



Northwest Groundwater  
Consultants, LLC

March 11, 2019

Project No. 01127-02

Mr. Stephen Taylor  
McLucas & Associates, Inc.  
PO Box 5352  
Lacey, Washington 98509

**Subject: Lake Erie Pit Well Reconnaissance**

Dear Steve:

Northwest Groundwater Consultants, LLC (NWGC) has prepared the following letter present the findings of the recent well reconnaissance at the Lake Erie Pit in Skagit County, Washington. The scope of work included measuring groundwater levels in three wells located at and near the subject property. Groundwater levels were used to develop groundwater contours and determine the groundwater flow direction. This scope was developed in agreement with Mr. John Cooper, LG, LHg, Skagit County Planning and Development Service during a telephone conversation on February 21, 2019.

Field Activities

Groundwater levels were measured in three wells on March 7, 2019. These wells included the following:

- Well BJF-103 located in south portion of the Lake Erie Pit property
- Wooding well located in the shop area north of Rosario Road
- Reisner well locate east of the Lake Erie Pit property at 13495 ROSARIO ROAD (Parcel No. P19127)

Groundwater levels were measured in BJF-103 using a Solinst® water level meter and an Eno Scientific Well Sounder 2010 Pro. Groundwater levels in the Wooding and Reisner wells were measured using the Eno Scientific Well Sounder 2010 Pro. Pumps installed in the Wooding and Reisner wells were not operating at the time the measurements were taken. The location and elevation of each well was established using a Topcon GRS-1 GPS. Table 1 presents location and water level measurements.

Groundwater Flow Direction

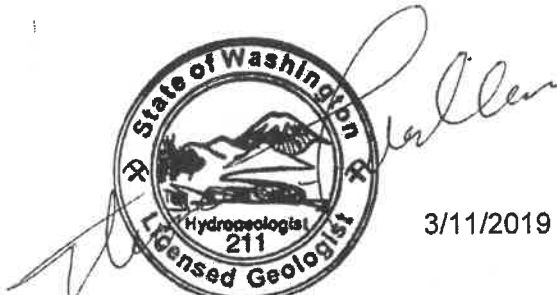


Groundwater elevations were calculated and plotted for each of the three wells. Using a 3-point solution, groundwater flow direction was determined to be approximately North 9° East (see Figure 1). This calculated flow direction is consistent with the groundwater flow



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direction presented in the Hydrogeologic Site Assessment Report prepared by Maul Foster & Alongi, Inc. (MFA) and dated September 28, 2016 and the Observation Well Installation letter prepared by MFA and dated September 28, 2017. If you have any questions, or wish to discuss any items further, please do not hesitate to contact me at (208) 755-1094.

Sincerely,

  
  
3/11/2019  


Thomas F. Mullen, LHG  
Principal Hydrogeologist

Attachments:

Limitations  
Table 1  
Figure 1

## LIMITATIONS

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The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

**TABLE 1**  
**Lake Erie Pit Well Reconnaissance**

Well ID	Coordinates <sup>1</sup>		State Plane Coordinates <sup>2</sup>		Approximate Top of Casing Elevation <sup>3</sup> (ft amsl)	SWL <sup>4</sup> (ft)	Approximate Groundwater Elevation (ft amsl)
	Latitude	Longitude	Northing (ft)	Easting (ft)			
BJF-103	48 26' 58.61" N	122 39' 8.12" W	534,001.5	1,199,026.3	448.4	257.15	191.3
Wooding	48 27' 6.83" N	122 38' 54.22" W	534,812.1	1,199,982.8	240.0	113.50	126.5
Reisner	48 27' 0.23" N	122 38' 45.42" W	534,129.5	1,200,560.1	224.0	61.70	162.3

Notes:

<sup>1</sup>Coordinates measured with Topcon GRS-1 GPS (NAD83)

<sup>2</sup>State Plane coordinates calculated using NGS Coordinate Conversion and Transformation Tool (NCAT) <https://www.ngs.noaa.gov/NCAT/>

<sup>3</sup>Top of casing elevations estimated using Topcon GRS-1 GPS

<sup>4</sup>Static water levels (SWLs) measured using a Well Sounder 2010 Pro (BJF-103 also measured using Solinst water level meter)

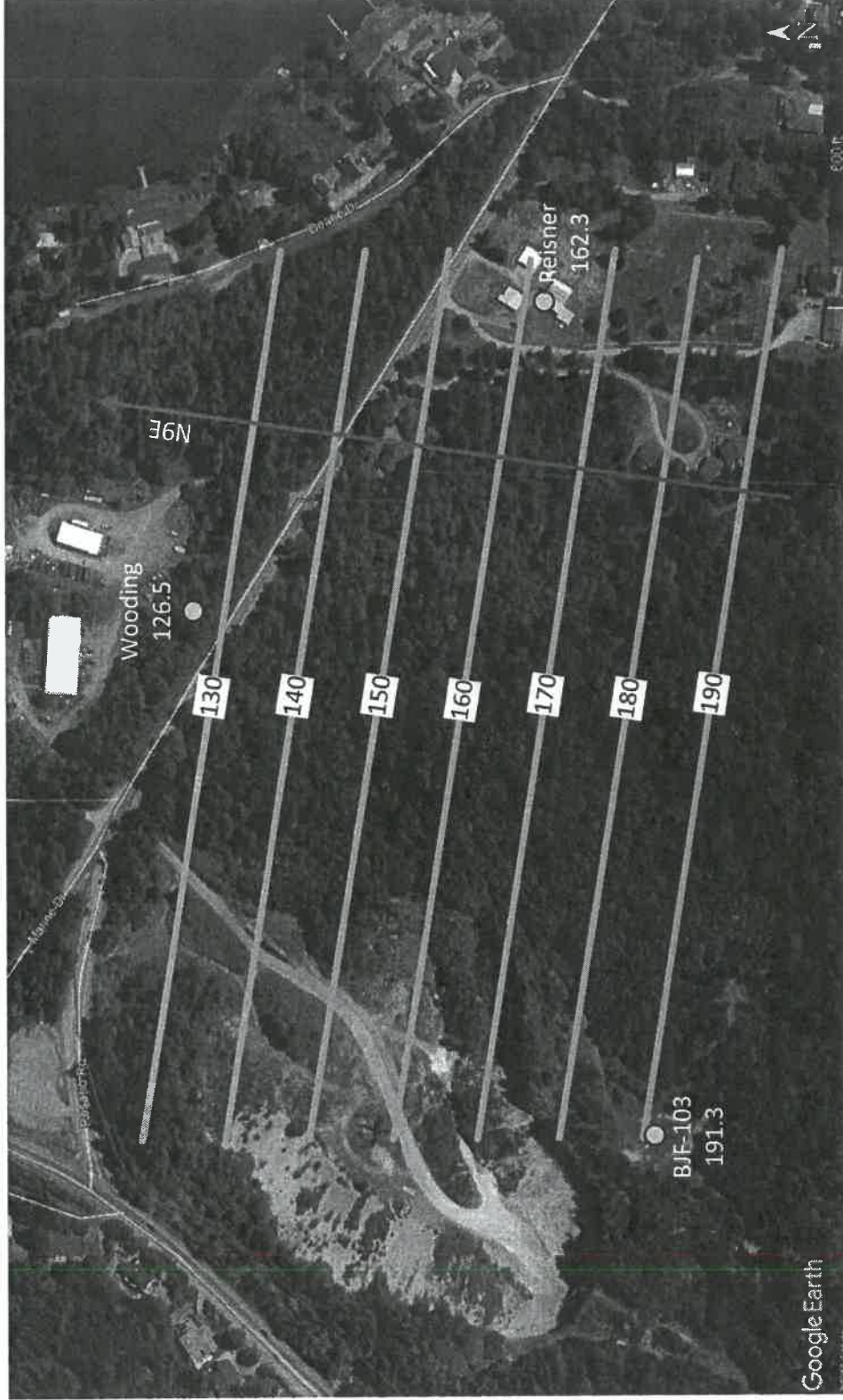
ft amsl = feet above mean sea level

ft = feet

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March 8, 2019

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- BJF-103  
191.3
- Groundwater elevation (ft amsl)  
measured on 3/7/2019
- 170 — Groundwater contour (ft amsl)
- Groundwater flow direction



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**GROUNDWATER FLOW DIRECTION**

LAKE ERIE PIT  
SKAGIT COUNTY, WASHINGTON

**FIGURE**

**1**

