Canyon County, 111 North 11th Ave. Suite 310, Caldwell, ID 83605
(208) 454 7458 ▪ zoninginfo@canyoncounty.id.gov ▪ www.canyoncounty.id.gov

Memo

To: For file CR2022-0005
From: Michelle Barron
Date: July 19, 2024
Re: CR2022-0005 Verhoeks - BOCC requested information update

At the BOCC hearing held on February 8, 2024, the Board requested the following items:

a. The applicant provide information addressing the viability of 29 septic systems on this property, and how far they will migrate to any of the other surface wells that are immediately adjacent. They also had concerns about the basalt, lava, and other rock close to the surface.
b. Response times of fire, police and ambulance.
c. The viability of this applicant's responsibility for schools.

Staff was also directed to bring back draft conditions of approval that, if the conditional rezone is approved, would be added to a Development Agreement.

The applicant submitted a packet of information to Development Services on May 31, 2024. After thorough review by DSD staff and a deadline for additional information, the applicant has stated they are ready to take the attached information back to the Board.

Full noticing to agencies, the newspaper and neighbors will be completed once the hearing is scheduled.

Attached are minutes from BOCC February 8, 2024 hearing, email correspondence between applicant and planner, and applicant submission with additional information requested from Board along with proposed conditions of approval from the applicant.

BOCC Minutes 2/8/24

Commissioners Minutes
February 8, 2024 – 1:35 p.m. to 4:53 p.m.
PUBLIC HEARING – REQUEST BY TANNER VERHOEKS OF HAVEN IDAHO FOR A CONDITIONAL REZONE FROM AN "A" (AGRICULTURAL) ZONE TO A "CR-R-1" (CONDITIONAL REZONE - R-1 RESIDENTIAL) ZONE, CASE NO. CR2022-0005
Commissioners Brad Holton and Leslie Van Beek
Deputy PA Zach Wesley, DSD Planner Michelle Barron, DSD Assistant Director Jay Gibbons, DSD Director Sabrina Minshall, In favor: Tanner Verhoeks, Joe Stewart, Robbie Reno, Rick Brown, Justin Ruthenbeck, Hethe Clark, Samantha Hammond, Todd Lowell, Julia Ruis, Emily Niel, Nathan Orchard, Kyle Belknap, Jena Cloy; Neutral: Terry Scanlan; Opposition: Sue Marostica, Victor Marostica, Ted Zahradnicek, Tom Zahradnicek, Ronald Plummer, Jim Danes, Irene Chavolla, Doug Stittsworth, Cynthia Atnip, Polly Plummer, Linda Emry, Roxanne Geyer, Dewight Higel, Gary Geyer, Larry Peterson, Russ Johnson, Curtis Kessel, Mike Fast, Brad Smith, Kimberly Smith, and other interested citizens

Deputy Clerk Monica Reeves Monica Reeves

PUBLIC HEARING – REQUEST BY TANNER VERHOEKS OF HAVEN IDAHO FOR A CONDITIONAL REZONE FROM AN "A" (AGRICULTURAL) ZONE TO A CR-R-1 (CONDITIONAL REZONE- R-1 RESIDENTIAL) ZONE, CASE NO. CR2022-0005

The Board met today at 1:35 p.m. to conduct a public hearing in the matter of a request by Tanner Verhoeks of Haven Idaho for a conditional rezone of parcels R28963, R2891010, R2891011 and, R28961, approximately 43.95 acres, from "A" (Agriculture) to CR-R-1 (Conditional Rezone – R-1 Residential), Case No. CR2022-0005. The subject property is located at 9814 Robinson, Nampa. Present were: Commissioners Brad Holton and Leslie Van Beek, Deputy PA Zach Wesley, DSD Planner Michelle Barron, DSD Assistant Director Jay Gibbons, DSD Director Sabrina Minshall, In Favor: Tanner Verhoeks, Joe Stewart, Robbie Reno, Rick Brown, Justin Ruthenbeck, Hethe Clark, Samantha Hammond, Todd Lowell, Julia Ruis, Emily Niel, Nathan Orchard, Kyle Belknap, Jena Cloy, Neutral: Terry Scanlan, In Opposition: Sue Marostica, Victor Marostica, Ted Zahradnicek, Tom Zahradnicek, Ronald Plummer, Jim Danes, Irene Chavolla, Doug Stittsworth, Cynthia Atnip, Polly Plummer, Linda Emry, Roxanne Geyer, Dewight Higel, Gary Geyer, Larry Peterson, Russ Johnson, Curtis Kessel, Mike Fast, Brad Smith, Kimberly Smith, and other interested citizens; and Deputy Clerk Monica Reeves. As part of Commissioner Holton's opening statements, he informed the audience that Commissioner Zach Brooks felt he had too much conflict of interest to attend today's hearing, although he didn't give any specifics or allude to what that was he is a very fair man and Commissioner Holton said he will honor his decision not to attend. Neither Commissioner Van Beek nor Commissioner Holton had any conflicts of interest or declarations to make pertaining to this hearing.

DSD Principal Planner Michelle Barron gave the oral staff report. The request includes a development agreement to limit residential development to 29 lots with a public water system. On February of 2023, the P&Z Commission recommended denial of the application. On September 14, 2023, the Board remanded the case back to the P&Z Commission so they could consider the updated information. On November 2, 2023, the P&Z Commission heard the case again with updated information and evidence and they recommended denial of the application. The items the Commission had not seen or used in their decision included a new recommendation from the Kuna School District, an agreement to place a monitoring well that has been made between the applicant and Idaho Department of Water Resources (IDWR). A pumping test was conducted to gain information about the impact on groundwater from the development. The applicant has also firmed up irrigation and drainage issues, along with a landscaping plan that will be addressed at the time of platting. The developer also had a traffic threshold analysis completed. Principal Planner Barron reviewed the parcel and land division history. A preliminary plat for Haven Creek Subdivision was submitted concurrently with the conditional rezone application, but it has been on hold until the conditional rezone conditions are decided upon. The future land use designation in the 2020 comprehensive plan is residential. The property is located within the Nampa impact area and has a future land use designation of low-density residential. The City of Nampa recommended denial because they would like to see smaller lots sizes with a maximum of 32,000 square feet. There was a review of the soil information, and it was noted there are 13 subdivisions in the area. The proposed plan aligns with three goals and six polices of the comprehensive plan. The City of Nampa has said connection to city water is not feasible at this time and current city sewer capacity would be insufficient to serve the development. There was a review of the concerns related to water and sewage disposal. Concerns from neighboring property owners include water quantity for the proposed use, additional traffic, smaller lot sizes and the loss of productive agriculture in the area. The applicant submitted possible conditions to add to a development agreement if the request is approved.

<u>The following people testified in support of the request:</u>

The applicant, Tanner Verhoeks of Haven Idaho, testified the property is located on Robinson Road, south of Lewis Lane and is very close to Kuna and is designated by both the County and the City of Nampa as low-density residential. There are 140 existing homes surrounding the subject property to the north, south, east, and west. The most common lot size is 0 to 1 acre; there are 27 small parcels in the staff report, the remainder are from 1 acre to 5 acres. The lots in the project are between 1 and 2 acres. Mr. Verhoeks said the project could propose R-R zoning, R-1 zoning, or urban density, but they are proposing somewhere between R-R and R-1 suited for the transitional character of the area. He reviewed the concept plan which includes a pressurized irrigation system with a storage pond along with a community well system. There will be meandering curved roads, and three protected cul-de-sacs which are meant to keep the rural character without lining up houses cookie cutter style. They invited neighbors to brainstorm the 6 areas of concern and they took the best ideas and included them in their plan. The single biggest concern was the potential impact to wells, so they adopted a community water system to have

one shared system instead of 29 individual wells. It will be over 200 feet for a reliable arsenic-free water system, and they have started thinking how to invite neighbors to connect to the system if they are worried about their shallow wells. Residential use will use drastically less water than existing irrigation water rights let them use. The largest agricultural production nearby is Stewart Dairy, and they support the project as it creates a transitional buffer between city density and production agricultural areas. The developer has a signed agreement with Kuna School District that will allow students at Swan Falls High to design and construct a home at Haven Creek as part of their construction trades education program and they are giving one of their lots to the school and will donate time to help the students learn practical skills in the trades. Mr. Verhoeks reviewed images of what Community of the Country looks like, it will be an artistic inspiration with the rural rustic feel with extra setbacks with a landscape buffer and median planting at the entrance to the subdivision, and it consist of small acreage homes. Staff originally determined the project met all eight standards of the code, but the P&Z Commission made a different recommendation. The comprehensive plan directs residential development to property like this which is already surrounded by housing. It's appropriate and compatible with the area. The proposed water and septic approaches have been measured and shown to be compatible, and the traffic is compatible. He spoke about the lot sizes in the area and said having a variety of housing options in a large area is healthy and will meet the housing needs. If we cannot build houses at a location that is consistent with the comprehensive plan, inside of an area of impact, consistent with the future land use maps, in an area of transition already surrounded by houses, supported by production agriculture, including community water with mitigations included for impacts, and with lot sizes larger than others in the vicinity, how we will build anywhere? Following his testimony, Mr. Verhoeks responded to questions from the Board. In regard to questions about the school district, Mr. Verhoeks said by donating a lot, having a house built, and the school district being allowed to sell that lot, they will surpass the district's voluntary mitigation fee of $90,000 they request from developers. They are providing funds for capital improvements, but also of a large educational impact. Hethe Clark, the applicant's counsel, responded to questions regarding their communication with the Kuna School District and they have indicated they can serve the project's students.

Joe Stewart, who represents Stewart Dairy and farms in the property, believes the applicant has presented a thorough plan and said if it fits the comprehensive plan he does not oppose it. He said as a neighboring landowner, you want the rights of your property and the best value and opportunity. He said he opposed a different application due to a rights issue through access of property and because it was building a home of rehabilitation that was a risk to the neighborhood. Mr. Stewart said the valley is growing and homes are part of that growth.

Robbie Reno offered testimony on behalf of the Kuna School District regarding the overcrowding and failed bond issues the school district faces. The school board has asked him to meet with developers because they are coming and there has been no mitigation to help that. Idaho is one of two states that have zero impact fees and require a supermajority of bond passage. With current enrollment this development will feed into Crimson Point Elementary which is at 86%

education capacity, and Kuna Middle School which is at 96% capacity, and eventually into Kuna High and Swan Falls High Schools which are at 103% capacity. He said this development team has asked how they can help and what mitigation measures they can take. The district is proud to partner with this developer because it will provide some mitigation and learning opportunities for the kids, and there is an opportunity where the revenues created will go into a capital improvement fund. Following his testimony, Mr. Reno responded to questions from the Board regarding the school district's capital needs.

Rick Brown is the construction trades teacher at Swan Falls High School, and he will be working on the partnership where students will work on the construction of a house, and he spoke of the benefits in terms of planning, budget, and being involved in the development project on the subject property. They are looking at having a builder and developer involved where the students can work a day or two on site and return to the classroom and study for the next phase. They will be involved in the processes, but not responsible for the processes taking place. Following his testimony, Mr. Brown responded to questions from the Board.

Justin Ruthenbeck testified about the hours the development team has spent speaking with neighbors, consultants, and other stakeholders discussing the issues in the community such as shallow wells, grading, drainage, water quality, schools, and traffic. The project developers are motivated to help solve the problems and allow the neighbors to be part of the community water system. The project says yes to the school district and to production agriculture. The project says no to people who claim this farmland should be saved. Those who farmed it said they will only rent it at 60% of comparable market value because the yields are only 60% of what they can get elsewhere due to its shape, and water, and being bisected by the canal. The project says no to people who do not want houses next to their houses. There are 140 homes surrounding the property and the developers feel as long as what they are doing is consistent with the comprehensive plan and is consistent with transitional uses they should have the same right to use their property as those around them. Following his testimony, Mr. Ruthenbeck responded to questions from the Board.

Neutral testimony was offered as follows:

Terry Scanlan with HDR Engineering testified the developers asked him to do several studies, and their initial study said there will be very little impact on surrounding wells. It also showed the water levels and although they fluctuate, they are stable in this area and are not falling or rising year over year. The developers want a public drinking water system so they provided what that would entail; two redundant community wells to serve the property with minimum capacity of 72 gallons per minute, with a maximum of 112 gallons per minute by IDWR standards. They will design a system with 100 gallons per minute. The average demand for 29 homes is much less because homes do not use that much water, they will use approximately 10-acre feet per year compared to the amount of water used for 3 acres of irrigation. There is not much use and most of it returns to the aquifer through septic drain fields. Monitoring shows that water levels rise from spring to fall, this is a surface water irrigated area and is the dominant driving factor on

ground water supply. They hit a low point in April and hit a peak in September. Domestic-type demands will not impact neighboring wells. Water samples show naturally occurring arsenic concentrations exceed drinking water standards so they will go deeper and find lower concentrations. Following his testimony, Mr. Scanlan responded to questions from the Board. The uses by development do not really drive down water levels, but what does drive down levels is the reduction of recharge and as this area develops over time you will see reduced recharge. As farms go away there will be less and less recharge, there is still the same amount of water available but how that water is managed and where it provides recharge is going to change and water levels will probably go down in areas like this. Historically, before the irrigation came in the water levels in this area were 100-150 feet lower than they are now and they came up responding to irrigation recharge and as that irrigation goes away over the next 100 years they will start to decline. There is a permit for an agricultural well authorizing irrigation of 40 acres at 360 gallons permit and it's supplemental to the to the Boise Project water that's delivered from the Nampa and Meridian Irrigation District. There is an existing domestic well that is around 105 feet deep. There was further discussion regarding well monitoring and well construction.

The following people testified in opposition to the request:

DeWight Higel said despite being denied the applicants keep coming back with different proposals and now they are now proposing to give a building lot to the school district which seems like a quid pro quo situation. Other concerns include traffic, lot size, groundwater levels, and who will be the controlling authority over the community well to make sure it is operated and maintained properly. He is also concerned about the impact 29 septic systems will have on the soil where in an area that already has a problem with nitrates.

Larry Peterson lives adjacent to the subject property and his concerns include impacts to water, traffic, schools, and congestion. He said the developer has indicated they have overcome the water issues and there will be no impact traffic and the schools are happy, and the neighbors are happy, but nothing could be further from the truth. The pump study was done in late spring or early summer when the recharge was at its highest, and they only pump the well enough for domestic use, but that is the best case scenario - they need to pump a worst case scenario which is late summer early fall when the irrigation has been turned off and when the large lots want to continue watering their landscaping and they will pump 30-40 times more water than for domestic use. There are another 85 wells in the area that are pumping hard as well and there is a bigger problem. Mr. Peterson said the developer's proposal to the school helps very few students and the offer doesn't come close to mitigating the impact of the additional students this subdivision could add. There are 90 neighbors who are opposed to the development. Lastly, the P&Z Commission unanimously rejected this twice and he wants the Board to deny it as well.

Russ Johnson testified he has lived near the subject property for 17 years and is the HOA President of his subdivision and he is representing 9 property owners today. The average lot size in his development ranges from 2.8 acres to 6 acres and he believes the proposed lot size of 1.2+ acres

is too small, and he would like to see the lot size at 3 to 5 acres to maintain the rural character of the area.

Mike Fast testified about his concerns regarding impacts to water, schools, traffic, and EMS response times. There are a number of items on the comprehensive plan regarding having services available at the property already for water, sewer, and gas but that is miles away and it will be at great expense before services reach the area. He feels the proposed lot size should be larger.

Curtis Kessel is strongly opposed to the project and is concerned about impacts to water and the potential of 29 septic systems being placed in a small area. He said the developer has proposed the neighbors could connect to the community well but gave no provision for how to accomplish that.

Jim Danes testified that he spent 44 years in the fire protection industry working with fire departments and said they will have specific requirements the developer will have to comply with. He agrees with the opposition testimony that has been given in relation to water and contaminants and said even though he is opposed to the request, we need to look at possible solutions. He said there is a neighborhood between Robinson and McDermott, on the north side of Amity does not have septic tanks or sewer, but they have a system with several tanks next to each other and it's self-contained and the homes are piped to that system, and it goes through a process of breaking everything down so that when it goes back into the ground it's clean water. It has been said the City of Nampa will someday take it over and so that is a possibility for the area.

Ron Plummer said it seems like all of the problems that have been brought up could be solved if you could pass funding for the schools, and if they could have the water and sewage set up ahead of time, but they have 29 septic tanks and that's scary for those who have shallow wells. Given the funding and staffing problems the school district faces he questions whether they will be able to find people to help build the house referred to in the partnership. He said the infrastructure should be in place before development is allowed.

Tom Zahradnicek testified about the impacts to irrigation that will affect his father's property and the concern with placing septic tanks on solid lava. He has been in communication with the Nampa Highway District about putting a roundabout on the corner of Robinson and Locust where he owns 20 acres, and he said he would be willing to sell it and take this farm ground in the trade because he does not need all the money the land is worth at this time, there is plenty of land to build on. If the developers are hurting for land they could present a plan to him and take some of their land in trade because he wouldn't mind giving some to his son or grandson, and 15 years year down the road when the land is ready for development then they can develop it but at this point it's not ready and it will hurt the neighbors and everybody around it by putting this kind of density on property that sits on a lava field.

Ted Zahradnicek, whose property borders the subject property, submitted a letter of concern and he wanted to make sure the Board read it because it outlines his concerns about water, environmental issues, and transportation issues. (The letter is identified as Exhibit 13G that was

received on February 1st). The field next to his property grows beets, corn, and, alfalfa. Irrigation is provided by the Pioneer Irrigation District, and he is not aware of any test holes or perc tests being performed. The well on the subject property has gone dry in the past and he is concerned about placing 29 septics on a lava field because they will run through his property and will create problems. Mr. Zahradnicek says the developer has been denied several times and he asked when does no mean no, and how many more times do the neighbors have to spend time testifying at hearings?

Sue Marostica testified that she sent an email requesting 10 minutes of testimony since she is representing a group. (*Staff did not indicate whether her email was received.*) With all of the comprehensive plans these are speculations and the property they want to build on is at the very edge of the impact areas so when the County puts together speculations they are making a best guess as to how things are going to develop and what's going to happen, but to bring in businesses or homes and plop them down in the middle of farmland when there are no services like water and sewer, and not allowing the schools to catch up, it doesn't seem fair to those who have to suffer the consequences. Another subdivision was approved behind her property about 15 years ago and those are 4-5 acre lots, but her well dropped and she had to lower it and they were fine for another 10 years, but 5 years before that both neighbors lost their wells and they had to go over 250 feet to reach water again. It goes up and down with the irrigation season, they are fine in the summer, but in January and February they are at the lowest. She put together maps from IDWR and said KRON4 News did a national advertisement saying Idaho is one of the toxic states that is facing massive underground water issues. There are 60 aquifers in Idaho that are under groundwater watch and for 11% of them their decline has more than doubled in the last century. The Mountain Home area is critical, and Micron in Boise pumps 48 million gallons of water per day and so all of Boise and Garden City are in dire need. There is a spot between Boise and Meridian that used to be rural, and they allowed people to drop wells and septics, but no one can drill a well now because the water is contaminated. Up to within a half mile of her house are marked areas of concern where the withdrawals are causing or expected to cause serious problems. Almost all the neighbors are struggling with water and there is a water problem and a subdivision like this should not go in before city services are available. Commissioner Holton asked if the Board wanted to give her more time to speak, and Commissioner Van Beek asked if she has other nonrepetitive testimony she would like to share. Ms. Marostica said the only other testimony she had dealt with the schools, and she spoke to the Kuna City Council about it why are some developments approved and others are denied, and their response was when they write a letter to Kuna School District they do not get a response which means nobody cares and yet the school district cannot keep up with all the developments. Idaho is ranked 47th and it is dire, and the problem is not going to be fixed by bringing in more developments.

Brad Smith testified about his concerns with drinking water and contamination from 29 new septic tanks affecting those with shallow wells. The cost of drilling a new well can cost upwards of $75,000 and he and the neighbors are concerned about that because they have had dry years where they've had to bring water in during droughts. Mr. Smith is concerned about the impacts

to irrigation and access to/maintenance of his irrigation source as well as the health of his farm and the ability to keep feeding his animals and producing livestock.

Kimberly Smith testified that her concerns are about there being only one access into the subdivision, the safety of kids waiting at the bus stop, and the potential for noise that could be upsetting to farm animals. She has arsenic in her well and she filters it. Her well is 102 feet deep and was dug deeper by the previous owner because it went dry.

The Board took a break from 3:45 p.m. to 3:51 p.m.

Rebuttal testimony was offered by Hethe Clark:

Pressurized irrigation comes out of a canal, and there are two lines into a holding pond that charges over time which is what charges the irrigation system that avoids the fluctuation. The law requires them to maintain any historic conveyance of irrigation water to the neighboring properties, so they are not going interfere with any of the neighbors. They've had some conversations with Mr. Smith about his connection point and there's been a willingness on the developer's part to look at whether they can bring it closer to him. The Kuna Fire District has reviewed the proposal and provided initial comments. The developer will do an enhanced septic system, and they will have a nutrient pathogen study that will be reviewed by SWDH and DEQ. Regarding the bus stop, they have started conversations with the school and will provide a turnout that will allow for a waiting area. The subdivision at buildout will add 16 students. It's a small project with small impacts and that's why a traffic impact study has not been required but they have done the additional work to provide counts to prove up the lack of impact on area roadways. Regarding the water system, they will be much deeper and not in the same aquifer so if there's an impact on area wells it won't be because of their community water system. The pump testing was done as irrigation came on and the worst-case scenario comes in August/September and the monitoring shows that after April the water levels went up 15-20 inches so when you hit the worst-case scenario later on in the irrigation season there is already 15-20 inches above what's shown on the tests. A community water system triggers additional DEQ regulations, and they have to go through the technical financial managerial process and identify a qualified operator to operate the system. It adds a level of complexity but also provides an additional layer of safety for the residents. As a showing of good will they have offered to allow the neighbors to connect to the system which they see as a similar model to what the cities use. The developer believes the proposed density preserves agricultural ground and notes that the City of Nampa wants the lot sizes to be smaller. Mr. Clark said forcing the property to remain in agriculture would be inconsistent with the comprehensive plan which says the area is designated as residential. The character of the area is mixed; there are 140 residential lots within the area, and the future planning in the area is residential. The project is also compatible with the agricultural uses in the area. The character of the area already has significant residential use, and this project is going to be low-density when the City of Nampa gets there. The developer has mitigated the impact with the community water system, and they have gone above and beyond with the voluntary commitment that they've made to the Kuna Scholl District. The developer has provided proposed

conditions of approval that could be attached to a development agreement. If approved, they will bring the preliminary plat for the Board's review. Commissioner Holton said there was testimony about the basalt lava flow in the area and septic tanks are not viable in his opinion. Mr. Clark said this is a matter that DEQ and Southwest District Health will weigh in heavily on including the siting of each septic tank.

Tanner Verhoeks said they have completed a geotechnical study, and they have advanced test pits 10-12 feet deep in a couple dozen areas across the sites and they know the soil conditions. They've had a predevelopment meeting with SWDH who has reviewed the geotechnical report and their plan, and Atlas has prepared a level one nutrient pathogen study that has been given to DEQ for review. SWDH will also see it. In the case where you find a lot and you advance a septic and hit lava there are a few solutions: mounted systems, or you can blast the rock to get your percolation rates, and there is advanced treatment. There are solutions that are heavily regulated and so they felt comfortable pursuing this project after doing their due diligence early on to know that septics will be regulated and safe. There has not been testimony about septic fields failing in this area.

Mr. Clark said there will be multiple layers of protection and SWDH is also a signing authority on the plat.

DSD Director Minshall said the Board could table the decision and request more information, or additional time to review the geotechnical report or get confirmation from SWDH. Those items could be a condition of approval prior to the preliminary plat, we would have to have more detail which is when they work out the exact siting. If we say septic has to be in compliance with SWDH that would come up during the plat phase. The Board can also ask for an expert to provide additional information about the soil to locate septic tanks in this area.

Mr. Clark said as part of the conditional rezone they are signing a development agreement and it runs with the property and it's important to get the conditions right at the appropriate stage and the type of data Chairman Holton is looking for is probably the type that doesn't typically come along until the preliminary plat phase and that's why the issue he is pointing to would be handled with a condition of approval that says SWDH has to sign off on the septic systems.

Commissioner Holton said the request is for a higher density than anything immediately around it and he doesn't have the data to know if the area can support 29 septic tanks.

Samantha Hammond testified that at the preliminary plat stage they have to go through SWDH, and beyond that when it gets to the final plat they have to write subdivision engineering reports and go through multiple levels of checklists and reports, and they have to clarify that data.

Director Minshall said there is criteria in a conditional rezone, and you have to address the ability to have essential services and if you do not feel there is enough evidence or you have conflicting evidence from testimony the Board can ask for additional information. She agrees with the applicant that it typically comes up at the preliminary plat phase, but what she hears the Chairman saying is it is a concern because of that essential services criteria and if we don't have enough

information at that point it's within the Board's purview to ask for more. If there is uncertainty it's her preference it be tabled so staff can work with the developer and see what type of additional information or type of experts we could get to make sure before the Board makes a finding of that certainty it's found at the right rezone process.

Commissioner Holton wants the information before he goes into discussion. Commissioner Van Beek said she's heard enough testimony that she thinks the Board will either come to a decision after hearing the comments or it's going to be a moot decision because there won't be agreement and there will be a de novo hearing at that point.

Mr. Clark said they have provided a lot of the information the Chairman is looking for and it sounds like they should spend some time with staff and make sure it's packaged in a way that easier to digest. They would like to have a complete list of the items the Board would hold the public hearing process open for so they can make sure all the questions are answered. It would be cleaner to have the hearing closed after, or have it held open only for the purpose of that one report and then have the deliberation but if there are specific items they would like to have that back and forth with the Board today so they have the complete list of things to come back with.

Commissioner Holton is okay with closing testimony and instructing staff to work with the applicant on getting the information about soil depth and the viability of the septic systems and make sure it's a viable facility of service that's available on the property. Upon the motion of Commissioner Holton and the second by Commissioner Van Beek, the Board voted unanimously to close public testimony.

Commissioner Holton made a motion to request DSD staff and engineering to work with the applicant to provide viable information about the viability of 29 septic systems on this property, and how far they will migrate to any of the other surface wells that are immediately adjacent.

Commissioner Van Beek said the Board has to make positive findings for all eight criteria and she has concerns about two of them. Having lots sized so people can manage them does save agricultural ground. The purpose of the R-1 zone is promote and enhance predominately single-family living areas in a low-density standard but she doesn't think the Board can make an argument that this is a low-density residential area because most of the lots in the area would classify as rural living. She likes Mr. Verhoeks plan because he presented examples of what he would build in the area but said the secondary dwelling units are problematic. She said Canyon County is facing a crisis with EMS including our ambulance district. The Canyon County Sheriff's Office manages all 604 square miles and for these areas that are farther out the response times are of concern and if this becomes a subdivision this is potentially the beginning of the domino effect that would change the nature and character of the area. She recognized the concern about water, well issues, and sending kids into a crowded school environment and she doesn't believe the $100,000 donation is going to cover what is required for the school infrastructure. There is no validation that going deeper into another aquifer is going to be better or worse, it's a point that's an unknown variable. She agrees you can make a rural transitional area, but she would eliminate the secondary

homes. The County does not have jurisdiction over CC&Rs. There was no testimony about a failproof water system that would ensure that if that system goes down everybody in the subdivision is affected. Commissioner Van Beek said this is better than a high-density development, but she cannot overcome the fact that we cannot meet all eight criteria. The Kuna School District clearly stated they are at capacity.

Mr. Clark said some of the items Commissioner Van Beek brought up are not items they had an opportunity to discuss so would those items be part of the additional information Chairman Holton is requesting. Following discussion Commissioner Van Beek said she would like input from Kuna Fire, the irrigation district, Canyon County Sheriff's Office and the Canyon County Ambulance District as to what their resources are. Deputy PA Wesley said we need to lay out what questions we want to ask regarding the septic and other essential services and have those narrowed down in the motion. We are going to instruct DSD to send out request letters to fire, police, ambulance about their response times and we'll have the applicant respond to the septic issue and we will allow testimony on those limited areas to the public.

Commissioner Holton made a motion to continue the hearing to a date uncertain to obtain engineering details on the viability of septics with the concern of basalt, lava, or other form of rock that is just under the surface, and to solicit information from fire, police, and ambulance on the viability of their response times to this location. We will reopen the public hearing for only those topics. The motion was seconded by Commissioner Van Beek. Director Minshall said the Board also brought up other items related to schools and the surrounding area. Commissioner Holton amended the motion to include the viability of the applicant's impact on the school district and we would keep it broad. Commissioner Van Beek said she wants the secondary houses to be completely off the table, we should not allow a higher density. Commissioner Holton amended his motion to include further discussion about the development agreement. The amended motion was seconded by Commissioner Van Beek and carried unanimously. Deputy PA Wesley said at the next hearing we will hear testimony on the limited issues and allow public comment on those issues, and we will go through the process. The hearing will be re-noticed. Upon the motion of Commissioner Holton and the second by Commissioner Van Beek, the Board voted unanimously to adjourn to an unknown date certain that will be advertised and listed for a future date. The hearing concluded at 4:52 p.m. An audio recording is on file in the Commissioners' Office.

email correspondence

Michelle Barron

From: Tanner Verhoeks <tanner@havenidaho.com>
Sent: Monday, July 15, 2024 2:15 PM
To: Michelle Barron
Cc: Samantha Hammond; Isaac Josifek; Justin Ruthenbeck; Hethe Clark
Subject: Re: FW: [External] Re: Haven Creek - BoCC Follow-up Submittal

Follow Up Flag: Follow up
Flag Status: Flagged

Hey Michelle, thanks for the memo!

Please go ahead and get a hearing date scheduled.

As to item a. (septic), we believe that the bulk of information requested by the Board of County Commissioners is already contained in the record, but we wanted to summarize it in one location to ensure the Commissioners' questions have been answered. For example, Commissioner Holton's question regarding soil depth is addressed on pages 4-5 of the resubmittal package. There is not an issue with soil depths above rock based upon the careful evaluation that has already been completed, which goes above and beyond the preliminary reports that are required at this stage of the application.

Additionally, there is specific information that is new that covers the research, analysis, and discussion of septic viability in sections 'Contingencies' (page 6) and 'Ongoing Operation and Enforcement' (page 6) that needs to be reviewed by the commissioners. Specifically, the inclusion of septics in the WUA is new. This WUA is further explained on page 17. The development agreement has also been updated appropriately to further enforce that septics must be designed and approved by DEQ and SWDH (page 15). Lastly, Secondary Dwellings which factored into the discussion on septics, have been removed (page 14). All of this combined speaks to the evidence that 29 new septics on this project site are viable and will be monitored and approved through multiple checkpoints.

So as you can see, the document is full of new information that all intertwines in one way or another, we did our best to lay it out in a straightforward and concise manner. We trust that the resubmittal package will be reviewed in its entirety.

Thank you, have a great day!

Tanner Verhoeks, PE
Land Development :: Principal
208-391-3838
Tanner@HavenIdaho.com
www.havenidaho.com

On Mon, Jul 15, 2024 at 9:46 AM Michelle Barron <Michelle.Barron@canyoncounty.id.gov> wrote:

> Good Morning Tanner,
>
> Please see the attached Memo in regards to scheduling the BOCC meeting. Just making sure we are all set.

Have a nice day,

Michelle Barron

Principal Planner

Canyon County Development Services Department

111 N. 11th Ave., #310, Caldwell, ID 83605

Direct Line: 208-455-6033

DSD Office Phone: 208-454-7458

Email: Michelle.Barron@canyoncounty.id.gov

Website: www.canyoncounty.id.gov

From: Tanner Verhoeks <tanner@havenidaho.com>
Sent: Tuesday, July 9, 2024 8:15 AM
To: Michelle Barron <Michelle.Barron@canyoncounty.id.gov>
Cc: Samantha Hammond <SHammond@ardurra.com>; Isaac Josifek <ijosifek@ardurra.com>; Justin Ruthenbeck <Justin@havenidaho.com>
Subject: Re: FW: [External] Re: Haven Creek - BoCC Follow-up Submittal

Good Morning Michelle, Happy Tuesday! Hope you had a good 4th of July.

Thanks for the response! Understand the workload and the pressure the county is feeling.

I just simply came in to get some clarity in person if possible, sorry you weren't available when I stopped by. I was under the impression we can schedule for a date and then the applicant and staff both have up until 10 days before the hearing to put all of their staff reports, submittal materials, and presentations together per the new ordinance. In the event something is deemed missing before that deadline, couldn't we simply use the time until the deadline to provide that or worst case continue/push to a later date certain?

I'm just concerned we are looking at September at this point and with us having a case number from early 2022 I'm sure you can understand we are getting squeezed from our investors on this saga that this entitlement period has been. I can assure you, we have been practicing patience.

I originally heard at our Feb 20th meeting that we as a group were simply concerned about the KSD material as being the long lead item. The rest of the requests were straight forward and could be turned in before the applicant submittal

deadline for the hearing. With the KSD piece solved and turned in, we were ready to schedule in late April, but we were then told we needed to have everything put together before we could be scheduled. We then worked to finalize everything and turned it in at the end of May as you noted.

Appreciate you taking time to help us all refresh on the case. I'm sure you'll find that everything requested is provided. Looking forward to seeing our date. Thank you for your hard work and anything you can do to move us forward in the queue.

Best,

Tanner Verhoeks, PE
Land Development :: Principal

208-391-3838
Tanner@HavenIdaho.com
www.havenidaho.com

On Mon, Jul 1, 2024 at 12:43 PM Michelle Barron <Michelle.Barron@canyoncounty.id.gov> wrote:

> Tanner,
>
> I see that you stopped by. It was mentioned that you had a question about a 10-day timeframe. I am not sure what you are referring to.
>
> As stated in my June 11th email: "We do not have a date yet. I need to have time to organize the new information and get it prepared for going to the BOCC. I have several cases ahead of this one and the scheduling is tight with BOCC right now with the Budget Hearings coming up. I have you in the que to schedule, I just don't have a date yet."
>
> According to my records, On February 8, 2024, the BOCC requested specific additional information from the applicant. On February 20, 2024, I met with the applicant and representatives to go over what BOCC had requested. On May 31, 2024, I received a packet of information from the applicant. I then sent a response email on June 11th. At that time, I was working on cases that I was going to present at a public hearing on June 20th. I went on vacation for a week and then was out for a few days for medical leave. So, although you have provided requested information, I have not had the opportunity to review the submitted information to assure it is what the Board asked for. As I have waited for this information for over three

months, I appreciate your patience in allowing me the time to review my old notes to verify all of the information has been submitted. I don't believe that the Board will continue the hearing any further if there is missing information that they specifically requested. I need time to review the information and refresh my memory on this case.

As previously stated, I have you in my que to get this scheduled. I will let you know as soon as I have a date for the Board hearing.

Thank you,

Michelle Barron

Principal Planner

Canyon County Development Services Department

111 N. 11th Ave., #310, Caldwell, ID 83605

Direct Line: 208-455-6033

DSD Office Phone: 208-454-7458

Email: Michelle.Barron@canyoncounty.id.gov

Website: www.canyoncounty.id.gov

From: Samantha Hammond <SHammond@ardurra.com>
Sent: Wednesday, June 19, 2024 11:06 AM
To: Michelle Barron <Michelle.Barron@canyoncounty.id.gov>; 'Tanner Verhoeks' <tanner@havenidaho.com>
Cc: Isaac Josifek <IJosifek@ardurra.com>; Justin Ruthenbeck <Justin@havenidaho.com>
Subject: RE: [External] Re: Haven Creek - BoCC Follow-up Submittal

Hi Michelle,

Checking in on this, please let me know if you need anything else from us or if we can assist in any way to get a hearing date.

Thank you,

Samantha Hammond

Land Use Planner
O: (208) 323-2288 | **M:** (208) 661-6764

2471 S. Titanium Place, Meridian, Idaho, 83642
SHammond@ardurra.com | www.ardurra.com

From: Samantha Hammond
Sent: Tuesday, June 11, 2024 11:56 AM
To: Michelle Barron <Michelle.Barron@canyoncounty.id.gov>; 'Tanner Verhoeks' <tanner@havenidaho.com>
Cc: Isaac Josifek <IJosifek@ardurra.com>; Justin Ruthenbeck <Justin@havenidaho.com>
Subject: RE: [External] Re: Haven Creek - BoCC Follow-up Submittal

Michelle-

I'm a bit confused about the process. I thought the staff report was not due until at least 10 days before the hearing, and that comments/additional exhibits could be submitted up to 20 days before. What needs to be prepared to get this scheduled?

Thank you,

Samantha Hammond

Land Use Planner
O: (208) 323-2288 | **M:** (208) 661-6764

2471 S. Titanium Place, Meridian, Idaho, 83642
SHammond@ardurra.com | www.ardurra.com

From: Michelle Barron <Michelle.Barron@canyoncounty.id.gov>
Sent: Tuesday, June 11, 2024 9:33 AM

To: 'Tanner Verhoeks' <tanner@havenidaho.com>
Cc: Isaac Josifek <IJosifek@ardurra.com>; Justin Ruthenbeck <Justin@havenidaho.com>; Samantha Hammond <SHammond@ardurra.com>
Subject: RE: [External] Re: Haven Creek - BoCC Follow-up Submittal

Tanner,

We do not have a date yet. I need to have time to organize the new information and get it prepared for going to the BOCC. I have several cases ahead of this one and the scheduling is tight with BOCC right now with the Budget Hearings coming up. I have you in the que to schedule, I just don't have a date yet.

Thanks,

Michelle Barron

Principal Planner

Canyon County Development Services Department

111 N. 11th Ave., #310, Caldwell, ID 83605

Direct Line: 208-455-6033

DSD Office Phone: 208-454-7458

Email: Michelle.Barron@canyoncounty.id.gov

Website: www.canyoncounty.id.gov

From: Tanner Verhoeks <tanner@havenidaho.com>
Sent: Monday, June 10, 2024 3:59 PM
To: Michelle Barron <Michelle.Barron@canyoncounty.id.gov>
Cc: Isaac Josifek <ijosifek@ardurra.com>; Justin Ruthenbeck <Justin@havenidaho.com>; Samantha Hammond <SHammond@ardurra.com>
Subject: Re: [External] Re: Haven Creek - BoCC Follow-up Submittal

Hey Michelle, do we have a date yet?

Tanner Verhoeks, PE
Haven Idaho :: Principal
208.391.3838

On Tue, Jun 4, 2024 at 11:17 AM Tanner Verhoeks <tanner@havenidaho.com> wrote:

> Yes, that is everything including the letter that Robbie should have sent over from KSD. We also refer to the letter in our document.
>
> On Tue, Jun 4, 2024 at 9:20 AM Michelle Barron <Michelle.Barron@canyoncounty.id.gov> wrote:
>
> > I did receive this information. Is this everything along with the letter from Kuna School District?
> >
> > Thanks,
> >
> > *Michelle Barron*
> >
> > *Principal Planner*
> >
> > *Canyon County Development Services Department*
> >
> > *111 N. 11th Ave., #310, Caldwell, ID 83605*
> >
> > Direct Line: 208-455-6033
> >
> > DSD Office Phone: 208-454-7458
> >
> > Email: Michelle.Barron@canyoncounty.id.gov
> >
> > Website: www.canyoncounty.id.gov

From: Tanner Verhoeks <tanner@havenidaho.com>
Sent: Monday, June 3, 2024 1:59 PM
To: Michelle Barron <Michelle.Barron@canyoncounty.id.gov>
Cc: Isaac Josifek <ijosifek@ardurra.com>; Justin Ruthenbeck <Justin@havenidaho.com>; Samantha Hammond <SHammond@ardurra.com>
Subject: [External] Re: Haven Creek - BoCC Follow-up Submittal

Hey Michelle, just left you a VM. Wanted to confirm my last email made it through.

Thanks!

Tanner

On Fri, May 31, 2024 at 2:56 PM Tanner Verhoeks <tanner@havenidaho.com> wrote:

> Hey Michelle,
>
> Please see the link below for the document on all of the additional information requested at the last BoCC hearing.
>
> Haven Creek BoCC Resubmittal Package
>
> Please let me know if you have any questions.
>
> Thank you!

Tanner Verhoeks, PE
Land Development :: Principal

208-391-3838
Tanner@HavenIdaho.com
www.havenidaho.com

Memo from 7/15/24 email

Canyon County, 111 North 11th Ave. Suite 310, Caldwell, ID 83605
(208) 454 7458 ▪ zoninginfo@canyoncounty.id.gov ▪ www.canyoncounty.id.gov

Memo

To: Tanner Verhoeks and team
From: Michelle Barron
Date: July 15, 2024
Re: CR2022-0005 Verhoeks - BOCC requested information update

In advance of scheduling the continued public hearing for the subject application, I am reaching out to you to ensure that the additional information provided is finalized. The information should address the discussion points identified from the previous public hearing. At the BOCC hearing held on February 8, 2024, the Board of County Commissioners requested the following items:

a. The applicant provide information addressing the viability of 29 septic systems on this property, and how far they will migrate to any of the other surface wells that are immediately adjacent. They also had concerns about the basalt, lava, and other rock close to the surface.
    - After reviewing the information submitted to date for item "a" listed above, it appears that the materials submitted are a summary of information from previous reports for the septic, but no new information has been in the document received via email on May 31, 2024.

b. Response times of fire, police and ambulance.
    - After reviewing the information provided in your May 31, 2024 packet, response times have been provided for Kuna Fire and Canyon County Paramedics. No response has been received from the County Sheriff's Department.

c. The viability of this applicant's responsibility for schools.
    - A letter has been submitted (dated May 30, 2024) by the school's representative restating their support for the project and the arrangement that they have with the developer. The letter indicates that the High School is at capacity, and there is some capacity for the elementary and middle schools. The school representative information provided indicates that the subdivision is expected to produce 14 new students in the 29-lot subdivision.

We also received your analysis of the criteria for a rezone and a proposed development agreement condition list (dated May 31, 2024).

This letter is to ensure that that the information you have provided is everything that you wanted to provide to address the requested additional information. Please advise if there is additional information that you would like to submit. Any additional information to address these items must be submitted by July 22nd at close of business.

Please advise if additional time is needed, otherwise Development Services will proceed with noticing and scheduling after the deadline indicated above.

Applicant's updated information packet

May 31, 2024

Canyon County Development Services
111 N 11th Ave.
Caldwell, ID 83605

Re: Haven Creek Subdivision CR2022-0005 | BOCC Requested Information

Canyon County Development Services Department and Board of County Commissioners:

This document package includes additional information as requested in the carried motion by Commissioners at the public hearing on February 8, 2024. Per the published Meeting Minutes (page 11), this specifically includes:

1. SEPTIC - "Engineering details on the viability of septics with the concern of basalt … and other rock that is just under the surface."
2. EMERGENCY SERVICES - "Solicit information from fire, police, and ambulance on the viability of the response times to this location."
3. SCHOOL - "The viability of the applicant's impact on the school district."
4. DENSITY - "Secondary houses to be completely off the table."
5. DA - "Further discussion about the development agreement."

Being the Applicant's burden of Proof - This document also provides the:

6. UPDATED RESPONSES - Applicant's updated response to standards of evaluation

We are willing to discuss other topics if requested, but have limited our responses to the above topics, per direction by Deputy PA Wesley within the Meeting Minutes[1]. We are excited to move this project forward and to do what's best for the project and community.

Sincerely,

Tanner Verhoeks, PE
Principal, Haven Idaho
Tanner@HavenIdaho.com
208-391-3838

Hethe Clark
Partner, Clark Wardle, LLP
hclark@clarkwardle.com
208-386-3327

[1] *https://agenda.canyoncounty.id.gov/Agenda?date=2024-02-08*

TABLE of CONTENTS

Septic

Request from the Board

“Engineering details on the viability of septics with the concern of basalt … and other rock that is just under the surface.”

Executive Summary

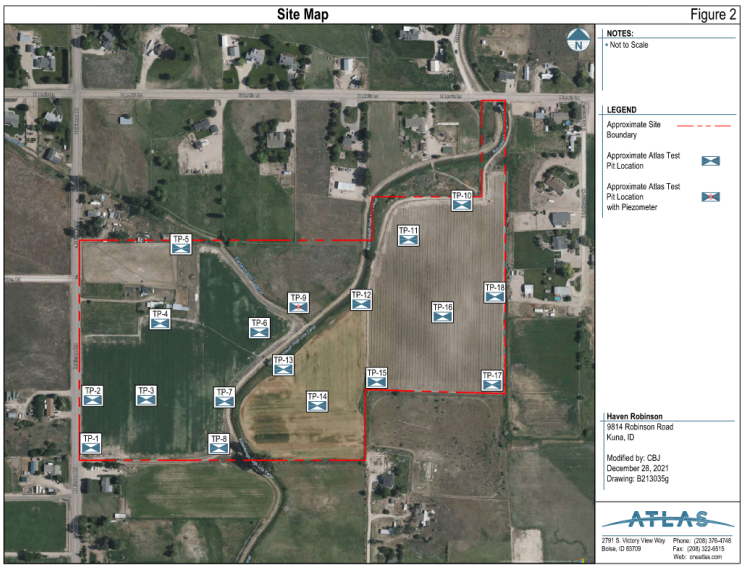
1. 18 test pits have been dug, with basalt rock encountered an average of 8.7 feet below grade (4.5-13.8 feet).
2. 61% of the property has at least 8 feet of soil cover overlying bedrock, allowing for typical septic system design.
3. The remainder of the site has bedrock between 4.5-8'. Alternative septic systems are available for use in areas where separation to bedrock cannot be achieved.
4. Infiltration tests for Stormwater Retention were performed on 5 test pits, with a measured average infiltration rate of 2.74 inches per hour.
5. Proposed lot boundaries, informed by engineering studies, have been designed to meet down-gradient nitrate concentration limits[2].
6. An abundance of options to meet site constraints and nitrate requirements (as conditioned by SWDH and DEQ) are available[3].
7. Test pits for each lot at time of home build will be advanced with a SWDH representative present for septic system design and approval.
8. Septic system maintenance, if any, will be performed by the proposed private Water Users Association (WUA). The WUA will function much like a homeowners’ association, with a focus specifically on septic and water system maintenance. Funding will be provided by the homeowners through assessments. In addition, operations and maintenance manuals and required specifications for septic systems will be included in CCRs and enforceable by the WUA.

[2] See Appendix A
[3] https://www2.deq.idaho.gov/admin/LEIA/api/document/download/14470

Details

Significant physical and engineering studies were completed in 2022 and 2023 to verify how and where proposed lots would support septic systems. Applicable reports and exhibits have been re-attached as an appendix for ease of reference.

Per Atlas, “The site is relatively flat and level” and “Regional Drainage is north and west toward the Boise River”. Official Geotechnical Fieldwork investigations were performed on November 8th and 9th in 2021 by ATLAS. During this time 18 test pits were advanced across the entire project site.



Rock Depth

Logs of these results can be found in the appendix. Rock depths were as shallow as 4.5 ft and as deep as 13.8 ft with an average of 8.67 ft below grade. Septics typically have a drain field depth of about 4’ and the separation from the confining layer is another 2.5 to 6 feet, depending on soil conditions.

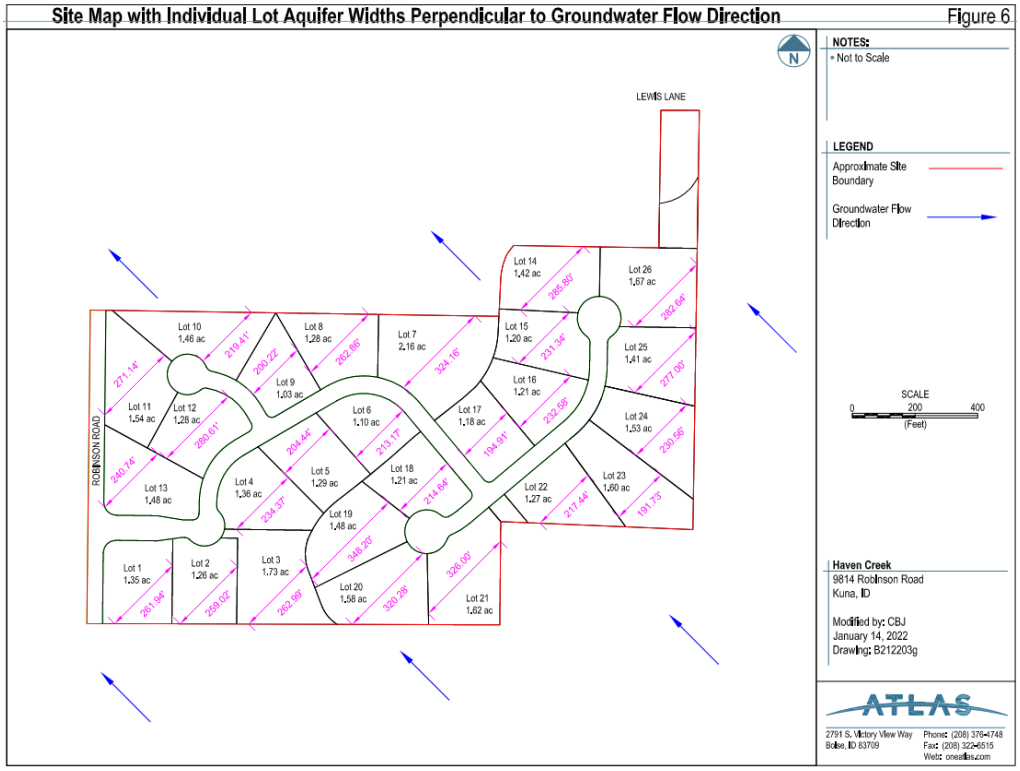
Septic systems are designed with application rates that correlate to the soil texture as classified during the septic approval test pits with SWDH.

Specific claims were made during public testimony at the last BoCC hearing in regards to septics and soil conditions:

- “There’s solid lava out there, and…. it’s not more than 2 feet deep”
- “No test holes, no perc tests, nothing”

These comments were specific to our southern property line on the west side of the canal. As noted in the geotechnical reports (appendix, dated 2021), test pits TP-01 and TP-08 were dug in

this area and encountered basalt at depths of 6.1 ft and 8.6 ft, respectively. A total of 18 test holes were dug on the property to measure both rock depth and drainage rates.



Level 1 Nutrient Pathogen Study

A Level 1 Nutrient Pathogen study (January 2022) was prepared by Atlas detailing how advanced treatment septics are feasible for this location for 26 residential lots. The report states that there is a Northwestern groundwater flow direction and that on average there are 192-438 ft aquifer widths perpendicular to flow direction. The report analyzed the worst case (two of the smallest lots) with a Mass-balance calculation done for the lots with the smallest aquifer width. Those lots met compliance with the requirement to use 40% nitrate reducing systems. SWDH and IDEQ must review and approve parameters used in the report and calculations. The report is also required to be submitted to SWDH with a Subdivision Engineering Report and a pre-development meeting as a part of the development process.

A year later, a subsequent technical memo (January 2023) was also written. This technical memo was an update to the L1NP during the entitlement process to evaluate whether the project would still be in compliance with nutrient pathogen levels with 29 residential lots and secondary dwelling units on those lots. A worst case study of a 1-acre lot with a lot width of 145 ft and max 500 gpd effluent flow (the average flow of a house and secondary dwelling combined) was found to be compliant with a 65% nitrate reducing system.

With the most recent update found in our proposed Development Agreement (see §DA), you'll see that secondary dwellings are prohibited which further makes this worst case scenario even more conservative and viable.

SWDH, ATLAS, Ardurra, and Haven Idaho all held a pre-development meeting on January 10th 2022 where SWDH reviewed all of the data, findings, reports, and preliminary plat and found our approach and development plans to be acceptable with further review of the L1NP to be done through the proper channels and agencies.

The L1NP study found that, **with properly installed septic systems, the point of compliance nitrate concentration is not exceeded.** Further, such **septic systems will have a negligible impact on surrounding surface wells** in accordance with DEQ guidelines.

Contingencies

Regardless of the field measurements and findings, some may still ask: "What happens when you go to put a septic on a 1 acre lot and have limited locations where the rock is deep enough and fractured enough to have a high enough hydraulic conductivity." DEQ has published a technical guidance manual[4] outlining, in deep detail, design options including measurement and maintenance to ensure systems operate safely. Broadly, this means:

- All individual septic systems will have test pits advanced with a representative from SWDH and will be engineered appropriately.
- There are multiple components of septic systems that can be utilized in conjunction with each other to create septic system design to meet compliance.
- Through the Subdivision process, septics are heavily regulated and controlled when being designed and installed.

If site conditions for a lot, despite the aforementioned site investigations, cannot support a DEQ and SWDH-compliant septic solution, then the lot won't be built out.

Ongoing Operation and Enforcement

A WUA (similar to a homeowners' association) will be established for this project. The applicable CCRs will include requirements for sewer specifications as well as an operations and maintenance manual detailing how these facilities will be maintained. Beyond and in addition to the requirements of SWDH and DEQ, the WUA will have the authority to ensure that appropriate septic systems are installed and properly maintained.

Septic Appendices Attached in Appendix A:

- B213035g_geotech.pdf
- B212203g_L1NP.pdf
- Pre-Development_1.10.23.pdf
- B212203g_ADU Letter-29 reference.pdf

[4] https://www2.deq.idaho.gov/admin/LEIA/api/document/download/14470

Table 3 – Infiltration Test Results

Test Location	Test Depth (feet bgs)	Soil Type	Stabilized Infiltration Rate (inches/hour)	Design Infiltration Rate (inches per hour)
TP-1	6.1	Basalt	12.2*	6.1*
TP-5	5.1	Basalt	2.0	1.0
TP-6	9.2	Basalt	11.5*	5.75*
TP-14	9.6	Basalt	0.8	0.4
TP-18	8.9	Basalt	0.9	0.45

***It is anticipated that water was draining through fractures in the basalt. These rates are appropriate for the tested location only and may not be suitable for design in other areas of the site. Additional infiltration testing is recommended once actual infiltration facility locations have been determined.**

Test Pit Log #: TP-1
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI
Latitude: 43.513370
Longitude: -116.493220
Depth to Water Table: Not Encountered
Total Depth: 6.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-6.1	Sandy Silt (ML): Brown, slightly moist, stiff to very stiff, with fine to medium-grained sand. --Refusal on basalt rock at a depth of 6.1 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 6.1 feet bgs.

Test Pit Log #: TP-2
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI
Latitude: 43.513919
Longitude: -116.493232
Depth to Water Table: Not Encountered
Total Depth: 9.2 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.6	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.6-9.2	Sandy Silt (ML): Brown, slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.5 to 9.2 feet bgs. --Refusal on basalt rock at a depth of 9.2 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-3
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI
Latitude: 43.514004
Longitude: -116.492150
Depth to Water Table: Not Encountered
Total Depth: 8.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-8.4	Sandy Silt (ML): Brown, slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.8 to 8.4 feet bgs. --Refusal on basalt rock at a depth of 8.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-4
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI
Latitude: 43.514769
Longitude: -116.492048
Depth to Water Table: Not Encountered
Total Depth: 4.5 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.2	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.2-4.5	Sandy Silt (ML): Brown, slightly moist, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 4.5 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-5
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515734
Longitude: -116.491675
Depth to Water Table: Not Encountered
Total Depth: 5.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-5.1	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.9 to 5.1 feet bgs. --Refusal on basalt rock at a depth of 5.1 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 5.1 feet bgs.

Test Pit Log #: TP-6
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514699
Longitude: -116.490435
Depth to Water Table: Not Encountered
Total Depth: 9.2 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.2	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.2-9.2	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.3 to 9.2 feet bgs. --Refusal on basalt rock at a depth of 9.2 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 9.2 feet bgs.

Test Pit Log #: TP-7
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514023
Longitude: -116.490859
Depth to Water Table: Not Encountered
Total Depth: 6.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.5	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.	GS	1.0-1.5	0.75	A
1.5-6.6	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.1 to 6.6 feet bgs. --Refusal on basalt rock at a depth of 6.6 feet bgs.				

Notes: See Site Map for test pit location.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
A	16.3	31	9	99	98	95	90	77.9

Test Pit Log #: TP-8
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513284
Longitude: -116.491078
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-8.9	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.8 to 8.9 feet bgs. --Refusal on basalt rock at a depth of 8.6 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-9
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515059
Longitude: -116.489707
Depth to Water Table: Not Encountered
Total Depth: 11.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.6	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material to a depth of 1 foot bgs.			0.75	
1.6-10.0	Sandy Silt (ML): Brown, dry, very stiff, with fine to coarse-grained sand. --Moderate calcium carbonate cementation from 6.9 to 10.0 feet bgs.				
10.0-11.6	Sandy Lean Clay (CL): Brown, dry, hard, with fine to medium-grained sand. --Refusal on indurated clay at a depth of 11.6 feet bgs.				

Notes: See Site Map for test pit location.
Piezometer installed to a depth of 11.6 feet bgs.

Test Pit Log #: TP-10
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.516354
Longitude: -116.487011
Depth to Water Table: Not Encountered
Total Depth: 8.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-8.1	Sandy Silt (ML): Light brown, dry, very stiff to hard, with fine to coarse-grained sand. --Moderate calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 8.1 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-11
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515509
Longitude: -116.487674
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.8	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.	Bulk	1.0-1.5	0.75	R-value
1.8-10.4	Sandy Silt (ML): Brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 10.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-12
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515085
Longitude: -116.488617
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-10.4	Sandy Silt (ML): Light brown, dry to slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.5 to 10.4 feet bgs. --Refusal on basalt rock at a depth of 10.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-13
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514232
Longitude: -116.489891
Depth to Water Table: Not Encountered
Total Depth: 13.8 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-11.5	Sandy Silt (ML): Light brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 5.7 to 11.5 feet bgs.				
11.5-13.8	Lean Clay with Sand (CL): Brown, slightly moist, hard, with fine to medium-grained sand. --Refusal on indurated clay at a depth of 13.8 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-14
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513946
Longitude: -116.489470
Depth to Water Table: Not Encountered
Total Depth: 9.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.9	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.9-9.6	Sandy Silt (ML): Light brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 4.4 to 9.6 feet bgs. --Refusal on basalt rock at a depth of 9.6 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 9.6 feet bgs.

Test Pit Log #: TP-15
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514030
Longitude: -116.488480
Depth to Water Table: Not Encountered
Total Depth: 10.3 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-2.4	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			2.25	
2.4-10.3	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 4.6 to 10.3 feet bgs. --Refusal on basalt rock at a depth of 10.3 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-16
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514700
Longitude: -116.487201
Depth to Water Table: Not Encountered
Total Depth: 4.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.1	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			3.5	
1.1-4.9	Sandy Silt (ML): Brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 4.9 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-17
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514012
Longitude: -116.486229
Depth to Water Table: Not Encountered
Total Depth: 10.3 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.9	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			3.5	
1.9-10.3	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 10.3 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-18
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515035
Longitude: -116.486296
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.7	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			2.5	
1.7-8.9	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 8.9 feet bgs.	GS	8.0-8.5		B

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 8.9 feet bgs.

Emergency Services

Request from the Board

"Solicit information from fire, police, and ambulance on the viability of the response times to this location."

Executive Summary

1. Kuna Rural Fire responded by confirming existing adequate response times.
2. Fire response times will improve when Station #2 (undergoing entitlement) opens.
3. Police have not responded to multiple applicant and Staff inquiries. County Code Section 7-17-09(3)B states: "If no written reply is received from any of the various departments or interested agencies within thirty (30) calendar days from the date of notification, approval of the preliminary plat by such department or agency will be considered to be granted."
4. EMS responded with a list of stations in the service area of this project.
5. EMS response times range from 12-15 min.
6. EMS has a levy in place and funding goals to further improve response times.

Kuna Rural Fire

We have had multiple written and verbal interactions with Kura Fire over the course of this project's design.

Initial review and comments were received, dated 3/13/2022. These comments indicated the project is in compliance with fire requirements, subject to three requirements: road access from Robinson, fire hydrants installed, and buildings numbered. All of these were included in the proposed design.

We requested and received clarification for engine response times on 4/10/2023. Engine response times are 10-12 minutes.

Kuna Fire reviewed and formally approved and stamped the proposed design on 5/1/2023.

At the Board's request, additional clarification was requested and received on 5/1/2024. New information in this response includes an update on Kuna Fire Station #2, **which will decrease response times to 10 minutes**. This new station is funded by the recently approved Fire Bond.

Fire Appendices attached in Appendix B:

- 1st Review Pre-Plat Residential Subdivision Conditional letter_Fire District.pdf
- Haven Creek - Kuna Fire - Prelim Plat Approved 20230501.pdf
- Haven Creek - Kuna Rural Fire Protection District - Response Times.pdf
- HC - Kuna Fire Letter 2024.pdf

EMS

There are four medic stations with response times less than 15 minutes to the Haven Creek location. A complete response was received, including funding plans and other details.

EMS Appendices Attached in Appendix C:

- HC - Canyon Paramedics.pdf

Police

Despite multiple attempts by the applicant and Staff, no response from Police has been received. County Code is clear that no response is equivalent to approval by the requested agency. County Code Section 7-17-09(3)B states: "If no written reply is received from any of the various departments or interested agencies within thirty (30) calendar days from the date of notification, approval of the preliminary plat by such department or agency will be considered to be granted."

School (Kuna School District)

Request from the Board

"The viability of the applicant's impact on the school district."

Executive Summary

1. KSD has reinforced that "The Kuna School District has a constitutional duty to provide educational services to children within our district. We will do so with every means at our disposal."
2. KSD is forecasting that Haven Creek's 29 homes will generate a total of 14 students
3. Elementary capacities serving Haven Creek are 97% (Indian Creek) & 79% (Ross)
4. Middle School capacity serving Haven Creek is 91% (Kuna Middle)
5. High School capacity serving Haven Creek is over 100%
6. The KSD Board of Trustees have unanimously approved the proposed partnership with Haven Creek, which provides financial and curriculum support to the high school directly.
7. A written agreement has been signed and executed between the KSD Board of Trustees and Haven Idaho. KSD has indicated that they "are grateful for partnerships such as this that provide additional educational opportunities for our students while financially mitigating the cost of providing those services."
8. KSD has provided official written comments both on 5/5/2023 and on 5/30/2024 indicating, **"we can serve the students generated from this development of 29 homes."**

Details

At the original P&Z hearing (2/2/23) for this project, comments were received the day before the hearing from the school district noting that they did not support the project. Haven was unaware of these challenges faced by KSD and immediately reached out after the hearing.

After discussing and finding out what specific needs KSD had, Haven Creek proposed multiple partnership options to the school district. These options were considered by the School Board at the 4/11/2023 School Board meeting[5] and "Option E" was unanimously approved by the Board. This includes the donation of one building lot to KSD (including proceeds from its sale), along with curriculum coordination to involve high school students in the design and construction of the home.

[5] https://www.youtube.com/live/s7SOlNLpYnE?si=xKlSlKkoRQd0CDPU&t=10603

Haven Creek and KSD executed a formal agreement, dated 6/6/2023.

KSD subsequently provided written and in-person testimony to P&Z and the BoCC hearings, dated 5/5/2023 and 9/14/2023, respectively, discussing why they support the Haven Creek project and the agreed partnership

At the Board's request, KSD provided additional written clarification, dated May 30, 2024, detailing available school capacity to serve Haven Creek, along with details on KSD's long term funding plan. The agreed partnership supports both the immediate and long-term needs of KSD to serve students throughout the district.

Ultimately, the substantial and competent evidence in the record before the Commissioners includes a statement from KSD - the agency providing educational services - that they have the ability to serve this subdivision's students.

School Appendices Attached in Appendix D:

- KSD - Haven Creek Support Letter 20230505.pdf
- Haven Creek - KSD - V3 signed 06062023 EXECUTED.pdf
- KSD - HTV Creek - Letter of Support 2024.pdf

Density - Secondary Dwellings

Request from the Board

“Secondary houses to be completely off the table.”

Executive Summary

1. Secondary Dwellings were originally considered as a part of the Haven Creek project
2. Secondary Dwelling impact on septics were modeled and analyzed by Atlas in a technical memo and found to be acceptable.
3. Commissioners have indicated they think Secondary Dwellings do not fit in with the current densities and land uses around our project
4. **Haven Idaho agrees to remove the possibility of secondary dwellings on any of the building lots as conditioned by the proposed Development Agreement**

Details

Haven Idaho interacts with home buyers all the time, so we hear what sorts of things people are looking for. From what we hear, we know that people are looking for multigenerational properties, or some other way to produce income to help carry mortgages in the face of current home prices and interest rates. Not wanting to limit future flexibility and possibilities for homeowners, Haven Idaho desired to keep secondary dwellings on the table.

However, we understand the concerns from Commissioners with the possibility of secondary dwellings on the table. Haven has agreed to condition the development agreement to take secondary houses completely off the table.

Benefits include:

- Not stressing Fire’s resources on a single point of access
- Limiting septic effluent flow
- Decreasing potential draws on the community well system
- Keeping this rural transitional character and land use of the area
- Allowing for the extra lot space to have a barn and/or shop as opposed to another dwelling which will promote hobby agricultural practices

DA - Development Agreement Updates

Request from the Board

“Further discussion about the development agreement.”

Executive Summary

1. A development agreement has been proposed to ensure that the commitments made by the applicant are adhered to on an ongoing basis
2. The development agreement requires the formation of a Water Users Board (in lieu of a typical homeowners’ association) that shall be responsible for the operation of a public water system and advanced septic systems in accordance with the requirements of IDEQ and Southwest District Health (SWDH)
3. The public water system shall serve all 29 residential lots, and shall be designed, reviewed, constructed, operated, and maintained in accordance with the requirements of a Public Drinking Water System in accordance with Idaho Administrative Code
4. The septic systems shall be advanced and include nitrate reducing systems with holding tanks, and shall be installed in accordance with the Level I Nutrient Pathogen Study prepared by the applicant and approved by IDEQ and SWDH.
5. The development agreement confirms the obligation of the applicant to adhere to the requirements of commenting agencies.

Details

A development agreement was previously prepared that began with staff-suggested requirements and expanded to include commitments by the applicant. Since the meeting with the Board, the applicant has reviewed and updated the development agreement to address certain of the comments raised by the public and the Board.

In particular, additional detail was provided related to the formation of the Water Users Board, which will oversee the maintenance and operation of the public water system and septic systems to be installed at the property. With regard to the public water system, the development agreement requires that the applicant satisfy each of the requirements of IDEQ and SWDH, including the requirements for Public Drinking Water Systems pursuant to Idaho Administrative Code 58.01.08. With regard to the septic system, the applicant is required to conform to the Level I Nutrient Pathogen Study and shall include advanced systems providing for nitrate reduction, including holding tanks with treatment media.

The Water Users Board is responsible to work with each individual homeowner to ensure that the components of the public water system on each homeowners' lot as well as the advanced septic systems are maintained in accordance with operations and maintenance manuals that will be attached to the CCRs.

Water Users Association Role and Responsibilities

We wanted to share our thoughts and plans on how all of the private, community infrastructure for Haven Creek is going to be managed and maintained.

In lieu of a standard homeowner's association, our plan is to institute a formal Water Users Association (WUA). The WUA will be privately funded, available to neighboring landowners, and operated based on assessments required in the project CCRs. Specifically, it will be in charge of the following items:

- Community Water System
    - Community water system will be a redundant system with appropriate fail-safes as required by state level agencies and designed by qualified engineers, specifically Terry Scalan at HDR.
    - DEQ and DWR regulate community water systems.
    - They require that a certified operator be retained to do regularly scheduled maintenance, inspections, and certifications.
    - The WUA will maintain the landscaping around the community well site.
- Pressurized Irrigation
    - Pressurized irrigation system will consist of properly designed and engineered system to serve all 29 building lots
    - A Storage Holding Pond and pump facility will be located in the Northwest corner of the project
    - The storage pond will be filled with surface water rights through Boise Project's irrigation lines that already serve the property.
    - The surface water rights that currently serve the property are more than sufficient for the proposed residential uses.
    - The holding pond will ensure that water is available at a consistent schedule while allowing our neighbors on our same lines to continue to use their irrigation water as they have historically.
    - The WUA will also maintain the holding pond, pump equipment, and landscaping at the pond site.
- Advanced Treatment Septics
    - Advanced Treatment Septic systems require regular inspections and maintenance.

    - Most homeowners are not aware of or desire to do these inspections and maintenance.
    - Traditionally this O&M is to be enforced by SWDH, but SWDH does not have the resources to consistently do so
    - The WUA will retain a certified Operator that will inspect, certify, and perform O&M on the community's private, individual septic systems.

All of these plans will be further flushed out at the Preliminary Plat phase of this Project.

DA Appendices Attached in Appendix E:

- Development Agreement (Update for BOCC Hearing).docx

Applicant's Updated Responses to 8 Criteria

As it is placed upon the applicant to produce the burden of proof, we felt it important to provide clear and concise conclusions to the Criteria of Evaluation for the Commissioners' consideration.

Below you will find responses to the 8 criteria that a Conditional Rezone is subject to.

Criteria A:

Is the proposed conditional rezone generally consistent with the comprehensive plan?

Conclusion: The proposed conditional change is consistent with the 2020 Future Land Use Map and Comprehensive Plan. The FLUM identifies the site as "Residential."

Facts and Findings:

- The 2020 comprehensive plan identifies the site as "Residential."

Criteria B:

When considering the surrounding land uses, is the proposed conditional rezone more appropriate than the current zoning designation?

Conclusion: The proposed conditional rezone is more appropriate than the current zoning designation.

Facts and Findings:

- The city of Nampa has this area planned for residential use.
- The County FLUM has the area planned for residential use.
- The subject property is surrounded by 140 other houses in each direction
- There are 6 subdivisions within a 0.5 mile radius (or 13 subdivisions if increased to 1.0 mile) that, if built today, would require residential zoning.

Criteria C:

Is the proposed conditional rezone compatible with surrounding land uses?

Conclusion: As conditioned, this proposed conditional rezone is compatible with surrounding land uses which are defined as transitional.

Facts and Findings:

- The surrounding land use is primarily characterized by the 140 residential homes around this project and defined as rural transitional.
- Nearby Production agriculture has testified there are no compatibility concerns.
- Proposed water and septic approaches have been measured, studied, and shown compatible with surrounding water uses.
- New vehicle trips avoid all neighboring residential streets through direct access to Robinson Rd, an arterial street.
- Applicant's initial traffic study demonstrates negligible impact to Robinson Rd and no impact to level of service at relevant intersections.

Criteria D:

Will the proposed conditional rezone negatively affect the character of the area? What measures will be implemented to mitigate impacts?

Conclusion: The proposed conditional rezone does not cause a negative impact on the character of the area. The area is planned to be residential. It will continue to transition to residential. Concerns with lot size do not change the fact that the area is planned for increased residential density.

Facts and Findings:

- Surrounding parcels have a primary use as residential homes, with secondary use for personal agriculture.
- Proposed parcels have a primary use as residential homes, with secondary use for personal agriculture.
- Proposed project density is 1.51 acres per parcel.
- Within a 1 mile radius, 37 existing parcels are less than the average parcel size of this project. **The character of the neighborhood already includes many home sites smaller than those proposed here.**
- The surrounding neighborhood has supported parcels both larger and smaller than the proposed project for 30+ years without conflict or incompatibility.
- Additional mitigations have been proposed to improve the character of the area, including:
    - **Drainage/Irrigation:** Piping the Fieselmann Lateral; pressurized irrigation pond eliminates potential conflict in understanding surface irrigation processes
    - **Wells:** Neighboring property owners may join the proposed WUA, if desired

- **Traffic:** All traffic directed to existing arterial road; safety pull out for traffic exiting onto Robinson Rd and school bus pickup
- **Groundwater Supply:** Funded and maintained septic systems to avoid impact to neighboring wells' groundwater supply
- **Upkeep:** Funded and responsible party to maintain landscape improvements. Lots sized for ease of upkeep for typical homeowner without farm equipment.
- **Rural Design:** Road design, drainage, and landscape designed to blend with landscaping on neighboring residential properties

Criteria E:

Will adequate facilities and services including sewer, water, drainage, irrigation, and utilities be provided to accommodate the proposed conditional rezone?

Conclusion: As conditioned and planned, adequate facilities and services will be provided to accommodate the proposed conditional rezone.

Facts of Finding:

- Adequate sewer facilities have been demonstrated through use of standard and/or advanced nitrate-reducing septic systems, including sufficient ongoing maintenance through a proposed WUA.
- Adequate water facilities have been proposed through a redundant, fail-safe Community Public Water System designed and constructed in accordance with the requirements of IDEQ and SWDH, to be operated by a state-certified operator in accordance with IDEQ regulations
- Adequate drainage has been proposed through use of rural-scale road drainage and basins with existing offsite patterns maintained.
- Adequate irrigation has been proposed through inclusion of pressurized irrigation with a storage holding pond to prevent impact on neighboring usage patterns.
- Adequate other utilities (electric) have been proposed.

The Applicant has agreed – at the former County Engineer's suggestion – to provide a Community Public Water System. This brings with it a number of heightened standards and requirements beyond what would be required for individual wells, increasing safety and ensuring a steady water source for our residents. The Applicant has also agreed to install advanced nitrate-reducing septic systems, which will be overseen by the Community's WUA. The Applicant will continue to engineer, refine, and submit for review and approval for all required agencies including, but not limited to DEQ, SWDH, DWR, and Canyon County Development Services in accordance with standard development practices.

Criteria F:

Does legal access to the subject property for the conditional rezone exist or will it exist at the time of development?

Conclusion: The Property has existing access from Robinson Road, a public road.

Facts and Findings:

- Nampa Highway District #1 approved a request for a single point of access off of Robinson Rd since Nampa-Meridian Irrigation District requested that access not be taken off of Lewis Ln.
- A single point of access is acceptable and approved by the Fire District as this is under the limit of 30 single family residences and secondary dwellings are restricted as conditioned in the development agreement.

Criteria G:

Does the proposed conditional rezone require public street improvements in order to provide adequate access to and from the subject property to minimize undue interference with existing or future traffic patterns? What measures have been taken to mitigate traffic impacts?

Conclusion: As conditioned and planned, the proposed conditions rezone will not cause undue interference with existing or future traffic patterns.

Facts and Findings:

- The rezone is conditioned to provide dedicated Right-of-Way along Robinson Road at subdivision time.
- Per Applicant's Traffic Threshold Analysis and Trip Comparison, Adjacent Intersections are LOS A/B and expected ADT from the project will not affect the LOS.
- A traffic study is not required and street improvements are not required for a project of the proposed size.
- To mitigate any impact of increased school bus traffic, the project includes a new proposed school bus stop, which is sited to provide safe pickup/dropoff without impacting traffic flow

Criteria H:

Will the proposed conditional rezone amendment impact essential public services and facilities, such as schools, police, fire, and emergency medical services? What measures will be implemented to mitigate impacts?

Conclusion: Adequate essential public services and facilities are available.

Facts and Findings:

- Fire:
    - Kuna Rural Fire has signed off on the fire suppression plan and fire access turnarounds. They have provided an updated letter (4/2024) indicating current response times from Station #1 are adequate. Station #2 is undergoing entitlement and will improve response times further once complete.
- Police:
    - No response received as of 5/1/2024 after multiple requests. County Code Section 7-17-09(3)B states: “If no written reply is received from any of the various departments or interested agencies within thirty (30) calendar days from the date of notification, approval of the preliminary plat by such department or agency will be considered to be granted.”
- EMS:
    - Indicated they can serve the project from five different stations with responses times ranging between 12-18 mins
- Schools:
    - KSD expects 14 new students generated by this project. While KSD is confronting challenges in terms of capacity, **KSD has confirmed in writing that it has the capacity to serve the students generated by this project**
    - The applicant has agreed with KSD to provide mitigation in the form of an innovative construction project and funding source that the KSD Board of Trustees has reviewed and approved.

Appendix A

Septic Appendices Attached in Appendix A:

- B213035g_geotech.pdf
- B212203g_L1NP.pdf
- Pre-Development_1.10.23.pdf
- B212203g_ADU Letter-29 reference.pdf

GEOTECHNICAL INVESTIGATION

HAVEN ROBINSON

9814 Robinson Road
Kuna, ID

PREPARED FOR:

Mr. Tanner Verhoeks
Haven Idaho
521 North 10th Avenue #4
Caldwell, ID 83605

PREPARED BY:

Atlas Technical Consultants, LLC
2791 South Victory View Way
Boise, ID 83709

January 3, 2022
B213035g

January 3, 2022

Atlas No. B213035g

Mr. Tanner Verhoeks
Haven Idaho
521 North 10th Avenue #4
Caldwell, ID 83605

Subject: Geotechnical Investigation
Haven Robinson
9814 Robinson Road
Kuna, ID

Dear Mr. Verhoeks:

In compliance with your instructions, Atlas has conducted a soils exploration and foundation evaluation for the above referenced development. Fieldwork for this investigation was conducted on November 8 and 9, 2021. Data have been analyzed to evaluate pertinent geotechnical conditions. Results of this investigation, together with our recommendations, are to be found in the following report. We have provided a PDF copy for your review and distribution.

Often, questions arise concerning soil conditions because of design and construction details that occur on a project. Atlas would be pleased to continue our role as geotechnical engineers during project implementation.

If you have any questions, please call us at (208) 376-4748.

Respectfully submitted,

Bryar Jensen, EI
Staff Engineer

Elizabeth Brown, PE
Geotechnical Services Manager

Monica Saculles, PE
Senior Geotechnical Engineer

PROFESSIONAL ENGINEER
LICENSED
14919
1-3-22
STATE OF IDAHO
MONICA SACULLES

CONTENTS

TABLES

APPENDICES

1. INTRODUCTION

This report presents results of a geotechnical investigation and analysis in support of data utilized in design of structures as defined in the 2018 International Building Code (IBC). Information in support of groundwater and stormwater issues pertinent to the practice of Civil Engineering is included. Observations and recommendations relevant to the earthwork phase of the project are also presented. Revisions in plans or drawings for the proposed development from those enumerated in this report should be brought to the attention of the soils engineer to determine whether changes in the provided recommendations are required. Deviations from noted subsurface conditions, if encountered during construction, should also be brought to the attention of the soils engineer.

1.1 Project Description

The proposed development is northwest of the City of Kuna, Canyon County, ID, and occupies a portion of the NW¼ of Section 17, Township 2 North, Range 1 West, Boise Meridian. This project will consist of construction of a 19 to 29 lot residential subdivision to be developed on 43.86 acres. Total settlements are limited to 1 inch. Loads of up to 4,000 pounds per lineal foot for wall footings, and column loads of up to 50,000 pounds were assumed for settlement calculations. Additionally, assumptions have been made for traffic loading of pavements. Retaining walls are not anticipated as part of the project. Atlas has not been informed of the proposed grading plan.

1.2 Authorization

Authorization to perform this exploration and analysis was given in the form of a written authorization to proceed from Mr. Tanner Verhoeks of Haven Idaho to Monica Saculles of Atlas Technical Consultants (Atlas), on December 20, 2021. Said authorization is subject to terms, conditions, and limitations described in the Professional Services Contract entered into between Haven Idaho and Atlas. Our scope of services for the proposed development has been provided in our proposal dated October 19, 2021 and repeated below.

1.3 Scope of Investigation

The scope of this investigation included review of geologic literature and existing available geotechnical studies of the area, visual site reconnaissance of the immediate site, subsurface exploration of the site, field and laboratory testing of materials collected, and engineering analysis and evaluation of foundation materials.

2. SITE DESCRIPTION

2.1 Site Access

Access to the site may be gained via Interstate 84 to the Ten Mile Road exit. Proceed south on Ten Mile Road approximately 2.2 miles to its intersection with Amity Road. From this intersection, proceed west on Amity Road 3.0 miles to Robinson Road. Continue south on Robinson Road for

approximately 3.2 miles. The project site is located east of this location. The location is depicted on site maps included in the **Appendix**.

2.2 Regional Geology

The project site is located within the western Snake River Plain of southwestern Idaho and eastern Oregon. The plain is a northwest trending rift basin, about 45 miles wide and 200 miles long, that developed about 14 million years ago (Ma) and has since been occupied sporadically by large inland lakes. Geologic materials found within and along the plain's margins reflect volcanic and fluvial/lacustrine sedimentary processes that have led to an accumulation of approximately 1 to 2 km of interbedded volcanic and sedimentary deposits within the plain. Along the margins of the plain, streams that drained the highlands to the north and south provided coarse to fine-grained sediments eroded from granitic and volcanic rocks, respectively. About 2 million years ago the last of the lakes was drained and since that time fluvial erosion and deposition has dominated the evolution of the landscape.

The project site is underlain by "Basalt Flows of Indian Creek, Undivided" as mapped by Othberg and Stanford (1993). This volcanic deposit is composed of multiple flows of medium to dark gray olivine basalt. These flows erupted from numerous vents found south of the Boise River and north of the Snake River, southeast of the City of Boise, Idaho. At the time of eruption lavas flowed into and down ancestral Indian Creek and Boise River valleys. Northwest-trending, gently sloping escarpments suggest faulting of the basalt. These basalts are mantled with loess 2-12 feet thick that contains about 35% pedogenic clay and a duripan that can be 3 feet thick.

2.3 General Site Characteristics

The site to be developed is approximately 43.86 acres in size. Currently, a residence is present in the western portion of the site. This residence fronts Robinson Road, which runs along the western property boundary. Ridenbaugh Highline Canal runs roughly northeast to southwest through the central portion of the property. The Fieselmann Lateral Canal branches from the Ridenbaugh Highline Canal in the center of the site. The Fieselmann Lateral Canal runs northwest from the center of the site. The remainder of the site consists of agricultural cropland. Surrounding the project site from all directions is agricultural cropland and residential properties. Vegetation around the residence consists primarily of landscape trees, shrubs, and grasses adjacent to the residence. The remainder of the site consists of agricultural crops. The site is relatively flat and level.

Regional drainage is north and west toward the Boise River. Stormwater drainage for the site is achieved by percolation through surficial soils. The site is situated so that it is unlikely that it will receive any drainage from off-site sources. Stormwater drainage collection and retention systems are not in place on the project site and do not currently exist within the vicinity of the project site.

2.4 Regional Site Climatology and Geochemistry

According to the Western Regional Climate Center, the average precipitation for the Treasure Valley is on the order of 10 to 12 inches per year, with an annual snowfall of approximately 20 inches and a range from 3 to 49 inches. The monthly mean daily temperatures range from 21°F to 95°F, with daily extremes ranging from roughly -25°F to 111°F. Winds are generally from the northwest or southeast with an annual average wind speed of approximately 9 miles per hour (mph) and a maximum of 62 mph. Soils and sediments in the area are primarily derived from siliceous materials and exhibit low electro-chemical potential for corrosion of metals or concretes. Local aggregates are generally appropriate for Portland cement and lime cement mixtures. Surface water, groundwater, and soils in the region typically have pH levels ranging from 7.2 to 8.2.

3. SEISMIC SITE EVALUATION

3.1 Geoseismic Setting

Soils on site are classed as Site Class D in accordance with Chapter 20 of the American Society of Civil Engineers (ASCE) publication ASCE/SEI 7-16. Structures constructed on this site should be designed per IBC requirements for such a seismic classification. Our investigation did not reveal hazards resulting from potential earthquake motions including: slope instability, liquefaction, and surface rupture caused by faulting or lateral spreading. Incidence and anticipated acceleration of seismic activity in the area is low.

3.2 Seismic Design Parameter Values

The United States Geological Survey National Seismic Hazard Maps (2008), includes a peak ground acceleration map. The map for 2% probability of exceedance in 50 years in the Western United States in standard gravity (g) indicates that a peak ground acceleration of 0.189 is appropriate for the project site based on a Site Class D.

The following section provides an assessment of the earthquake-induced earthquake loads for the site based on the Risk-Targeted Maximum Considered Earthquake (MCE_R). The MCE_R spectral response acceleration for short periods, S_{MS}, and at 1-second period, S_{M1}, are adjusted for site class effects as required by the 2018 IBC. Design spectral response acceleration parameters as presented in the 2018 IBC are defined as a 5% damped design spectral response acceleration at short periods, S_{DS}, and at 1-second period, S_{D1}.

The USGS National Seismic Hazards Mapping Project includes a program that provides values for ground motion at a selected site based on the same data that were used to prepare the USGS ground motion maps. The maps were developed using attenuation relationships for soft rock sites; the source model, assumptions, and empirical relationships used in preparation of the maps are described in Petersen and others (1996).

Table 1 – Seismic Design Values

Seismic Design Parameter	Design Value
Site Class	D "Stiff Soil"
S_s	0.275 (g)
S_1	0.101 (g)
F_a	1.580
F_v	2.397
S_{MS}	0.435
S_{M1}	0.243
S_{DS}	0.290
S_{D1}	0.162

4. SOILS EXPLORATION

4.1 Exploration and Sampling Procedures

Field exploration conducted to determine engineering characteristics of subsurface materials included a reconnaissance of the project site and investigation by test pit. Test pit sites were located in the field by means of a Global Positioning System (GPS) device and are reportedly accurate to within ten feet. Upon completion of investigation, each test pit was backfilled with loose excavated materials. Re-excavation and compaction of these test pit areas are required prior to construction of overlying structures.

In addition, samples were obtained from representative soil strata encountered. Samples obtained have been visually classified in the field by professional staff, identified according to test pit number and depth, placed in sealed containers, and transported to our laboratory for additional testing. Subsurface materials have been described in detail on logs provided in the **Appendix**. Results of field and laboratory tests are also presented in the **Appendix**. Atlas recommends that these logs **not** be used to estimate fill material quantities.

4.2 Laboratory Testing Program

Along with our field investigation, a supplemental laboratory testing program was conducted to determine additional pertinent engineering characteristics of subsurface materials necessary in an analysis of anticipated behavior of the proposed structures. Laboratory tests were conducted in accordance with current applicable American Society for Testing and Materials (ASTM), and results of these tests are to be found in the **Appendix**. The laboratory testing program for this report included: Atterberg Limits Testing – ASTM D4318, Grain Size Analysis – ASTM C117/C136, Hydrometer – ASTM D422, and Resistance Value (R-value) and Expansion Pressure of Compacted Soils – Idaho T-8. As to date, the R-value test results have not been received and, therefore, have not been included within this report. Atlas will forward the results in the form of an addendum once the R-value test results have been received.

4.3 Soil and Sediment Profile

The profile below represents a generalized interpretation for the project site. Note that on site soils strata, encountered between test pit locations, may vary from the individual soil profiles presented in the logs, which can be found in the **Appendix**.

Sandy lean clays were encountered at ground surface. These soils were brown, slightly moist, and medium stiff to very stiff, with fine to medium-grained sand. Organic materials and disturbed materials as a result of plowing activities were measured to depths of roughly 1 foot.

Sandy silts were encountered beneath surficial clays. These fine-grained soils were brown to light brown and slightly moist. Consistencies commonly ranged from stiff to hard, with many of these firmer soil horizons containing some degree of calcium carbonate cementation (hardpan). Fine to coarse-grained sand was present throughout this horizon. Refusal on basalt was encountered at depth in all test pits except test pits 9 and 13, where refusal was met on indurated clay soils.

During excavation, test pit sidewalls were generally stable. However, moisture contents will affect wall competency with saturated soils having a tendency to readily slough when under load and unsupported.

4.4 Volatile Organic Scan

No environmental concerns were identified prior to commencement of the investigation. Therefore, soils obtained during on-site activities were not assessed for volatile organic compounds by portable photoionization detector. Samples obtained during our exploration activities exhibited no odors or discoloration typically associated with this type of contamination. No groundwater was encountered.

5. SITE HYDROLOGY

Existing surface drainage conditions are defined in the **General Site Characteristics** section. Information provided in this section is limited to observations made at the time of the investigation. Either regional or local ordinances may require information beyond the scope of this report.

5.1 Groundwater

During this field investigation, groundwater was not encountered in test pits advanced to a maximum depth of 13.8 feet bgs. Soil moistures in the test pits were dry to slightly moist throughout.

Atlas has previously performed 2 geotechnical investigations within 0.75 mile of the project site. Information from these investigations has been provided in the table below.

Table 2 – Groundwater Data

Date	Approximate Distance from Site (mile)	Direction from Site	Groundwater Depth (feet bgs)
January 2006	0.55	East	Not Encountered to 17.4
September 2020	0.75	West	Not encountered to 9.8

Furthermore, according to Idaho Department of Water Resources (IDWR) monitoring well data within approximately ¼-mile of the project site, groundwater was measured at depths ranging between 38 and 62 feet bgs.

Based on evidence of this investigation and background knowledge of the area, Atlas estimates groundwater depths to remain greater than approximately 20 feet bgs throughout the year. This depth can be confirmed through long-term groundwater monitoring.

5.2 Soil Infiltration Rates

Soil permeability, which is a measure of the ability of a soil to transmit a fluid, was tested in the field. For this report, an estimation of infiltration is also presented using generally recognized values for each soil type and gradation. Of soils comprising the generalized soil profile for this study, lean clay with sand and sandy lean clay soils generally offer little permeability, with typical hydraulic infiltration rates of less than 2 inches per hour. Sandy silt soils will commonly exhibit infiltration rates from 2 to 4 inches per hour. However, calcium carbonate cementation and induration encountered within the clay and silt soils may reduce these values to near zero. Infiltration rates through basalt rock can be highly variable, ranging from nearly zero to greater than 6 inches per hour in some cases. Movement of water through the basalt may be more characteristic of fracture flow. Infiltration testing is required to determine site-specific infiltration rates for drainage design once proposed locations of infiltration facilities are determined.

5.3 Infiltration Testing

Infiltration testing was conducted using an open test pit method. Test pit areas will need to be re-excavated and compacted prior to construction of structures that will be sensitive to settlement. Test locations were presoaked prior to testing. Pre-soaking increases soil moistures, which allows the tested soils to reach a saturated condition more readily during testing. Saturation of the tested soils is desirable in order to isolate the vertical component of infiltration by inhibiting horizontal seepage during testing.

Testing was conducted on November 9, 2021. Details and results of testing are as follows:

Table 3 – Infiltration Test Results

Test Location	Test Depth (feet bgs)	Soil Type	Stabilized Infiltration Rate (inches/hour)	Design Infiltration Rate (inches per hour)
TP-1	6.1	Basalt	12.2*	6.1*
TP-5	5.1	Basalt	2.0	1.0
TP-6	9.2	Basalt	11.5*	5.75*
TP-14	9.6	Basalt	0.8	0.4
TP-18	8.9	Basalt	0.9	0.45

***It is anticipated that water was draining through fractures in the basalt. These rates are appropriate for the tested location only and may not be suitable for design in other areas of the site. Additional infiltration testing is recommended once actual infiltration facility locations have been determined.**

Appropriate factors of safety have been applied to the stabilized infiltration rates achieved during testing to obtain the design infiltration rates listed above. The reason for the decreased infiltration rate is to account for long term saturation of the soils and the potential for less permeable soils to settle into the bottom of the infiltration facilities. Atlas recommends that all infiltration facilities be

6. FOUNDATION AND SLAB DISCUSSION AND RECOMMENDATIONS

Various foundation types have been considered for support of the proposed structures. Two requirements must be met in the design of foundations. First, the applied bearing stress must be less than the ultimate bearing capacity of foundation soils to maintain stability. Second, total and differential settlement must not exceed an amount that will produce an adverse behavior of the superstructure. Allowable settlement is usually exceeded before bearing capacity considerations become important; thus, allowable bearing pressure is normally controlled by settlement considerations.

Considering subsurface conditions and the proposed construction, it is recommended that the structures be founded upon conventional spread footings and continuous wall footings. Total settlements should not exceed 1 inch if the following design and construction recommendations are observed. Presently, there are approximately 19 to 29 lots proposed for the project site. The following recommendations are not specific to the individual structures, but rather should be viewed as guidelines for the subdivision-wide development.

6.1 Foundation Design Recommendations

Based on data obtained from the site and test results from various laboratory tests performed, Atlas recommends the following guidelines for the net allowable soil bearing capacity:

Table 4 – Soil Bearing Capacity

Footing Depth	ASTM D1557 Subgrade Compaction	Net Allowable Soil Bearing Capacity
Footings must bear on competent, undisturbed, native sandy lean clay soils, sandy silt soils, or compacted structural fill. Existing organics materials and fill materials (if encountered) must be completely removed from below foundation elements.[1] An excavation depth of approximately 1 foot bgs should be anticipated to expose proper bearing soils.[2]	Not Required for Native Soil 95% for Structural Fill	1,500 lbs/ft^2 A ⅓ increase is allowable for short-term loading, which is defined by seismic events or designed wind speeds.

[1]It will be required for Atlas personnel to verify the bearing soil suitability for each structure at the time of construction.
[2]Depending on the time of year construction takes place, the subgrade soils may be unstable because of high moisture contents. If unstable conditions are encountered, over-excavation and replacement with granular structural fill and/or use of geotextiles may be required.

The following sliding frictional coefficient values should be used: 1) 0.35 for footings bearing on native sandy silt, sandy lean clay, or silty sand soils and 2) 0.45 for footings bearing on granular structural fill. A passive lateral earth pressure of 320 pounds per square foot per foot (psf/ft) should be used for sandy lean clay soils and 349 psf/ft should be used for sandy silt soils. For compacted sandy gravel fill, a passive lateral earth pressure of 496 psf/ft should be used.

Footings should be proportioned to meet either the stated soil bearing capacity or the 2018 IBC minimum requirements. Total settlement should be limited to approximately 1 inch, and differential settlement should be limited to approximately ½ inch. Objectionable soil types encountered at the bottom of footing excavations should be removed and replaced with structural fill. Excessively loose or soft areas that are encountered in the footings subgrade will require over-excavation and backfilling with structural fill. To minimize the effects of slight differential movement that may occur because of variations in the character of supporting soils and seasonal moisture content, Atlas recommends continuous footings be suitably reinforced to make them as rigid as possible. For frost protection, the bottom of external footings should be 24 inches below finished grade.

6.2 Foundation Drain Recommendations

Considering the presence of shallow cemented soils across the site, Atlas recommends that foundation drains be installed. The drains should be placed at the footing elevation, sloped at least 2 percent, and be directed to suitable discharge points at least 10 feet away from the structures. Discharge points should be protected to prevent erosion.

6.3 Crawl Space Recommendations

Considering the presence of shallow cemented soils across the site, all residences constructed with crawl spaces should be designed in a manner that will inhibit water in the crawl spaces. Atlas recommends that roof drains carry stormwater at least 10 feet away from each residence. Grades should be at least 5 percent for a distance of 10 feet away from all residences. In addition, rain gutters should be placed around all sides of residences, and backfill around stem walls should be placed and compacted in a controlled manner.

6.4 Floor, Patio, and Garage Slab-on-Grade

Organic, loose, or obviously compressive materials must be removed prior to placement of concrete floors or floor-supporting fill. In addition, the remaining subgrade should be treated in accordance with guidelines presented in the **Earthwork** section. Areas of excessive yielding should be excavated and backfilled with structural fill. Fill used to increase the elevation of the floor slab should meet requirements detailed in the **Structural Fill** section. Fill materials must be compacted to a minimum 95 percent of the maximum dry density as determined by ASTM D1557.

A free-draining granular mat should be provided below slabs-on-grade to provide drainage and a uniform and stable bearing surface. This should be a minimum of 4 inches in thickness and properly compacted. The mat should consist of a sand and gravel mixture, complying with Idaho Standards for Public Works Construction (ISPWC) specifications for ¾-inch (Type 1) crushed aggregate. The granular mat should be compacted to no less than 95 percent of the maximum dry density as determined by ASTM D1557. A moisture-retarder should be placed beneath floor slabs to minimize potential ground moisture effects on moisture-sensitive floor coverings. The moisture-retarder should be at least 15-mil in thickness and have a permeance of less than 0.01 US perms as determined by ASTM E96. Placement of the moisture-retarder will require special consideration with regard to effects on the slab-on-grade and should adhere to recommendations outlined in the ACI 302.1R and ASTM E1745 publications. Upon request, Atlas can provide further consultation regarding installation.

7. CONSTRUCTION CONSIDERATIONS

Recommendations in this report are based upon structural elements of the project being founded on competent, native sandy lean clay soils, sandy silt soils, or compacted structural fill. Structural areas should be stripped to an elevation that exposes these soil types.

7.1 Earthwork

Excessively organic soils, deleterious materials, or disturbed soils generally undergo high volume changes when subjected to loads, which is detrimental to subgrade behavior in the area of pavements, floor slabs, structural fills, and foundations. Mature trees, brush, thick grasses, and agricultural crops with associated root systems were noted at the time of our investigation. It is recommended that organic or disturbed soils, if encountered, be removed to depths of 1 foot (minimum), and wasted or stockpiled for later use. However, in areas where trees are/were

present, deeper excavation depths should be anticipated. Stripping depths should be adjusted in the field to assure that the entire root zone or disturbed zone (plow depths) or topsoil are removed prior to placement and compaction of structural fill materials. Exact removal depths should be determined during grading operations by Atlas personnel, and should be based upon subgrade soil type, composition, and firmness or soil stability. If underground storage tanks, underground utilities, wells, or septic systems are discovered during construction activities, they must be decommissioned then removed or abandoned in accordance with governing Federal, State, and local agencies. Excavations developed as the result of such removal must be backfilled with structural fill materials as defined in the **Structural Fill** section.

Atlas should oversee subgrade conditions (i.e., moisture content) as well as placement and compaction of new fill (if required) after native soils are excavated to design grade. Recommendations for structural fill presented in this report can be used to minimize volume changes and differential settlements that are detrimental to the behavior of footings, pavements, and floor slabs. Sufficient density tests should be performed to properly monitor compaction. For structural fill beneath building structures, one in-place density test per lift for every 5,000 square feet is recommended. In parking and driveway areas, this can be decreased to one test per lift for every 10,000 square feet.

7.2 Dry Weather

If construction is to be conducted during dry seasonal conditions, many problems associated with soft soils may be avoided. However, some rutting of subgrade soils may be induced by shallow groundwater conditions related to springtime runoff or irrigation activities during late summer through early fall. Solutions to problems associated with soft subgrade soils are outlined in the **Soft Subgrade Soils** section. Problems may also arise because of lack of moisture in native and fill soils at time of placement. This will require the addition of water to achieve near-optimum moisture levels. Low-cohesion soils exposed in excavations may become friable, increasing chances of sloughing or caving. Measures to control excessive dust should be considered as part of the overall health and safety management plan.

7.3 Wet Weather

If construction is to be conducted during wet seasonal conditions (commonly from mid-November through May), problems associated with soft soils must be considered as part of the construction plan. During this time of year, fine-grained soils such as silts and clays will become unstable with increased moisture content, and eventually deform or rut. Additionally, constant low temperatures reduce the possibility of drying soils to near optimum conditions.

7.4 Soft Subgrade Soils

Shallow fine-grained subgrade soils that are high in moisture content should be expected to pump and rut under construction traffic. During periods of wet weather, construction may become very difficult if not impossible. The following recommendations and options have been included for dealing with soft subgrade conditions:

- Track-mounted vehicles should be used to strip the subgrade of root matter and other deleterious debris. Heavy rubber-tired equipment should be prohibited from operating directly on the native subgrade and areas in which structural fill materials have been placed. Construction traffic should be restricted to designated roadways that do not cross, or cross on a limited basis, proposed roadway or parking areas.
- Soft areas can be over-excavated and replaced with granular structural fill.
- Construction roadways on soft subgrade soils should consist of a minimum 2-foot thickness of large cobbles of 4 to 6 inches in diameter with sufficient sand and fines to fill voids. Construction entrances should consist of a 6-inch thickness of clean, 2-inch minimum, angular drain-rock and must be a minimum of 10 feet wide and 30 to 50 feet long. During the construction process, top dressing of the entrance may be required for maintenance.
- Scarification and aeration of subgrade soils can be employed to reduce the moisture content of wet subgrade soils. After stripping is complete, the exposed subgrade should be ripped or disked to a depth of 1½ feet and allowed to air dry for 2 to 4 weeks. Further disking should be performed on a weekly basis to aid the aeration process.
- Alternative soil stabilization methods include use of geotextiles, lime, and cement stabilization. Atlas is available to provide recommendations and guidelines at your request.

7.5 Frozen Subgrade Soils

Prior to placement of structural fill materials or foundation elements, frozen subgrade soils must either be allowed to thaw or be stripped to depths that expose non-frozen soils and wasted or stockpiled for later use. Stockpiled materials must be allowed to thaw and return to near-optimal conditions prior to use as structural fill.

The onsite, shallow clayey and silty soils are susceptible to frost heave during freezing temperatures. For exterior flatwork and other structural elements, adequate drainage away from subgrades is critical. Compaction and use of structural fill will also help to mitigate the potential for frost heave. Complete removal of frost susceptible soils for the full frost depth, followed by replacement with a non-frost susceptible structural fill, can also be used to mitigate the potential for frost heave. Atlas is available to provide further guidance/assistance upon request.

7.6 Structural Fill

Soils recommended for use as structural fill are those classified as GW, GP, SW, and SP in accordance with the Unified Soil Classification System (USCS) (ASTM D2487). Use of silty soils (USCS designation of GM, SM, and ML) as structural fill may be acceptable. However, use of silty soils (GM, SM, and ML) as structural fill below footings is prohibited. These materials require very high moisture contents for compaction and require a long time to dry out if natural moisture contents are too high and may also be susceptible to frost heave under certain conditions. Therefore, these materials can be quite difficult to work with as moisture content, lift thickness, and compactive effort becomes difficult to control. If silty soil is used for structural fill, lift thicknesses should not exceed 6 inches (loose), and fill material moisture must be closely monitored at both the working elevation and the elevations of materials already placed. Following

placement, silty soils must be protected from degradation resulting from construction traffic or subsequent construction.

Recommended granular structural fill materials, those classified as GW, GP, SW, and SP, should consist of a 6-inch minus select, clean, granular soil with no more than 50 percent oversize (greater than ¾-inch) material and no more than 12 percent fines (passing No. 200 sieve). These fill materials should be placed in layers not to exceed 12 inches in loose thickness. Prior to placement of structural fill materials, surfaces must be prepared as outlined in the **Construction Considerations** section. Structural fill material should be moisture-conditioned to achieve optimum moisture content prior to compaction. For structural fill below footings, areas of compacted backfill must extend outside the perimeter of the footings for a distance equal to the thickness of fill between the bottom of foundation and underlying soils, or 5 feet, whichever is less. All fill materials must be monitored during placement and tested to confirm compaction requirements, outlined below, have been achieved.

Each layer of structural fill must be compacted, as outlined below:

- Below Structures and Rigid Pavements: A minimum of 95 percent of the maximum dry density as determined by ASTM D1557.
- Below Flexible Pavements: A minimum of 92 percent of the maximum dry density as determined by ASTM D1557 or 95 percent of the maximum dry density as determined by ASTM D698.

The ASTM D1557 test method must be used for samples containing up to 40 percent oversize (greater than ¾-inch) particles. If material contains more than 40 percent but less than 50 percent oversize particles, compaction of fill must be confirmed by proof rolling each lift with a 10-ton vibratory roller (or equivalent) until the maximum density has been achieved. Density testing must be performed after each proof rolling pass until the in-place density test results indicate a drop (or no increase) in the dry density, defined as maximum density or "break over" point. The number of required passes should be used as the requirements on the remainder of fill placement. Material should contain sufficient fines to fill void spaces, and must not contain more than 50 percent oversize particles.

7.7 Backfill of Walls

Backfill materials must conform to the requirements of structural fill, as defined in this report. For wall heights greater than 2.5 feet, the maximum material size should not exceed 4 inches in diameter. Placing oversized material against rigid surfaces interferes with proper compaction, and can induce excessive point loads on walls. Backfill shall not commence until the wall has gained sufficient strength to resist placement and compaction forces. Further, retaining walls above 2.5 feet in height shall be backfilled in a manner that will limit the potential for damage from compaction methods and/or equipment. It is recommended that only small hand-operated compaction equipment be used for compaction of backfill within a horizontal distance equal to the height of the wall, measured from the back face of the wall.

Backfill should be compacted in accordance with the specifications for structural fill, except in those areas where it is determined that future settlement is not a concern, such as planter areas. In nonstructural areas, backfill must be compacted to a firm and unyielding condition.

7.8 Excavations

Shallow excavations that do not exceed 4 feet in depth may be constructed with side slopes approaching vertical. Below this depth, it is recommended that slopes be constructed in accordance with Occupational Safety and Health Administration (OSHA) regulations, Section 1926, Subpart P. Based on these regulations, on-site soils are classified as type "C" soil, and as such, excavations within these soils should be constructed at a maximum slope of 1½ feet horizontal to 1 foot vertical (1½:1) for excavations up to 20 feet in height. Excavations in excess of 20 feet will require additional analysis. Note that these slope angles are considered stable for short-term conditions only, and will not be stable for long-term conditions.

During the subsurface exploration, test pit sidewalls generally exhibited little indication of collapse. For deep excavations, native granular sediments cannot be expected to remain in position. These materials are prone to failure and may collapse, thereby undermining upper soil layers. This is especially true when excavations approach depths near the water table. Care must be taken to ensure that excavations are properly backfilled in accordance with procedures outlined in this report.

7.9 Groundwater Control

Groundwater was not encountered during the investigation and is anticipated to be below the depth of most construction. Special precautions may be required for control of surface runoff and subsurface seepage. It is recommended that runoff be directed away from open excavations. Silty and clayey soils may become soft and pump if subjected to excessive traffic during time of surface runoff. Ponded water in construction areas should be drained through methods such as trenching, sloping, crowning grades, nightly smooth drum rolling, or installing a French drain system. Additionally, temporary or permanent driveway sections should be constructed if extended wet weather is forecasted.

8. GENERAL COMMENTS

Based on the subsurface conditions encountered during this investigation and available information regarding the proposed development, the site is adequate for the planned construction. When plans and specifications are complete, and if significant changes are made in the character or location of the proposed development, consultation with Atlas must be arranged as supplementary recommendations may be required. Suitability of subgrade soils and compaction of structural fill materials must be verified by Atlas personnel prior to placement of structural elements. Additionally, monitoring and testing should be performed to verify that suitable materials are used for structural fill and that proper placement and compaction techniques are utilized.

9. REFERENCES

American Concrete Institute (ACI) (2015). Guide for Concrete Floor and Slab Construction: ACI 302.1R. Farmington Hills, MI: ACI.

American Society of Civil Engineers (2021). ASCE 7 Hazards Tool: Web Interface [Online] Available: <https://asce7hazardtool.online/> (2021).

American Society of Civil Engineers (ASCE) (2013). Minimum Design Loads for Buildings and Other Structures: ASCE/SEI 7-16. Reston, VA: ASCE.

American Society for Testing and Materials (ASTM) (2017). Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing: ASTM C117. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2014). Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates: ASTM C136. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2012). Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort: ASTM D698. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2012). Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort: ASTM D1557. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2017). Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System): ASTM D2487. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2017). Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils: ASTM D4318. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2011). Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs: ASTM E1745. West Conshohocken, PA: ASTM.

Desert Research Institute. Western Regional Climate Center. [Online] Available: <http://www.wrcc.dri.edu/> (2021).

Idaho Department of Water Resources. [Online] Well Construction & Drilling, Find a Well Mapping Tool. <http://www.idwr.idaho.gov/wells/find-a-well.html> (2021).

International Building Code Council (2018). International Building Code, 2018. Country Club Hills, IL: Author.

Local Highway Technical Assistance Council (LHTAC) (2017). Idaho Standards for Public Works Construction, 2017. Boise, ID: Author.

Othberg, K. L. and Stanford, L. A., Idaho Geologic Society (1993). Geologic Map of the Boise Valley and Adjoining Area, Western Snake River Plain, Idaho. (scale 1:100,000). Boise, ID: Joslyn and Morris.

U.S. Department of Labor, Occupational Safety and Health Administration. CFR 29, Part 1926, Subpart P: Safety and Health Regulations for Construction, Excavations (1986). [Online] Available: <www.osha.gov> (2021).

Appendix I WARRANTY AND LIMITING CONDITIONS

Atlas warrants that findings and conclusions contained herein have been formulated in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology only for the site and project described in this report. These engineering methods have been developed to provide the client with information regarding apparent or potential engineering conditions relating to the site within the scope cited above and are necessarily limited to conditions observed at the time of the site visit and research. Field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for the purposes cited above.

Exclusive Use

This report was prepared for exclusive use of the property owner(s), at the time of the report, and their retained design consultants ("Client"). Conclusions and recommendations presented in this report are based on the agreed-upon scope of work outlined in this report together with the Contract for Professional Services between the Client and Atlas Technical Consultants ("Consultant"). Use or misuse of this report, or reliance upon findings hereof, by parties other than the Client is at their own risk. Neither Client nor Consultant make representation of warranty to such other parties as to accuracy or completeness of this report or suitability of its use by such other parties for purposes whatsoever, known or unknown, to Client or Consultant. Neither Client nor Consultant shall have liability to indemnify or hold harmless third parties for losses incurred by actual or purported use or misuse of this report. No other warranties are implied or expressed.

Report Recommendations are Limited and Subject to Misinterpretation

There is a distinct possibility that conditions may exist that could not be identified within the scope of the investigation or that were not apparent during our site investigation. Findings of this report are limited to data collected from noted explorations advanced and do not account for unidentified fill zones, unsuitable soil types or conditions, and variability in soil moisture and groundwater conditions. To avoid possible misinterpretations of findings, conclusions, and implications of this report, Atlas should be retained to explain the report contents to other design professionals as well as construction professionals.

Since actual subsurface conditions on the site can only be verified by earthwork, note that construction recommendations are based on general assumptions from selective observations and selective field exploratory sampling. Upon commencement of construction, such conditions may be identified that require corrective actions, and these required corrective actions may impact the project budget. Therefore, construction recommendations in this report should be considered preliminary, and Atlas should be retained to observe actual subsurface conditions during earthwork construction activities to provide additional construction recommendations as needed.

Since geotechnical reports are subject to misinterpretation, **do not** separate the soil logs from the report. Rather, provide a copy of, or authorize for their use, the complete report to other design professionals or contractors. Locations of exploratory sites referenced within this report should be considered approximate locations only. For more accurate locations, services of a professional land surveyor are recommended.

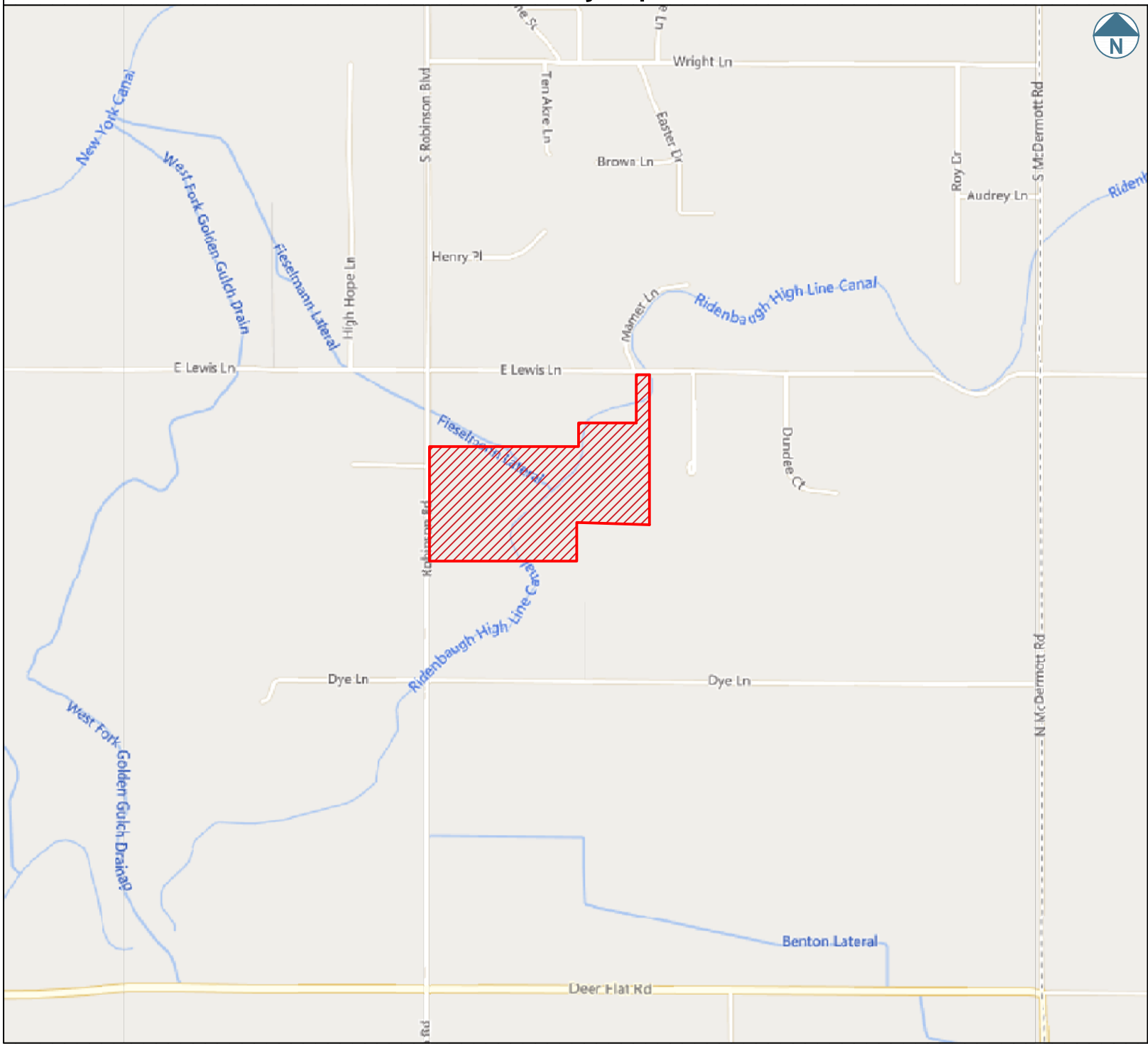
This report is also limited to information available at the time it was prepared. In the event additional information is provided to Atlas following publication of our report, it will be forwarded to the client for evaluation in the form received.

Environmental Concerns

Comments in this report concerning either onsite conditions or observations, including soil appearances and odors, are provided as general information. These comments are not intended to describe, quantify, or evaluate environmental concerns or situations. Since personnel, skills, procedures, standards, and equipment differ, a geotechnical investigation report is not intended to substitute for a geoenvironmental investigation or a Phase II/III Environmental Site Assessment. If environmental services are needed, Atlas can provide, via a separate contract, those personnel who are trained to investigate and delineate soil and water contamination.

Vicinity Map

Figure 1



MAP NOTES:

- Not to Scale

LEGEND

Approximate Site Location

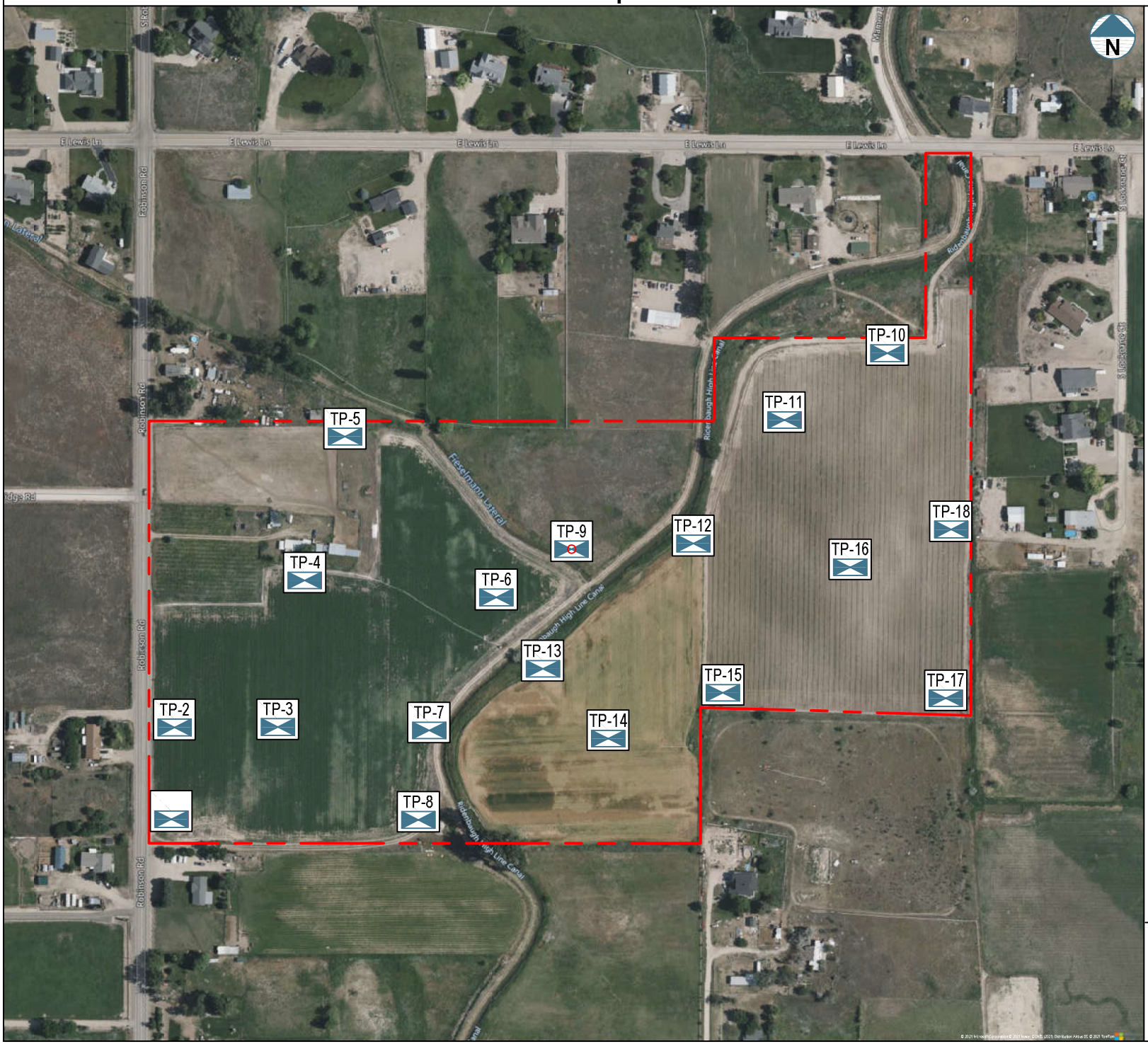
Haven Robinson
9814 Robinson Road
Kuna, ID

Modified by: CBJ
December 28, 2021
Drawing: B213035g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Site Map

Figure 2



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

Approximate Atlas Test Pit Location

Approximate Atlas Test Pit Location with Piezometer

Haven Robinson
9814 Robinson Road
Kuna, ID

Modified by: CBJ
December 28, 2021
Drawing: B213035g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Appendix IV GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-1
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513370
Longitude: -116.493220
Depth to Water Table: Not Encountered
Total Depth: 6.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-6.1	Sandy Silt (ML): Brown, slightly moist, stiff to very stiff, with fine to medium-grained sand. --Refusal on basalt rock at a depth of 6.1 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 6.1 feet bgs.

Test Pit Log #: TP-2
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513919
Longitude: -116.493232
Depth to Water Table: Not Encountered
Total Depth: 9.2 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.6	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.6-9.2	Sandy Silt (ML): Brown, slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.5 to 9.2 feet bgs. --Refusal on basalt rock at a depth of 9.2 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-3
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514004
Longitude: -116.492150
Depth to Water Table: Not Encountered
Total Depth: 8.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-8.4	Sandy Silt (ML): Brown, slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.8 to 8.4 feet bgs. --Refusal on basalt rock at a depth of 8.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-4
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514769
Longitude: -116.492048
Depth to Water Table: Not Encountered
Total Depth: 4.5 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.2	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.2-4.5	Sandy Silt (ML): Brown, slightly moist, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 4.5 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-5
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515734
Longitude: -116.491675
Depth to Water Table: Not Encountered
Total Depth: 5.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-5.1	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.9 to 5.1 feet bgs. --Refusal on basalt rock at a depth of 5.1 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 5.1 feet bgs.

Test Pit Log #: TP-6
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514699
Longitude: -116.490435
Depth to Water Table: Not Encountered
Total Depth: 9.2 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.2	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.2-9.2	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.3 to 9.2 feet bgs. --Refusal on basalt rock at a depth of 9.2 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 9.2 feet bgs.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-7
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514023
Longitude: -116.490859
Depth to Water Table: Not Encountered
Total Depth: 6.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.5	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.	GS	1.0-1.5	0.75	A
1.5-6.6	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.1 to 6.6 feet bgs. --Refusal on basalt rock at a depth of 6.6 feet bgs.				

Notes: See Site Map for test pit location.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
A	16.3	31	9	99	98	95	90	77.9

Test Pit Log #: TP-8
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513284
Longitude: -116.491078
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-8.9	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.8 to 8.9 feet bgs. --Refusal on basalt rock at a depth of 8.6 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-9
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515059
Longitude: -116.489707
Depth to Water Table: Not Encountered
Total Depth: 11.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.6	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material to a depth of 1 foot bgs.			0.75	
1.6-10.0	Sandy Silt (ML): Brown, dry, very stiff, with fine to coarse-grained sand. --Moderate calcium carbonate cementation from 6.9 to 10.0 feet bgs.				
10.0-11.6	Sandy Lean Clay (CL): Brown, dry, hard, with fine to medium-grained sand. --Refusal on indurated clay at a depth of 11.6 feet bgs.				

Notes: See Site Map for test pit location.
Piezometer installed to a depth of 11.6 feet bgs.

Test Pit Log #: TP-10
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.516354
Longitude: -116.487011
Depth to Water Table: Not Encountered
Total Depth: 8.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-8.1	Sandy Silt (ML): Light brown, dry, very stiff to hard, with fine to coarse-grained sand. --Moderate calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 8.1 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-11
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515509
Longitude: -116.487674
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.8	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.	Bulk	1.0-1.5	0.75	R-value
1.8-10.4	Sandy Silt (ML): Brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 10.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-12
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515085
Longitude: -116.488617
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-10.4	Sandy Silt (ML): Light brown, dry to slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.5 to 10.4 feet bgs. --Refusal on basalt rock at a depth of 10.4 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-13
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514232
Longitude: -116.489891
Depth to Water Table: Not Encountered
Total Depth: 13.8 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-11.5	Sandy Silt (ML): Light brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 5.7 to 11.5 feet bgs.				
11.5-13.8	Lean Clay with Sand (CL): Brown, slightly moist, hard, with fine to medium-grained sand. --Refusal on indurated clay at a depth of 13.8 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-14
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513946
Longitude: -116.489470
Depth to Water Table: Not Encountered
Total Depth: 9.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.9	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.9-9.6	Sandy Silt (ML): Light brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 4.4 to 9.6 feet bgs. --Refusal on basalt rock at a depth of 9.6 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 9.6 feet bgs.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-15
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514030
Longitude: -116.488480
Depth to Water Table: Not Encountered
Total Depth: 10.3 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-2.4	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			2.25	
2.4-10.3	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 4.6 to 10.3 feet bgs. --Refusal on basalt rock at a depth of 10.3 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-16
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514700
Longitude: -116.487201
Depth to Water Table: Not Encountered
Total Depth: 4.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.1	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			3.5	
1.1-4.9	Sandy Silt (ML): Brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 4.9 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-17
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514012
Longitude: -116.486229
Depth to Water Table: Not Encountered
Total Depth: 10.3 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.9	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			3.5	
1.9-10.3	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 10.3 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-18
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515035
Longitude: -116.486296
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.7	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			2.5	
1.7-8.9	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 8.9 feet bgs.	GS	8.0-8.5		B

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 8.9 feet bgs.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
B	24.1	NP	NP	86	83	81	80	69.6

Appendix V GEOTECHNICAL GENERAL NOTES

Unified Soil Classification System			
Major Divisions		**Symbol**	**Soil Descriptions**
Coarse-Grained Soils < 50% passes No.200 sieve	Gravel & Gravelly Soils < 50% coarse	GW	Well-graded gravels; gravel/sand mixtures with little or no fines
		GP	Poorly-graded gravels; gravel/sand mixtures with little or no fines
		GM	Silty gravels; poorly-graded gravel/sand/silt mixtures
		GC	Clayey gravels; poorly-graded gravel/sand/clay mixtures
	Sand & Sandy Soils > 50% coarse fraction	SW	Well-graded sands; gravelly sands with little or no fines
		SP	Poorly-graded sands; gravelly sands with little or no fines
		SM	Silty sands; poorly-graded sand/gravel/silt mixtures
		SC	Clayey sands; poorly-graded sand/gravel/clay mixtures
Fine-Grained Soils > 50% passes No.200 sieve	Silts & Clays LL < 50	ML	Inorganic silts; sandy, gravelly or clayey silts
		CL	Lean clays; inorganic, gravelly, sandy, or silty, low to medium-plasticity clays
		OL	Organic, low-plasticity clays and silts
	Silts & Clays LL > 50	MH	Inorganic, elastic silts; sandy, gravelly or clayey elastic silts
		CH	Fat clays; high-plasticity, inorganic clays
		OH	Organic, medium to high-plasticity clays and silts
Highly Organic Soils		PT	Peat, humus, hydric soils with high organic content

Relative Density and Consistency Classification	
Coarse-Grained Soils	**SPT Blow Counts (N)**
Very Loose:	< 4
Loose:	4-10
Medium Dense:	10-30
Dense:	30-50
Very Dense:	> 50
Fine-Grained Soils	**SPT Blow Counts (N)**
Very Soft:	< 2
Soft:	2-4
Medium Stiff:	4-8
Stiff:	8-15
Very Stiff:	15-30
Hard:	> 30

Moisture Content and Cementation Classification	
Description	**Field Test**
Dry	Absence of moisture, dry to touch
Slightly Moist	Damp, but no visible moisture
Moist	Visible moisture
Wet	Visible free water
Saturated	Soil is usually below water table
Description	**Field Test**
Weak	Crumbles or breaks with handling or slight finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

Particle Size	
Boulders:	> 12 in.
Cobbles:	12 to 3 in.
Gravel:	3 in. to 5 mm
Coarse-Grained Sand:	5 to 0.6 mm
Medium-Grained Sand:	0.6 to 0.2 mm
Fine-Grained Sand:	0.2 to 0.075 mm
Silts:	0.075 to 0.005 mm
Clays:	< 0.005 mm

Acronym List	
GS	grab sample
LL	Liquid Limit
M	moisture content
NP	non-plastic
PI	Plasticity Index
Q_p	penetrometer value, unconfined compressive strength, tsf
V	vane value, ultimate shearing strength, tsf

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

LEVEL 1 NUTRIENT PATHOGEN STUDY

HAVEN CREEK SUBDIVISION

9814 Robinson Road
Kuna, ID

PREPARED FOR:

Mr. Tanner Verhoeks
Haven Idaho
521 North 10th Avenue #4

PREPARED BY:

Atlas Technical Consultants, LLC
2791 South Victory View Way

January 14, 2022
B212203g

2791 South Victory View Way
Boise, ID 83709
(208) 376-4748 | oneatlas.com

Atlas No. B212203g

Mr. Tanner Verhoeks
Haven Idaho
521 North 10th Avenue #4

Subject: **Level 1 Nutrient Pathogen Study**
Haven Creek Subdivision
9814 Robinson Road
Kuna, ID

Dear Mr. Verhoeks:

In compliance with your instructions, Atlas has conducted a Level 1 Nutrient Pathogen Study for the above referenced development. Atlas researched and analyzed pertinent geologic conditions in the vicinity of the project site, and the data was used to estimate the downgradient nitrate concentration from the proposed development. Our scope of services is provided in the following report, and the components of this report are listed in the **Table of Contents**. We have provided a PDF copy for your review and distribution.

Atlas would be pleased to continue our role as geotechnical engineers during project implementation. Additionally, Atlas has great interest in providing materials testing and special inspection services during construction of this project. If you will advise us of the appropriate time to discuss these services, we will meet with you at your convenience.

If you have any questions, please call us at (208) 376-4748.

Respectfully submitted,

Bryar Jensen, EI
Staff Engineer

Monica Saculles, PE
Senior Geotechnical Engineer

Distribution: Fritz Durham, Idaho Department of Environmental Quality (PDF Copy); Stephen Fitzner, Southwest District Health (PDF Copy).

CONTENTS

TABLES

APPENDICES

1. INTRODUCTION

This report presents results of a Level 1 Nutrient Pathogen (NP) Study conducted for the proposed Haven Creek Subdivision in Kuna, ID. This study has been conducted to determine whether the proposed number of residential lots for the site will exhibit a negligible impact on groundwater conditions and whether a comprehensive Level 2 NP Study, as outlined by Southwest District

1.1 Authorization

Authorization to perform this analysis was given in the form of written authorization to proceed from Mr. Tanner Verhoeks of Haven Idaho to Monica Saculles of Atlas Technical Consultants (Atlas), on 20 December 2021. Said authorization is subject to terms, conditions, and limitations described in the Professional Services Contract entered into between Haven Idaho and Atlas.

1.2 Purpose

The purpose of this study is to determine the various site parameters present, which in turn will determine whether the proposed number of residential lots for the site will exhibit a negligible impact on groundwater conditions. Specifically, this study complies with requirements established by Canyon County and the SWDH for area developments in accordance with the Idaho

1.3 Scope of Investigation

The scope of this study included reviewing geologic literature, assembling an inventory of available reports of wells (domestic, irrigation, or other) in the immediate area, reviewing available water resource reports, and performing a site reconnaissance of the project site. At an additional fee, Atlas will perform on-site evaluation of soils within the proposed septic system drainfield locations following approval of the preliminary plat; however, at that time, a SWDH or IDEQ

1.4 Warranty and Limiting Conditions

The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for the purposes cited above. Atlas warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted professional engineering practice in the fields of site civil engineering, soil mechanics, and engineering geology, only for the site described in this report. No other warranties are implied or expressed.

These engineering methods have been developed to provide the client with information regarding apparent or potential engineering conditions relating to the subject property within the scope cited above and are necessarily limited to the conditions observed at the time of the site visit and research. The report is also limited to the information available at the time it was prepared. In the event additional information is provided to Atlas following the report, it will be forwarded to the client in the form received for evaluation by the client. There is a distinct possibility that conditions may exist which could not be identified within the scope of the investigation or which were not apparent during the site investigation.

This report was prepared for the use of Haven Idaho, and their retained design consultants ("Client"). Conclusions and recommendations presented in this report are based on the agreed upon scope of work outlined in the report and the Contract for Professional Services between Client and Atlas Technical Consultants ("Consultant"). Use or misuse of this report, or reliance upon the findings hereof by any parties other than the Client, is at their own risk. Neither Client nor Consultant make any representation of warranty to such other parties as to the accuracy or completeness of this report or the suitability of its use by such other parties for any purpose whatever, known or unknown to Client or Consultant. Neither Client non Consultant shall have any liability to, or indemnifies or holds harmless third parties for any losses incurred by the actual

2. PROJECT DESCRIPTION AND EXISTING SITE CONDITIONS

2.1 Project and Vicinity Description Including Site Topography and Drainage

The proposed development is located southwest of the City of Nampa, Canyon County, ID, and occupies a portion of the NW¼ of Section 17, Township 2 North, Range 1 West, Boise Meridian. The site address is 9814 North Robinson Road in Kuna, Idaho.

Currently, the proposed development consists of 43.86 acres of agricultural land with a residence located in the western portion of the parcel. A general westerly slope is present across the site. The project site is bordered on the west by Robinson Road, and surrounded on all sides by existing rural residential/agricultural properties. The proposed development will consist of 26 single-family residential lots with individual wells and septic systems.

No stormwater drainage facilities are located in the vicinity of the site, and the project site does not receive off-site drainage. Stormwater drainage for the project site is achieved by percolation through surficial soils. Regional drainage is north and west towards the Boise River. A topographic map and general site map are located in .

2.2 Regional Geology

The project site is located within the western Snake River Plain of southwestern Idaho and eastern Oregon. The plain is a northwest trending rift basin, about 45 miles wide and 200 miles long, that developed about 14 million years ago (Ma) and has since been occupied sporadically by large inland lakes. Geologic materials found within and along the plain's margins reflect volcanic and fluvial/lacustrine sedimentary processes that have led to an accumulation of approximately 1 to 2 km of interbedded volcanic and sedimentary deposits within the plain. Along the margins of the plain, streams that drained the highlands to the north and south provided coarse to fine-grained sediments eroded from granitic and volcanic rocks, respectively. About 2 million years ago the last of the lakes was drained and since that time fluvial erosion and deposition has dominated the evolution of the landscape. The project site is underlain by "Basalt Flows of Indian Creek, Undivided" as mapped by Othberg and Stanford (1993). This volcanic deposit is composed of multiple flows of medium to dark gray olivine basalt. These flows erupted from numerous vents found south of the Boise River and north of the Snake River, southeast of the City of Boise, Idaho. At the time of eruption lavas flowed into and down ancestral Indian Creek and Boise River valleys. Northwest-trending, gently sloping escarpments suggest faulting of the basalt. These basalts are mantled with loess 2-12 feet thick that contains about 35% pedogenic clay and a duripan that can be 3 feet thick. A geologic map showing the approximate site boundary is included in **Appendix II**

2.3 Localized Geology and Hydrogeology

Based on review of Well Driller's Reports (well logs) maintained at the IDWR website for portions of three immediately adjacent sections, Atlas assessed the localized geology and hydrogeology for the site and surrounding areas. Further description of the well log research can be found in the **Well Driller's Report Review** section of this report. In general, well logs in the area show that near surface soils consist primarily of topsoil and clays that are underlain by basalt.

The well logs also showed static groundwater levels generally ranging from around 14 to 68 feet below ground surface. First encountered water was not always listed on the well logs, but based on available data and assessing depths of the first water bearing zones that were documented, first encountered water appears to range from roughly 30 to 83 feet below ground surface. In some limited instances, first encountered water wasn't noted until depths of up to 106 feet. The water depths appear to vary with location and topography.

Prior to preparing this Nutrient Pathogen Study, Atlas conducted a subsurface geotechnical investigation for the property. Based on review of the Geotechnical Engineering Report (B213035g), onsite soils primarily consisted of sandy lean clay soils that were underlain in most areas by sandy silt soils. Hardpan cementation was present through portions of the sandy silt soils. Basalt rock was noted at depth in most of the test pits. This soils/rock profile is similar to profiles found on nearby driller's well logs that are included later in this report. In general, these driller's well logs showed topsoil near the surface, hardpan, and sand-clay mixtures. At greater depths, varying layers of sand, clay, basalt and gravels were noted. Copies of the test pit logs and a map showing the test pit locations can be found in **Appendix III**.

Groundwater was not encountered within test pits advanced to a maximum depth of 13.8 feet below ground surface (bgs). Review of the Idaho Department of Water Resources (IDWR) monitoring well data within approximately ¼-mile of the project site, groundwater was measured at depths ranging between 38 and 62 feet bgs. Furthermore, the driller's well logs generally show static groundwater depths ranging from 14 to 68 feet bgs. These static water depths appear to vary with location and topography. Since elevations on the site vary roughly 20 feet from the low

2.4 Soil Survey Review

Atlas reviewed the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Service website for soil survey information on Canyon County. Research indicated that the project site is characterized by the Potratz-Power silt loams, Power-Potratz complex silt loams, and Power-Purdam silt loams. Specific soils characteristics, as defined by the USDA NRCS, have been listed below for each of these soils and soil survey data from the NRCS website has been included in **Appendix IV**

- **Potratz-Power silt loam** – Potratz-Power silt loam soils occur on lava plains. These soils are classified as well drained and the most limiting soil layer has a moderately high to high capacity to transmit water. Typical soil profiles for the Potratz-Power silt loam include silt

- **Power-Potratz silt loam** – Power-Potratz soils occur on terraces. These soils are classified as well drained and the most limiting soil layer has a moderately high to high capacity to transmit water. Typical soil profiles of Power-Potratz silt loam include silt loam

- **Power-Purdam silt loam** – Power-Purdam soils occur on stream terraces. These soils are classified as well drained and the most limiting soil layer has a very low to moderately high capacity to transmit water. Typical soil profiles of Power-Purdam silt loam include silt loam or silty clay loam at the surface, followed by cemented material underlain by stratified

2.5 Review of Nutrient Pathogen Studies in the Vicinity of the Project Site

Atlas has filed a request for information with IDEQ to view nutrient pathogen studies completed

- Level 1 Nutrient Pathogen Study, Hardrock Ridge Subdivision, southwest of Lewis Lane and Happy Valley Road, Canyon County, Idaho, prepared by Skinner Land Surveying and

- Level 1 Nutrient Pathogen Study Addendum 1, Butterfield Subdivision, NWC of Columbia Road and Ridgewood Road, Canyon County, Idaho, prepared by Skinner Land Surveying and dated July 25, 2006

Information gathered from review of these documents is referenced within the **Hydraulic Conductivity** section of this report.

3. SITE PARAMETERS FOR LEVEL 1 NITRATE MASS-BALANCE ANALYSIS

3.1 Water Budget Parameters

3.1.1 Well Driller's Report Review

Prior to 1967 in the State of Idaho, driller's logs for wells were submitted to Idaho Department of Water Resources (IDWR) on a voluntary basis. After 1967, it became an Idaho requirement to submit logs for all wells drilled. However, the state was unable to track or enforce completion of this requirement until 1987 when well permits were also required by the state. Therefore, available records maintained by the IDWR may be incomplete for the area researched.

Atlas conducted a review of Well Driller's Reports (well logs) maintained at the IDWR website for portions of three immediately adjacent sections. A total of 53 Well Driller's Reports on file for this area were copied and are included in **Appendix V** of this report, along with a map showing approximate well locations. Although numerous well logs are available for the site vicinity, only 14 wells provided complete pump test data. A spreadsheet showing tabulated data from the well logs can be found in **Appendix V.**

Of the wells with complete pump test data, several listed a drawdown that was higher than possible, and were excluded from analysis. Other wells had drawdown values that were either listed as "zero" or "none" and were not used in the analysis. Lastly, a bailer was used for the test of well 46, so the well was likewise eliminated from analysis. Atlas was left with 3 usable well logs that were used for hydraulic conductivity analysis.

Discharge rates listed on the well logs ranged from 15 to 150 gallons per minute. Drawdown data generally ranged from 1 to 80 feet, though some well logs reported drawdown as high as 135 feet.

3.1.2 Hydraulic Conductivity

Atlas calculated the transmissivity of each of the wells using the following relationship provided by Razack and Huntley (C.W. Fetter, 2001):

$$T = 33.6\left(\frac{Q}{h_0 - h}\right)^{0.67}$$

Where: T = Transmissivity (feet^2/day)
Q = Pumping Rate (feet^3/day)
h_0-h = Drawdown (feet)

The hydraulic conductivity values for each of the wells were then obtained by the following relationship (C.W.Fetter, 2001):

$$K = \frac{T}{b}$$

Where: K = Hydraulic Conductivity (feet/day)
T = Transmissivity (feet^2/day)
b = Aquifer Thickness (feet)

Using the previously stated equations with the stated input data, Atlas obtained calculated hydraulic conductivity values that ranged from 21 to 369 feet/day. Atlas calculated the average hydraulic conductivity value as 141 feet/day. Additionally, based on two previous NP Studies that have been conducted within the vicinity of the project site, hydraulic conductivity values ranging from 75 to 87 feet per day were used and approved during the IDEQ/SWDH review process. For the mass-balance spreadsheets, Atlas used a hydraulic conductivity of 81 feet/day, which is the average of values used and approved in previous NP studies, and lower than the calculated well

3.1.3 Groundwater Gradient and Direction

For groundwater gradient information within the vicinity of the site, a review of the available literature developed for the region was conducted. Specifically, Atlas reviewed the map provided to Atlas by the IDEQ during the public records request. This map showed the groundwater contour elevations in the vicinity of the site. Based on these groundwater contour elevations, Atlas found that a 50 foot drop in elevation occurs in the area over a distance of roughly 15,000 linear feet. This drop in groundwater elevation yields a hydraulic gradient of 0.0033 feet/feet. A northwestern groundwater flow direction (roughly 315° Azimuth) was also determined based on this map. For this report, Atlas used a hydraulic gradient of 0.0033 feet/feet for the mass-balance spreadsheet. Atlas has presented a map of the IDEQ groundwater flow contours in **Appendix VI**

3.1.4 Mixing Zone Thickness

In the mass-balance spreadsheets, the mixing zone thickness refers to the induction zone anticipated for the septic tank effluent or contaminate source. IDEQ guidance states that the value of the mixing zone thickness varies with distance from the proposed location of the septic

- If distance is less than 500 feet to the property boundary, use a mixing zone thickness of
- If distance is between 500 and 1,000 feet to the property boundary, use a mixing zone
- If distance is greater than 1,000 feet to the property boundary, use a mixing zone thickness of 60 feet.

Since the distance between the closest individual septic system location to the property boundary is less than 500 feet, Atlas used a value of 15 feet as the mixing zone thickness for the mass-

3.1.5 Aquifer Widths Perpendicular to Flow

Atlas used a northwest groundwater flow direction (approximately 315° Azimuth) and the property site plan to determine the aquifer widths for the mass-balance spreadsheets. For the individual lots on the project site, Atlas determined that 191.73 to 348.20 feet are the aquifer widths that are perpendicular to the northwesterly flow direction. A site map with the perpendicular widths identified is located in **Appendix VII** of the report.

3.1.6 Area of Parcel, Percent of Lot Impervious, and Number of Proposed Lots

The Client described the project as 43.86 acres with 26 proposed lots that are approximately 1.03 to 2.16 acres in size. For the mass-balance spreadsheets, Atlas analyzed two of the smallest lots and estimated that less than ten percent of the parcel would be impervious to percolation as a

3.1.7 Gallons of Septic Tank Effluent

The Client described the project as having individual septic tank systems for each proposed single-family residential lot. For the mass-balance spreadsheets, Atlas used the default value of

3.1.8 Regional Climatology and Natural Recharge Rate

For the region, the annual average temperature ranges from 20°F to 91°F with extremes from -4°F to 102°F. The region has average wind speeds of up to 11 miles per hour in spring with a prevailing direction from the southeast. The pH of surface water, groundwater, and soil in the region typically range from 7 to 9. Average precipitation for the region is on the order of 10 to 12 inches per year.

The natural recharge rate (NRR) has been estimated using the following relationship provided by IDEQ:

$$NRR = 0.0046(\text{Annual Precipitation in inches})^2$$

Using the above relationship, an annual precipitation rate of 11 inches yields an estimated natural recharge rate of 0.6 inches per year, and this value was used in the mass-balance spreadsheets. A copy of the research data showing the annual precipitation for the project area is included in **Appendix VIII**

3.2 Nitrogen Budget Parameters

3.2.1 Vicinity Water Quality and Background Groundwater Nitrate Concentration

Atlas reviewed well monitoring data from the IDEQ and IDWR websites for 3 wells in the project site vicinity. Additional monitoring wells were present within the site vicinity, though they were either set in deep aquifers or had not been sampled within the past several years. Atlas averaged the nitrate value obtained from two of the wells with the most recent monitoring date. These wells had nitrate concentrations of 5.27 and 5.5 mg/L, which resulted in an average concentration of 5.4 mg/L. Therefore, Atlas used a value of 5.4 mg/L as the background nitrate level for the mass-balance spreadsheets in this report. A spreadsheet showing tabulated data from these 3 well logs, as well as a map showing the well locations, can be found in **Appendix IX.**

3.2.2 Septic Tank Effluent Concentrations

In the mass-balance spreadsheets, the value for septic tank effluent concentrations refers to the amount of nitrate (nitrate concentration) that is anticipated to be released into the groundwater system from effluent or a contaminate source. Currently, there are three types of septic tank

-
- A 40 percent nitrate reducing system releases a nitrate concentration of 27 mg/L in the
- A 65 percent nitrate reducing system releases a nitrate concentration of 16 mg/L in the

3.2.3 Denitrification Rate and Nitrate in Natural Recharge Rate

In the mass-balance spreadsheets, the values for the denitrification rate and nitrate in natural recharge are preset default values set by IDEQ. Atlas used the default value of 0 for the Denitrification Rate and 0.3 mg/L for the Nitrate in Natural Recharge for the mass-balance

4. LEVEL 1 NITRATE MASS-BALANCE ANALYSIS

Nitrate is the most mobile constituent of concern in domestic wastewater and has an impact on public health when the maximum contaminant level (MCL) is exceeded (nitrate-N >10.0 mg/L). For this reason, nitrate is usually the limiting factor in determining appropriate lot sizes and on-site wastewater treatment system design and placement. According to the Nutrient-Pathogen Evaluation Program for On-Site Wastewater Treatment Systems May 2002, IDEQ considers an increase of 1.0 mg/L nitrate, or less, predicted to occur at the down-gradient boundary of each individual lot as demonstrating a negligible impact. To evaluate the impact of nitrate on the groundwater system in the vicinity of the proposed project, a mass-balance approach, recommended by SWDH and IDEQ, has been performed. Note that calculations for this approach do not take into consideration actual alignment of individual wastewater treatment systems.

The mass-balance spreadsheets for down-gradient nitrate concentration for the lots with the smallest aquifer width perpendicular to groundwater flow direction and smallest acreage are present in **Appendix X**. A summary of values used in the analysis are presented in **Table 1** and results of the analyses are presented in **Table 2**.

Table 1 – Parameters Used in the Level 1 Nitrate Mass-Balance Analysis

Water Budget	Value Used
Hydraulic Conductivity (ft/day)	81
Hydraulic Gradient	0.0033
Mixing Zone Thickness (ft)	15
Percent of Parcel that is Impervious (%)	10
Septic Tank Effluent (gpd/home)	300*
Natural Recharge Rate (in/yr)	0.6
Nitrogen Budget	**Value Used**
Upgradient Groundwater Concentration (mg/L)	5.4
Denitrification Rate (decimal fraction)	0*
Nitrate in Natural Recharge (mg/L)	0.3*
Point of Compliance Nitrate Concentration Goal (mg/L)**	6.4

***Numbers represent the default values recommended by IDEQ and SWDH.**
****Upgradient groundwater concentration (mg/L) plus 1 mg/L equates to point of compliance nitrate concentration goal.**

Results of the mass-balance analysis for the lots with the smallest aquifer width perpendicular to groundwater flow direction and smallest acreage are outlined below. Mass-balance spreadsheets for standard and 40% nitrate reducing septic systems were prepared for these two lots.

Table 2 – Individual Lot Mass-Balance Analysis for Various Septic Tank Systems

Lot Number	Lot Area (acres)	Aquifer Width Perpendicular to Groundwater Flow Direction (feet)	Downgradient Nitrate Concentration (mg/L)		
			Standard Septic Systems	40% Nitrate Reducing Systems	65% Nitrate Reducing Systems
Lot 9	1.03	200.22	7.2*	6.4	N/A
Lot 23	1.60	191.73	7.3*	6.4	N/A

***Value exceeds the point of compliance nitrate concentration goal of 6.4 mg/L.**

5. CONCLUSIONS AND RECOMMENDATIONS

Mass-balance spreadsheets for down-gradient nitrate concentration have been prepared for the lots with the smallest aquifer width perpendicular to groundwater flow direction and smallest acreage. All spreadsheets are presented in the **Appendices** of this report. Considering the estimated input parameters, the results of the nitrogen mass-balance approach indicated that the down-gradient nitrate concentration using a 40 percent nitrate reducing system is 6.4 mg/L. **Thus for the entire site, the Point of Compliance Nitrate Concentration value of 6.4 mg/L was not exceeded when analyzing for the 40 percent nitrate reducing septic systems.**

Note that SWDH and IDEQ must review and approve the parameter values developed for this Level 1 NP Study and the mass-balance spreadsheets prior to subdivision approval. Also, note

- If changes in the number of lots are desired, a revised lot layout must be provided to Atlas,
- This report must be submitted to the SWDH with a preliminary plat as well as the Subdivision Engineering Report (SER). Also, SWDH requires a preliminary development
- To verify soil profile components at actual drainfield locations, soil exploration by test pits or borings, with approval by SWDH personnel, will be required following development of the preliminary plat.

Again, these results, as of the completion of this report, have not been reviewed by IDEQ or SWDH. Therefore, a revision in assumed hydraulic conductivity value, or other parameters used in the mass-balance spreadsheet, may be required subsequent to the SWDH and IDEQ review, and consequently, the allowable number of lots may change significantly. If so, the SWDH and IDEQ will request that this report be resubmitted or amended with revised values.

6. REFERENCES

Desert Research Institute. Western Regional Climate Center. [Online] Available: <http://www.wrcc.dri.edu/> (2021).

Fetter, C.W. (1994) Applied Hydrogeology, Fourth Edition. 691p.

Idaho Department of Environmental Quality. [Online] Nitrate Priority Areas – Interactive Mapping Application. Available: <https://www.deq.idaho.gov/water-quality/ground-water/nitrate/>.

Idaho Department of Water Resources. [Online] Statewide Groundwater Quality Monitoring – Groundwater Quality Map. Available: <https://idwr.idaho.gov/water-data/groundwater-quality/map.html> (2022).

Idaho Department of Water Resources. [Online] Well Driller Reports (Logs), Well Construction Search. Available: <https://idwr.idaho.gov/Apps/appsWell/WCInfoSearchExternal/> (2022).

Othberg, K.L. and Stanford, L.A., Idaho Geologic Society (1992). Geologic Map of the Boise Valley and Adjoining Area, Western Snake River Plain, Idaho. (scale 1:100,000). Boise, ID: Joslyn and Morris.

State of Idaho Department of Environmental Quality (October 2019). Technical Guidance Manual For Individual and Subsurface Sewage Disposal Systems. Boise, ID: Author.

U.S. Department of Agriculture, Natural Resource Conservation Service. [Online] Web Soil Survey. Available: <http://websoilsurvey.nrcs.usda.gov/app/> (2022).

U.S. Geological Survey (2011). [Online] National Water Information System: Web Interface. Available: <http://waterdata.usgs.gov/nwis> (2022).

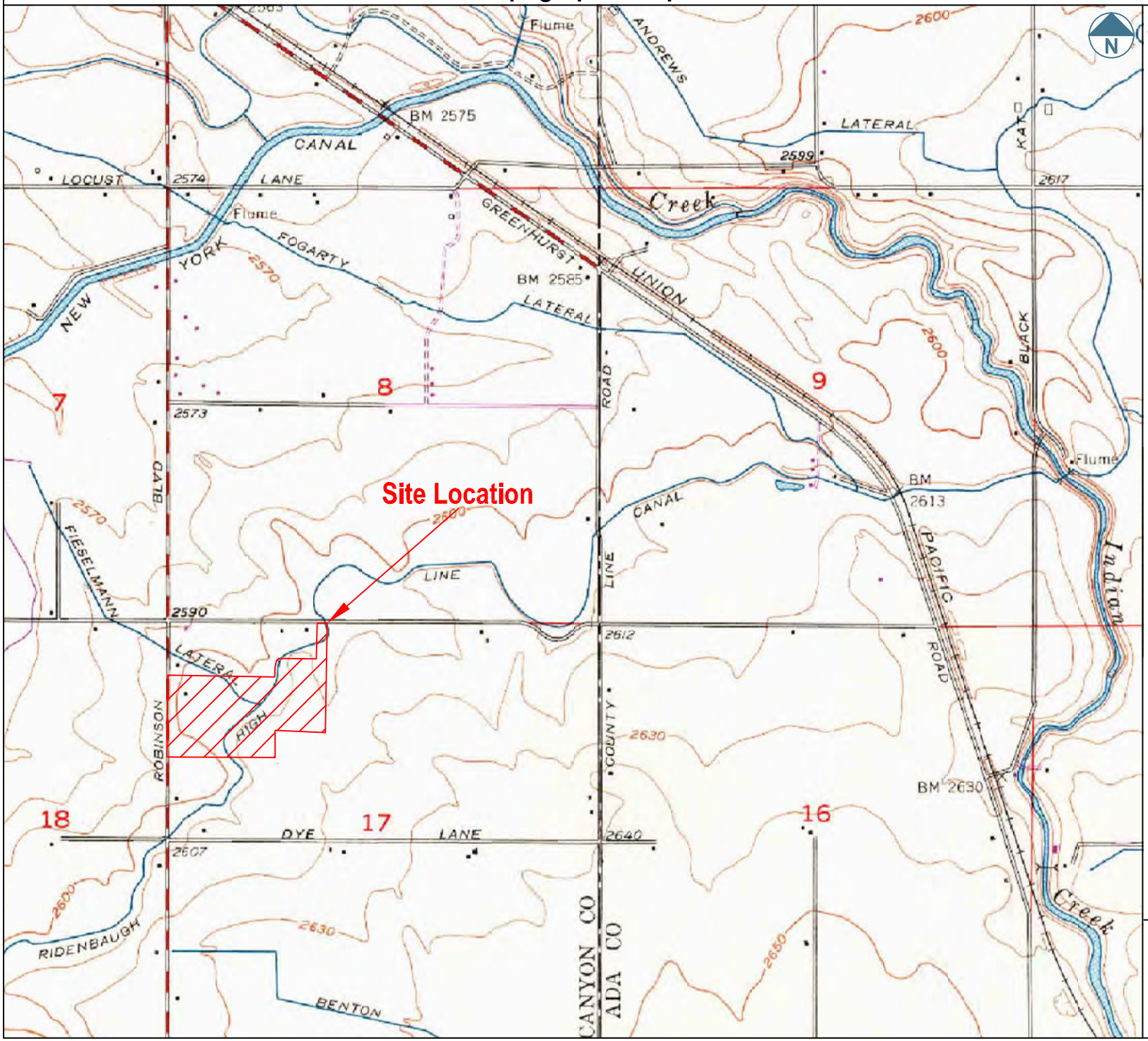
7. LIST OF APPENDICES

Appendix I	Topographic Map and General Site Map
Appendix II	Geologic Map with Approximate Project Site Location
Appendix III	Site Map with Test Pit Locations and Subsurface Investigation Test Pit Logs
Appendix IV	Soil Survey Information
Appendix V	Site Location with Vicinity Wells Map and IDWR Driller's Well Logs
Appendix VI	IDEQ Groundwater Contour Map
Appendix VII	Site Plan with Aquifer Width Map for Individual Lots
Appendix VIII	Historic Precipitation/Climate Data for Project Location
Appendix IX	Site Location with Vicinity Monitoring Wells Map and Monitored Well Data
Appendix X	Nitrate Mass-Balance Spreadsheets for Individual Lots

Appendix I TOPOGRAPHIC MAP AND GENERAL SITE MAP

Topographic Map

Figure 1



MAP NOTES:

- Meridian, Idaho
  43116-E2-TF-024
  1953, Photorevised 1971
  10 Foot Contour Intervals
  T3N, R1W, & Section 32

LEGEND

Approximate Site Location

SCALE
0 0.25 0.5
(Mile)

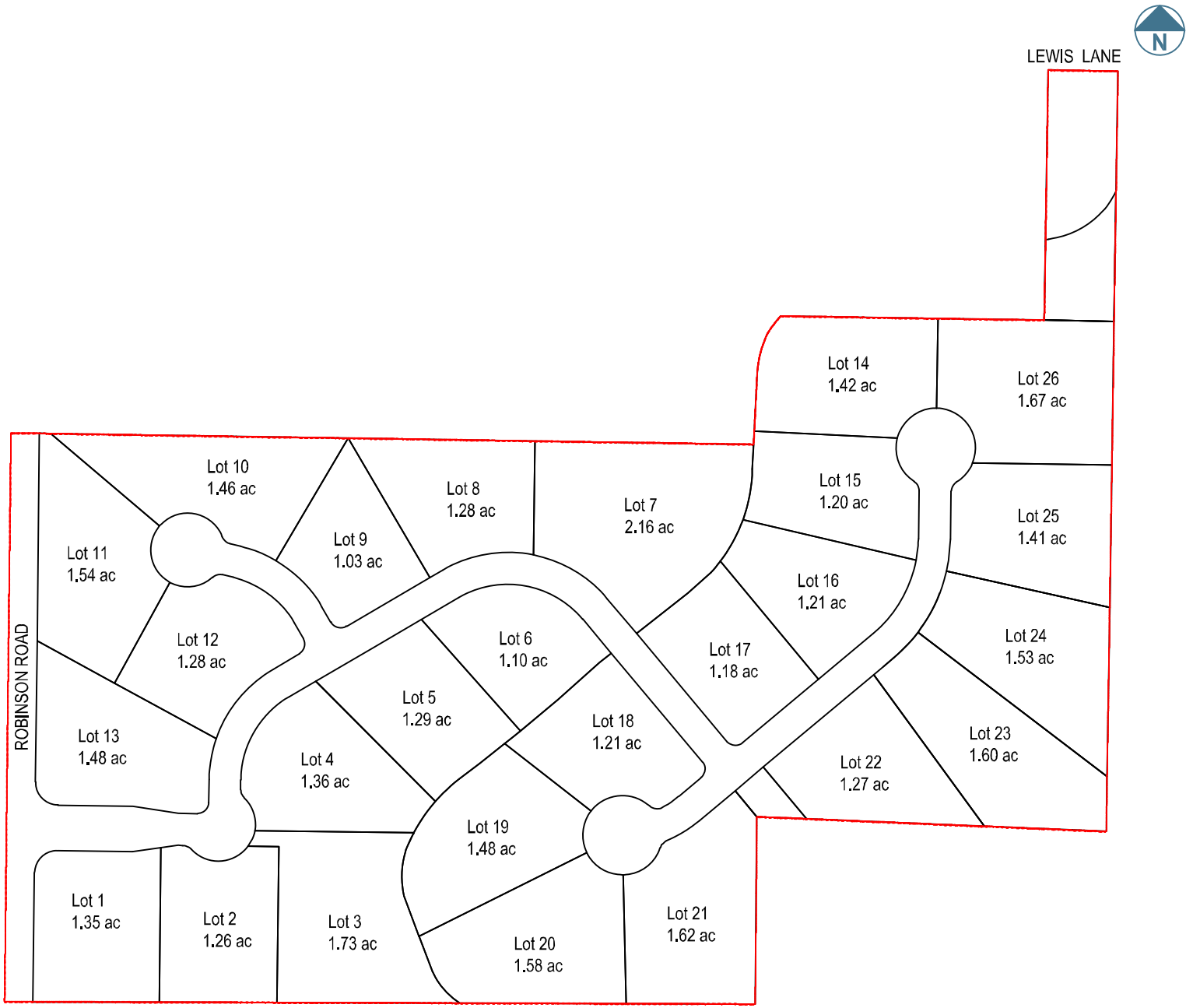
Haven Creek
9814 Robinson Road
Kuna, ID

Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Site Map

Figure 2



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

SCALE

0 175 350

(Feet)

Haven Creek
9814 Robinson Road
Kuna, ID

Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Appendix II GEOLOGIC MAP WITH APPROXIMATE PROJECT SITE LOCATION

GEOLOGIC MAP OF THE BOISE VALLEY AND ADJOINING AREA, WESTERN SNAKE RIVER PLAIN, IDAHO

BY KURT L. OTHBERG AND LOUDON R. STANFORD

1992

MAP UNITS

SEDIMENTARY

QUATERNARY SEDIMENTS

Alluvium and Colluvium

Deposits of floodplains, alluvial fans, side-stream terraces, and landslides.

Qa ALLUVIUM OF BOISE AND SNAKE RIVER — Sandy cobble gravel upstream grading to sandy pebble gravel downstream. Mostly channel alluvium of the Boise and Snake rivers. Thickness 6-14 meters (20-46 feet). No pedogenic clay.

Ql LANDSLIDE DEPOSITS — Highly variable rock and soil masses varying from transported coherent blocks to unsorted, unstratified colluvium. Includes scar area at tie head of the landslide. Derived from slumps, slides, and debris flows. most slides represent slope failures within basaltic tuff (Tbt) and surface soils of granitic rocks.

Qfg ALLUVIAL FAN GRAVEL — Sandy pebble and cobble gravel where formed from reworked Tertiende Channel (QTg) and sand and granule gravel where formed from weathered granite (g). Primarily formed by Pleistocene debris flows and local high-energy streams during times of greater runoff (Pierce and Scott, 1982). Loess 1-2 meters thick discontinuously covers surface of gravel. Patterned ground present. Amount of pedogenic clay and presence of duripans varies.

Qas SANDY ALLUVIUM OF SIDE-STREAM VALLEYS AND GULCHES — Medium to coarse sand interbedded with silty fine sand and silt. Sediment mostly derived from weathered granite and reworked Tertiary sediments. Thickness variable. Minor pedogenic clay and calcium carbonate.

Qfa SAND OF INCISED ALLUVIAL FANS — Medium to coarse sand interbedded with silty fine and and silt. Mostly reworked Tertiary sediments deposited in local alluvial fans. Thickness 1-15 meters (3-50 feet). Pedogenic clay 10-20%; duripans locally present.

Qds SAND OF DRY CREEK TERRACE — Medium to coarse sand interbedded with silty fine sand and silt. Remnant of ancestral Dry Creek valley. Pedogenic clay 10-20%; duripans locally present.

Qtrg GRAVEL OF ALLUVIAL FAN REMNANTS — Dark gray, poorly sorted, sandy pebble and cobble gravel. Gravel clasts subangular and subrounded. Thickness 3-6 meters (10-20 feet). Mapped only where channel deposits of ancestral Squaw Creek cap remnants of a large alluvial fan in southwest corner of map.

Bonneville Flood Deposits

Consists primarily of fine-grained sediments of the Bonneville Flood slack waters that inundated the Snake River Valley and the lower Boise Valley. Includes gravels deposited in high-energy flood channels. The surface of sediments deposited by the Bonneville Flood show minor accumulations of pedogenic clay and calcium carbonate. Slack-water sediments bury loess and soils of older surfaces.

Qbgc CLAY OF BONNEVILLE FLOOD SLACK WATER — Light tan silty clay 1-2 meters (3-7 feet) thick. Deposited by slack water of Bonneville Flood upstream from Parma. Buries gravel of Boise terrace.

Qs SANDY SILT OF BONNEVILLE FLOOD SLACK WATER OVERLYING TERTIARY SEDIMENTS — Tan-bedded tan silt, silty sand, and fine sand 3-6 meters (10-20 feet) thick. Deposited by Bonneville Flood slack water that flooded the valleys to 747 meters (2,450 feet) elevation (O'Connor, 1990). Buries erosion surface of fine-grained Tertiary sediments.

Qbfg GRAVEL OF THE BONNEVILLE FLOOD-SCOURED BOISE TERRACE AND BOISE FLOODPLAIN COMPLEX — Sandy pebble gravel remnants of Boise terrace mostly scoured by late stages of Bonneville Flood. Includes areas of floodplain gravel indistinguishable from scoured Boise terrace.

Qwgs SANDY SILT OF BONNEVILLE FLOOD SLACK WATER — Thin-bedded tan silt, silty sand, and fine sand 3-6 meters (10-20 feet) thick. Deposited by Bonneville Flood slack water that flooded valleys to 747 meters (2,450 feet) elevation (O'Connor, 1990). Buries gravel of Whitney terrace (Qwg).

Qwfg GRAVEL OF THE BONNEVILLE FLOOD-SCOURED WHITNEY TERRACE — Sandy pebble grave remnants of Whitney terrace scoured by late stages of Bonneville Flood. Includes abandoned flood channels. Loess mostly removed. Local remnants of duripans similar to those on Qwg.

Qwsg SANDY SILT OF BONNEVILLE FLOOD SLACK WATER — Thin-bedded tan silt, silty sand, and fine sand 3-6 meters (10-20 feet) thick. Deposited by Bonneville Flood slack water that flooded valleys to 747 meters (2,450 feet) elevation (O'Connor, 1990). Extent of slack-water sediment not everywhere concordant with interpreted extent of flood waters. Buries thin loess, duripan, and sandy pebble gravel of Wilder terrace, the third terrace above the floodplain in the western Boise Valley. Gravel thickness 3-8 meters (10-25 feet).

TERRACE GRAVELS

These gravels compose a sequence of terraces of the ancestral Boise River. The characteristic coarse channel gravels were primarily deposited on fine-grained Tertiary sediments cut during valley deepening. The light gray gravel is composed mostly of granitic and felsitic clasts derived from the upper Boise River basin in the central Idaho mountains. Qgg and younger gravels have about a 10% component of Pleistocene basalt clasts mostly derived from the Boise River canyon. Boise Valley units are also used for terrace gravels of the Snake River, but SnakeRiver gravels have a darker color due to a component of gravel clasts derived from the Owyhee Mountains and sources to the southeast. All gravel deposits have imbricated well-rounded clasts, poor sorting, and crude stratification of beds of gravel and lenses of cross-bedded sand. These features suggest deposition in braided channels

Qbg GRAVEL OF THE BOISE TERRACE — Sandy pebble and cobble gravel. First terrace above the floodplain. Thickness 3-14 meters (10-45 feet). Mostly mantled with thin loess.

Qg GRAVEL OF BOISE FRONT TERRACES, UNDIVIDED — Sandy pebble and cobble gravel with subangular boulders. Thickness 1-6 meters (3-20 feet) thick. Forms terraces along canyons and gulches and on flat divides near the margin of the foothills.

Qwg GRAVEL OF WHITNEY TERRACE — Sandy pebble and cobble gravel. Second terrace above floodplain. Thickness 5-24 meters (16-80 feet); thickest to the east. Mantled with 1-2 meters of loess.

Qkg GRAVEL OF SUNRISE TERRACE — Sandy pebble and cobble gravel. Third terrace above the floodplain. Thickness about 13 meters (44 feet). Mostly mantled with 1-2 meters of loess.

Qgg GRAVEL OF GOWEN TERRACE — Sandy pebble and cobble gravel. Fourth terrace above the floodplain. Buried by basalt (Qgb) eaicof Interstate 84. Terrace gravel overlies the gravel and sand of Bonneville Point (Tbg) to the east and fine-grained Tertiary sediments to the west. Mostly mantled by 1-2 meters (3-7 feet) of loess.

Qdg GRAVEL OF AMITY TERRACE — Sandy pebble and cobble gravel grading at depth to coarse pebbly sand. Seventh terrace above the floodplain. Gravel and sand is about 10 meters (33 feet) thick. Northwestrending, gently sloping escarpments suggest faulting of the gravel. Mantled with loess 0.5-2 meters (2-7 feet) thick.

Qdg GRAVEL OF DEER FLAT TERRACE — Sandy pebble gravel grading at depth to coarse pebbly sand. Deposited on the fourth terrace above the floodplain in the western Boise Valley. North of Caldwell and Middleton Tertiary sediments are exposed between terrace remnants. Boise River gravels also interfinger with and are replaced northeastward by Willow Creek alluvial fan sand and gravel. Gravel and sand deposit is about 10meters (33 feet) thick. Mantled with loess 1-4 meters (3-13 feet) thick.

Qwdg GRAVEL OF DEER FLAT AND PRE-DEER FLAT TERRACES, UNDIVIDED — Sandy pebble and cobble gravel. Alluvial fan deposits of the ancestral Willow Creek interfingering and mixing downstream with channel alluvium of the ancestral Boise River. Deposited on stream-cut surface of fourth and fifth terrace above the floodplain. Tertiary sediments are exposed between terrace remnants. Mostly mantled with loess 0.5-1 meter 2-3 feet) thick.

Qtg TENMILE GRAVEL — Sandy pebble and cobble gravel grading westward to sandy pebble gravel and pebbly sand at depth. Eighth terrace above the floodplain in the eastern Boise Valley. Remnants in the western Boise Valley form the fifth terrace above the floodplain. Side slopes of remnants expose underlying Glenns Ferry Formation. Thickness is about 15 meters (50 feet). Several normal faults exposed in gravel pits and road cuts. Surface of terrace shows prominent northwest-trending gulches and gently sloping fault-line escarpments. Mostly mantled with loess 1-2 meters (3-7 feet) thick. Patterned ground prominent. Named by Savage (1958); restricted by Wood and Anderson (1981); further restricted herein to exclude the gravel and sand of Bonneville Point formation (Tbg).

TERTIARY SEDIMENTS

Tps SAND OF THE PIERCE GULCH FORMATION — Pale-yellow-gray arkosic sand overlain by pebble to cobble gravel. Sand includes cross-bedded and foreset-bedded sequences. Named by W.L. Burnham and S.H. Wood (written communication-unpublished manuscript, 1989).

Tgf GLENNS FERRY FORMATION — Greenish gray poorly consolidated siltstone and fine sandstone. Distinct thick beds; indistinct thin bedding. includes tan sandstone in Dead Horse Canyon.

Tbg GRAVEL OF BONNEVILLE POINT — Interbedded pebble and cobble gravel, pebbly sand, and buried soils. Mostly oxidized to yellow-orange grading to red-brown near surface. Half of the clasts weathered. Mostly channel alluvium of ancestral Boise River deposited in former valley at mountain front. Thickness about 152 meters (500 feet). Soils haveB horizons with 50% clay. The upper part of the gravel contains a highly oxidized, partly cemented zone. Several normal faults exposed in gravel pits anc road cuts. Patterned ground present with mound relief of 1-2 meters.

Tal ALLUVIAL FAN DEPOSIT — Composed of poorly sorted, silty and sandy gravels with subangular cobbles and boulders in crudely stratified layers and lenses; mostly oxidized to a red-brown near the surface. Alluvial fan remnants deposited by debris flows and ephemeral streams from foothills. Up to 61 meters (200 feet) thick.

Ts SAND AND MUDSTONE OF STREAM AND LAKE SEDIMENTS — Medium- to coarse-grained arkosic sand, sandstone, and claystone. Includes interbeds of fine gravel, locally cemented, and sandy siltstone. Structures vary from large foreset beds of sand to thin-bedded claystone. Undifferentiated unit reflects a variety of stream and lake depositional environments along the northeastern and southwestern margin of the ancestral western Snake River Plain. Includes parts of the Payette, Poison Creek, and Succor Creek Formations, the tuffaceous sediments of Ferns (1989), and the Terteling Springs Formation of W.L. Burnham and S.H. Wood (written communication-unpublished manuscript).

IGNEOUS ROCKS

QUATERNARY BASALTS

Basalt lava flows primarily erupted from three sources during the Pleistocene: the northwest-southeast axis of the western Snake River Plain; Smith Prairie (Howard and others, 1982); and along the edge of the plain southeast of Boise. The basalts inundated ancestral valleys and plains. Their resistance to erosion helped preserve the terrace remnants they cap. The early Pleistocene basalt flows diverted the Boise River northward and the Snake River westward.

Qbs BASALT OF MORES CREEK — Single flow of dark gray olivine basalt about 6 meters (20 feet) thick. Fine-grained with abundant microphenocrysts of plagioclase and common microphenocrysts of olivine. Canyon-filling lava erupted from unknown vent in Mores Creek valley (Howard and others, 1982). Identified in ledges, normally submerged in reservoirs near Lucky Peak Dam.

Qgb BASALT OF GOWEN TERRACE — Four flows of medium gray olivine basalt. Hand samples and thin sections show sparse phenocrysts of olivine to 1-3 millimeters in diameter. Canyon-filling lava probably erupted in Smith Prairie (Howard and others, 1982). Buries gravel of Gowen terrace; basalt surface capped with about 3 meters (10 feet) of terrace gravel at distaland. Thickness of basalt ranges from about 3 meters (10 feet) near Boise to about 61 meters (200 feet) near Lucky Peak Dam. Mostly mantled with loess 1-2 meters (3-7 feet) thick. Pelogenic clay 35%; duripan (calche) 0.5-1 meter thick

Qlp BASALT OF LUCKY PEAK — Single flow of dark gray to black aphyric very fine-grained basalt. Canyon-filling lava probably erupted in Smith Pairie (Howard and others, 1982). Basalt buries gravel composing fifth terrace above the floodplain. Thickness of basalt about 37 meters (121 feet). Upper surface mostly buried by alluvial fan deposits (Qfg).

Qkb BASALT OF KUNA BUTTE — Dark gray olivine basalt flow forming irregular topography southeast of Nampa. Common phenocrysts of olivine 1-5 millimeters in diameter. Thickness unknown. Erupted from northwes end of Kuna Butte. Pedogenic clay 10-20%; duripans locally present.

Qfb BASALT OF FIVEMILE CREEK — One to three flows of medium gray olivine basalt. Thin sections show a cumulophyric texture of a few percent small interlocking olivine grains. Erupted from small vent near headwaters of Fivemile Creek. Basalt buries gravel composing sixth terrace above the floodplain. Thickness ranges from about 3 meters at the west edge of the flow to about 55 meters (180 feet) at the east. Mostly mantled with tenss 1-2 meters thick. Pedogenic clay 35%; duripan (calliche) 0.5-1 meter hick. Patterned ground present.

Qmb BASALT FLOWS OF INDIAN CREEK UNDIVIDED — Multiple flows of medium to dark gray olivine basalt. Undivided basalts generally aphyric but include flows with small olivine and plagioclase phenocrysts. Erupted from vents south and southeast of the map. Both normal and reversed magnetic polarities. Lavas flowed into and down ancestral Indian Creek and Boise River valleys. Northwest-tending, gently sloping escarpments suggest faulting of the basalt. Mantled with loess 0.5-4 meters hick. Pedogenic clay 35%; duripan (calliche) 1 meter thick.

Qbib BASALT FLOWS OF INDIAN CREEK BURIED BY LOESS AND STREAM SEDIMENTS — Tan massive silt, light brown stratified clay, silt, and sand, and basalt 6-15 meters (20-50 feet) deep. Location of basalt based on water well logs and subcrop mapping by Wood and Anderson (1981). Pedogenic clay 10-20%; duripans locally present.

Qwb BASALT FLOWS OF UPPER DEER FLAT, UNDIVIDED — Multiple flows of dark gray aphyric olivine basalt. Reversed magnetic polarities. Probably erupted from one or more vents south of the map. Mantled with loess 1-4 meters (3-13 feet) thick. Pedogenic clay in loess 10.20%; calcium carbonate in 8 horizon. Loess buries duripan (caliche) 1 metre thick formed in the top of the basalt.

Qbs BASALTIC VENTS, UNDIVIDED — Olivine basalt and basaltic tephra forming dissected cones and volcanic necks near the Snake River.

TERTIARY BASALTS

Tbp BASALT OF PICKET PIN CANYON — Dark gray basalt flow with a cumulophyric texture of distinctive rosettes of white plagioclase. Position suggests inverted topography of a canyon-filling lava. Maximum thickness is 9 meters (30 feet).

Tbt TUFF AND VOLCANICLASTIC SEDIMENTS — Brown basaltic tuff and volcaniclastic sediments. Minor beds of arkosic sand, pumice, and rhyolitic ash. Up to 107 meters (350 feet) thick.

Tbv BASALT VOLCANIC ASSEMBLAGE — Contains several undivided lithologies: (1) thin subaerial lava flows, (2) thin subaqueous and other water-affected subaerial lava flows, and (3) tuff anc volcaniclastic sediments. Lava up to 73 meters (240 feet) thick; overlying tuff and volcaniclastic sediments up to 61 meters (200 feet) thick.

Tba BASALT AND ANDESITE OF GRAVEYARD POINT AREA — Olivine basalinear Graveyard Point and pyroxene andesite breccia south of Graveyard Point (Ferns, 1989).

TERTIARY RHYOLITES

Tbr RHYOLITE OF THE BOISE FRONT — Pinkish gray porphyritic rhyolite, dark gray vitrophyre, and gray perlite.

Tjc JUMP CREEK RHYOLITE — Mostly gray porphyritic rhyolite and quartz latite. Plagioclase phenocrysts up to 15 millimeters. Lava flow or remobilized welded tuff.

Tbh HORNBLENDE-BIOTITE RHYOLITE — Black glassy rhyolite; light gray where devitrified.

CRETACEOUS GRANITIC ROCKS

g GRANITIC ROCKS OF THE IDAHO BATHOLITH — Light gray biotite granite and granodiorite. Medium to coarse grained and equigranular to porphyritic. Includes pegmatite zones and dikes of rhyolite and basalt.

MAP SYMBOLS

Contact: approximately located; dashed where inferred

Fault: approximately located dashed where inferred; dotted where concealed; ball and bar on downthrown side

Strike and dip of bedding

Approximate upper limit of Tonneville Flood slack water

Sand dune fields

Basalt sampling site

Magnetic Polarities, K/Ar Ages, and $^{40}Ar/^{39}Ar$ Ages of Basalts

Rock Unit	Field Number	Polarity	Latitude	Longitude	Age (Ma) potassium-argon argon-argon
Basalt of Mores Creek	MC-1	N	43°51.32'	116°13.76'	0.107 ± 0.013 [1]
Basalt of Gowen terrace	GT-4	N	43°31.33'	116°14.24'	0.572 ± 0.210 [1]
Basalt of Kuna Butte (South Side)	SS	N	43°31.21'	116°32.03'	0.387 ± 0.011 [2]
Basalt of Lucky Peak	LP-4	N	43°31.35'	116°13.66'	1.364 ± 0.210 [3,4]
Caldwell lava flow	CBR	R	43°41.31'	116°41.06'	0.799 ± 0.085 [2]
Upper Deer Flat lava flow	UDF	R	43°30.29'	116°34.38'	0.922 ± 0.184 [2]
Basalt of Fivemile Creek	3D-3	N	43°32.57'	116°9.38'	0.974 ± 0.098 [1]
Basalt of Fivemile Creek	FM1	N	43°30.27'	116°6.91'	
Basalt of Fivemile Creek	FM2	N	43°31.52'	116°4.45'	
Basalt of Hubbard surface	FCC-1	N	43°31.32'	116°20.20'	1.001 ± 0.008 [1]
Mason Creek lava flow	MA	NF	43°33.72'	116°28.23'	1.231 ± 0.123 [2]
Black Cat Road lava flow	BC	R	43°31.43'	116°27.15'	
East Nampa lava flow	NSS	R	43°36.23'	116°31.12'	1.165 ± 0.125 [2]
Rawson Canal lava flow	RC	R	43°34.39'	116°27.12'	

Potassium-argon and argon-argon analyses provided by he Berkeley Geochronology Center, Institute of Human Origins, University of California, Berkeley, California. Magnetic polarity results from Reki Ikegate magnetometer using five samples per site.

* Stratigraphic relationships indicate the K-Ar age of the basalt of Lucky Peak knoc ddd (Othberg and Burnham, 1990).

Pedogenic[2] clay and duripans[3] on terraces.

Map Unit	Qbg Qbgc Qwsg[1]	Qwg Qas	Qng	Qgg	Qng Qdg[4] Qpcdg	QTg
CLAY (percent)	0	0	0	0	0	0
DURIPAN (meters)	1	1	1	1	1	1

Soil data adapted from Collett (1980), Priest and others (1972), and the University of Idaho Soil Characterization Laboratory.

Collett, R. A., 1980, Soil survey of Ada County area, Idaho: U.S. Department of Agriculture, Soil Conservation Service, 327 p., 72 sheets, scale 1:20,00C

Priest, T. W., C. W. Case, J. E. Witty, R. K. Preece, Jr., G. A. Aronson, H. W. Biggerstaff, G. H. Logan, L. M. Rasmussen, and D. H. Webb, 1972, Soil survey of Canyor area, Idaho: U.S. Department of Agriculture, Soil Conservation Service, 118 p., 59 sheets, scale 1:20,00.

[1] Pedogenic refers to the physical and chemical soil-forming processes that act upon earth materials at the land surface.

[2] Duripans are white silica- and calcium carbonate-cemented hardpans commonly called caliche.

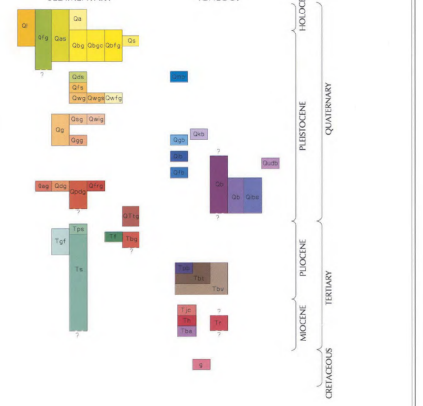
[3] The Bonneville Flood sack-water sediments that form the surface of Qwfg (gravel of Wilder terrace) bury a duripan about 0.5 metre thick that formed in the top of the gravel.

[4] The surface of Qdg (gravel of Deer Flat terrace) is buried by oess from near Lake Lowell to near Wilder. The thick duripan lies at depths of 1-4 meters (3-13 feet).

CORRELATION OF MAP UNITS

SEDIMENTARY — IGNEOUS

HOLOCENE — PLEISTOCENE — QUATERNARY — PLIOCENE — MIOCENE — TERTIARY — CRETACEOUS



LOCATION MAP

Geology field mapping 19851990
Funded in part by the U.S. Gological Survey's COGEOMAP program.

SCALE 1:100,000

KILOMETERS 0 1 2 3 4 5

MILES 0 1 2 3

Contour Interval 40 Meters

U.S.G.S. 1:100,000 topographic base
Projection and 10,000 meter grid, zone 11,
Universal Transverse Menator
1927 North American Datum

Approximate Location of Project Site

REFERENCES

Ferns, M.L., 1989, Geology and mineral resources map of the Graveyard Point quadrangle, Malheur County, Oregon, and Owyhee County, Idaho: Oregon Department of Geology and Mineral Industries, Geological Map Series GMS-54, scale 1:24,000.

Howard, K.A., JW. Shervais, and E.H. McKee, 1982, Canyon-filling lavas and lava dams on the Boise River, Idaho, and their significance for evaluating downcutting during the last two million years, in Bill Bonnichsen and R.M. Breckenridge, eds., Cenozoic geology of Idaho: Idaho Bureau of Mines and Geology Bulletin 26, p. 629-641.

O'Connor, J.E., 990, Hydrology, hydraulics, andsediment transport of Pleistocene Lake Bonneville flooding on the Snake River, Idaho: Tucson, University of Arizona Ph.D. dissertation, 192 p.

Pierce, K.L., and W.E. Scott, 1982, Pleistocene episodes of alluvial-gravel deposition, southeastern Idaho, in Bill Bonnichsen and R.M. Breckenridge, eds., Cenozoic geology of Idaho: Idaho Bureau of Mnes and Geology Bulletin 26, p.685-702.

Savage, C.N., 1958, Geology and mineral resources of Ada and Canyon counties: Idaho Bureau of Mines and Geology County Report 3, 94p.

Wood, S.H., and J.E. Anderson, 1981, Geology, in J.C. Mitchell, ed., Geothermal investigations in Idaho, Part 11:Geological, hydrological, geochemical, and geophysical investigations of the Nampa-Caldwell and adjacent areas, southwestern Idaho: Idaho Department of Water Resources, Water Information Bulletin 30, p. 9-31.

ADDITIONAL SOURCES OF GEOLOGIC MAPPING

1. Beck, C.C., 1989, Geological engineering maps of the Boise foothills, Ada County, Idaho: Slope, hydrology, soils, geology, and land-use kazards: Idaho Geological Survey Technical Report 89-2, 5 pl. scale 1:24,000.
2. Ekren, E.B. D.H. McIntyre, E.H. Bennett, and H.E. Malde, 1981, Geologic map of Owyhee County, Idaho, vest of longitude 116o W.: U.S. Geological Survey Miscellaneous Investigations Series, Map I-1236, scale 1:125,000.
3. Ferns, M.., 1989, Geology and mineral resources map of the Adrian quadrangle, Malheur County, Oregon, and Canyon and Owyhee counties, Idaho: Oregon Department of Geology and Mineral Industries, Geological Map Series GMS-56, scale 1:24,000.
4. Ferns, M.., 1989, Geology and mineral resources map of the Graveyari Point quadrangle, Malheur County, Oregon, and Owyhee County, Idaho: Oregon Department of Geology and Mineral Industries, Geological Map Series GMS-54, scale 1:24,000.
5. Kiltsgaard T.H., 1991, written commuication-unpublished manuscript.
6. Othberg, K.L., and W.L. Burnham, 1991, Geologic map of the Lucky Peak quadrangle, Ada County, Idaho: Idaho Geological Survey Technical Report 90-4, scale 1:24,000.
7. Othberg, KL., and Stanford L.R., 1991, Geologic map of the Eagle quadrangle, Ada County, Idaho: Idaho Geological Survey Technical Report 90-5, scale 1:24,000.
8. Othberg, K.L., L.R. Stanford, and W.L. Burham, 1991, Geologic map of the Cloverdale quadrangle: Idaho Geological Survey Technical Report 90-6, scale 1:24,000.
9. Savage, C.N., 1958, Geology and mineral resources of Ada and Canyon counties: Idaho Bureau of Mines and Geology County Report 3, 94 p.
10. Wood, S.H., and J.E. Anderson, 1981, Geology, in J.C. Mitchell, ed., Geothermal investigations in Idaho, Part 11: Geological, hydrological, geochemical, and geophysical investigations of the Nampa-Caldwell and adjacent areas, southwestern Idaho: Idaho Department of Water Resources, Water Inormation Bulletin 30, p. 9-31.
11. Wood, S.H., and W.L. Burnham, 1983, Boise, Idaho, geothermal system: Transactions of the Geothermal Resources Council, v. 7, p. 215-225

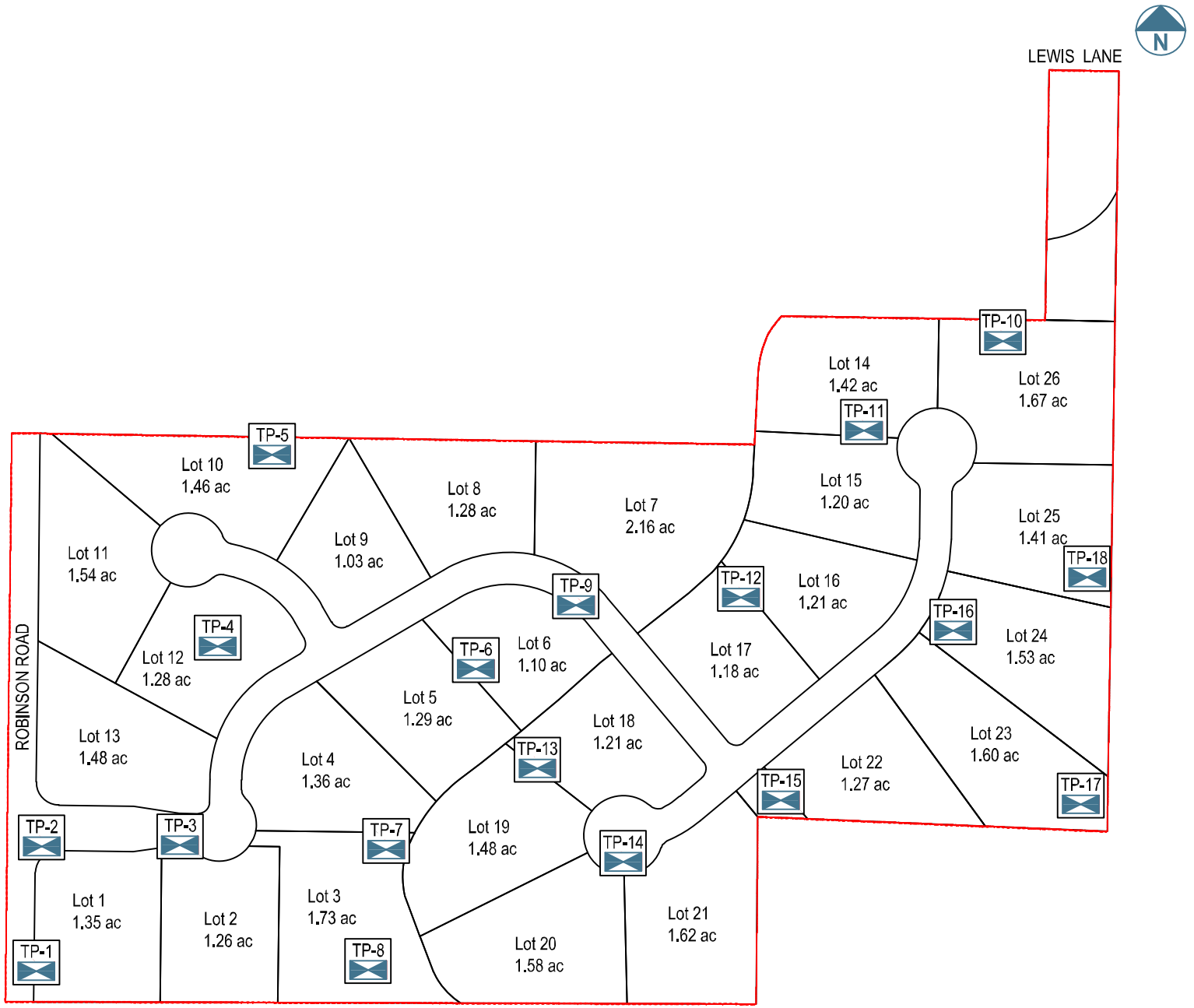
Cartography by Loudon R. Stanford on a computer-aided cartographic system at the Idaho Geological Survey
Typography by Ann G. Killen
Map reviewed by Roy M. Breckenridge, Willis1. Burnham, and Monte C. Wilson
Digital fourcolor separations by Optronics Specialty, Inc., Chatsworth, California
Printed by Jaqlyn & Morris, Inc., Boise

Published and sold by the IdahoGeological Survey
University of Idaho, Moscow, Idaho 83843

Appendix III SITE MAP WITH TEST PIT LOCATIONS AND SUBSURFACE INVESTIGATION TEST PIT LOGS

Site Map with Test Pit Locations

Figure 3



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

Approximate Atlas Test Pit Location

SCALE

0 175 350

(Feet)

Haven Creek
9814 Robinson Road
Kuna, ID

Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-1
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513370
Longitude: -116.493220
Depth to Water Table: Not Encountered
Total Depth: 6.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-6.1	Sandy Silt (ML): Brown, slightly moist, stiff to very stiff, with fine to medium-grained sand. --Refusal on basalt rock at a depth of 6.1 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 6.1 feet bgs.

Test Pit Log #: TP-2
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513919
Longitude: -116.493232
Depth to Water Table: Not Encountered
Total Depth: 9.2 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.6	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.6-9.2	Sandy Silt (ML): Brown, slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.5 to 9.2 feet bgs. --Refusal on basalt rock at a depth of 9.2 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-3
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514004
Longitude: -116.492150
Depth to Water Table: Not Encountered
Total Depth: 8.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-8.4	Sandy Silt (ML): Brown, slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.8 to 8.4 feet bgs. --Refusal on basalt rock at a depth of 8.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-4
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514769
Longitude: -116.492048
Depth to Water Table: Not Encountered
Total Depth: 4.5 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.2	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.2-4.5	Sandy Silt (ML): Brown, slightly moist, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 4.5 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-5
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515734
Longitude: -116.491675
Depth to Water Table: Not Encountered
Total Depth: 5.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-5.1	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.9 to 5.1 feet bgs. --Refusal on basalt rock at a depth of 5.1 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 5.1 feet bgs.

Test Pit Log #: TP-6
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514699
Longitude: -116.490435
Depth to Water Table: Not Encountered
Total Depth: 9.2 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.2	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.2-9.2	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.3 to 9.2 feet bgs. --Refusal on basalt rock at a depth of 9.2 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 9.2 feet bgs.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-7
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514023
Longitude: -116.490859
Depth to Water Table: Not Encountered
Total Depth: 6.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.5	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.	GS	1.0-1.5	0.75	A
1.5-6.6	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 3.1 to 6.6 feet bgs. --Refusal on basalt rock at a depth of 6.6 feet bgs.				

Notes: See Site Map for test pit location.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
A	16.3	31	9	99	98	95	90	77.9

Test Pit Log #: TP-8
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513284
Longitude: -116.491078
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-8.9	Sandy Silt (ML): Brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.8 to 8.9 feet bgs. --Refusal on basalt rock at a depth of 8.6 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-9
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515059
Longitude: -116.489707
Depth to Water Table: Not Encountered
Total Depth: 11.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.6	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material to a depth of 1 foot bgs.			0.75	
1.6-10.0	Sandy Silt (ML): Brown, dry, very stiff, with fine to coarse-grained sand. --Moderate calcium carbonate cementation from 6.9 to 10.0 feet bgs.				
10.0-11.6	Sandy Lean Clay (CL): Brown, dry, hard, with fine to medium-grained sand. --Refusal on indurated clay at a depth of 11.6 feet bgs.				

Notes: See Site Map for test pit location.
Piezometer installed to a depth of 11.6 feet bgs.

Test Pit Log #: TP-10
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.516354
Longitude: -116.487011
Depth to Water Table: Not Encountered
Total Depth: 8.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.4	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.4-8.1	Sandy Silt (ML): Light brown, dry, very stiff to hard, with fine to coarse-grained sand. --Moderate calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 8.1 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-11
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515509
Longitude: -116.487674
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.8	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.	Bulk	1.0-1.5	0.75	R-value
1.8-10.4	Sandy Silt (ML): Brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 10.4 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-12
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515085
Longitude: -116.488617
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-10.4	Sandy Silt (ML): Light brown, dry to slightly moist, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 2.5 to 10.4 feet bgs. --Refusal on basalt rock at a depth of 10.4 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-13
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514232
Longitude: -116.489891
Depth to Water Table: Not Encountered
Total Depth: 13.8 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.3	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.3-11.5	Sandy Silt (ML): Light brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 5.7 to 11.5 feet bgs.				
11.5-13.8	Lean Clay with Sand (CL): Brown, slightly moist, hard, with fine to medium-grained sand. --Refusal on indurated clay at a depth of 13.8 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-14
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.513946
Longitude: -116.489470
Depth to Water Table: Not Encountered
Total Depth: 9.6 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.9	Lean Clay with Sand (CL): Brown, slightly moist, medium stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			0.75	
1.9-9.6	Sandy Silt (ML): Light brown, dry, stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 4.4 to 9.6 feet bgs. --Refusal on basalt rock at a depth of 9.6 feet bgs.				

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 9.6 feet bgs.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-15
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514030
Longitude: -116.488480
Depth to Water Table: Not Encountered
Total Depth: 10.3 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-2.4	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			2.25	
2.4-10.3	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation from 4.6 to 10.3 feet bgs. --Refusal on basalt rock at a depth of 10.3 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-16
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514700
Longitude: -116.487201
Depth to Water Table: Not Encountered
Total Depth: 4.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.1	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			3.5	
1.1-4.9	Sandy Silt (ML): Brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 4.9 feet bgs.				

Notes: See Site Map for test pit location.

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-17
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.514012
Longitude: -116.486229
Depth to Water Table: Not Encountered
Total Depth: 10.3 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.9	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			3.5	
1.9-10.3	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 10.3 feet bgs.				

Notes: See Site Map for test pit location.

Test Pit Log #: TP-18
Date Advanced: November 8, 2021
Excavated by: Turn of the Century Homes
Logged by: Bryar Jensen, EI

Latitude: 43.515035
Longitude: -116.486296
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-1.7	Lean Clay with Sand (CL): Brown, slightly moist, very stiff, with fine to medium-grained sand. --Organic material and plow zones to a depth of 1 foot bgs.			2.5	
1.7-8.9	Sandy Silt (ML): Light brown to brown, dry, very stiff to hard, with fine to coarse-grained sand. --Weak calcium carbonate cementation throughout. --Refusal on basalt rock at a depth of 8.9 feet bgs.	GS	8.0-8.5		B

Notes: See Site Map for test pit location.
Infiltration testing conducted at a depth of 8.9 feet bgs.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
B	24.1	NP	NP	86	83	81	80	69.6

Atlas No. B212203g

GEOTECHNICAL GENERAL NOTES

Unified Soil Classification System			
Major Divisions		**Symbol**	**Soil Descriptions**
Coarse-Grained Soils < 50% passes No.200 sieve	Gravel & Gravelly Soils < 50% coarse	GW	Well-graded gravels; gravel/sand mixtures with little or no fines
	Sand & Sandy Soils > 50% coarse fraction	SW	Well-graded sands; gravelly sands with little or no fines
Fine-Grained Soils > 50% passes No.200 sieve	Silts & Clays LL < 50	ML	Inorganic silts; sandy, gravelly or clayey silts
		CL	Lean clays; inorganic, gravelly, sandy, or silty, low to medium-plasticity clays
	Silts & Clays LL > 50	MH	Inorganic, elastic silts; sandy, gravelly or clayey elastic silts
Highly Organic Soils		PT	Peat, humus, hydric soils with high organic content

Relative Density and Consistency Classification	
Coarse-Grained Soils	**SPT Blow Counts (N)**
Very Loose:	< 4
Loose:	4-10
Medium Dense:	10-30
Dense:	30-50
Very Dense:	> 50
Fine-Grained Soils	**SPT Blow Counts (N)**
Very Soft:	< 2
Soft:	2-4
Medium Stiff:	4-8
Stiff:	8-15
Very Stiff:	15-30
Hard:	> 30

Moisture Content and Cementation Classification	
Description	**Field Test**
Dry	Absence of moisture, dry to touch
Slightly Moist	Damp, but no visible moisture
Moist	Visible moisture
Wet	Visible free water
Saturated	Soil is usually below water table
Description	**Field Test**
Weak	Crumbles or breaks with handling or slight finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

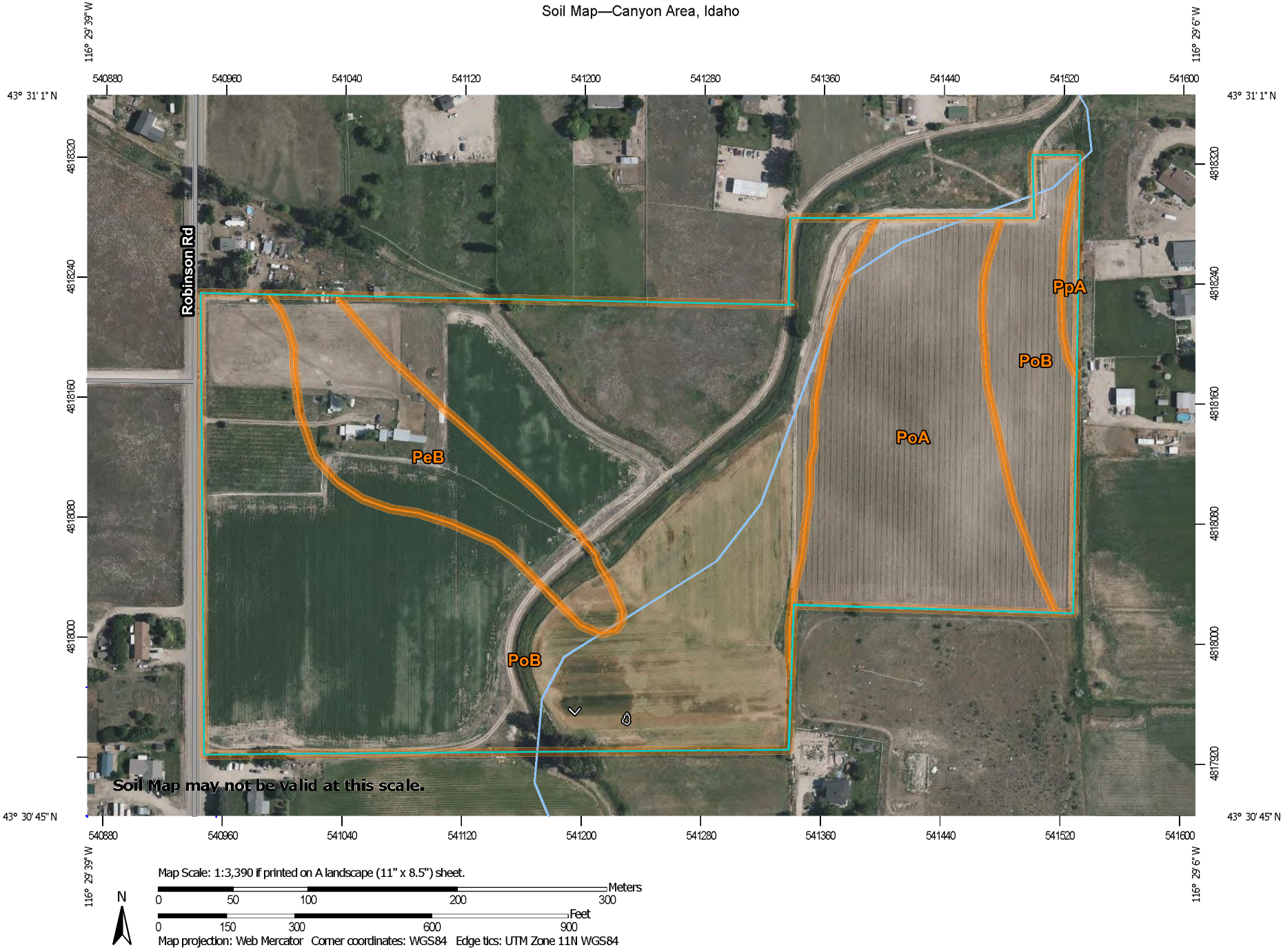
Particle Size	
Boulders:	> 12 in.
Cobbles:	12 to 3 in.
Gravel:	3 in. to 5 mm
Coarse-Grained Sand:	5 to 0.6 mm
Medium-Grained Sand:	0.6 to 0.2 mm
Fine-Grained Sand:	0.2 to 0.075 mm
Silts:	0.075 to 0.005 mm
Clays:	< 0.005 mm

Acronym List	
GS	grab sample
LL	Liquid Limit
M	moisture content
NP	non-plastic
PI	Plasticity Index
Q_p	penetrometer value, unconfined compressive strength, tsf
V	vane value, ultimate shearing strength, tsf

Atlas No. B212203g

Appendix IV SOIL SURVEY INFORMATION

Soil Map—Canyon Area, Idaho



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Canyon Area, Idaho
Survey Area Data: Version 17, Jun 3, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 10, 2020—Jun 26, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PeB	Potratz-Power silt loams, 1 to 3 percent slopes	4.2	10.0%
PoA	Power-Potratz silt loams, 0 to 1 percent slopes	7.9	18.7%
PoB	Power-Potratz silt loams, 1 to 3 percent slopes	29.8	70.7%
PpA	Power-Purdam silt loams, 0 to 1 percent slopes	0.3	0.6%
Totals for Area of Interest		**42.2**	**100.0%**

Canyon Area, Idaho

PeB—Potratz-Power silt loams, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2q3d
Elevation: 2,000 to 4,600 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Potratz and similar soils: 70 percent
Power and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Potratz

Setting

Landform: Lava plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over bedrock derived from basalt

Typical profile

A - 0 to 3 inches: silt loam
Bw - 3 to 10 inches: silt loam
Bk - 10 to 24 inches: loam
R - 24 to 34 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Power

Setting

Landform: Lava plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Typical profile

Ap - 0 to 9 inches: silt loam
Btk - 9 to 17 inches: silt loam
Bk - 17 to 60 inches: silt loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Data Source Information

Soil Survey Area: Canyon Area, Idaho
Survey Area Data: Version 17, Jun 3, 2020

Canyon Area, Idaho

PoA—Power-Potratz silt loams, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2q3m
Elevation: 2,000 to 4,600 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Power and similar soils: 70 percent
Potratz and similar soils: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Power

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Typical profile

Ap - 0 to 9 inches: silt loam
Btk - 9 to 17 inches: silt loam
Bk - 17 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Potratz

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over bedrock derived from basalt

Typical profile

A - 0 to 3 inches: silt loam
Bw - 3 to 10 inches: silt loam
Bk - 10 to 24 inches: loam
R - 24 to 34 inches: bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Data Source Information

Soil Survey Area: Canyon Area, Idaho
Survey Area Data: Version 17, Jun 3, 2020

Canyon Area, Idaho

PoB—Power-Potratz silt loams, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2q3n
Elevation: 2,000 to 4,600 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Power and similar soils: 70 percent
Potratz and similar soils: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Power

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Typical profile

Ap - 0 to 9 inches: silt loam
Btk - 9 to 17 inches: silt loam
Bk - 17 to 60 inches: silt loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Potratz

Setting

Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loess over bedrock derived from basalt

Typical profile

A - 0 to 3 inches: silt loam
Bw - 3 to 10 inches: silt loam
Bk - 10 to 24 inches: loam
R - 24 to 34 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Data Source Information

Soil Survey Area: Canyon Area, Idaho
Survey Area Data: Version 17, Jun 3, 2020

Canyon Area, Idaho

PpA—Power-Purdam silt loams, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2q3p
Elevation: 2,000 to 5,000 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Power and similar soils: 65 percent
Purdam and similar soils: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Power

Setting

Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or loess

Typical profile

Ap - 0 to 9 inches: silt loam
Btk - 9 to 17 inches: silt loam
Bk - 17 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Purdam

Setting

Landform: Stream terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or lacustrine deposits and/or loess

Typical profile

Ap - 0 to 10 inches: silt loam
Btk - 10 to 13 inches: silty clay loam
Bk - 13 to 24 inches: silt loam
Bkqm - 24 to 38 inches: cemented material
2C - 38 to 60 inches: stratified very gravelly sand to loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

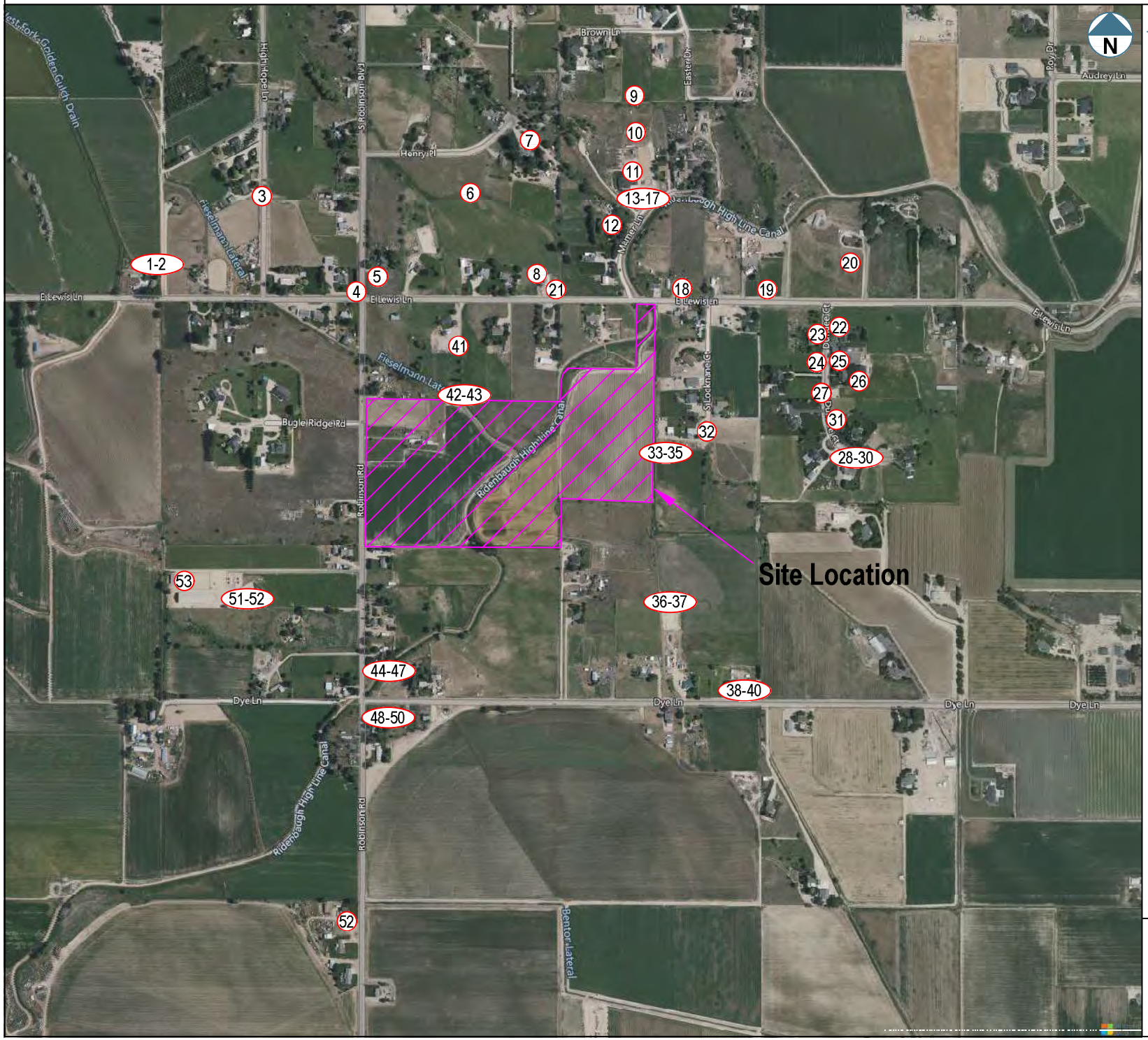
Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 6c
Hydrologic Soil Group: C
Hydric soil rating: No

Data Source Information

Soil Survey Area: Canyon Area, Idaho
Survey Area Data: Version 17, Jun 3, 2020

Appendix V SITE LOCATION WITH VICINITY WELLS MAP AND IDWR DRILLER'S WELL LOGS

Figure 4



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

Well Location (#)

SCALE

0 0.125 0.5

(Miles)

Haven Creek
9814 Robinson Road
Kuna, ID

Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Form 238
9/82

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALLPOINT

RECEIVED JUN 29 1989

Department of Water Resources

1. WELL OWNER

Name Robert L. Vaughn

Address 1552 High Hope Lane

Owner's Permit No. 63-88-2-173

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☐ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	_____ inches +	1 feet	20 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☐ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 19 Material used in seal: ☐ Cement grout ☐ Bentonite ☒ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port Sanitary Well Seal

RECEIVED JUN 21 1991

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name Robinson Ranchettes
Lot No. 6 Block No. 2
County Canyon
NW ¼ SE ¼ Sec. 7, T. 2 N/S, R. 1 E/W.

7. WATER LEVEL

Static water level 20 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
40	60 ft.	2

103525

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
10"	0	2	Top Soil		✓
10"	2	16	Brown clay		✓
10"	16	19	Black lava Rock		✓
6"	19	70	" " " w/ cracks at bottom & water	✓	

RECEIVED JUN 30 1989
Department of Water Resources
Western Regional Office

10.

Work started 6/8/88 finished 6/10/88

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Can-Ada Well Drilling Rt. 1 Firm No. 304
Address Kuna, Id. 83634 Date Sept. 26, 1988
Signed by (Firm Official) Earl Skinner
and
(Operator) Earl Skinner

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
9/82

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALLPOINT PEN

RECEIVED JUL 18 1988

Department of Water Resources

1. WELL OWNER

~~3167-5303~~

Name Robert Vaughn

Address Robinson & Lewis Lane Nampa, Id.

Owner's Permit No. 63-88-2-173

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☐ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
~~.250~~ inches	_____ inches +	_____ feet	_____ feet
.250 inches	6 inches	1 feet	18 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

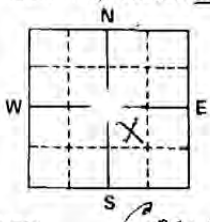
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 18 Material used in seal: ☐ Cement grout ☐ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port Sanitary Well Seal

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
NW¼ SE¼ Sec. 7 Twp. 4 N Rge. 3 W

7. WATER LEVEL

Static water level 20 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature 51 °F. Quality 17 grains
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
75	50	2

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
9	0	2	Top soil		X
9	2	11	Brown clay		X
9	11	18	Black Lava Rock		X
6	18	70	" " "	X	

Department of Water Resources
RECEIVED
JUN 28 1988
Department of Water Resources

10.

Work started 6/8/88 finished 6/9/88

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Can-Ada Well Drilling Firm No. 304
Address Rt 1 Date 6/9/88
Kuna, Id 83634
Signed by (Firm Official) Earl Skinner
and
(Operator) Earl Skinner

COPY TO THE DEPARTMENT

USE TYPEWRITER OR BALLPOINT PEN

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

RECEIVED
APR 17 1978
Department of Water Resources

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Pete Uberuaga
Address Route 6 Nampa, Ida.
Owner's Permit No. _____

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)
☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☑ Cable ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 92 feet
Casing schedule: ☑ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+1 (0) feet	19 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

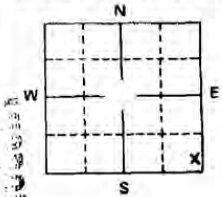
Was casing drive shoe used? ☐ Yes ☑ No
Was a packer or seal used? ☐ Yes ☑ No
Perforated? ☐ Yes ☑ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number		From	To
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☑ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☑ No Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 19 Material used in seal: ☐ Cement grout ☐ Puddling clay ☑ Well cuttings
Sealing procedure used: ☐ Slurry pit ☐ Temporary surface casing ☑ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location. 63



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
SE ¼ SE ¼ Sec. 7, T. 2 N/S, R. 1 E/W

7. WATER LEVEL

Static water level 30 feet below land surface.
Flowing? ☐ Yes ☑ No G.P.M. flow _____
Temperature _____ °F. Quality _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☑ Bailer ☐ Other

Discharge G.P.M.	Drawdown	Hours Pumped
30	0	1

9. LITHOLOGIC LOG 105861

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	1	Top soil		✓
"	1	5	hard pan		✓
"	5	30	black lava		✓
"	30	43	hard reddish lava	✓	
"	43	58	black lava	✓	
"	58	85	broken lava	✓	
"	85	92	sandy clay	✓	

Dep... of Water Resources
Western Regional Office

10. Work started 2/20/78 finished 2/26/78

11. DRILLERS CERTIFICATION

Firm Name Johnston Drilling Firm No. 92
Address Oreana, Idaho Date 2/27/78
Signed by (Firm Official) Elmer D Johnston
and
(Operator) Ralph R Robinson

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

057613

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 63-96-W-0735-000
Other IDWR No. _____

2. OWNER:
Name Larry Conger
Address 6125 E. Lewis
City Nampa State ID Zip 83686

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

Twp. 2 North ☒ or South ☐
Rge. 4 East ☐ or West ☒
Sec. 7, 10 acres 1/4 SE 40 acres 1/4 SE 160 acres 1/4
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site 6216 Lewis
City Nampa
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentik	0	18	4/50	Pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	58	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
70 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 106 ft. Describe access port or control devices: CAP

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
75	100	100	3 Hr

Water Temp. 56 Bottom hole temp. 56
Water Quality test or comments: _____
Depth first Water Encountered 61

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	2	Top Soil		
	2	16	Brn Sandy Clay		
	16	18	Lava		
6	18	104	" " Cracked	X	
	104	106	Red Clay		
	108		Sand & Gravel	X	

RECEIVED
NOV 0 1 1996
Department of Water Resources

RECEIVED
NOV 0 1 1996
Department of Water Resources

RECEIVED
OCT 2 2 1996
MICROFILMED WATER RESOURCES WESTERN REGION
DEC 0 6 1996

Completed Depth 108 (Measurable)
Date: Started 9-30-96 Completed 9-31-96

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Treasure Valley Drilling Firm No. 560
Firm Official _____ Date 10-11-96
and
Supervisor or Operator _____ Date 10-11-96
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
8/90

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name SHERVIK BUILDERS
Address 1404 MIDLAND BLVD NAMPA 83651
Drilling Permit No. 63-92-W-087
Water Right Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☐ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches +	1½ feet	37 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Diameter ____ Slot size ____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 37 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing
☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.

AUG 1 1 1992

N / W / E / S

Subdivision Name HENRY HEIGHTS
Lot No. 1 Block No. 1
County CANYON
SW ¼ SW ¼ Sec. 8, T. 2 N ☒ S ☐ R. 1 E ☐ W ☒

7. WATER LEVEL

Static water level 42' feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

079478

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	4	TOPSOIL/HARD PAN		X
	4	16	SOLID LAVA		X
	16	22	LAVA W/CREVICES		X
6	22	43	SOLID LAVA		X
	43	83	LAVA W/ CREVICES	X	

RECEIVED JUN 2 2 1992 Department of Water Resources

RECEIVED JUN 2 3 1992 Department of Water Resources Western Regional Office

10. Work started 2-28-92 finished 2-28-92

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name DAVIS WELL & PUMP CO. Firm No. 101
Address 415 N. PITT LANE NAMPA, IDAHO 83687 Date 6-10-92
Signed by (Firm Official) Carol M Davis
and
(Operator) Chuck Davis by Chm.

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
8/90

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Shervik Builders
Address Robinson & Lewis Lane
204 10th Ave. S. Nampa, Idaho 83651
Drilling Permit No. 63-91-w-458
Water Right Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
.250 inches	6 inches +	1½ feet	31 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

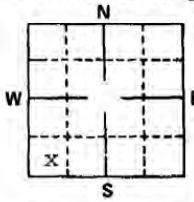
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation _____ inches by _____ inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name
Type Model No.
Diameter Slot size Set from feet to feet
Diameter Slot size Set from feet to feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel
Placed from feet to feet
Surface seal depth 30 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing
☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name
Lot No. Block No.
County Canyon
SW ¼ SW ¼ Sec. 8 , T. 2 N N ☐ S ☐ R. 1 W E ☐ W ☐

7. WATER LEVEL

Static water level 31 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow
Artesian closed-in pressure p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature °F. Quality
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other

Discharge G.P.M.	Pumping Level	Hours Pumped
	072251	

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	8	Top soil/hard pan		x
	8	10	Loose lava rock;hard pan		x
	10	20	Lava		x
	20	26	Lava crevices		x
	26	40	Solid lava		x
6	40	42	Lava crevices	x	
	42	65	Solid lava		x
	65	86	Lava crevices	x	
	86	88	Solid lava		x

RECEIVED
MAR 18 1992
Department of Water Resources

RECEIVED
MAR 18 1992
Department of Water Resources
Western Region

10.

Work started 12/18/91 finished 12/18/91

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name DAVIS WELL & PUMP CO. Firm No. 101
Address 415 N. PITT LANE NAMPA, IDAHO 83687 Date 1-10-91
Signed by (Firm Official) Carol M Davis
and
(Operator) Chuck Davis

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
4/92

KJ

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

Location Corrected by IDWR To:
T02N R01W Sec. 8 NESWSW
By: mciscell 2012-05-04

1. WELL OWNER

Name William Knipe
Address 6603 Henry Pl. Nampa, ID
Drilling Permit No. 63-92-W-0790-000
Water Right Permit No. 63-W-660

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☐ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☒ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 2 feet	28 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

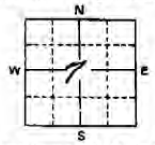
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☐ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 20 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port Top of Well

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name HENRY
Lot No. 5 Block No. 1
County CANYON
Address of Well Site 6603 HENRY Pl. NAMPA
(give at least name of road)
NE ¼ NE ¼ Sec. 7, T. 2 N ☒ or S ☐, R. 2 E ☐ or W ☒

7. WATER LEVEL

Static water level 45 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
30		½

9. LITHOLOGIC LOG

70550

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8"	0	6	Top Soil		
"	6	28	Lava		
"	28	105	Lava		
"	105	–	Gravel & Sand	X	

RECEIVED
SEP 28 1992
Department of Water Resources
Western Regional Office

MICROFILMED
FEB 09 1994

10.

Work started 9/18/92 finished 9/18/92

11. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Adamson Pump & Drilling Firm No. 457
Address Nampa, ID Date 9/21/92
Signed by Drilling Supervisor Dave Adamson
and
(Operator) John Post
(If different than the Drilling Supervisor)

COPY TO THE DEPARTMENT

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name ALLAN CABA
Address 6600 E LEWIS LANE NAMPA
Drilling Permit No. 63-93-W-0699
Water Right Permit No. _____

2. NATURE OF WORK
☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
250 inches	8 inches	+ 2 feet	53 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

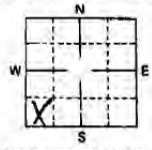
Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 20 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL
Sketch map location **must** agree with written location.



Subdivision Name HENRY HEIGHTS
Lot No. 43 Block No. 1
County CANYON
Address of Well Site SAME
(give at least name of road)
SW ¼ SW ¼ Sec. 8, T. 2 N ☒ or S ☐, R. 1 E ☐ or W ☒

7. WATER LEVEL
Static water level 12 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 70528

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
10	0	4	TOP SOIL/HARD PAN		X
	4	34	SOLID LAVA		X
	34	38	LAVA CREVICES		X
	38	59	SOLID LAVA		X
8	59	86	LAVA CREVICES	X	
	86	88	SOLID LAVA		X

RECEIVED
AUG 23 1993
Department of Water Resources

RECEIVED
AUG 19 1993
Department of Water Resources
Western Regional Office

MICROFILMED
FEB 09 1994

10.
Work started 7-14-93 finished 7-14-93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
DAVIS WELL & PUMP CO.
Firm Name 405 N. PITT LANE Firm No. 101
NAMPA, IDAHO 83687
Address _____ Date 8-17-93
Signed by Drilling Supervisor Chuck Davis
and
(Operator) _____
(If different than the Drilling Supervisor)

IPY TO THE DEPARTMENT

Form 238-7
6/07

63

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0087651
Drilling Permit No 896644
Water right or injection well #

2. OWNER:
Name HECTOR MIGUEL CAMACHO MARQUEZ
Address 606 WINTER PL
City NAMPA State ID Zip 83686

3.WELL LOCATION:
Twp 02 North ☒ or South ☐ Rge 01 East ☐ or West ☒
Sec 8 ____ 10 acres 1/4 NE 40 acres 1/4 SW 160 acres 1/4
Gov't Lot ____ County CANYON
Lat 43 ° 31.2798N (Deg and Decimal minutes)
Long 116 ° 29.2134W (Deg and Decimal minutes)
Address of Well Site 6811 BROWN LN
City NAMPA
(Give At least name of road + Distance to Road or Landmark)
Lot ____ Blk ____ Sub Name

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other

5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
BENONITE 3/8	0	38	1100 LBS	POURED

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+1.5	40	.250	STEEL	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s)

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method
Manufactured screen ☒ Y ☐ N Type CERTA LOK
Method of installation SET IN

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
40	69	.020		4.5"	PVC	SDR17

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☒ N Type

10.FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method
SILICA SAND	38	69	5 YRDS	TAGGED IN
8/16				

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG)
Describe control device

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 30 Static water level (ft) 30
Water temp (°F) 61 Bottom hole temp (°F) 61
Describe access port WELL CAP

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
60'	50 +	60 MIN

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐
☐	☐	☐	☐

Water quality test or comments:

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (In)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10	0	2	TOP SOIL		X
10	2	4	BROWN CLAY		X
10	4	8	HARD PAN		X
10	8	22	BLACK BASALT		X
10	22	37	BROKEN BASALT BROWN	X	
10	37	45	BLACK BASALT		X
10	45	48	BROKEN	X	
10	48	60	BLACK BASALT		X
10	60	69	BROKEN BASALT	X	

RECEIVED
FEB 10 2021
WATER RESOURCES
WESTERN REGION

Completed Depth (Measurable) 69'
Date Started 11/4/2020 Date Completed 11/7/2020

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed

Company Name PEARSON WELL DRILLING Co No 771
*Principal Driller [signature] Date 11/9/2020
*Driller ____ Date
*Operator [signature] Date
Operator ____ Date

* Signature of Principal Driller and rig operator are required

Form 238-7
6/07

63

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

RECEIVED
DEC 27 2019
WATER RESOURCES
WESTERN REGION

1. WELL TAG NO. D D0083412
Drilling Permit No. 492570
Water right or injection well #

2. OWNER:
Name Jason Perkins
Address 0 Mamer Ln.
City Nampa State Idaho Zip 83686

3.WELL LOCATION:
Twp. 2 North ☒ or South ☐ Rge. 1 East ☐ or West ☒
Sec. 8 ____ 1/4 (10 acres) SE 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat. 43 ° 31.241'N (Deg. and Decimal minutes)
Long. 116 ° 29.204'W (Deg. and Decimal minutes)
Address of Well Site Same
(Give at least name of road + Distance to Road or Landmark) City Nampa
Lot. 6 Blk. ____ Sub. Name Mamer Sub. (Par. #R24210)

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other

5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
3/8" Bentonite	0	50	1050 lbs.	10" Overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	4	57	.250	Steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) N/A

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method
Manufactured screen ☒ Y ☐ N Type Certa-Lock PVC Screens
Method of installation Drop In

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
36	96	.020	60'	4.5"	PVC	SDR17

Length of Headpipe N/A Length of Tailpipe N/A
Packer ☐ Y ☒ N Type

10.FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method
N/A				

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG)
Describe control device

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) ____ Static water level (ft) 34'
Water temp. (°F) Cold Bottom hole temp. (°F)
Describe access port 6" Turtle Cap

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Test method: Pump	Bailer	Air	Flowing artesian
50'	100 GPM	1 HR.	☐	☐	☒	☐
			☐	☐	☐	☐

Water quality test or comments:

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0	2	Top Soil		X
	2	6	Hard Pan		X
	6	11	Broken Lava		X
	11	39	Black Lava		X
	39	42	Red Lava		X
	42	96	Black Lava	X	
6"	96		Sand & Gravel	X	

Completed Depth (Measurable): 96'
Date Started: Dec 12, 2019 Date Completed: Dec 13, 2019

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Dennis Phipps Well Drilling In Co. No. 332
*Principal Driller [signature] Date Dec 13, 2019
*Driller Date
*Operator II Date Dec 13, 2019
Operator I [signature] Date Dec 13, 2019

* Signature of Principal Driller and rig operator are required.

RECEIVED
DEC 13 2019
WATER RESOURCES
WESTERN REGION

Form 238-7
6/07

63

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D D0083411
Drilling Permit No. 892569
Water right or injection well #

2. OWNER:
Name Allen Perkins
Address 5307 Mamer Ln.
City Nampa State Idaho Zip 83686

3.WELL LOCATION:
Twp. 2 North ☒ or South ☐ Rge. 1 East ☐ or West ☒
Sec. 8 ____ 1/4 (10 acres) SE 1/4 (40 acres) SW 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat. 43 ° 31.197'N (Deg. and Decimal minutes)
Long. 116 ° 29.209'W (Deg. and Decimal minutes)
Address of Well Site Same
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lot 6 Blk. ____ Sub. Name Mamer Sub.

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other

5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
3/8" Bentonite	0	50	1100 lbs.	10" Overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	2	57	.250	Steel	☒	☐	☐	☒
4.5"	40	60	SD17	PVC	☐	☒	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 57'

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method
Manufactured screen ☒ Y ☐ N Type Certa-Lock PVC Screens
Method of installation Drop In

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
60	100	.020	40'	4.5"	PVC	SDR17

Length of Headpipe 20' Length of Tailpipe N/A
Packer ☐ Y ☒ N Type ----------

10.FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method
N/A				

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) ----------
Describe control device ----------

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) ---------- Static water level (ft) 40'
Water temp. (°F) Cold Bottom hole temp. (°F) ----------
Describe access port 6" Turtle Cap

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Test method: Pump	Bailer	Air	Flowing artesian
80'	55 GPM	1 HR.	☐	☐	☒	☐
			☐	☐	☐	☐

Water quality test or comments:

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0	2	Top Soil		X
	2	6	Hard Pan		X
	6	14	Coarse Sand & Gravel		X
	14	42	Black Lava Rock		X
	42	45	Red Lava Rock	X	
	45	84	Black Lava Rock	X	
6"	84	87	Clay		X
	87	92	Black Lava Rock	X	
	92	100	Red Cinders	X	
	100		Sand & Gravel	X	

Completed Depth (Measurable): 100'
Date Started: Dec 10, 2019 Date Completed: Dec 11, 2019

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Dennis Phipps Well Drilling In Co. No. 332
*Principal Driller ____ Date Dec 12, 2019
*Driller ____ Date
*Operator II ____ Date Dec 12, 2019
Operator I ____ Date Dec 12, 2019

* Signature of Principal Driller and rig operator are required.

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Byron Henry

Address Kuna, Idaho

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	16 inches +	1 1/2 feet	38 1/2 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

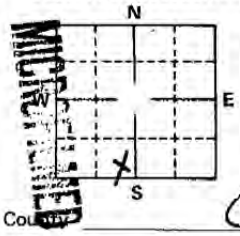
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number		From	To
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 30 Material used in seal: ☐ Cement grout ☒ Puddling clay ☐ Well cuttings
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port welded plate

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name none

Lot No. _____ Block No. _____

County Canyon

SE ¼ SW ¼ Sec. 8 T. 2 N☐. R. 1 ☒W.

7. WATER LEVEL

Static water level 38 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

106439

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	10	Top soil & hardpan		X
	10	50	Solid lava		X
	50	55	Lava crevice	X	
	55	71	Lava		X
	71	80	Lava crevice	X	
	80	88	Solid lava		X
	88	90	Lava crevice	X	

RECEIVED
AUG 14 1980
Department of Water Resources

MAY 1980
Department of Water Resources
Western Regional Office

10.

Work started 10/17/79 finished 10/17/79

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Davis Well & Pump Firm No. 101

Address 415 N. Allen Ave. Date 2/15/80

Signed by (Firm Official) Charles Davis

and

(Operator) _____

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
1/94

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter
or
Ball Point Pen

053407

1. DRILLING PERMIT NO. 63-94-W-0910-000
Other IDWR No.

2. OWNER:
Name MIKE HARN
Address 5119 MAMER LANE
City NAMPA State ID Zip 83686

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S — X

Twp. 2 North X or South ☐
Rge. 1 East ☐ or West X ☐
Sec. 8 , 10 acres 1/4 SE 40 acres 1/4 SW 160 acres 1/4
Gov't Lot ____ County CANYON

Address of Well Site
5119 MAMER LANE City NAMPA
(Give at least name of road + Distance to Road or Landmark)

Lt. ____ Blk. ____ Sub. Name ____

4. PROPOSED USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK
☒ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD
☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENT	0	20	4S	OVERBORE

Was drive shoe used? Y ☒ N ☐
Was drive shoe seal tested? Y ☐ N ☒ How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+3	117	250	STEEL	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
50 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
50	80	NO	TEST

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
11"	0	2	TOPSOIL	NO	
11"	2	5	BRN LAVA BOULDERS/CLAY	NO	
11"	5	20	SOLID BLACK LAVA	NO	
9"	20	50	SOLID BLACK LAVA	NO	
9"	50	53	CRACKS RED CINDERS	NO	
9"	53	59	SOLID BLACK LAVA	NO	
9"	59	70	CRACKS BLACK LAVA	YES	
9"	70	80	CRACKS BLACK LAVA	NO	
9"	80	97	SOLID BLACK LAVA	NO	
9"	97	100	BRN CLAY	NO	
6"	100	114	BRN GRAVEL SAND	YES	
6"	114	118	BRN CLAY	NO	
6"	118	121	BRN SAND GRAVEL	YES	

RECEIVED
MAR 17 1995
Department of Water Resources

RECEIVED
NOV 14 1994
WATER RESOURCES
WESTERN REGION

JUN 2 1995

Completed Depth 120' FROM TOP OF CASING (Measurable)
Date: Started 10/1/94 Completed 10/4/94

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name S.O.S. WELLDRILLING Firm No. 212
Firm Official Frank Skinner Date 10-21-94
and
Supervisor or Operator Tony Haslett Date 10-21-94
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
4/92

RECEIVED
FEB 1 2 1993
Department of Water Resources
Western Regional Office

RECEIVED
MAR 2 1993
Department of Water Resources

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Bob Hardesty

Address 6912 Lewis Ln Nampa Id

Drilling Permit No. 63-92-W-1079

Water Right Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☒ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	111 feet
.258 inches	5 inches	105 feet	110 feet
.258 inches	5 inches	115 feet	117 feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☒ Yes ☐ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☒ Yes ☐ No
Manufacturer Houston Type 304
Top Packer or Headpipe 4' 8"
Bottom of Tailpipe 2'

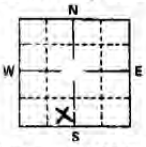
Diameter 5 Slot size .020 Set from 110 feet to 115 feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal: ☐ Cement grout
☒ Bentonite ☒ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port Well Seal

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
Address of Well Site _____ (give at least name of road)
SE ¼ SW ¼ Sec. 8, T. 2 N ☒ or S ☐, R. 1 E ☐ or W ☒

7. WATER LEVEL

Static water level 60 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
50		1

84308

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	8	Top Soil		X
	8	98	Lava Rock		X
	98	117	Sand & Gravel	X	

MICROFILMED
AUG 0 9 1993

10.

Work started 15 Dec 92 finished 2-12-93

11. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Dennis Phipps Firm No. 332
Address Meridian Id Date 2-3-93
Signed by Drilling Supervisor Dennis Phipps
and
(Operator) _____ *(if different than the Drilling Supervisor)*

COPY TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

Received 3-19-73 WRD

1. WELL OWNER

Name Robert A. Hardesty

Address Rt 2 Meridian, Ida

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6" inches Total depth 72 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
250 inches	6 5/8 inches	0 feet	20 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

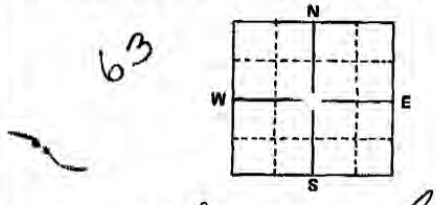
Placed from _____ feet to _____ feet

Surface seal? ☒ Yes ☐ No To what depth 19 feet

Material used in seal ☐ Cement grout ☒ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



County Ada, County.

SE ¼ SW ¼ Sec. 8, T. 2 N/S, R. 1 E/W of Boise Meridian.

7. WATER LEVEL

Static water level 49 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
20	NONE	6 hrs

9. LITHOLOGIC LOG 31487

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	2	Top Soil		
	2	4	Caliche & Hard pan		
	4	31	Gray Lava = "Hard"		
	31	44	Grading Lava "Hard"		
	44	49	Dry Lava "Very Hard"		
	49	69	Gray Lava Rose	X	
	69	72	Black Cinders STALLED-OUT	X	

10. Work started Dec-1-72 finished Dec 7-72

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

C.R. Broomfield #29
Driller's or Firm's Name Number

149 Meffon St. Nampa, Ida.
Address

C.R. Bourn Dec-12-1972
Signed By Date

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

RECEIVED
APR 8 1976
Division of Water Resources

16

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Administration within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Fred Schwendt
Address 303 Florida Ave
Owner's Permit No. Nampa Idaho

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)
☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 88 feet
Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	19 feet
____ inches	____ inches	____ feet	____ feet
____ inches	____ inches	____ feet	____ feet
____ inches	____ inches	____ feet	____ feet
____ inches	____ inches	____ feet	____ feet

Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☐ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation ____ inches by ____ inches

Number	From	To
____ perforations	____ feet	____ feet
____ perforations	____ feet	____ feet
____ perforations	____ feet	____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name ____
Type ____ Model No. ____
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel ____
Gravel from ____ feet to ____ feet

Surface seal depth 18 Material used in seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings
Seal procedure used ☐ Slurry pit ☐ Temporary surface casing ☒ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location. (63)

N / W / E / S

Subdivision Name ____
Lot No. KHF Block No. ____
County Canyon
SE ¼ SW ¼ Sec. 8, T. 2 N, R. 1 W

7. WATER LEVEL

Static water level 49' feet below land surface
Flowing? ☐ Yes ☒ No G.P.M. flow ____
Temperature ____ ° F. Quality FAIR
Artesian closed-in pressure ____ p.s.i.
Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
20	1'	1

033131

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	1	Basalt Boulders Top Soil		X
8	1	2	Hard Pan Basalt Boulders		X
8	2	3	Broken Basalt		X
8	3	5	Basalt (Hard)		X
8	5	10	Basalt		X
8	10	15	Basalt Sl Gravel		X
8	15	18	Hard Basalt Gravel		X
6	18	25	Basalt		X
6	25	30	Basalt Gravel		X
6	30	40	Hard Basalt Gravel		X
6	40	50	Hard Basalt		X
6	50	55	Gray Basalt		X
6	55	57	Red Basalt		X
6	57	65	Hard Black Basalt		X
6	65	70	Gray Basalt	X	
6	70	74	Basalt Black	X	
6	74	75	Broken Basalt (Some Boy Clay Chunks)	X	
6	75	80	Hard Black Basalt	X	
6	80	85	Basalt	X	
6	85	86	Broken Basalt Some Cinders	X	
6	86	88	Basalt	X	

10. Work started 2/28/76 finished 3/13/76

11. DRILLERS CERTIFICATION

Firm Name Jesse Hill Firm No. 216
Address 449 Nighy St Nampa Date 3/13/76
Signed by (Firm Official) Jesse Hill
and (Operator) ____

RECEIVED
MAR 15 1976
IDAHO DEPARTMENT OF WATER ADMINISTRATION

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

Received 1-14-74

State law requires that this report be filed with the Director, Department of Water Administration within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Dave Dwyer

Address Rt 3 Nampa Idaho

Owner's Permit No. _____

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☑ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 68 feet

Casing schedule: ☐ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+18" feet	20 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☑ No

Perforated? ☐ Yes ☑ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☑ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☑ No Size of gravel _____

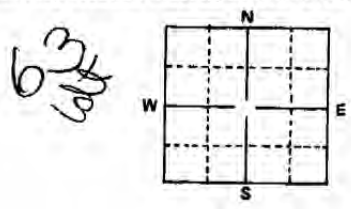
Placed from _____ feet to _____ feet

Surface seal? ☑ Yes ☐ No To what depth 20 feet

Material used in seal ☐ Cement grout ☑ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



County Canyon

SE ¼SW ¼ Sec. 8, T. 2 N/S, R. 1 E/W

7. WATER LEVEL

Static water level 41 feet below land surface

Flowing? ☐ Yes ☐ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
20	8	3

033133

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	4	Soil		✓
6	4	50	Lava Black		✓
6	50	65	Lava Red		✓
6	65	68	Lava Black		✓
6	68		Black Cinders	✓	

10.

Work started July 9 finished July 15 1973

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

L.R. Broomfield 29
Driller's or Firm's Name Number

147 Mullen Nampa Ida
Address

L.R. Broomfield Sept 5 1973
Signed By Date

PINK COPIES TO THE DEPARTMENT

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

Location Corrected by IDWR To:
T02N R01W Sec. 8 SESESW
By: mciscell 2012-12-26

1. WELL OWNER
Name ~~Melvin~~ Griffith
Address 6902 E. Lewis Ln Nampa Id. 83651
Drilling Permit No. 63-93-W-0207
Water Right Permit No. _____

2. NATURE OF WORK
☐ New well ☐ Deepened ☒ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 feet	110 feet
.258 inches	5 inches	106 feet	111 feet
.258 inches	5 inches	116 feet	118 feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☒ Yes ☐ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number		From	To
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet

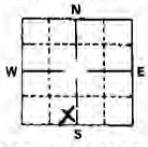
Well screen installed? ☒ Yes ☐ No
Manufacturer Wesco Type 304
Top Packer or Headpipe 4' 8"
Bottom of Tailpipe 2'

Diameter 5 Slot size .020 Set from 111 feet to 116 feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal: ☐ Cement grout
☒ Bentonite ☒ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port Weld Seal

6. LOCATION OF WELL
Sketch map location **must** agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
Address of Well Site 6902 E. Lewis Ln
(give at least name of road)
SE ¼ SW ¼ Sec. 8, T. 2 N ☒ or S ☐, R. 1 E ☐ or W ☒

7. WATER LEVEL
Static water level 63 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
40		1

9. LITHOLOGIC LOG 082804

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	2	Top Soil		X
	2	4	Hard Pan		X
	4	75	Lava Rock		X
	75	104	Lava Rock	X	
	104	118	Sand & Gravel	X	

RECEIVED
MICROFILMED
AUG 04 1993
Department of Water Resources
Western Regional Office
AUG 03 1993

10.
Work started 3-25-93 finished 4-4-93

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name Dennis Phipps Firm No. 332
Address Meridian ID. Date 4-29-93
Signed by Drilling Supervisor _____
and
(Operator) _____ *(if different than the Drilling Supervisor)*

USE ADDITIONAL SHEETS IF NECESSARY — COPY TO THE DEPARTMENT

Form 238-7
4/92

FEB 1 2 1993

Department of Water Resources
Western Regional Office

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

Location Corrected by IDWR To:
T02N R01W Sec. 8 SWSWSE
By: mciscell 2012-08-28

1. WELL OWNER

Name Todd Newby
Address 7114 Lewis Ln. Nampa ID
Drilling Permit No. 63-92-W-1059-001
Water Right Permit No. _____

2. NATURE OF WORK

☐ New well ☐ Deepened ☒ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☒ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches +	1 feet	130 feet
.258 inches	5" inches	126 feet	131 feet
.258 inches	5 inches	136 feet	138 feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☒ Yes ☐ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number		From	To
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet
_____	perforations	_____ feet	_____ feet

Well screen installed? ☒ Yes ☐ No
Manufacturer Houston Type 304
Top Packer or Headpipe 4' 8"
Bottom of Tailpipe 2'

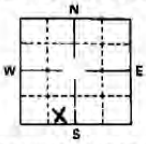
Diameter 5 Slot size .020 Set from 131 feet to 136 feet
Diameter _____ Slot size _____ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal: ☐ Cement grout
☒ Bentonite ☒ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port Well Seal

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
Address of Well Site 7114 Lewis Ln.
(give at least name of road)
SE ¼ SW ¼ Sec. 8, T. 2 N N ☐ or S ☐, R. 1 W E ☐ or W ☐

7. WATER LEVEL

Static water level 75 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
40		1

9. LITHOLOGIC LOG

84307

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	2	Top Soil		X
	2	15	Clay		X
	15	90	Lava Rock		X
	90	120	Sand & Gravel	X	
	120	138	Course Sand	X	

MICROFILMED
AUG 09 1993

10.

Work started 10 Dec 92 finished 5 JAN 93

11. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Dennis Phipps Firm No. 332
Address Meridian Id. Date 2-3-93
Signed by Drilling Supervisor _____
and
(Operator) _____ (If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY. FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
11/91

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department within 30 days after the completion or abandonment of the

Location Corrected by IDWR To:
T02N R01W Sec. 8 SESWSE
By: mciscell 2012-12-14

1. WELL OWNER

Name KEN or LINDA L. NUNGESSER
Address 7226 E. LEWIS LN. NAMPA, ID 83686
Drilling Permit No. 63-92-C-078
Water Right Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1.5' feet	98.5' feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☑ Yes ☐ No
Was a packer or seal used? ☐ Yes ☑ No
Perforated? ☐ Yes ☑ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☑ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

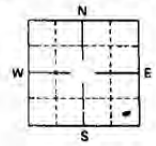
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 96' Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location. AUG 11 1992



Subdivision Name LOT 2, MAMER SUBDIVISION
Lot No. _____ Block No. _____
County CANYON
SE ¼ SE ¼ Sec. 8, T. 2N S ☐ N ☒ R. 1W E ☐ W ☒

7. WATER LEVEL

Static water level 68 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☑ Pump ☐ Bailer ☑ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
30	90'	30 MIN.

9. LITHOLOGIC LOG

079482

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	1	TOP SOIL		X
8	1	3	BROKEN ROCK		X
8	3	60	ROCK		X
8	60	72	BROKEN ROCK		X
8	72	80	ROCK		X
8	80	83	CINDERS		X
8	83	87	BROKEN ROCK	X	
8	87	94	ROCK		X
8	94	96	CINDERS	X	
6	96	100	GRAVEL	X	

RECEIVED MAY 1 1 1992 Department of Water Resources

RECEIVED MAY 11 1992 Department of Water Resources

MAY 1 1 1992 Department of Water Resources Regional Office

10.

Work started 5-2-92 finished 5-2-92

11. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name BILL DOTY DRILLING CO., INC. Firm No. 42
Address 106 CALLWOAY CALDWELL, ID 83605 Date 5-5-92
Signed by Drilling Supervisor _____
and
(Operator) _____
(If different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 81452
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031410
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State Id Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17 NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long:
Address of Well Site So. off of Lewis Rd.
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. 9 Blk. 1 Sub. Name Aussie Acres

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Western Bent	0	19	500 lbs	10" overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) Shop built
Was drive shoe seal tested? ☒ Y ☐ N How? Air

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	19	250	Steel	☐	☐	☒	☐
4 1/2	10	50		PVC	☒	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☐ N Type ____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
10	50	Solid		4 1/2	PVC	☐	☐
50	70	20		4 1/2	PVC	☒	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
54 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
Sani Seal w/Cap

12. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
30+			2 hrs.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments:
Depth first Water Encounter ____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	3	Top Soil		X
10	3	12	Hid pan & Clay		X
10&6	12	28	Solid Lava		X
6	28	33	Fractured Lava mixed with red cinders		X
	33	54	Solid Lava		X
	54	70	Fractured Lava	X	

RECEIVED
MAY 18 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 70' (Measurable)
Date: Started 5/17/04 Completed 5/17/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Precision Well Drilling Firm No. 522
Principal Driller Jeff Pearson Date 5/18/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 8 11534
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031068
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State ID Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 3 North X or South ☐
Rge. 4 East ☐ or West X
Sec. 17, NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site
(Give at least name of road – Distance to Road or Landmark)
City Nampa
Lt. 1 Blk. 1 Sub. Name Aussie Acres

4. USE:
X Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
X New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
X Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
PureGold Bent	0	19.6	500 lbs	10" overbore

Was drive shoe used? X Y ☐ N Shoe Depth(s) Shoe built
Was drive shoe seal tested? ☐ Y X N How? with pipe

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	19.6	250	Steel	☐	☐	X	☐
	10	50			☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☐ N Type

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson Set with rig

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
50	80	20		4"	PVC	X	☐
10	50	Solid		4"	PVC	X	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
54 ft below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
Sand Seal well cap

12. WELL TESTS:
☐ Pump ☐ Bailer X Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
30+		75	1 hr.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good clear color no smell
Depth first Water Encountered 62'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	6	overburden		X
10&6	6	45	Solid lava		X
6	45	52	Fracture lava		X
	52	62	Red Cinder, lava		X
	62	80	Fractured lava	X	
	80		med/large Sand	X	

RECEIVED
MAR 25 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 80' (Measurable)
Date: Started 3/15/04 Completed 3/23/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Precision Well Drilling Firm No. 522
Principal Driller Jeff Dawson Date 3/23/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required*.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 8/1944
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031069
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Rupert State ID Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 9 North ☒ or South ☐
Rge. 21 East ☐ or West ☒
Sec. 17 NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County
Lat: : : Long: : :
Address of Well Site
(Give at least name of road + Distance fr. Road or Landmark)
City Rupert
Lt. 2 Blk. 1 Sub. Name Aussie Acres

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Pure Gold Bent	0	196	550 lbs	10" annular

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) Shop built
Was drive shoe seal tested? ☐ Y ☒ N How? from pipe

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	19.6	250	Steel	☐	☐	☒	☐
4½	0	48		PVC	☒	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe Length of Tailpipe
Packer ☐ Y ☐ N Type

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson PVC Set with rig

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
48	89	20		4½	PVC	☒	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
63 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
Sani Seal well Cap

12. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
30+		80	1hr.

Water Temp. Bottom hole temp.
Water Quality test or comments:
Depth first Water Encounter

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	8	overburden & Broken lava		X
10	8	45	Solid lava		X
6	45	60	Fractured lava		X
	60	63	Solid lava		X
	63	89	Fractured lave	X	
	89		mod/Large Sand	X	

RECEIVED
MAR 25 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 89' (Measurable)
Date: Started 3/24/04 Completed 3/25/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Precision Well Drilling Firm No. 522
Principal Driller J. P. Lawson Date 3/25/04
and
Driller or Operator II Date
Operator I Date

Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 8/5104
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D oc 31408
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State Id Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17 NW 1/4 (10 acres) NW 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site
(Give nearest name of road • Distance to Road or Landmark)
City Nampa
Lt. 8 Blk. 1 Sub. Name Aussie Acres

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Pure Gold Cement	0	19	500 lbs	10" overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) Shop built
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	19	250	Steel	☐	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☐ N Type

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
55	75	20	4½		PVC	☒	☐
15	55	Solid	4½		PVC	☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
59 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
Sani Seal well cap

12. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
30+		70'	2 hrs.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good clear color
Depth first Water Encountered 56'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	3	Top Soil		X
10	3	8	Hardpan & overburden		X
10-6	8	52	Solid Lava		X
6	52	54	Red Cinders		X
|	54	58	Fractured Lava	X	
|	58	61	Solid Lava		X
|	61	75	Fractured Lava	X	

RECEIVED
MAY 17 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 75' (Measurable)
Date: Started 5/12/04 Completed 5/12/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Precision Earth Drilling Firm No. 522
Principal Driller Jeff Aanderson Date 5/17/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required*.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
9/82

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Dwight Higel

Address

Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1½ feet	38½ feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation inches by inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name
Type Model No.
Diameter Slot size Set from feet to feet
Diameter Slot size Set from feet to feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel
Placed from feet to feet
Surface seal depth 20 Material used in seal: ☐ Cement grout ☒ Bentonite ☐ Puddling clay ☐
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port well seal

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name

Lot No. Block No.

County Canyon

NW¼ NE¼ Sec. 17, T. 2 N., R. 1 W.

7. WATER LEVEL

Static water level 54 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow
Artesian closed-in pressure p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature °F. Quality
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG 87348

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	8	Top soil & hard pan		X
	8	10	Loose lava		X
	10	30	Solid lava		X
	30	37	Lava crevices		X
	37	50	Solid lava		X
	50	55	Lava crevices		X
	55	72	Solid lava		X
	72	78	Lava w/crevices	X	
	78	84	Solid lava		X
	84	88	Lava w/crevices w/bentonite & loose lava	X	
	88	90	Solid lava		X

RECEIVED
OCT 30 1986
Department of Water Resources

RECEIVED
OCT 15 1986
Department of Water Resources

10.

Work started 11-6-85 finished 11-6-85

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Davis Well & Pump Co. Firm No. 101
Address 415 No. Pitt Lane Nampa, Idaho 83651 Date 6-2-86
Signed by (Firm Official)
and
(Operator)

MICROFILMED

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 812208
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031126
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State Id Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 3 North ☒ or South ☐
Rge. 2 East ☐ or West ☒
Sec. 17 NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site So. off of Lewis Ln.
(Give at least name of road + Distance to Road or Landmark) City Nampa
Lt. 6 Blk. 1 Sub. Name Aussie Acres

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Enviroplug	0	100	1500 lbs	10" overbore
				Dry pour

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 100-4"
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	100-4	.250	Steel	☐	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 5" Length of Tailpipe 0
Packer ☒ Y ☐ N Type 6-R-6

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson Set pull back

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
100	110	18		4 1/2	S.S.	☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
64 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
Sani Seal well Cap

12. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min	Drawdown	Pumping Level	Time
80		105	2 hrs.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good clear color
No Smell
Depth first Water Encounter ____

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	3	Top Soil		X
	3	8	Clay mixed with Hrd pan		X
	8	32	Solid Lava		X
	32	41	Red Cinders & Lava		X
	41	47	Fractured Lava		X
	47	64	Solid lava		X
	64	74	Fractured lava	X	
	74	88	Solid Lava some Fract.	X	X
6	88	94	Fractured	X	
6	94	110	Sand mixed with gravel	X	
			pulled off ordered		
			new hammer bit		

RECEIVED
AUG 18 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 110' (Measurable)
Date: Started 3/25/04-5/19/04 Completed 5/24/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Precision well drilling Firm No. 522
Principal Driller Jeff Lawson Date 5/24/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 815453
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031421
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State Id Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 2 North ☒ or South ☐
Rge. 4 East ☐ or West ☒
Sec. 17, NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long:
Address of Well Site So. off of Lewis La.
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. 7 Blk. 1 Sub. Name Aussie Acres

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Western Bent	0	68	1700 lbs.	10" overbore pour Dry

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 65
Was drive shoe seal tested? ☐ Y ☐ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	65	.250	Steel	☐	☐	☒	☐
4 1/2	45	65	1/4"	PVC	☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☐ N Type ____

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson Set with Rig

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
45	65	solid		4 1/2	PVC	☒	☐
65	85	20		4 1/2	PVC	☒	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
64 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
San. Seal well Cap

12. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
40+		80'	2 hrs.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good clear Color No Smell
Depth first Water Encounter 70'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	2	Top Soil		X
	2	8	Clay & Hardpan		X
	8	28	Solid Lava		X
	28	32	Red Cinders		X
	32	40	Fractured Lava		X
	40	67	Solid Lava		X
	67	85	Fractured Lava	X	

RECEIVED
AUG 18 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 85 ft. (Measurable)
Date: Started 5/18/04 Completed 5/21/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Precision Core Drilling Firm No. 522
Principal Driller Jeff Lawson Date 5/24/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 811943
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031125
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State Id Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17 NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site
(Give at least name of road + Distance to Road or Landmark) City Nampa
Lt. 5 Blk. 1 Sub. Name Aussie Acres

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
PureGold Bent	0	20	550 lbs	10" overlare

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) Shop Built
Was drive shoe seal tested? ☐ Y ☒ N How? with pipe

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	20	250	Steel	☐	☐	☒	☐
4 1/2	18	60		PVC	☒	Solvent	☒	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____
Packer ☐ Y ☐ N Type

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson Set with rig

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
60	80	20		4 1/2"	PVC	☒	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
66 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
San. Seal well cap

12. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
35			1 hr.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good clear color no smell
Depth first Water Encountered 64

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	8	overburden		X
10	8	12	Broken lava		X
10	12	45	Solid lava		X
6	45	64	Lava mixed with Red Cinders		X
6	64	80	Fractured lava	X	

RECEIVED
MAR 26 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 79' (Measurable)
Date: Started 3/25/04 Completed 3/25/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Precision Well Drilling Firm No. 522
Principal Driller Jeff Lawson Date 3/25/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required*.
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 812956
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0031129
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Bob Goodwin
Address P.O. Box 251
City Nampa State Id Zip 83653

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 3 North X or South ☐
Rge. 3 East ☐ or West X
Sec. 17 NW 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. 4 Blk. 1 Sub. Name Missie Acres
So. off of Lewis

4. USE:
X Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
X New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
X Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Western Cent	0	84	31 Bags	10" overbore

Was drive shoe used? X Y ☐ N Shoe Depth(s) 95'
Was drive shoe seal tested? X Y ☐ N How? Air

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6	+2	95	250	Steel	☐	☐	X	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 5" Length of Tailpipe 0
Packer X Y ☐ N Type 3-Rib

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson Set pull back.

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
96	106	20	6"	Tele	S.S.	☐	☐
						☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
67.6 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:
Sani Seal well Cap

12. WELL TESTS:
☐ Pump ☐ Bailer X Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
50+		104	2 hrs.

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: Good clear color
Depth first Water Encounter 65'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	5	overburden		X
	5	32	Solid lava		X
	32	49	Fractured lava		X
	49	64	Solid lava		X
	64	84	Fractured lava	X	
6	84	91	Grey Clay		X
6	91	93	Sand & gravel	X	
6	93	95	Fractured lava		X
6	95	106	Sand & gravel	X	

RECEIVED
APR 23 2004
WATER RESOURCES
WESTERN REGION

Completed Depth 106' (Measurable)
Date: Started 4/13/04 Completed 4/19/04

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Precision Well Drilling Firm No. 522
Principal Driller Jeff Lawson Date 4/21/04
and
Driller or Operator II ____ Date ____
Operator I ____ Date ____
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

817707

Form 238-7
3/95-C96

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
_____ 1/4 _____ 1/4 _____ 1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. _ _ - _ _ - _ _ _ _ - _ _ _ _
Other IDWR No. D0031466

2. OWNER:
Name Wes Waldorf
Address 100 N McDermott
City Kuna State ID Zip 83634

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N
W E
S

Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17 1/4 (10 acres) NW 1/4 (40 acres) NE 1/4 (160 acres)

Gov't lot _____ County Canyon
Lat: : : Long: : :
Address of Well Site 9857 DunDee Ct.
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
bentonite	0'	18'	12 sacks	poured

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+2'	18'	.250	steel	☒	☐	☒	☐
4.5"	12'	98'	Sc40	PVC	☐	☒	☐	☒
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☒ Perforations Method saw
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
88'	98'	1/4"	120	4.5"	PVC	☐	☒
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
60ft. below ground Artesian Pressure _____ lb
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
50 GPM		80'	1 Hr.

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: _____
Depth first Water Encountered 76'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temp.	Water Y	Water N
12"	0'	1'	top soil		☒
12"	1'	6'	dry brown clay		☒
12"	6'	9'	broken lava		☒
12"	9'	18'	solid lava		☒
8"	18'	45'	solid lava		☒
8"	45'	50'	cracks		☒
8"	50'	76'	solid lava		☒
8"	76'	96'	cracks lava	☒	
8"	96'	98'	sand & gravel	☒	

RECEIVED
JUN 28 2004
WATER RESOURCES
WESTERN REGION

Completed Depth: 98 (Measurable)
Date: Started 6/21/04 Completed 6/21/04

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Down Right Drilling & Pum Firm No. 637
Firm Official _____ Date 6-24-04
Supervisor or Operator Tony Hackett Date 6/24/04
(Sign once if Firm Official & Operator)

Date: 6/23/2004 Time: 8:21 AM

812958

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

Form 238-7
3/95-C96

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. DRILLING PERMIT NO. __ - __ -D -0030 -969
Other IDWR No. _____

2. OWNER:
Name Larry Hays
Address 292 W. Boise St.
City Kuna State ID Zip 83634

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N
W E
S

Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17 1/4 (10 acres) NE 1/4 (40 acres) NW 1/4 (160 acres)
Gov't lot _____ County Canyon
Lat: : : Long: : :
Address of Well Site Lewis Ln. Between Robinson & McDermott City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name Tem.#4799

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	19'	550#'s	Overbore

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
8"	+1'	19'	250	Steel	☒	☐	☐	☐
6"	16'	96'	Sc40	PVC	☐	☒	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☒ Perforations Method saw
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
86'	96'	1/4"	300	6"	PVC	☐	☒
		X3"				☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
62ft. below ground Artesian Pressure ____ lb
Depth flow encountered ____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
40		80'	1 Hr.

Water Temp. _____ Bottom hole temp. _____
Water Quality test or comments: Nitrate 0
Hardness 16 Depth first Water Encountered 80'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temp.	Water Y	Water N
12"	0	2'	Topsoil		☒
12"	2'	7'	Brown Dry Clay		☒
12"	7'	12'	Cleachey Burnt Clay		☒
12"	12'	19'	Solid Black Lava		☒
8"	19'	60'	Solid Black Lava		☒
8"	60'	70'	Cracks in Black Lava		☒
8"	70'	80'	Solid Black Lava		☒
8"	80'	94'	Cracks in Black Lava	☒	
8"	94'	97'	Brown Sand & Gravel	☒	

RECEIVED
APR 21 2004
WATER RESOURCES WESTERN REGION

Completed Depth: 97 (Measurable)
Date: Started 04/12/04 Completed 04/12/04

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Down Right Drilling & Pum Firm No. 637
Firm Official Sam Higgins Date 4-13-04
Supervisor or Operator Tony Hackett Date 4-13-04
(Sign once if Firm Official & Operator)

Date: 4/13/2004 Time: 9:58 AM

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

RECEIVED SEP 29 1972 Department of Water Administration

1. WELL OWNER

Name Bill Lee

Address Rte. 6 Nampa, Idaho

Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 75 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	18" feet	38 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation inches by inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name

Type Model No.

Diameter Slot size Set from feet to feet

Diameter Slot size Set from feet to feet

Gravel packed? ☐ Yes ☒ No Size of gravel

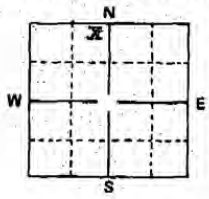
Placed from feet to feet

Surface seal? ☒ Yes ☐ No To what depth 38 feet

Material used in seal ☐ Cement grout ☒ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



Gov

County Canyon

NE ¼ NW ¼ Sec. 17, T. 2 N/S, R. 1 E/W

7. WATER LEVEL

Static water level 38 feet below land surface

Flowing? ☐ Yes ☐ No G.P.M. flow

Temperature ° F. Quality

Artesian closed-in pressure p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped

31395

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	2	Top soil		X
	2	4	Loose Lava		X
	4	19	Solid lava		X
	19	35	Lava with crevices		X
	35	46	Solid lava		X
	46	54	Lava with crevices	X	
	54	59	Solid lava		X
	59	75	Loose lava	X	
			8" to 38'		
			6" from there on		

10.

Work started 8/27/72 finished 9/1/72

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

Davis Well Drilling 101
Driller's or Firm's Name Number

Rte. 6 Box 6209 Nampa, Idaho
Address

Signed By 9/23/72 Date

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT
Use Typewriter or Ballpoint Pen

0940689

Office Use Only
Inspected by _____
Twp____ Rge____ Sec ___
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 63-96-W-0431-000
Other IDWR No. _____

2. OWNER:
Name Ron Moore
Address 4781 Lewes Ln
City Nampa State ID Zip 83686

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17, ____ 10 acres 1/4 NE 40 acres 1/4 NW 160 acres 1/4
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site 4781 Lewes Ln
City Nampa
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentite	0	18'	500	Pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	38	250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
+6 ft. below ground Artesian pressure _____ lb.
Depth flow encountered 86 ft. Describe access port or control devices: CAP

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
100	380	80	1½ Hr.

Water Temp. 56 Bottom hole temp. 56
Water Quality test or comments: _____
Depth first Water Encountered 36

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	2	Top Soil		
	2	4	Hard Pan		
	4	7'	Broken Lava		
8	7	38	LAVA		
6	38	84	" "		
	84		Gravel & Sand	X	

RECEIVED
JUL 30 1996
Department of Water Resources

RECEIVED
JUL 17 1996
WATER RESOURCES
WESTERN REGION

SEP 11 1996

Completed Depth 84 (Measurable)
Date: Started 6-26-96 Completed 6-26-96

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Treasure Valley Drilling Firm No. 56
Firm Official _____ Date 7-10-96
and
Supervisor or Operator _____ Date 7-10-96
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALLPOINT PEN

1. WELL OWNER

Name LOCKLANE, MIKE
Address 6925 LEWIS LANE
NAMPA, ID 83651
Drilling Permit No. 63-92-W-0986-000
Water Right Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☐ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
250 inches	6 inches	+ 1 feet	240 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

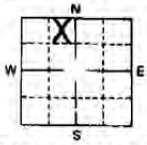
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 100 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port SANITARY WELL CAP

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County CANYON
Address of Well Site LEWIS LANE
(give at least name of road)
T. 2 N ☒ or S ☐
NE ¼ NW ¼ Sec. 17, R. 1 E ☐ or W ☒

7. WATER LEVEL

Static water level _____ feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
150	245	2

9. LITHOLOGIC LOG

84141

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
9"	0	8	TOP SOIL	NO	
9"	8	25	LAVA ROCK	NO	
9"	25	28	RED CINDERS	NO	
9"	28	51	LAVA ROCK	NO	
9"	51	53	CRACK	NO	
9"	53	75	LAVA ROCK/CRACKS	NO	
9"	75	79	SAND	YES	
9"	79	100	GRAVEL	NO	
6"	100	122	GRAVEL	NO	
6"	122	133	SAND	YES	
6"	133	148	CLAY	NO	
6"	148	175	HEAVING SAND	YES	
6"	175	180	CLAY	NO	
6"	180	205	HEAVING SAND	YES	
6"	205	207	CLAY	NO	
6"	207	225	HEAVING SAND	YES	
6"	225	245	BLUE CLAY	NO	
6"	245	250	COARSE SAND	YES	

RECEIVED
DEC 28 1992
Department of Water Resources

RECEIVED
DEC - 1 1992
Department of Water Resources
Regional Office

AUG 09 1993

10.

Work started 11/13/92 finished 11/15/92

11. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Can-Ada Well Drilling Firm No. 304
Address 4250 Murphy Road
Kuna, Idaho
Signed by Drilling Supervisor Earl Skinner
and
(Operator) _____
(If different than the Drilling Supervisor)

USE ADDITIONAL SHEET IF NECESSARY TO THE DEPARTMENT

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name L & N Construction

Address Caldwell

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 1 1/2 feet	38 1/2 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

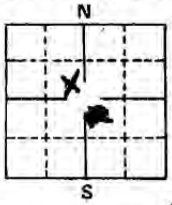
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 20 Material used in seal: ☐ Cement grout ☒ Puddling clay ☐ Well cuttings
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port Welded plate

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name None

Lot No. _____ Block No. _____

County Canyon

SE ¼ NW ¼ Sec. 17, T. 2 N., R. 1 W.

7. WATER LEVEL

Static water level 57 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature ____°F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

106238

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	3	Top soil & hard pan		X
	3	25	Solid lava		X
	25	33	Lava crevices		X
	33	56	Solid lava		X
	56	70	Lava with some crevices	X	
	70	85	Solid lava		X
	85	92	Lava crevices & loose lava	X	

RECEIVED
MAY 30 1980
Department of Water Resources

RECEIVED
MAY 21 1980
Department of Water Resources
Western Regional Office

10.

Work started 7/24/79 finished 7/24/79

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Dave's Well Drilling Firm No. 10
Address 4150 Pitt. Dam Rd Date 8/2/79
Signed by (Firm Official) Charles Davis
and
(Operator) _____

MICROFILMED

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
8/90

RECEIVED
OCT 15 1991
Department of Water Resources

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALLPOINT PEN

1. WELL OWNER

Name Harold Coon
Address 4756 Dye Lane
Nampa, Idhao 83686
Drilling Permit No. 63-91-w-277
Water Right Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase
☐ Abandoned (describe abandonment procedures such as materials, plug depths, etc. in lithologic log)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches +	2 feet	39 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

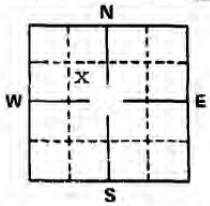
Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 39 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing
☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld
☐ Cemented between strata
Describe access port well seal

6. LOCATION OF WELL

Sketch map location must agree with written lo



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
SE ¼ NW ¼ Sec. 17, T. 2 N S ☐ N ☐ R. 1 W W ☐ E ☐

MICROFILMED
DEC 04 1991

7. WATER LEVEL

Static water level 59 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

71224

☐ Pump ☐ Bailer ☐ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	5	Top soil/hard pan		x
	5	7	Loose lava		x
	7	28	Solid lava		x
	28	35	Lava crevices		x
	35	37	Solid lava		x
	37	38	Lava crevices		x
6	38	65	Solid lava		x
	65	73	Lava crevices	x	
	73	94	Loose lava/crevices		x
	94	98	Lava/gravel	x	
	98	101	Sand/gravel	x	

RECEIVED
OCT 10 1991
Department of Water Resources
Western Regional Office

10.

Work started 8/5/91 finished 8/5/91

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

DAVIS WELL & PUMP CO.
Firm Name 115 N. PITT LANE Firm No. 101
NAMPA, IDAHO 83687
Address _____ Date 10-9-91
Signed by (Firm Official) Carole M. Davis
and
(Operator) Chuck Davis

COPY TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Resources

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, **Department of Water Resources within 30** days after the completion or abandonment of the well.

1. WELL OWNER

Name E.L. Koontz

Address Dye Lane Mamfadla 83607

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☒ Cable ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 80 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+1' feet	20 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☒ Yes ☐ No

Was a packer or seal used? ☐ Yes ☐ No

Perforated? ☐ Yes ☐ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

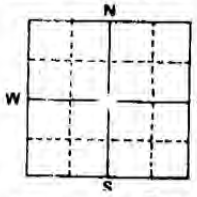
Placed from _____ feet to _____ feet

Surface seal depth 20 Material used in seal ☐ Cement grout ☒ Puddling clay ☐ Well cuttings

Sealing procedure used ☐ Slurry pit ☐ Temporary surface casing ☐ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____

Lot No. _____ Block No. _____

County Canyon

E½NW¼ ¼ Sec. 17, T. 2 N, R. 1 E/W

7. WATER LEVEL

Static water level 62 feet below land surface

Flowing? ☐ Yes ☐ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i. Controlled by ☐ Valve ☐ Cap ☐ Plug

OCT 1976

Department of Water Resources
Western Regional Office

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
20	7	2

9. LITHOLOGIC LOG 033156

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	2	Soil		✓
8	2	7	Hardpan		✓
8	7	20	Lava		✓
6	20	80	Lava Broken	✓	

10.

Work started Aug 11 finished Aug 15 1976

11. DRILLERS CERTIFICATION

Firm Name C R Broomfield Firm No. 29

Address 147 Meffon Mamfadla Date Oct 12

Signed by (Firm Official) C R Broomfield

and

(Operator) Same

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

Received 7 2 NW 1 2 E

1. WELL OWNER

Name Richard H. Kolbo

Address 1011 10th Ave So Nampa Ida

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 76 feet

Casing schedule: ☒ Steel ☐ Concrete

Thickness	Diameter	From	To
250 inches	6" inches	~~FT~~ 6" feet	20 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

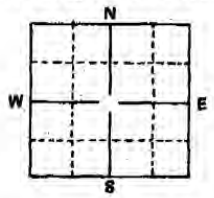
Placed from _____ feet to _____ feet

Surface seal? ☒ Yes ☐ No To what depth 19 feet

Material used in seal ☐ Cement grout ☒ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



6 3

County Canyon County

E ½ ~~X~~ NW ¼ Sec. 17, T. 2 N/~~S~~, R. 1 ~~E~~/W

7. WATER LEVEL

Static water level 49' feet below land surface

Flowing? ☐ Yes ☐ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
800 gal per Hr		

31394

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	1	Caliche & Hard pan		
	1	3	Caliche		
	3	24	Gray Lava		
	24	54	Brown Lava Soft Cinders	X	
	54	76	Black Lava Coarse Cinders Stalled in Black Cinders	X	

10. Work started Sept-29-72 finished Oct-4-72

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

C. R. Broomfield #59
Driller's or Firm's Name Number

147 Meffan St Nampa, Ida.
Address

Richard Bourn Oct 5-72
Signed By Date

USE ADDITIONAL SHEETS IF NECESSARY FORWARD THE WHITE, BLUE, AND PINK COPIES TO THE DEPARTMENT

USE TYPEWRITER OR BALL POINT PEN

State of Idaho
Department of Water Administration

WELL DRILLER'S REPORT

State law requires that this report be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

Received 10-19-72 WA

1. WELL OWNER

Name Richard H. Kolbo

Address 1011 10th Ave So Nampa, Ida.

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test

☐ Municipal ☐ Industrial ☐ Stock

4. METHOD DRILLED

☒ Cable ☐ Rotory ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 76 feet

Casing schedule: ☐ Steel ☐ Concrete

Thickness	Diameter	From	To
250 inches	6 5/8 inches	0 feet	20 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was a packer or seal used? ☐ Yes ☒ No

Perforated? ☐ Yes ☒ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Diameter ___ Slot size ___ Set from _____ feet to _____ feet

Gravel packed? ☐ Yes ☒ No Size of gravel _____

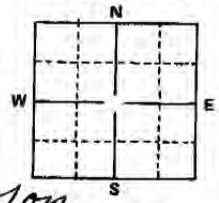
Placed from _____ feet to _____ feet

Surface seal? ☒ Yes ☐ No To what depth 20" feet

Material used in seal ☐ Cement grout ☒ Puddling clay

6. LOCATION OF WELL

Sketch map location must agree with written location.



Canyon County

E ½ NW ¼ Sec. 12 T. 2 N/S. R. 1 E/W

Boise Meridian

7. WATER LEVEL

Static water level 49 feet below land surface

Flowing? ☐ Yes ☒ No G.P.M. flow _____

Temperature _____ ° F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA

☒ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Draw Down	Hours Pumped
20 gpm	NONE	6 hrs

9. LITHOLOGIC LOG

31396

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	1	Caliche & Hardpan		
	1	3	Caliche & Hard		
	3	24	Gray Lava		
	24	54	Brown Lava Soft "49"	X	
	~~54~~	~~76~~	Some Cinders		
	54	76	Black Lava Rock	X	
			also some Cinders		
			Stalled out in Cinders		

10.

Work started Sept-29 72 finished Oct 4, 72

11. DRILLER'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge.

C. R. Broomfield #29

Driller's or Firm's Name Number

147 W. Main Ste Nampa Ida

Address

C R Bourn Oct-10-1972

Signed By Date

PINK COPIES TO THE DEPARTMENT

816081

Office Use Only
Inspected by
Twp Rge Sec
1/4 1/4 1/4
Lat: Long:

Form 238-7
3/95-C96

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. DRILLING PERMIT NO. D 0031457
Other IDWR No. «Other_IDWR_No»

2. OWNER:
Name John Defferies
Address 2012 Stuart Ln.
City Nampa State ID Zip 83687

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N
W E
S

Twp 2 North ☒ or South ☐
Rge 1 East ☐ or West ☒
Sec 17 «QQQ» (10 acres) NE 1/4 (40 acres) NW 1/4 (160 acres)
Gov't lot County Canyon
Lat: Long:
Address of Well Site 6549 E. Lewis Ln.
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. «Lt» Blk. «Blk» Sub. Name «Subname»

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	18	600	overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 140
Was drive shoe seal tested? ☒ Y ☐ N How? Air

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	140	.250	steal	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe Length of Tailpipe

9. PERFORATIONS/SCREENS
☐ Perforations Method
☐ Screens Screen Type

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
48 ft. below ground Artesian Pressure lb
Depth flow encountered 100-140ft. Describe access port or control devices: Cap

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
75	135	135	1hr

Water Temp. 56 Bottom hole temp. 56
Water Quality test or comments:
Depth first Water Encountered 60

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia	From	To	Remarks: Lithology, Water Quality & Temp.	Water Y	Water N
10	0	2	Top Soil		X
10	2	3	Broken up Lava		X
10	3	18	Lava		X
6	18	25	Lava		X
6	25	41	Red Lava		X
6	41	60	Lava		X
6	60	63	Broken up Lava	X	
6	63	95	Lava & Clay		X
8	95	100	Broken Up Lava & Clay	X	
6	100	140	Gravel	X	

RECEIVED
JUN 24 2004
WATER RESOURCES
WESTERN REGION

Completed Depth: 140 (Measurable)
Date: Started 6/18/04 Completed 6/22/04

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Treasure Valley Drilling Firm No. 560
Firm Official Date 6/24/04
Supervisor or Operator Date 6/24/04
(Sign once if Firm Official & Operator)

Date: 6/23/2004 Time: 11:28 AM

63

838789

Form 238-7
6/02

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Well ID No. 409150
Inspected by
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 000 42638
DRILLING PERMIT NO.
Water Right or Injection Well No.

2. OWNER:
Name Sherlock Homes
Address 524 3rd St South # 102
City Nampa State ID Zip 83651

3. LOCATION OF WELL by legal description:
You must provide address or Lot, Blk, Sub. or Directions to well.
Twp. 2N North ☐ or South ☐
Rge. 1W East ☐ or West ☐
Sec. 17 NE 1/4 (10 acres) NE 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County
Lat: : : Long: : :
Address of Well Site Southwest corner of Lewis + 16th per mit
(Give at least name of road + Distance to Road or Landmark) City Nampa
Lt. ____ Blk. ____ Sub. Name

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other

7. SEALING PROCEDURES

Seal Material	From	To	Weight / Volume	Seal Placement Method
Bentonite	0	20	1000 lbs	overbore
cuttings	20	60		

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 78'
Was drive shoe seal tested? ☐ Y ☒ N How?

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	[redacted]	.250	steel	☒	☐	☒	☐
		84			☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 6" Length of Tailpipe
Packer ☒ Y ☐ N Type K-packer

9. PERFORATIONS/SCREENS PACKER TYPE
Perforation Method
Screen Type & Method of Installation Johnson + washdown

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
[redacted]	[redacted]					☐	☐
85	95	.250		5"	SS	☐	☐
						☐	☐

10. FILTER PACK

Filter Material	From	To	Weight / Volume	Placement Method

11. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
60 ft. below ground Artesian pressure ____ lb.
Depth flow encountered ____ ft. Describe access port or control devices:

12. WELL TESTS:
☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
60			

Water Temp. Bottom hole temp.
Water Quality test or comments: Clear + Clear
NO TEST Depth first Water Encountered 80'

13. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	6	Top Soil		
	6	25	Broken Lava		
	25	50	Solid Lava		
	50	60	Lava w/ crevices	X	
6	80	95	Sand + Gravel	X	

RECEIVED
MAR 28 2006
WATER RESOURCES
WESTERN REGION

Completed Depth [redacted] -75' (Measurable)
Date: Started 3/14/06 Completed 3/15/06

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Adamson pump + Drilling Firm No. 457
Principal Driller Dave Adamson Date 3/21/06
and
Driller or Operator II [signature] Date 3/21/06
Operator I [signature] Date 3/21/06
Principal Driller and Rig Operator *Required.*
Operator I must have signature of Driller/Operator II.

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER
Name Orrin J Gardner
Address 9814 Robinson Rd Nampa
Drilling Permit No. 63-92-W-1034-000
Water Right Permit No. _____

2. NATURE OF WORK
☒ New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED
☒ Rotary ☒ Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION
Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches	+ 2 feet	18 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

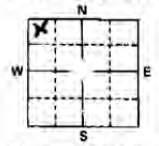
Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal: ☐ Cement grout
☒ Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded
☐ Solvent Weld ☐ Cemented between strata
Describe access port Port on Sanitary Seal

6. LOCATION OF WELL
Sketch map location **must** agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
Address of Well Site 9814 Robinson Rd Nampa
(give at least name of road)
NW ¼ NW ¼ Sec. 17, T. 2 N ☒ or S ☐, R. 1 E ☐ or W ☒

7. WATER LEVEL
Static water level 71 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature 60 °F. Quality Clear
Describe artesian or temperature zones below.

8. WELL TEST DATA
☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
35	100	1/2

9. LITHOLOGIC LOG 082812

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	1	Soil		X
8	1	7	Broken Lava		X
8	7	18	Solid Lava		X
6	18	27	Solid Lava		X
6	27	35	Broken Lava		X
6	35	37	Red Cinder		X
6	37	109	Solid Lava		X
6	109	113	Orange Cinder	X	
6	113	–	Gravel	X	

RECEIVED
DEC 28 1992
Department of Water Resources

RECEIVED
DEC 16 1992
Department of Water Resources
Western Regional Office

AUG 09 1993

10.
Work started 11/25/92 finished 11/25/92

11. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Firm Name Domestic Pump & Drill Firm No. 483
Address 12630 Orchard Nampa Date 11/27/92
Signed by Drilling Supervisor _____
and
(Operator) _____
(If different than the Drilling Supervisor)

PY TO THE DEPARTMENT

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

USE TYPEWRITER OR BALLPOINT PEN

RECEIVED JUN 2 1983

1. WELL OWNER

Name Mrs. Ballard

Address

Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☒ Domestic ☑ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
250 inches	6 inches	+ 1 1/2 feet	29 1/2 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation inches by inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name
Type Model No.
Diameter Slot size Set from feet to feet
Diameter Slot size Set from feet to feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel
Placed from feet to feet
Surface seal depth 20 Material used in seal: ☐ Cement grout ☒ Puddling clay ☐ Well cuttings
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port Wellseal

6. LOCATION OF WELL

Sketch map location must agree with written location.

N / W / E / S

Subdivision Name

Lot No. Block No.

County Canyon

SW ¼ NW ¼ Sec. 17, T. 2 N., R. 1 W.

7. WATER LEVEL

Static water level 40 feet below land surface.
Flowing? ☐ Yes ☐ No G.P.M. flow
Artesian closed-in pressure p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature °F. Quality

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

83675

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
	0	8	Top soil & hardpan		X
	8	10	Rotten lava		X
	10	22	Solid lava		X
	22	25	Lava crevices		X
	25	55	Solid lava		X
	55	65	Lava crevices	X	
	65	84	Solid lava		X
	84	88	Rotten lava	X	
	88	90	Clay sand & gravel	X	

RECEIVED
JUN 3 1983
Department of Water Resources
Western Regional Office

10.

Work started 8-4-82 finished 8-5-82

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Davis Well Drilling Firm No. 401
Address 415 N Latah Rexburg Date 12-7-82
Signed by (Firm Official) Charles Davis
and
(Operator)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
3/95

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Use Typewriter or Ballpoint Pen

62885

Office Use Only
Inspected by _____
Twp____ Rge____ Sec____
____1/4 ____1/4 ____1/4
Lat: : : Long: : :

1. DRILLING PERMIT NO. 63-96-W-0030-000
Other IDWR No. _____

2. OWNER:
Name ANN COLE
Address RT 1 BOX 177
City THREE FORKS State MT Zip 59752

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 2 North ✱ or South ☐
Rge. 1 East ☐ or West ✱
Sec. 17, SW 1/4 (10 acres) SW 1/4 (40 acres) NW 1/4 (160 acres)
Gov't Lot ____ County CANYON
Lat: : : Long: : :
Address of Well Site 9522 ROBINSON RD
(XRD DYE LN) City NAMPA
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
✱ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
✱ New Well ☐ Modify ☐ Abandonment ☐ Other _____

6. DRILL METHOD
✱ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
BENTONITE	0	90	500	OVERBORE
DRILL CUTTINGS	MIXED		250-300	"

Was drive shoe used? ✱ Y ☐ N Shoe Depth(s) 97
Was drive shoe seal tested? ☐ Y ✱ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	97	.25	STEEL	✱	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS
☐ Perforations Method _____
☐ Screens Screen Type NONE

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
48 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: _____

11. WELL TESTS:
☐ Pump ☐ Bailer ✱ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
100			1 HR

Water Temp. 58° Bottom hole temp. _____
Water Quality test or comments: SI IRON / PH8 / GRN H
Depth first Water Encountered 62

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	1	3	TOP SOIL		
	3	8	HARD PAN		
	8	11	CLAY		
	11	20	LAVA ROCK		
8	20	62	LAVA ROCK		
	62	66	CINDER ROCK	✱	
	66	70	LAVA ROCK		
	70	90	CLAY POCKETS W/LAVA	✱	
6	90	97	SAND & GRAVEL LOTS ✱		

RECEIVED
FEB 15 1996
Department of Water Resources
RECEIVED
FEB 09 1996
WATER RESOURCES
WESTERN REGION
MAY 06 1996

Completed Depth 97 (Measurable)
Date Started 1-22-96 Completed 1-23-96

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name ADAMSON PUMP & DRILLING Firm No. 0457
Firm Official Dave Adamson Date 1-25-95
and
Supervisor or Operator DAVE ADAMSON Date 1-25-95
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Form 238-7
11/97

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

776683

Office Use Only
Inspected by _____
Twp ____ Rge ____ Sec ____
____ 1/4 ____ 1/4 ____ 1/4
Lat: : : Long: : :

1. WELL TAG NO. D 0019747
DRILLING PERMIT NO. _____
Other IDWR No. _____

2. OWNER:
Name Tom Young
Address 4528 Dye Lane
City Kuna State Id Zip 83634

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location.

N / W / E / S

Twp. 2 North X or South ☐
Rge. 1 East ☐ or West X
Sec. 17 SE 1/4 (10 acres) NW 1/4 (40 acres) ____ 1/4 (160 acres)
Gov't Lot ____ County Canyon
Lat: : : Long: : :
Address of Well Site 4528 Dye Lane City _____
(Give at least name of road + Distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:
X Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☐ Abandonment X Other _____

6. DRILL METHOD
X Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	0	109	2000 #	overbore

Was drive shoe used? X Y ☐ N Shoe Depth(s) 255'
Was drive shoe seal tested? ☐ Y X N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2	255	250	Steel	X	☐	X	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 10' Length of Tailpipe _____

9. PERFORATIONS/SCREENS
Perforations Method wash down
Screens Screen Type Johnson

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
256	261	.020		5"	SS	☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
20 ft. below ground Artesian pressure ____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: well cap

11. WELL TESTS:
☐ Pump ☐ Bailer X Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time
100			1 hour

Water Temp. 62° Bottom hole temp. _____
Water Quality test or comments: Iron .1 PH 8.0
Grains 3 Sulfur Smell Depth first Water Encounter 109

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water Y	Water N
10	0	4	top soil		
"	4	7	hard pan		
"	7	26	hard lava		
"	26	28	soft lava		
"	28	45	hard lava		
"	45	60	hard lava		
"	60	65	soft lava		
"	65	83	hard lava		
"	83	109	cinders		
6	109	115	gravel	X	
"	115	186	Sand	X	
"	186	187	clay		
"	187	192	sand	X	
"	192	193	clay		
"	193	220	Sand	X	
"	220	235	Sand	X	
"	235	236	clay		
"	236	245	Sand	X	
"	245	254	gray clay		
"	254	261	gray Sand	X	

RECEIVED
MAY 13 2002
WATER R...
WESTERN...

Completed Depth 261 (Measurable)
Date: Started 5-1-02 Completed 5-4-02

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name ABC Well Drilling Firm No. 621
Firm Official Cindy Boyd Date 5-6-02
and
Driller or Operator Randy Payne Date 5-6-02
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Red
12/1/67

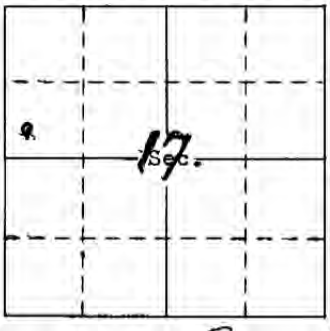
REPORT OF WELL DRILLER
State of Idaho

State law requires that this report shall be filed with the State Reclamation Engineer within 30 days after completion or abandonment of the well.

WELL OWNER:
Name Jesse W. Clusen
Address Rt 6
Nampa Idaho
Owner's Permit No.
NATURE OF WORK (check): Replacement well ☐
New well ☒ Deepened ☐ Abandoned ☐
Water is to be used for: Domestic
METHOD OF CONSTRUCTION: Rotary ☐ Cable ☒
Dug ☐ Other
(explain)
CASING SCHEDULE: Threaded — Welded X
6 "Diam. from +1 ft. to 105 ft.
"Diam. from ft. to ft.
"Diam. from ft. to ft.
"Diam. from ft. to ft.
Thickness of casing: Material:
Steel ☒ concrete ☐ wood ☐ other ☐
(explain)
PERFORATED? Yes ☐ No ☒ Type of perforator used:
Size of perforations: " by "
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.
WAS SCREEN INSTALLED? Yes ☐ No ☒
Manufacturer's name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.
CONSTRUCTION: Well gravel packed? Yes ☐
No. ☒ size of gravel Gravel placed from ft. to ft. Surface seal provided? Yes ☐ No ☐ To what depth? ft. Material used in seal
Native Clay
Did any strata contain unusable water? Yes ☐
No. ☒ Type of water:
Depth of strata ft. Method of sealing strata off:

Surface casing used? Yes ☐ No. ☒
Cemented in place? Yes ☐ No ☐

Locate well in section



LOCATION OF WELL: County Canyon
SW ¼ NW ¼ Sec. 17 T. 2 N/S R. 1 E/W

Size of drilled hole: Six inch Total depth of well: 105 Standing water level below ground: 14 Temp. Fahr. ° Test delivery: 15 gpm or cfs Pump? ☒ Bail ☐
Size of pump and motor used to make test: 2½ Cylinder Pump
Length of time of test: 1 Hrs. 1 Min.
Drawdown: 22 ft. Artesian pressure: ft. above land surface Give flow cfs or gpm. Shutoff pressure:
Controlled by: Valve ☐ Cap ☐ Plug ☐
No control ☐ Does well leak around casing?
Yes ☐ No ☒

DEPTH FROM FEET	DEPTH TO FEET	MATERIAL 31390	WATER YES OR NO
0	3	Top soil	no
3	17	Hard & Soft Sandy clay Stratas	Yes
17	50	Crevised Lava	yes
50	53	Cinders, "Block"	yes
53	75	Crevised Lava	yes
75	97	Lava	no
97	102	Sandy Clay	no
102	9	Sand & Gravel	yes

Work started: Sept. 28-1967
Work finished: Oct. 7-1968
Well Driller's Statement: This well was drilled under my supervision and this report is true to the best of my knowledge.
Name:
Address:
Signed by: William E. Doty
License No. 42 Date: 10-9-67

Use other side for additional remarks

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

GB-

1. WELL OWNER

Name Gary Henrickson
Address Kuna
Owner's Permit No.

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning)

3. PROPOSED USE

☐ Domestic ☒ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other

Thickness	Diameter	From	To
.250 inches	10 inches +	1½ feet	20 feet
inches	inches	feet	feet
inches	inches	feet	feet
inches	inches	feet	feet

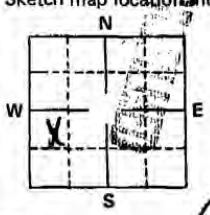
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation inches by inches

Number	From	To
perforations	feet	feet
perforations	feet	feet
perforations	feet	feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name
Type Model No.
Diameter Slot size Set from feet to feet
Diameter Slot size Set from feet to feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel
Placed from feet to feet
Surface seal depth 20 Material used in seal: ☐ Cement grout ☒ Puddling clay ☐ Well cuttings
Sealing procedure used: ☐ Slurry pit ☒ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port welded plate

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name none
Lot No. Block No.
County Canyon
NW ¼ SW ¼ Sec. 17 T. 2 N. R. 1 W.

7. WATER LEVEL

Static water level 10 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow
Artesian closed-in pressure p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature °F. Quality

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ Air ☐ Other

Discharge G.P.M.	Pumping Level	Hours Pumped

9. LITHOLOGIC LOG

83425

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
10	0	8	Top soil & hardpan		X
	8	30	Solid lava		X
	30	34	Lava crevices	X	
	34	59	Solid lava		X
	59	70	Lava with small crevices	X	
	70	88	Solid lava		X
	88	92	Lava crevices +	X	
			loose lava +	X	
			some bentonite	X	

RECEIVED
DEC 15 1982
Department of Water Resources

RECEIVED
JUN 30 1981
~~Department of Water Resources~~
~~Western Regional Office~~

10.

Work started 7/5/79 finished 7/9/79

11. DRILLERS CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Layne Western Co. Firm No. 101
Address 415 N. Pitt Boise Date 8/27/79
Signed by (Firm Official)
and
(Operator) Charles Davis

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

C

064790

Form 238-7
3/95-C96

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

63-98-W-0860-000

Office Use Only
Inspected by
Twp Rge Sec
1/4 1/4 1/4
Lat: Long:

1. DRILLING PERMIT NO. - - - - -
Other IDWR No. D0007916

2. OWNER:
Name Doug Teuscher
Address 6925 E Lewis Ln
City Nampa State ID Zip 83686

3. LOCATION OF WELL by legal description:
Sketch map location must agree with written location

N
W E
S

Twp. 2 North ☒ or South ☐
Rge. 1 East ☐ or West ☒
Sec. 17 1/4 (10 acres) NW 1/4 (40 acres) SW 1/4 (60 acres)
Gov't lot ____ County Canyon
Lat: ____ Long: ____
Address of Well Site Robinson & Dye Ln
City Nampa
(Give at least name of road + Distance to Road or Landmark)
Lt. ____ Blk. ____ Sub. Name ____

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other ____

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Modify ☐ Abandonment ☐ Other ____

6. DRILL METHOD
☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other ____

7. SEALING PROCEDURES

SEAL/FILTER PACK Material	From	To	AMOUNT Sacks or Pounds	METHOD
Bentonite	3'	+30'	10	Overbore

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) ____
Was drive shoe seal tested? ☒ Y ☐ N How? ____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1'	118'	.250	Steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe ____ Length of Tailpipe ____

9. PERFORATIONS/SCREENS
☐ Perforations Method ____
☐ Screens Screen Type ____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:
54ft. below ground Artesian Pressure ____ lb
Depth flow encountered ____ ft. Describe access port or control devices: ____

11. WELL TESTS:
☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min.	Drawdown	Pumping Level	Time
30		80	1 hr

Water Temp. ____ Bottom hole temp. ____
Water Quality test or comments: ____
Depth first Water Encountered 65'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temp.	Water Y	Water N
10"	0'	1'	brown top soil		☒
10"	2'	4'	white hardpan clay		☒
10"	4'	25'	black/grey lava		☒
8"	25'	26'	crack		☒
8"	26'	65'	black lava w/occasional cracks		☒
8"	65'	74'	broken black lava	☒	
8"	74'	85'	cavy black lava	☒	
8"	85'	90'	broken black lava	☒	
8"	90'	96'	lt brown clay		☒
6"	96'	102'	lt brown clay		☒
6"	102'	120'	brown sand & gravel	☒	

RECEIVED
DEC 04 1998
WATER RESOURCES WESTERN REGION

RECEIVED
DEC 09 1998
Department of Water Resources

MICROFILMED
MAR 08 1999

Completed Depth 120' (Measurable)
Date: Started 11-23-98 Completed 11-24-98

13. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name SOS Welldrilling & Pump Co Firm No. 212
Firm Official ____ Date 12-1-98
Supervisor or Operator ____ Date 12-1-98
(Sign once if Firm Official & Operator)

Date: 12/01/98 Time: 10:07 AM

Form 238-7
1/78

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

$13

1. WELL OWNER

Name Max Finch

Address RT. #1 Dye Lane Nampa, Idaho

Owner's Permit No. _____

2. NATURE OF WORK

☒ New well ☐ Deepened ☐ Replacement
☐ Abandoned (describe method of abandoning) _____

3. PROPOSED USE

☒ Domestic ☐ Irrigation ☐ Test ☐ Municipal
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary
☐ Cable ☐ Dug ☐ Other _____

5. WELL CONSTRUCTION

Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
.250 inches	6 inches +	3 feet	112'9" feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

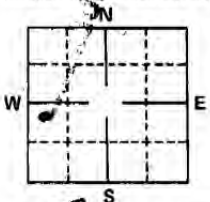
Was casing drive shoe used? ☒ Yes ☐ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch
Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☒ No
Manufacturer's name _____
Type _____ Model No. _____
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Diameter ___ Slot size ___ Set from _____ feet to _____ feet
Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____
Placed from _____ feet to _____ feet
Surface seal depth 75 Material used in seal: ☐ Cement grout ☒ Puddling clay ☐ Well cuttings
Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth
Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata
Describe access port _____

6. LOCATION OF WELL

Sketch map location must agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County Canyon
NW ¼ SW ¼ Sec. 17, T. 2 N/S, R. 1 E/W.

7. WATER LEVEL

Static water level 75 feet below land surface.
Flowing? ☐ Yes ☒ No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____

8. WELL TEST DATA

☐ Pump ☐ Bailer ☒ Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
50		2

9. LITHOLOGIC LOG 88690

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
8	0	1	top soil		x
8	1	3	boulders		x
8	3	75	rock		x
6	75	80	sand		x
6	80	90	gravel	x	
6	90	95	sand	x	
6	95	110	sand and gravel	x	
6	110	115	clay		x
6	115	–	sand	x	

RECEIVED
DEC 17 1981
Department of Water Resources
Western Regional Office

10. Work started 6-5-81 finished 6-5-81

11. DRILLERS CERTIFICATION dl

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name BILL DOTY WELL DRILLING Firm No. 42
Address RT.#7 BX. 311CALDWELL Date 8-31-81
Signed by (Firm Official) Bill Doty
and
(Operator) Bill Doty

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

Form 238-7
6/07

906779-85H183

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D D0053304
Drilling Permit No.
Water right or injection well #

2. OWNER
Name Steve Lambson
Address 9151 Robinson Rd Blvd
City Kuna State ID Zip 83634

3. WELL LOCATION:
Twp. 2 North ☒ or South ☐ Rge. 1 East ☐ or West ☒
Sec. 18 NE 1/4 (10 acres) SE 1/4 (40 acres) SE 1/4 (160 acres)
Gov't Lot County Canyon
Lat. 43 30 ° 22.5 (Deg. and Decimal minutes)
Long. 116 29 ° 38.0 (Deg. and Decimal minutes)
Address of Well Site same
City
(Give at least name of road + Distance to Road or Landmark)
Lot Blk. Sub. Name

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other

5. TYPE OF WORK check all that apply (Replacement etc.)
☒ New Well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
bentonite	0'	19'	550 lbs	poured

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2.	178	.250	steel	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 178.5

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method
Manufactured screen ☒ Y ☐ N Type telescoping
Method of installation washed in

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
185'	190'	.018		5"	ST ST	
174'	190'			5"	screen ass.	

Length of Headpipe 11.8" Length of Tailpipe
Packer ☒ Y ☐ N Type

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG)
Describe control device

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) Static water level (ft) 66
Water temp. (°F) Bottom hole temp. (°F)
Describe access port

Well test: Test method:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)	Pump	Bailer	Air	Flowing artesian
180	100+	2 hrs	☐	☐	☒	☐
120	70	1 hr				
100	42	1 hr				

Water Quality test or comments:

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0'	2'	top soil		X
10"	2'	3'	white baked clay		X
10"	3'	19'	basalt black		X
8"	19'	25'	basalt black		X
8"	25'	45'	red basalt		X
8"	45'	78'	black basalt		X
6"	78'	98'	sand & gravel	X	
6"	98'	138	silty sand	X	
6"	138	141	tan clay		X
6"	141	148	tan clay & sand strips	X	
6"	148	152	tan clay		X
6"	152	169	tan clay & sand strips	X	
6"	169	175	tan clay with cracks	X	
6"	175	180	tan clay		X
6"	180	188	sand medium	X	
			added 32 inches		
			to top of casing		

RECEIVED
DEC 17 2008
WATER RESOURCES
WESTERN REGION

Completed Depth (Measurable) 188
Date: Started 11-05-08 Completed 11-08-08

14. DRILLER'S CERTIFICATION
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.
Company Name Down Right Drilling & Pump,Inc Co. No. 637
*Principal Driller [signature] Date 12-15-08
*Driller [signature] Date 12-15-08
*Operator II Date
Operator I Date
* Signature of Principal Driller and rig operator are required.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name Phillip Estrada

Address Rt 3, Box 3671 Robinson ave. Nampa 83651

Owner's Permit No. _____

2. NATURE OF WORK

☑ New well ☐ Deepened ☐ Replacement

☐ Abandoned (describe method of abandoning)

_____

3. PROPOSED USE

☑ Domestic ☐ Irrigation ☐ Test ☐ Other (specify type)

☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection

4. METHOD DRILLED

☑ Cable ☐ Rotary ☐ Dug ☐ Other

5. WELL CONSTRUCTION

Diameter of hole 6 inches Total depth 85 feet

Casing schedule: ☑ Steel ☐ Concrete

Thickness	Diameter	From	To
.250 inches	6 inches	+ 16 feet	18½ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☑ Yes ☐ No

Was a packer or seal used? ☐ Yes ☑ No

Perforated? ☐ Yes ☑ No

How perforated? ☐ Factory ☐ Knife ☐ Torch

Size of perforation _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☑ No

Manufacturer's name _____

Type _____ Model No. _____

Diameter ____ Slot size ____ Set from ____ feet to ____ feet

Diameter ____ Slot size ____ Set from ____ feet to ____ feet

Gravel packed? ☐ Yes ☑ No Size of gravel _____

Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal: ☐ Cement grout ☑ Puddling clay ☐ Well cuttings

Sealing procedure used: ☐ Slurry pit ☐ Temporary surface casing ☐ Overbore to seal depth

6. LOCATION OF WELL

Sketch map location must agree with written location. 63

N / W / E / S

Subdivision Name _____

Lot No. _____ Block No. _____

County CANYON

SE ¼ NE ¼ Sec. 18, T. 2 N/S, R. 1 E/W

7. WATER LEVEL

Static water level 29 feet below land surface.

Flowing? ☐ Yes ☑ No G.P.M. flow _____

Temperature _____ °F. Quality _____

Artesian closed-in pressure _____ p.s.i.

Controlled by: ☐ Valve ☐ Cap ☐ Plug

8. WELL TEST DATA 40' ROD PUMP 2½"

☑ Pump ☐ Bailer ☐ Other

Discharge G.P.M.	Drawdown	Hours Pumped
20		2

9. LITHOLOGIC LOG

Hole Diam.	Depth From	Depth To	Material	Water Yes	Water No
6	0	1	TOP SOIL		✓
6	1	4	HARD PAN		✓
6	4	5	BROKEN LAVA		✓
6	5	85	LAVA	✓	
6	85		SAND & GRAVEL	✓	

10. Work started 7/24 1978 finished 8/1/1978

11. DRILLERS CERTIFICATION

Firm Name MYRON E. PROW WELL DRILLING Firm No. 324

Address 913 EAST 2nd STREET MERIDIAN, IDAHO 83642 383-2128 or 466-4128 Date 10/4/1978

Signed by (Firm Official) Myron E Prow

and

(Operator) Myron E Prow

OPY TO THE DEPARTMENT

Form 238-7
4/92

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

USE TYPEWRITER OR BALLPOINT PEN

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources within 30 days after the completion or abandonment of the well.

1. WELL OWNER

Name CORNELL, H.D.
Address 9555 ROBINSON RD.
KUNA, ID 83634
Drilling Permit No. 63-92-W-642-000
Water Right Permit No.

2. NATURE OF WORK

☐ X New well ☐ Deepened ☐ Replacement
☐ Well diameter increase ☐ Modification
☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)

3. PROPOSED USE

☐ X Domestic ☐ Irrigation ☐ Monitor
☐ Industrial ☐ Stock ☐ Waste Disposal or Injection
☐ Other _____ (specify type)

4. METHOD DRILLED

☐ X Rotary ☐ X Air ☐ Auger ☐ Reverse rotary
☐ Cable ☐ Mud ☐ Other _____ (backhoe, hydraulic, etc.)

5. WELL CONSTRUCTION

Casing schedule: ☐ X Steel ☐ Concrete ☐ Other _____

Thickness	Diameter	From	To
250 inches	6 inches	+ 1 feet	49 feet
_____ inches	_____ inches	_____ feet	_____ feet
_____ inches	_____ inches	_____ feet	_____ feet

Was casing drive shoe used? ☐ Yes ☒ No
Was a packer or seal used? ☐ Yes ☒ No
Perforated? ☐ Yes ☒ No
How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun
Size of perforation? _____ inches by _____ inches

Number	From	To
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet
_____ perforations	_____ feet	_____ feet

Well screen installed? ☐ Yes ☐ X No
Manufacturer _____ Type _____
Top Packer or Headpipe _____
Bottom of Tailpipe _____

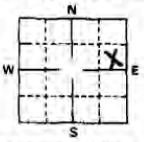
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Diameter ____ Slot size ____ Set from ____ feet to ____ feet
Gravel packed? ☐ Yes ☐ X No ☐ Size of gravel _____
Placed from _____ feet to _____ feet

Surface seal depth 18 Material used in seal: ☐ Cement grout
☐ X Bentonite ☐ Puddling clay ☐ _____
Sealing procedure used: ☐ Slurry pit
☐ Temp. surface casing ☐ X Overbore to seal depth
Method of joining casing: ☐ Threaded ☐ X Welded
☐ Solvent Weld ☐ Cemented between strata

Describe access port _____

6. LOCATION OF WELL

Sketch map location **must** agree with written location.



Subdivision Name _____
Lot No. _____ Block No. _____
County CANYON
Address of Well Site ROBINSON & DYE LANE
(give at least name of road)
SE ¼ NE ¼ Sec. 18 T. 2 N ☐ or S ☐ R. 1 E ☐ or W ☐ X
Meridian Idaho

7. WATER LEVEL

Static water level 39 feet below land surface.
Flowing? ☐ Yes ☐ X No G.P.M. flow _____
Artesian closed-in pressure _____ p.s.i.
Controlled by: ☐ Valve ☐ Cap ☐ Plug
Temperature _____ °F. Quality _____
Describe artesian or temperature zones below.

8. WELL TEST DATA

☐ Pump ☐ Bailer ☐ X Air ☐ Other _____

Discharge G.P.M.	Pumping Level	Hours Pumped
75	44	1

9. LITHOLOGIC LOG

84969

Bore Diam.	Depth From	Depth To	Material	Water Yes	Water No
9"	0	1	TOP SOIL		NO
9"	1	3	HARD CLAY		NO
9"	3	18	BLACK LAVA		NO
8"	18	24	BLACK LAVA		NO
8"	24	25	CRACK		NO
8"	25	50	BLACK LAVA		NO
6"	50	61	BLACK LAVA		NO
6"	61	62	CRACK	YES	
6"	62	69	BLACK LAVA		NO
6"	69		GRAVEL	YES	

RECEIVED
OCT 21 1992
Department of Water Resources

RECEIVED
AUG 28 1992
Department of Water Resources
Western Regional Office

DEC 04 1992

10.

Work started 8/10/92 finished 8/12/92

11. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name SOS Well Drilling Firm No 212
Address 4145 N. Blackcat Road Date 8/25/92
Meridian, Idaho 83642
Signed by Drilling Supervisor _____
and
(Operator) _____
(if different than the Drilling Supervisor)

USE ADDITIONAL SHEETS IF NECESSARY — FORWARD THE WHITE COPY TO THE DEPARTMENT

63

Form 238-7
6/07

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

1. WELL TAG NO. D 0067277
Drilling Permit No. 9606764 - 872823
Water right or injection well #

2. OWNER:
Name Gordon Cooper
Address 920 W. Ash St.
City Caldwell State ID Zip 83605

3.WELL LOCATION:
Twp. 2 North ☒ or South ☐ Rge. 1 East ☐ or West ☒
Sec. 18 10 acres 1/4 SE 40 acres 1/4 NE 160 acres 1/4
Gov't Lot County Canyon
Lat. 43 ° 30.762 (Deg. and Decimal minutes)
Long. 116 ° 29.828 (Deg. and Decimal minutes)
Address of Well Site 9605 S. Robinson Rd.
(Give at least name of road + Distance to Road or Landmark) City Nampa
Lot. Blk. Sub. Name

4. USE:
☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other

5. TYPE OF WORK:
☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other

6. DRILL METHOD:
☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method/procedure
3/8 Bentonite	0'	58'	29 bags	10" Overbore

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/ Schedule	Material	Casing	Liner	Threaded	Welded
6"	+2'	58'	.250	Steel	☒	☐	☐	☒
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 58'

9. PERFORATIONS/SCREENS:
Perforations ☐ Y ☒ N Method
Manufactured screen ☒ Y ☐ N Type Certa-lok
Method of installation Set with Sand Line

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
84'	44'	.20		4-1/2"	PVC	SDR17

Length of Headpipe Length of Tailpipe
Packer ☐ Y ☒ N Type

10.FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft³)	Placement method
None				

11. FLOWING ARTESIAN:
Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG)
Describe control device

12. STATIC WATER LEVEL and WELL TESTS:
Depth first water encountered (ft) 30' Static water level (ft) 18'
Water temp. (°F) 56 Bottom hole temp. (°F)
Describe access port Well Cap

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
67'	80 GPM	30 minutes

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐
☐	☐	☐	☐

Water quality test or comments:

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water Y	Water N
10"	0'	2'	Topsoil		X
10"	2'	12'	Tan Clay		X
10"	12'	30'	Black Basalt		X
10"	30'	32'	Broken Black Basalt	X	
10"	32'	50'	Black Basalt		X
10"	50'	55'	Broken Black Basalt	X	
10"	55'	58'	Black Basalt		X
6"	58'	76'	Black Basalt w/Cracks	X	
6"	76'	85'	Red Basalt	X	
6"	85'	90'	Gravel	X	

RECEIVED
AUG 08 2014
WATER RESOURCES
WESTERN REGION

Completed Depth (Measurable): 84'
Date Started: Jul 29, 2014 Date Completed: Jul 30, 2014

14. DRILLER'S CERTIFICATION:
I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

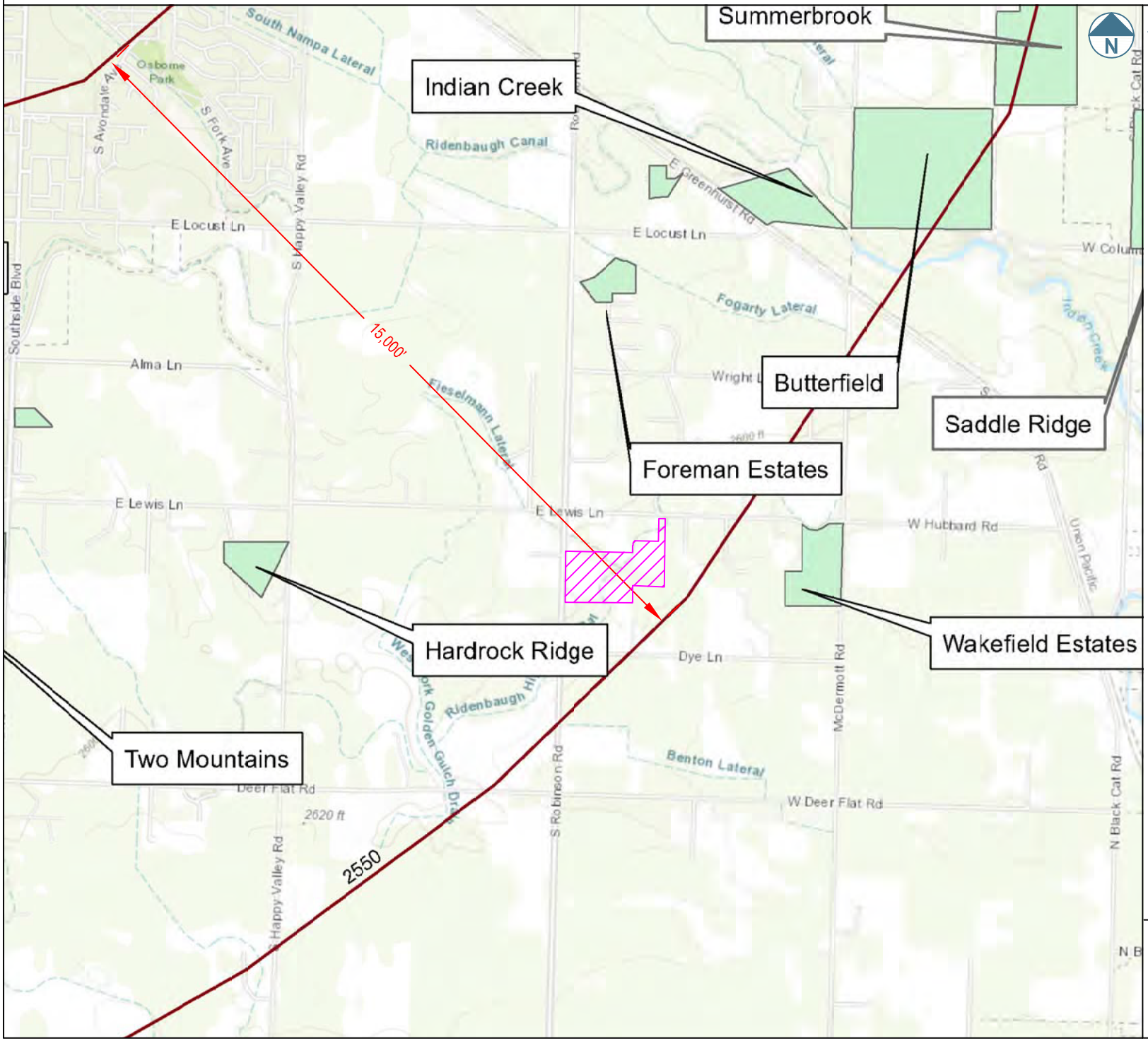
Company Name Adamson Pump & Drilling Co. No. 457
*Principal Driller Dave Adamson Date Aug 6, 2014
*Driller John Sutton Date Aug 6, 2014
*Operator II Date
Operator I Mateo Chapa Date Aug 6, 2014

* Signature of Principal Driller and rig operator are required.

Appendix VI IDEQ GROUNDWATER CONTOUR MAP

IDEQ Groundwater Contours

Figure 5



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

SCALE
0 0.375 0.75
(Miles)

Haven Creek
9814 Robinson Road
Kuna, ID

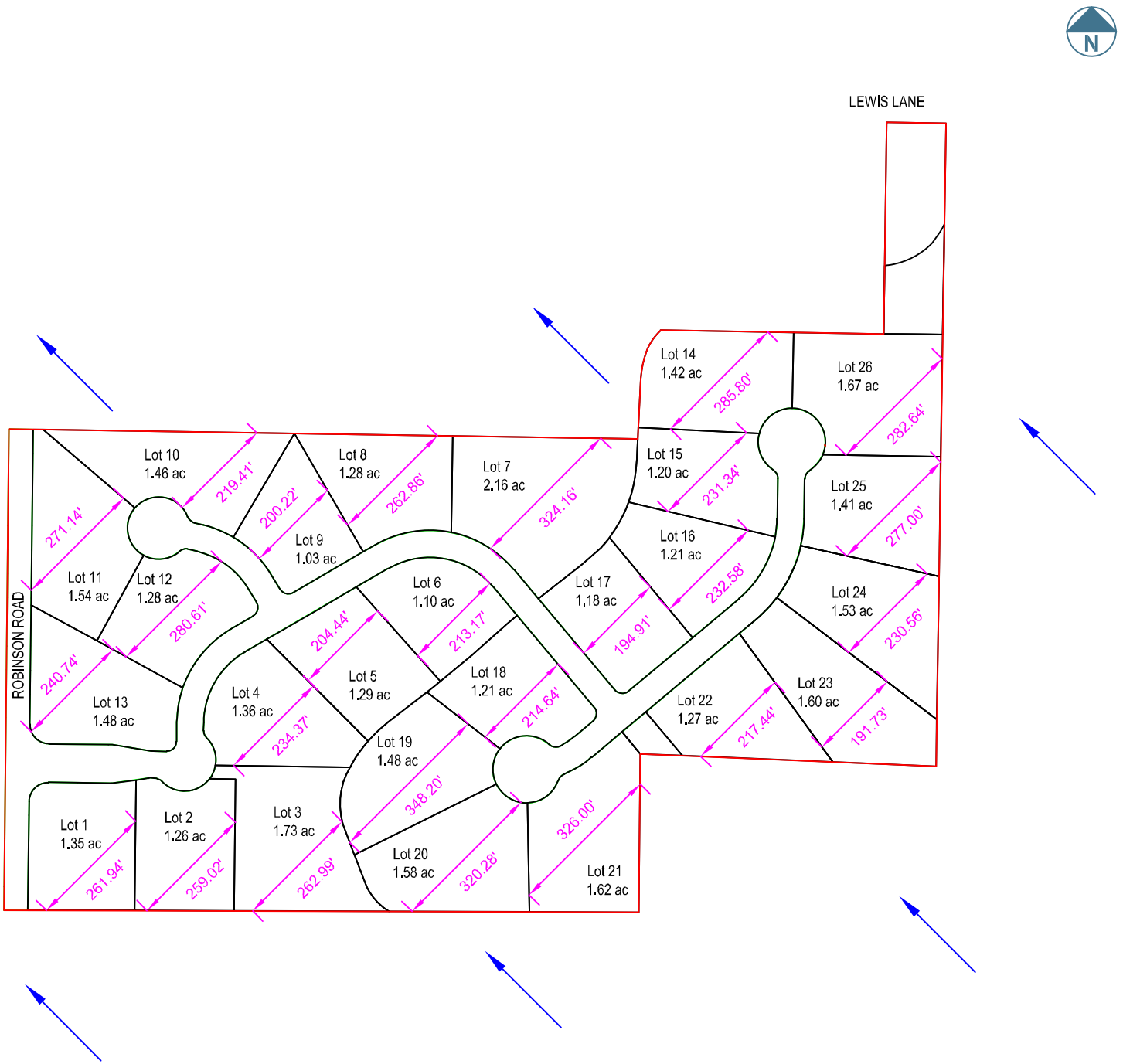
Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Appendix VII SITE PLAN WITH AQUIFER WIDTH MAP FOR INDIVIDUAL LOTS

Site Map with Individual Lot Aquifer Widths Perpendicular to Groundwater Flow Direction

Figure 6



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

Groundwater Flow Direction

SCALE

0 200 400

(Feet)

Haven Creek
9814 Robinson Road
Kuna, ID

Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

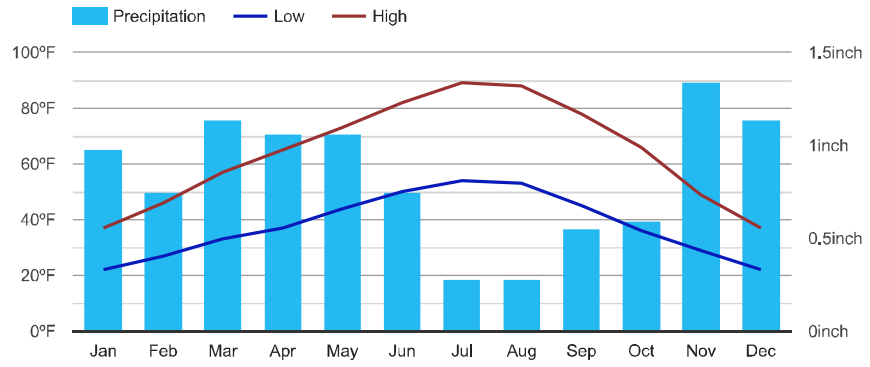
Appendix VIII HISTORIC PRECIPITATION/CLIMATE DATA FOR PROJECT LOCATION

Climate Kuna - Idaho

	Jan (January)	Feb (February)	Mar (March)	Apr (April)	May (May)	Jun (June)
Av. high	37	46	57	65	73	82
Av. low	22	27	33	37	44	50
Av. precip.	0.98	0.75	1.14	1.06	1.06	0.75

	Jul (July)	Aug (August)	Sep (September)	Oct (October)	Nov (November)	Dec (December)
Av. high	89	88	78	66	49	37
Av. low	54	53	45	36	29	22
Av. precip.	0.28	0.28	0.55	0.59	1.34	1.14

Kuna Climate Graph - Idaho Climate Chart



Kuna weather averages

Annual high temperature	64°F
Annual low temperature	38°F
Average annual precip.	9.92 inch

Share

Station Data

Monthly averages Kuna
Longitude: -116.42, Latitude: 43.49
Average weather Kuna, ID - 83634

Monthly: 1981-2010 normals

Abbreviations

Jan (January): January, Feb (February): February, ...

Appendix IX SITE LOCATION WITH VICINITY MONITORING WELLS MAP AND MONITORED WELL DATA

Vicinity Monitoring Well Locations

Figure 7

NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

Well Location (#)

SCALE

0 0.125 0.25

(Miles)

Haven Creek
9814 Robinson Road
Kuna, ID

Modified by: CBJ
January 14, 2022
Drawing: B212203g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Appendix X NITRATE MASS-BALANCE SPREADSHEETS FOR INDIVIDUAL LOTS

IDEQ LEVEL 1 NUTRIENT-PATHOGEN EVALUATION NITROGEN MASS-BALANCE SPREADSHEET

V. 1.3 5/2/2002

This spreadsheet is based on the mass balance approach documented in: 1985.Bauman, B.J. and W.M. Schaefer.Estimating Ground-Water Quality Impacts From On-Site Sewage Treatment Systems. In Proceedings of 5th Northwest On-Site Wastewater Treatment Shortcourse, September 10-11, 1985. University of Washington, Seattle, WA. Pages 23-41. See **Instructions for Use** below.

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	81.000	Site-specific	
Hydraulic Gradient	0.0033	Site-specific	
Mixing Zone Thickness (ft)	15		Default
Aquifer Width Perpendicular to Flow (ft)	200.22		
Parcel Area (acres)	1.03	Site-specific	
Percent of Parcel That Is Impervious (Percent)	10	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	300		Default
Natural Recharge rate (inches/yr)	0.6	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	5.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	45.0		Default
Denitrification Rate (decimal fraction)	0		Default
Nitrate in Natural Recharge (mg/l)	0.3		Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	8.30E+03	94.6
Effluent	4.14E+02	4.7
Recharge	5.72E+01	0.7
Total Water Volume	**8.78E+03**	

Point of Compliance Nitrate Concentration Goal	**6.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**7.2**
	1.0

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	4.48E+07	70.6
Septic Tank Effluent Nitrate Mass	1.87E+07	29.4
Recharge Nitrate Mass	1.72E+04	0.0
Total Nitrate Mass	**6.35E+07**	

Instructions for Use

Input parameter values appropriate to conditions at the site under consideration are entered in blue shaded cells *INPUT* side of the spreadsheet. These input values form the basis for calculating yearly water and nitrogen budgets. Default values for selected parameters are provided, as described in the accompanying N-P guidance. Selecting values other than these defaults will require providing adequate justification. Sources of water and nitrogen include ground water inflow from upgradient, natural recharge on pervious portions of the site, and from septic tank effluent. The total yearly nitrogen mass input is then divided by the total yearly volume of water available to recharge **Average Downgradient Nitrate Concentration in GW** *OUTPUT* side of the spreadsheet).

As values are blue shaded cells the totals and percent of total for various components of the water and nitrogen budgets are *OUTPUT* **Avg. Downgradient Nitrate Concentration in GW** is also calculated. The Density button allows the calculation of both the Acceptable Number of Homes in the Parcel (shown in *INPUT* area) as well as the acceptable lot size. Clicking the Density button opens an input box that allows the input of the **Point of Compliance Nitrate Concentration Goal**. The number of homes in the parcel is then adjusted to meet the specified goal.This calculation can be redone iteratively along

Aquifer Width Perpendicular to Flow: For land development projects not completely oriented perpendicular to ground water flow, the site specific aquifer width value is determined using the average property width that is perpendicular to flow.

Ranges of Hydraulic Conductivity (K) for Unconsolidated Sediments (feet/day)	
Silt and sandy silt	
Silty sands and fine sands	0.03 to 3
Well-sorted sands and glacial outwash	3 to 300
Well-sorted gravel	30 to 3000
Typical Range of Hydraulic Gradient	0.0001 to 0.1

Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$

SITE INFORMATION

Haven Creek Subdivision	Site Name
Lot 9 - Regular Septic System	Parcel Identification
1/14/2022	Date
Bryar Jensen, EI	Prepared By

IDEQ LEVEL 1 NUTRIENT-PATHOGEN EVALUATION NITROGEN MASS-BALANCE SPREADSHEET

V. 1.3 5/2/2002

This spreadsheet is based on the mass balance approach documented in: 1985.Bauman, B.J. and W.M. Schaefer.Estimating Ground-Water Quality Impacts From On-Site Sewage Treatment Systems. In Proceedings of 5th Northwest On-Site Wastewater Treatment Shortcourse, September 10-11, 1985. University of Washington, Seattle, WA. Pages 23-41. See **Instructions for Use** below.

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	81.000	Site-specific	
Hydraulic Gradient	0.0033	Site-specific	
Mixing Zone Thickness (ft)	15		**Default**
Aquifer Width Perpendicular to Flow (ft)	200.22		
Parcel Area (acres)	1.03	Site-specific	
Percent of Parcel That Is Impervious (Percent)	10	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	300		**Default**
Natural Recharge rate (inches/yr)	0.6	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	5.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	27.0		**Provide Justification**
Denitrification Rate (decimal fraction)	0		**Default**
Nitrate in Natural Recharge (mg/l)	0.3		**Default**

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	8.30E+03	94.6
Effluent	4.14E+02	4.7
Recharge	5.72E+01	0.7
Total Water Volume	**8.78E+03**	

Point of Compliance Nitrate Concentration Goal	**6.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**6.4**
	1.0

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	4.48E+07	80.0
Septic Tank Effluent Nitrate Mass	1.12E+07	20.0
Recharge Nitrate Mass	1.72E+04	0.0
Total Nitrate Mass	**5.60E+07**	

Instructions for Use

Input parameter values appropriate to conditions at the site under consideration are entered in blue shaded cells *INPUT* side of the spreadsheet. These input values form the basis for calculating yearly water and nitrogen budgets. Default values for selected parameters are provided, as described in the accompanying N-P guidance. Selecting values other than these defaults will require providing adequate justification. Sources of water and nitrogen include ground water inflow from upgradient, natural recharge on pervious portions of the site, and from septic tank effluent. The total yearly nitrogen mass input is then divided by the total yearly volume of water available to recharge

Average Downgradient Nitrate Concentration in GW *OUTPUT* side of the spreadsheet).

As values are blue shaded cells the totals and percent of total for various components of the water and nitrogen budgets are *OUTPUT* **Avg. Downgradient Nitrate Concentration in GW** is also calculated. The Density button allows the calculation of both the Acceptable Number of Homes in the Parcel (shown in *INPUT* area) as well as the acceptable lot size. Clicking the Density button opens an input box that allows the input of the **Point of Compliance Nitrate Concentration Goal**. The number of homes in the parcel is then adjusted to meet the specified goal.This calculation can be redone iteratively along with changing other site input parameters to examine the resultant impact on nitrate concentrations.

Aquifer Width Perpendicular to Flow: For land development projects not completely oriented perpendicular to ground water flow, the site specific aquifer width value is determined using the average property width that is perpendicular to flow.

Ranges of Hydraulic Conductivity (K) for Unconsolidated Sediments (feet/day)	
Silt and sandy silt	
Silty sands and fine sands	0.03 to 3
Well-sorted sands and glacial outwash	3 to 300
Well-sorted gravel	30 to 3000
Typical Range of Hydraulic Gradient	

Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$

SITE INFORMATION

Haven Creek Subdivision	Site Name
Lot 9 - 40% Nitrate Reducing Septic System	Parcel Identification
1/14/2022	Date
Bryar Jensen, EI	Prepared By

Disclaimer: Considerable care was exercised in developing this software. However, the Idaho Department of Environmental Quality makes no warranty regarding its accuracy and shall not be held liable for any damages resulting from its use.

IDEQ LEVEL 1 NUTRIENT-PATHOGEN EVALUATION NITROGEN MASS-BALANCE SPREADSHEET

V. 1.3 5/2/2002

This spreadsheet is based on the mass balance approach documented in: 1985.Bauman, B.J. and W.M. Schaefer.Estimating Ground-Water Quality Impacts From On-Site Sewage Treatment Systems. In Proceedings of 5th Northwest On-Site Wastewater Treatment Shortcourse, September 10-11, 1985. University of Washington, Seattle, WA. Pages 23-41. See **Instructions for Use** below.

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	81.000	Site-specific	
Hydraulic Gradient	0.0033	Site-specific	
Mixing Zone Thickness (ft)	15		Default
Aquifer Width Perpendicular to Flow (ft)	191.73		
Parcel Area (acres)	1.6	Site-specific	
Percent of Parcel That Is Impervious (Percent)	10	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	300		Default
Natural Recharge rate (inches/yr)	0.6	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	5.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	45.0		Default
Denitrification Rate (decimal fraction)	0		Default
Nitrate in Natural Recharge (mg/l)	0.3		Default

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	7.95E+03	94.0
Effluent	4.14E+02	4.9
Recharge	8.88E+01	1.1
Total Water Volume	**8.45E+03**	
Point of Compliance Nitrate Concentration Goal	**6.4**	
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**7.3**	
	1.6	
Yearly Nitrogen Budget		
	Mass (mg)	**% of Total**
Background GW Nitrate Mass	4.29E+07	69.7
Septic Tank Effluent Nitrate Mass	1.87E+07	30.3
Recharge Nitrate Mass	2.66E+04	0.0
Total Nitrate Mass	**6.16E+07**	

Instructions for Use

Input parameter values appropriate to conditions at the site under consideration are entered in blue shaded cells *INPUT* side of the spreadsheet. These input values form the basis for calculating yearly water and nitrogen budgets. Default values for selected parameters are provided, as described in the accompanying N-P guidance. Selecting values other than these defaults will require providing adequate justification. Sources of water and nitrogen include ground water inflow from upgradient, natural recharge on pervious portions of the site, and from septic tank effluent. The total yearly nitrogen mass input is then divided by the total yearly volume of water available to recharge **Average Downgradient Nitrate Concentration in GW** *OUTPUT* side of the spreadsheet).

As values are blue shaded cells the totals and percent of total for various components of the water and nitrogen budgets are *OUTPUT* **Avg. Downgradient Nitrate Concentration in GW** is also calculated. The Density button allows the calculation of both the Acceptable Number of Homes in the Parcel (shown in *INPUT* area) as well as the acceptable lot size. Clicking the Density button opens an input box that allows the input of the **Point of Compliance Nitrate Concentration Goal**. The number of homes in the parcel is then adjusted to meet the specified goal.This calculation can be redone iteratively along

Aquifer Width Perpendicular to Flow: For land development projects not completely oriented perpendicular to ground water flow, the site specific aquifer width value is determined using the average property width that is perpendicular to flow.

Ranges of Hydraulic Conductivity (K) for Unconsolidated Sediments (feet/day)	
Silt and sandy silt	
Silty sands and fine sands	0.03 to 3
Well-sorted sands and glacial outwash	3 to 300
Well-sorted gravel	30 to 3000
Typical Range of Hydraulic Gradient	0.0001 to 0.1

Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$

SITE INFORMATION

Haven Creek Subdivision	Site Name
Lot 23 - Regular Septic System	Parcel Identification
1/14/2022	Date
Bryar Jensen, EI	Prepared By

Disclaimer: Considerable care was exercised in developing this software. However, the Idaho Department of Environmental Quality makes no warranty regarding its accuracy and shall not be held liable for any damages resulting from its use.

IDEQ LEVEL 1 NUTRIENT-PATHOGEN EVALUATION NITROGEN MASS-BALANCE SPREADSHEET

V. 1.3 5/2/2002

This spreadsheet is based on the mass balance approach documented in: 1985.Bauman, B.J. and W.M. Schaefer.Estimating Ground-Water Quality Impacts From On-Site Sewage Treatment Systems. In Proceedings of 5th Northwest On-Site Wastewater Treatment Shortcourse, September 10-11, 1985. University of Washington, Seattle, WA. Pages 23-41. See **Instructions for Use** below.

INPUT

Water Budget	Input Value	Default Value	
Hydraulic Conductivity (ft/day)	81.000	Site-specific	
Hydraulic Gradient	0.0033	Site-specific	
Mixing Zone Thickness (ft)	15		**Default**
Aquifer Width Perpendicular to Flow (ft)	191.73		
Parcel Area (acres)	1.6	Site-specific	
Percent of Parcel That Is Impervious (Percent)	10	Site-specific	
Current/Acceptable Number of Homes in Parcel	1.0	Site-specific	
Septic Tank Effluent (gallons/d/home)	300		**Default**
Natural Recharge rate (inches/yr)	0.6	Site-specific	
Nitrogen Budget (all concentrations represent nitrate nitrogen)			
Upgradient Ground Water Concentration (mg/l)	5.4	Site-specific	
Septic Tank Effluent Concentration (mg/l)	27.0		**Provide Justification**
Denitrification Rate (decimal fraction)	0		**Default**
Nitrate in Natural Recharge (mg/l)	0.3		**Default**

OUTPUT

Yearly Water Budget	Volume (m^3)	% of Total
Ground Water	7.95E+03	94.0
Effluent	4.14E+02	4.9
Recharge	8.88E+01	1.1
Total Water Volume	**8.45E+03**	

Point of Compliance Nitrate Concentration Goal	**6.4**
Avg. Downgradient Nitrate Concentration in GW (mg/l)	**6.4**
	1.6

Yearly Nitrogen Budget	Mass (mg)	% of Total
Background GW Nitrate Mass	4.29E+07	79.3
Septic Tank Effluent Nitrate Mass	1.12E+07	20.7
Recharge Nitrate Mass	2.66E+04	0.0
Total Nitrate Mass	**5.42E+07**	

Instructions for Use

Input parameter values appropriate to conditions at the site under consideration are entered in blue shaded cells *INPUT* side of the spreadsheet. These input values form the basis for calculating yearly water and nitrogen budgets. Default values for selected parameters are provided, as described in the accompanying N-P guidance. Selecting values other than these defaults will require providing adequate justification. Sources of water and nitrogen include ground water inflow from upgradient, natural recharge on pervious portions of the site, and from septic tank effluent. The total yearly nitrogen mass input is then divided by the total yearly volume of water available to recharge **Average Downgradient Nitrate Concentration in GW** *OUTPUT* side of the spreadsheet).

As values are blue shaded cells the totals and percent of total for various components of the water and nitrogen budgets are *OUTPUT* **Avg. Downgradient Nitrate Concentration in GW** is also calculated. The Density button allows the calculation of both the Acceptable Number of Homes in the Parcel (shown in *INPUT* area) as well as the acceptable lot size. Clicking the Density button opens an input box that allows the input of the **Point of Compliance Nitrate Concentration Goal**. The number of homes in the parcel is then adjusted to meet the specified goal.This calculation can be redone iteratively along with changing other site input parameters to examine the resultant impact on nitrate concentrations.

Aquifer Width Perpendicular to Flow: For land development projects not completely oriented perpendicular to ground water flow, the site specific aquifer width value is determined using the average property width that is perpendicular to flow.

Ranges of Hydraulic Conductivity (K) for Unconsolidated Sediments (feet/day)	
Silt and sandy silt	
Silty sands and fine sands	0.03 to 3
Well-sorted sands and glacial outwash	3 to 300
Well-sorted gravel	30 to 3000
Typical Range of Hydraulic Gradient	

Natural Recharge Rate (NRR) can be estimated from total annual precipitation (TAP) using the equation: NRR (inches/yr) = $(TAP)^2 * 0.0046$

SITE INFORMATION

Haven Creek Subdivision	Site Name
Lot 23 - 40% Nitrate Reducing Septic System	Parcel Identification
1/14/2022	Date
Bryar Jensen, EI	Prepared By

Disclaimer: Considerable care was exercised in developing this software. However, the Idaho Department of Environmental Quality makes no warranty regarding its accuracy and shall not be held liable for any damages resulting from its use.

Southwest District Health

Pre-Development Meeting
Planned Unit/Commercial

Environmental Health Services
13307 Miami Lane
Caldwell, ID 83607
208.455.5400
FAX 208.455.5405

Name of Development: Haven Creek
Applicant: Tanner Verhoeks
P.E./P.G.: Isaac Josifek
All others in Attendance: Monica Saculles
Becky Yzaguirre
Justin Ruthenbeck EHS #'s 32 Date 01/10/23

Number of Lots or Flow: 26 buildable Acreage of Proposed Development: 43.86
Location of Development: Robinson Rd./Lewis Lane, Nampa, ID

Project in Area of Concern: Yes Groundwater/Rock <10' Yes -
Level 1 NP Necessary for N: Yes - Completed

LSAS/CSS Proposed: No
BRO meeting for P or above: No
Proposed Drinking Water: Individual ☑, City ☐, Community ☑, Public Water Supply ☐
BRO meeting for PWS, Com: Possible community well system.

Information Distributed: SER ☑, NP Guidance ☐, Non-Domestic WW ap. ☐

Additional Comments:
Robinson and Lewis
P &Z Hearing - 2/2/23
NP Study Completed in 2021
40% Reduction in NP requried - Fritz review still required
50' Setback from Canals - Keeping all canals but going to pipe one (25')
Community Well may be the route taken - would add 3 lots: 29 Buildable
Wanting additional dwelling units - Looking into Flow generation
4 Bedroom dwelling + 2 bed ADU: 500 gallons per day
Community Water System Req'd if community wells installed
Test holes possible for Febraury
Atlas has excavated ~ 16 THs ? - Could use this data from Atlas if consist

Attach conceptual plan, if provided, or any other correspondence, and create a file for this information. The information will be helpful when responding to the county about permitting requirements and should be maintained with the subdivision file or commercial permit file when completed, for a complete written history of the project and SWDH involvement.

January 20, 2023

Atlas No. B212203g

Mr. Tanner Verhoeks
Haven Idaho
521 North 10th Avenue #4
Caldwell, ID 83605

Subject: **Accessory Dwelling Unit Letter – Level 1 Nutrient Pathogen Study**
Haven Creek Subdivision
9814 Robinson Road
Kuna, ID

Dear Mr. Verhoeks:

Atlas previously conducted a Nutrient Pathogen (NP) Study for the above-mentioned project (Atlas File Number B212203g). The previous study was based on a total of 26 residential lots, with each residence assumed to be 4 bedrooms in size. This equated to a per lot wastewater flow of 300 gallons per day (gpd). Results of that study indicated that 40 percent nitrate reducing septic systems would be required for each lot in order to meet down-gradient nitrate concentration limits required by the Southwest District Health (SWDH) and Idaho Department of Environmental Quality (IDEQ). The NP Study has been submitted to SWDH and IDEQ for review, though results of that review are not yet available.

Atlas has since been informed that it is desirable to increase the number of residential lots to 29, and that accessory dwelling units (ADUs) may be constructed on at least some of the lots. Atlas preliminarily re-analyzed the site assuming that up to 500 gpd of wastewater flow would be used for each of the proposed 29 lots, which would allow for a 4-bedroom residence and 2-bedroom ADU on a single lot. Wastewater flow could be adjusted as needed for each structure on any given lot, though the total effluent is limited to 500 gpd per lot. Atlas also assumed a minimum lot size of 1 acre in the re-analysis. Results of the analysis indicate that as long as each individual lot width perpendicular to groundwater flow direction is at least 145 feet and advanced treatment capable of 65% nitrate reduction is implemented, the site will meet the point-of-compliance down-gradient nitrate concentrations as required by SWDH and IDEQ. Smaller lots widths perpendicular to groundwater flow could also be considered for lots where no ADUs are planned and flow rates are less than 500 gpd. Once Atlas is provided a revised lot layout showing the proposed 29 lots, a revised NP Study will be prepared and submitted to SWDH and IDEQ for review and approval.

If you have any questions, please call us at (208) 376-4748.

Respectfully submitted,

Monica Saculles, PE
Senior Geotechnical Engineer

Appendix B

Fire Appendices attached in Appendix B:

- 1st Review Pre-Plat Residential Subdivision Conditional letter_Fire District.pdf
- Haven Creek - Kuna Fire - Prelim Plat Approved 20230501.pdf
- Haven Creek - Kuna Rural Fire Protection District - Response Times.pdf
- HC - Kuna Fire Letter 2024.pdf

KUNA RURAL FIRE DISTRICT
EST. 1951

150 W BOISE ST
PO Box 607
Kuna, ID 83634
PHONE: (208) 922-1144
FAX: (208) 922-1982

Date: 3/13/2022
From: Kuna Rural Fire Protection District

Regarding: Haven Creek Subdivision Pre_Plat
E Lewis Lane / Robinson Rd
Kuna, ID

New residential subdivisions shall comply with the Idaho State Fire Code section 102.5 and section D107 for one or two family residential developments.

- Fire Apparatus Access:

  Plans indicate a single fire service roadway connection from south Robinson Road. This service roadway shall be maintained unobstructed with approved cul-de-sacs available for fire apparatus turn around. A secondary access, complying with IFC section D107.2, may be required if more than 30 buildable lots are proposed. No Parking Fire Lane signs shall be installed in areas determined to have significant potential to obstruct emergency access and firefighting operations. Refer to IFC appendix "D" sections D103, D103.6.1, & D103.6.2 for details.

- Fire Hydrants:

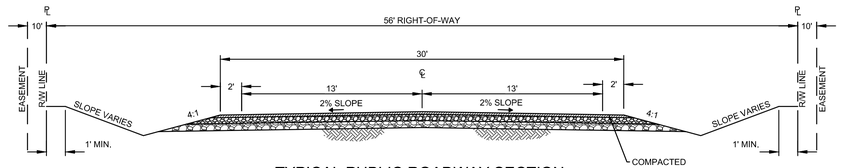
  A fire hydrant water distribution system and approved fire hydrants are required. At least one fire hydrant shall be available along residential service roadways and within 600 lineal feet of the furthest exterior portion of each future residential building. Hydrants and fire flow shall be designed to meet the minimum requirements of IFC appendix B105.1 for one- and two-family dwellings.

Premises Identification:

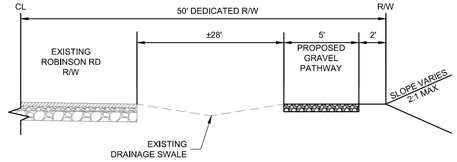
- New residential buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address numbers shall be not less than 4 inches high with a minimum stroke of ½ inch. Where access is by means of a private road and the building cannot be viewed from the public way, a monument, pole or other means shall be used to identify the structure. (IFC 505.1)

Regards,

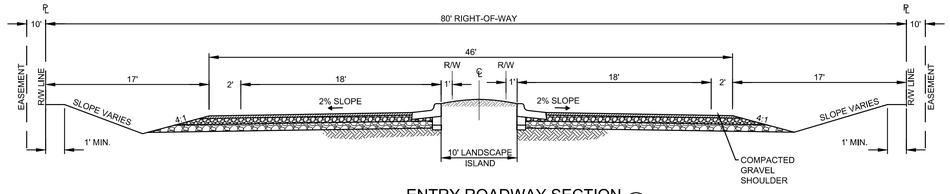
Kuna Rural Fire Protection District
Kuna, ID 83634
1.208.922.1144 (main)



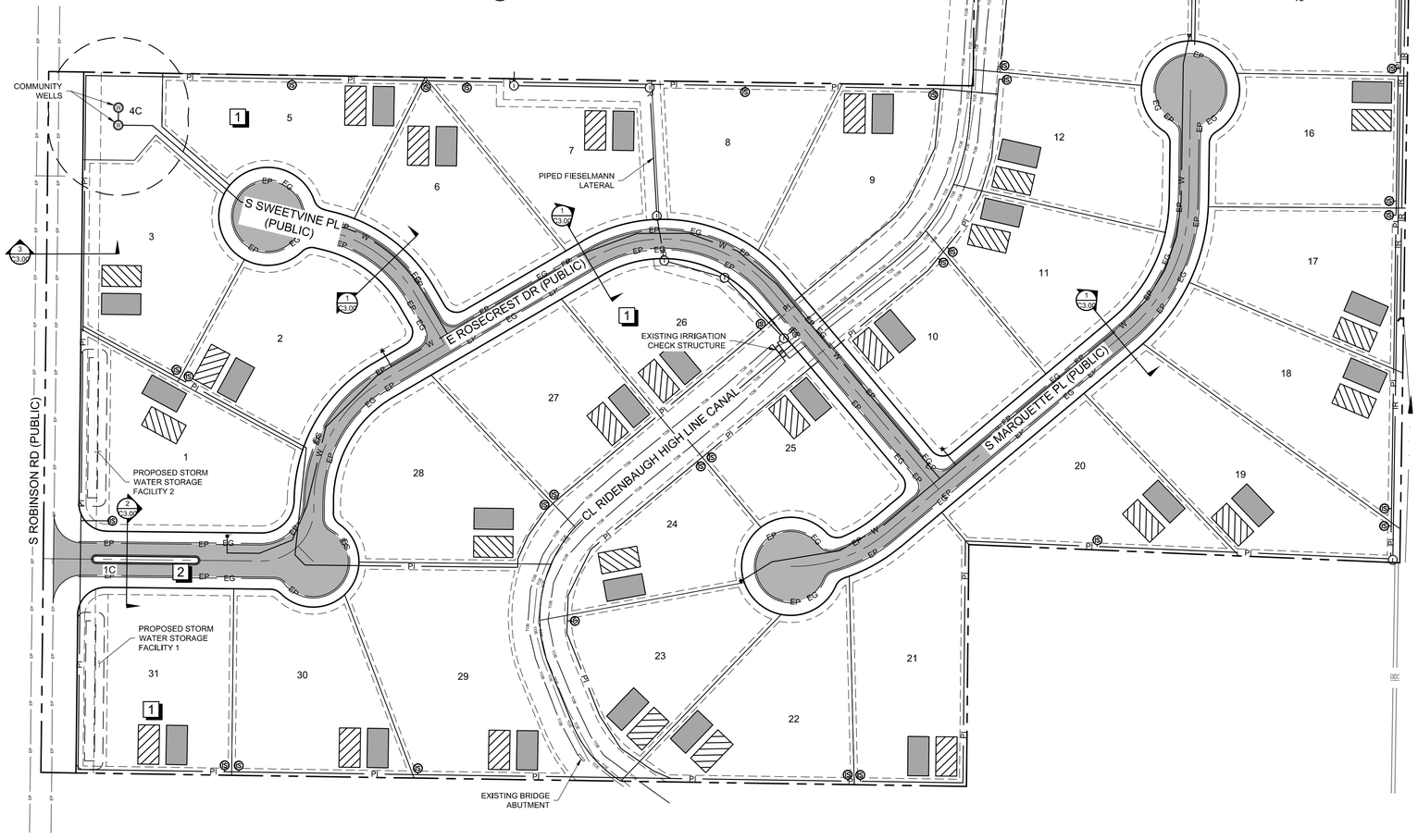
TYPICAL PUBLIC ROADWAY SECTION (1)
SCALE: NTS



E ROBINSON ROAD DEDICATED R/W SECTION (3)
SCALE: NTS



ENTRY ROADWAY SECTION (2)
SCALE: NTS



LEGEND

- SUBDIVISION BOUNDARY
- ROAD RIGHT-OF-WAY
- ROAD CENTERLINE
- PROPOSED EASEMENT
- EP — EXISTING EDGE OF PAVEMENT
- EP — PROPOSED EDGE OF PAVEMENT
- EG — PROPOSED EDGE OF GRAVEL
- 1 — BLOCK NUMBER
- 1 — LOT NUMBER
- 1C — COMMON LOT NUMBER
- WELL SET BACK BOUNDARY
- W — PROPOSED COMMUNITY WELL
- SD — PROPOSED STORM DRAIN STRUCTURE
- SD — PROPOSED STORM DRAIN LINE
- IS — PROPOSED PRESSURE IRRIGATION SERVICE
- PI — PROPOSED PRESSURE IRRIGATION LINE
- IR — EXISTING GRAVITY IRRIGATION LINE
- IR — PROPOSED GRAVITY IRRIGATION LINE
- I — PROPOSED GRAVITY IRRIGATION STRUCTURE
- W — PROPOSED WATER MAIN
- PROPOSED FIRE HYDRANT
- B.O. — PROPOSED BLOW-OFF
- PROPOSED SEPTIC DRAIN FIELD AREA
- PROPOSED REPLACEMENT DRAIN FIELD AREA

KUNA FIRE DISTRICT

APPROVED
By Scott Arellano at 1:52 pm, May 01, 2023

0 50 100 200 300
1"=100'

PROFESSIONAL ENGINEER LICENSED 19574 STATE OF IDAHO ISAAC D. JOSIFEK

BORDER SIZE	22"x34"
DESIGNED	L. MILLER
DRAWN	J. HURD
CHECKED	J. JOSIFEK
APPROVED	J. JOSIFEK

REVISIONS

NO.	DESCRIPTION	DATE
1	2ND SUBMITTAL	09/16/2022
2	3RD SUBMITTAL	08/03/2022

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
332 N. BROADMORE WAY
NAMPA, IDAHO 83687
208-442-6300 | WWW.TO-ENGINEERS.COM
BOISE • CODY • CHEYENNE • COEUR D'ALENE
HEBER CITY • MERIDIAN • NAMPA • SPOKANE

PRELIMINARY PLAT FOR:

HAVEN CREEK SUBDIVISION

SITE PLAN AND UTILITIES

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" ON 22x34 SHEET or 1/2" ON 11x17 SHEET, THEN DRAWING IS NOT TO SCALE

DATE: April 18, 2023
PROJECT: 210590
SHEET: C3.00

Tanner Verhoeks <tanner@havenidaho.com>

Haven Creek - Kuna Rural Fire Protection District - Request for Support

T.J. Lawrence <tlawrence@kunafire.com> Mon, Apr 10, 2023 at 2:59 PM
To: "tanner@havenidaho.com" <tanner@havenidaho.com>
Cc: "scott@fccnwi.com" <scott@fccnwi.com>

Mr. Verhoeks,

The drive time from Kuna Fire Station #1 to the SE corner of Robinson RD and Lewis LN is approximately 10-12 minutes.

Thank you,

T.J. Lawrence

Fire Chief

Kuna Rural Fire District

PO Box 607

Kuna, Idaho 83634

Station 1:(208)922-1144

Fax:(208)922-1982

[Quoted text hidden]

Samantha Hammond

From: T.J. Lawrence <tlawrence@kunafire.com>
Sent: Wednesday, May 1, 2024 8:06 AM
To: Samantha Hammond; James Trumble
Cc: Krystal Hinkle
Subject: RE: Land Use Development | Kuna Fire Response Time

Follow Up Flag: Follow up
Flag Status: Flagged

Samantha,

Good morning. Approximate response time is 15 minutes from Kuna Fire station #1 located at 150 W. Boise St, Kuna. Kuna Fire Station #2 is proposed to be located on Kune Rd West of Ten Mile Rd directly across Kuna Rd from a current subdivision called Madrone Heights. We are currently working with the developer on a lot split which has not been finalized. Station #2 in this location would improve response time to the Haven Creek project to approximately 10 minutes. There are no plans for a future station off Black Cat and Kuna Rd, however some developers identify space in their conceptual unapproved plans where if approved would donate space for a potential future station. I hope you find this information useful, let me know if you need anything else.

Thank you,

T.J. Lawrence
Fire Chief
Kuna Rural Fire District
PO Box 607
Kuna, Idaho 83634
Station 1:(208)922-1144
Fax:(208)922-1982

Appendix C

EMS Appendices Attached in Appendix C:

- HC - Canyon Paramedics.pdf

Samantha Hammond

From: Michael Stowell <mstowell@ccparamedics.com>
Sent: Monday, May 6, 2024 4:34 PM
To: Samantha Hammond
Subject: RE: EMS Services | Land Development Application

Follow Up Flag: Follow up
Flag Status: Flagged

Samantha,

I have some response times and information to share. We are currently running a levy override on the May 21 ballot due to the growth in Canyon County over the last several years. The Ambulance District does not currently have the funds to maintain current levels of service let alone add any stations or ambulances. You can visit our website to see more information about our needs. www.ccparamedics.com

Medic 41 is located at 406 Constitution way and is first in to your development with a response time of 12 minutes. Medic 41 is the second busiest ambulance in the County. This station is being torn down in the near future due to private development and the fact that the Ambulance District does not own this station. If voter approved, the levy would provide funds to rebuild this station.

Medic 44 is located at 4280 East Flamingo and is second in to your development with a response time of 13.34 minutes.

Medic 42 is located at 301 6th St North and is third in to your development with a response time of 14.52 minutes.

Medic 45 is located at 1725 West Roosevelt and is third in to your development with a response time of 16.55 minutes. Medic 45 is the first ambulance that is shut on certain days due to funding/staffing. Shutting down this unit causes other units to have longer response times.

Medic 43 is located at 1222 North Midland Boulevard and is fourth in to your development with a response time of 18 minutes. Medic 43 is the second busiest ambulance in the County.

I hope this helps with your planning. Please let me know if you need further clarification or have any other questions.

-Michael

Appendix D

School Appendices Attached in Appendix D:

- KSD - Haven Creek Support Letter 20230505.pdf
- Haven Creek - KSD - V3 signed 06062023 EXECUTED.pdf
- KSD - HTV Creek - Letter of Support 2024.pdf

Kuna School District

Inspiring each student to become a lifelong learner and a contributing, responsible citizen.

May 5, 2023

RE: Haven Creek Subdivision

Dear Canyon County Commissioners.

Kuna School District has reviewed the application of Haven Creek and provides the following comments for your consideration. Kuna School District has experienced approximately 2% growth over the last ten years. While the developments approved exceed our current capacity, Haven Creek has been able to partner with Kuna School District in helping to mitigate the impact of this development.

Kuna School District has experienced unprecedented growth recently and we seek voluntary partnerships with developers to support our ability to educate the students in our community.

Because this developer has partnered with us, we can serve the students generated from this development of 29 homes.

We do request the following regarding bussing for this subdivision. Our practice is that buses try not to go into subdivisions. We request that the pickup area for this subdivision is located on the east side of Robinson Road. We ask there be space for children to congregate and wait for the bus twelve feet from the road. Twelve feet is the minimum safe distance for our buses. The district has worked with the developer on the location and they have confirmed and met our request.

In order to reduce our reliance on bonds, and to promote reasonable growth within our district that pays for itself, we seek partnerships with the residential developers of this area. We are grateful for the level of partnership demonstrated by Haven Creek.

Regards,

Danielle Horras and Robbie Reno

School District Planners

CC: School Board of Trustees

711 E. Porter Rd., Kuna, Idaho 83634
Phone: (208) 922-1000 FAX: (208) 922-5646

Letter of Understanding V2

VISION

Swan Falls High School and Haven partner to create ***The Swan Falls House***. Swan Falls CTE students design, manage, and assist with construction of this house. Students involved graduate with marketable skills to enter the real estate or construction industries. Profits from the home sale benefit Swan Falls High School. All residents served by KSD benefit.

CONTEXT

1. Haven Creek is a proposed Canyon County subdivision consisting of (29) 1-2 acre lots. The Developer is *Haven Idaho*.
2. The project will be served by the Kuna School District ("KSD").
3. A proposed bond measure to fund KSD capital improvements was rejected by residents in April 2023.
4. KSD is looking for creative ways to partner with developers to fund capital improvements needed to accommodate current and future students.
5. A Voluntary Capital Mitigation Fee ("VCMF") study prepared by TBG Jan 2023 led the KSD Board to seek $3,286 per new single family residence.
6. The requested VCMF for Haven Creek is $95,294.
7. Haven has a "Better Than We Found It" pledge where the ownership group only takes on projects that can include varying degrees of community benefit. Haven's website states:
    a. "We call this *Community-First Development*. We desire to be an agent of change that models a different approach to residential development. We fix business profits, then work to generate excess profits that can be used to make a meaningful impact on the communities we are active in. We find creative ways for residential development to cause positive human experiences that wouldn't otherwise happen."
8. A preliminary partnership proposal was presented to the KSD Board of Trustees in April. The Board received it well and requested continued development of the partnership.
9. Haven and KSD Staff met in May to discuss additional details of how this partnership could work. This updated agreement is meant to reflect these conversations.

PROPOSED PARTNERSHIP

This partnership is dependent on approval by Canyon County of the proposed Haven Creek 29 lot subdivision (as described in the conceptual pre-plat, attached) without conditions causing substantial additional financial costs to the project.

Haven and KSD intend to voluntarily enter into a partnership as follows:

A. Haven and KSD will mutually seek approval from KSD Board of Trustees for this partnership.
B. Haven and KSD will mutually advocate for the project (and this Partnership) with the Canyon County Board of County Commissioners for approval.
C. Haven will identify one lot in Haven Creek for The Swan Falls House ("TSFH").
D. Haven and KSD will jointly identify a Builder willing to participate in this partnership.
    a. We expect this to be a Builder already building in Haven Creek, but are open to other ideal-driven Builders who may be interested in helping KSD.
E. Haven will coordinate with Swan Falls CTE Staff to work TSFH into the curriculum beginning in Fall 2023.
F. Haven, the Builder, and CTE Staff will collaborate to identify which topics are appropriate for inclusion in curriculum. Haven and Builder will be available for scheduled in-class time to facilitate student learning and participation. How students participate and whether/how topics are integrated into existing lesson planning is entirely at discretion of CTE Staff. Potential topics include:
    a. **Site Design:** How to orient structures to make best use of land, including requirements for access, septics, wells, setbacks, and other details.
    b. **Engineering:** Design and layout of lots, roads, utilities, stormwater management, public water system design and operation.
    c. **Floorplan:** Choose ideal floorplan from existing options, including any adjustments appropriate for the lot and building orientation.
    d. **Elevations:** Aesthetic changes for exterior finishes based on which elevations are visible and costs associated with different options.
    e. **Permitting:** Taking paper construction docs through various agencies for permit issuance. Includes exposure to both discretionary and ministerial processes leading to an understanding of how the business of home building works.
    f. **Capital Stack:** Underwriting for build, including projected profits, financing, and capital stack.
    g. **Pre-Construction:** Cost estimating, value engineering, and job scheduling.
    h. **Site Management:** Planning for temporary utilities, site setup, material staging, and other logistical details.
    i. **Construction:** Participating or other involvement with the specific trades and/or physical work at the site.

j. **Construction Administration:** Insurance, material shopping and purchasing, tradeoff decisions during construction, proposals from trades, change orders,

k. **Landscape:** Design and installation of hard and softscape elements.

l. **Disposition:** Sales, marketing, staging, contracts, understanding title and escrow processes. Everything related to closing out a sale.

G. Construction financing for TSFH is TBD. Our goal is to bring a local financial institution on board as a community engagement effort. The backup plan is for Haven or Builder to arrange financing just like any other build in Haven Creek.

H. At time of sale, Haven will be reimbursed for direct costs allocated to the lot (estimated at $125k). All profit related to the lot will be donated to KSD. Assuming a retail value of $225k for the lot, this would result in a lot donation of $100k.

I. At time of sale, Builder will donate net profits (less a fair management fee amount) to KSD. These terms are negotiable with Builder directly, but we are targeting a Builder who will help maximize this financial donation.

J. KSD will identify how to incorporate TSFH into curriculum beginning Fall 2023.

K. KSD will help craft and market the story of TSFH. The messaging goals are as follows:

a. Provide an example for other Developers that inspires others to creatively engage with their local school districts.

b. Provide an example for County Staff and government bodies on how public/private partnerships could fill gaps.

c. Promote opportunities KSD students have that they can't get elsewhere.

d. Give Haven Creek buyers another reason to live in the community; people often want to associate with things they feel represent their values – help future buyers want to associate with Haven Creek, Kuna, and KSD.

L. Haven and KSD will update the Board of Trustees every 3 months on the partnership.

Our mutual aim is to kindle a passion in the next generation of industry players for responsible development and quality construction processes. This partnership is based on a hypothesis that kids who come out of school with a broad understanding of the industry will:

(a) Be more valuable to their employer earlier in their career
(b) Be more likely to pick a speciality in the industry that matches their interests
(c) Be more likely to stay in the industry and grow it into their career

This agreement may be amended/updated by written agreement of the parties.

We look forward to evolving the details around this partnership and creating surprisingly meaningful human experiences.

Justin Ruthenbeck

SignNow e-signature ID: 1d0c7604fd...
06/15/2023 15:42:28 EDT

Justin Ruthenbeck, Manager
HTV Creek LLC

06/15/2023

J.D. Grant, Chairman
Kuna School District Board of Trustees

Kuna School District
Future Ready

Kuna School District

Empowering students to lead productive lives.

May 30, 2024

RE: Haven Creek Subdivision

Dear Canyon County Commissioners:

We previously provided commentary on the proposed Haven Creek Subdivision by letter dated May 5, 2023. In that letter, we stated that we can serve the 14 forecasted students generated by the 29 homes in this development. This letter is intended to provide additional detail related to our ability to serve and the partnership this developer has offered.

Over the course of the past 7 years, Kuna School District has seen an enrollment increase of two percent (2%) year-to-year. We currently have capacity at the elementary and middle school facilities that would serve these new homes as follows: Indian Creek at 97% Ross Elementary at 79% and Kuna Middle School at 91%. While our high schools are currently over capacity, we believe the mitigation that this developer has offered more than adequately addresses that issue by providing both financial assistance to serve students and valuable educational and experiential opportunities for all our students.

The Kuna School District has a constitutional duty to provide educational services to children within our district. We will do so with every means at our disposal. The District has performed an exhaustive study to formulate a financing plan for current and future demand, culminating in a report prepared by TBG and dated January 2023. This long term plan includes a $3,268 financing gap for each new single family residence that, if filled, provides the resources necessary to meet our financing goals along with passing bonds. Our shared agreement with Haven Creek covers this financial gap in addition to providing unique educational opportunities that we value tremendously. We are grateful for partnerships such as this that provide additional educational opportunities for our students while financially mitigating the cost of providing those services.

The Board of Trustees has discussed this topic during a recent public meeting and has unanimously voted to support this proposal. The executed Letter of Understanding between Haven Creek and Kuna School District, which describes this agreement, is attached. As noted in Robbie Reno's testimony before the Commissioners at the February 8, 2024 public hearing, Kuna School District has the ability to serve the students generated by this project.

Regards,

Robbie Reno
Kuna School District

711 E. Porter Rd., Kuna, Idaho 83634
Phone: (208) 922-1000

Appendix E

DA Appendices Attached in Appendix E:

- Development Agreement (Update for BOCC Hearing).docx

ATTACHMENT A
DEVELOPMENT AGREEMENT CONDITIONS

[THESE CONDITIONS TO BE ATTACHED TO CANYON COUNTY'S STANDARD FORM OF DEVELOPMENT AGREEMENT; UNDERLINED COMPONENTS ARE ADDITIONS/MODIFICATIONS FROM PRIOR HEARING DRAFT]

1. The development shall comply with all applicable federal, state, and county laws, ordinances, rules and regulations that pertain to the property.

2. Development shall be consistent with the site plan on file with the Canyon County Development Services and as reviewed and approved by the Canyon County Board of County Commissioners on _____.

3. The subject parcel shall be in subjection to the Canyon County Zoning Ordinance Chapter 7, Article 17 for platting with a maximum of 29 buildable lots with the average lot size of 1.69 acres. The following restrictions apply:

   a. Future subdivision and development shall conform to the generalized concept plans on file with Canyon County.

   b. No secondary dwelling (CCZO §07-10-27 & 07-14-25) is allowed on the subdivision lots ~~without an expanded nutrient pathogen study and approval by Southwest District Health and IDEQ that their standards can be met~~.

   c. Future development shall comply with Idaho Department of Environmental Quality requirements and BMPs (best management practices) for dust control during construction, and stormwater pollution prevention plan.

   d. Future development shall meet all applicable requirements and standards of the Nampa Highway District #1.

   e. Future development shall meet all applicable Nampa subdivision requirements, in accordance with Canyon County Code Section 09-11-19, subject to the right of the Board of County Commissioners to approve waivers of standards in connection with plat review.

4. A Public Water System is required to service the 29 residential lots in lieu of individual wells. The public water system shall receive all required approvals by any government agency having jurisdiction and shall comply with all applicable federal, state, and local rules and laws for drinking water systems. The owner shall receive the necessary IDEQ and/or health district approvals for said Public Water System and shall at all times comply with the requirements of IDEQ for Public Drinking Water Systems as set forth in Idaho Administrative Code 58.01.08, as well as any requirements of Southwest District Health (SWDH). The Technical, Financial, and Managerial documentation filed with IDEQ shall identify an operator qualified as a Responsible Charge Operator under IDEQ rules. Appropriate language shall be included in any Declaration of Covenants, Conditions, and Restrictions (CCRs) addressing the common use of the same, including pressurized irrigation. Oversight for the Public Water System shall be provided by the Water Users Board, as defined in Condition 9, below. Ongoing maintenance of common facilities and components of the Public Water System shall be identified in an operations and maintenance manual ("O&M Manual") attached to the CCRs and updated from time to time.

5. All septic systems to be installed on the property (the "Septic Systems") shall be Advanced Treatment Septic systems and the location and technical specifications for each shall be reviewed and approved by SWDH in accordance with its standard processes. The Septic Systems shall conform to the Level I Nutrient Pathogen Study prepared by Atlas Technical Consultants, LLC and dated January 14, 2022, subject to any modifications to the foregoing required from time to time by IDEQ and SWDH. Advanced Treatment Septic systems shall include nitrate reducing systems with holding tanks, with a treatment medium poured in and maintained. An O&M Manual for operation of the Septic Systems shall be prepared and included in the CCRs to ensure ongoing, standard installation, operations, maintenance, and repair of the Septic Systems. Homeowners shall be responsible to ensure ongoing maintenance, replacement, and repair of the Septic Systems on their individual lots. The Water Users Board, as defined in Condition 9, below, shall have authority to ensure maintenance in accordance with O&M Manual and shall retain a certified operator to conduct annual inspections to ensure ongoing operation consistent with the O&M Manual.

6. Historic irrigation lateral, drain and ditch flow patterns shall be maintained and protected. Modification or improvements shall be approved in writing by the applicable irrigation district.

7. The developer shall comply with CCZO §07-06-07 (4) Time Requirements: "All conditional rezones for a land use shall commence within two (2) years of the approval of the board."

8. The developer shall comply with the terms and conditions of its agreement with Kuna School District dated June 15, 2023.

9. Prior to County signature of the first final plat, the owner shall provide CCRs to the County for review and approval, which review shall include appropriate provisions related to the maintenance and ongoing operation of the Public Water System and Sewer System. In lieu of a typical homeowners' association, the CCRs shall provide for a "Water Users Board" that is responsible for administration of the Public Water System (described in Condition 4, above) as well as the Septic Systems on each of the individual lots. The Water Users Board shall, on an ongoing basis, ensure that the Public Water and Septic Systems are incompliance with the requirements of IDEQ and Southwest District Health. The CCRs shall provide operations and maintenance manuals for any facilities associated with the Public Water System and Septic System, including elements of said systems located on common area and within individually owned residential lots.

10. A note shall be placed on the face of each final plat and recorded CCRs that recognizes Idaho State Code 22-4503, Right to Farm Act: "No agricultural operation, agricultural facility or expansion thereof shall be or become a nuisance, private or public, by any changed conditions in or about the surrounding nonagricultural activities after it has been in operation for more than one (1) year, when the operation, facility or expansion was not a nuisance at the time it began or was constructed. The provisions of this section shall not apply when a nuisance results from the improper or negligent operation of an agricultural operation, agricultural facility or expansion thereof."

11. All residential lots shall be served by pressurized irrigation, managed and maintained by the Water Users Board.

12. Development shall conform to the requirements of Kuna Rural Fire District as set forth in its March 13, 2022 letter, including requirements for fire apparatus access, fire hydrants, and premises identification.

13. Structures, including foundations, shall be installed in accordance with the recommendations identified in that certain Geotechnical Investigation prepared by Atlas Technical Consultants, LLC and dated January 3, 2022.

14. Development shall conform to the requirements of Nampa & Meridian Irrigation District and the Boise Project Board of Control.