Figure S1. Maps of grids 1-5 (Strathmore and Clear Lake esker systems) overlain on esker morphology and meltwater valley fill. Grid locations relative to one another and the landforms are shown in Fig. 2.
Figure S2. Maps of grids 6-9 (Didsbury esker network and Torrington esker ridge) overlain on esker morphology and meltwater valley fill. Grid locations relative to one another and the landforms are shown in Fig. 2.
Figure S3. Two-dimensional views of GPR profiles X1 and X3 collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines and water table (continuous horizontal reflection that does not correspond to primary bedding structure) is indicated by a black dashed line.
Figure S4. Two-dimensional interpreted GPR profiles X1 and X3 collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (left). The radar elements are numbered in approximate depositional order. Water table is indicated by a black dashed line and faults by white dashed lines.
Figure S5. Two-dimensional views of GPR profiles X2a and X2b collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines and water table (continuous horizontal reflection that does not correspond to primary bedding structure) is indicated by a black dashed line.
Figure S6. Two-dimensional interpreted GPR profiles X2a and X2b collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (left). The radar elements are numbered in approximate depositional order. Water table is indicated by a black dashed line and faults by white dashed lines.
Figure S7. Two-dimensional views of GPR and ERT profiles Y1 – Y8 collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines and water table (continuous horizontal reflection that does not correspond to primary bedding structure) is indicated by a black dashed line.
Figure S8. Two-dimensional interpreted GPR profiles Y1 – Y8 collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (left). The radar elements are numbered in approximate depositional order. Water table is indicated by a black dashed line and faults by white dashed lines.
Figure S9. Two-dimensional views of GPR profiles Y9 – Y14 collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines and water table (continuous horizontal reflection that does not correspond to primary bedding structure) is indicated by black dashed line.
Figure S10. Two-dimensional interpreted GPR profiles Y9 – Y14 collected at grid 1 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (left). The radar elements are numbered in order of deposition.
Figure S11. Two-dimensional views of GPR profile X1 collected at grid 2 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines and black dashed line indicates the maximum depth of GPR penetration.
Figure S12. Two-dimensional interpreted GPR profile X1 collected at grid 2 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom right). The radar elements are numbered in approximate depositional order. The black dashed line indicates the maximum depth of GPR penetration and faults are indicated by white dashed lines.
**Figure S13 [PAGE 13].** Two-dimensional views of GPR and ERT profiles Y1 – Y10 collected at grid 2 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3 Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines (white over ERT profiles) and black dashed line indicates the maximum depth of GPR penetration.

**Figure S14 [PAGE 14].** Two-dimensional interpreted GPR profiles Y1 – Y10 collected at grid 2 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (middle right). The radar elements are numbered in approximate depositional order. The black dashed line indicates the maximum depth of GPR penetration and faults are indicated by white dashed lines.
Figure S15. Two-dimensional views of GPR profiles Y11 – Y14 collected at grid 2 (Strathmore esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines and black dashed line indicates the maximum depth of GPR penetration.
Figure S16. Two-dimensional interpreted GPR profiles Y11 – Y14 collected at grid 2 (Strathmore esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. The black dashed line indicates the maximum depth of GPR penetration and faults are indicated by white dashed lines.
Figure S17. Two-dimensional view of ERT profiles X1 and Y1 collected at grid 3 (Strathmore esker system). The intersection points of the lines are indicated by the labelled vertical lines. The water table elevation (derived from that of nearby water bodies) is indicated by the blue arrow on the y-axes. The red arrows on the x-axes indicate the position of shallow augering. GPR performance was poor here despite the presence of up to 9 m of high-resistivity material within the landform. This is likely due to the presence of an ~1 m thick surface unit of low-resistivity material that had become saturated by several days of rainfall immediately prior to data collection.
Figure S18. Two-dimensional views of GPR profile X1a collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.
Figure S19. Two-dimensional interpreted GPR profile X1a collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.
Figure S20 [PAGE 21]. Two-dimensional views of GPR profile X1b collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.

Figure S21 [PAGE 22]. Two-dimensional interpreted GPR profile X1b collected at grid 4 (Clear Lake esker). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom right). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.

Figure S22 [PAGE 23]. Two-dimensional views of GPR profiles Y1 – Y7 collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines (approximate position is dashed) and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.

Figure S23 [PAGE 24]. Two-dimensional interpreted GPR profiles Y1 – Y7 collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom right). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.

Figure S24 [PAGE 25]. Two-dimensional views of GPR profiles Y8 – Y11 collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.

Figure S25 [PAGE 26]. Two-dimensional interpreted GPR profiles Y8 – Y11 collected at grid 4 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.
Figure S26 [PAGE 28]. Fence diagram of GPR and ERT profiles collected at grid 5 (Clear Lake esker system). The data have been processed following the protocol detailed in § 2.2. Radar element bounding surfaces are indicated by bold lines and radar elements have been labelled in approximate order of deposition (A - CD). Offsets in reflection (faults) are indicated by dashed green lines (these are white where overlain on the ERT profile).

Figure S27 [PAGE 29]. Fence diagram of interpreted GPR lines collected at grid 5 (Clear Lake esker system). Radar elements have been colour-coded based upon the broad style of deposition within each radar element, following the protocol detailed in § 2.3. These colours correspond to those in the legend (bottom right). The radar elements have been numbered in approximate order of deposition (1-23). The white dashed lines mark faults (reflection offsets).

Figure S28 [PAGE 30]. Two-dimensional views of GPR profile X1 (0 – 1000 m) collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.

Figure S29 [PAGE 31]. Two-dimensional interpreted GPR profile X1 (0 – 1000 m) collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.

Figure S30 [PAGE 32]. Two-dimensional views of GPR profile X1 (1000 – 2000 m) collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.

Figure S31 [PAGE 33]. Two-dimensional interpreted GPR profile X1 (1000 – 2000 m) collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.
**Figure S32.** Two-dimensional views of GPR profile X1 (2000 – 2250 m) collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.
Figure S33. Two-dimensional interpreted GPR profile X1 (2000 – 2250 m) collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom right). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.
Figure S34 [PAGE 37]. Two-dimensional views of GPR profiles Y1 – Y13 collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.

Figure S35 [PAGE 38]. Two-dimensional interpreted GPR profiles Y1 – Y13 collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom right). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.

Figure S36 [PAGE 39]. Two-dimensional views of GPR and ERT profiles Y14 – Y21 collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines (white over the ERT profile).

Figure S37 [PAGE 40]. Two-dimensional interpreted GPR profiles Y14 – Y21 collected at grid 5 (Clear Lake esker system). True relative line orientations are shown in Figure S1. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom right). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.
Figure S38. Two-dimensional views of GPR profile X1 collected at grid 9 (Didsbury esker network). True relative line orientations are shown in Figure S2. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines.
Figure S39. Two-dimensional interpreted GPR profile X1 collected at grid 9 (Didsbury esker network). True relative line orientations are shown in Figure S2. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.
Figure S40 [PAGE 44]. Two-dimensional views of GPR profiles Y1 – Y8 collected at grid 9 (Didsbury esker network). True relative line orientations are shown in Figure S2. The data have been processed following the protocol described in § 2.2 of the manuscript and interpreted following the method outlined in § 2.3. Radar element bounding surfaces are indicated by bold black lines and radar elements are labelled in approximate depositional order. Reflection offsets (faults) are indicated by dashed green lines (white over the ERT profile).

Figure S41 [PAGE 45]. Two-dimensional interpreted GPR profiles Y1 – Y8 collected at grid 9 (Didsbury esker). True relative line orientations are shown in Figure S2. Radar elements have been colour-coded based upon the broad style of deposition, using the criteria outlined in § 2.3. These colours correspond to those in legend (bottom). The radar elements are numbered in approximate depositional order. Faults are indicated by white dashed lines.