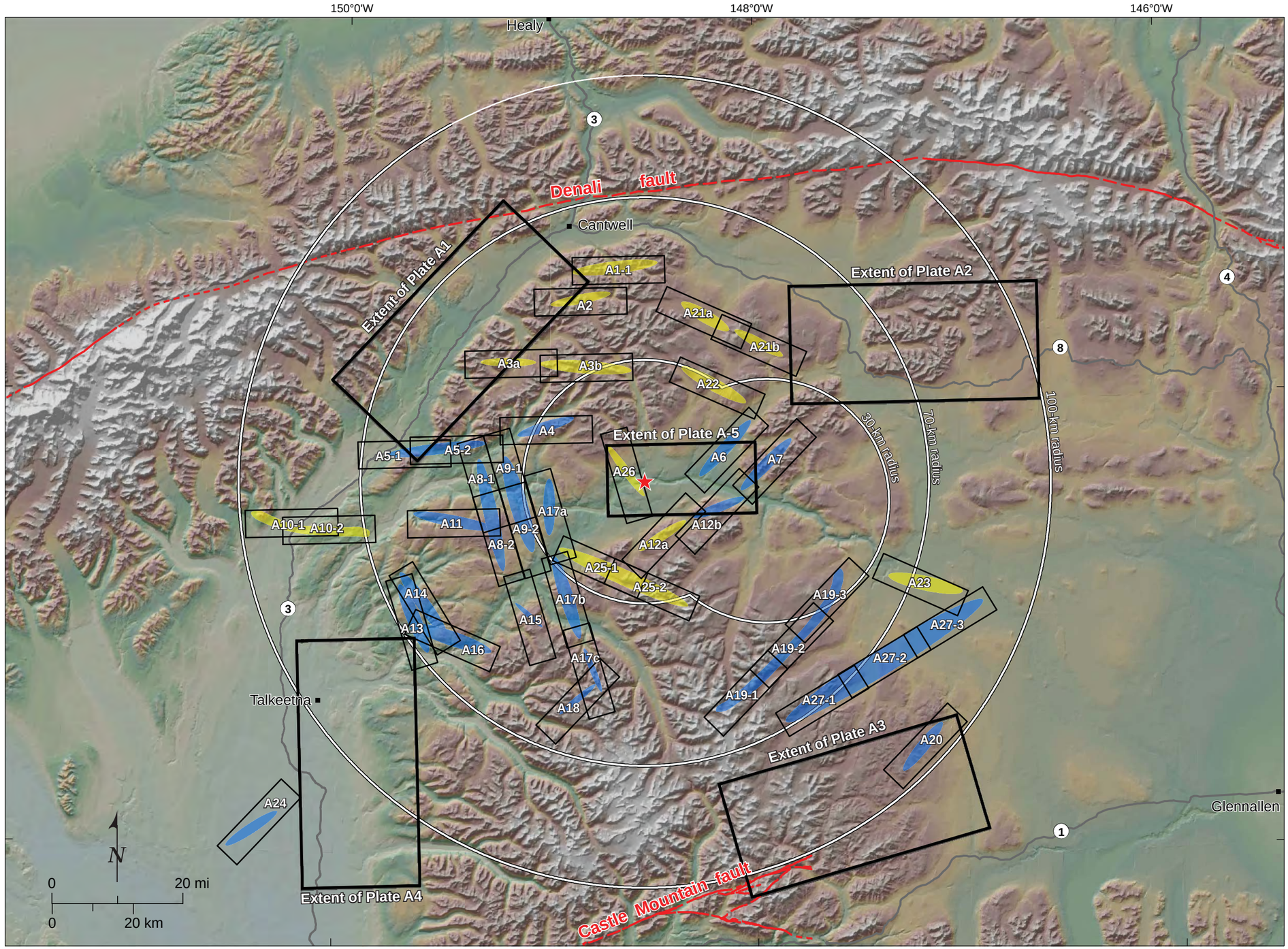
Appendix A:

Strip Maps and Plates of Compiled Data



Explanation

Quaternary fault, solid where well constrained, long dash where moderately constrained, short dash where inferred (Koehler et al., 2012)

A5-1 — Extent of stripmap tile; figure number indicated

No previously mapped fault or lineament coincides with lineament group

Lineament group mapped for this study coinciding with previously mapped fault or lineament

★ Proposed Watana site

Lineament Groups and Corresponding Figures

Lineament Group	*Appendix A Figure Number*
1	A1-1
2	A2
3a	A3a
3b	A3b
4	A4
5	A5-1, A5-2
6	A6
7	A7
8	A8-1, A8-2
9	A9-1, A9-2
10	A10-1, A10-2
11	A11
12a	A12a
12b	A12b
13	A13
14	A14
15	A15
16	A16
17a	A17a
17b	A17b
17c	A17c
18	A18
19	A19-1, A19-2, A19-3
20	A20
21a	A21a
21b	A21b
22	A22
23	A23
24	A24
25	A25-1, A25-2
26	A26
27	A27-1, A27-2, A27-3

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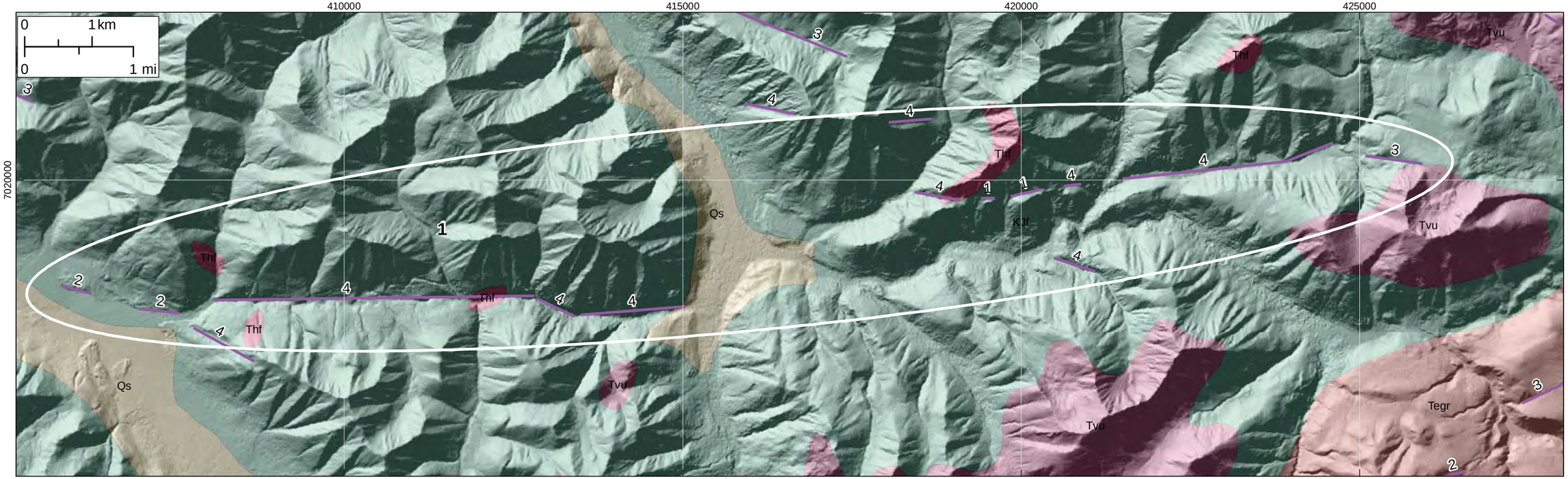
STRIP MAP TILE AND PLATE INDEX

FIGURE
A0



SEE FIGURE A1-2 FOR EXPLANATION

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SUSITNA-WATANA HYDROELECTRIC PROJECT

LINEAMENT GROUP 1

FIGURE

A1-1

Geologic Units from OFR 09-1108 (Wilson et al., 2009)

Water, ice field, or glacier

Unconsolidated Deposits

- Qs — Surficial deposits, undivided
- Qat — Alluvium along major rivers and in terraces
- Qlc — Landslide and colluvial deposits
- Qm — Glacial deposits, undivided
- Qhg — Young moraine deposits
- Qg — Major moraine and kame deposits
- Qgc — Glacioalluvium
- Qgo — Outwash in plains, valley train, and fans
- Qge — Glacioestuarine deposits

Sedimentary Rocks

- Tsu — Sedimentary rocks, undivided
- Tkn — Kenai Group, undivided
- Tts — Tsadaka Formation
- KJs — Turbiditic sedimentary rocks of the Kahiltna flysch sequence
- Jn — Naknek Formation, undivided
- Jtk — Talkeetna Formation, undivided
- JTrlm — Limestone and Marble
- Pe — Eagle Creek Formation, marine argillite and limestone

Igneous Rocks

Volcanic and Hypabyssal Rocks

- Tvu — Tertiary volcanic rocks, undivided
- Tfv — Felsic volcanic and sub−volcanic rocks
- Tem — Mafic volcanic rocks
- TKd — Dikes and sills
- Trn — Nikolai Greenstone and related rocks
- Pzv — Slana Spur Formation, volcaniclastic rocks
- Pat — Station Creek Formation andesitic volcanic rocks

Plutonic Rocks

- Ti — Intrusive rocks, undivided
- Toegr — Granitic rocks
- Tpgr — Granitic rocks of Paleocene age
- Tgd — Biotite−hornblende−granodiorite
- TKg — Granitic rocks, undivided
- TKgd — Granodioritic rocks
- Kgd — Granodiorite
- Jtr — Trondhjemite
- JPaur — Diorite, gabbro, picrite, and pyroxenite sill and dike swarm complex
- Jqd — Quartz diorite, tonalite, and diorite
- Jqm — Granodiorite and quartz monzonite

Melange and Metamorphic Rocks

- TKgg — Gneiss
- Jpmu — Plutonic and metamorphic rocks, undifferentiated
- JPam — Amphibolite
- JPmb — Marble
- Trnm — Metabasalt and slate
- TrPavs — Basaltic to andesitic metavolcanic rocks
- PPast — Metamorphosed Skolai Group

For full explanation of geologic units see USGS OFR 09-1108 and USGS OFR 98-133

Geologic Units from OFR 98-133 (Wilson et al., 1998)

- g — Ice fields or glaciers
- Water
- Qs — Surficial deposits, undifferentiated
- Tvu — Tertiary volcanic rocks, undivided
- Thf — Hypoabyssal felsic and intermediate intrusions
- Tiv — Granitic and volcanic rocks, undivided
- Tegr — Granite and granodiorite
- Mzpca — Phyllite, pelitic schist, calc-schist, and amphibolite of the MacLaren metamorphic belt
- Kgu — Granitic rocks
- KJf — Kahiltna flysch sequence
- Trcs — Calcareous sedimentary rocks
- Trnm — Metavolcanic and associated metasedimentary rocks

Faults Compiled by FCL (Wilson et al., 1998; Wilson et al., 2009; Williams and Galloway, 1986; Clautice, 1990; Clautice, 2001; Csejtey, 1978; Kachadoorian, 1979; Smith, 1988)

- Fault, Approximate
- Fault, Inferred or queried
- Fault, Certain
- Fault, Concealed
- High-angle reverse fault, Approximate
- High-angle reverse fault, Certain
- High-angle reverse fault, Concealed
- High-angle reverse fault, Inferred or queried
- Thrust fault, Approximate
- Thrust fault, Certain
- Thrust fault, Concealed
- Lineament

Lineaments Mapped by FCL (this study)

Reconnaissance (InSAR)	Detail (LiDAR)
1 - 5	1 - 5
10	10
77	77
88	88

See Table 3.2 for explanation of numbered attributes for mapped lineaments

17a — Lineament group mapped for this study coinciding with previously mapped fault or lineament

25 — No previously mapped fault or lineament coincides with lineament group

Tectonic features from WCC report (WCC, 1982)

- Detailed feature, from site-specific maps
- Regional feature, from small-scale maps

For completeness, features from both regional and detailed scale figures have been included. The location of regional features may not always be accurate and the detailed features may be limited to the extent shown on original figures.

T-2 — Location of trench T-2 (shown on figures A14 and A16)

NOTE:
This explanation applies to Appendix Figures A1-1 through A27.

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STRIP MAPS EXPLANATION

FIGURE
A1-2

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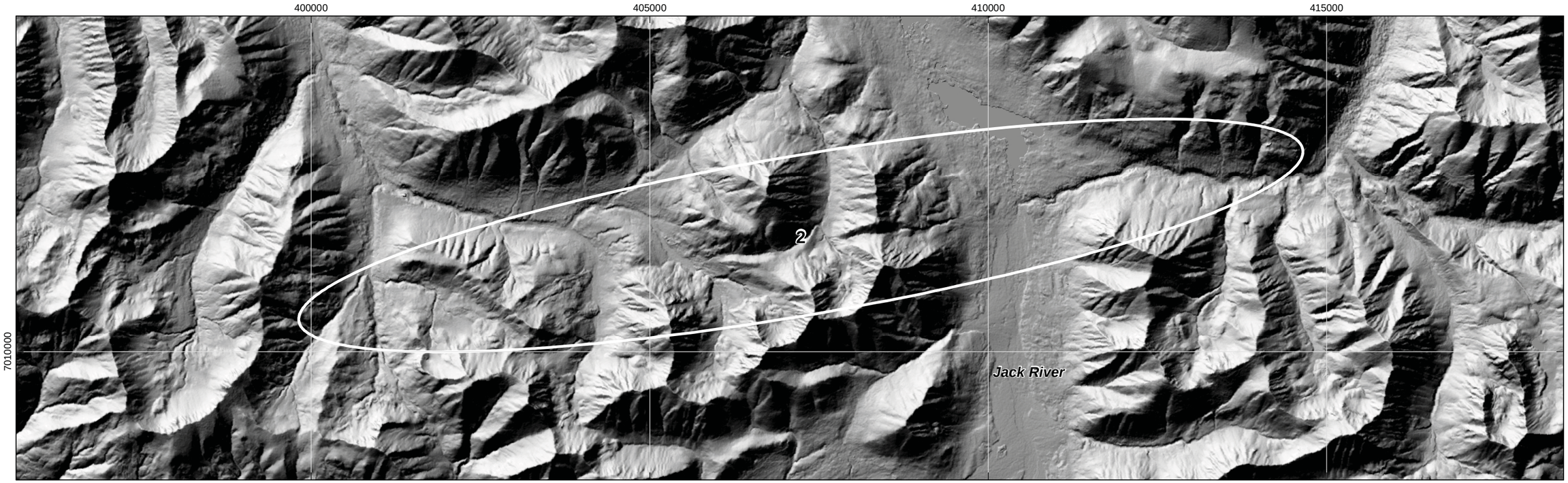

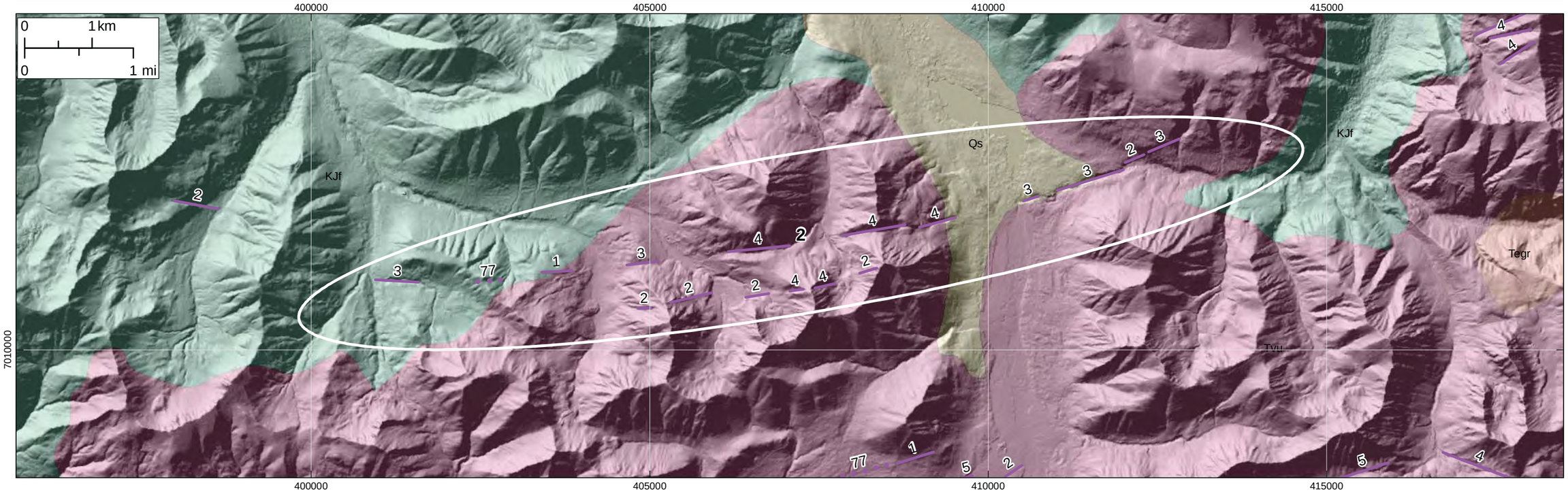

SEE FIGURE A1-2 FOR EXPLANATION

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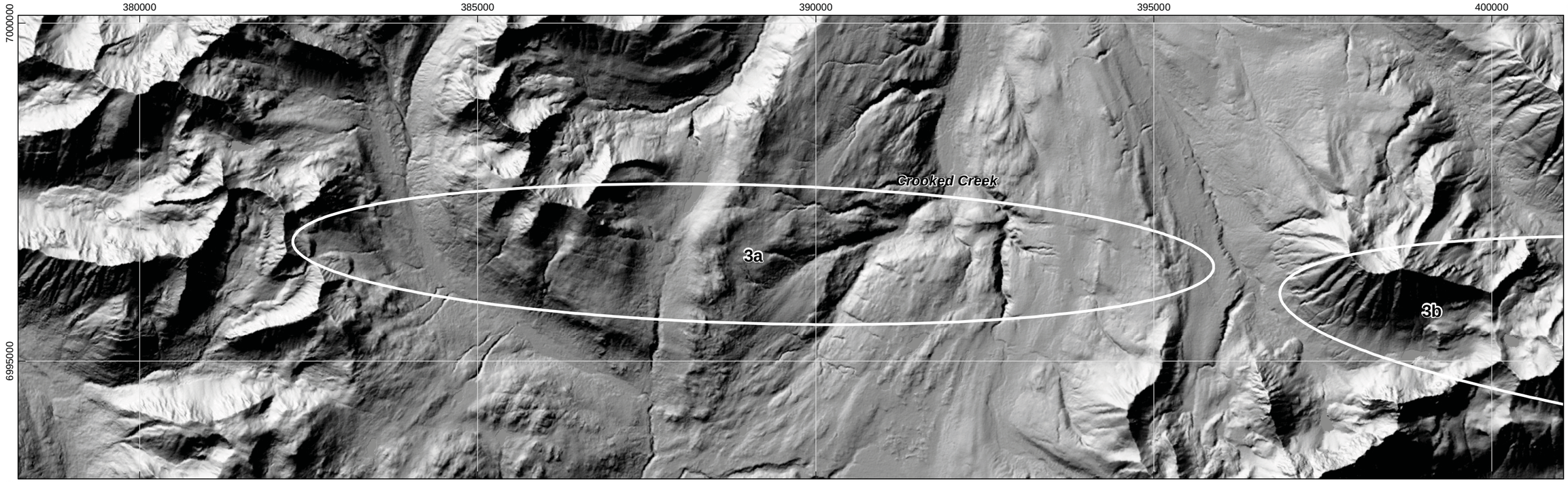
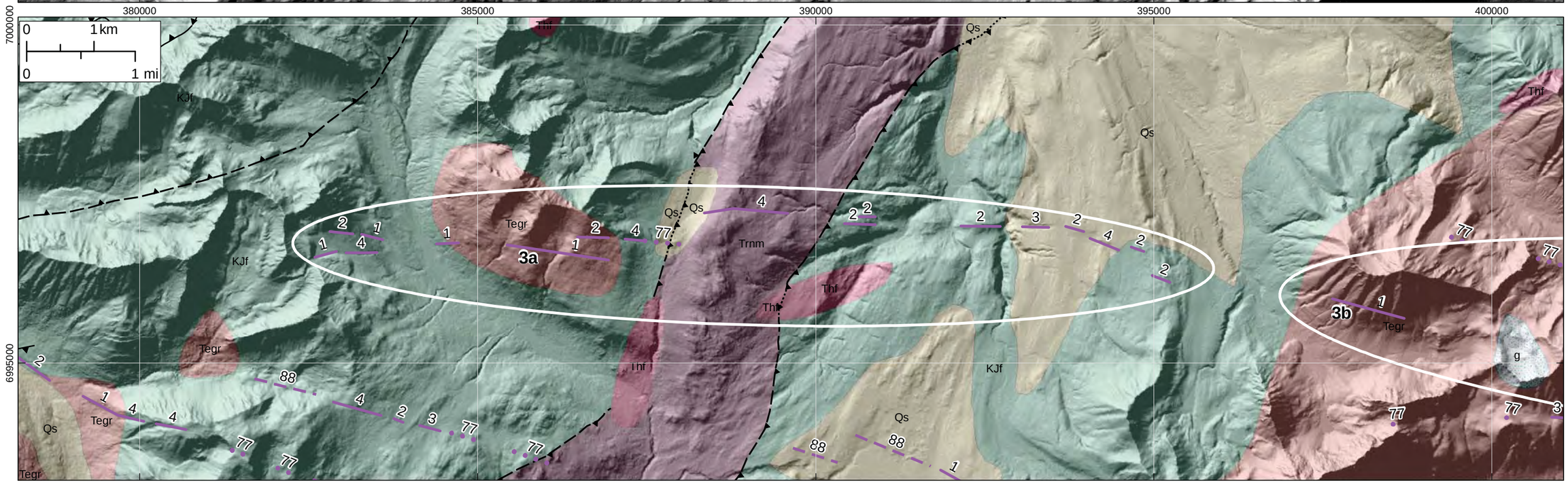
LINEAMENT GROUP 2

FIGURE

A2





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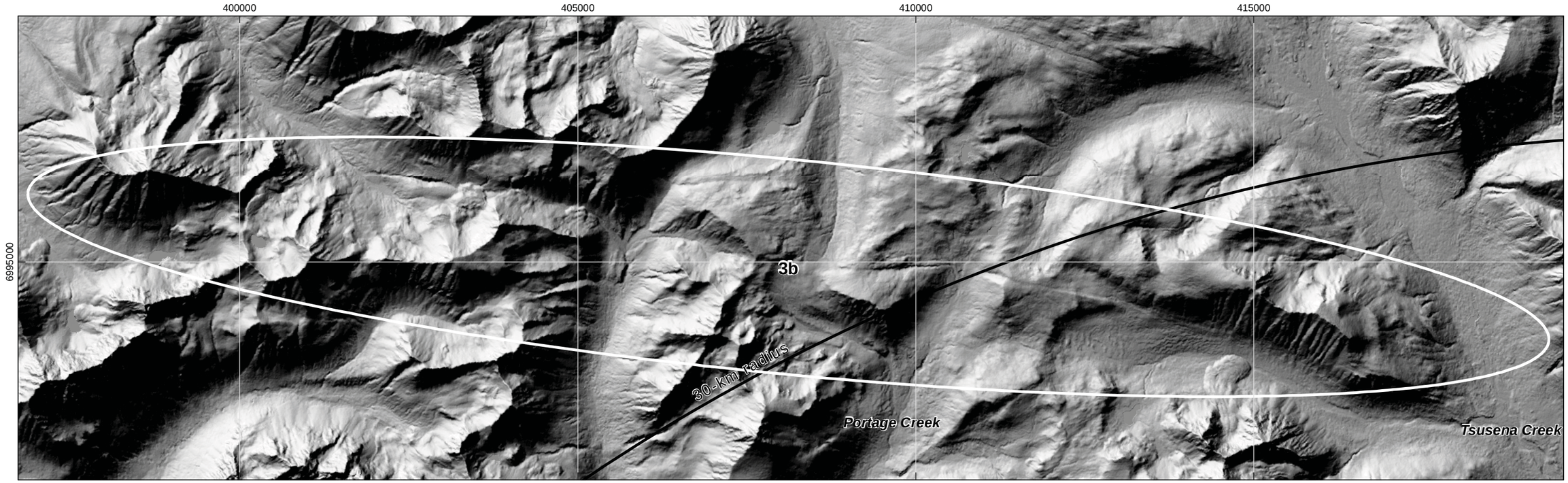
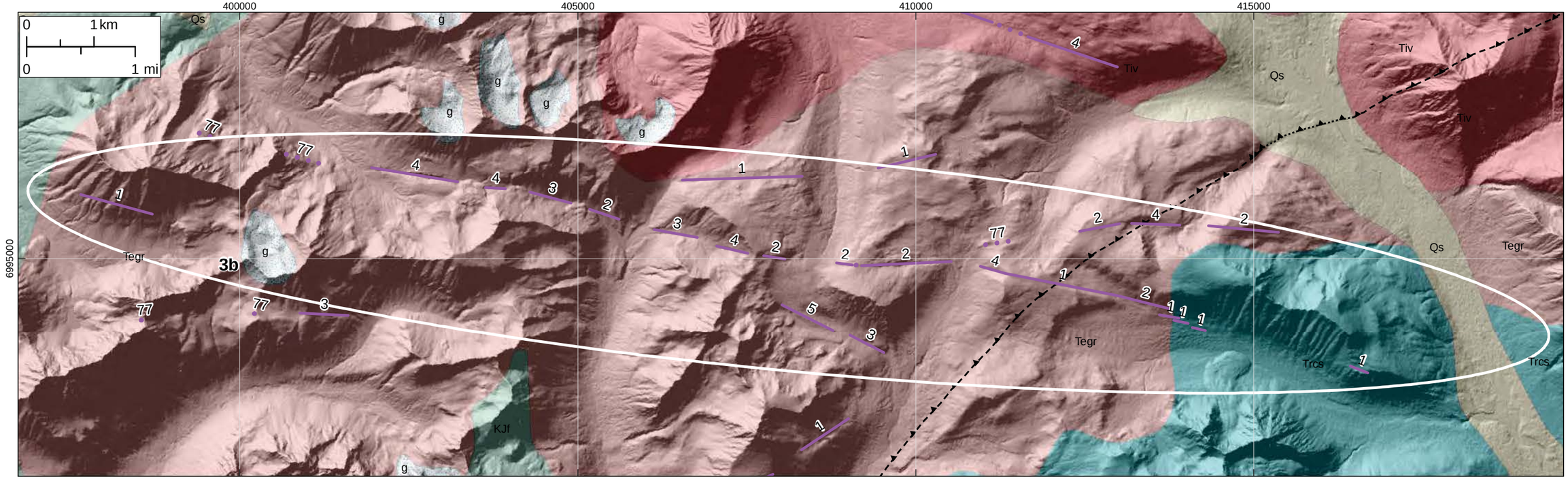
LINEAMENT GROUP 3a

FIGURE

A3a





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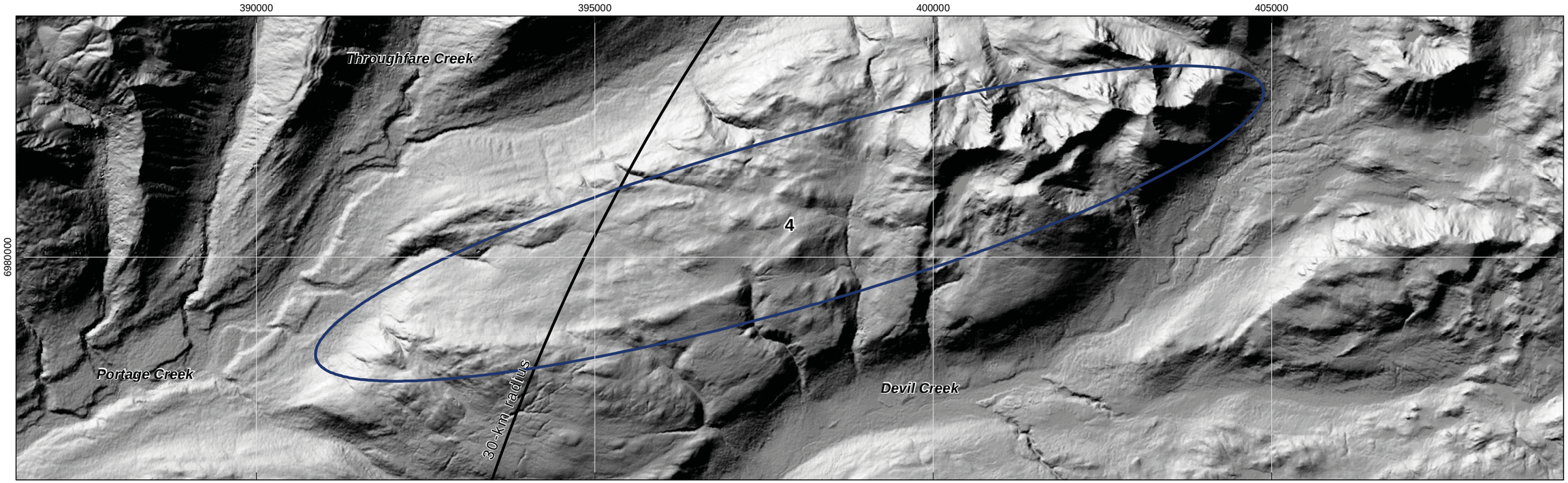
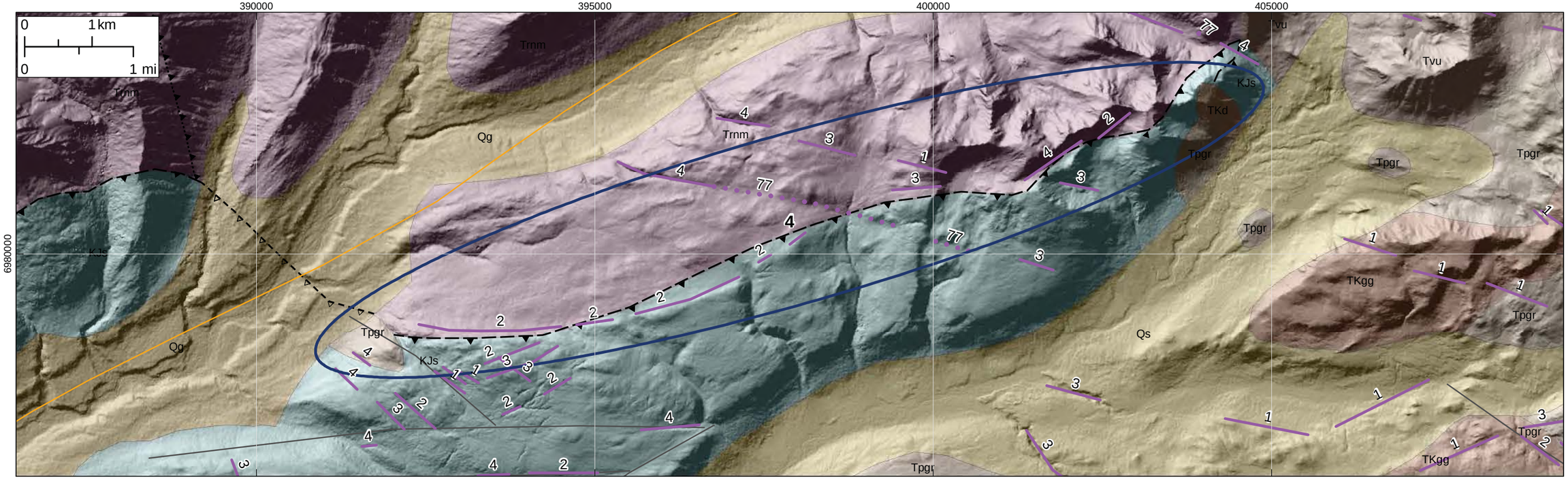
LINEAMENT GROUP 3b

FIGURE

A3b





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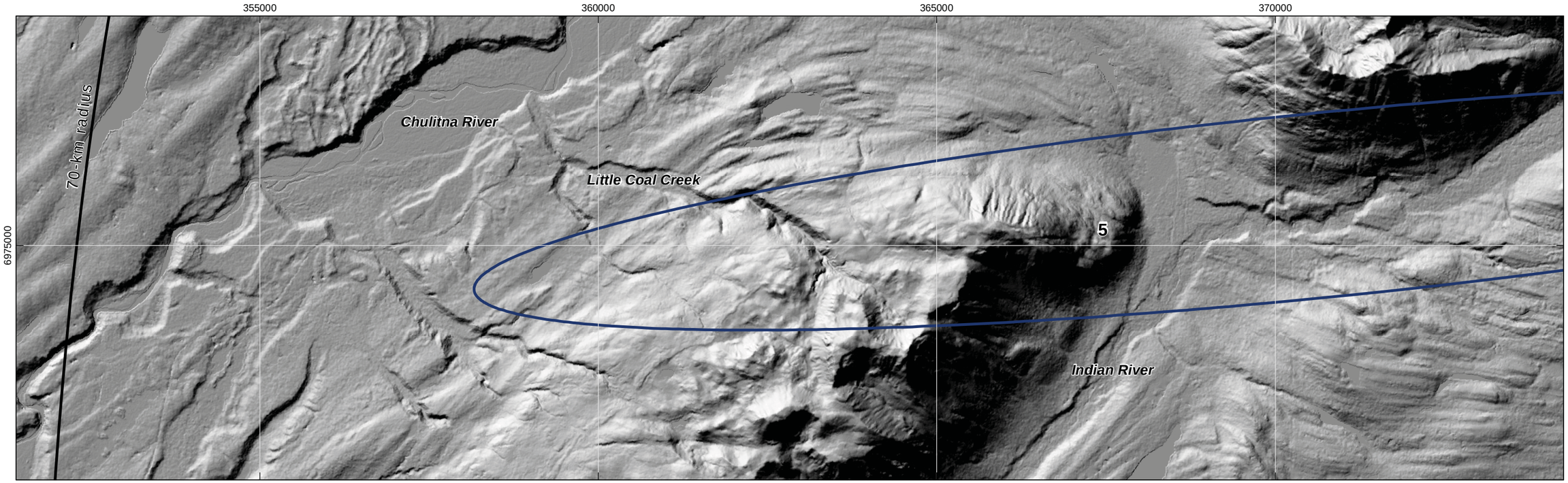
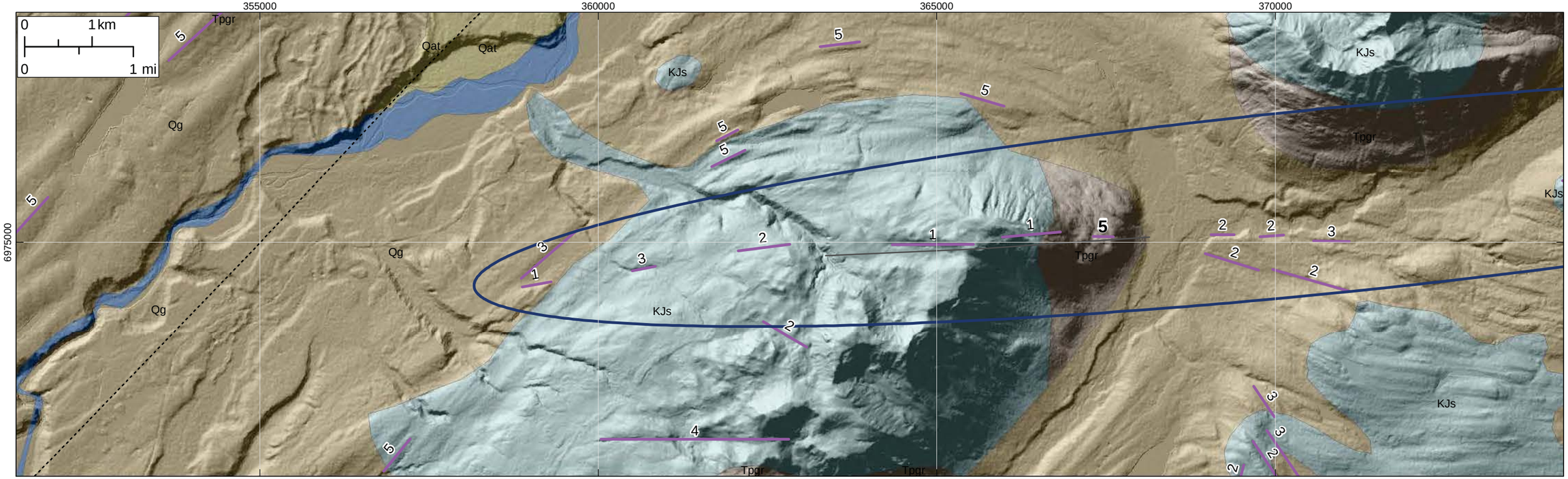
LINEAMENT GROUP 4

FIGURE

A4





SEE FIGURE A1-2 FOR EXPLANATION

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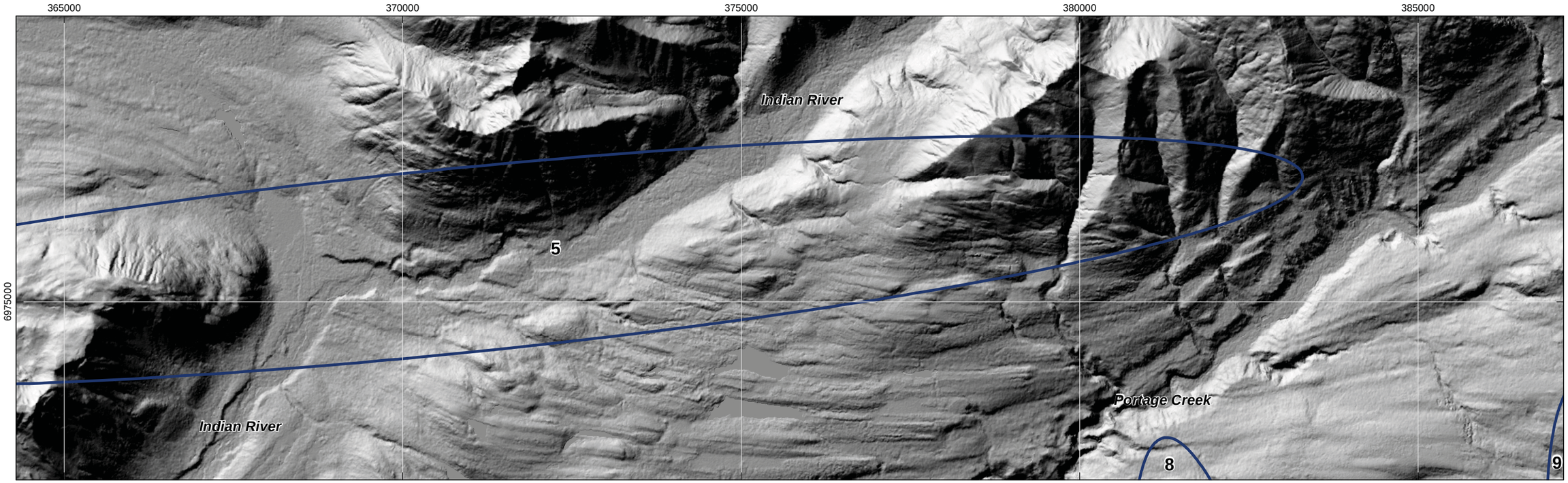
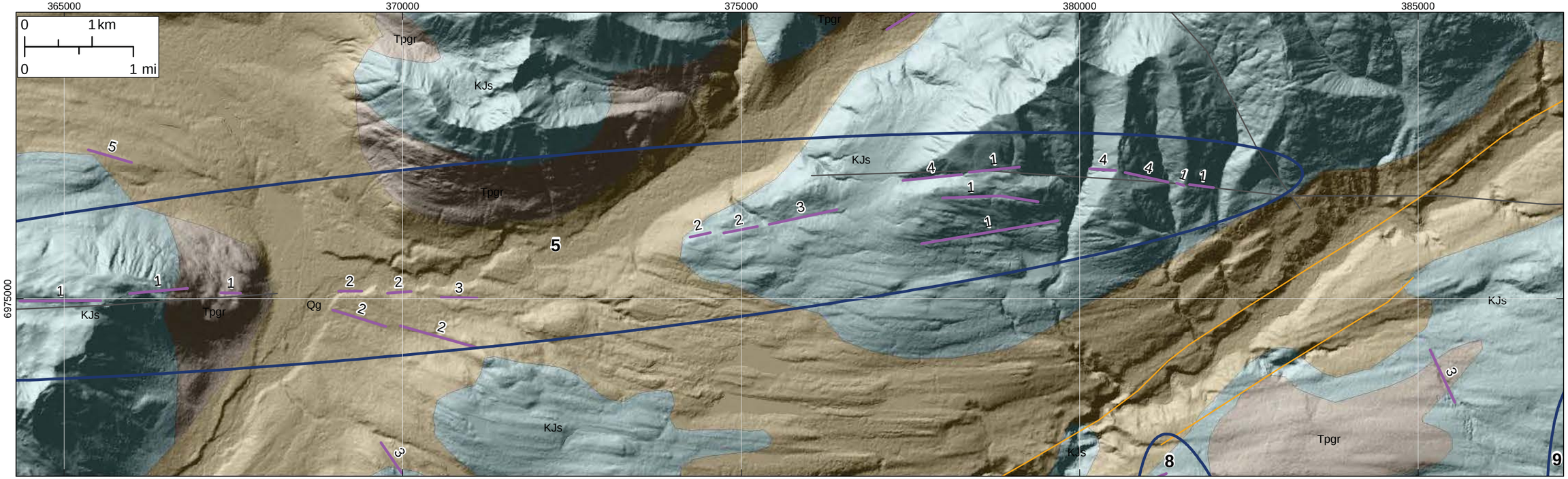
LINEAMENT GROUP 5

FIGURE

A5-1





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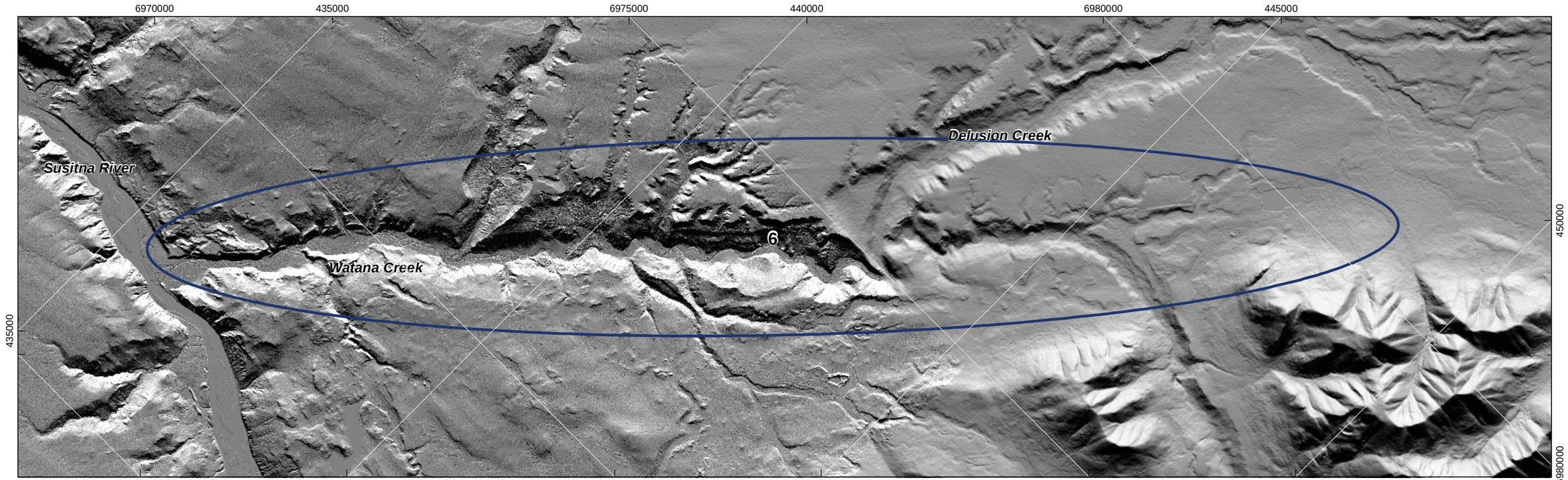
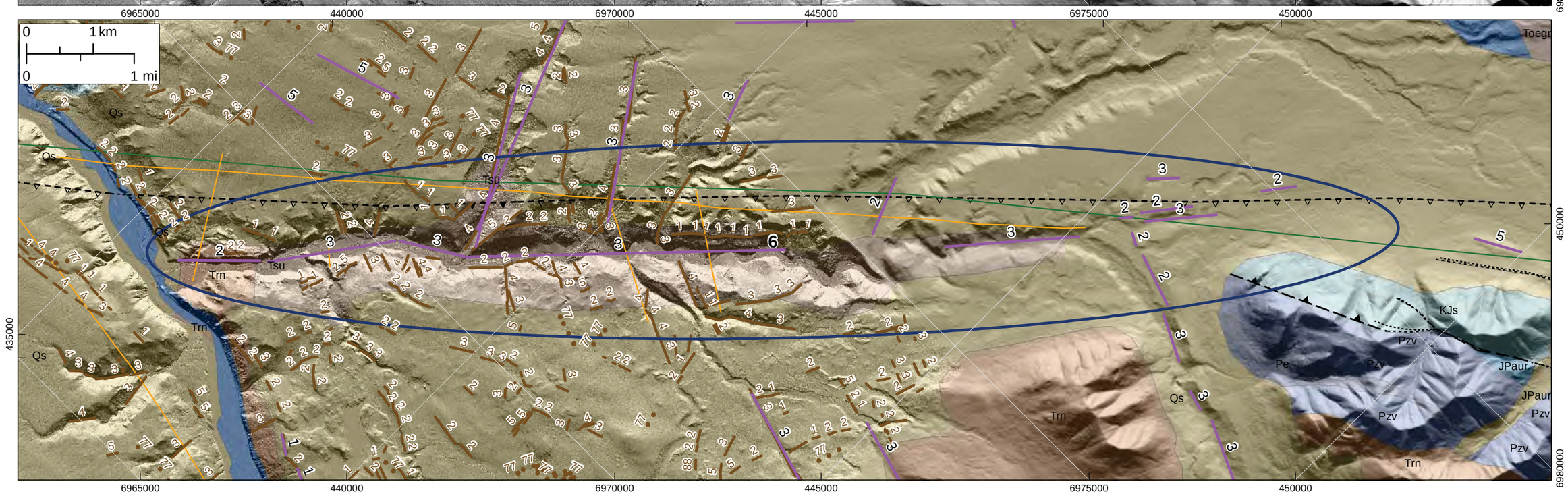
LINEAMENT GROUP 5

FIGURE

A5-2





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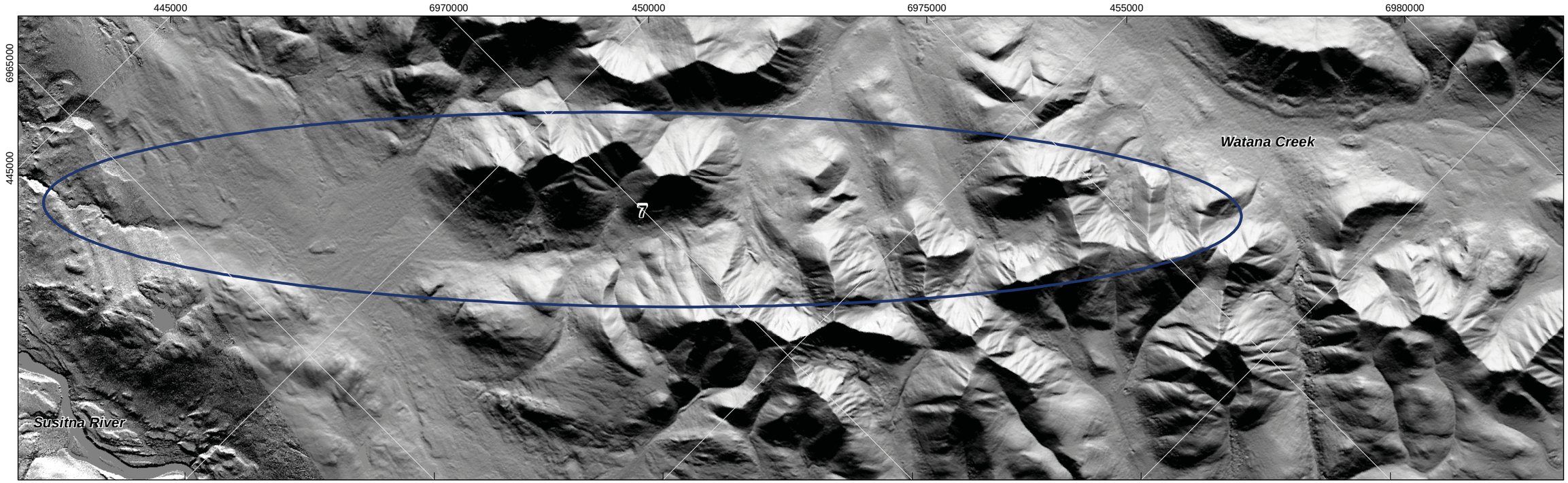
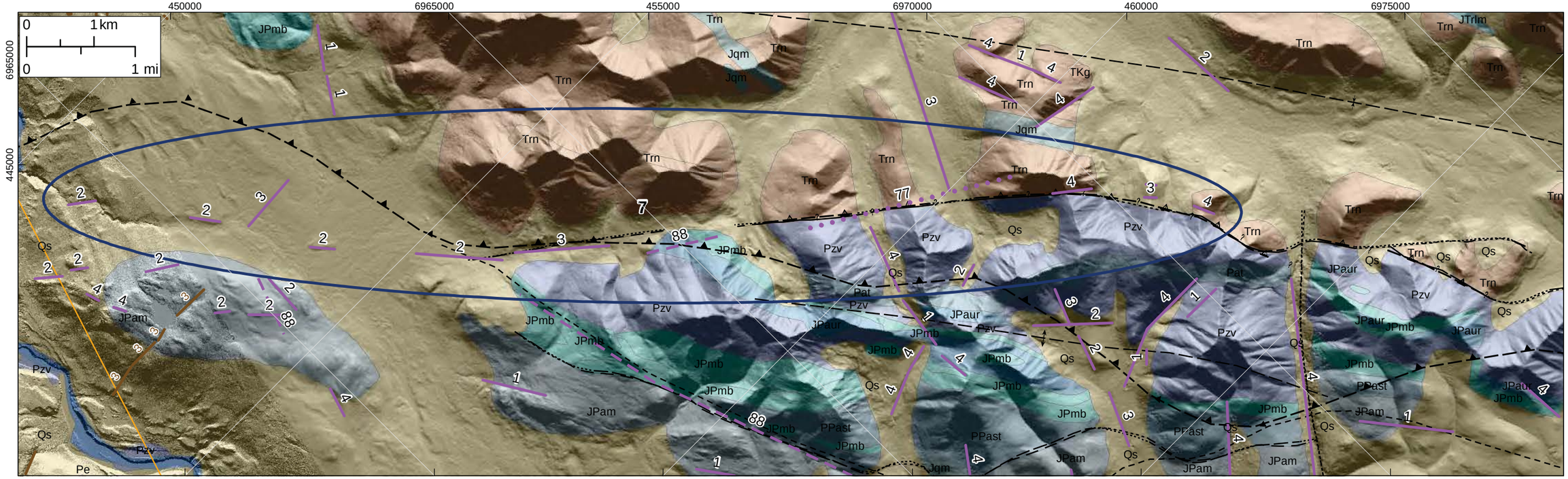
LINEAMENT GROUP 6

FIGURE
A6





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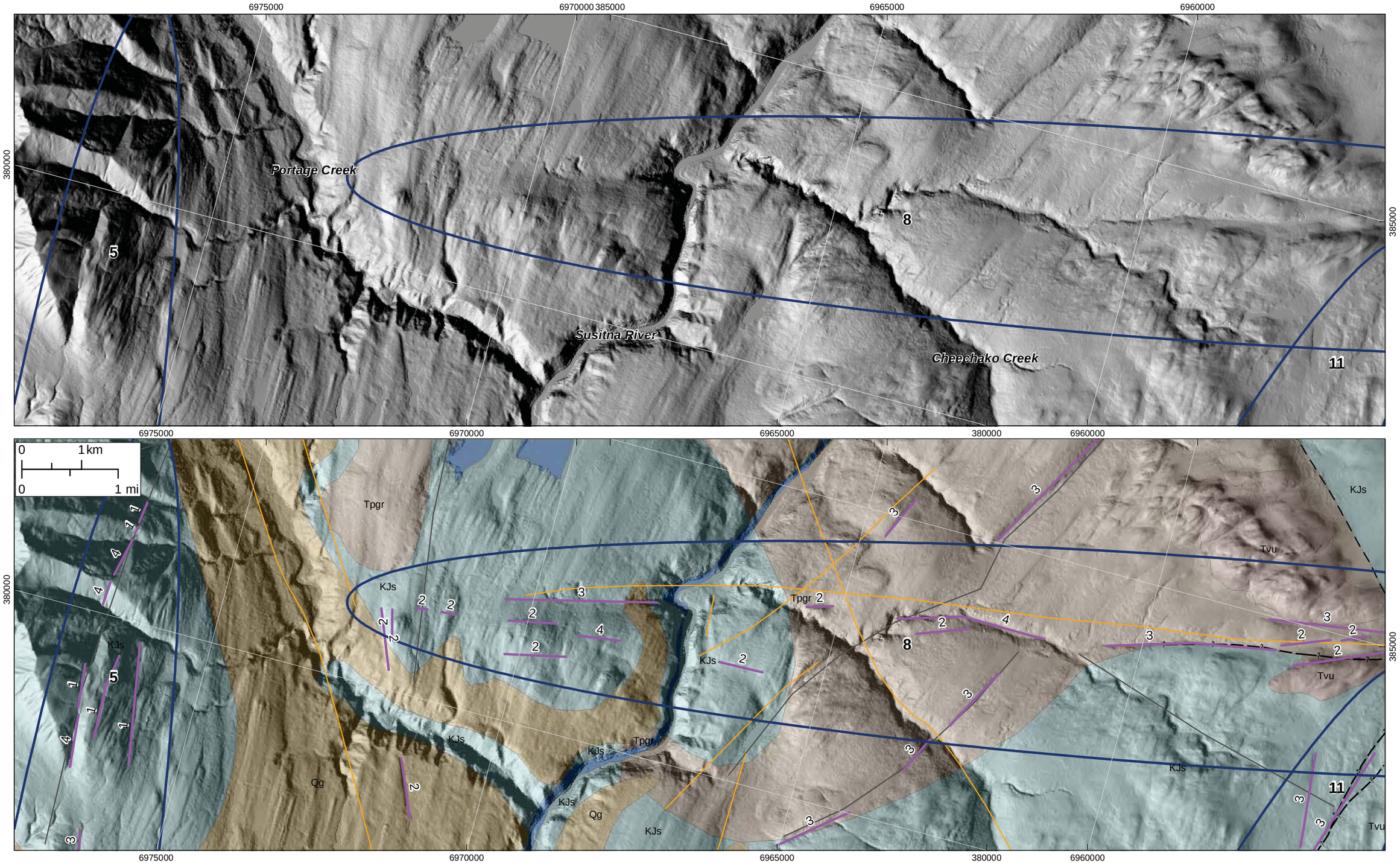
LINEAMENT GROUP 7

FIGURE
A7



SEE FIGURE A1-2 FOR EXPLANATION

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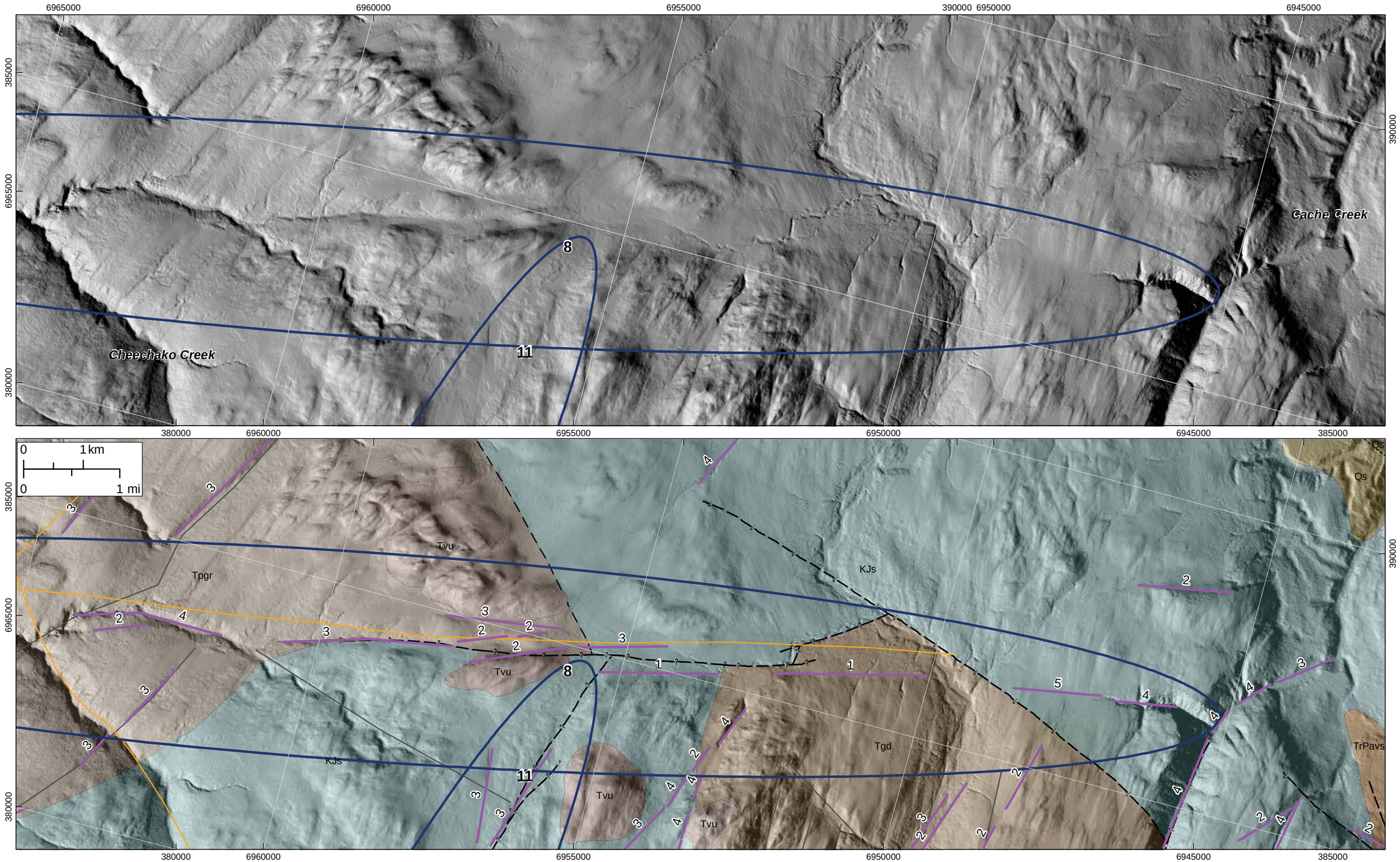
LINEAMENT GROUP 8

FIGURE
A8-1



SEE FIGURE A1-2 FOR EXPLANATION

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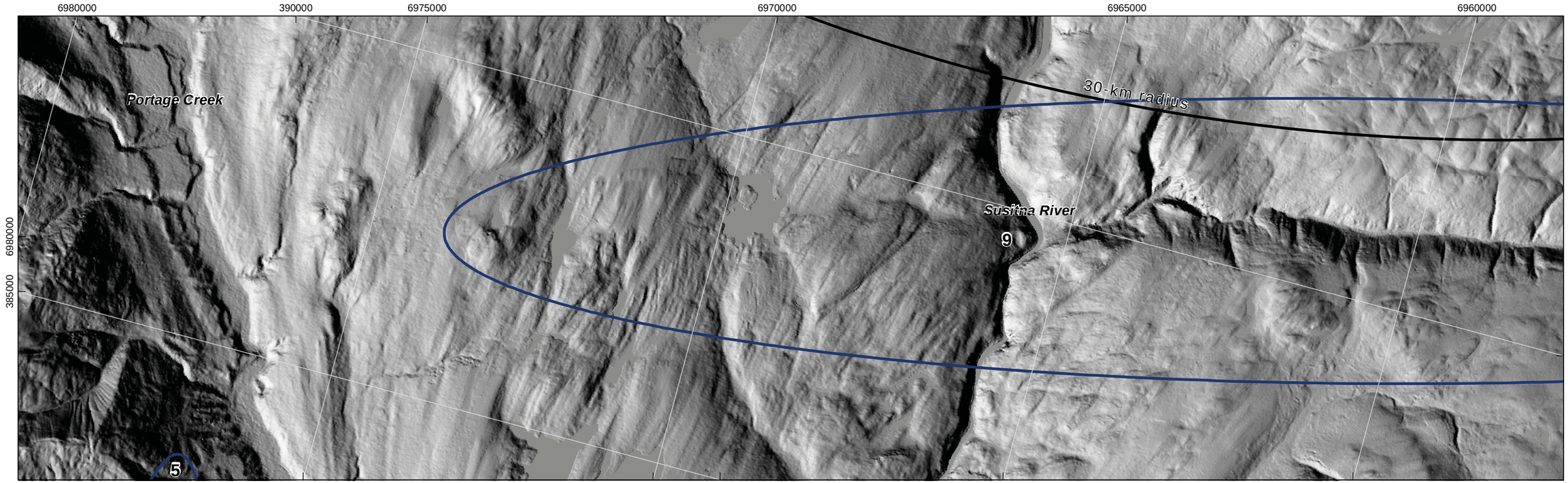
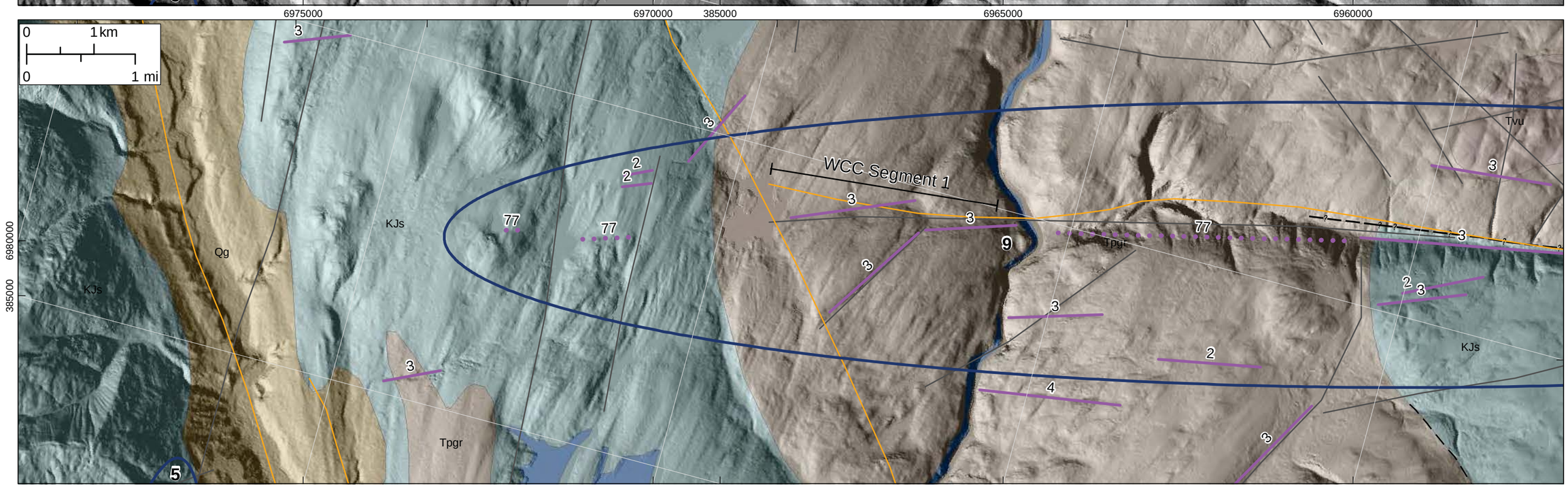
LINEAMENT GROUP 8

FIGURE
A8-2





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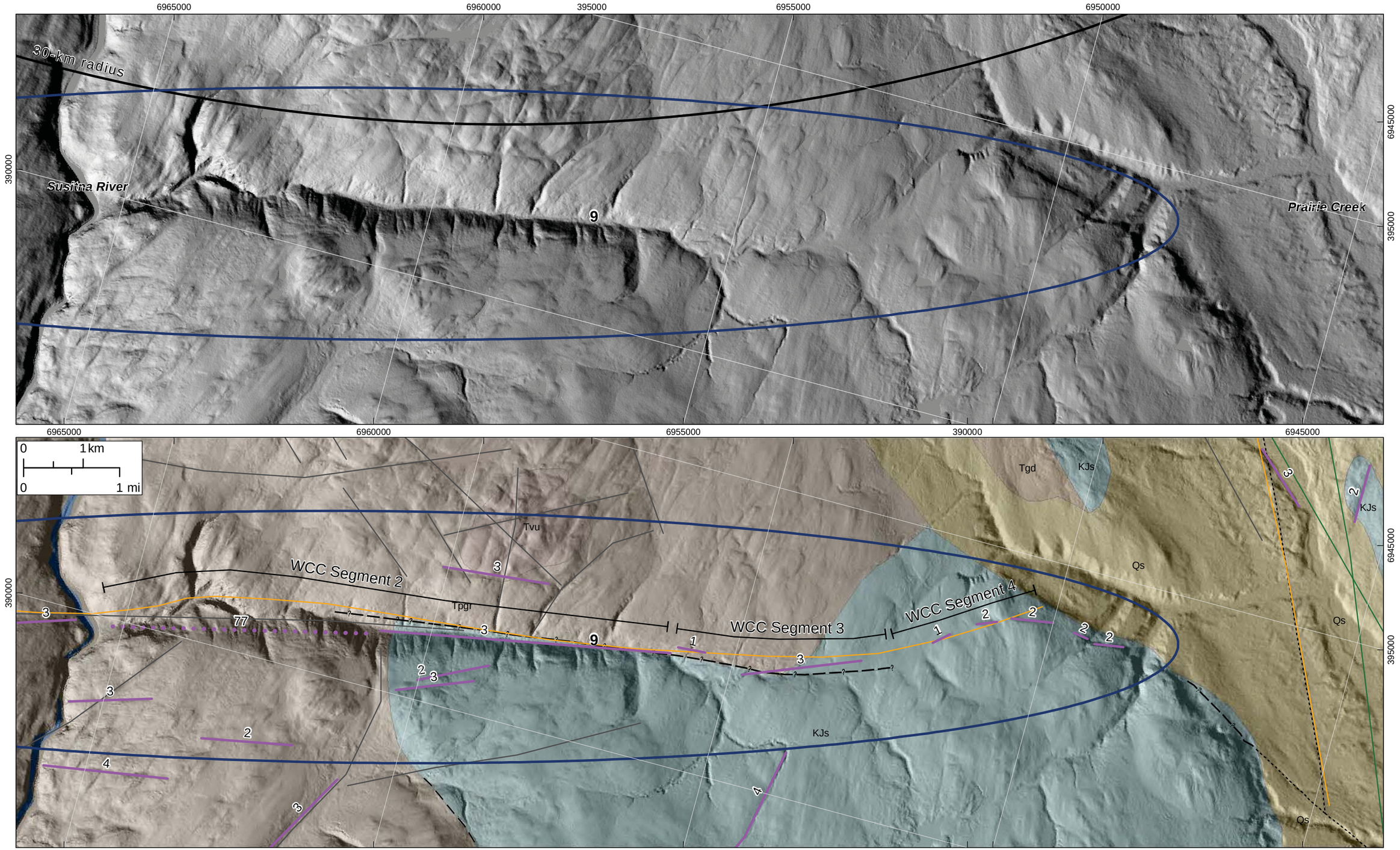
LINEAMENT GROUP 9

FIGURE
A9-1



SEE FIGURE A1-2 FOR EXPLANATION

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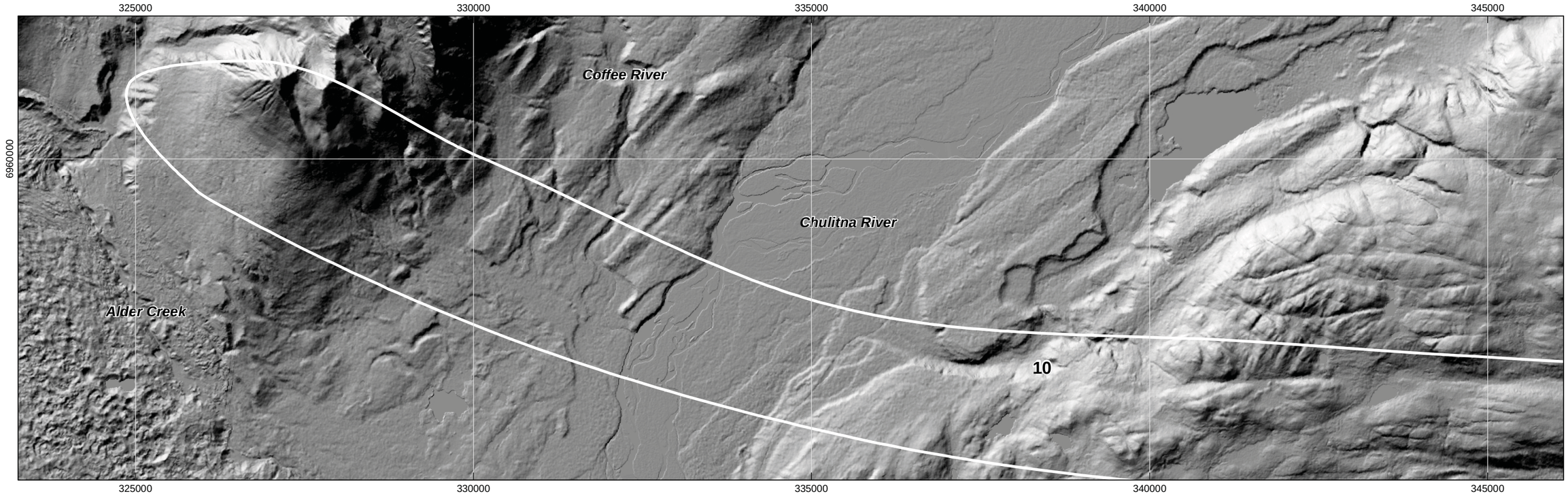
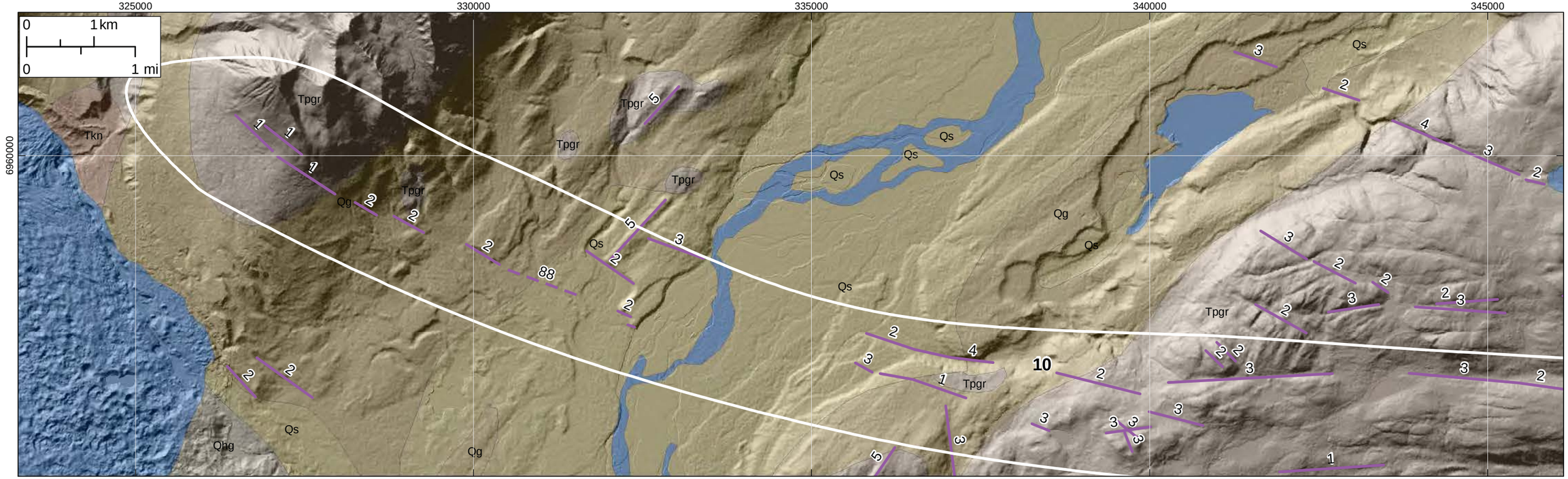
LINEAMENT GROUP 9

FIGURE
A9-2





SEE FIGURE A1-2 FOR EXPLANATION

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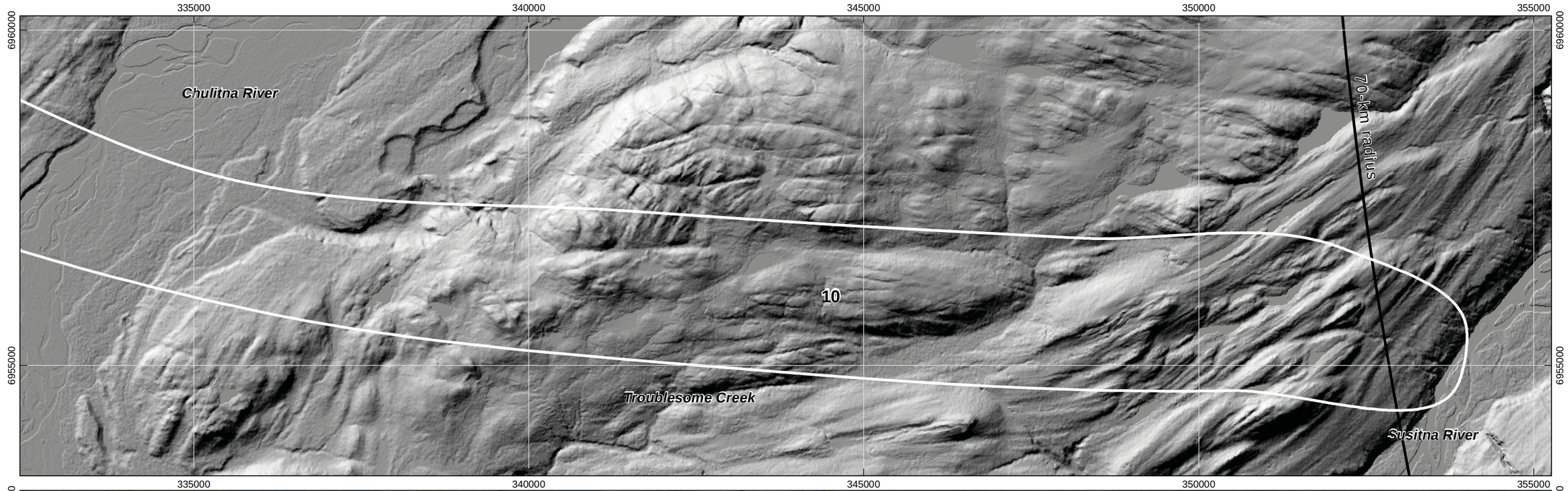
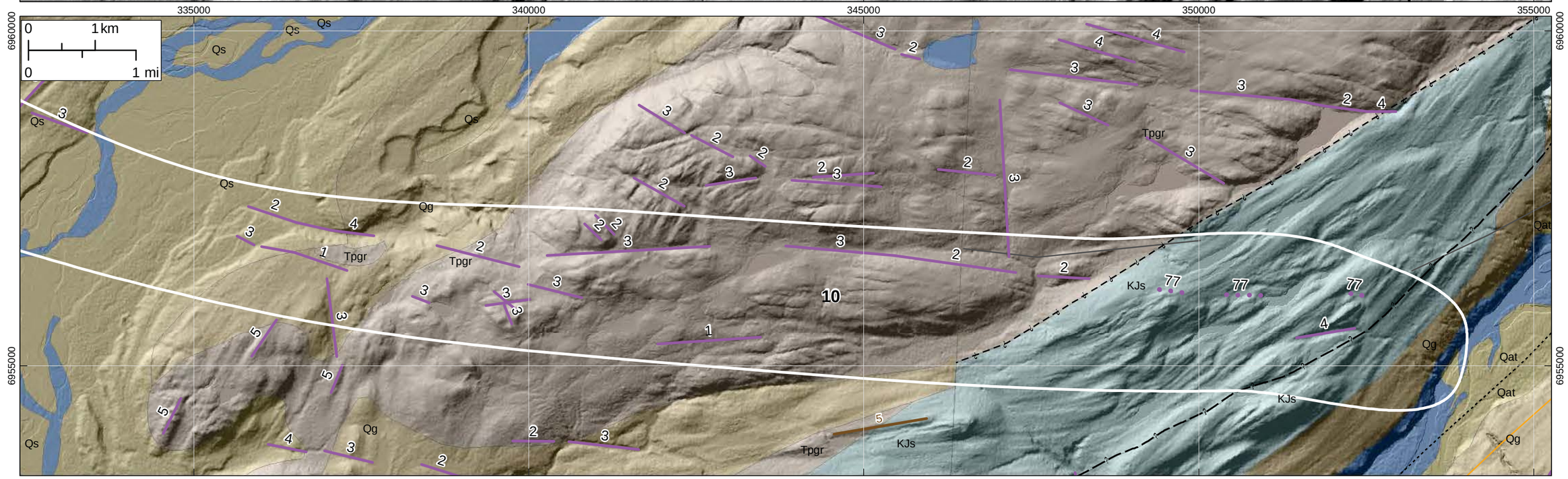
LINEAMENT GROUP 10

FIGURE

A10-1





SEE FIGURE A1-2 FOR EXPLANATION

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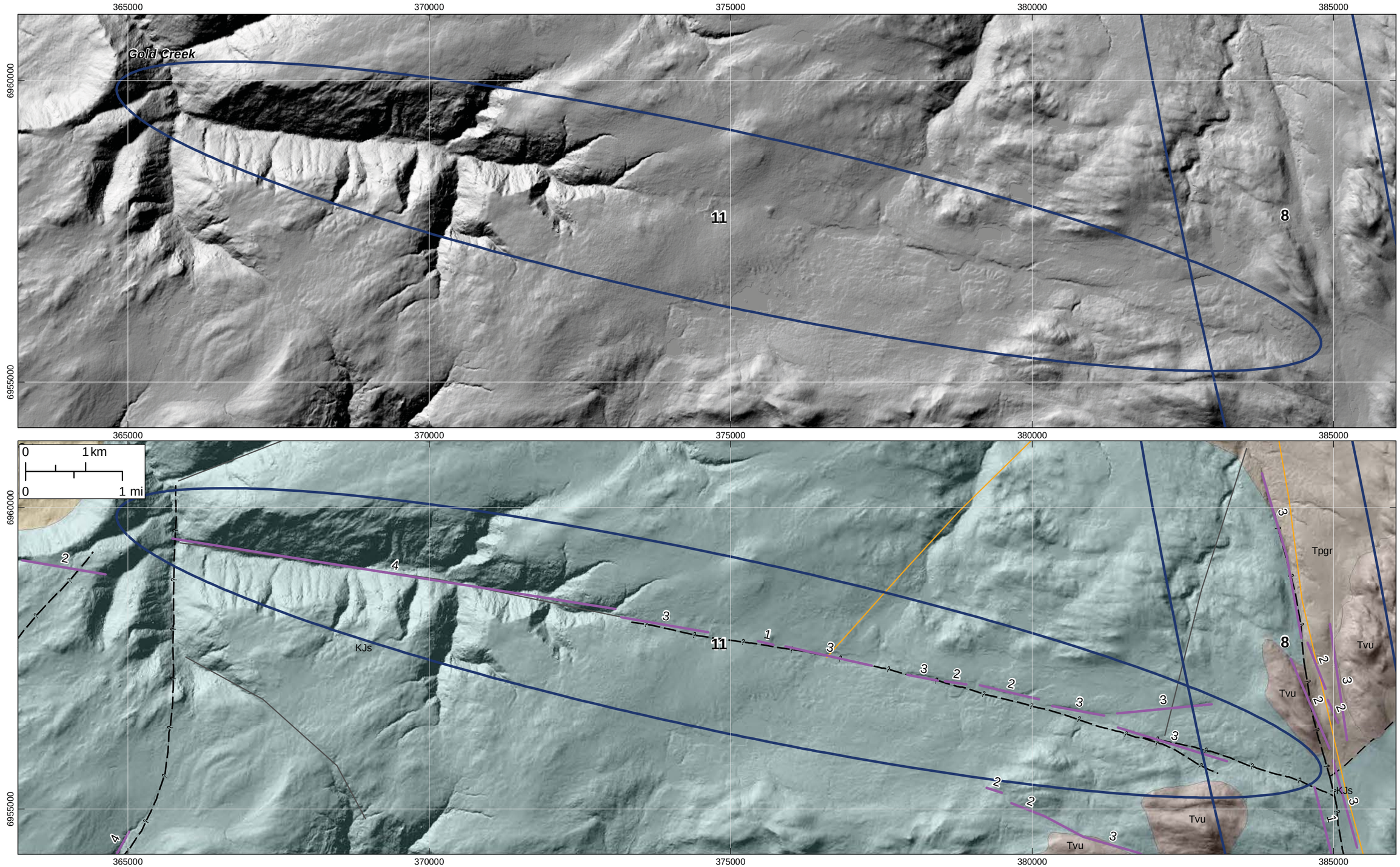
LINEAMENT GROUP 10

FIGURE

A10-2



SEE FIGURE A1-2 FOR EXPLANATION

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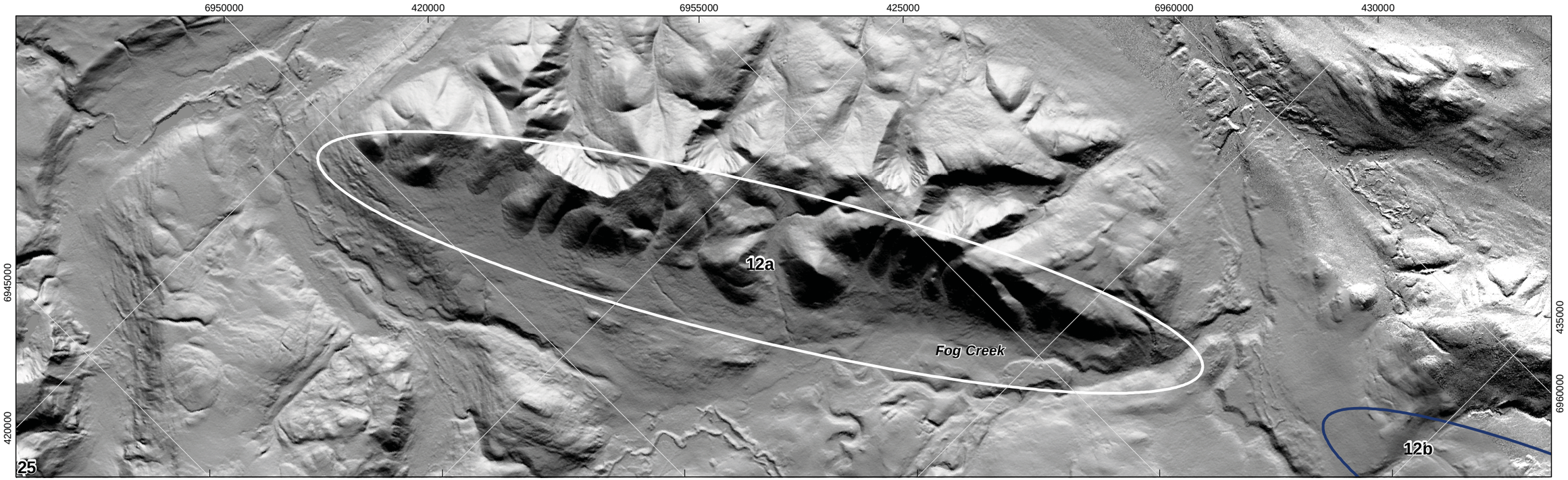
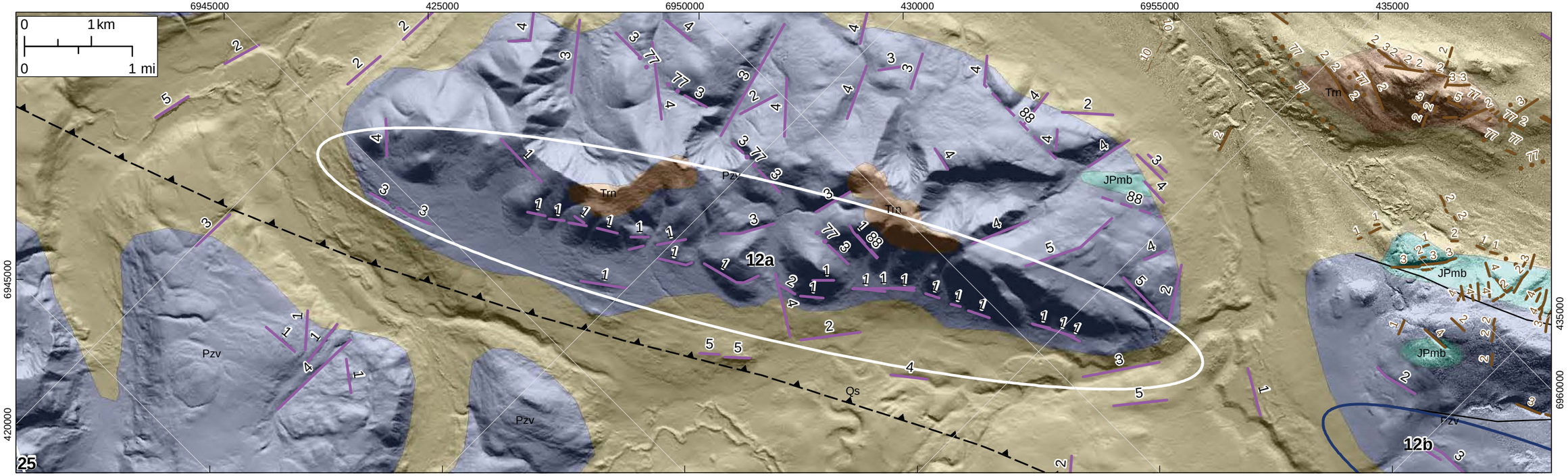
SUSITNA-WATANA HYDROELECTRIC PROJECT

LINEAMENT GROUP 11

FIGURE

A11





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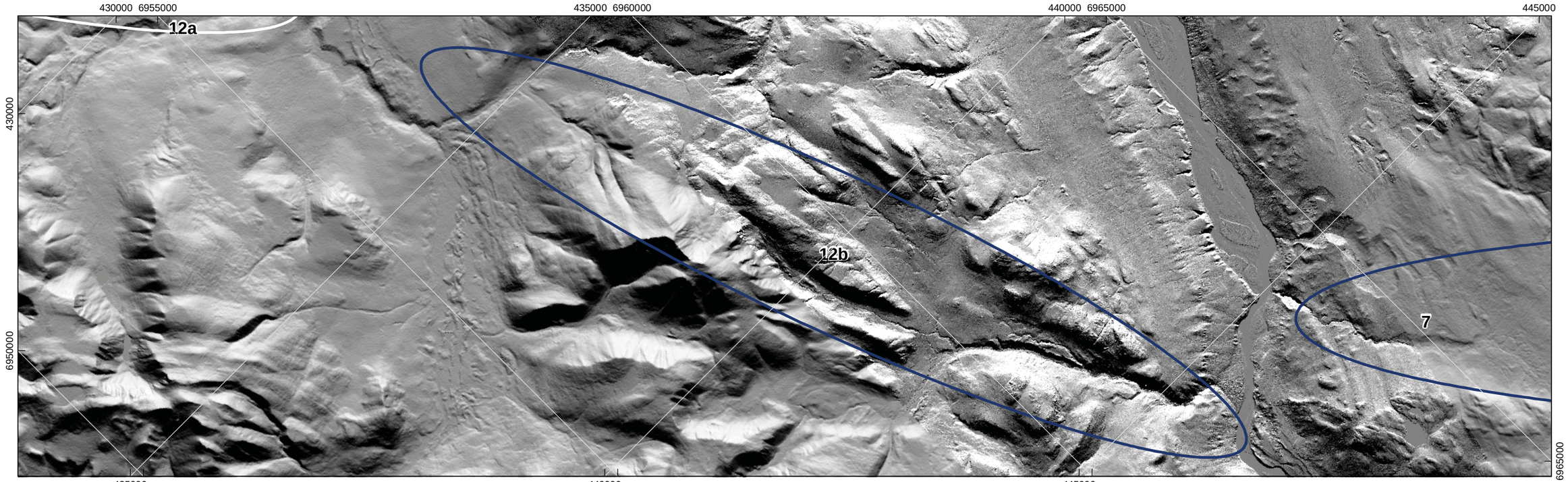
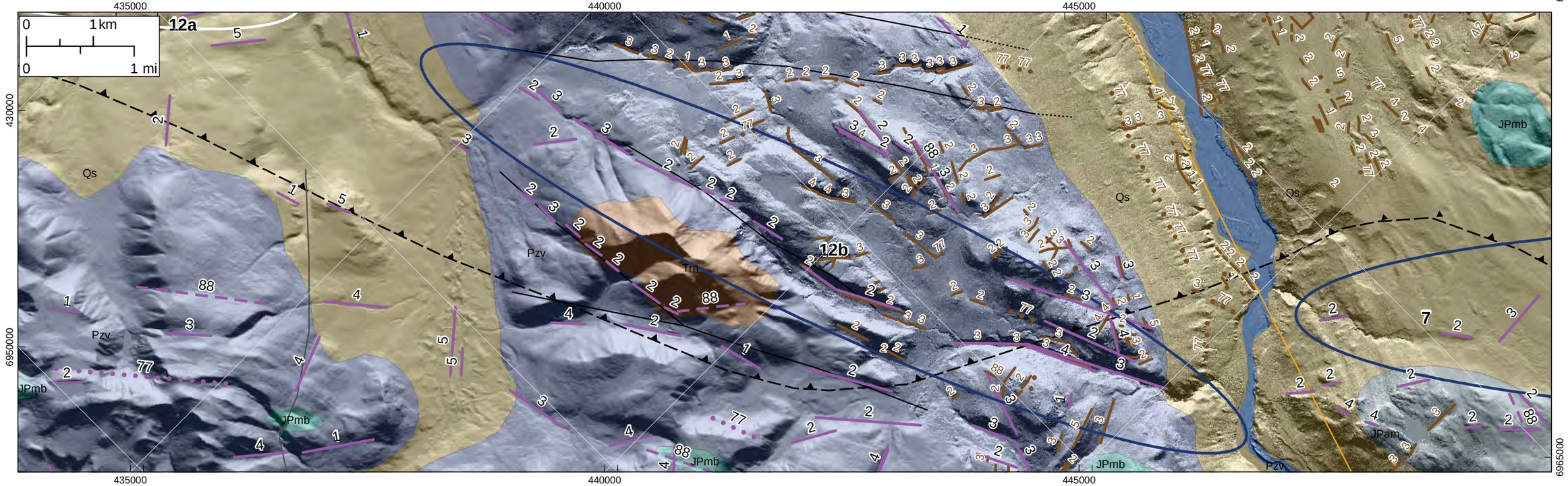
LINEAMENT GROUP 12a

FIGURE
A12a





SEE FIGURE A1-2 FOR EXPLANATION

REV	DESCRIPTION	BY	DATE

SCALE

Project No. ____
Date 03/26/2013
Designed ____
Drawn ____
Approved ____

DATA FRAME HAS BEEN ROTATED
45 DEGREES WEST OF NORTH
1:60,000

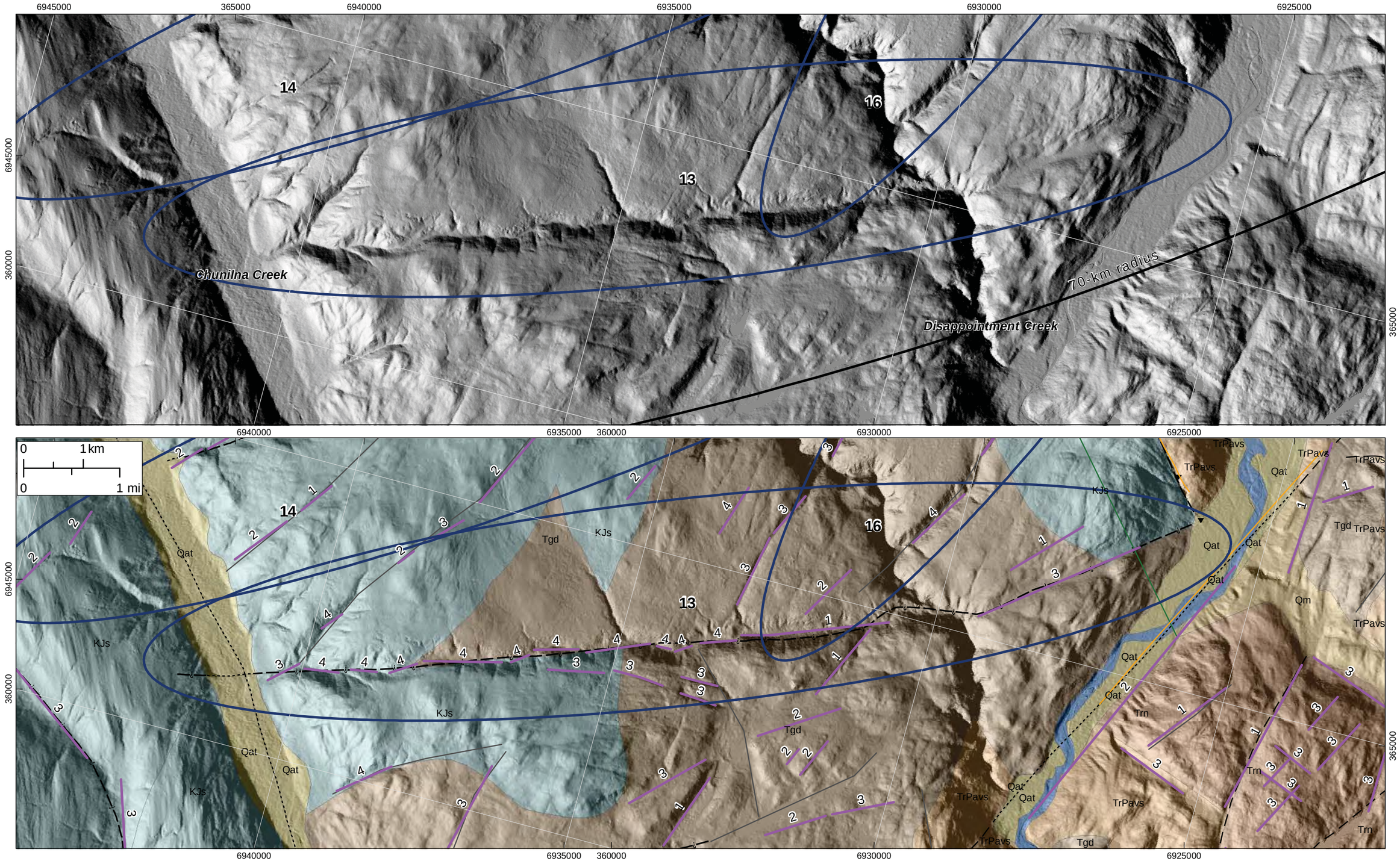
FUGRO

STATE OF ALASKA
ALASKA ENERGY AUTHORITY
ALASKA ENERGY AUTHORITY

SUSITNA-WATANA HYDROELECTRIC PROJECT

LINEAMENT GROUP 12b

FIGURE
A12b



SEE FIGURE A1-2 FOR EXPLANATION

REV	DESCRIPTION	BY	DATE

SCALE

Project No. _____
Date 03/26/2013
Designed _____
Drawn _____
Approved _____

DATA FRAME HAS BEEN ROTATED
75 DEGREES EAST OF NORTH
1:60,000

STATE OF ALASKA
ALASKA ENERGY AUTHORITY

SUSITNA-WATANA HYDROELECTRIC PROJECT

LINEAMENT GROUP 13

FIGURE
A13