GARY R. HERBERT
Governor
SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Water Rights
KENT L. JONES
State Engineer/Division Director

November 7, 2017

San Juan Spanish Valley Special Service District
c/o Kelly Pehrson
117 South Main, #202
Monticello, Utah 84535

Subject: Ground Water Well Monitoring Plan for Proposed Well #8b

The Division received a memorandum from Jones & DeMille Engineering regarding a proposed ***"Ground Water Well Monitoring Plan"* dated October 27, 2017**. This plan has been submitted as per the conditions outlined in the Order of the State Engineer (OSE) approving Permanent Change Application a37400 (09-2349) for use. The intent of the monitoring program is to provide data on the potential impacts that may occur related to groundwater pumping under this application. The proposed plan appears to cover only localized impacts that may be observed during drilling and pumping of the proposed Well #8b (N 200' E 800' SW cor, Sec 31, T26S, R23E, SLBM).

DISCUSSION

1. Before approval for use of this well as a production well, a constant rate pumping test shall be conducted for a minimum time period of one week in order to properly evaluate aquifer properties, aquifer yield, and determine the existence and possible extent of aquifer boundaries. Recovery data should also be collected and analyzed.

2. A coordination meeting with Dam Safety personnel and Grand Water & Sewer Service Agency shall be held prior to drilling the test well to discuss any potential issues related to Kens Lake. Basic water quality parameters shall be measured frequently during the pump test to check for a potential hydraulic connection between the test well and the lake. Quality parameters of temperature, pH, electrical conductivity, TDS and turbidity shall be measured.

3. The driller shall collect drill cuttings at least every 10 feet (or more often with lithologic changes). The drill cuttings shall be submitted to the Division so they can be analyzed by the Utah Geological Survey.

4. The District shall provide 14-day notice to all water right holders within 1000 feet of the proposed well (05-2729, 05-2730) prior to drilling the well. The notice shall include approximate dates of when the pump testing will be conducted and contact information for the District and our Division for any questions or concerns. It is recommended but not required that the District notify any other water right holders within 3000 feet of the

proposed well that may potentially be affected by the drilling and / or pump testing.

5. The plan lacks any type of monitoring of the nearby well used by water rights 05-2729 and 05-2730 located within 350 feet of the District's proposed well. Please respond with a plan to monitor for impacts to this nearby well. If the District is unable to secure permission to monitor this well, please submit information as to what attempts were made to secure such permission and the well owner's response.

6. We recommend the District consult with the Division of Drinking Water by submitting a Preliminary Evaluation Report with plans and specifications for the proposed well developments.

7. We recommend that during drilling, the driller and/or onsite geologist pay special attention to determining exactly where and what depth intervals groundwater is entering the borehole. Borehole geophysical logging could also help in determining the exact water bearing zones. Moreover, after the pumping test and before the well is constructed a camera survey of the borehole should be conducted to verify geology and fracture/high permeability zones.

8. A report of the pumping tests with a summary of data collected and results of the test shall be submitted to the Division within 30 days of completion of the tests.

As previously mentioned this plan does not meet the condition in the approval order for development of a monitoring plan but only covers the potential impacts related to development of the well. The District is reminded that should this well be chosen for further development, a long-term comprehensive monitoring plan must be submitted and approved before any use of the well can be authorized. Additionally, because of its close proximity to the well serving water rights 05-2729 and 2730 the well may not be used as a production well unless the pumping rate is less than 50 gallons per minute.

If you have any questions, please contact the Southeastern Regional Engineer, Marc Stilson at 435-613-3750.

Sincerely,

Kent L. Jones, P.E.
State Engineer

cc: Jones & DeMille Engineering
Water Rights Dam Safety
Division of Drinking Water
Grand Water & Sewer Service Agency

Jones & DeMille Engineering

800.748.5275
www.jonesanddemille.com
infrastructure professionals

CORPORATE
1535 South 100 West
Richfield, UT 84701
435.896.8266

50 South Main, Suite 4
Manti, UT 84642
435.835.4540

1675 South Highway 10
Price, UT 84501
435.637.8266

45 South 200 West (45-13)
Roosevelt, UT 84066
435.722.8267

775 West 1200 North
Suite 200A
Springville, UT 84663
801.692.0219

435 East Tabernacle, Suite 302
St. George, UT 84770
435.986.3622

16 East 300 South
PO Box 577
Monticello, UT 84535
1.800.748.5275

38 West 100 North
Vernal, UT 84078
435.781.1988

MEMORANDUM

DATE: October 27, 2017
TO: Marc Stilson, P.E., CPM, M.ASCE
FROM: Jones & DeMille Engineering, Inc.
PROJECT: Spanish Valley Culinary Water Project
PROJECT NO: 1503-060
RE: Ground Water Well Monitoring Plan

The following is information regarding the Spanish Valley Culinary Water System Well Monitoring Plan.

The San Juan Spanish Valley Special Service District (District) plans procure a contractor to drill a test well for their culinary water system. This test well is to be located at Point of Diversion (POD) 2, well #8b under Water Right 09-2349 northwest of Ken's Lake. A proposed construction diagram for this test well is attached.

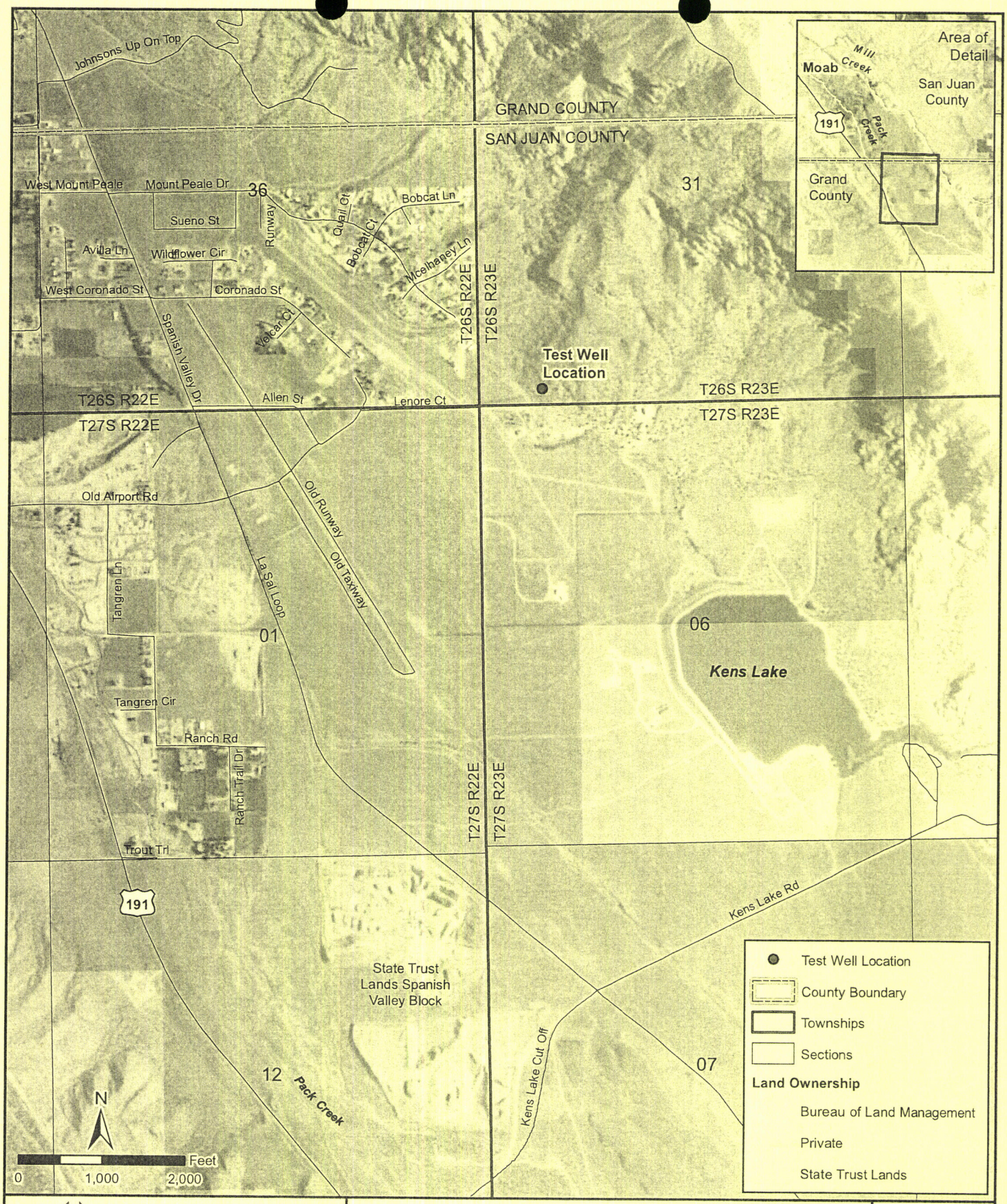
The primary target will be the Navajo, secondary target would be the Wingate. The well will be drilled and constructed as an 8" to 10" well to a depth of approximately 500 to 600 feet. The hole will go through the entire thickness of Navajo, giving us needed information for determining the thickness of the aquifer at this location. If the Navajo is drilled through shallow and unsaturated, we will continue until the Wingate is encountered.

If hole conditions permit, we will do an open hole pump test of the hole while monitoring the Steve Johnston Well (05-3223). approximately 1,200 feet away. If after testing the hydrology is favorable to construction of a production well, an 8" to 10" well will be constructed. If hole conditions are not favorable for doing an open hole test, we will use data collected during drilling to determine if a production well should be constructed, if positive, the same 24 hour to 7 day test will be conducted as described for the open hole.

The length of the test will depend on observed drawdown in the production well site, if it is substantial, the test will likely only run for 24 hours. If the drawdown is reasonable, the test may go out for 7 days. We may pump test the well at greater than the anticipated low flow of 50 gallons per minute (gpm) in order to stress the aquifer for a short term. The flow rate will be determined by data collected during drilling but will likely be between 50 and 150 gpm.

If after the testing, the site still looks promising, a production well will be constructed to all Division of Drinking Water and DWR standards. If data collected does show a favorable site, the well will be constructed as a monitor well only and be used as part of the long-term monitoring plan.

After the well is drilled, constructed, and tested, a final monitoring plan will be submitted to DWR for approval using the aquifer parameters and modeled drawdown cone for the site.



Jones & DeMille Engineering

- Shaping the Quality of Life -

800.748.5275 www.jonesanddemille.com

Spanish Valley SSD

Spanish Valley Water and Sewer Master Plan
Test Well Location

Map Name: H:\JD\Proj\1503-060\Spanish Valley Water and Sewer Project\Design\GIS\Maps\Test_Well_Location.mxd

Project Number: 1503-060 | Drawn by: JW'W 10-17 | Last Edit: 10/27/2017

San Juan County

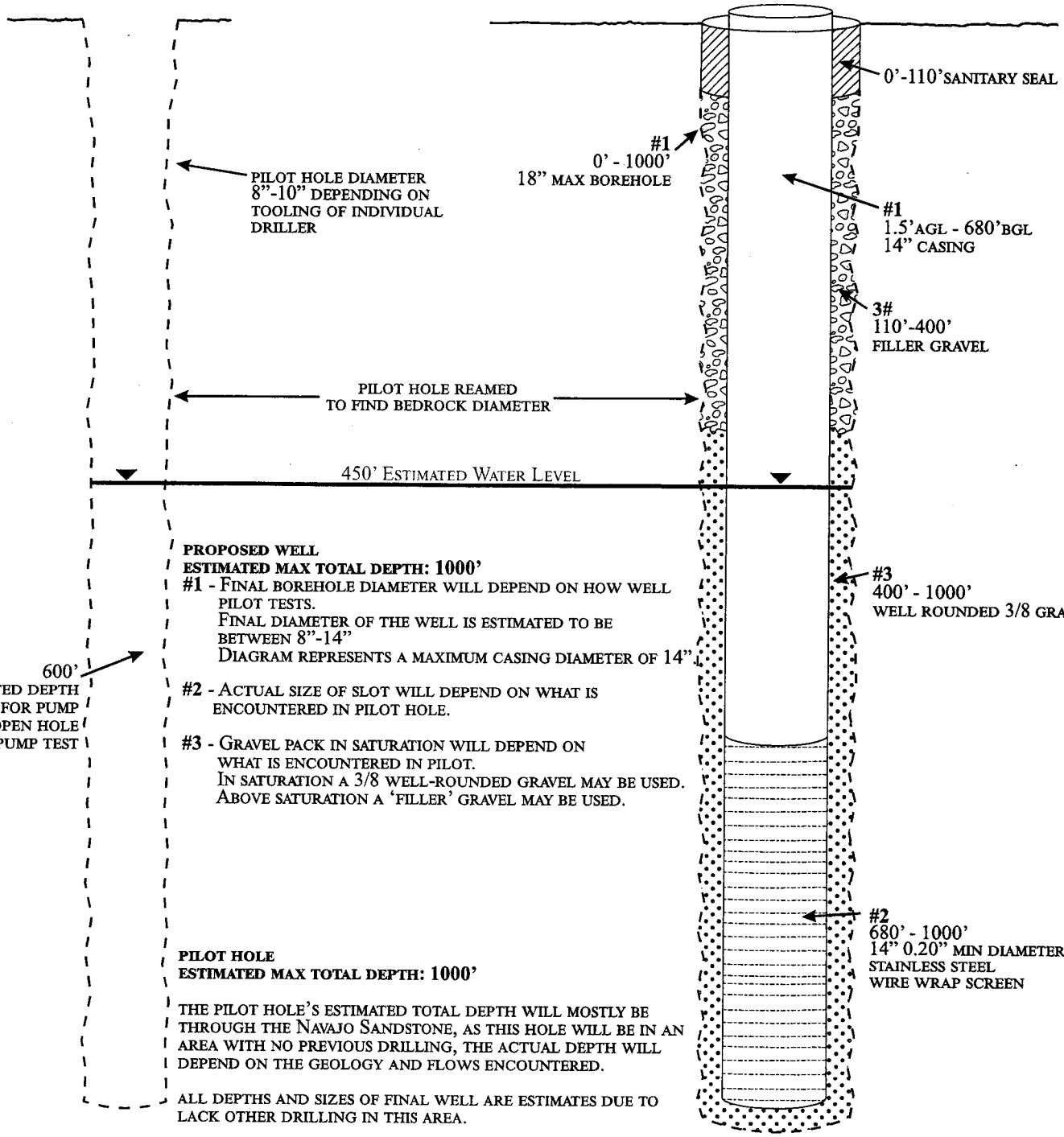
Scale: 1 " = 1,500 '

1

PLANNED

PILOT HOLE

PROPOSED FINAL WELL (IF PILOT HOLE TESTS POSITIVE)



PROPOSED WELL
ESTIMATED MAX TOTAL DEPTH: 1000'

#1 - FINAL BOREHOLE DIAMETER WILL DEPEND ON HOW WELL PILOT TESTS.
FINAL DIAMETER OF THE WELL IS ESTIMATED TO BE BETWEEN 8"-14"
DIAGRAM REPRESENTS A MAXIMUM CASING DIAMETER OF 14"

#2 - ACTUAL SIZE OF SLOT WILL DEPEND ON WHAT IS ENCOUNTERED IN PILOT HOLE.

#3 - GRAVEL PACK IN SATURATION WILL DEPEND ON WHAT IS ENCOUNTERED IN PILOT.
IN SATURATION A 3/8 WELL-ROUNDED GRAVEL MAY BE USED.
ABOVE SATURATION A 'FILLER' GRAVEL MAY BE USED.

PILOT HOLE
ESTIMATED MAX TOTAL DEPTH: 1000'

THE PILOT HOLE'S ESTIMATED TOTAL DEPTH WILL MOSTLY BE THROUGH THE NAVAJO SANDSTONE, AS THIS HOLE WILL BE IN AN AREA WITH NO PREVIOUS DRILLING, THE ACTUAL DEPTH WILL DEPEND ON THE GEOLOGY AND FLOWS ENCOUNTERED.

ALL DEPTHS AND SIZES OF FINAL WELL ARE ESTIMATES DUE TO LACK OTHER DRILLING IN THIS AREA.

THE CONSTRUCTION OF THE FINAL WELL (IF CONSTRUCTED) WILL BE BASED ON THE GEOLOGY AND THE FLOWS OF THE PILOT HOLE.

BOREHOLE AND WELL DIAMETERS USED WILL BE THE MAXIMUM SIZE EXPECTED FOR THE NAVAJO IN THIS AREA.

CASCADE WATER RESOURCES

Project Manager: John Files
Date: May 2017
File: SJC_ProposedWell.pdf
Drawn By: maps@BluesunGeoGraphics.com

San Juan County

Spanish Valley Well #1
Proposed Well Construction Diagram