**Numerical Analysis of Borehole Heat Exchanger Performance in Shallow Gravel Aquifers and Clay-dominated Soil** *(Supplementary data)*

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**Table S.** Naming convention for all 36 scenarios (RX\_YY\_groutZ), where X denotes type of reservoir, YY denotes type of BHE and Z denotes value of thermal conductivity of the grout (1.0, 1.5 or 2.0 W/mK)

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| Alternative code | Shallow geothermal reservoir (R) | BHE type (dU, cx) and diameter (D) | Grouth thermal conductivity (grout) |
| R1-dUD32-grout1.0 | gravel with hydraulic gradient 1m/1000m | double-U with diameter 32 mm | g=1.0 W/mK |
| R2-dUD32-grout1.0 | gravel with no hydraulic gradient | double-U with diameter 32 mm | g=1.0 W/mK |
| R3-dUD32-grout1.0 | clay | double-U with diameter 32 mm | g=1.0 W/mK |
| R1-dUD32-grout1.5 | gravel with hydraulic gradient 1m/1000m | double-U with diameter 32 mm | g=1.5 W/mK |
| R2-dUD32-grout1.5 | gravel with no hydraulic gradient | double-U with diameter 32 mm | g=1.5 W/mK |
| R3-dUD32-grout1.5 | clay | double-U with diameter 32 mm | g=1.5 W/mK |
| R1-dUD32-grout2.0 | gravel with hydraulic gradient 1m/1000m | double-U with diameter 32 mm | g=2.0 W/mK |
| R2-dUD32-grout2.0 | gravel with no hydraulic gradient | double-U with diameter 32 mm | g=2.0 W/mK |
| R3-dUD32-grout2.0 | clay | double-U with diameter 32 mm | g=2.0 W/mK |
| R1-dUD40-grout1.0 | gravel with hydraulic gradient 1m/1000m | double-U with diameter 40 mm | g=1.0 W/mK |
| R2-dUD40-grout1.0 | gravel with no hydraulic gradient | double-U with diameter 40 mm | g=1.0 W/mK |
| R3-dUD40-grout1.0 | clay | double-U with diameter 40 mm | g=1.0 W/mK |
| R1-dUD40-grout1.5 | gravel with hydraulic gradient 1m/1000m | double-U with diameter 40 mm | g=1.5 W/mK |
| R2-dUD40-grout1.5 | gravel with no hydraulic gradient | double-U with diameter 40 mm | g=1.5 W/mK |
| R3-dUD40-grout1.5 | clay | double-U with diameter 40 mm | g=1.5 W/mK |
| R1-dUD40-grout2.0 | gravel with hydraulic gradient 1m/1000m | double-U with diameter 40 mm | g=2.0 W/mK |
| R2-dUD40-grout2.0 | gravel with no hydraulic gradient | double-U with diameter 40 mm | g=2.0 W/mK |
| R3-dUD40-grout2.0 | clay | double-U with diameter 40 mm | g=2.0 W/mK |
| R1-cxD32-grout1.0 | gravel with hydraulic gradient 1m/1000m | coaxial with diameter 32 mm | g=1.0 W/mK |
| R2-cxD32-grout1.0 | gravel with no hydraulic gradient | coaxial with diameter 32 mm | g=1.0 W/mK |
| R3-cxD32-grout1.0 | clay | coaxial with diameter 32 mm | g=1.0 W/mK |
| R1-cxD32-grout1.5 | gravel with hydraulic gradient 1m/1000m | coaxial with diameter 32 mm | g=1.5 W/mK |
| R2-cxD32-grout1.5 | gravel with no hydraulic gradient | coaxial with diameter 32 mm | g=1.5 W/mK |
| R3-cxD32-grout1.5 | clay | coaxial with diameter 32 mm | g=1.5 W/mK |
| R1-cxD32-grout2.0 | gravel with hydraulic gradient 1m/1000m | coaxial with diameter 32 mm | g=2.0 W/mK |
| R2-cxD32-grout2.0 | gravel with no hydraulic gradient | coaxial with diameter 32 mm | g=2.0 W/mK |
| R3-cxD32-grout2.0 | clay | coaxial with diameter 32 mm | g=2.0 W/mK |
| R1-cxD40-grout1.0 | gravel with hydraulic gradient 1m/1000m | coaxial with diameter 40 mm | g=1.0 W/mK |
| R2-cxD40-grout1.0 | gravel with no hydraulic gradient | coaxial with diameter 40 mm | g=1.0 W/mK |
| R3-cxD40-grout1.0 | clay | coaxial with diameter 40 mm | g=1.0 W/mK |
| R1-cxD40-grout1.5 | gravel with hydraulic gradient 1m/1000m | coaxial with diameter 40 mm | g=1.5 W/mK |
| R2-cxD40-grout1.5 | gravel with no hydraulic gradient | coaxial with diameter 40 mm | g=1.5 W/mK |
| R3-cxD40-grout1.5 | clay | coaxial with diameter 40 mm | g=1.5 W/mK |
| R1-cxD40-grout2.0 | gravel with hydraulic gradient 1m/1000m | coaxial with diameter 40 mm | g=2.0 W/mK |
| R2-cxD40-grout2.0 | gravel with no hydraulic gradient | coaxial with diameter 40 mm | g=2.0 W/mK |
| R3-cxD40-grout2.0 | clay | coaxial with diameter 40 mm | g=2.0 W/mK |