Using Glycol – Notes

One negative effect of the use of 20% PG in the ground loop piping is the need for more pump pressure, especially when the ground loop temperature drops below 35 °F. The viscosity of 20% PG at 32°F is 3.32 times the viscosity of water at 50°F. The viscosity has the most effect in the larger diameter, and longer, borehole and lateral feed piping. Each borehole has 920 feet of 1.25" DR-11 HDPE pipe (1.340" ID). An online pipe pressure drop calculator:
http://www.pipeflowcalculations.net/pressuredrop.xhtml

This link was used to calculate the required head pressure for the ground loop alone. To force 10 GPM of 50°F water through each external ground loop requires 9.5 psi of head pressure. To force 10 GPM of 32°F 20% PG and water through each external ground loop requires 11.65 psi of head pressure.
Food grade Glycol should be used.