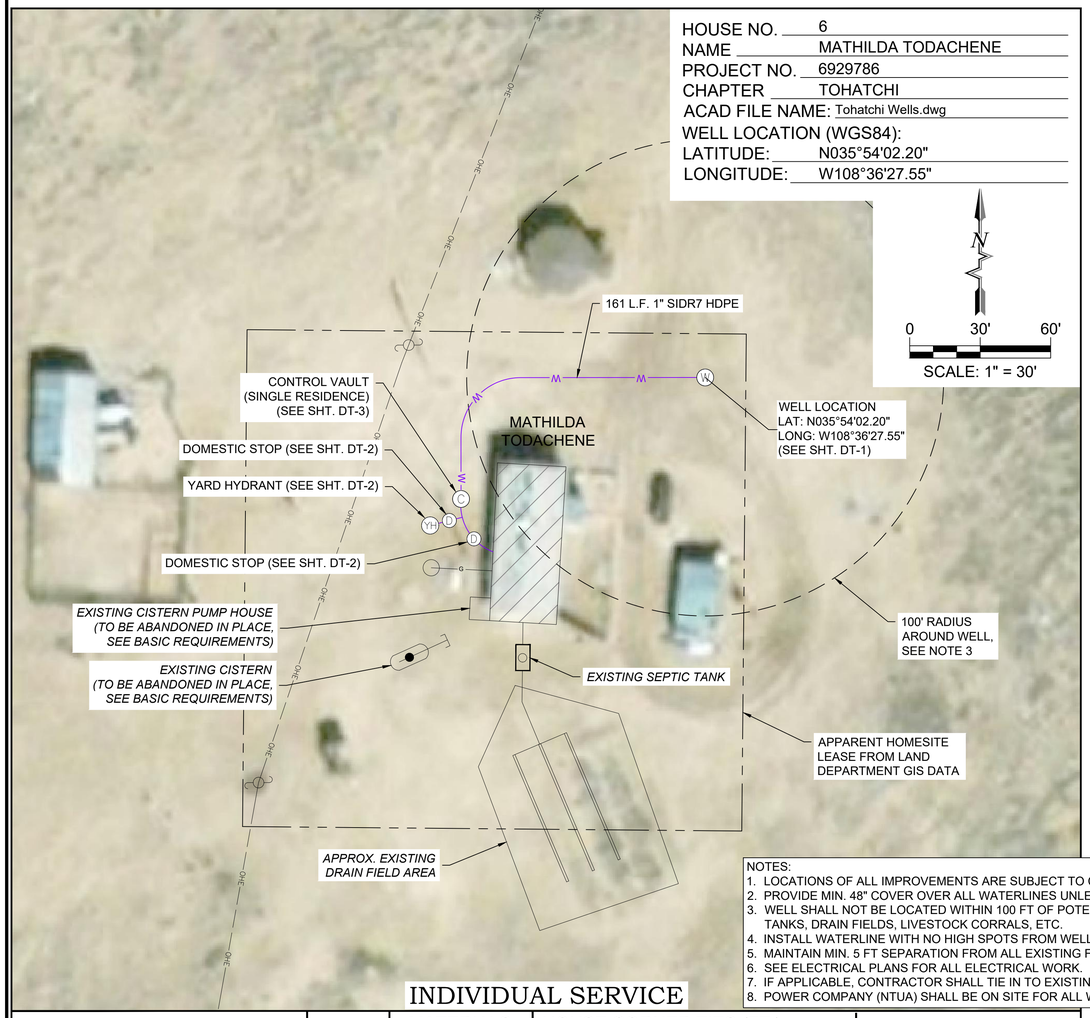
Designed	Drawn	Checked
CMD	AAV	JMG

Date: January 2022
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: C-3

HOUSE NO. 6
NAME MATHILDA TODACHENE
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°54'02.20"
LONGITUDE: W108°36'27.55"



INDIVIDUAL SERVICE

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7. IF APPLICABLE, CONTRACTOR SHALL TIE IN TO EXISTING PLUMBING WITHIN THREE (3) FEET OF HOME.
8. POWER COMPANY (NTUA) SHALL BE ON SITE FOR ALL WORK WITHIN 20' OF ELECTRIC POLES

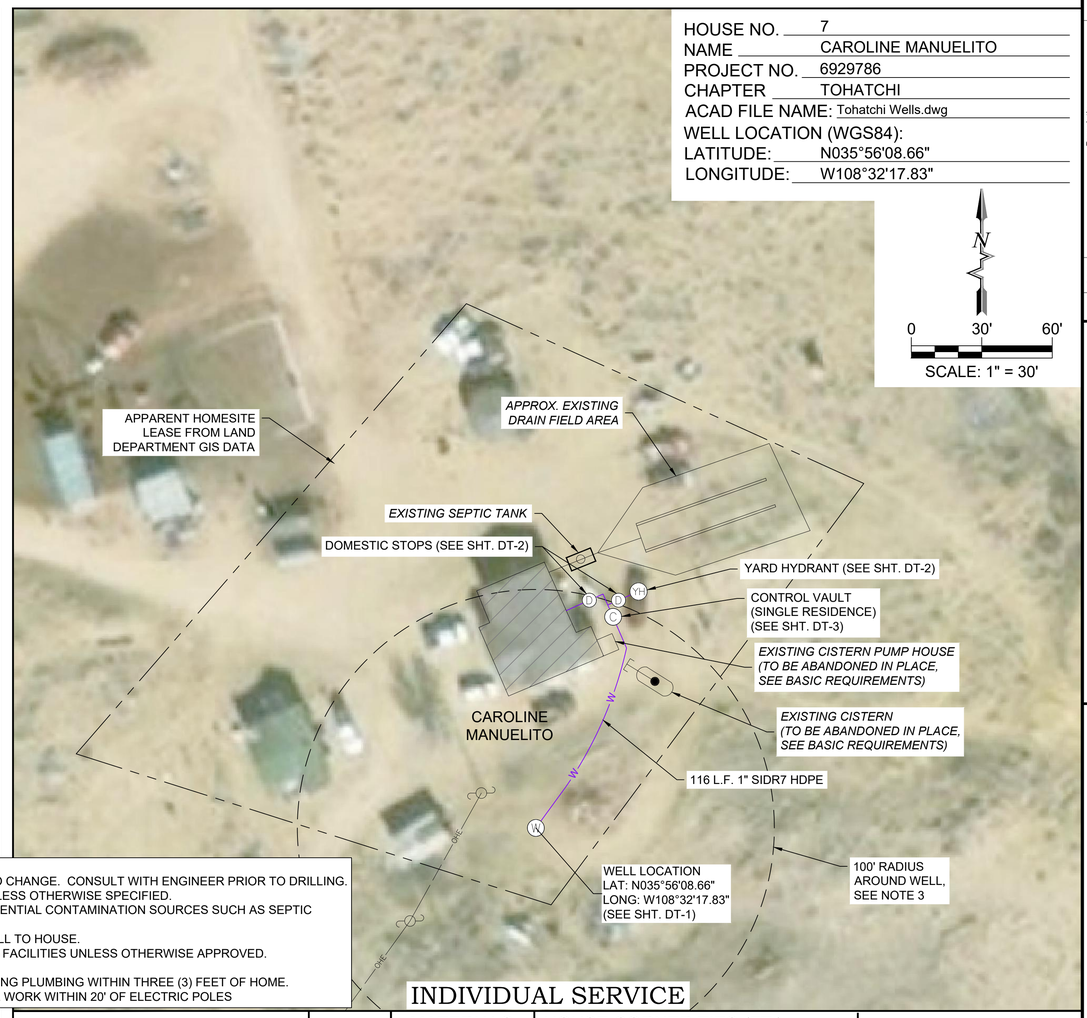
ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE		
WELL	W	SEE WELL DETAIL							
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC							
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE							
DOMESTIC STOP	D	1"							
YARD HYDRANT	YH	1"							
DISTRIBUTION BOX (EX.)		CONCRETE							
SEPTIC TANK (EX.)		1000 GAL. CONCRETE							
CISTERN TANK (EX.)		1000 GAL. PE							
CLEAN OUT #1 (EX.)		4"	PVC						
CLEAN OUT #2 (EX.)		4"	PVC						
HOUSE SERVICE LINE	W	1" SIDR7	P.E.						
MAIN WATER LINE (EX.)	W	Varies	PVC						
SEWERLINE (EX.)	SS	4"	PVC						
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.						
DWELLING, OTHER BLDGS									
MARKER POST		T-POST STEEL							

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

SMA Engineering Environmental Geomatics

HOUSE NO. 7
NAME CAROLINE MANUELITO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°56'08.66"
LONGITUDE: W108°32'17.83"



INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE		
WELL	W	SEE WELL DETAIL							
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC							
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE							
DOMESTIC STOP	D	1"							
YARD HYDRANT	YH	1"							
DISTRIBUTION BOX (EX.)		CONCRETE							
SEPTIC TANK (EX.)		1000 GAL. CONCRETE							
CISTERN TANK (EX.)		1000 GAL. PE							
CLEAN OUT #1 (EX.)		4"	PVC						
CLEAN OUT #2 (EX.)		4"	PVC						
HOUSE SERVICE LINE	W	1" SIDR7	P.E.						
MAIN WATER LINE (EX.)	W	Varies	PVC						
SEWERLINE (EX.)	SS	4"	PVC						
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.						
DWELLING, OTHER BLDGS									
MARKER POST		T-POST STEEL							

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
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DATE: 1/26/2022
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INDIVIDUAL INSTALLATION DETAIL HOMES 6 & 7

COLIN M. DALY NEW MEXICO 20923 12/27/2021 PROFESSIONAL ENGINEER

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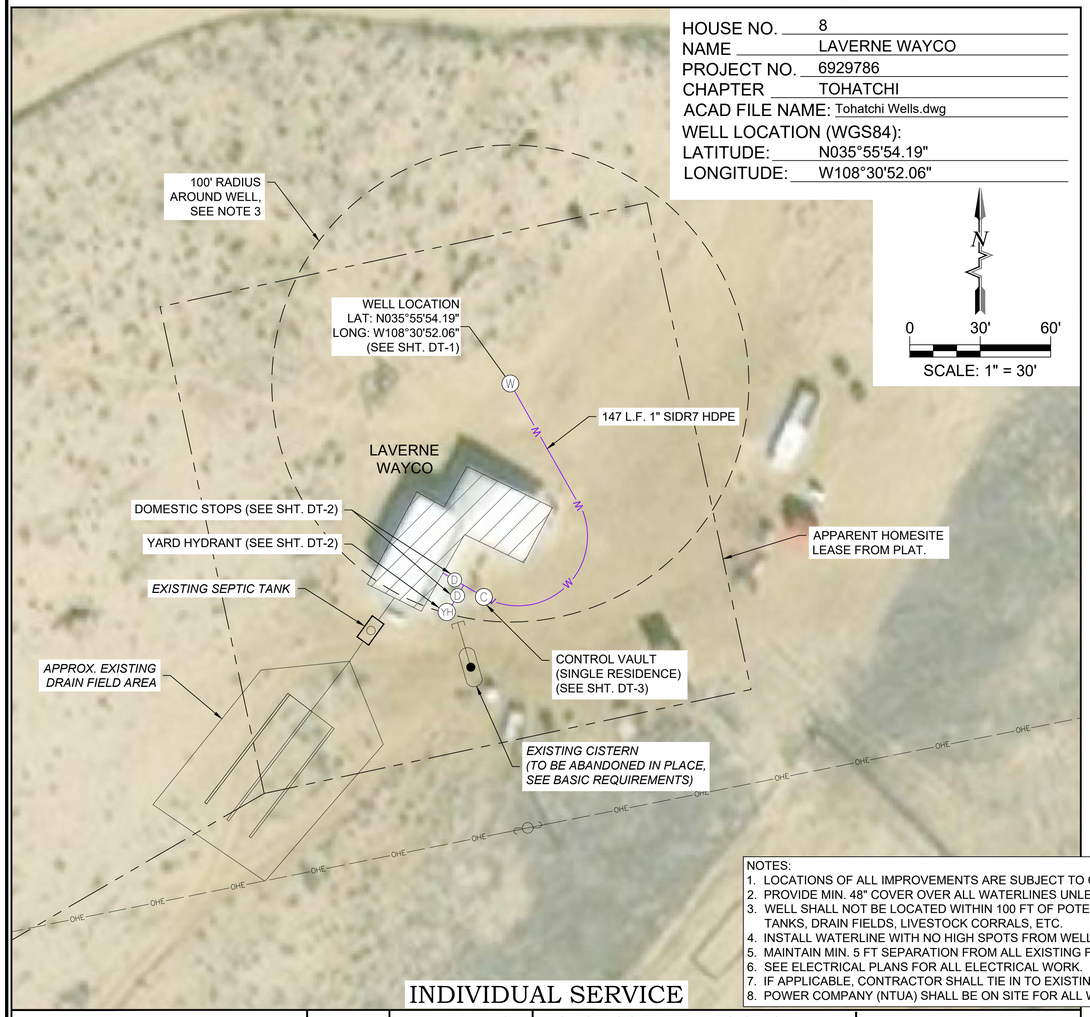
CMD	AAV	JMG

Date: January 2022
Scale: Horiz: NONE Vert: N/A
Project No: 6929786
Sheet: C-4



HOUSE NO. 8
NAME LAVERNE WAYCO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°55'54.19"
LONGITUDE: W108°30'52.06"

INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE		
WELL	W	SEE WELL DETAIL							
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC							
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE							
DOMESTIC STOP	D	1"							
YARD HYDRANT	YH	1"							
DISTRIBUTION BOX (EX.)		CONCRETE							
SEPTIC TANK (EX.)		1000 GAL. CONCRETE							
CISTERN TANK (EX.)		1000 GAL. PE							
CLEAN OUT #1 (EX.)		4"	PVC						
CLEAN OUT #2 (EX.)		4"	PVC						
HOUSE SERVICE LINE	W	1" SIDR7	P.E.						
MAIN WATER LINE (EX.)	W	Varies	PVC						
SEWERLINE (EX.)	SS	4"	PVC						
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.						
DWELLING, OTHER BLDGS									
MARKER POST		T-POST STEEL							

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022

AS-BUILT: ☐

REMARKS:

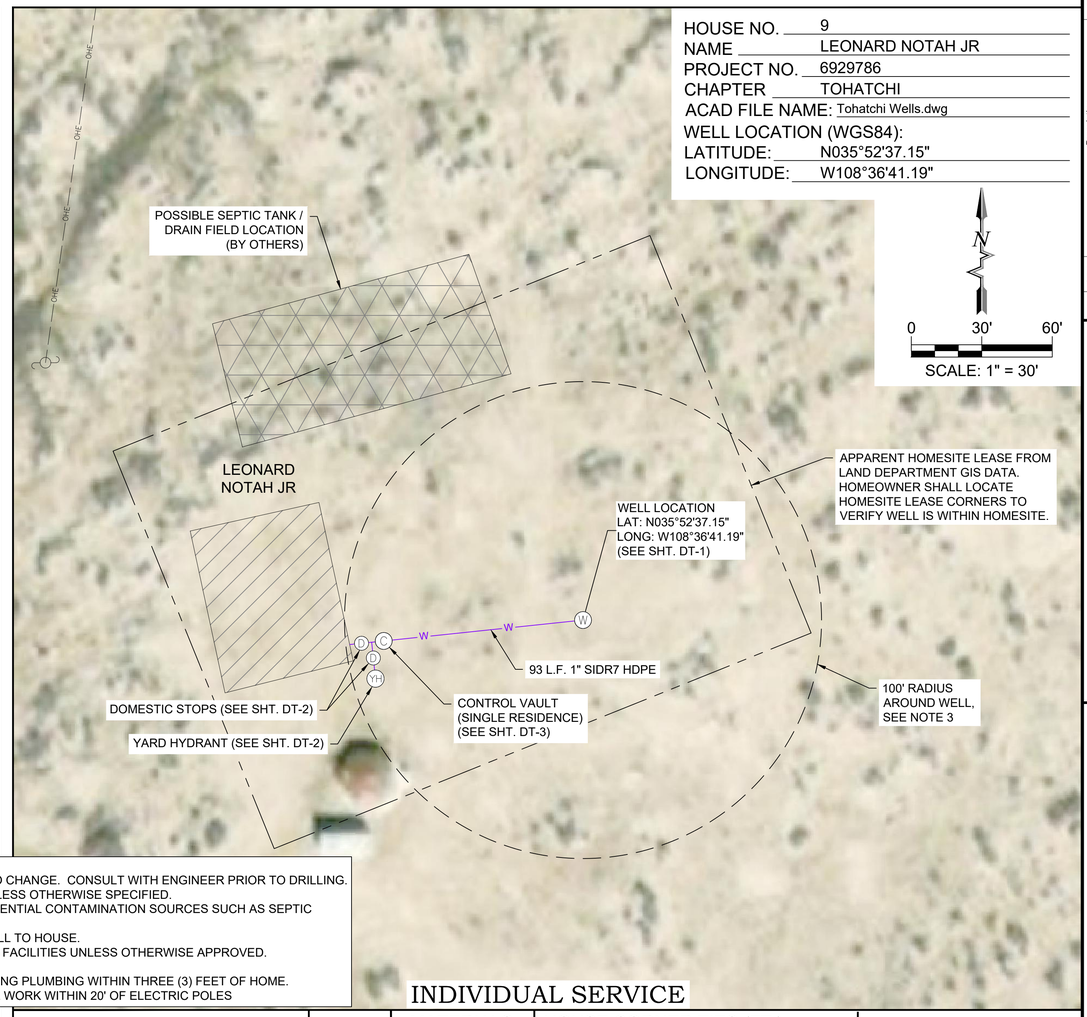
DRAINFIELD INFORMATION

SOIL TYPE:

AREA _____ SQ. FT.

TOTAL LENGTH _____ FT.

SMA Engineering Environmental Geomatics



HOUSE NO. 9
NAME LEONARD NOTAH JR
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°52'37.15"
LONGITUDE: W108°36'41.19"

INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MATERIALS MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE		
WELL	W	SEE WELL DETAIL							
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC							
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE							
DOMESTIC STOP	D	1"							
YARD HYDRANT	YH	1"							
DISTRIBUTION BOX (EX.)		CONCRETE							
SEPTIC TANK (EX.)		1000 GAL. CONCRETE							
CISTERN TANK (EX.)		1000 GAL. PE							
CLEAN OUT #1 (EX.)		4"	PVC						
CLEAN OUT #2 (EX.)		4"	PVC						
HOUSE SERVICE LINE	W	1" SIDR7	P.E.						
MAIN WATER LINE (EX.)	W	Varies	PVC						
SEWERLINE (EX.)	SS	4"	PVC						
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.						
DWELLING, OTHER BLDGS									
MARKER POST		T-POST STEEL							

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DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022

AS-BUILT: ☐

REMARKS:

DRAINFIELD INFORMATION

SOIL TYPE:

AREA _____ SQ. FT.

TOTAL LENGTH _____ FT.

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NOTES:
1. LOCATIONS OF ALL IMPROVEMENTS ARE SUBJECT TO CHANGE. CONSULT WITH ENGINEER PRIOR TO DRILLING.
2. PROVIDE MIN. 48" COVER OVER ALL WATERLINES UNLESS OTHERWISE SPECIFIED.
3. WELL SHALL NOT BE LOCATED WITHIN 100 FT OF POTENTIAL CONTAMINATION SOURCES SUCH AS SEPTIC TANKS, DRAIN FIELDS, LIVESTOCK CORRALS, ETC.
4. INSTALL WATERLINE WITH NO HIGH SPOTS FROM WELL TO HOUSE.
5. MAINTAIN MIN. 5 FT SEPARATION FROM ALL EXISTING FACILITIES UNLESS OTHERWISE APPROVED.
6. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK.
7. IF APPLICABLE, CONTRACTOR SHALL TIE IN TO EXISTING PLUMBING WITHIN THREE (3) FEET OF HOME.
8. POWER COMPANY (NTUA) SHALL BE ON SITE FOR ALL WORK WITHIN 20' OF ELECTRIC POLES

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TOHATCHI, NEW MEXICO
INDIVIDUAL INSTALLATION DETAIL HOMES 8 & 9

COLIN M. DALY NEW MEXICO 20923 12/27/2021 PROFESSIONAL ENGINEER

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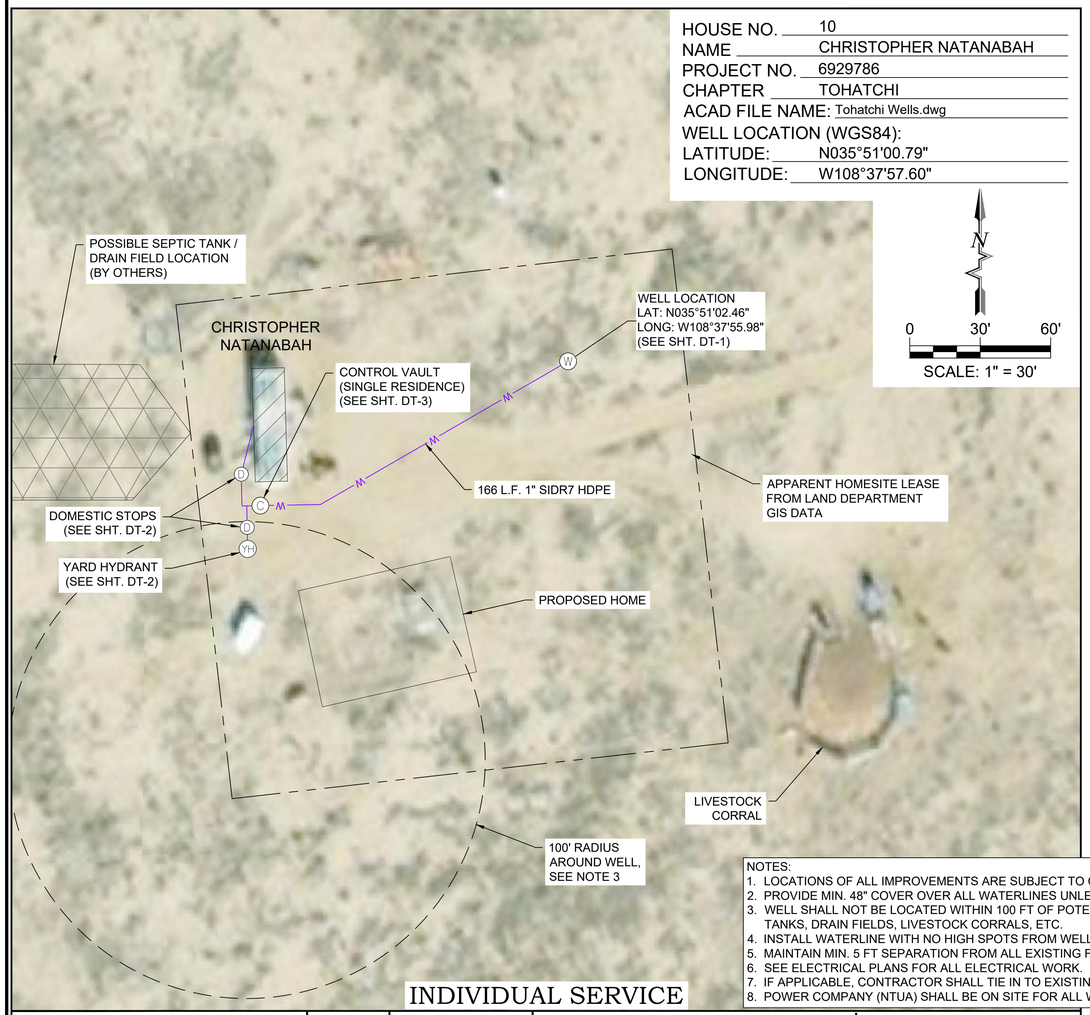
Project No: 6929786
Sheet: C-5

HOUSE NO. 10
NAME CHRISTOPHER NATANABAH
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°51'00.79"
LONGITUDE: W108°37'57.60"



NOTES:
1. LOCATIONS OF ALL IMPROVEMENTS ARE SUBJECT TO CHANGE. CONSULT WITH ENGINEER PRIOR TO DRILLING.
2. PROVIDE MIN. 48" COVER OVER ALL WATERLINES UNLESS OTHERWISE SPECIFIED.
3. WELL SHALL NOT BE LOCATED WITHIN 100 FT OF POTENTIAL CONTAMINATION SOURCES SUCH AS SEPTIC TANKS, DRAIN FIELDS, LIVESTOCK CORRALS, ETC.
4. INSTALL WATERLINE WITH NO HIGH SPOTS FROM WELL TO HOUSE.
5. MAINTAIN MIN. 5 FT SEPARATION FROM ALL EXISTING FACILITIES UNLESS OTHERWISE APPROVED.
6. SEE ELECTRICAL PLANS FOR ALL ELECTRICAL WORK.
7. IF APPLICABLE, CONTRACTOR SHALL TIE IN TO EXISTING PLUMBING WITHIN THREE (3) FEET OF HOME.
8. POWER COMPANY (NTUA) SHALL BE ON SITE FOR ALL WORK WITHIN 20' OF ELECTRIC POLES

INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE
WELL	W	SEE WELL DETAIL					
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC					
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE					
DOMESTIC STOP	D	1"					
YARD HYDRANT	YH	1"					
DISTRIBUTION BOX (EX.)		CONCRETE					
SEPTIC TANK (EX.)		1000 GAL. CONCRETE					
CISTERN TANK (EX.)		1000 GAL. PE					
CLEAN OUT #1 (EX.)		4"	PVC				
CLEAN OUT #2 (EX.)		4"	PVC				
HOUSE SERVICE LINE	W	1" SIDR7	P.E.				
MAIN WATER LINE (EX.)	W	Varies	PVC				
SEWERLINE (EX.)	SS	4"	PVC				
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.				
DWELLING, OTHER BLDGS							
MARKER POST		T-POST STEEL					

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

DRAWN BY: AAV
DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

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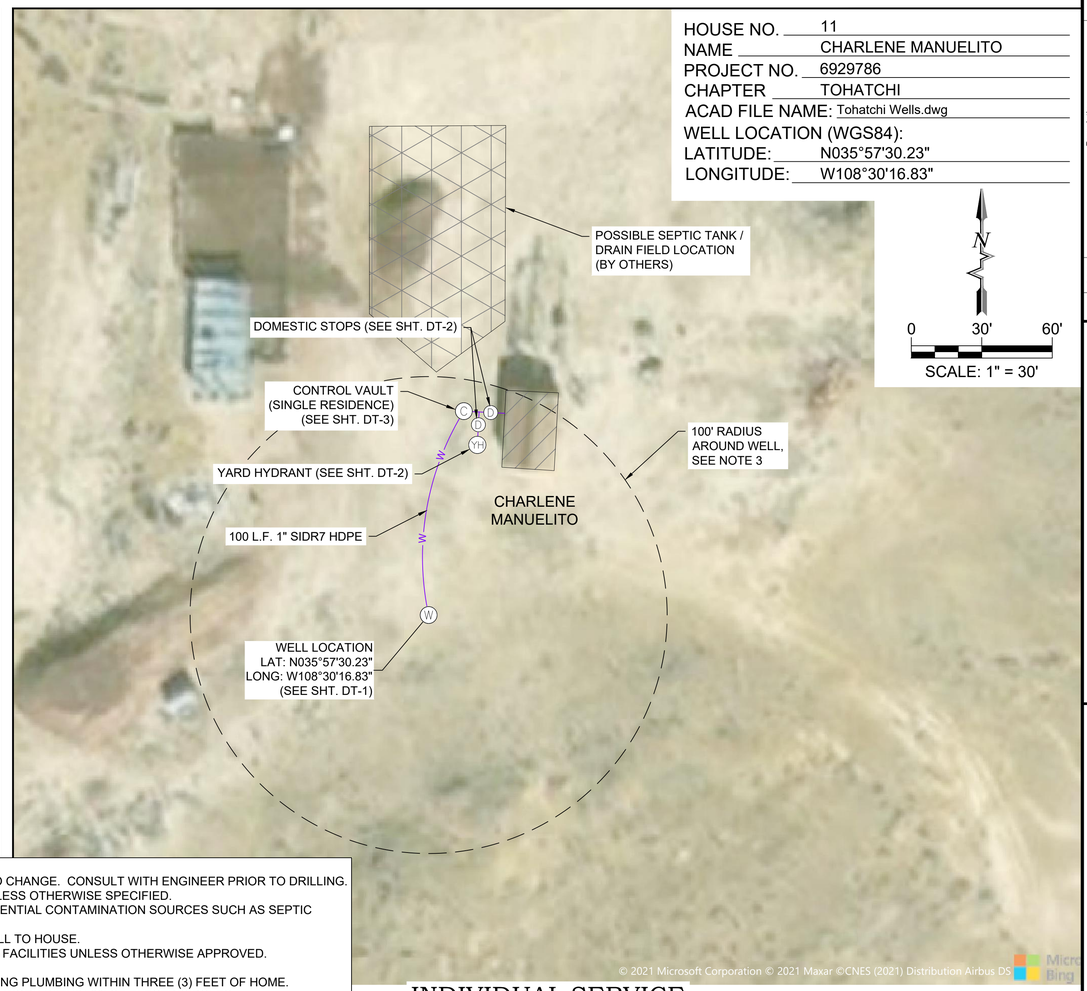
HOUSE NO. 11
NAME CHARLENE MANUELITO
PROJECT NO. 6929786
CHAPTER TOHATCHI
ACAD FILE NAME: Tohatchi Wells.dwg
WELL LOCATION (WGS84):
LATITUDE: N035°57'30.23"
LONGITUDE: W108°30'16.83"



INDIVIDUAL SERVICE

ITEM DESCRIPTION	SYMBOL	MATERIALS SIZE	MAT'L	HOUSE CORNER TIES (FT.) NW	NE	SW	SE
WELL	W	SEE WELL DETAIL					
CONTROL VAULT (SINGLE RESIDENCE)	C	18" PVC					
CONTROL VAULT (MULTI RESIDENCE)	C*	48" DIA. CONCRETE					
DOMESTIC STOP	D	1"					
YARD HYDRANT	YH	1"					
DISTRIBUTION BOX (EX.)		CONCRETE					
SEPTIC TANK (EX.)		1000 GAL. CONCRETE					
CISTERN TANK (EX.)		1000 GAL. PE					
CLEAN OUT #1 (EX.)		4"	PVC				
CLEAN OUT #2 (EX.)		4"	PVC				
HOUSE SERVICE LINE	W	1" SIDR7	P.E.				
MAIN WATER LINE (EX.)	W	Varies	PVC				
SEWERLINE (EX.)	SS	4"	PVC				
INFILTRATOR W/ INSPECTION PORT (EX.)		4' x 3'	P.E.				
DWELLING, OTHER BLDGS							
MARKER POST		T-POST STEEL					

DRAINFIELD INFORMATION
SOIL TYPE: _____
AREA _____ SQ. FT.
TOTAL LENGTH _____ FT.

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DATE: 1/26/2022
APPROVED BY: CMD
DATE: 1/26/2022
AS-BUILT: ☐
REMARKS: _____

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COLIN M. DALY NEW MEXICO 20923 12/27/2021 PROFESSIONAL ENGINEER

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CMD	AAV	JMG

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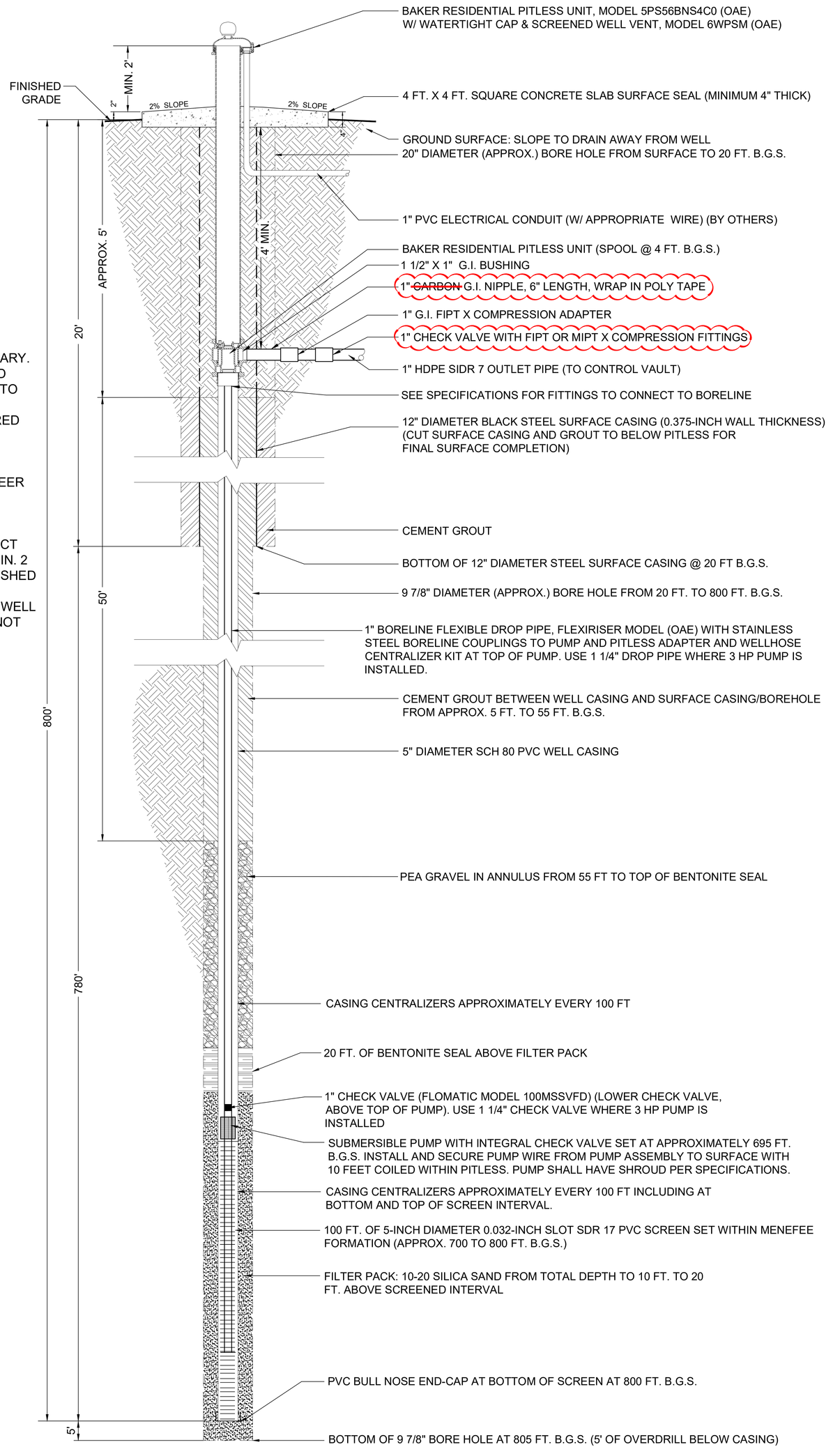
Project No: 6929786
Sheet: C-6



NOTES:

1. DIAGRAM NOT TO SCALE
2. WELL DESIGN IS PRELIMINARY. DEPTHS, DIMENSIONS, AND MATERIALS ARE SUBJECT TO CHANGE BASED ON FORMATIONS ENCOUNTERED DURING DRILLING.
3. CONTRACTOR SHALL COORDINATE WITH ENGINEER TO ENSURE THE PITLESS ADAPTOR AND APPURTENANCES ARE INSTALLED AT THE CORRECT ELEVATION TO PROVIDE MIN. 2 FT. OF STICKUP FROM FINISHED GRADE TO THE FLANGED CONNECTION BELOW THE WELL CAP. FINISHED GRADE IS NOT PROVIDED IN THESE DRAWINGS.

Sheet: DT-1
Project No: 6929786
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Date: January 2022
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WELL DESIGN DETAIL

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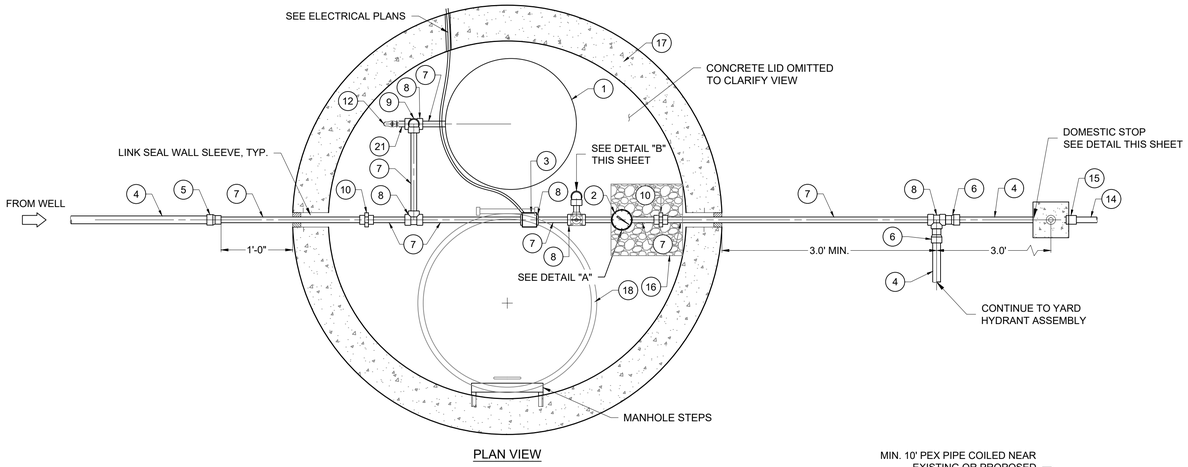
KEYED NOTES - MULTI RESIDENCE WELL

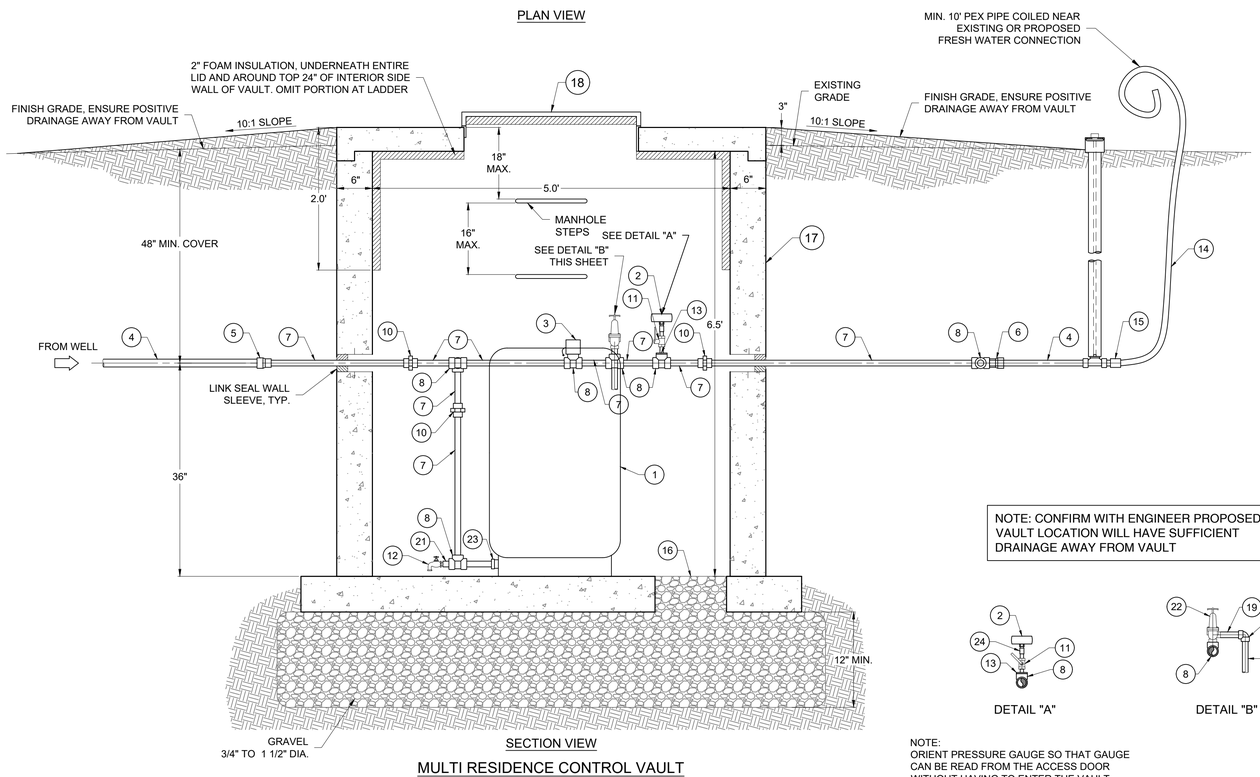
Item No.	Description
1	AMTROL WX-251 62 GAL PRESSURE TANK, OAE
2	*PRESSURE GAUGE (1/4" MIPT) 2.5" AND 0-100 PSI RANGE, WIKA 213.53DW, OAE, CENTER BACK MOUNT
3	PRESSURE SWITCH
4	1" SIDR 7 HDPE PIPE
5	*1" COMP x 1" FIPT ADAPTOR, GI
6	*1" COMP x 1" MIPT ADAPTOR, GI
7	*1" THREADED GALVANIZED IRON PIPE
8	*1" TEE, NPT, GI
9	*1" 90° BEND, NPT, GI
10	*1" UNION, NPT, GI
11	*1/2" BALL VALVE, FIPT X MIPT
12	*3/4" HOSE BIB WITH VACUUM BREAKER FOR DRAINING
13	*1" x 1/2" BUSHING, NPT, GI
14	1" PEX PIPE
15	*1" MIPT x 3/4" COMP ADAPTOR, GI
16	12" x 12" SUMP
17	5'-0" DIA I.D. TYPE "C" MANHOLE, PRECAST REINFORCED CONCRETE VAULT SHALL BE RATED FOR 20,000 LBS VERTICAL CAPACITY. MANHOLE BASE SHALL HAVE 12" X 12" SUMP FOR DRAINAGE, LOCATED AS SHOWN
18	30" HINGE TYPE MANHOLE COVER, HINGE TOWARD CENTER OF MANHOLE
19	*1" x 3" NIPPLE, NPT, GI
20	*1" x 6" NIPPLE, NPT x PE, GI
21	*1" x 3/4" BUSHING, NPT, GI
22	*1" MIPT x 1" FIPT ADJUSTABLE PRESSURE RELIEF VALVE, 100 psi MAX., SET TO 80 psi
23	*1-1/4" X 1" BUSHING, NPT, GI
24	*1/2" X 1/4" BUSIHNG, GI

NOTES:
1. WRAP EXTERIOR GALVANIZED PIPING WITH POLY TAPE, SEE SPECIFICATIONS.
2. PAINT INTERIOR GALVANIZED PIPING, SEE SPECIFICATIONS.

*ADDITIVE ALTERNATE:
IN LIEU OF GALVANIZED IRON OR OTHER MATERIALS, USE STAINLESS STEEL FOR THE FOLLOWING ITEMS: 2, 5-13, 15, 19-24



PLAN VIEW



SECTION VIEW

MULTI RESIDENCE CONTROL VAULT

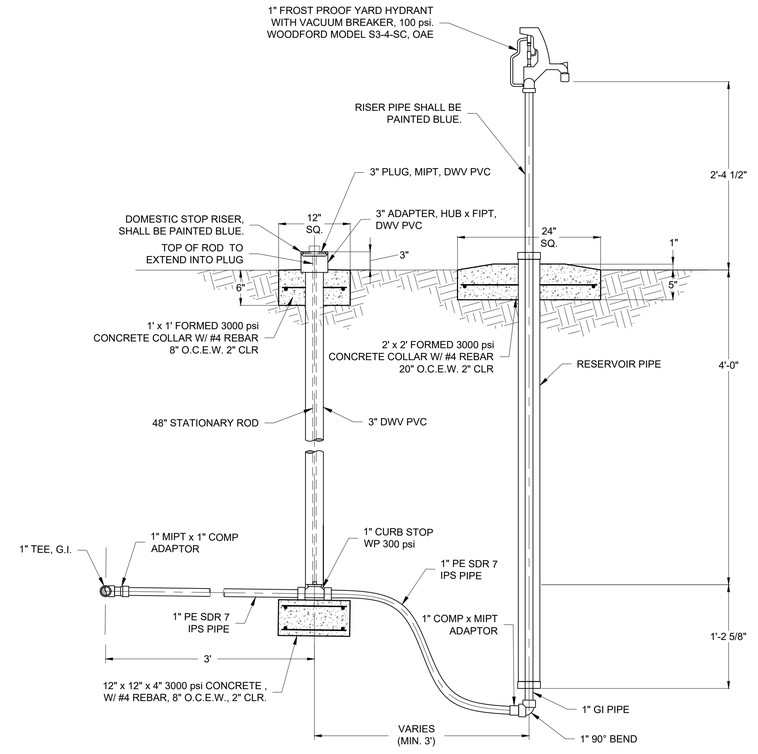
NOT TO SCALE

NOTE: CONFIRM WITH ENGINEER PROPOSED VAULT LOCATION WILL HAVE SUFFICIENT DRAINAGE AWAY FROM VAULT

DETAIL "A"

DETAIL "B"

NOTE:
ORIENT PRESSURE GAUGE SO THAT GAUGE CAN BE READ FROM THE ACCESS DOOR WITHOUT HAVING TO ENTER THE VAULT.



DOMESTIC STOP AND YARD HYDRANT ASSEMBLY DETAIL

NOT TO SCALE

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MULTI RESIDENCE VAULT & YARD HYD. DETAILS

COLIN M. DALY
NEW MEXICO
20923
12/27/2021
PROFESSIONAL ENGINEER

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Date: January 2022

Scale: Horiz: NONE Vert: N/A

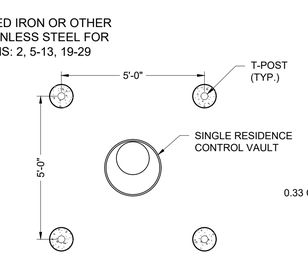
Project No: 6929786

Sheet: DT-2

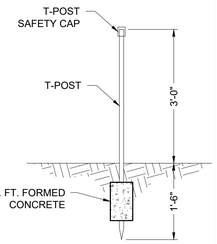
KEYED NOTES - SINGLE RESIDENCE WELL

Item No.	Description
1	AMTROL WX-102 4.4 GAL PRESSURE TANK, OAE
2	*1" MIPT x 1" FIPT ADJUSTABLE PRESSURE RELIEF VALVE, 100 psi MAX., SET TO 80 psi
3	GRUNDFOS PRESSURE SWITCH, OAE
4	1" SIDR 7 HDPE PIPE
5	*1" COMP x 1" FIPT ADAPTOR, GI
6	*1" COMP x 1" MIPT ADAPTOR, GI
7	*1" THREADED GALVANIZED IRON PIPE
8	*1" TEE, NPT, GI
9	*1" 90° BEND, NPT, GI
10	*1" UNION, NPT, GI
11	*1/4" BALL VALVE, FIPT x MIPT
12	*3/4" HOSE BIB WITH VACUUM BREAKER FOR DRAINING
13	*1" x 1/4" CLOSE BUSHING, GI
14	1" PEX PIPE
15	NOT USED
16	NOT USED
17	18" x 84" MUELLER THERMA-COIL METER BOX (OAE) WITH 1" HOSE COILS AND STEEL PLATFORM
18	18" LID, NON-LOCKING
19	*1" x 3" NIPPLE, NPT, GI
20	*1" x 12" NIPPLE, NPT x PE, GI
21	*1" x 3/4" BUSHING, NPT, GI
22	*1" CROSS, NPT, GI
23	*1" STREET ELBOW, GI
24	*1" WYE STRAINER, GI
25	*PRESSURE GAUGE (1/4" MIPT) 2.5" AND 0-100 PSI RANGE, WIKA 213.53DW, OAE, CENTER BACK MOUNT
26	*10 LF OF 1/8" GALVANIZED GRADE 30 PROOF COIL CHAIN ATTACHED TO LID
27	*1/2" STREET ELBOW, GI
28	*1/2" x 1/4" BUSHING, NPT, GI
29	*1" 90° BEND, SIDE OUTLET, NPT, GI

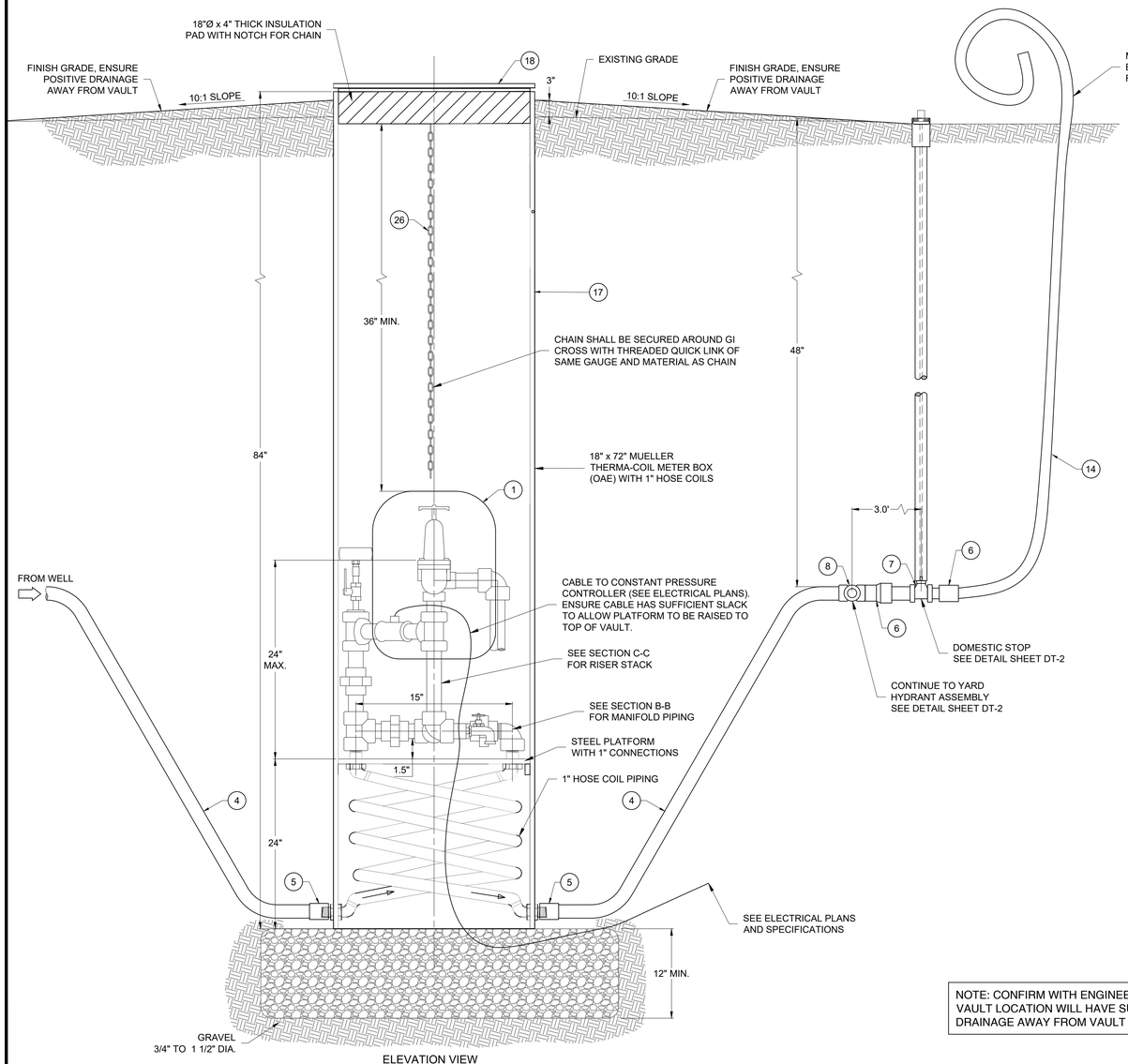
*ADDITIVE ALTERNATE:
IN LIEU OF GALVANIZED IRON OR OTHER MATERIALS, USE STAINLESS STEEL FOR THE FOLLOWING ITEMS: 2, 5-13, 19-29



PROTECTION PLAN VIEW



T-POST ELEVATION VIEW



ELEVATION VIEW

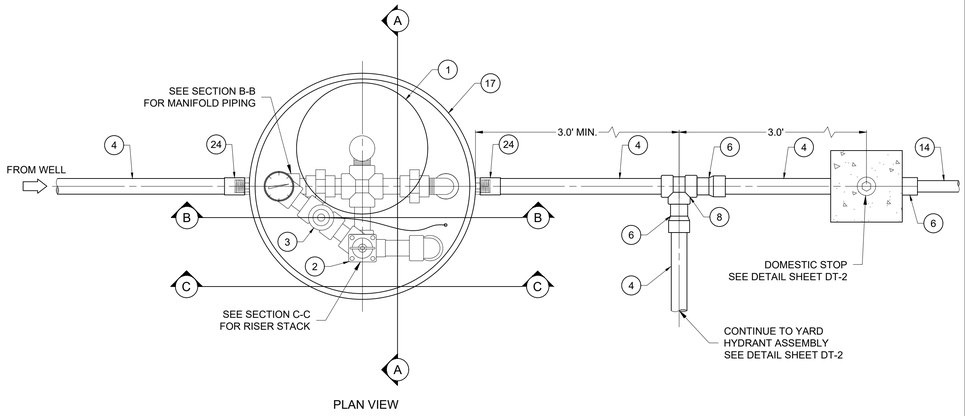
SINGLE RESIDENCE CONTROL VAULT

NOT TO SCALE

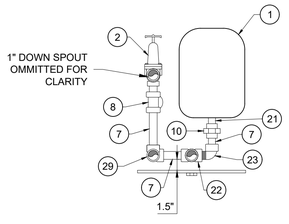
NOTE: CONFIRM WITH ENGINEER PROPOSED VAULT LOCATION WILL HAVE SUFFICIENT DRAINAGE AWAY FROM VAULT

CONTROL VAULT PROTECTION AND T-POST DETAIL

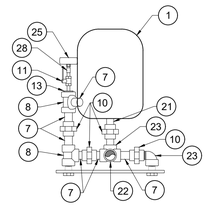
NOT TO SCALE



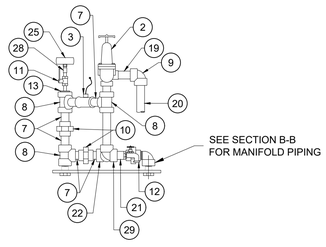
PLAN VIEW



SECTION "A-A"



SECTION "B-B" MAINFOLD PIPING



SECTION "C-C" VERTICAL RISER

NOTE:
ORIENT PRESSURE GAUGE SO THAT GAUGE CAN BE READ FROM THE ACCESS DOOR WITHOUT HAVING TO LIFT THE PLUMBING ASSEMBLY.

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INDIVIDUAL WELLS
TOHATCHI, NEW MEXICO
SINGLE RESIDENCE VAULT

COLIN M. DALY NEW MEXICO 20923 12/27/2021 PROFESSIONAL ENGINEER

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Designed	Drawn	Checked
CMD	AAV	JMG

Date: January 2022

Scale: Horiz: NONE
Vert: N/A

Project No: 6929786

Sheet: DT-3

SECTION 33 21 13

PUBLIC WATER SUPPLY WELLS

PART 1 GENERAL

1.1 SUMMARY

A. The work by the Contractor includes the furnishing of all labor, material, transportation, tools, supplies, plant, equipment, and appurtenances necessary to complete up to nine Individual Water Supply Wells, to be located within the Tohatchi Chapter, Navajo Nation, McKinley County, New Mexico for the Navajo Nation (herein referred to as Owner). The work shall be completed in strict accordance with the specifications and drawings that are included in this document. All aspects of the well drilling, installation, materials, and development shall generally conform to the American Water Works Association Standard for Water Wells, ANSI/AWWA A100-90, most recent edition. While some of the ANSI/AWWA A100-90 specifications are outlined below, it is the Contractor's responsibility to ensure conformance with the ANSI/AWWA A100-90 standards, except as specifically stated. The well including all equipment and appurtenances shall be disinfected per AWWA C654-03, unless stricter requirements are included in this specification. All equipment that comes in contact with either potable water or products that support the production of potable water must comply with NSF/ANSI Standard 61 as available. All drinking water treatment chemicals shall comply with NSF/ANSI Standard 60 as available.

1.2 SYSTEM DESCRIPTION

A. Work required for construction of the supply well includes, but is not limited to, the following:
   1. Move equipment on-site and rig up.
   2. Maintain drilling-time and daily drilling reports.
   3. Drill 20-inch hole to accommodate a nominal 12-inch steel conductor casing to 20 feet, or deeper if directed by Engineer. Collect drill cuttings at 10-foot intervals, or as directed by the Engineer.
   4. Install 20 feet of 12-inch surface conductor casing and grout in place. Allow for pitless adapter in cementing.
   5. Drill 9 7/8-inch borehole and collect drill cuttings from bottom of surface casing (anticipated 20 feet) to 805 feet.
   6. Complete geophysical logging of borehole, if determined advantageous by the Engineer. This work shall be conducted by a sub-contractor.
   7. Plug and Abandon Pilot hole per Navajo Nation requirements, if directed by the Engineer.

8. After reviewing geophysics data, Engineer or Engineer's representative onsite must approve final design of casing, screen and casing set depths prior to Contractor commencing installation of production casing.
9. Install 700 feet (plus minimum of 2 feet stick up) of 5-inch Schedule 80 PVC production casing, 100 feet of PVC well screen, and end cap, as shown on the Design Drawings or as directed by the Engineer.
10. Install centralizers every 100 feet, except directly over well screen.
11. Install filter pack in the annulus from total depth to 10 feet above screen, as shown in the Design Drawings or as directed by the Engineer.
12. Install 20-foot thick bentonite seal above the screen, as shown in the Design Drawings or as directed by the Engineer.
13. Install pea gravel from top of bentonite seal to 55 feet below ground surface.
14. Install cement grout from 55 feet to 60 inches below ground surface.
15. Develop the well by swabbing, zoned-air-lift pumping and bailing.
16. Supply and install test pump and transducer line if directed by Engineer.
17. Develop the well by pumping.
18. Conduct pumping test (including required recovery periods), monitor equipment during tests, and record results as specified. Pumping tests may be completed for one well or more than one well, as determined by the Engineer.
19. Assist Engineer with water quality constituent analysis sample collection and collect initial bacteriological test sample to ensure adequate disinfection.
20. Bail accumulated sediments from well.
21. Install welded cap to protect well from contamination.
22. If directed by Owner, construct surface completion including installation of pitless adapter.
23. If directed by Owner, install production pump, drop pipe, drop pipe centralizers, check valves, wire, and other downhole appurtenances.
24. Disinfect the well, as specified.
25. Complete wellhead surface, as specified.
26. Clean-up and restore well site.
27. Collect final sample for bacteriological testing to ensure adequate disinfection.

1.3 LOCATION AND GENERAL DESCRIPTION

A. The location of the first well shall be determined by the Engineer. The other wells may not be drilled or may be significantly changed depending on the results of the first well. The Contractor shall drill the wells by the air-rotary method. The well shall be of the gravel/sand-pack type. The construction and overall diameter of the wells is specified herein and shown on the drawings. The Engineer may order drilling to depths shallower or deeper than specified. Unit bid prices will prevail.

1.4 GEOLOGY AND ANTICIPATED CONDITIONS

A. The wells shall be completed in the Late Cretaceous Menefee Formation, which is anticipated to consist of interbedded claystone, carbonaceous siltstone and shale, coal, and sandstone. Alluvial sediments or soil may be present at surface, underlain by the Menefee Formation.

B. The Menefee Formation is expected to be underlain by the Point Lookout Formation. The Point Lookout Formation is anticipated to be an artesian aquifer. The Engineer notes that all effort shall be made to avoid drilling into the Point Lookout Formation.

C. The first water in the area is anticipated to be encountered at approximately 250 to 700 feet below the ground surface. If during the drilling or completion stage of well construction, the borehole or well starts to flow, the Contractor shall control the flow. Costs associated with this control of flow, the Contractor shall be reimbursed by the Owner at the customary rates for time and materials.

1.5 RIGHT-OF-ENTRY AND ACCESS

A. The Owner will provide the necessary rights-of-entry to the site. Where special conditions are specified in connection with rights-of-entry, Owner will inform Contractor so that Contractor may meet these conditions. Owner shall furnish an uninterrupted access to and from the site for all equipment, supplies, material, and personnel associated with the work. Temporary access roads shall not be constructed.

B. The Contractor shall note that some access roads have sandy areas that may be difficult for equipment to traverse. Contractor shall not make improvements to roads due to these locations being outside of approved construction areas.

C. The Contractor shall be solely responsible for locating all existing underground installations in advance of any excavation or trenching by contacting the owners thereof. The Contractor shall not enter or occupy with personnel, tools, equipment or material, any ground outside the construction area without approval of the Engineer. Other contractors, employees or agents of the Owner may, for business purposes, enter the work site and premises used by the Contractor. The Contractor shall not impede any work being done by others on or adjacent to the site unless necessary as determined by the Engineer.

D. The Contractor shall prevent damage to all structures, roads, or other operations during the progress of his work and shall remove from the location all cuttings, debris, and unused materials. Upon completion of the work, the Contractor shall restore the site to a condition as near to the original condition of the site as possible.

E. The Contractor shall be responsible for disposing of all debris, including but not limited to, drilling fluid and water produced by test pumping or other operations, by such methods such that damage to, or interference with structures, roads or utilities, or with other construction projects will not occur. All costs incurred in connection with the disposal of drilling fluid, cuttings and water shall be incidental to the Contract and shall be included in the Contract Price.

1.6 DRILLING REQUIREMENTS

A. Contractor shall be responsible for complying with the standard of care of the industry. Contractor shall assume all liability connected with settling or caving for a period of six months following drilling, and hold Owner harmless from such for this period.

B. The completed well shall be sufficiently straight and plumb for the free installation and operation of a submersible pump regularly built for 5-inch PVC casing and shall meet AWWA specifications for plumbness and alignment for the full depth of casing and perforated casing. The alignment shall be such that the center line of the well casing from ground level to total depth of hole shall not deviate from vertical more than two thirds of the inside diameter of the casing per 100 feet of depth.
   1. Should deviation exceed the allowed deviation specified above, the Contractor shall plug and abandon the borehole with grout per applicable local regulations and redrill surface casing and borehole at a location approved by the Engineer and Owner at no cost to the Owner.

1.7 CONTRACTOR'S EQUIPMENT

A. With the bid, the Contractor shall furnish to the Owner and the Engineer a complete list of equipment, which he proposes to use for the work, together with a description of the methods by which he proposes to drill, develop, and test the well. The rig shall be of sufficient size and horsepower to safely and adequately carry out those operations for which it is to be used. If the Contractor fails to submit, or if the equipment and methods he proposes to use is not approved by the Engineer, the bidder will be considered non-responsive and his bid will not be considered. The Contractor shall not use equipment that has a smaller capacity than that provided with his bid. The Contractor shall include, with his bid, a list of three projects performed similar in scope to this project, and three references with current phone numbers.

B. The following equipment information shall be submitted with the Contractor's bid:
   1. Rated hook-load of drilling rig
   2. Mast height
   3. Rotary-table size

4. Available rotary table horsepower
5. Sizes and weights of drill collars and drill pipe
6. Maximum circulation rate capability
7. Compressor rating

C. The drilling rig shall be equipped with the following required accessory equipment. With his bid, the Contractor shall acknowledge that the following equipment will be on hand during well drilling. Drilling may not begin until this equipment is installed and operating properly.
1. Weight indicator
2. Mud pressure gage (direct rotary only)
3. Drilling-rate recorder
4. Approved equipment for measuring drilling fluid properties
5. Deviation-survey tool

D. The Contractor shall employ only competent workers for the execution of the work, which shall be under direct supervision of an experienced drilling superintendent. The competency of the workers and superintendent shall be subject to the approval of the Engineer. The Contractor must provide for continuous operations from the time production casing begins to be run into the borehole until all annular materials are installed.

E. No unnecessary delays or work stoppages will be tolerated. The Contractor shall be held responsible and payment will be withheld for damages to the well due to any act of omission, error, or faulty operation by the Contactor, his employees, or agents. Resulting repairs shall be completed by the Contractor to the satisfaction of the Engineer or a replacement well shall be drilled and completed in accordance with these specifications by the Contractor at no additional cost to the Owner and without claim against the Owner, Engineer, or agents.

1.8 DRILLING METHODS

A. The Contractor shall drill the pilot hole and perform all reaming (if necessary) by the air-rotary method. Strict control of the drilling fluid properties shall be adhered to at all specified times. Drilling fluid shall consist of air. Any additional fluids utilized must be NSF 60 or NSF 61 certified and approved by the Engineer prior to use.

B. The Contractor shall, within 5 (five) working days after award of the contract, submit to the Engineer a schedule of work, presenting proposed completion dates of the activities listed in Article 1.2 SYSTEM DESCRIPTION. The methods or combination of methods to be utilized shall be adequate, as determined by Engineer, to meet the completion schedule for the work.

C. The Contractor shall drill and install the specified surface casing and conductor pipe prior to the drilling of the borehole below 20 feet (or bottom of surface casing, if deeper). The Contractor will be paid for surface and conductor casing if, after logging the pilot hole, the Owner decides to abandon the project.

1.9 DRILLING WATER SUPPLY

A. The Contractor shall be responsible for purchasing and hauling water for the drilling work. All costs associated with the maintenance, transportation, and disposal of drilling and development water as required to fulfill the terms of the Contract shall be the responsibility of the Contractor and shall be incidental to drilling. All water should be carefully conserved.

1.10 WELDING

A. All welding shall be done by competent and experienced workmen with adequate equipment, using the metal arc welding process. Welders employed for field assembly of all casing shall be qualified in accordance with the latest revision of the section title "Welding Procedure" of the ASME Boiler Construction Code, or by the AWS Standard Qualification Procedures.

1.11 DRILLER'S LOG and RECORDS, AND SAMPLES

A. The Contractor shall keep an accurate, up-to-date log of operations at all times in the form of a Daily Drilling Report. The Contractor's Daily Drilling Report shall include the following information at a minimum:
   1. In-hole drilling assembly, including bit, hole-openers, subs, collars, and Drill pipe lengths and diameters, and water consumption (water haulage)
   2. Time devoted to each activity
   3. Rotary RPM
   4. Air compressor/pump pressure
   5. String weight and weight on bit
   6. Record of deviation surveys
   7. Description of formation drilled and depth at each change
   8. Lengths, diameters, and types of casing and perforated casing run
   9. As-built depths of screens and production casing.
   10. Volumes of gravel, bentonite, and grout placed
   11. The depth of the filter pack, bentonite seal, and surface seal
   12. Time devoted to each stage of development and characteristic of fluid produced
   13. The depth to the static water level (SWL) and observable changes in SWL with well depth
   14. If applicable, measurements and observations during aquifer testing of time at start and end of pumping, time at start and end of recovery,

flowrate and water level as time elapses, and characteristics of fluid produced.

15. The sealing off of any water bearing zone, if any, and the exact location thereof
16. Any other pertinent information

B. The Contractor shall provide a copy of the Daily Drilling Report to the Engineer on a daily basis.

C. Each joint of the in-hole drilling assembly, including bit, hole-openers, subs, collars and drill pipe, or other pipe run into the borehole shall be measured to the nearest 0.01 foot prior to running into the borehole. All pipe tallies shall be kept current at all times.

D. The depth reference of each depth given in the report shall be denoted as "KB" (Kelly bushing), "DF" (drilling floor), or "GL" (ground level). The distance from ground level to the drilling floor and to the Kelly bushing shall be measured and included in the report. One copy of each Daily Drilling Report shall be furnished to the Engineer at the end of each day.

E. A drilling-rate recorder approved by the Engineer shall be in operation during all drilling operations. The driller shall mark the depth at each connection on the charts. The driller shall also record the drilling fluid viscosity and weight on the charts each time it is measured. One copy of each chart shall be furnished to the Engineer at the end of each day.

F. Cuttings samples shall be laid out on plastic sheeting by the Contractor, in a place agreed to by the Engineer. Samples shall be taken at intervals no greater than each 10 feet of drilling; additional samples shall be collected at formation changes. At least 1 quart of cuttings shall be collected from each 10-foot interval to allow for completion of a sieve analysis of intervals proposed for screening.

1.12 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Mobilization and Demobilization
   1. Basis of Measurement: By lump sum.
   2. Basis of Payment: Includes transportation of all machinery to and from the site (including all equipment necessary to construct and equip the well), coordination, protection of the well throughout project, driller's logs, as-builts, and site restoration.
   3. The following items are considered incidental to the work and are not eligible for additional mobilization/demobilization costs:
      a. Required recovery periods after pumping.
      b. Required time to complete and review geophysical logging.

B. Surface casing:
   1. Basis of Measurement: By vertical foot of casing installed
   2. Basis of Payment: Includes drilling of specified diameter borehole and casing installation, with all materials, equipment, and labor, and construction water.

C. Drilling:
   1. Basis of Measurement: By vertical foot of borehole depth
   2. Basis of Payment: Includes drilling of specified diameter borehole and all equipment costs, labor, deviation surveys, materials, and construction water costs associated with completion of borehole.

D. Production well casing:
   1. Basis of Measurement: By vertical foot of well depth.
   2. Basis of Payment: Includes materials and installation of casing (blank casing or screen), landing clamp, end cap, and other appurtenances not separately listed on bid form.

E. Well Development, Aquifer Testing, and Standby Time:
   1. Basis of Measurement: By hour.
   2. Basis of Payment: Includes well development by swabbing, airlifting and pumping, step and constant-rate discharge tests, and any requested standby time. Includes any labor, materials and equipment needed that are not separately listed on bid form.
   3. The following items are considered incidental to the work and are not eligible for standby time:
      a. Required recovery periods after pumping.
      b. Required time to complete and review geophysical logging.

F. Grouting and Filter Pack:
   1. Basis of Measurement: By cubic foot.
   2. Basis of Payment: Includes materials, disinfection and placement of grout, filter pack material, and bentonite seals.

G. Disinfect Well and Perform Bacteriological Testing:
   1. Basis of Measurement: By each.
   2. Basis of Payment: Includes disinfection of equipment and materials placed in the well, and collection and delivery of bacteriological samples to laboratory. In the event of failed bacteriological tests, contractor is responsible for up to three additional disinfection procedures at no cost to the Owner. Does not include laboratory costs, which are covered under testing allowance.

H. Surface Completion:
   1. Basis of Measurement: By each.

2. Basis of Payment: Includes pipe fittings, pitless adapter, well cap, plumbing stub outs, concrete pad, accessories, and installation. Includes coordination of surface completion installation with work by others. Excludes electrical conduit to be installed by other.

I. Pump:
   1. Basis of Measurement: By each.
   2. Basis of Payment: Includes pump, motor, shroud (flow inducer sleeve), fittings, sensor, and accessories; conduit, wire, pipe and pipe fittings; accessories and pump. Includes equipment and materials needed to perform start-up testing of installed pump. Excludes constant pressure controller and/or pump starter to be provided and installed as part of electrical work.

J. Drop Pipe and Pump Wire
   1. Basis of Measurement: By linear foot
   2. Basis of Payment: Includes furnishing of pipe, pipe couplings, pipe fittings, centralizers, fasteners, connections and terminations for drop pipe, and pump wire as specified.

K. Check Valve:
   1. Basis of Measurement: By each
   2. Basis of Payment: Includes furnishing of pipe fittings, check valve, and installation.

L. Install and Test Pump and Other Downhole Appurtenances
   1. Basis of Measurement: By each.
   2. Basis of Payment: Includes installation, testing, and startup of pump, motor, drop pipe, drop pipe centralizers, check valves, pump wire, transducer, transducer pipe and appurtenances. Excludes furnishing of materials. Excludes installation of transducer cable from wellhead to pumphouse (leave coiled within wellhead).

M. Other Items:
   1. Basis of Measurement: As indicated in the Bid Schedule.

1.13 REFERENCES

A. American Petroleum Institute:
   1. API 10A - Specification for Cements and Materials for Well Cementing.

B. American Society of Mechanical Engineers:
   1. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.

C. ASTM International:
   1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
   2. ASTM C150 - Standard Specification for Portland Cement.

D. American Water Works Association:
   1. AWWA A100 - Standard for Water Wells.
   2. AWWA C654-03 - Disinfection of Wells.
   3. AWWA C900 – Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. through 12 In., for Water Transmission and Distribution

E. National Electrical Manufacturers Association:
   1. NEMA MG 1 - Motors and Generators.
   2. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.14 SUBMITTALS

A. Section 01 00 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Include data indicating rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

C. Manufacturer's Installation Instructions: Indicate rigging, assembly, and installation instructions.

1.15 CLOSEOUT SUBMITTALS

A. Section 01 00 00 - Execution Requirements: Requirements for submittals.

B. Project Record Documents: Accurately record actual locations of well, depth, subsoil strata, and drilling difficulties encountered.

C. Submit signed copy of the Contractor’s Daily Drilling Report as specified in Article 1.11.

D. Submit executed certification of well pump after performance testing.

E. Submit a Well Log to the New Mexico Office of the State Engineer within ten (10) days of the completion of the well.

F. Operation and Maintenance Data: Submit equipment manuals.

PART 2 PRODUCTS

2.1 MATERIALS AND PRODUCTS IN CONTACT WITH DRINKING WATER

A. Well casings, drop pipes, well screens, coatings, adhesives, pumps, switches, electrical wire, sensors and all other equipment or surfaces which may be in contact with drinking water must comply with ANSI/NSF Standard 61 or 60 as available.

B. All substances introduced into the well during construction or development shall comply with ANSI/NSF Standard 60 or 61 as available. This requirement applies to drilling fluids (biocides, clay thinners, defoamers, foamers, lubricants, oxygen scavengers, viscosifiers, weighting agents) and regenerants. This requirement also applies to well grouting and sealing materials which may come in direct contact with the drinking water.

2.2 MATERIALS

A. Surface Conductor Casing:

1. Conductor casing shall be new, low-carbon steel well casing manufactured in accordance with ASTM Specification A53, Grade B or ASTM A139, Grade B. Casing diameter shall be 12 inches.
2. The length of the conductor casing shall be 20 feet, as shown on the Design Drawings, and is subject to change as determined by the Engineer after drilling has progressed to the appropriate point.

B. Blank Production Casing:

1. Production casing shall be Certa-lok, or approved equal, 5-inch nominal Schedule 80 PVC casing with spline connectors. Casing shall be factory assembled in not less than 20-foot sections.
2. Production casing shall be continuous and watertight from top to bottom, except for well screens.
3. Casing shall be new and free of cracks, pits, or other defects.

C. Perforations:

1. Well screens shall be Certa-lok, or approved equal, SDR 17 PVC, with ~~1-inch~~ **0.25-inch** slot spacing and 0.032-inch slot size. Screen shall be placed as indicated in the Design Drawings, or as directed by the Engineer.
2. The screens shall have spline connectors.
3. The final screen lengths and position will be determined by the Engineer after reviewing the lithological logs, geophysical logs, and previously obtained pilot well results, if applicable.
4. A bull nose cap shall be included and fabricated of the same material as the well screens, to be installed where shown on the Design Drawings.
5. Substitutions: Section 01 00 00 – Product Requirements

D. Casing Centralizers

1. Each casing centralizer shall consist of a minimum of three rigid stainless steel guides.
2. Guide dimensions:
   a. Minimum Length:
      1) For centralizers on screened intervals: Size appropriately for affixing across the joint without placing on screen itself.
      2) For centralizers on blank casing: 1-foot
   b. Minimum standoff from casing: 2-inches

E. Filter Pack:
1. The filter pack shall be composed of sound, durable, well-rounded particles, free from organic matter, sift, clay, or other deleterious materials provided by Colorado Silica Sand or approved equal and shall be disinfected using a 50 mg/L chlorine solution prior to placement in the well.
2. Filter-pack material shall be well-graded and specified by the Engineer based on size distribution of aquifer material, estimated by the Engineer to be 10-20 Colorado silica sand. Minor variation, as approved by the Engineer, may be required due to the size distribution of the aquifer materials. Under no circumstances shall crushed rock or any material with an excess of flat faces be installed in the well.

F. Pea Gravel:
1. The pea gravel shall be composed of sound, durable, semi- to well-rounded particles, free from organic matter, sift, clay, or other deleterious materials. Under no circumstances shall crushed rock or any material with an excess of flat faces be installed in the well.

G. Neat Cement Grout:
1. Grout shall consist of a mixture of Portland cement meeting the requirements of ASTM C150 Type II, and water in the ratio of 5.2 gallons of water per 94-lb sack. Grout density shall be approximately 15.6 lbs/gal (117 lbs/ft^3).
2. A maximum of 2 percent by weight of bentonite and 2 percent by weight of calcium chloride may be added. If bentonite is added, mixing water shall be increased by 0.6 gallons per sack for each 1-percent-by-weight addition of bentonite.

H. Sand Cement Grout:
1. Grout shall consist of a mixture of Portland cement meeting the requirements of ASTM C150 Type II, sand and water. Proportions shall not exceed 2 parts by weight of sand to 1 part of cement, with not more than 6 gallons of water per 94-lb sack of cement.

I. Well Development Additives:
   1. All fluids introduced into the well shall be National Sanitation Foundation Certified

J. Pressure transducer:
   1. The pressure transducer used for testing purposes shall be provided and operated by the Contractor.

K. Data logger:
   1. Shall be provided and operated by the Contractor.

L. Pump wire
   1. Sufficient for the pump with 10 extra feet to be left coiled at the well head
   2. Final wire size to be determined by Engineer after final selection of pump.
   3. For Grundfos Model 5 SQE15-450 (Single-Phase, 230V, 1½ HP Pump): #6 wire, jacketed
   4. For Grundfos Model 10 S30-34 (Single-Phase, 230V, 3 HP Pump): #4 wire, jacketed

M. Drop pipe for pump set to 695-foot depth:
   1. 1" or 1 ¼" Boreline Flexible Drop Pipe, FlexiRiser Model, or approved equal:
      a. Material: high-tenacity, polyester yarns, circular woven and totally encapsulated to form an integrated cover and lining of a high performance polyurethane elastomer.
      b. The maximum extension should be no more than 3% and the maximum diameter swell 10%.
      c. NSF 61 Approved
      d. A special rib must be incorporated along the length of the outer cover to facilitate the attachment of securing cable straps for the electric cable.
      e. The material must be capable of operating in water with a pH from pH 3 to pH 10.
      f. Manufacturer shall possess the ISO 9000 QA registration
      g. Minimum 50 Year warranty against materials and manufacturing defects.
      h. Operating pressure rating: 500 psi
      i. Theoretical short length burst pressure: 980 psi
      j. Theoretical tensile strength: 3,000 lbs

   2. 304 Stainless Steel Boreline Couplings, or approved equal:
      a. Fully re-usable fittings, each comprising of a body and two outer fastening clamps. The body of the fitting must contain two ribs over which the hose fits and the clamps are tightened. The two fastening clamps must each be split into three equal parts.

b. The fittings shall be supplied with NPT male thread for attachment to the pump at one end and the head works at the surface.

3. WellHose Centralizer Kit, or approved equal.
   a. 304 SS Nipple and coupler.
   b. Rubber spider centralizer.
4. Boreline re-usable Cable straps, or approved equal.
   a. Spaced per manufacturer's recommendations.

N. Check valves:
1. Manufacturers:
   a. 1" Flomatic Model 100MSSVFD, part #4220SS2VFD, or approved equal.
   b. 1-1/4" Flomatic Model 100MSSVFD, part #4242SS2VFD, or approved equal, if required for 3 HP pump.
   c. Substitutions: Section 01 00 00 – Product Requirements.

O. Formed and poured concrete slab around the well head:
1. 48" x 48" x 4" concrete slab, 2% slope away from casing

P. Pitless Adapter (includes cast iron spool and watertight, cast iron, vented well cap with 24 mesh [or smaller] screen):
1. Manufacturers:
   a. Baker Manufacturing Co. Pitless Unit Model 5PS56BNS4C0.
   b. Baker Manufacturer Co. Well Cap Model 6WPSM.
   c. 1" Inlet Fittings, for 1.5 HP:
      1) 1-1/2"x1" GI bushing
      2) 1" GI nipple, 6" long
      3) 1" stainless steel to carbon steel dielectric union
      4) 1" Boreline stainless steel adapter to Boreline drop pipe, OAE
   d. 1" Discharge Fittings, for 1.5 and 3 HP pump:
      1) 1-1/2"x1" GI bushing
      2) 1" GI nipple, 6" long
      3) FIPT x Compression GI adapter
   e. 1-1/4" Inlet Fittings, for 3 HP pump:
      1) 1-1/2"x1-1/4" GI bushing
      2) 1-1/4" GI nipple, 6" long
      3) 1-1/4" stainless steel to GI dielectric union
      4) 1-1/4" Boreline stainless steel adapter to Boreline drop pipe, OAE
   f. Substitutions: Section 01 00 00 - Product Requirements.

Q. Pump:
1. Manufacturers:
a. For wells serving one residence: Grundfos Model 5 SQE15-450 (Single-Phase, 230V, 1½ HP Pump), or approved equal
b. For wells serving two residences: Grundfos Model 10 S30-34 (Single-Phase, 230V, 3 HP Pump), or approved equal
c. Substitutions: Section 01 00 00 - Product Requirements.
2. Pump selection shall be finalized by Engineer after pump testing.
3. Pumps shall be equipped with integral check valve.
4. Pumps/motors shall be equipped with shroud (flow inducer sleeve).

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 00 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify site conditions are capable of supporting equipment for performing drilling operations and testing.

3.2 MOBILIZATION/ DEMOBILIZATION

A. Mobilization/Demobilization includes the major move(s) to and from the drilling site. Also included is project coordination, site clean up, and any necessary support equipment.

3.3 PROTECTION OF THE WELL

A. The open annulus shall be protected from entry of unwanted material at all times. The Contractor shall construct and maintain drainage berms around the wellhead to prevent surface runoff from reaching and entering the well during construction.

B. After installing the filter pack, the Contractor shall continue to guard against entry of unwanted objects and contaminants from entering the well casing and gage line.

C. The Contractor shall place plastic below the rig, mud pump, compressors, generators, and all other equipment, which has the potential to leak hydrocarbons. The plastic shall be bermed on all sides of the equipment such that it will contain any fluid that is spilled or leaks from the equipment.

D. The drilling rig and all drilling tools must be steam-cleaned prior to commencing operations, to ensure that bacteria are not transferred from previous drilling sites to the project site.

3.4 WELDING

A. All welding shall be done by competent and experienced workmen with adequate equipment, using shielded arc welding, or other process approved by Engineer. Welders employed for field assembly of all casing shall be qualified in accordance with the latest revision of the section titled "Welding Procedure" of the ASME Boiler Construction Code, or by the AWS Standard Qualification Procedures.
   1. Welders shall be qualified to weld stainless steel, carbon steel, and/or other materials, according to the materials being welded.
   2. Electrodes used shall be selected and appropriate for the process used and material or materials being joined.

3.5 SURFACE CONDUCTOR CASING

A. The Contractor shall drill and ream the pilot hole to the 20-foot (or deeper, if directed by Engineer) depth specified for the conductor pipe, and set and cement the conductor casing prior to the drilling of the borehole below that depth. The Contractor shall be paid for conductor casing if, after logging the pilot hole, the Owner decides to abandon the project.

B. The space between the 12-inch diameter conductor casing and the 20-inch diameter boring shall then be cemented with neat cement grout or sand cement grout, as specified in this Section, placed through a tremie pipe. Cement grout shall be placed from the total depth of the reamed borehole to 5 feet below ground surface. Allow for the accommodation of the pitless adapter. The placing of the cement grout shall be done in a manner that shall seal the annulus against infiltration of water. Regardless of the cementing method used, the difference in density between the cement outside the conductor casing and the fluid within the casing must not be greater that 6.5 lbs/gal, and the casing must be kept completely full of liquid at all times until cement is set. The cementing of the conductor casing shall be approved by the Engineer. The grout shall be allowed to set for a minimum period of 24 hours, or longer if directed by the Engineer. However, the time shall not exceed 72 hours.

3.6 BORE HOLE

A. The bore hole shall be drilled for the purpose of determining the thickness and characteristics of formations from ground surface to the bottom of the hole, the location of water-bearing strata, and other geologic and hydrologic information. Plumbness and alignment of the bore hole shall be carefully monitored and, if found to exceed specifications, corrected by the Contractor before proceeding.

B. The bore hole shall be a minimum of 10 inches in diameter. It shall be drilled from ground surface to the full depth as directed by the Engineer.

C. To obtain accurate depth determination, representative cuttings samples, and a straight and plumb hole, the Contractor shall comply with the following:
   1. Maintain a reasonably constant rotary speed.
   2. Maintain reasonably constant weight on the bit.
   3. Maintain specified drilling fluid properties.
   4. Maintain adequate facilities for the collection of representative cuttings samples.
   5. Operate and maintain a drilling-rate recorder.
   6. Use drill collars of appropriate diameter, weight, and length. Drill collar diameter should be of the maximum size allowable without interference with fluid circulation.

D. To ensure that the bore hole is started straight and plumb, the drilling rig shall be leveled so the drilling tools hang free and plumb in the center of the rotary table. The drilling rig shall be supported on jack pads properly designed and constructed so that undue settling does not occur. The Contractor shall periodically check the drilling rig level and make adjustments as necessary to correct the level.

3.7 DRILLING FLUID

A. All equipment, materials, and chemicals that comes in contact with either potable water or products that support the production of potable water must comply with NSF/ANSI Standard 60 and 61 as available.

3.8 DEVIATION SURVEYS

A. The Contractor shall make deviation surveys at intervals of not more than 100 feet during drilling between ground level and the total depth of the well or as necessary to maintain specified plumbness and alignment. The maximum horizontal deviation shall not exceed two-thirds the inside diameter of the casing per 100 feet of depth. Plumbness and alignment shall follow the standard set forth in Section 8 of the American Water Works Association (AWWA). Surveys shall be made with a Totco Self-Checking Mechanical Drift Indicator, or approved equal. Alternate plans that call for deviation surveys at longer intervals or no deviation surveys during drilling of the pilot hole will not be approved.

B. The drift survey tool shall be tested above ground surface prior to performing any deviation surveys to assess if it is operating properly. The test shall consist of suspending the tool vertically from a thin wire attached to the top of the tool. The tool shall be set and allowed to shoot and the deviation noted. The tool shall then be set at an angle of several degrees from horizontal and shot again. The angle at which the tool was set and the deviation shall be noted.

3.9 DRILL CUTTING DISPOSAL

A. The Contractor shall dispose of cuttings in an area on-site approved by the Engineer.

3.10 GEOPHYSICAL LOGS

A. Upon completion of the pilot hole, the hole may be surveyed by means of geophysical well log equipment, such as that provided by reputable contractors approved by the Engineer. The survey shall include the following logs, or as agreed upon between the Engineer and the geophysical survey company:
   1. Resistivity (short and long normal)
   2. Spontaneous potential
   3. Gamma ray
   4. Sonic
   5. Caliper
   6. Hole deviation

   In the event that geophysical survey of the hole is found necessary, the Contractor shall enter into an agreement with the geophysical survey company to conduct the scope of work specified by the Engineer. On the completion of this work, the Contractor shall invoice the Owner for the actual cost of the geophysical survey plus 10% processing fee to cover expenses incurred by the Contractor in handling the arrangement.

B. An allowance is included in the Bid Schedule to cover the cost of the possible geophysical logging of the drill hole. No standby time or additional mobilization/demobilization charges will be allowed for the time required to collect, process, and review the geophysical logging results.

3.11 WELL INSTALLATION AND COMPLETION

A. Work in connection with the production well shall commence after completion of all work pertaining to the pilot hole for the well. Materials for the well completion shall not be ordered until the Engineer has reviewed the drill cuttings, water sample analysis, and the sieve analysis of the cuttings.

3.12 REAMING BELOW THE CONDUCTOR

A. Not applicable.

3.13 WELL CASING INSTALLATION

A. Casing installation shall be handled by methods that will cause no damage. Installation of casing shall not begin until all required materials are on-site. The Contractor shall provide the casing tally for review to Owner’s representative

before beginning casing installation. The Contractor shall be responsible for ensuring well casing and screens are installed at the depths indicated on the Design Drawings or as directed by the Engineer.

B. The casing shall be suspended above the bottom of the hole a sufficient distance to ensure that none of the casing is supported from the bottom. The weight indicator shall be monitored continuously while the casing string is being lowered; at no time shall the casing string be placed in compression.

C. Inspect the end of each section to be joined for debris, residue, burrs or other conditions that may prevent proper alignment and joining of the sections.

D. Verify casing is properly seated and plumb at the spline connection prior to joining.

E. Blank Production Casing
   1. Blank production casing shall be installed utilizing PVC spline connectors..

F. Perforations
   1. Exact depths for the screen shall be determined based on lithological logs and geophysical logs by the Engineer.
   2. Screens shall consist of 100 feet of 5-inch SDR 17 PVC screen with anticipated 0.032 inch slot size. The final screen length and slot size will be determined by the Engineer.
   3. A 0.5-inch bull nose end cap of the same material will be attached to the end of the casing, below the screened interval.

G. Centralizers
   1. All centralizers shall consist of a minimum of three rigid guides, composed of stainless steel.
   2. All guides shall be attached to the casing with 2-inches minimum standoff from the casing, spaced evenly around the circumference of casing.
   3. Centralizing guides shall be installed throughout the perforated section of the casing by the Contractor, at no more than 100-foot intervals, including guides at the top and bottom of each perforated section.
      a. Guides within screened intervals shall be placed across the joint of the two sections and never on the screen itself.
      b. Centralizing guides shall also be placed on blank casing sections every 100 feet or as directed by Engineer.

H. Landing Clamp
   1. After the casing has been successfully installed in the well, and suspended in tension, the casing string shall be landed. The casing string shall be landed on the conductor casing with the casing clamp resting on the

stiffener ring. The casing clamp shall be installed on the 5-inch casing as instructed by the Engineer. The casing clamp arms shall be inserted into notches cut into the conductor casing so that they rest on the stiffener ring. The casing clamp shall then be welded to the conductor casing and the stiffener ring.

3.14 THINNING OF DRILLING FLUID

A. Not applicable.

3.15 FILTER-PACK PLACEMENT

A. The annular space between the borehole and the casing shall be filled with the specified filter pack to the depths above and below the screened interval or intervals as shown on the Design Drawings or directed by the Engineer. The sand shall be placed to ensure continuity without bridging, voids, or segregation.

B. Gravel/sand must be placed through a string of tremie tubing installed in the borehole by the Contractor prior to installation of the well casing. Bottom of the tremie tubing shall run to within 40 feet of the bottom of the borehole. During filter pack installation, the tremie pipe shall be no more than 40 feet above the top of the gravel level during placement. A minimum of 1/2 gallon of 12.5 percent sodium hypochlorite solution shall be added to every 1 cubic yard of gravel/sand as the gravel is placed. Calcium hypochlorite will not be allowed. The tremie line shall be gradually withdrawn as the gravel is deposited.

C. The Contractor shall provide means of measuring the volume of gravel/sand as it is installed, and continual checks must be made to prevent voids or bridging of the filter pack. The volume of all gravel/sand added shall be calculated and recorded at all times. Any amount placed which is less than the computed amount required shall be deemed a sign of voids or bridging and corrective measures shall be undertaken by the Contractor.

D. For each screened interval, once the filter pack has been measured at or near the upper depth called for on the Design Drawings, before placing bentonite seal, the Contractor shall swab the screened interval in 20-foot sections to settle the filter pack, remeasure the filter pack depth, and add additional filter pack. Then the Contractor shall repeat this process until the filter pack is settled at the designed depth.

3.16 ANNULAR SEAL

A. A bentonite seal shall be placed above the screened interval to prevent commingling of waters. The Design Drawings indicate the position and thickness of the seals.

3.17 ANNULAR FILL BETWEEN ANNULAR SEAL AND CEMENT SEAL

A. Pea gravel shall be placed in the annulus between the annular seal and cement seal. The pea gravel shall be placed through a tremie pipe, which shall be set no greater than 40 feet above the top of the area to be filled. The pea gravel shall be placed to ensure continuity without bridging, voids, or segregation.

3.18 CEMENT SEAL

A. The neat cement grout or the sand cement grout seal shall be placed in the annulus from 55 feet below ground surface to within 60 inches of ground surface. The cement shall be placed using a sufficient number of stages such that casing will not be damaged. Each stage of cement shall be allowed to set for 12 hours prior to placing the overlying stage.

B. The cement seal shall be placed through a tremie pipe, which shall be set no greater than 40 feet above the top of the area to be sealed.

3.19 STEEL ANNULAR-CAP PLATE

A. The Contractor shall supply and install by continuous welds a steel annular-cap plate to cover the space between the 5-inch production casing and the 12-inch conductor casing.

3.20 PROTECTIVE CAP FOR CASING

A. The top of the production casing shall be provided with a locking metal cap bolted to the production casing to cover and protect the well until the permanent pump installation has begun. The cap should be locked with a padlock at all times during which no member of the Contractor's crew is present at the well site. The Contractor shall protect the well casing from entry of unwanted material at all times.

3.21 DISPOSAL OF WASTEWATER

A. Water produced by development and test pumping or other operations shall be disposed of on-site in a manner and at the location specified by the Engineer. Disposal of wastewater will be by such methods and to such locations that damage to structures, roads, or utilities does not occur. All costs incurred in connection with the disposal of wastewater, and cuttings will be incidental to well drilling and be borne by the Contractor.

1. The Contractor shall apply for a US EPA 402 water discharge permit and any other permits required for disposal of wastewater not already provided by Owner.

3.22 DISPOSAL OF DRILLING MUD

A. Not applicable.

3.23 WELL DEVELOPMENT, DISINFECTION AND WATER QUALITY TESTING

A. Well Development and Disinfection consists of the application of appropriate techniques designed to bring the well to its maximum production capacity with attendant optimization of well efficiency, specific capacity, stabilization of aquifer material, and control of suspended solids.

3.24 WELL DEVELOPMENT BY SWABBING AND ZONED AIR-LIFT PUMPING

A. The perforated portion of the well shall be developed by zoned air-lift pumping in contiguous 20-foot sections, from the bottom of the well to the top of the perforated casing. The air-lift pumping device for isolating the air-lift pump zones shall consist of a 20-foot length of pipe with 5-inch double-disc rubber washers, which fit tightly to the inside of the perforated casing, placed at each end. The design of the rubber washers shall be such that they will fold over if they become sanded in, but are firm enough to create thorough mechanical agitation of the filter pack. The pipe shall be perforated with holes no greater than 1-inch diameter to allow formation water to enter the device. The device shall be constructed such that the holes do not significantly reduce the strength of the pipe. The bottom of the pipe shall be sealed. The air-lift pumping device may be run on pipe having a minimum inside diameter of 4-inches.

B. An air-induction pipe shall be run within the column pipe to provide an air source. The air compressor used for air-lift pumping shall be rated at not less than 750 cfm at 250 psi discharge pressure. The air-induction pipe shall be set above the top of the perforated casing, or a depth (agreed upon with the Engineer) having sufficient submergence to perform air-lift development, and maintained at that depth as the zoned air-lift pumping device is withdrawn from the well, zone by zone.

C. The general procedure to be used during air-lift pumping development for each zone shall be:
   1. Begin air-lift pumping a zone, measuring average flow and noting color and sand content of the water.
   2. As the water clears, the air-lift tool shall be swabbed up and down several times and returned to the same zone. This shall be repeated until the discharged water remains relatively clean after swab throws.
   3. The minimum amount of time devoted to each 20-foot zone during each pass is estimated at 120 minutes. The Contractor shall develop the perforated section with a minimum of two complete passes.

4. Variation of the procedure, and additional time for development of each zone, shall be as directed by the Engineer. Additional development time, if any, shall be paid for at the unit bid price.

D. The Contractor shall discharge the produced water to a tank such that the pumping rate, appearance and sand content of the produced water can be measured. The Contractor shall record the time required for the water to clear, the pressure required to air-lift each zone, and the interval being developed for each period of pumping. Produced water in the tank will be discharged to a location approved by the Owner and Engineer prior to well development.

E. After air-lift pumping has been completed, the tool shall be withdrawn from the well. The well shall be sounded, and accumulated fill shall be bailed from the well to within 5 feet of the bottom of the casing.

3.25 DISINFECTION AFTER AIR-LIFT PUMPING

A. All drinking water treatment chemicals comply with NSF/ANSI Standard 60 as available.

B. Immediately after well development by zoned air-lift pumping or swabbing is complete and prior to installing the test pump, the Contractor shall completely disinfect the well, per AWWA C-654 and AWWA 100-97 Section 4.9. Sixty-five percent HTH granular calcium hypochlorite shall be distributed evenly throughout the water column with a chlorine-basket. The chlorine basket shall have a fine mesh exterior and be of such design so that it can be lowered on a wire line to the full depth of the well and be capable of holding at least 10 lbs of chlorine. Disinfection with sodium hypochlorite will not be allowed with the exception of filter pack installation.

C. The quantity of chlorine used shall be equal to 1/2 lb for each 100 feet of water column in the well. The quantity of chlorine shall be sufficient to initially produce a chlorine concentration of 100 milligrams per liter (mg/l). Based on the above ratio, the total quantity of chlorine shall be determined and placed in the chlorine basket. The basket shall then be run to the bottom of the well on a wire line and slowly retrieved. This process shall be repeated until all of the chlorine has dissolved. The chlorine-bearing solution shall remain in the well for a period of at least 24 hours.

D. In conjunction with disinfection with the chlorine basket, the Contractor shall wash the upper casing with a solution of chlorine and water. The solution shall be mixed in the ratio of 1 pound of chlorine for each 1,000 gallons of potable water, yielding a chlorine concentration of at least 100 mg/l. The inside of the production casing and the gage line shall be washed with the solution followed by thorough flushing with potable water.

E. During the time interval between disinfection, as described above and installation of the test pump, the well shall be capped with a PVC cap securely glued to the casing.

F. The Contractor or Water System Representative shall sign an Affidavit, to be notarized, certifying the disinfection of water facilities according to AWWA C-654. The Affidavit shall include the Contractor or Representative's name, title, signature, as well as the date of disinfection and the project name.

3.26 DEVELOPMENT BY PUMPING

A. The Contractor shall furnish, disinfect, install, operate, and remove a deep-well turbine pump or a submersible pump for developing the well. The production pump and drop pipe shall be thoroughly disinfected pursuant to AWWA 100-97 Section 4.9 and AWWA C-654 prior to installation in the well. A chlorine solution of 100 mg/L minimum concentration shall be circulated through the pump for a minimum of 30 minutes. The exterior of the pump and the interior and exterior of the drop pipe shall be rinsed with the chlorine solution prior to installation. The pump and prime mover shall have a pumping range of 2 gpm to 20 gpm at a pumping level of 500 feet. If a turbine pump is used, the prime mover shall be a variable speed type. Development pumping shall be initiated within 7 (seven) days after development by air-lift pumping is complete.

B. The Contractor shall install and measure water depth with an electric-line probe, calibrated to 0.01 foot increments.

C. The initial pumping rate shall be restricted and, as the water clears, be gradually increased until the maximum rate is reached. The maximum rate will be determined by the Engineer after consideration of the well drawdown and discharge characteristics, but is not anticipated to exceed 20 gpm. The Contractor shall be responsible for providing a flow meter, suitable to measure the rate of water discharge.

D. The pump shall not have a check valve. At proper intervals as determined by the Engineer, the pump shall be stopped and the water in the pump column shall be allowed to surge back through the pump and through the casing perforations.

E. The cycle of pumping and surging shall be repeated until the discharged water is clean of sand, silt, and mud and until there is no increase in specific capacity during at least 2 hours of continuous pumping and surging.

F. The Contractor shall continue development until the following conditions have been met:
   1. Sand production is less than 15 parts per million (ppm) within 20 minutes after commencement of pumping at the maximum rate.

2. Average sand production does not exceed 5 ppm for a 2-hour cycle after commencement of pumping at the maximum rate as determined by the Engineer.
3. Specific capacity of the well is essentially stable for a minimum of 4 hours, and the specific capacity is the same for all of the different flow-rate steps after equal amounts of time.

G. Sand production shall be measured by a centrifugal-sand-separating meter as described in Journal of AWWA, Vol. 26, No. 2, February 1954 (Rossum sand sampler). The Contractor shall keep independent records of pumping time, flow rate, pumping level, sand production, and other discharge characteristics.

3.27 WELL TESTING

A. The Contractor shall furnish all necessary equipment and materials and make a complete pumping test of the well following development work. Test pumping shall consist of a 300-minute step-drawdown test (three 100-minute steps), a 24-hour constant-rate test, and associated recovery tests. The Contractor shall also supply an in-line flow meter to quantify discharge during the pump test. The Contractor will be responsible for providing equipment and collecting all flow and water-level measurements during the testing.

B. The step test shall commence no sooner than 24 hours after development pumping or other pumping is completed to allow the well to recover to static water level.

C. The driller shall supply an in-line sample port with a gate valve or other valve system approved by the Engineer, suitable for collecting water samples during the test. Upon completion of the step pumping test, the well shall be allowed to recover and remain shut off for 24 hours. Then a 24- hour constant-rate pumping test shall be conducted, followed by at least a 24-hour water-level-recovery period.

D. If the pump is shut off for any reason during the pumping portion of the test, or equipment problems interfere with maintaining a constant discharge rate, the pump shall remain shut off for 24 hours and the complete test rerun at no additional cost to the Owner.

3.28 BAILING

A. After development by pumping, pump test, and recovery periods are complete, the test pump and appurtenances shall be withdrawn from the well. The well shall be sounded, and accumulated fill shall be bailed from the well to within 5 feet of the bottom of the casing.

3.29 WATER QUALITY TESTING

A. Bacteriological Testing

1. In order to determine if the well contains unacceptable numbers of bacteria, the Contractor shall collect and properly preserve water samples from the well for bacteriological testing. No residual chlorine may be detected at the time of sampling. Bacteriological testing shall be performed and approved results received prior to the completion of well testing.
2. Bacteriological tests shall include total coliforms (presence or absence method). The water shall be deemed unacceptable if coliform bacteria are "present" in collected water samples.
3. It shall be the Contractor's responsibility to see that the well is so tested and, if unacceptable, follow the disinfection procedures specified by the Engineer. Disinfection and subsequent testing shall continue until test results are approved, indicating acceptable conditions, or until a maximum of three disinfection procedures have been followed as outlined in the paragraph of this specification entitled "Disinfection After Air-Lift Pumping". If additional disinfection procedures are required, they shall be paid at the unit bid price.
4. Results of all bacteriological testing shall be provided for approval prior to the use of the well.
5. The final bacteriological test must be performed after Contractor has finished installing all downhole materials and equipment within well.

B. Constituent Sampling and Testing:

1. The Engineer shall collect the water sample for constituent analysis at the end of the constant-rate pumping test.

3.30 PRODUCTION PUMP INSTALLATION AND SURFACE COMPLETION

A. If an extended period of time passes between initial development and pump testing of the well and production pump installation, contractor shall perform additional development by pumping as directed by Engineer.

1. The production pump shall not be used for this development by pumping.
2. The pump used shall be of equivalent or greater capacity as pump specified in initial development by pumping.

B. Surface completion shall include the following:

1. Cutting of the surface casing to the appropriate depth for pitless installation;
2. Installation of the pitless adaptor with 2-foot casing stickup above top of concrete and cast or forged, bolted, locking, watertight cap with screened air vent (24 mesh or smaller);

a. Contractor coordinate with Engineer to ensure the pitless adaptor and appurtenances are placed at the correct elevation relative to finished grade as per the Engineer's site design;

3. Installation of discharge line stub-outs (capped and marked), aligned as per site design as directed by Engineer;

4. Coordination of installation of electrical conduit and discharge line stub-outs with Electrician, if applicable;

5. Installation of a minimum 4" thick, formed and poured concrete slab around the well head, sloped to drain away from the well head, and appurtenances.

C. The well shall be equipped with a production pump and necessary appurtenances to produce water, as directed by the Engineer after well production is determined by the well test. Other well appurtenances to be installed downhole will include:

1. Drop pipe and one (1) check valve, located as indicated on drawings.

2. Pump wire sufficient for the pump with 10 extra feet to be left coiled at the well head.

D. The Contractor shall complete a start-up test of the pump and motor installed in the well. If necessary, a temporary pump control box, power source, temporary discharge piping, and other equipment needed to perform the start-up test are incidental to the work.

3.31 RESTORATION OF DISTURBED AREAS

A. After the work is completed, the Contractor shall fill the pits with cuttings. All trash and debris generated by the Contractor shall be contained and disposed of in a manner acceptable to the Owner. The Contractor shall restore the site to its original condition as approved by the Owner.

B. Contractor shall exercise care to minimize damage from the use of equipment in paved, lawn, or landscaped areas, and unless otherwise specified in the contract agreement. Contractor shall repair wheel ruts and track marks, patch pavements, and restore the ground or paved surface to the extent practicable, to its former condition. All surplus material shall be handled as specified above and the site left in a neat condition.

C. All costs associated with the restoration of the work site will be incidental to the Contractor.

3.32 SECURITY AND PROTECTION OF THE WELL

A. Security and protection of the water well prior to the installation of a final pitless adapter shall be ensured by a locking metal cap bolted to the production casing.

Between disinfection and well development activities a padlock should be placed on the cap to prevent unauthorized access to the well. Upon completion of the well and installation of the pitless adapter, the Contractor shall perform final bacteriological testing. Following Engineer's approval of the bacteriological testing confirming "absence" of total coliform, the casing shall be sealed. The well vent and all other openings will be screened (24 mesh or smaller).

3.33 BOREHOLE ABANDONMENT

A. If the results of the lithological logging by the Engineer's representative or geophysical logging by a sub-contractor indicate that completion of the production well is not justified, then the Contractor shall abandon the borehole at the request of the Owner. The Contractor shall complete the borehole abandonment in a method consistent with the requirements of the Navajo Nation Primary Drinking Water Regulations, Minimum Design Regulations, subpart 1506.

END OF SECTION