

RECEIVED

JUN 28 2022

DEPARTMENT OF
WATER RESOURCESSTATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
STATEMENT OF COMPLETION
FOR SUBMITTING PROOF OF BENEFICIAL USE

FOR OFFICE USE ONLY

Amt. of Fee \$ 50.00
Receipt No. C113236
Received By Ku
Date Received 6.28.22

The Idaho Department of Water Resources (Department) considers this form a statement that the permit holder(s) applied water to beneficial use and completed development of a water right to the extent described below. **This form must be accompanied by an examination fee, when necessary, or by a completed Beneficial Use Field Report prepared by a certified water right examiner (CWRE).** Please refer to the instructions and fee schedule for this form. If ownership of the permit has changed, complete an Assignment of Permit form. If you wish to relinquish your permit because you have not established the authorized water use and are not applying for an extension, please notify the Department in writing.

1. Permit No. 63-34359 Name of Permit Holder(s) Canyon County

Telephone No. 208-454-6884 Email nichole.schwend@canyoncounty.id.gov

Mailing Address 1115 Albany St City Caldwell State ID Zip 83705

2. Source of Water Ground Water If Ground Water (well), Date Drilled mo. 8 / yr. 2018

Drilling Permit/Tag No. 886649 Drilling Company's Name DownRightDrilling & Pum

3. Extent of use(s) completed as authorized by the water right permit:

Domestic (No. households) X Irrigation (No. acres) _____ Stockwater (No. and stock type) _____

Other Single building with dormitories, toilets, sinks, and showers.

4. Total diversion rate or volume (storage only) for which proof is submitted .09 cfs OR _____ af
If the total developed water use is 5 acres of irrigation or less, is stockwater storage of 14.6 acre-feet or less, or has a diversion rate of less than 0.24 cfs, attach a map of the place of use and point of diversion and photographs showing beneficial use.

5. Describe the diversion and delivery system from the water source to the use (pump, lift, irrigation method, etc.)

Discharge piping from the well runs through a pitless adapter, underground to the well equipment room, through the system

appurtenances (as shown in attached system specifications) and then to various domestic use points throughout the building.

6. Permit condition compliance. Refer to the permit approval conditions and check all the items required, then check "Yes" or "No" to indicate whether the required items were established, submitted, and/or installed:

Required? Yes No (If "Yes", attach required data, evidence of compliance, or evidence of installation)

☐ ☒ Ground water level data, pumping information, or other diversion data

☐ ☒ Mitigation plan

☐ ☒ Lockable controlling works

☐ ☒ Measuring device

☐ ☒ Fish screen

☐ ☒ Other requirements of the water right permit _____

☐ ☒ Reasonably Anticipated Future Needs ("RAFN") Municipal use

If RAFN Municipal use, additional increment of beneficial use developed? ☐ Yes (attach CWRE report) ☐ No

7. Fee Enclosed \$ 50.00 or ☐ CWRE field report attached or ☐ No fee required

See fee schedule on page 3 of the instructions. Proof statements filed without an appropriate fee are incomplete.

8. Person to contact to accompany a Department representative during the field examination of the water system:

Name: Devin Krasowski Telephone No. 208-455-5958 Email devin.krasowski@canyoncounty.id.gov

Mailing Address 1115 Albany St City Caldwell State ID Zip 83705

The information given on this form is my true statement of the extent to which the above numbered permit has been developed and water has been diverted and applied to beneficial use. I understand that any undeveloped portion of the permit is relinquished to the State of Idaho.

Nichole Schwend

SIGNATURE OF PERMIT HOLDER*

Nichole Schwend, Parks Director

PRINTED NAME AND TITLE

DATE

*Attach power of attorney if completing on behalf of permit holder.

Canyon County Parks—Proof of Beneficial Use
Permit No. 63-34359

Canyon Crossroads Museum and dormitories
6851 Hot Spot Lane
Melba, ID 83641















PROJECT PLANS AND
TECHNICAL SPECIFICATIONS

*CANYON COUNTY CROSSROADS MUSEUM
DRINKING WATER WELL AND PUMPING SYSTEM*

OCTOBER 2017



CANYON COUNTY CROSSROADS MUSEUM DRINKING WATER WELL AND PUMPING SYSTEM PROJECT PLANS AND SPECIFICATIONS

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SECTION 01300
GENERAL

1.1 SCOPE OF WORK

- A. Furnish and install new well, pump, and associated mechanical appurtenances for a new public water system. The facilities constructed shall include all materials and equipment as shown on the contract drawings and described herein required for a fully operational system.
1. The selected contractor shall supply all required materials and appurtenances as indicated on the drawings.
 2. All applicable permits and associated construction approvals will be the sole responsibility of the selected contractor.
 3. All materials installed during this contract shall be new unless approved by the Engineer and Owner.
 4. Contractor shall be responsible for maintaining erosion and sediment control structures and practices.
 5. No water facilities shall be constructed prior to receipt of Idaho Department of Environmental Quality (IDEQ) approval. The Contractor shall keep a copy of the IDEQ approval letter and IDEQ-stamped plans and specifications on the job site at all times.

1.2 SPECIFICATIONS

- A. This document provides technical specifications for the Canyon County Crossroads Museum Drinking Water Well project. The specifications contained herein are to be considered supplemental specifications to the current version of the Idaho Standards for Public Works Construction (ISPWC). In the event of a conflict between these specifications and the ISPWC Specifications, the ISPWC specifications, or whichever specification is more stringent, shall control.

1.3 QUALITY ASSURANCE

- A. The Work performed under this Contract shall consist of furnishing all plant, tools, equipment, materials, supplies and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be completed, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the completion of, and proper construction of the Work in good faith shall be provided by the Contractor as though originally so indicated, at no increase in cost to the Owner.

- B. All equipment and materials must comply with all applicable standards of:

AASHTO American Association of State Highway Officials

ACI American Concrete Institute

AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
ISPWC	Idaho Standards for Public Works Construction
NEC	National Electrical Code
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety & Health Administration
RSWW	Recommended Standards for Water Works
UBC	Uniform Building Code

1.4 SUBMITTALS

- A. Before executing any work in this section the selected contractor shall submit for documentation, job specific selected materials and equipment and all appurtenances as specified in the Contract Documents.
- B. Submittals shall include certification that each applicable Section of the appropriate standards listed above have been met. The Engineer must approve any variation from the Contract Documents.

Project Specific Required Submittals

Three (3) copies of each Shop Drawing Submittal:

- All buried piping and fittings, including materials and pressure classes
- All buried isolation valves
- Well pump
- Check, pressure relief, and ball valves
- Flow meter
- Pressure tank
- Variable frequency drive
- Any other equipment required to provide a complete and operable water system or requested by the Engineer

1.5 WARRANTY

- A. If within a period one (1) year from the date of completion the well pumping system and associated appurtenances or any part thereof shall prove to be defective in installation, material or workmanship the contractor shall warrant replacement or repair to the satisfaction of the Owner at no expense to the Owner.

1.6 PROGRESS OF CONSTRUCTION

- A. It is the intention of the Contract Documents that the progress of the work shall proceed in a systematic manner so the minimum of inconvenience will result to the public in the course of construction. Cleanup of all construction debris, excess excavation, excess materials, and complete restoration of all fences, mailboxes, irrigation structures, ditches, culverts, signposts, and similar items shall be completed immediately following the disturbance. The Contractor shall stockpile excavated material so as to do the least damage to adjacent areas or fences, regardless of whether these are on private property or public rights-of-way. All excavated materials shall be removed from adjacent areas, and these surfaces shall be left in a condition equivalent to their original surface and free from all rocks, gravel, boulders, or other foreign material.
- B. It is the intent of these Specifications that the Contractor is responsible for any necessary asphalt pavement repair and shall provide all labor and equipment necessary to grade and maintain in a reasonable condition all streets which have been affected by construction until surface repair has been completed.

1.7 STARTUP OF WATER FACILITIES

A. Furnishing and Installation

1. The Contractor shall provide all tools, supplies, materials, equipment, and labor necessary for the furnishing, construction, installation, testing, and operation of all equipment and appurtenant work, complete and operable, in accordance with the requirements of the Contract Documents.

B. Quality Assurance

1. **Inspection, Startup, and Field Adjustment:** The Contractor shall demonstrate that all equipment meets the specified performance requirements. Contractor shall provide the services of an experienced, competent, and authorized service representative of the manufacturer of each item of major equipment who shall visit the site of Work to perform the following tasks unless specifically approved by the Engineer:
- a. Assist the Contractor in the installation of the equipment.
 - b. Inspect, check, adjust if necessary and approve the equipment installation.
 - c. Start-up and field-test the equipment for proper operation, efficiency, and capacity.
 - d. Perform necessary field adjustments during the test period until the equipment installation and operation are satisfactory to the Engineer.

- e. Instruct the Owner's personnel in the operation and maintenance of the equipment. Instructions shall include step-by-step trouble shooting procedures with all necessary equipment.

1.8 INTERFERING STRUCTURES AND UTILITIES

- A. The Contractor shall exercise all possible caution to prevent damage to existing structures and utilities, whether aboveground or underground. Whenever possible, the Owner will attempt to locate its facilities so as to provide a minimum of conflict with existing structures and utilities. While the location of existing structures and utilities will be based upon the best information available, the completeness and accuracy of said information cannot be guaranteed, and it is provided simply as a guide to possible difficulties. The Contractor shall be required to notify all utility offices concerned, through Dig Line (1-800-342-1585), at least forty-eight (48) hours in advance of construction operations in which a utility's facilities may be involved. This shall include but not be limited to irrigation, telephone, electric, and gas.
- B. It shall be the responsibility of the Contractor to locate and expose all existing underground structures and utilities in advance of excavation. Any structure or utilities damaged by the work shall be repaired or replaced in a condition equal to or better than the condition prior to the damage. Such repair or replacement shall be accomplished at the Contractor's expense.
- C. The Contractor shall remove and replace such small miscellaneous structures as fences, catch basins, drain pipe, culverts, mailboxes, and signposts at his own expense. The Contractor shall replace these structures in a condition as good, or better than, their original conditions.
- D. If interfering utility poles, guy wires, or anchors are encountered the Contractor shall notify the utility company at least seven (7) days in advance of construction to permit arrangements with the utility company for protection or relocation of the structure.
- E. The Contractor shall remove, protect and replace all drainage ways, all drainage and irrigation structures, or other improvements and similar items located near the proposed improvements at his own expense. Replacement shall be in a manner and in a condition at least equivalent to the original condition.
- F. If the Contractor encounters existing structures that interfere with the new facility(ies), he shall notify the Engineer before continuing with the construction in order that the Engineer may make such field revisions as necessary to avoid conflict with the existing structures. The cost of waiting or "down" time during such field revision shall be borne by the Contractor. If the Contractor shall fail to so notify the Engineer when an existing structure is encountered, but shall proceed with the construction despite this interference, he shall do so at his own risk. In particular, when the location of the new construction, as shown on the Plans, will prohibit the restoration of existing structures to their original conditions, he shall notify the Engineer so field relocation may be made to avoid the conflict.

1.9 AS-BUILT DRAWINGS

- A. The Contractor will be required to furnish one red-lined set of as-built revisions on the work order drawing or sketch provided, indicating the exact location of all facilities installed. As-built drawings completed by the Contractor and approved by the Engineer or his representative, shall be submitted prior to acceptance of the project by the Owner.

1.10 FIELD RELOCATION

- A. During the progress of construction, it is possible that minor relocations may be necessary. Such relocations shall be made only by direction of the Engineer or his representative.

1.11 PUBLIC SAFETY AND CONVENIENCE

- A. The Contractor shall comply with all rules and regulations of the City, County, and State authorities regarding the closing of public streets or highways to the use of public traffic. No road shall be closed by the Contractor to the public except by express permission of the Engineer. Traffic must be kept open on roads and streets where a detour is impossible. The Contractor shall, at all times, conduct his work so as to assure the least possible obstruction to traffic and normal commercial pursuits. All obstructions within traveled roadways shall be protected by approved signs, barricades, and lights where necessary or ordered by the Engineer for the safety of the traveling public. The convenience and protection of the general public and property are of prime importance and shall be provided for by the Contractor in an adequate and satisfactory manner.
- B. The Contractor shall use every reasonable precaution to safeguard the persons and property of the traveling public. Failure of the Engineer or his representative to notify the Contractor to maintain barricades, barriers, lights, flares, danger signals, or watchmen shall not relieve the Contractor from his responsibility. All barricades and obstructions shall be protected at night by signal lights, which shall be suitably distributed across the roadway or alleyway and kept burning from sunset to sunrise.
- C. Whenever the Contractor's operations create a hazardous condition, he shall furnish flagmen and guards as necessary or as ordered by the Engineer to give adequate warning to the public of any dangerous conditions to be encountered. He shall furnish, erect, and maintain approved fences, barricades, lights, signs, and any other devices that may be necessary to prevent accidents and to avoid damage and injury to the public. Flagmen and guards while on duty and assigned to give warning to the public, shall be equipped with appropriate wearing apparel and flagging.
- D. The Contractor will be required to confine construction operations within the dedicated private property, rights-of-way or within areas for which construction easements have been obtained unless he has made special arrangements with the affected property Owners in advance. The Contractor will be required to protect stored materials, cultivated crops and trees, and other items located adjacent to the pipelines. Property Owners affected by the construction shall be notified by the Contractor at least forty-eight (48) hour in advance of the time construction begins. During all construction operations, the Contractor shall construct and maintain such facilities as may be required to provide access by all property Owners to their property.

1.12 EASEMENTS AND PERMITS

- A. The Owner will obtain easements for any work located on private property. Easements shall provide use of property for construction purposes to the extent indicated on the easements. Copies of these easements will be provided by the Owner for inspection by the Contractor. The Contractor shall confine his construction operations to within the easement limits or street and alley right-of-ways limits or make special arrangements with the property Owners for the additional area required. Any damage to private property, either inside or outside the limits of the easements provided by the Owner, shall be the responsibility of the Contractor.

1.13 LAND MONUMENTS

- A. The Contractor shall preserve existing City, County, State, and Federal land monuments wherever possible. When these monuments cannot be preserved, the Contractor shall notify the Engineer or his representative at least forty-eight (48) hours in advance of the proposed construction in order that the Engineer will have ample opportunity to reference these monuments for later replacement.

1.14 TECHNICAL MANUAL

- A. The Contractor shall submit three (3) copies of the Technical Manual. The Manual shall include technical operation and maintenance information for each item of mechanical, electrical, and instrumentation equipment. It shall be written so it can be used and understood by the Owner's operation and maintenance staff. The manual shall include: equipment summary, valve chart, operational procedures, preventative maintenance procedures, parts list, wiring diagrams, shop drawings, safety equipment documentation and spare parts list.

1.15 TRAINING

- A. The Contractor shall hold one (1) 4-hour training session to train Owner's personnel in use of the equipment.

1.16 FINAL CLEANUP

- A. After completion of all Work associated with this contract, the Contractor shall clean up the Work site and any property used by his operations to the satisfaction of the Owner and Engineer. The Contractor shall remove and dispose of all excess materials resulting from his Work, and shall repair, replace, or restore all property of any type or nature which has been moved, damaged, or altered in any way by his operations, to the satisfaction of the Owner and Engineer.

- END OF GENERAL -

WELL CONSTRUCTION SPECIFICATIONS

CELEBRATION PARK MUSEUM PUBLIC DRINKING WATER SYSTEM

1.0 GENERAL REQUIREMENTS

- A. The Contractor shall furnish all materials, labor, equipment, tools, supplies, transportation, and appurtenances for drilling, casing, developing, completing, and testing of a public drinking water supply well at the Celebration Park Museum (Owner), 6851 Hot Spot Lane near Melba, in Canyon County, Idaho as specified herein and in accordance with the Contract Documents.
- B. Approximate depth of drilling, length of well casing and screens are to be used for the purpose of bidding only. Actual depths and lengths may be adjusted depending on subsurface conditions with approval of the Owner and Engineer.
- C. Work and material requirements are summarized below. Each item is discussed in subsequent sections of these Well Specifications.
- Permits and Fees.
 - Mobilize to and demobilize from the Work site, including rig setup and takedown and site cleanup.
 - Drill a minimum 10-inch diameter borehole to approximately 100 feet.
 - Conduct soil type logging during drilling.
 - Furnish and install 6" steel well casing, minimum 0.280 inch wall thickness.
 - Furnish and install stainless steel well screen.
 - Furnish and install filter pack, only as needed for soil conditions.
 - Furnish and install bentonite or cement grout annular surface seal to minimum 58' deep.
 - Develop well.
 - Well testing, furnish and install temporary well testing pump.
 - Disinfect well.
 - Site Cleanup.

- D. Well construction and materials shall conform to IDAPA 58.01.08 Idaho Rules for Public Drinking Water Systems (Idaho Department of Environmental Quality), IDAPA 37.03.09 Well Construction Standards Rules (Idaho Department of Water Resources), appropriate sections of "Recommended Standards for Water Works", and AWWA A100 - Standards for Water Wells.
- E. All materials used for well construction, including drilling fluids, shall be ANSI/NSF Standard 61 approved.

2.0 CONTRACTOR QUALIFICATIONS, EQUIPMENT AND RESPONSIBILITIES

- A. The Contractor shall have at least five years of well drilling experience and shall have constructed at least 5 wells of comparable type.
- B. The Contractor shall submit a list of equipment to be used on the project, including type of equipment description, manufacturer, model number and capacity.
- C. Damage to the well or surrounding property by the Contractor or Contractor equipment shall be repaired or replaced at the Contractor's expense.
- D. The Contractor shall provide, at his own expense, all necessary piping and components to transfer the discharged well water from the drill site to a suitable disposal site. A plan for water disposal must be provided by the Contractor and approved by the Owner prior to commencing drilling.
- E. The Contractor shall provide, at his own expense, all power required for his operations under the contract unless otherwise arranged with the Owner.
- F. Contractor shall prepare the drill site including any needed excavation or backfilling of mud pits, ditches, or settling ponds
- G. The Contractor shall be responsible for protecting life and property from excavated mud pits and settling ponds and shall backfill pits as soon as drilling and testing operations are complete. Holes, pits, equipment, and chemicals shall be safely stored and fenced per OSHA standards. All materials shall be stored where safe from damage or contamination.

- H. Contractor shall obtain and pay fee for drilling permit and any other needed permits.
- I. Contractor shall provide record documentation of drilling, testing, materials used to the Owner necessary for Well Completion Report submitted to DEQ upon satisfactory completion of well construction and testing.

3.0 WORK SITE

- A. The well site is at 6851 Hot Spot Lane, Melba, Idaho 83641, Section 36, Township 1 South, Range 2 West, B.M., WGS N 43.299351° W 116.521862°.
- B. Owner address is Canyon County Parks, Recreation and Waterways, 1115 Albany Street, Caldwell, ID 83605.
- C. Contractor shall have utilities marked prior to drilling or excavating by calling Digline 811.

4.0 SERVICES FURNISHED BY OWNER

- A. The Owner will provide access to the property for the Work.
- B. Contractor, employees, subcontractors and material deliveries are allowed access to the property as part of the Work.
- C. The Owner or Engineer will participate with the Contractor in well testing, evaluation of drilling characteristics, sample examination, and soil drilling log interpretation, and will advise the Contractor on the final design placement of well casing, surface seal, filter pack, and screens. The Engineer shall be requested to be present during placement of the well seals and for test pumping.

5.0 SITE SOIL AND GEOLOGY CONDITIONS

- A. It is anticipated that drilling will be through a top layer of rock boulders and clay near the surface overlying clay and loose lava, into mostly lava/gravel/boulders to about 60' deep as shown in the nearby Visitor Center well log.
- B. Well depth is anticipated to be 100 feet.
- C. Static groundwater level is anticipated to be 19 feet deep.

- D. See well logs for nearby Visitor Center well.

6.0 MATERIALS

- A. Surface Casing: Surface casing may be installed at the Contractor's option. If temporary surface casing is utilized, it shall be removed during installation of the surface seal, permanent surface casing is utilized, a full length annular seal shall be provided outside of the casing.
- B. Well Casing: The well, when completed, shall be cased with nominal 6 inch I.D. casing from 2.0 feet above natural ground surface to a depth designated by the Engineer. The casing shall be new steel ASTM A-53 or equal with a minimum wall thickness of 0.280 inches. The casing shall be equipped with centralizers at a spacing of no more than 50 feet and at 30' from surface, at the first casing joint and at bottom end of the casing.
- C. The top of the casing shall be equipped with an approved well cap with screened vent and access port for water depth measurement.

7.0 WELL SCREEN

- A. Well screens shall be of the V-slot continuous wire-wound type in 304 stainless steel of 6 inch pipe size intended for use with drinking water wells. The final placement, length and slot size of well screen will be determined by collaboration between the driller and the Engineer after obtaining and recording drilling soil types and depths by the Contractor.
- B. Screens shall be attached to the casing by welding. The screen sections shall be equipped with stainless steel welding rings at both ends.
- C. Screens shall have adequate strengths for collapse and column weight.
- D. Screen construction shall include sufficient wire and rod sizes to be compatible with the depth and pressures of the installation, as recommended by the manufacturer of the screen.
- E. Screen materials shall be NSF Standard 61 approved.
- F. A stainless steel plate shall be welded to the bottom screen section end.

8.0 FILTER PACK

- A. The need for a filter pack is not anticipated but will be re-evaluated once soil types and geology have been obtained from the drilling record and collaboration between the driller and the Engineer.
- B. If needed, the filter pack shall be placed around the well screen assembly and shall be installed along the entire length of the screen assembly, and shall extend above the top of screen a minimum of 20 feet.
- C. The filter pack shall consist of clean, well-rounded siliceous sand material with a uniformity coefficient of 2.5 or less, manufactured by Colorado Silica Sand, Inc., or approved equal, and shall conform to one of the following gradations to be determined following analysis of drill cuttings:

10-20 Filter Sand

90-100% passing No. 10 sieve

90-100% retained on No. 20 sieve

8-12 Filter Sand

90-100% passing No. 8 sieve

90-100% retained on No. 12 sieve

6-9 Filter Sand

90-100% passing No. 6 sieve

90-100% retained on No. 10 sieve

9.0 WELL SEAL

- A. The annular space between the borehole and the outside surface of the steel well casing shall be sealed with bentonite chips, bentonite grout, neat cement or cement-bentonite grout installed in a slow and continuous manner.
- B. Any temporary casing or tremie pipe shall be withdrawn as the seal is placed.
- C. Neat cement or cement grout shall be pumped upward from the bottom of the sealed interval.
- D. A 50% excess volume of seal material shall be available on site during construction of the well seal.

- E. Seal placement and thickness shall meet the requirements of IDAPA 58.01.08.510.03 and IDAPA 37.03.09.
- F. For cement grout seal a minimum borehole diameter of 9¾" is required for 6 inch casing.
- G. For dry granular bentonite poured into a dry annular space with 6 inch casing, a minimum borehole diameter of 10¾" is required above 200 feet and a minimum borehole diameter of 12¾" is required below 200 feet.
- H. Where neat cement is used, the mix shall contain no more than 6 gallons of water per 94 pounds of cement. Cement shall conform to AWWA Standard A-100. Mix water quality and quantity shall follow manufacturer specifications paying close attention to cement grind and water ratios, eliminating free water. Additives may be utilized to control fluid losses and shrinkage.
- I. Additives shall not be used unless approved by the Idaho Department of Environmental Quality and the Idaho Department of Water Resources.
- J. Where cement-bentonite grout is used, the mix shall consist of 24 gallons of water, 94 pounds of cement and 50 pounds of bentonite. In preparing the mix, the cement must be added first, followed by the bentonite.
- K. Bentonite material shall be recommended by the manufacturer for use with drinking water wells.

10.0 WELL CONSTRUCTION

- A. Upon receiving the Notice to Proceed, the Contractor shall move in all tools, equipment, and supplies necessary for the Work, and upon completion of the Work, shall remove all such items from the premises promptly and leave the site in a clean and orderly fashion.
- B. Construction Sequence for this project will consist of the following:
 - 1. Obtain Permits.
 - 2. Mobilization and drilling rig setup.
 - 3. Drill minimum 10-inch diameter borehole to approximately 100 feet.

4. Conduct soil sampling and logging.
5. Furnish and install 6 inch I.D. steel casing and 6 inch pipe size stainless steel well screen
6. Furnish and install filter pack as needed.
7. Install annular well seal from the ground surface to minimum 58' deep, withdraw any temporary casing.
8. Furnish, install, and operate temporary pump for well development.
9. Furnish install and operate test pump and water level drawdown measurement.
10. Measure sand content.
11. Disinfect well with chlorine solution.
12. Obtain water sample.
13. Demobilization and removal of equipment.

11.0 WELL DRILLING METHODS

- A. The anticipated drilling method will be air rotary, mud rotary or reverse rotary.
- B. Borehole diameter and drilling sequence will depend on the drilling technique chosen by the Contractor.
- C. The borehole shall be of sufficient diameter to meet to meet IDAPA 37.03.09 and IDAPA 58.01.08 for sealing of casing and the required well seal thickness.
- D. Drilling fluid properties shall maintain the structural integrity of the borehole and to circulate drill cuttings of the strata penetrated to the ground surface. Any drilling fluid additives shall be certified to NSF Standard 60 or 61.
- E. Contractor shall sample the borehole drill cuttings at every formation change and at a minimum of 10 foot intervals below 60 feet depth. To ensure that samples are representative, the procedure for collecting borehole drill cuttings shall be approved by the Engineer. Samples shall be saved and maintained on the job site in a clean, dry area by the Contractor.

- F. Samples shall be submitted to the Engineer and Owner. The samples shall be of at least one pint volume and shall be kept in waterproof containers or heavy-duty "zip-lock" style plastic bags to be provided by the Contractor.
- G. Samples shall be clearly labeled to show project name, date and depth.
- H. Contractor shall maintain a daily drilling log of the well. Information listed on the drilling log shall include: (1) drilling fluids and additives, including quantity of materials used; (2) drilling fluid properties, including weight and viscosity; (3) type and diameter of bits used for drilling and total footage for each bit; and (4) any remarks or comments concerning the drilling characteristics of the borehole, including location and volumes of mud losses. The forms shall be kept on-site for inspection by the Owner and Engineer.
- I. All drilling fluids shall be disposed in accordance with DEQ and any other state or federal regulations.
- J. Any cost for disposal of drilling fluids and development waste water will be paid by the Contractor.
- K. Logs and records shall be kept by the Contractor on forms suitable to the Owner and Engineer and shall indicate each shift worked; general description and thickness of material penetrated; and description of all other work performed, including the time spent on each item of Work. The logs shall be recorded at the time the work is done.
- L. Copies of well drilling logs shall be furnished to the Owner and Engineer following completion of operations.
- M. The Contractor shall submit a Well Driller's Report to the Idaho Department of Water Resources.
- N. Upon completion of drilling, the Owner is allowed 72 hours to evaluate drill cuttings and geologic log prior to selecting the intervals for developing a final well design. No rig time or stand-by time will be incurred while waiting to receive zone intervals or final well design from the Owner or Engineer, nor while subsequently waiting for delivery of screen, filter pack, or other materials.

12.0 PLUMBNESS AND ALIGNMENT

- A. The Contractor shall construct the well sufficiently straight and plumb to permit free installation and operation of a test or production pump with nominal 4 inch bowls to a depth of 100 feet. The hole shall be drilled to the depth designated by the Owner or Engineer with a total deviation of the casing not to exceed one degree per 100 feet of the well. The alignment will be considered satisfactory if the casing will permit the free lowering and raising of a dummy between land surface and the bottom of the well. The dummy shall be constructed of a 40-foot length of standard 4 inch I.D. pipe. It shall be the responsibility of the Contractor to assure the well is being constructed straight and plumb within these limits at all times. Any indications of inadequate plumbness or alignment during drilling, casing, or pump setting operation shall be cause to require measurement of plumbness or alignment by a method acceptable to the Owner. No payment shall be made for tests of alignment; any such tests shall be considered subsidiary to other items in this contract.
- B. If the well has unacceptable plumbness or alignment, the Contractor shall undertake remedial measures. Any alignment required by the Contractor in re-drilling or straightening the well shall be at his sole expense. If a well is deemed unacceptable following remedial measures, then as much casing as can be removed from the well shall be salvaged by the Contractor. The well shall be abandoned in accordance with Idaho State regulations at the Contractor's expense. All payments associated with construction of the abandoned well shall be credited to construction of a replacement well.

13.0 INSTALLATION OF WELL CASING, SCREENS AND CENTRALIZERS

- A. Individual lengths of well casing and well screen shall be joined by welding performed by properly qualified operators following the manufacturer's recommendations in accordance with AWWA C206. Welds shall penetrate the full thickness of the casing wall for both permanent and temporary casing.

Welded joints shall be allowed to cure for not less than 30 minutes before weld is placed in contact with water. The standards of the American Welding Society, Structural Welding Code (AWS D1.1) shall apply for all welded joint casing and accessories. All welds shall conform to the latest revision of ANSI B31.1.

- B. Weld Reinforcement: Weld reinforcement shall be as specified by the AWS code. Upon completion of welding, all weld splatter, flux, slag, and burrs left by attachments shall be removed. Welds shall be repaired to produce a workmanlike appearance, with uniform weld contours and dimensions.
- C. The completed well casing shall extend a minimum of 18-inches above finished grade.
- D. Surface finished grade shall be at least 12 inches above surrounding natural ground level to provide slope away from the well in all directions.
- E. The top of the well casing shall be equipped with a downward screened vented well cap, as approved by DEQ and IDWR.
- F. Placement of well screens will be determined following drilling. The well screen shall be centered in the annular space.
- G. Centralizers shall be installed at intervals of no more than 60 feet. All centralizer groups shall be vertically aligned, one above the other to permit the passage of tremie pipes alongside the casing to the bottom of the borehole. Centralizer groups in well casing will be placed as follows:
 - 1. 30 feet from the surface.
 - 2. Minimum spacing every 50 feet.
 - 3. Across the first joint.
 - 4. Bottom end of the well casing.

14.0 FILTER PACK

- A. If filter pack is determined to be needed based on soil types, a gravel filter pack or sand filter pack shall be installed by tremie pipe at a uniform rate in a manner that will prevent bridging and allow for adequate pack settling. The filter pack

level shall be continuously monitored during placement to determine if bridging is occurring.

- B. Contractor shall install filter pack material and water used for washing the filter pack through the tremie pipe are adequately disinfected during installation, per ANSI/AWWA C654-87. Chlorine shall be used for disinfection unless otherwise directed by the Owner. Following installation, the pack shall be settled by swabbing or other means.

15.0 WELL SEAL

- A. An annular well seal shall provide watertight construction to exclude surface contamination, to seal off formations that are, or may be, contaminated or yield undesirable water, and to prevent artesian flow along the outside of the well casing. The annular seal shall extend from the ground surface to minimum 58 feet deep and shall be minimum 1½" thick.
- B. The borehole annulus outside the 6 inch well casing shall be sealed with bentonite chips, bentonite grout, neat cement, or cement grout. Temporary surface casing shall be removed following placement of the annular seal.
- C. If bentonite chips are used as a seal material, the top of the seal shall be tagged at nominal 10 foot intervals during placement if the seal is reaching its intended position. Pour rates shall not exceed manufacturer's recommended rates. Seal level shall be checked by tagging with a sinker bar or other means.
- D. Volumes of seal material shall be carefully monitored and checked against calculated volume requirements.
- E. Engineer and IDWR shall be notified a minimum of 24 hours prior to seal placement.
- F. Cement grouts shall be allowed to cure for a minimum of 48-hours before Work is resumed on the well.
- G. Seals shall be installed in a slow and continuous manner, and temporary casing shall be withdrawn as the seal is placed.

- H. A 50% excess of seal material shall be available at the site or within one-hour delivery time during installation of the surface seal.

16.0 WELL DEVELOPMENT

- A. The well shall be developed after installation of the casing, screen, and filter pack by surging and over-pumping (rawhiding), high pressure jetting, air-lifting, swabbing, or other methods approved by the Owner and Engineer.
- B. Contractor shall provide a well development plan for approval by the Owner prior to the start of development activities. It shall be the Contractor's responsibility to notify the Owner when the process of well development is to begin and to provide daily reports of progress during development.
- C. If a well is developed by rawhiding, the Contractor shall provide a pump capable of producing 60 gpm from a pumping level of 120 feet deep. Contractor shall note approximate pumping rate and drawdown during development pumping.
- D. If the well is developed by air-lifting, the Contractor shall have a compressor, tubing and eductor pipe to air-lift a minimum of 60 gpm average flow from 380 feet depth. Sufficient tubing or drill stem shall be available to reach the total depth of the well. It is anticipated that air development will take place in a staged manner throughout the lower portion of the well, and thus may include addition and subtraction of pipe. For preliminary testing purposes, the Contractor shall note approximate air-lift pumping rate during development.
- E. Development shall continue until the water produced from the well is clear and sand free with less than 5 ppm sand. Sand content shall be measured using a centrifugal sand sampler or other approved method.
- F. Upon completion of the development, all material shall be thoroughly cleaned from the inside of the casing and screen, and the well screens shall be cleared of residual drilling muds or other obstructions

17.0 TEST PUMPING AND AQUIFER DRAWDOWN

- A. Following completion of development operations, the well shall be allowed to recover for 24 hours prior to starting the aquifer drawdown and pumping tests.
- B. The Engineer shall be present at the start of all test pumping.
- C. Anticipated method of aquifer drawdown testing includes constant-rate pumping test at 63 gpm (150% of desired yield of 42 gpm) lasting a minimum of 6 hours.
- D. Alternately, a constant rate test at desired yield 42 gpm lasting a minimum of 24 hours may be performed if the well cannot be tested at a rate of at least 63 gpm.
- E. The test pump shall be capable of delivering 63 gallons per minute from a pumping level of 120 feet. The pump shall be set at the anticipated permanent pump level, or a minimum depth of 80 feet.
- F. Obtain sand sample at 15 minutes after start of test pumping. Sand content shall be less than 5 ppm. If sand content exceeds 5 ppm the well shall be redeveloped or shall have a filter pack installed.
- G. Contractor shall furnish and install all necessary equipment for testing, including a discharge valve or throttle to control flow rate, totalizing flow meter for accurately measuring the discharge from the well, a nominal 1-inch pipe to the top of the well to facilitate the installation and removal of an electric-line water-level sounder, and fittings for installation of a centrifugal sand sampler.
- H. Contractor shall provide testing equipment, including water level sounder and centrifugal sand sampler.
- I. Contractor shall measure and record water level, pumping rate, discharge volume, and elapsed time.
- J. Contractor shall be responsible for conveying discharged water through temporary pipe, ditches, or overland flow to a suitable disposal point approved by the Owner.
- K. Contractor shall be responsible for collecting water quality samples during the pumping test and providing to a certified testing laboratory.

- L. The Engineer shall determine if the well productivity and test duration are acceptable and meet the project requirements and that water quality meets DEQ requirements.
- M. Contractor shall be responsible for providing continuous, uninterrupted power for the test pump. The Contractor shall provide a means for safe refueling during pumping operations to prevent even brief shutdowns during the testing. Shutdowns before the end of the testing procedure in excess of 10% of the total time anticipated for this testing procedure may require the Contractor to allow the water level to recover to pre-pumping conditions and re-start the test, as determined by the Engineer.

18.0 PROTECTION OF WATER QUALITY

- A. All water used for drilling and development operations shall be of potable quality and shall be disinfected with chlorine. The Contractor shall take all necessary precautions to prevent contamination of the water in the well by the introduction of any foreign substance, including contaminated water, gasoline, lubricants, etc. and shall conform to all laws or regulations applicable to the protection of water quality.
- B. All downhole materials (i.e., casing, pipe, pumps, sand filter pack, drilling tools, etc.) shall be disinfected with 500 ppm chlorine solution.
- C. Facilities, equipment, and materials for disposing of the water produced during the development and testing of the well shall be provided by the Contractor. Water leaving the well site shall be free of chemicals and seal materials and shall not have a chlorine concentration exceeding 0.01 mg/L. Contractor shall be required to dechlorinate water to achieve an acceptable chlorine concentration and may refer to AWWA C651-92, Appendix B for direction on the neutralization of chlorinated water.
- D. Runoff from the site shall not contain sediment unless erosion control measures, approved by DEQ, are in place. Water shall not be discharged to streams, ponds,

or lakes without proper regulatory authorization. It is anticipated that clear water can be disposed near the well site.

- E. Upon completion of all well construction activities and prior to removal of test pumping equipment, the Contractor shall disinfect the well using calcium hypochlorite. Calcium hypochlorite shall be added to give an average dose of 50 mg/l to the entire volume of water in the well, per ANSI/AWWA C654-03. All interior surfaces of the well above the static water level shall be wetted with calcium hypochlorite solution. The well shall be capped with a vented well cap or sanitary well seal following disinfection.

19.0 SITE CLEANUP

- A. After completion of all Work associated with this contract, the Contractor shall clean up the Work site and any property used by his operations to the satisfaction of the Owner.
- B. Contractor shall remove and dispose of all excess materials resulting from his work, and shall repair, replace, or restore all property of any type or nature that has been moved, damaged, or altered in any way by his operations, to the satisfaction of the Owner.
- C. Contractor shall return landscaping, native plants, roadway, and adjoining surfaces to their original condition and appearance or better upon completion of Work.
- D. Contractor shall thoroughly clean the site after completion of the drilling, well construction, and test pumping operations. All excess drilling fluids, debris, and other materials used during these operations shall be removed and properly disposed of by the Contractor. Backfilled mud pits shall be compacted to 90 percent maximum dry density as determined by Standard Proctor Test (ASTM D698).
- E. Contractor shall remove equipment, temporary facilities, and materials, and leave the site in a condition acceptable to the Owner.

- F. Contractor shall repair any damage to the property or facilities caused by his operations prior to final acceptance of the Work by the Owner.

20.0 MEASUREMENT AND PAYMENT

1. The quantities of Work or material stated in unit price items of the Bid Schedule are supplied only to give an indication of the general scope of the Work. The Owner does not expressly or by implication agree that the actual amount of Work or material will correspond with quantities estimated in the Bid Schedule, and Owner reserves the right after award to increase or decrease the quantity of any unit price item of the Work, without a change in the unit price, and shall include the right to delete any Bid item in its entirety.
2. Payment for work and materials will be made based on actual quantities furnished, performed, installed or constructed in accordance with the unit prices provided in the Bid Schedule.
3. Owner may terminate Work on the project at any point if, in the Owner's judgment, the Owner's best interests are not served by continuation. Conditions which may lead to project termination include, but are not limited to, indications of low groundwater development potential as determined during drilling, soil type logging, and testing. In such an event, the Contractor shall be paid for the value of Work completed at that time based on the unit price and lump sum items listed on the Bid Schedule.
4. If well construction is terminated by decision of the Owner, the Contractor may be required to properly abandon the well in accordance with current Idaho State regulations. Well abandonment procedures will be paid for cost of work, materials and related incidental costs plus 10% to cover handling.
5. No payment shall be made for tests of borehole plumbness and alignment; it shall be the responsibility of the Contractor to ensure that the hole remains within plumbness and alignment specifications.

6. No payment shall be made for time or expenses incurred in the recovery or replacement of tools or equipment lost during the drilling phase or any other phase of the Work.
7. No payment shall be made for time, materials, or labor costs incurred during remedial measures or operations in the event the well is of unacceptable plumbness or alignment.

20.1. Permits and Fees Cost

- a. Permits and fees are initially paid by the Contractor.
- b. Payment to the Contractor by the Owner for permits and fees will be made according to the Bid Schedule for actual cost of permits and fees plus 10% for handling.

20.2. Mobilization and Demobilization Cost

- a. Payment of mobilization and demobilization to the Work site will be based upon completion of the Work as a lump sum unit. The lump sum price listed on the Bid Schedule shall constitute full compensation for the moving in of rigs, setup and takedown of rigs, pumps, equipment, power, labor, fuel, tools, and incidentals necessary to do the Work, and moving out of all such equipment, materials, tools, and incidentals, and well disinfection and final site cleanup upon completion of the Work.
- b. For purposes of partial payment, the mobilization portion of this bid item shall be considered as 60% of the total lump sum.
- c. Payment for drilling rig setup and takedown time will be included in the lump sum price for Mobilization and Demobilization listed on the Bid Schedule.
- d. Payment for rig time performing additional work not in the original contract and specifically directed by the Owner will be based on the actual number of hours of work done and shall be full compensation for drilling rig, fuel, labor, equipment, and materials normally associated with Contractor's drilling activities.

- e. Any additional materials which may be required shall be approved in advance by the Owner and Engineer and shall be paid at the Contractor's invoice cost plus 10% for handling.

20.3. Borehole Drilling Cost

- a. Measurement and payment for drilling the borehole will be based upon the actual number of vertical linear feet drilled below ground surface.
- b. Payment for drilling shall constitute full compensation for labor, fuel, bits, pipe, drive shoes, welding, drilling fluids, equipment, and incidentals necessary to drill the borehole.
- c. No payment shall be made for tests of borehole plumbness and alignment; it shall be the responsibility of the Contractor to ensure that the hole remains within plumbness and alignment specifications.
- d. No additional payment will be made for drilling fluid materials used during normal drilling operations.
- e. All costs shall be considered at the unit prices listed on the Bid Schedule.
- f. No additional payment will be made for time or expenses incurred in the recovery or replacement of tools or equipment lost during the drilling phase or any other phase of the Work,
- g. No additional payment will be made for time, materials, or labor costs incurred during remedial measures or operations in the event the well is of unacceptable plumbness or alignment.
- h. No additional payment will be made for time, materials, or labor costs incurred in abandoning a well in the event the well is of unacceptable plumbness or alignment following remedial measures, or if lost tools or equipment cannot be recovered from the borehole.

20.4. Furnish and Install Steel Well Casing Cost

- a. Measurement for payment of the nominal 6 inch steel well casing will be based upon the number of linear feet of such pipe actually installed in the borehole in

accordance with these Contract Documents and the Bid Schedule. Payment for the 6 inch casing shall constitute full compensation for materials, transportation, labor, fuel, equipment, centralizers, welding materials, and incidentals necessary to furnish and install the well casing.

20.5. Furnish and Install Stainless Steel Well Screen Cost

- a. Measurement for payment of the 6 inch pipe size stainless steel well screen will be based upon the actual number of linear feet of such screen installed in the borehole in accordance with these Contract Documents and the Bid Schedule.
- b. Payment for the 6 inch pipe size screen shall constitute full compensation for screen, welding rings, plate bottom, miscellaneous materials, transportation, labor, fuel, equipment, welding materials, and incidentals necessary to furnish and install the well screen.

20.6. Furnish and Install Filter Pack Cost

- a. Measurement and payment for furnishing and installing filter pack will be based on the actual volume of filter pack installed in the borehole in accordance with these Contract Documents and the unit price in the Bid Schedule.
- b. Payment for filter pack includes compensation for material, transportation, labor, equipment, and incidentals necessary to furnish and install the filter pack.
- c. For purposes of volume calculation, one cubic foot of sand shall be considered to weigh 100 pounds.

20.7. Furnish and Install Annular Well Seal Cost

- a. Measurement and payment for furnishing and installing the well seal will be based upon the actual number of vertical linear feet of casing sealed in the borehole in accordance with these Contract Documents and the Bid Schedule.
- b. Payment for the well seal includes compensation for bentonite, cement, materials, transportation, labor, equipment, and incidentals necessary to furnish and install the seal.

20.8. Well Development Cost

- a. Measurement for payment of well development will be based on the actual number of hours of well development operations. Payment will be made at the unit price listed in the Bid Schedule.
- b. No payment shall be made for equipment acquisition, set-up, installation or for recovery periods required to ensure thorough well development.
- c. Payment for chemicals as may be required to ensure thorough well development shall be reimbursed for the cost of the chemicals actually used at invoice cost plus 10% for handling.

20.9. Furnish and Install Test Pump and Related Equipment Cost

- a. Payment for furnishing, installing, and removing the test pump and related equipment will be based upon completion of the entire Work as a lump sum unit, all in accordance with the requirements of these Contract Documents.
- b. Payment for furnishing, installing, and removing will be at the price listed in the Bid Schedule shall constitute full compensation for all Work, including installation and removal of pump, motor, generator, cable, controls, valves, orifices, temporary piping, and associated appurtenances.

20.10. Test Pumping Cost

- a. Measurement and payment for test pumping will be based on the actual number of hours of pumping operations. Payment for test pumping will be made at the unit price listed in the Bid Schedule, and shall constitute full compensation for all labor, equipment, and materials associated with operating the pumping equipment.
- b. No payment shall be made for standby time during the recovery periods between tests or for time spent transporting or maintaining equipment. All such costs for time and maintenance materials shall be included in the unit price listed in the Bid Schedule.

- c. No payment shall be made for time, equipment, or materials used in a test aborted due to power failure or malfunction of pumping equipment.

20.11. Plugging and Abandonment Cost

- a. In the event the well, which has been successfully completed in accordance with these Contract Documents, requires plugging and abandonment, the cost for this work will be negotiated between the Contractor and Owner or will be performed by others.
- b. Costs for plugging and abandonment of the well successfully completed in accordance with these Contract Documents shall not be considered as subsidiary to other bid items in the contract.

END OF WELL CONSTRUCTION SPECIFICATIONS



Carl Geiger

Digitally signed by
Carl Geiger, PE
Date: 2017.02.06
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BID SCHEDULE OF ITEMS AND PRICES
CROSSROADS MUSEUM (CANYON COUNTY) DRINKING WATER WELL

The Bidder proposes the following schedule of prices for drilling, construction, development, and testing of one public drinking water system supply well for Canyon County (the Owner) in accordance with the well specifications. The quantities of work or material stated in unit price items of the bid are supplied only to give an indication of the general scope of the work. Payment for materials and labor will be based on actual quantities furnished, installed, or constructed in accordance with the prices bid for unit price items. The bidder is solely responsible for completing all spaces below. The bidder is responsible for the inclusion of all overhead, taxes, and profit costs within each item submitted.

Item	Description	Estimated Quantity	Unit	Unit Price	Total Amount
1	Mobilization and demobilization	1	lump sum	\$ _____	\$ _____
2	Drill min 10-inch borehole	100	linear foot	\$ _____	\$ _____
3	Furnish and install 6-inch I.D. steel casing	82	linear foot	\$ _____	\$ _____
4	Furnish and install 6-inch I.D. well screen	20	linear foot	\$ _____	\$ _____
5	Furnish and install sand filter pack	40	linear foot	\$ _____	\$ _____
6	Furnish and install annular well seal	60	linear foot	\$ _____	\$ _____
7	Well development	12	hours	\$ _____	\$ _____
8	Furnish, install, and remove test pump and related equipment	1	lump sum	\$ _____	\$ _____
9	Test pumping	8	hours	\$ _____	\$ _____
10	Rig time	2	hours	\$ _____	\$ _____
Total				\$ _____	

Submitted by: _____
Signature

Title

Company

Address

Idaho Well Contractors License

Telephone Number

Date

SECTION 15150
DISINFECTION OF POTABLE WATER LINES

PART 1 -- GENERAL

1.1 SCOPE

- A. Contractor shall provide all equipment and work necessary for the flushing and disinfection of all pipelines installed as part of the Contract Documents. Flushing, disinfection, and testing to confirm the pipeline is free from contamination shall occur prior to the pipeline being placed in service and before certification of completion by the Engineer.
- B. Contractor shall disinfect pipe and appurtenances per this Specification and in accordance with ISPWC Section 401 and AWWA C651, "Disinfecting Water Mains". Where conflicts arise, the Contractor shall adhere to the more stringent requirement.
- C. The Contractor shall be responsible for obtaining permits for discharging excess testing and disinfection water and dechlorination of such water if required to satisfy permit limits.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. Chlorine, form shall be pre-approved by the Engineer.

PART 3 -- EXECUTION

3.1 FLUSHING

- A. Prior to disinfection, the pipeline shall be flushed at a minimum velocity of 2.5 feet per second. Contractor shall refer to ISPWC Section 401 for flow required to produce minimum required velocity for pipelines of various diameters.
- B. Flushing shall occur following hydrostatic testing as described in Specification Section 15160.

3.2 DISINFECTION

- A. The Contractor shall introduce chlorine into the pipeline in accordance with ISPWC Section 401 and AWWA C651.
- B. Method of chlorination shall be pre-approved by the Engineer.
 - 1. When using calcium hypochlorite tablets or granules, a minimum solution strength of 25 mg/L chlorine shall be maintained. Tablets or granules shall be used only if pipe and appurtenances are kept clean and dry during installation. Place granules at the upstream end of the first pipe section and branch main and every 500 feet thereafter. Quantity shall be per Table 2 in ISPWC Section 401. Place tablets in each section of pipe and in each hydrant using proper adhesive. Quantity shall be per Table 3 in ISPWC Section 401. After granules or tablets are placed, Contractor shall fill pipe with clean water at a velocity of less than 1 fps. Water shall remain in pipe for a minimum of 24 hours.

2. For the continuous feed method, Contractor shall maintain chlorine dose of 25 mg/L over a period of 4 hours and a residual of 10 mg/L over 24 hours. Direct feed of chlorine will not be permitted, a chlorine solution of 25 mg/L shall be introduced into the pipeline using approved methods until the entire pipeline is filled with solution. The solution shall be made with clean water.
 3. For the slug method, a solution strength of 100 mg/L shall be introduced into the pipeline at a rate to expose the pipeline to the solution for a minimum of 3 hours. A residual of at least 50 mg/L shall be maintained as the slug progresses through the pipeline. If the residual drops below 50 mg/L, additional solution shall be added to achieve a concentration of 100 mg/L.
- C. Following chlorination, the chlorinated solution shall be flushed from the pipeline until the concentration is typical for normal system operation (for systems that do not chlorinate the residual shall be zero). The concentration shall not exceed 4 mg/L.
- D. Chlorinated water shall be disposed of in accordance with federal, state, and local requirements. Where applicable, the Contractor shall obtain appropriate permits from regulatory agencies before discharging chlorinated water to the environment. Appropriate contacts and disposal methods vary depending upon the location where the chlorinated water will be disposed, as summarized below:
1. For discharge to surface waters of the United States, including indirectly through storm sewers, ditches, or canals, the Contractor shall contact the Environmental Protection Agency (EPA) Region 10 Permitting Section to determine if a NPDES permit is required. The EPA may refer the applicant back to the Idaho Department of Environmental Quality (IDEQ) Surface Water Group for consultation regarding the discharge. Typically, any discharge to surface waters must at a minimum comply with the following requirements of the State of Idaho Water Quality Standards (IDAPA 58.01.02):
 - a. The maximum instantaneous or 1-hour average concentration of the total chlorine residual of the discharge must not exceed 19 µg/L more than once every three years. This is the acute criteria for chlorine.
 - b. The 4-day average concentration of the total chlorine residual of the discharge must not exceed 11 µg/L more than once every three years. This is the chronic criteria for chlorine.
 - c. Dechlorination of chloramines can create ammonia. The 1-hour average concentration of total ammonia (mg/L N) must not exceed the acute criteria value more than once every three years. The acute criteria value is dependent upon temperature and pH and is calculated using the applicable equation in §250.02.d.i of the State of Idaho Water Quality Standards. The 30-day average concentration of total ammonia (mg/L N) must not exceed the chronic criteria value more than once every three years. The chronic criteria value is dependent upon temperature and pH and is calculated using the applicable equation in §250.02.d.ii of the State of Idaho Water Quality Standards.
 - d. IDEQ may consider the effects of the mixing zone where the discharge enters the receiving body when evaluating allowable concentrations of total residual chlorine.

2. For discharge to sanitary sewer, the Contractor shall consult with the local sewer department and request approval to discharge into the sewer. The Contractor must verify with the sewer department that there is adequate capacity in the sewer mains to accommodate the discharge and that the wastewater treatment plant can accept the discharge.
 3. For land application of the chlorinated water, the Contractor must receive approval from the land owner to discharge the water. The Contractor shall also contact the IDEQ Regional Office Engineering Group to confirm any permitting requirements.
- E. If required by federal, state, or local agencies, the Contractor shall dechlorinate chlorinated water before disposal using a chlorine-neutralizing agent. The Contractor shall refer to AWWA C651 Appendix C as a guide for the amount of neutralizing agent required. The Contractor shall consult with the appropriate jurisdictional body on maximum allowable concentrations of de-chlorination chemicals prior to discharge.
- F. Following chlorination and flushing and prior to placing the pipeline into service, the Contractor shall collect 2 samples for coliform bacteria 24 hours apart. Samples shall be collected every 1,200 feet of mainline and from every branch. If samples contain total coliform, the pipeline shall be re-flushed and re-sampled. If samples again show presence of bacteria, the pipeline shall be re-chlorinated, flushed, and re-sampled until clean samples are obtained. The Contractor will be required to schedule work to accommodate twenty-four (24) to forty-eight (48) hours of test "turn-around" time in order to provide the proper incubation period for the bacteria samples.

- END OF DISINFECTION OF POTABLE WATER LINES -

SECTION 15160
HYDROSTATIC TESTING OF PRESSURE PIPE

PART 1 -- GENERAL

1.1 SCOPE

- A. All pipelines installed as part of the Contract Documents, complete with valves, fittings and other facilities, shall be hydrostatically tested in accordance with this Specification, ISPWC Section 401, AWWA C600 (ductile iron mains), C605 (PVC), or ASTM F2164-02 (HDPE). Where conflicts arise, the Contractor shall comply with the more stringent requirement.
- B. The pipelines shall be tested after they have been installed and filled with water for a minimum period of twenty-four (24) hours. The test pressure shall be at one hundred fifty (150) psi or fifty (50) percent greater than the operating pressure at the lowest point in the pipeline being tested, whichever is greater. The hydrostatic tests shall include all piping in its entirety.
- C. All materials necessary to conduct the hydrostatic testing shall be the responsibility of the Contractor and must be approved by the Engineer or his representative. The same main line leakage maximum shall include all services, taps and /or cut-ins installed by the Contractor. All hydrostatic tests shall be conducted in the presence of the Engineer.
- D. The hydrostatic test shall be made after backfilling has been completed but before placement of any required surface repair. A test shall be made only after a part or all backfilling has been completed and at least seven (7) days after the last concrete thrust block has been cast with standard cement. The duration of the hydrostatic test shall be two (2) hours unless otherwise directed by the Engineer.
- E. Contractor shall provide Engineer written notice 24 hours prior to hydrostatic testing. Contractor shall furnish a written test report to the Engineer upon completion of successful testing.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. Potable Water

PART 3 -- EXECUTION

3.1 WORKMANSHIP

- A. **Procedure.** Each section of pipeline shall be slowly filled with water, and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer. The Contractor shall provide the complete means of conducting the hydrostatic test including pumps and all related equipment.
- B. During the filling of the pipe and before the application of the specified test pressure, all air shall be expelled from the pipeline, if necessary, by means of taps at point of highest elevation, and, after completion of the test, the taps shall be tightly plugged, unless

otherwise specified. During the test, all exposed pipe, fittings, valves, hydrants, and couplings shall be carefully examined. Any joint at which the accumulated leakage exceeds the rate as specified in the following table shall be rejected. All cracked or defective elements shall be removed and replaced by the Contractor at his expense. The test shall then be repeated until the results are satisfactory to the Engineer.

MECHANICAL PIPING - ALLOWABLE LEAKAGE PER TOTAL NUMBER OF FITTINGS GPH

$$L = \frac{SD\sqrt{P}}{7,400}$$

Where:

- L = allowable leakage, in gallons per hour
- N = Number of Joints
- D = nominal diameter of the pipe, in inches
- P = average test pressure during the leakage test, in pounds per square inch (gauge)

DISTRIBUTION PIPING - ALLOWABLE LEAKAGE PER 1000 FEET OF PIPELINE* GPH

$$L = \frac{SD\sqrt{P}}{148,000}$$

Where:

- L = allowable leakage, in gallons per hour
- S = length of pipe tested, in feet
- D = nominal diameter of the pipe, in inches
- P = average test pressure during the leakage test, in pounds per square inch (gauge)

Table 1. Maximum Accumulated Leakage Rate Allowed per 1,000 feet of pipeline (gph)

Nominal Pipe Diameter (Inch)													
Pressure (psi)	2	3	4	6	8	10	12	14	16	18	24	30	36
350	0.25	0.38	0.51	0.76	1.01	1.26	1.52	1.77	2.02	2.28	3.03	3.79	4.55
325	0.24	0.37	0.49	0.73	0.97	1.22	1.46	1.71	1.95	2.19	2.92	3.65	4.39
300	0.23	0.35	0.47	0.70	0.94	1.17	1.40	1.64	1.87	2.11	2.81	3.51	4.21
275	0.22	0.34	0.45	0.67	0.90	1.12	1.34	1.57	1.79	2.02	2.69	3.36	4.03
250	0.21	0.32	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.56	3.21	3.85
225	0.20	0.30	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.43	3.04	3.65
200	0.19	0.29	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	2.29	2.87	3.44
175	0.18	0.27	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	2.15	2.68	3.22
150	0.17	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.99	2.48	2.98
125	0.15	0.23	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.81	2.27	2.72
100	0.14	0.20	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.62	2.03	2.43

*For pipe with 20-foot nominal lengths.

- C. **Overall Leakage.** No pipe installation will be accepted until or unless the leakage for the section of pipeline being tested is less than the rate of leakage specified in the above tables. In calculating leakage, the Engineer will allow for the number of joints added to the pipeline, owing to the use of pipe lengths shorter than the standard twenty (20) feet for PVC pipe, and the standard eighteen (18) feet for ductile iron pipe, for which the data in the above tables apply. If the leakage in any section of pipeline tested is greater than that permitted, the Contractor shall locate and repair the defective joints at his own expense until the leakage is within the permitted allowance.
- D. All locations with visible leakage shall be repaired to the satisfaction of the Engineer.

- END OF HYDROSTATIC TESTING OF PRESSURE PIPE -

The 1978 R Wd Construction Standards Rules Section 35 establishes the Health Standards for well drilled in Idaho. Section 35B, Supply states, All wells that are constructed for public supply of domestic water shall, in addition to meeting these standards, meet the requirements set forth by the Idaho Department of Environmental Quality Rules, IDAPA 84.01.08, "Rules for Public Drinking Water Systems". Additionally, the 1978 R Wd Construction Standards Rules Section 35C, Distance from Contaminant Sources, Section 35C(3) states, "Distances from Contaminant Sources. All wells for domestic water supply shall be constructed at minimum distances from septic tanks, drainfields, drainfield replacement areas, and other source requirements of the Idaho Department of Environmental Quality and the appropriate District Health Department."

The following table is a listing of the setback distances (in feet) as found in D1Q rules/DHSD guidelines, or the Uniform Plumbing Code (UPC). Please note that the 10 States Standards for Water and Wastewater (38.2 on page 38-11) for Wastewater refer the reader to local state codes and ordinances for specific setback distances.

[illegible]

1. *Journal of the American Medical Association*, 274:1033-1034, 1995

LOCATED IN SECTION 36, TOWNSHIP 1 SOUTH, RANGE 2 WEST, DM

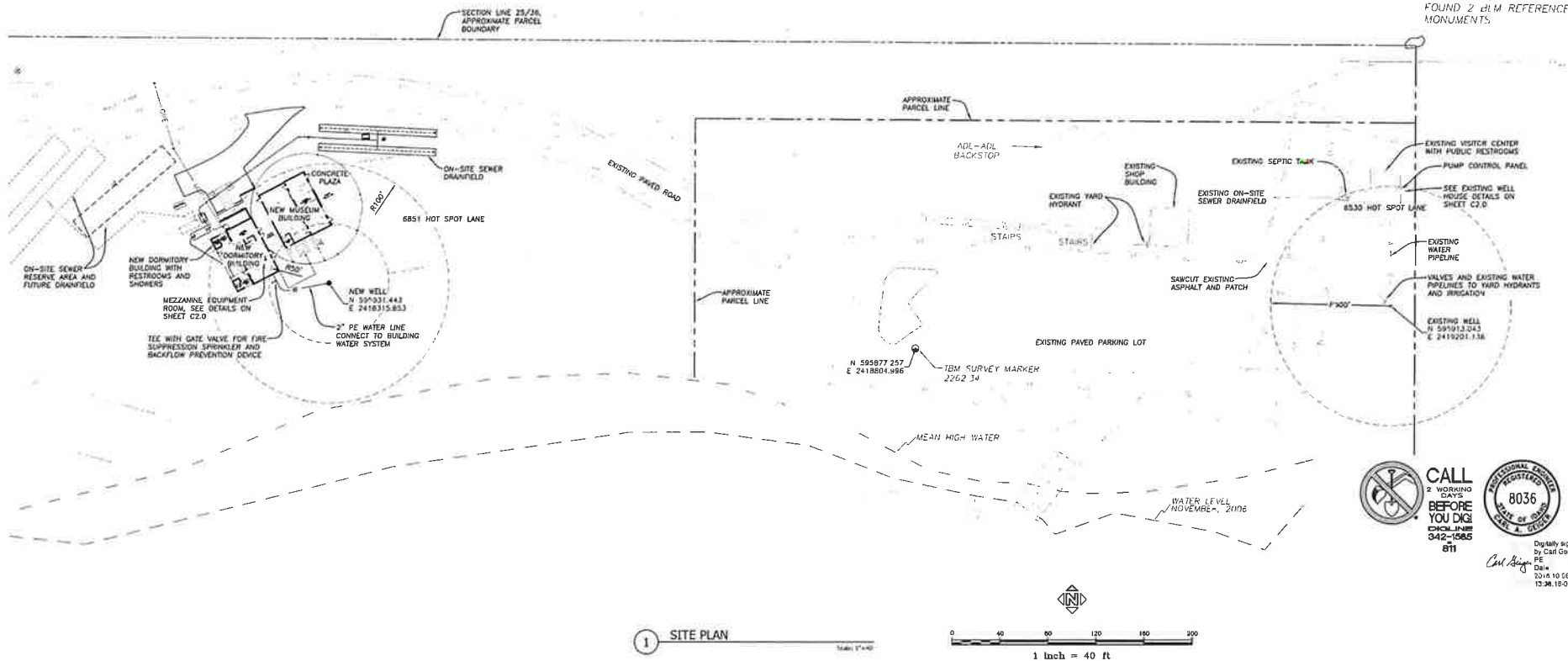
CELEBRATION PARK
CANYON COUNTY PARKS & RECREATION
6851 HOT SPOT LANE
MELBA, CANYON COUNTY, IDAHO
PARCEL NO. R2836400000
SECTION 36, TOWNSHIP 1S, RANGE 2W
N 43.299351'
W 116.521862'

EXISTING CONDITION (SCREENED)
PROPERTY LINE
EASEMENT
EXISTING GRADE CONTOUR
FRESH GRADE CONTOUR
SEWER
WATER
STORM DRAIN
UNDERGROUND POWER
CAS
TELEPHONE
DRAINAGE SWALE

3. EXISTING SITE CONDITIONS AND GROUND CONTOURS ARE TO BE DETERMINED BY A SURVEY BY TREASURE VALLEY ENGINEERS, INC. (TVE) AND THE RESULTS OF THE SURVEY ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED IMMEDIATELY TO THE OWNER AND THE ENGINEER.
4. LOCATION OF EXISTING SITE IMPROVEMENTS AND EXISTING UTILITY LOCATIONS ARE TO BE SHOWN ON THE PLANS. LOCATIONS ONLY. CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION OF EXISTING UTILITY LOCATIONS AND EXISTING SITE IMPROVEMENTS. LOCATIONS SHALL BE LOCATED AND MARKED PRIOR TO EXCAVATION. CALL DIALING, 342-1585.
5. THE SITE WORK CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (SPWIC), IDAHO DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, AND THE STANDARD SPECIFICATIONS (SSWIC), IDAHO DIVISION OF PUBLIC SAFETY (DPS), CALIFORNIA COUNTY REQUIREMENTS, GSA AND ALL OTHER APPLICABLE STATE AND FEDERAL REQUIREMENTS.
6. WORK SUBJECT TO APPROVAL BY THE DESIGN ENGINEER, OWNER, HEALTH DEPARTMENT, BUILDING DEPARTMENT, CANYON COUNTY, AND THE CITY OF CANYON. CONTRACTOR SHALL BE RESPONSIBLE TO COVER OR BACKFILLING TRENCHES FOR PIPE.
7. CONTRACTOR SHALL HAVE AN APPROVED SET OF PLANS & SPECIFICATIONS FOR THE PROJECT. THE LATEST CURRENT APPROVED PLAN SETS SHALL BE USED AT THE SITE.
8. PROPOSED CHANGES TO PLANS MUST BE APPROVED BY THE ENGINEER AND RECORDING RECORD PRIOR TO CONSTRUCTION.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR RECORD DRAWING INFORMATION.

8. **NON POTABLE PIPELINES, SUCH AS SEWER, STORMDRAIN AND IRRIGATION, SHALL BE LOCATED AT LEAST 10 FEET FROM WATER PIPES.**
9. **PROTECT SNAKE RIVER FROM SEDIMENT AND RUNOFF DURING CONSTRUCTION. USE FIBER MATS/IES OR SILT FENCE. SEE FLOOD CONTROL WATER POLLUTION PREVENTION PLAN AND REPORT (SWPPP).**
10. **CONTRACTOR SHALL PROTECT ADJACENT PROPERTIES AND ROADWAY FROM DAMAGE DURING CONSTRUCTION.**
11. **WATER SERVICE PIPELINE SHALL BE CURED 40 PVC OR POLYETHYLENE PER ASTM D-3348, DR-11, 16 LBS. NSF 150. ALL JOINTS SHALL BE PROTECTED WITH JOINT PROTECTANT, DISINFECT AND FLUSH SERVICE PIPELINE IN ACCORDANCE WITH THE CITY OF SALT LAKE COUNTY SPECIFICATIONS.**
12. **POTABLE WATER PIPELINES SHALL BE SEPARATED FROM NON-POTABLE PIPELINES BY AT LEAST 10' HORIZONTALLY WHERE THE NON-POTABLE PIPELINE IS DEEPER THAN THE POTABLE WATER PIPELINE. THE NON-POTABLE PIPELINE SHALL BE PERPENDICULAR WITH AT LEAST 18" CLEARANCE BELOW THE POTABLE PIPELINE. THE NON-POTABLE PIPELINE SHALL BE PERPENDICULAR AS POSSIBLE, IF 90° VERTICAL SEPARATION IS NOT POSSIBLE, THE NON-POTABLE PIPELINE SHALL BE CONSTRUCTED WITH A SINGLE UNJOINTED PIPELINE OF WATER SERVICE GRADE. THE NON-POTABLE PIPELINE SHALL BE CONSTRUCTED FROM THE CROSSING ALTERNATELY, THE NON-POTABLE PIPELINE CAN BE ENCASED IN A WATER GRADE PIPELINE FOR 10' IN BOTH DIRECTIONS OF THE CROSSING.**
13. **WATER PIPELINE SHALL BE CONSTRUCTED WITH MINIMUM 4'-0" EARTH COVER.**
14. **THRUST BLOCK ALL PRESSURE PIPELINES AND FITTINGS PER**

FND STONE PER BLAKELY
SURVEY N1/4 CORNER
SECTION 36
FOUND 2 BLM REFERENCE
MONUMENTS



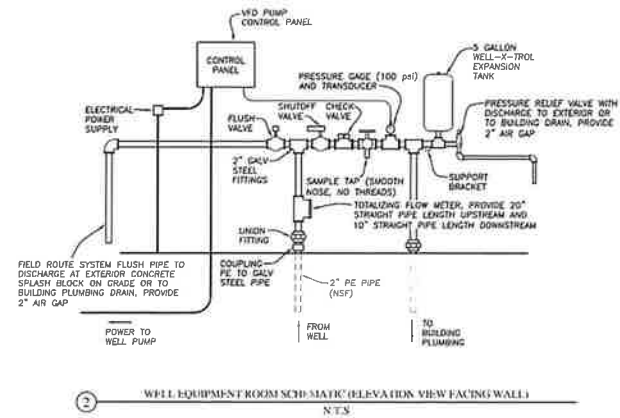
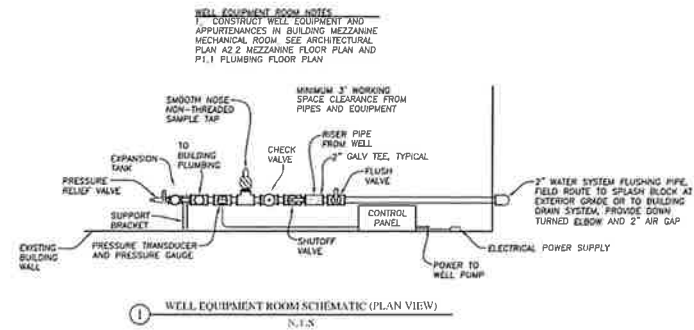
Focus Engineering

PROJECT NO: 16410
DATE: 10-06-16
DESIGN BY: C/
REVISION:

Celebration Park Water System
6851 Hot Spot Lane
Canyon County, Idaho

WATER SYSTEM SITE PLAN

C1.0



CALL
 3 WORKING DAYS
BEFORE YOU DIG
 811
 342-1585



Digitally signed by Carl A. Ringer
 DN: cn=Carl A. Ringer, o=Professional Engineer, ou=State of Idaho, email=carl.ringer@idaho.gov, c=US

Focus Engineering
 5100 American Road, Suite 100
 Boise, Idaho 83725
 (208) 342-1585
 www.focuseng.com

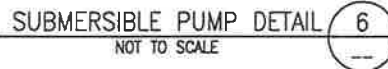


PROJECT NO: 15410
 DATE: 10-06-16
 DESIGN BY: CAG
 ON:

Celebration Park Water System
 6851 Hot Spot Lane
 Canyon County, Idaho

WELL EQUIPMENT
DETAILS

C2.0



PROJECT # 1374.0010

1. PITLESS ADAPTER SHALL BE WATER SYSTEMS COUNCIL APPROVED.
2. PITLESS ADAPTER SHALL BE PRESSURE TESTED USING DEQ CRITERIA PRIOR TO ACCEPTANCE BY OWNER.
3. THE ANNULAR SEAL AROUND THE CASING SHALL BE REPLACED FOLLOWING INSTALLATION.
4. PUMP SHALL BE SET AT APPROXIMATELY 63 FEET.
5. CHECK VALVE SHALL BE INSTALLED 20 FEET ABOVE PUMP.
6. MOTOR CABLES SHALL BE SIZED TO LIMIT VOLTAGE DROP TO LESS THAN 5% ELECTRICAL CABLE SHALL BE FIRMLY ATTACHED TO THE DROP PIPE W/STAINLESS STEEL STRAPS AT EACH COUPLING.
7. 1" SOUNDER TUBE SHALL BE ATTACHED TO DROP PIPE WITH STAINLESS STEEL STRAPS EVERY 20 FEET. TERMINATE AT TOP OF PUMP.
8. GRADE AREA AROUND WELL TO DIVERT SURFACE WATER AWAY FROM WELL.
9. SUBMERSIBLE PUMP SHALL BE CAPABLE OF PUMPING 42 GPM AT A TOTAL DYNAMIC HEAD OF 200 FEET. THE WELL HAS NOT BEEN CONSTRUCTED OR TESTED. PUMP SELECTION IS PRELIMINARY AND MAY CHANGE BASED ON ACTUAL WELL CAPACITY.
10. NO WATER FACILITIES SHALL BE CONSTRUCTED PRIOR TO RECEIPT OF IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY (IDEQ) APPROVAL. THE CONTRACTOR SHALL KEEP A COPY OF IDEQ-STAMPED PLANS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.

BID SCHEDULE OF ITEMS AND PRICES
CANYON COUNTY CROSSROADS MUSEUM WELL PUMPING SYTEM

The Bidder proposes the following schedule of prices for furnishing and installing piping, pump, electrical, and related equipment at the Crossroads Museum as necessary to construct a complete and functional well pumping system. The bidder is solely responsible for completing all spaces below. The bidder is responsible for the inclusion of all overhead, taxes, and profit costs within each item submitted.

Item	Description	Total Amount
1	Well variable speed drive, harmonic filtration, pressure transducer	\$ _____
2	Conduit and conductor from museum mechanical room to well	\$ _____
3	Mechanical piping, valves, flow meter, pressure tank, gauge, and sample tap	\$ _____
4	Buried piping, including approximately 10 feet of stainless steel waterline and approximately 90 feet of PE pipe	\$ _____
5	Installation of 4-inch submersible pump, motor, submersible pump cable, drop pipe (63 ft), sounding tube, well cap, and pitless adapter	\$ _____
6	Startup	\$ _____
	Total	\$ _____

Submitted by: _____
Signature

Title

Company

Address

Public Works Contractors License

Telephone Number

Date



IDAHO DEPARTMENT OF
WATER RESOURCES

322 E Front Street, Suite 648, Boise ID 83702 • PO Box 83720, Boise ID 83720-0098
Phone: 208-287-4800 • Fax: 208-287-6700 • Email: idwrinfo@idwr.idaho.gov • Website: idwr.idaho.gov

Governor Brad Little

Director Gary Spackman

July 8, 2022

CANYON COUNTY
PARKS AND RECREATION
1115 ALBANY ST
CALDWELL ID 83605

PROOF ACKNOWLEDGEMENT LETTER

RE: Permit No. 63-34359

Dear Permit Holder:

The Department acknowledges receipt of the proof of beneficial use form submitted for the above referenced permit. The next step in the process of developing a water right is for the Department to conduct a field examination to determine and confirm the use being made of the water.

Please be advised that Idaho Code § 42-248, requires you or the owner of this water right to maintain current ownership and address records on file with the Department. Forms to file a change of ownership of a water right and/or a change in the address of the water right owner are available from any Department office or at the Department's website at www.idwr.idaho.gov.

If you have any questions concerning the field examination, please contact the Western Region Office of the Department located in Boise at (208) 334-2190.

Sincerely,

Debbi Judd
Technical Records Specialist

Enclosures

c: HDR INC – *via email*