YMIP Grant **13-035**

A Summary Technical Report on the **Lake Project**

A Focussed Regional Module, Hard Rock Type

A Geochemical/Geological Report

No claims staked under this grant.

Location
115P06,
Camp at 377,500E, 7,028,540N, Elev 601 m
UTM NAD 83, Zone 8

Grant awarded to Jeff Mieras
Work performed by Gordon Richards & Jeff Mieras
Report written by Gordon Richards

October 15, 2013

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SUMMARY

Work described in this report was conducted under a YMIP Focussed Regional Grant, Hardrock Type. YMIP No is 13-035 awarded to Jeff Mieras.

The following is an historical account of events on this project:

July 4, 5, 26, 27 Mob and demob for four YMIP Grant Projects: Paleo, Stoggie, Lake, and Upper Grand Valley (13-033 to 13-036 respectively).

July 10. Moved from Stoggie Property to Lake Project. Cut out helipad and set up camp.

July 11 to 15. Prospected and sampled.

July 16. Moved from Lake Project to Paleo Property.

The target area occurs in the underexplored pre-Reid glaciated terrain east of the White Gold District within the Reid Lakes Batholith. The project is located in the drainage of Robbed Creek along the base of a west facing slope 50 km due west of Stewart Crossing on NTS Map Sheet 115P06.

Richards and Mieras flew by helicopter from a previous fly camp on the Stoggie Property. The camp was slung into an aspen grove near the base of a westward facing slope as indicated on the maps. A helipad was cut out suitable for pickup at the end of the program. From this camp the two prospectors made daily traverses for five days before flying out to the Paleo Property.

Five samples collected in 2012 and analyzed by MMI and Ah analyses returned variably strong anomalous values for Cu, Mo, Au, and U. RGS data indicate the potential for Cu-Mo-Au porphyry mineralization over a 12 km by 3-4

km area. Refer to Figure 2. The length of this anomalous RGS pattern could be caused in part by glacial smearing by pre-Reid glaciers from a source in the target area. The target area occurs at the up-ice end of the RGS patterns in an area of hilly terrain that was deemed suitable for soil sampling prospecting in 2012. The target for 2013 prospecting was around the anomalous samples described above.

In 2013 **174 MMI** soil samples were collected on six north-south soil lines spaced 300 m apart with a 100 m sample spacing. One additional soil line was placed between two of the above lines in the area of the 2012 anomalous samples. The east side of the grid was located over gentle slopes where MMI samples were relatively easy to collect. Further west the hill slope became very gentle and in places swampy making it difficult to collect MMI samples in many places. For that reason **21 white spruce bark** samples were collected at a similar spacing to the MMI samples principally to evaluate effectiveness of this method for future sampling over similar terrane further west. Five bark samples were collected adjacent to MMI samples for comparative purposes. In addition **1 rock** and **4 stream sediment** samples were collected.

Results were highly encouraging. Three large coincident patterns of anomalous Cu-Mo-Ni-U with the smallest target size measuring 500 m by 700 m are targets for discovery of porphyry mineralization. A fourth target forms anomalous Ag and other metals in a linear pattern a km long and open on both ends that could be a locus of structural mineralization. Much more work is recommended.

All garbage was removed from camp and taken to Dawson City for disposal.

SURVEY METHODS

General

Soil sampling used selective leach methods because the area had been glaciated during one or more pre-Reid glacial periods and MMI and bark sampling can “see through” deep overburden including glacial till. Also MMI sampling involved collection of relatively shallow soils avoiding having to deal with permafrost. Bark sampling was only used as a backup where MMI soils could not be collected. It was hoped that bark sampling would prove effective for prospecting further west over very gentle swampy ground unsuitable for MMI soil sampling.

Ten man days were spent by Jeff Mieras and Gordon Richards collecting **174 MMI soil** samples, **21 white spruce bark** samples, **4 silt** samples and **one rock** sample. Lab results are provided in Appendices. Spreadsheets showing UTM locations with selected geochemical data are provided in Tables 1 to 4. UTM coordinates were recorded using a UTM Nad 83, Zone 8 Projection.

Sample details such as rock type and mineralization, soil colour, texture, depth, dampness and site slope were described in notes. Their locations were recorded in a handheld Garmin GPSmap 60Cx unit. Some UTM co-ordinates were also recorded in notebooks as a backup in case of loss of the GPS unit or loss of data stored on the unit. No such loss occurred. Sampled material was placed into numbered bags as described below. Soils were collected at 100 m intervals on six north-south 300 m spaced lines designed to cover the area of the five anomalous samples collected in 2012 and outwards from there for up to two km.

Response ratios for 17 elements were calculated for all 174 MMI soil samples and are provided in Table 1 with UTM coordinates. Anomalous results greater than selected threshold values for Cu, Mo, U, Ni, Ag, Au, Ti, Zn and Pb are shown graphically on the figures.

Rock chip analyses are provided for the one rock chip in an Appendix and results for 15 selected elements are provided in Table 2 with UTM coordinates.

Geochemical results are provided for the four stream sediment samples in an Appendix and results for 13 selected elements are provided in Table 3 with UTM coordinates.

Geochemical results are provided for the 21 white spruce bark samples in an Appendix and results for 13 selected elements are provided in Table 4 with UTM coordinates. Results for rock, silts and bark samples are discussed below.

Geology

Porphyry style Cu-Au-Mo mineralization is the target sought. The target area lies within the Reid Lakes Batholith best described by Ryan and Colpron in their Geoscience Map 7 of southwestern McQuesten map sheet.

East of the target area most outcrops observed in 2012 were a coarse grained hornblende granodiorite with a mafic content of one to four percent. Weakly developed Kspar phenocrysts comprising up to 5% of rock volume were noticed in a few outcrops and float. Some weakly to strongly foliated granodiorite to diorite outcrops with a mafic content of five to twenty percent were also seen usually in areas of aeromagnetic tilt derivative lows. Aplite textures were observed in angular boulders at the north end of the 2012 survey area. Outcrops were generally fresh with weak chloritic alteration seen in a few exposures. No continuity to this weak chloritic alteration was noted. No fracture style chlorite/epidote or pyrite bearing fractures were seen as might be expected peripheral to a porphyry deposit.

In 2013 boulders and rock chips of the weakly Kspar porphyritic quartz monzonite were seen at numerous locations mainly in the north half of the survey area.

In evaluating the porphyry potential of the area, the expected size of a porphyry system was used as an aid. In British Columbia the size of some of the cal-alkalic porphyry deposits was measured by scaling size of pits from Google Earth. The outside of the pits is clearly beyond the limits of ore but is considered to be within the geochemically anomalous halo or footprint and thus provides a crude expected geochemically anomalous target size for a porphyry deposit. Sizes of B.C. porphyry pits are:

Valley Copper	1800 m diam
Lornex	2000 m x 1300 m
Bethlehem	4 pits 500 to 600 m diam
Gibraltar	3 pits 1100 x 700 m, 1100 m diam, 500 x 1100 m
Granisle	2 pits 600 m and 700 m diam
Island Copper	2200 m x 1000 m
Brenda	800 m diam
Huckleberry	2 pits 500 m and 600 m diam

Porphyry target size is therefore in the 500 m to 2000 m diameter range. This size analyses was used to lay out soil lines at 300 m spacing and sample interval at 100 m in order to cover as much ground as possible with the soil grid yet exclude overlooking a porphyry target. The first three pit sizes on the above list are from the Guichon Creek Batholith which is similar in size to the Reid Lakes Batholith. Both batholiths intrude their own volcanic pile.

MMI Soil Samples.

MMI analysis uses a weak partial extraction to improve the conventional geochemical response over buried ore deposits. The process measures the mobile metal ions from mineralization, which have moved toward the surface and become loosely attached to the surfaces of soil particles. They concentrate within the 10 to 25 cm soil depth which on the property is a mixture of loess and till. Its effectiveness has been documented in over 1000 case histories on six continents and includes numerous commercial successes. The anomalies are sharply bounded and in most cases directly overlie and define the extent of the surface projection of buried primary mineralized zones. The MMI process is a proprietary method developed by Wamtech of Australia. SGS Minerals Services in Toronto purchased all rights to the method and provides analyses in Vancouver and Toronto.

Watch and ring were removed prior to sampling. Pits were dug by shovel to a depth of 30 cm in order to expose the soil profile for sampling. The profile was scraped clean with a plastic scoop to remove any metal effect from the shovel. A continuous strip of soil was collected by plastic scoop over the interval of 10 to 25 cm below the top of true soil, placed in a pre-numbered ziplock baggie and placed in an 11 inch by 20 inch 2 mil plastic bag. Loess was present at nearly all sample sites and was the sample medium for the bulk of all of the 174 MMI soils collected. Samples were kept cool until they were shipped to SGS Minerals Services, 3260 Production Way, Burnaby, B.C., V5A 4W4.

In the SGS Lab, samples are not dried or prepared in any way. The MMI process includes analyses of an unscreened 50-g sample using multi-component extractants. Metal contents are determined for 53 elements by ICP-MS in the parts per billion range.

Response Ratios were calculated for 17 elements as shown on Table 1. The average value for results of the lower quartile was calculated for each element. One-half of detection limit was used for those samples with values reported as less than detection limit. Then each result was divided by the lower quartile average to obtain its response ratio. A response ratio of 10 or more is considered very significant for indicating underlying mineralization. Lesser values of 5 to 10 can also be important particularly where more than one element has such a value. Response ratios can best be thought of as a multiple of background in interpreting results.

Rock Samples.

One rock sample was collected from one of the MMI grid soil pits. Rock chips from angular float were collected in a numbered kraft sample bag. It was sent to Acme Labs in Vancouver, B.C., where the sample was weighed, crushed, split and pulverized to 200 mesh, and 15 grams digested in 1:1:1 Aqua Regia and sent for ICP-MS analysis. This is Acme's 1DX method using a 15 g sample size.

Silt Samples.

Four stream sediment samples were collected from three streams within the soil grid area. Samples were collected by plastic scoop, placed into numbered gusseted kraft sample bags and stored in 11 by 20 cm plastic bags. These samples were collected to corroborate grid soil results and establish effectiveness of silt sampling in the general area. Samples were sent to Acme Labs in Vancouver, B.C., where samples were dried at 60*C, 100g sieved through an 80 mesh screen, digested in 1:1:1 Aqua Regia and then sent for Acme's Ultratrace MS-ICP analysis.

Bark Samples.

21 biogeochemical samples were collected from bark of white spruce trees, four to eight inches in diameter. A paint scraper and paper plate was used to collect the bark, which was placed into a numbered gusseted kraft sample bag. A numbered flag was hung from the tree. Biogeochemical samples were only collected if the ground was so frozen that MMI soil samples could not be collected except for 5 samples that were collected beside MMI soil samples for comparative purposes. Samples were sent to Acme Labs in Vancouver, B.C., where samples were macerated to 1 mm, digested in aqua regia and then sent for MS-ICP analysis for 37 elements.

RESULTS

Results for all samples are provided in Appendices. Table 1 provides response ratios for 17 selected elements for the 174 MMI soil samples. Figure 2 shows the location of the MMI samples on a regional scale with limits of anomalous Cu, Mo, and Ag shown in red, blue and purple respectively. Figure 2.5 shows the location and sample numbers for all four types of samples. Figures 3 to

11 show the MMI response ratios for Cu, Mo, U, Ni, Ag, Au, Ti, Zn, and Pb as ranges and values. Results for the rocks, silts, and bark samples are not shown on the figures but provided in Tables 2, 3, and 4 and discussed further below.

MMI Samples.

Four strong multi-element soil anomalies labeled A, B, C, and D on Figure 2 are highly encouraging for underlying porphyry style mineralization on Anomalies B, C, and D and for underlying structurally controlled mineralization on Anomaly A. Refer to Figures 2 to 11 in the following discussions.

Anomaly A.

This is a linear anomaly one km long and about 200 m wide that trends northwest and is open on both ends. It is best defined by strongly anomalous Ag RRs of 9 to 25 and supported by anomalous RRs for Cu 13 to 32, Mo 13 and 16, U 13 to 199, Ni 11 and 28, and Au 14 and 14. No mineralized float was present in the area that might explain the source of the anomalies. Bedrock is certainly Reid Lake Batholith quartz monzonite. Additional sampling could define the extent of the anomaly. It will take trenching or drilling to explain the source. Hand trenching should be considered because of the occurrence of colluvium under many of the loess samples in this area.

Anomaly B.

This is an irregularly shaped anomaly that is defined by strongly anomalous RRs for Cu (up to 17), Mo (up to 140), U (up to 137), and Ni (up to 20). Zn and Pb appear to be generally low over the anomaly and anomalous immediately outside the anomaly. There are no anomalous Ag RRs but three modest anomalous Au RRs. Size of the anomaly is about 500m by 1000m. Bedrock is certainly Reid lake Batholith quartz monzonite. Colluvium occurs in about half of those soil sample pits that penetrated the loess blanket making trenching a suitable test for explaining cause of the anomaly although depth of colluvium is unknown.

Anomaly C.

This is a roughly circular anomaly, open to the west, measuring 900m by 900m as defined by RRs for Cu (up to 22), U (up to 30), and Ni (up to 24). Mo RRs (up to 26) form a somewhat smaller anomalous pattern measuring 600m by 400m lying within the Cu-U-Ni anomalies. There are no anomalous Ag RRs and few modest anomalous Au RRs. RRs for Ti, Zn, and Pb are low over the anomaly but higher over immediately surrounding ground. Bedrock is certainly Reid lake Batholith quartz monzonite but tills are common in soil pits and trenching unlikely to be an effective prospecting tool.

<u>Anomaly D.</u>

This anomaly is roughly 500m by 700m, open to the south and west, defined by RRs for Cu (up to 25), U (up to 69), and Ni (up to 24). There are no anomalous Mo RRs, Ag RRs and few modest anomalous Au RRs. Bedrock is certainly Reid Lake Batholith quartz monzonite but tills are common in soil pits and trenching unlikely to be an effective prospecting tool.

Rock Samples.

No outcrops were seen anywhere in the soil grid area. Large subround to subangular boulders of weakly Kspar porphyritic quartz monzonite were noted in the north third of the grid area from sample T87 to T97 and for up to 300 m either side of this soil line. Similar boulders were seen at T105 and T106. These boulders could have been glacially transported or have been moved downslope by weathering processes.

Soil pits found 10 to >25 cm of loess in all pits. Of 82 soil pits dug by Richards, 18 contained colluvium underlying loess less than 25 cm thick, 40 contained till underlying loess less than 25 cm thick, and 25 contained loess in excess of 25 cm thick so the underlying material was not encountered. Of the 58 samples that encountered till or colluvium, 31% were colluvium and 69% were till. Much of the colluvium samples occurred in the north half of the soil grid in samples between T87 to T100, T156 to T163, T126 to T128, T147 to T150, and at T117.

Float and chips in most soil pits were unaltered except for the following:

T90. Fairly common chlorite including fracture chlorite in round qtz monz pebbles.

T117. Angular colluvium with much chlorite in qtz monz.

T156. Angular colluvium. Bedrock rubble? Quartz monzonite with low fracture limonite.

T158. Some angular chips with limonitic faces.

T163. Angular cobbles quartz monzonite. All mafics altered to chlorite. Weak limonitic fractures.

These chloritic altered rocks with some weak fracture limonite could easily be altered rocks peripheral to porphyry style mineralization. However, sample T156 was sampled and contained no anomalous metals. Refer to Table 2.

Silt Samples.

Results for the four silt samples are provided in Table 3. As these silts used Acme's Ultratrace analysis which is the same method used for RGS Open File 2012-09, covering 115P, percentile thresholds for various elements calculated for that survey are useful in interpreting the results of the four samples. W4 and W5 contain the most anomalous results, W2 and W3 less so.

W2 contains 80%tile for U and 95%tile for Au.

W3 contains 95%tile for Mo, 70%tile for U, 90%tile for Au, and 90%tile for Sb.

W4 contains 98%tile for Mo, 80%tile for Cu, 90%tile for U, 80%tile for Au, and 95%tile for Sb.

W5 contains 90%tile for Mo, 70%tile for As, 98%tile for U, 95%tile for Au, and 80%tile for Sb.

W3 and W4 were collected within Anomaly C, W2 and W5 were collected north of Anomaly B. Jeff Bond of YGS has interpreted ice direction to be to the south on the east side of the White Mountains and to the north on the west side. This northerly direction on the west side of the White Mountains would be compatible with anomalous silts W2 and W5 lying north of Anomaly B and with metals smeared by glaciers in this direction.

Bark Samples.

Results for the 21 bark samples are provided in Table 4. Results show no useful anomalies, only slightly elevated response in a few samples. Five bark samples were collected beside MMI soil samples for comparative purposes. These are C196, C197, C198, C202, and C207. However all samples were collected within Anomalies C and D so no samples of background values collected outside anomalous areas is provided form this sampling. More sampling is required to confirm the usefulness of this method.

CONCLUSIONS.

- Float and rock chips in colluvium from soil pits were coarse grained weakly Kspar porphyritic hornblende quartz monzonite coinciding with the geology of the Reid Lakes Batholith as described by Ryan and Colpron.
- The hillsides are covered in till and colluvium with discontinuous and partially admixed loess measuring 10 to >25 cm thick covering it. Beneath the loess, colluvium was common in the north half of the soil grid and tills common in the southern half.
- In general Au, As, and Sb yielded very minor and low value RRs. This may be due to their absence in any underlying mineralization or their unresponsiveness to MMI analysis.
- Four large patterns of strongly anomalous response ratios for 174 MMI soil samples collected on a grid have been defined. They are:
    1. Anomaly A. Structural Pattern. 1000m by 200 m northwest trending anomaly defined by Ag, Cu, Mo, U, Ni, and Au. Open to the southeast and northwest. This is the only anomaly with strong Ag response ratios.
    2. Anomaly B. Porphyry signature and size. 1000m by 500m irregular shaped anomaly defined by Cu, Mo, U, and Ni and closed off by low samples.
    3. Anomaly C. Porphyry signature and size. 900m by 900m circular pattern of anomalous Cu, U, and Ni with a contained 600m by 400m anomalous pattern for Mo.
    4. Anomaly C. Porphyry signature and size. 500m by 700m circular pattern of anomalous Cu, U, and Ni. No anomalous Mo.
- Four silt samples were collected in two of the anomalies and returned anomalous U and Au in all four samples, anomalous Mo in three samples and anomalous Sb and As in two samples. White spruce bark samples showed no or little variability for metals in the 21 bark samples collected. However all samples were collected within the MMI soil anomalies so no background values are available to make proper comparisons. Rock samples from soil pits about 300 m beyond one of the soil anomalous

patterns contained weak limonite on fractures along with chloritization of mafics. This alteration could be peripheral to porphyry mineralization.

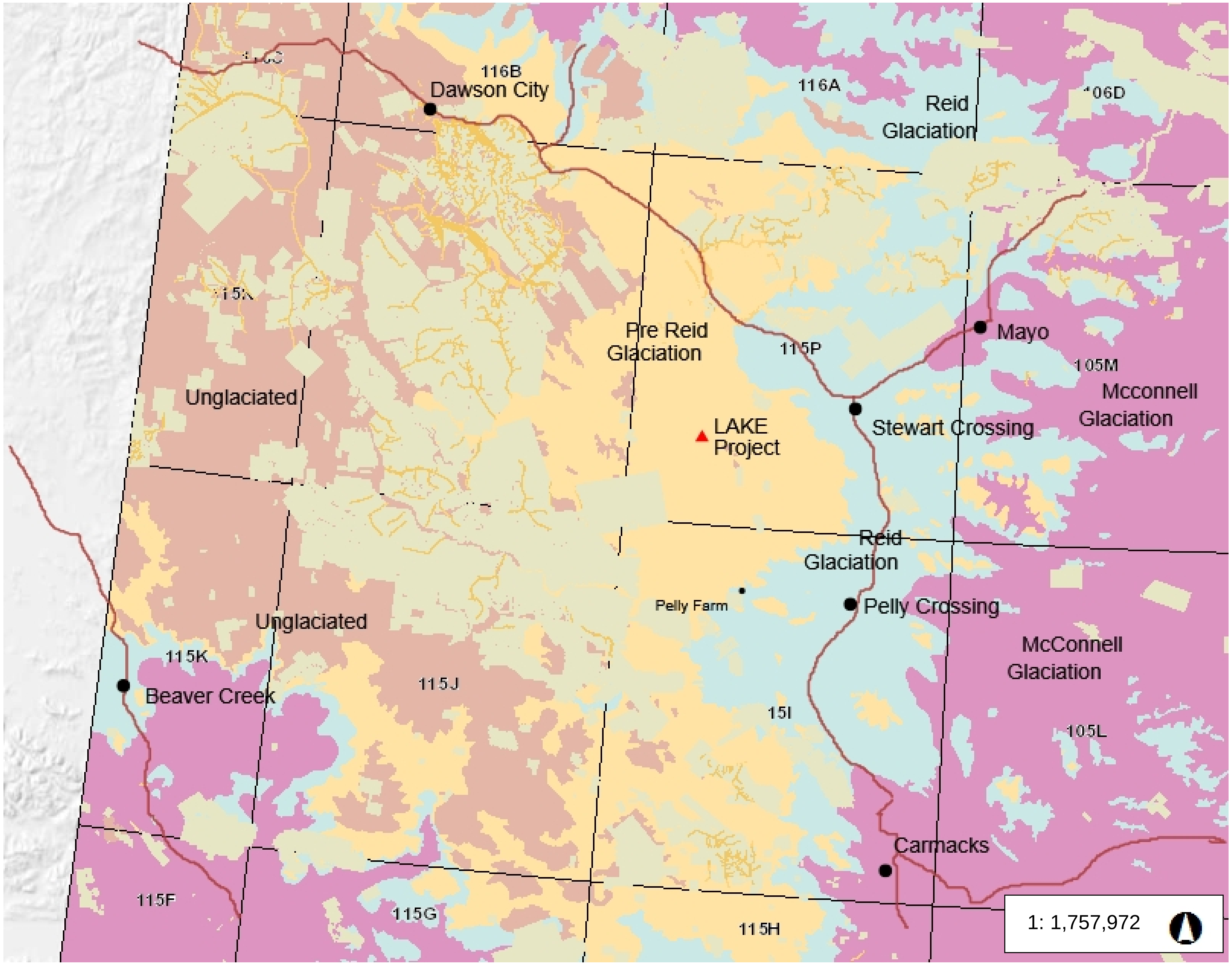
RECOMMENDATIONS.

It is recommended to stake claims covering all four geochemical targets. Additional work is highly recommended on the three first rate porphyry targets and one structural target. Additional soil sampling is recommended to limit the size and extent of the anomalies. Ah soil and vegetative sampling is recommended as part of the next exploration program particularly to the west where swampy ground is common thereby making collection of MMI soil samples difficult or impossible. Induced Polarization surveys are recommended to confirm the existence of chargeability and resistivity anomalous rock under the porphyry targets. Trenching by hand is recommended over Anomalies A and B where colluvium was common in soil pits that penetrated the loess blanket.

Respectfully submitted,

Gordon G Richards P.Eng.

Figure 1. Location Map LAKE Project



Legend

- Placer Claims (1M)
- Quartz Claims (1M)
- 1:250,000 NTS Mapsheet Inde
- Glacial Limits (1M)
  - Cordilleran and montane glacial fea
  - Tutsieta Lake Phase Limit (ca. 13 k
  - Katherine Creek Phase Limit (ca. 2
  - All time Laurentide extent (ca. 30 ka
  - Cordilleran and montane glacial fea
  - Cordilleran and montane glacial fea
  - Unglaciated area

Notes

89.3 0 44.65 89.3 Kilometers

Yukon Albers
Produced from: Yukon Geological Survey MapMaker Online

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Date Printed: 27-Oct-2013

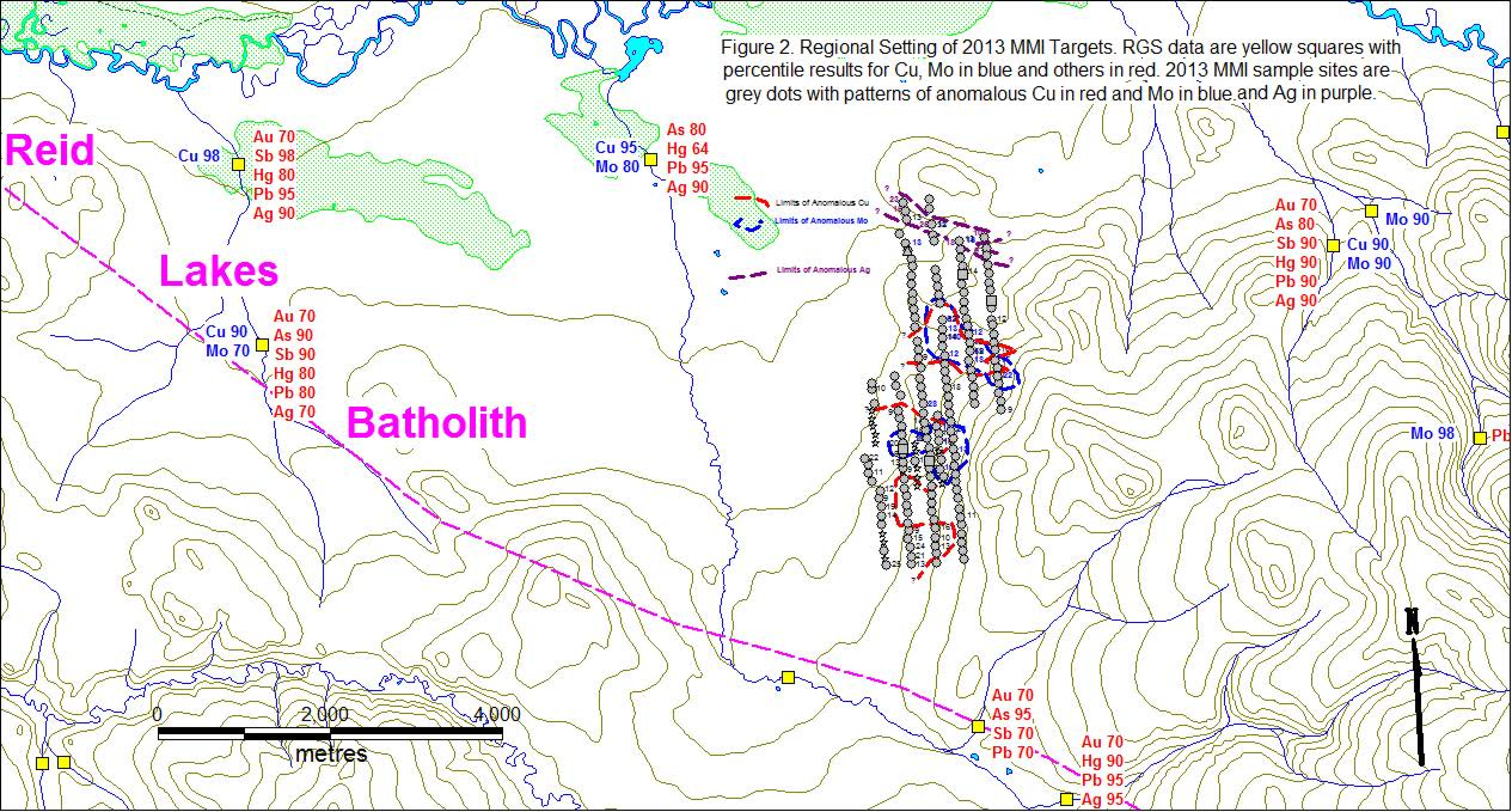


Figure 2. Regional Setting of 2013 MMI Targets. RGS data are yellow squares with percentile results for Cu, Mo in blue and others in red. 2013 MMI sample sites are grey dots with patterns of anomalous Cu in red and Mo in blue and Ag in purple.

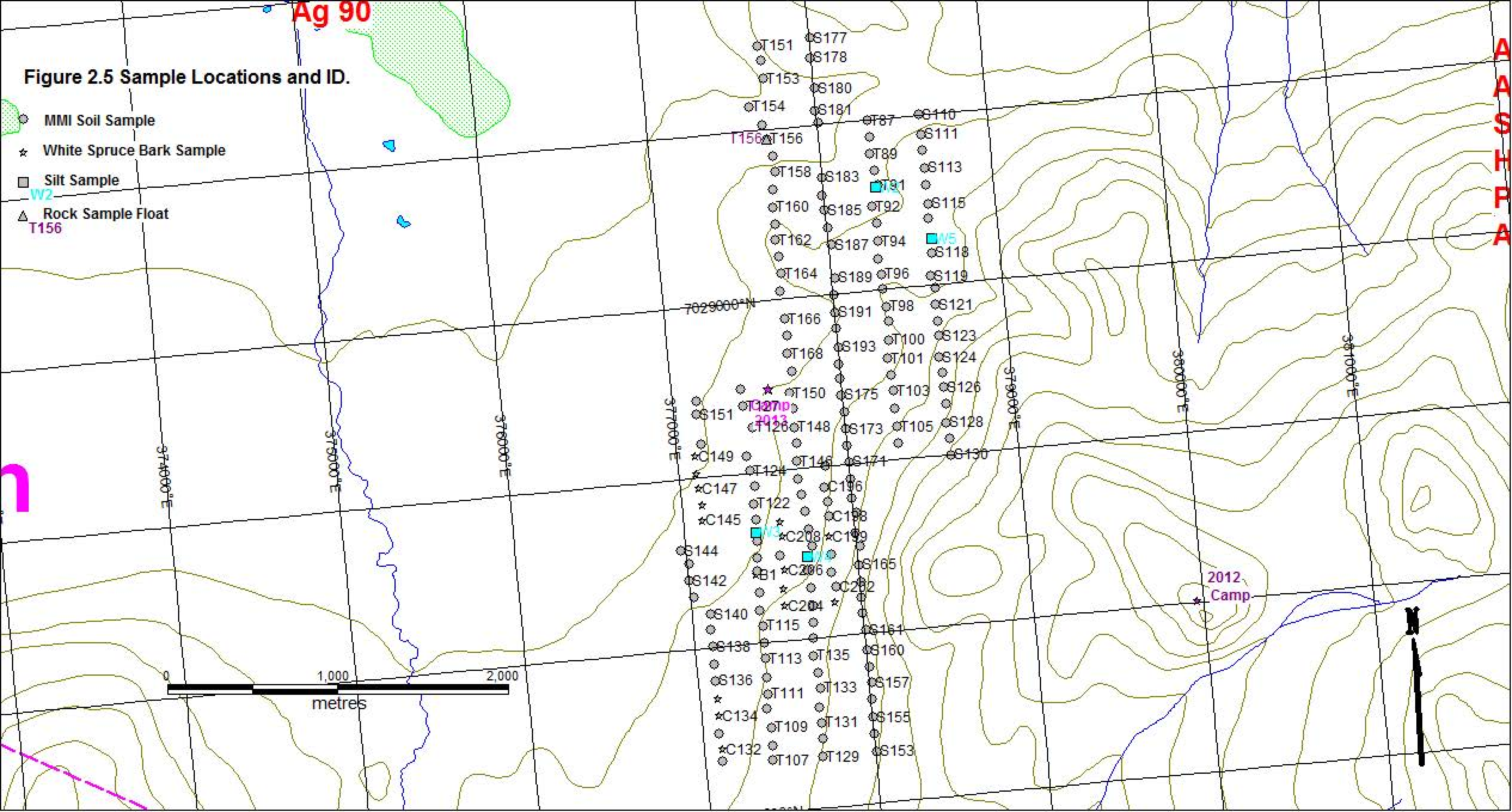


Figure 2.5 Sample Locations and ID.
MMI Soil Sample
White Spruce Bark Sample
Silt Sample
W2
Rock Sample Float
T156
Ag 90
7029000°N
374000°E
375000°E
376000°E
377000°E
379000°E
380000°E
381000°E
2012
Camp
Camp
2013
0
1,000
2,000
metres
T151
S177
S178
T153
S180
T154
S181
T87
S110
T156
S111
T89
T158
S183
S113
S115
T160
S185
T92
T162
S187
T94
W5
S118
T164
S189
T96
S119
T98
S121
S191
T166
T100
S123
S193
T168
T101
S124
T150
S175
T103
S126
S151
T148
S173
T105
S128
C149
T146
S171
S130
T124
C147
C196
T122
C145
C198
C199
S144
S165
S142
B1
C202
C204
S140
S161
T115
S138
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T107
T129
S153
N

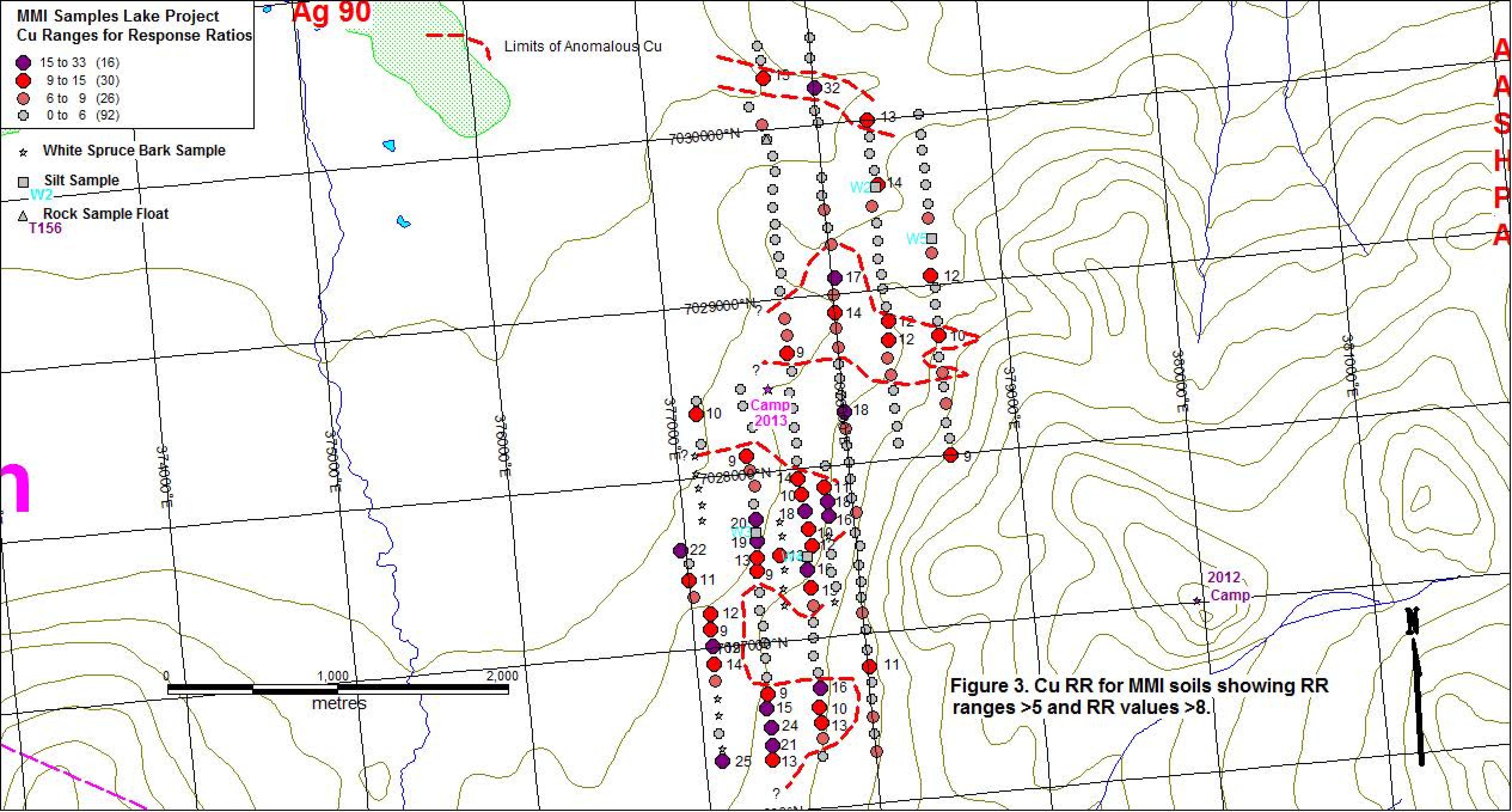

Figure 3. Cu RR for MMI soils showing RR ranges >5 and RR values >8.

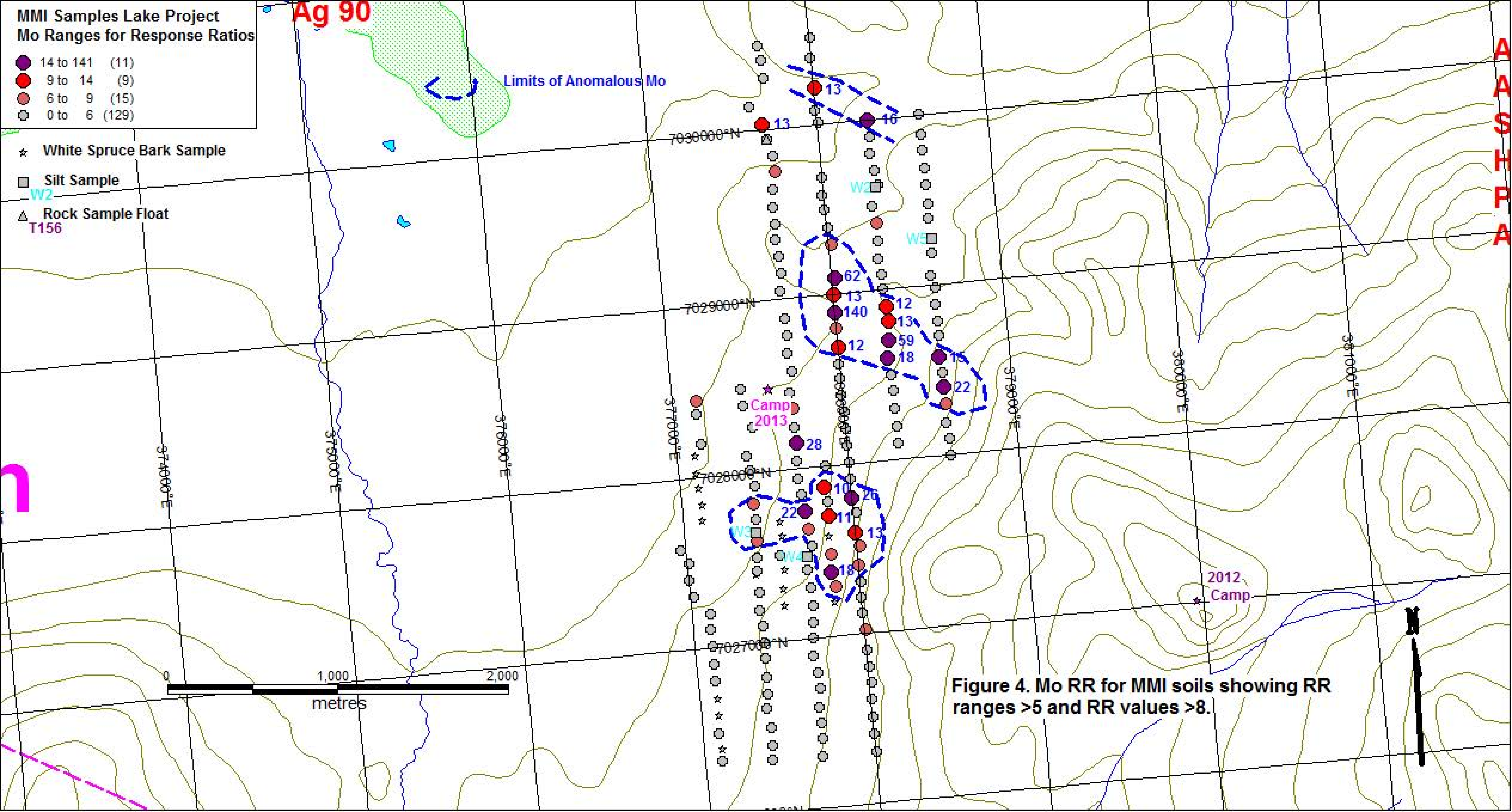

Figure 4. Mo RR for MMI soils showing RR ranges >5 and RR values >8.

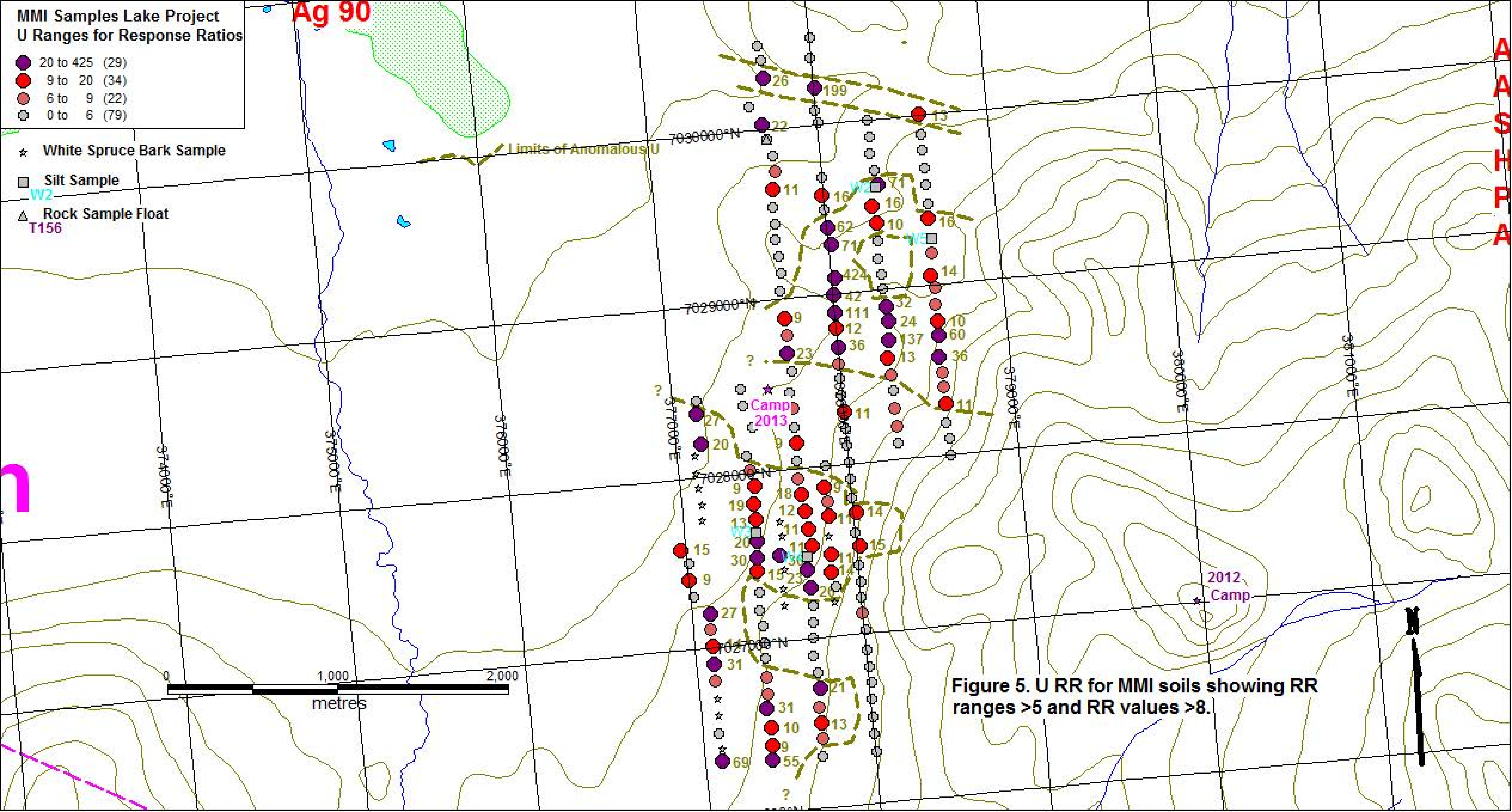

Figure 5. U RR for MMI soils showing RR ranges >5 and RR values >8.

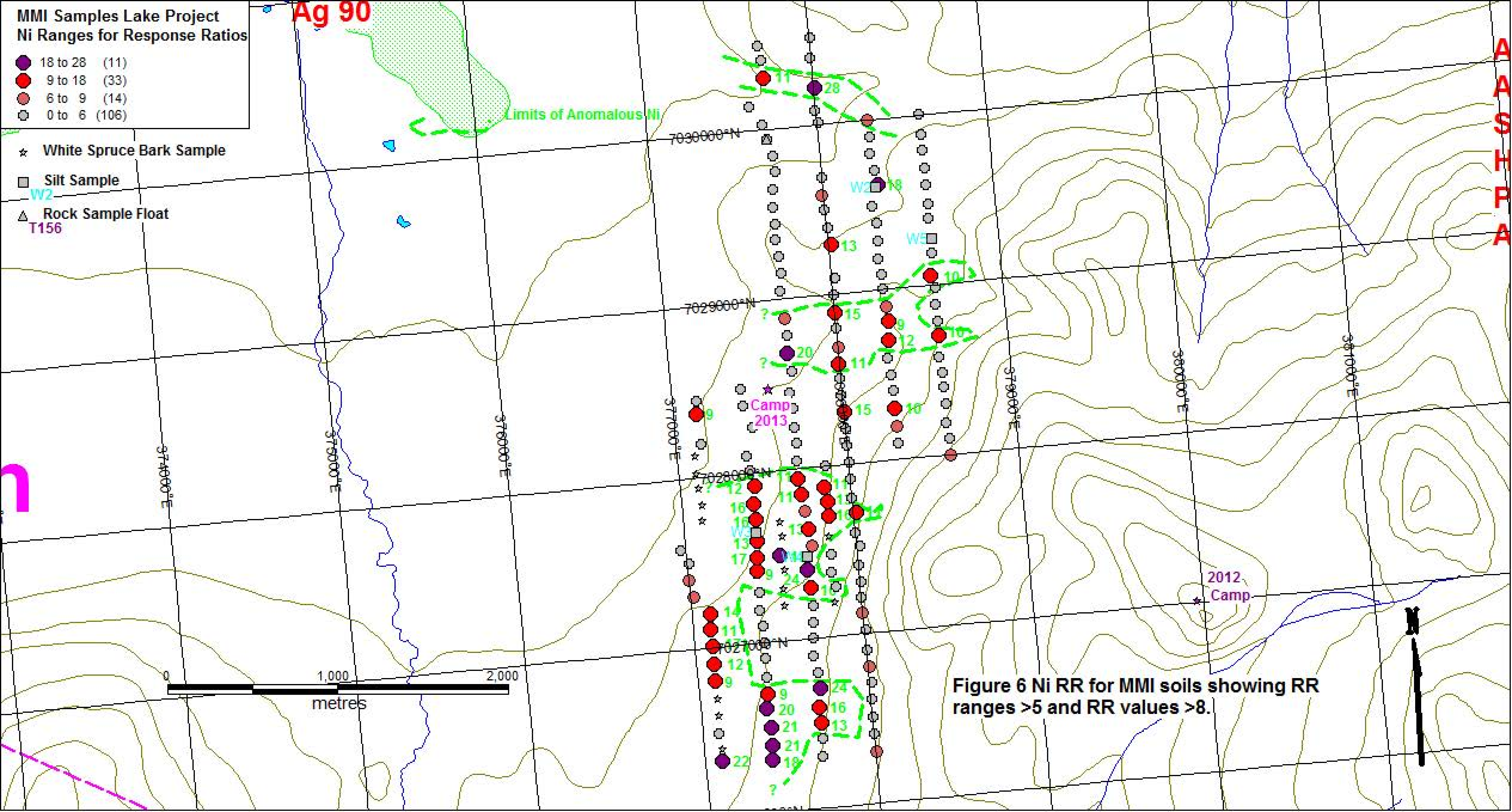

Figure 6 Ni RR for MMI soils showing RR ranges >5 and RR values >8.

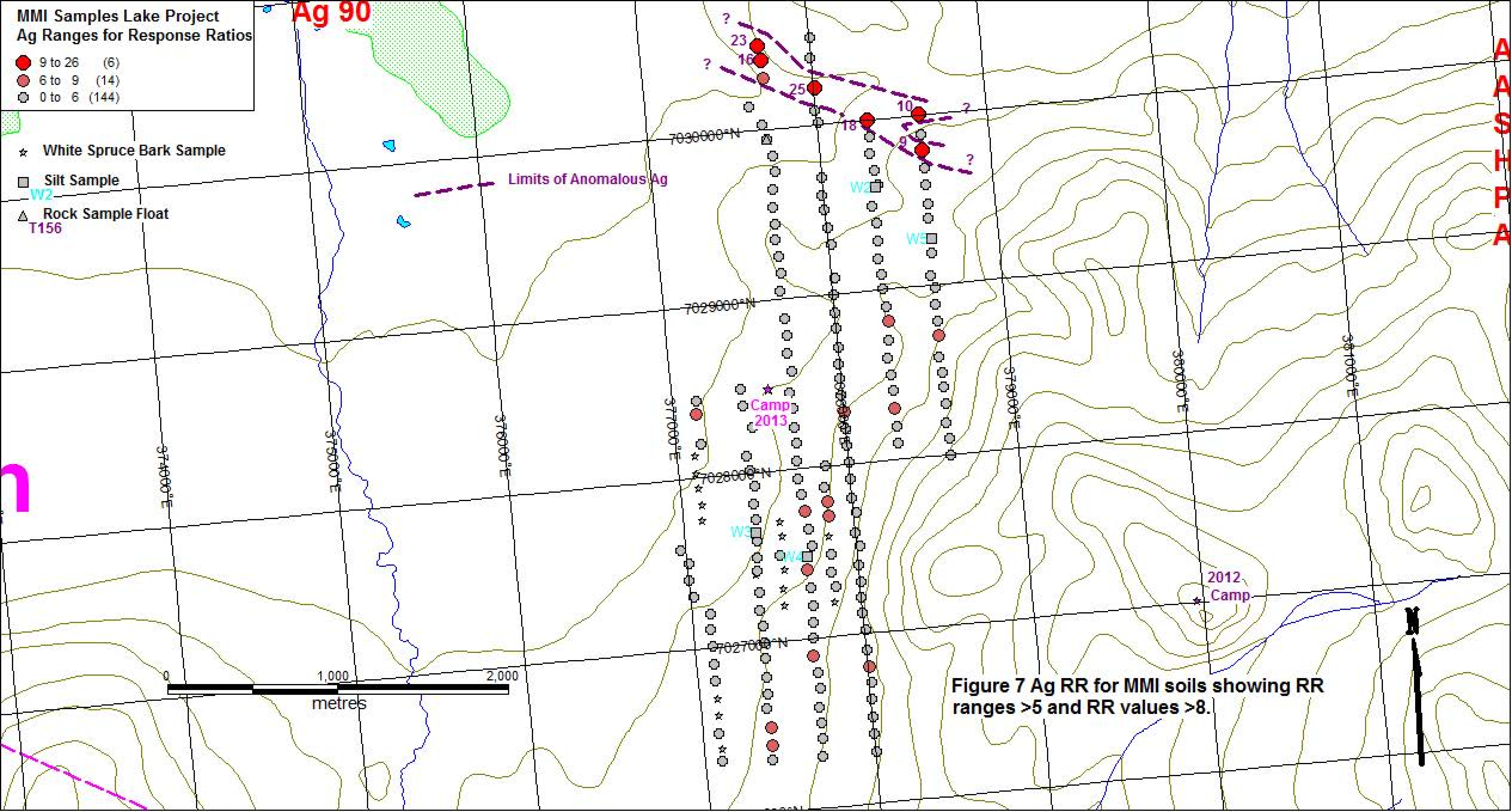

Figure 7 Ag RR for MMI soils showing RR ranges >5 and RR values >8.

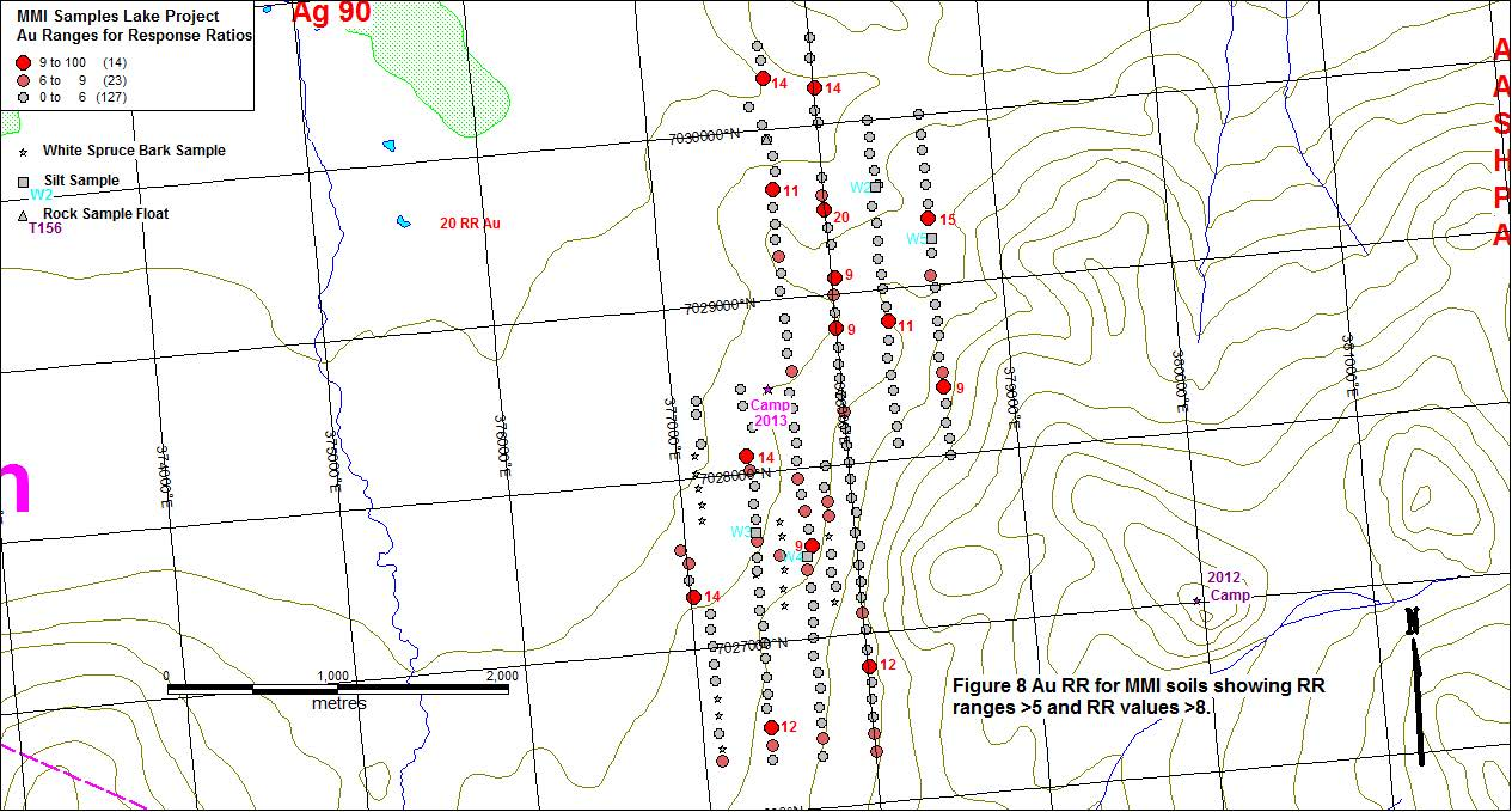

Figure 8 Au RR for MMI soils showing RR ranges >5 and RR values >8.

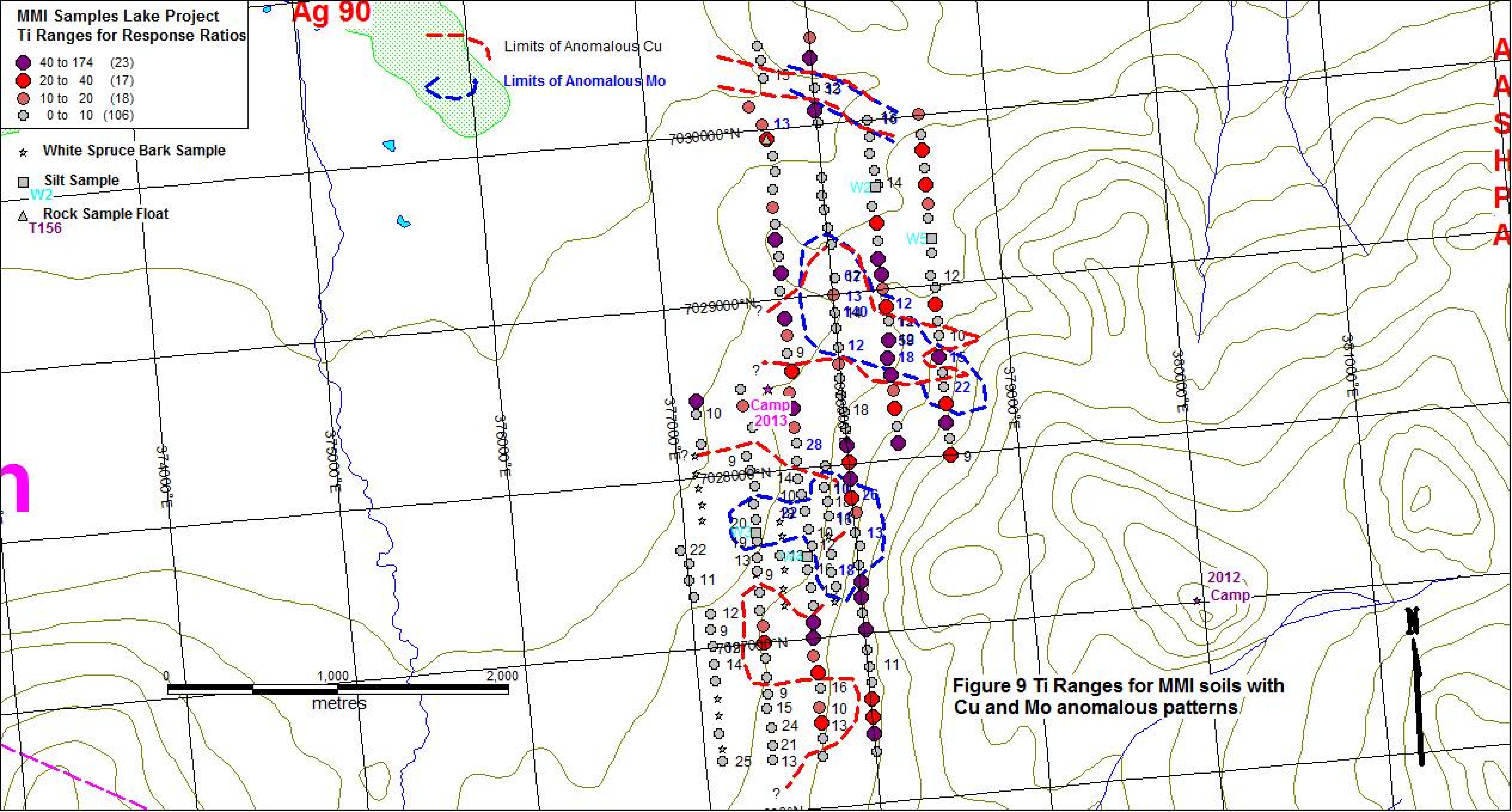

Figure 9 Ti Ranges for MMI soils with Cu and Mo anomalous patterns

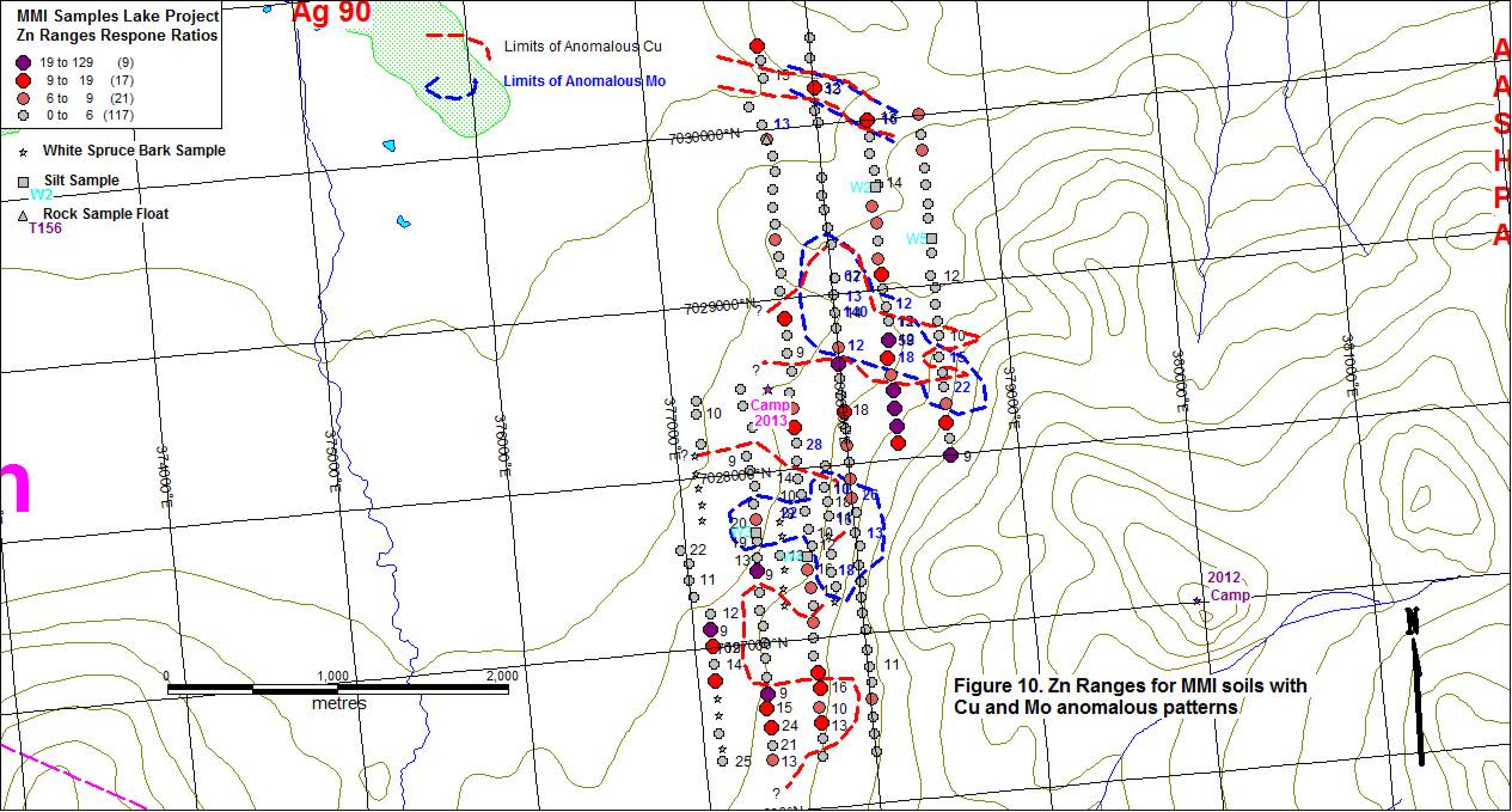

Figure 10. Zn Ranges for MMI soils with Cu and Mo anomalous patterns

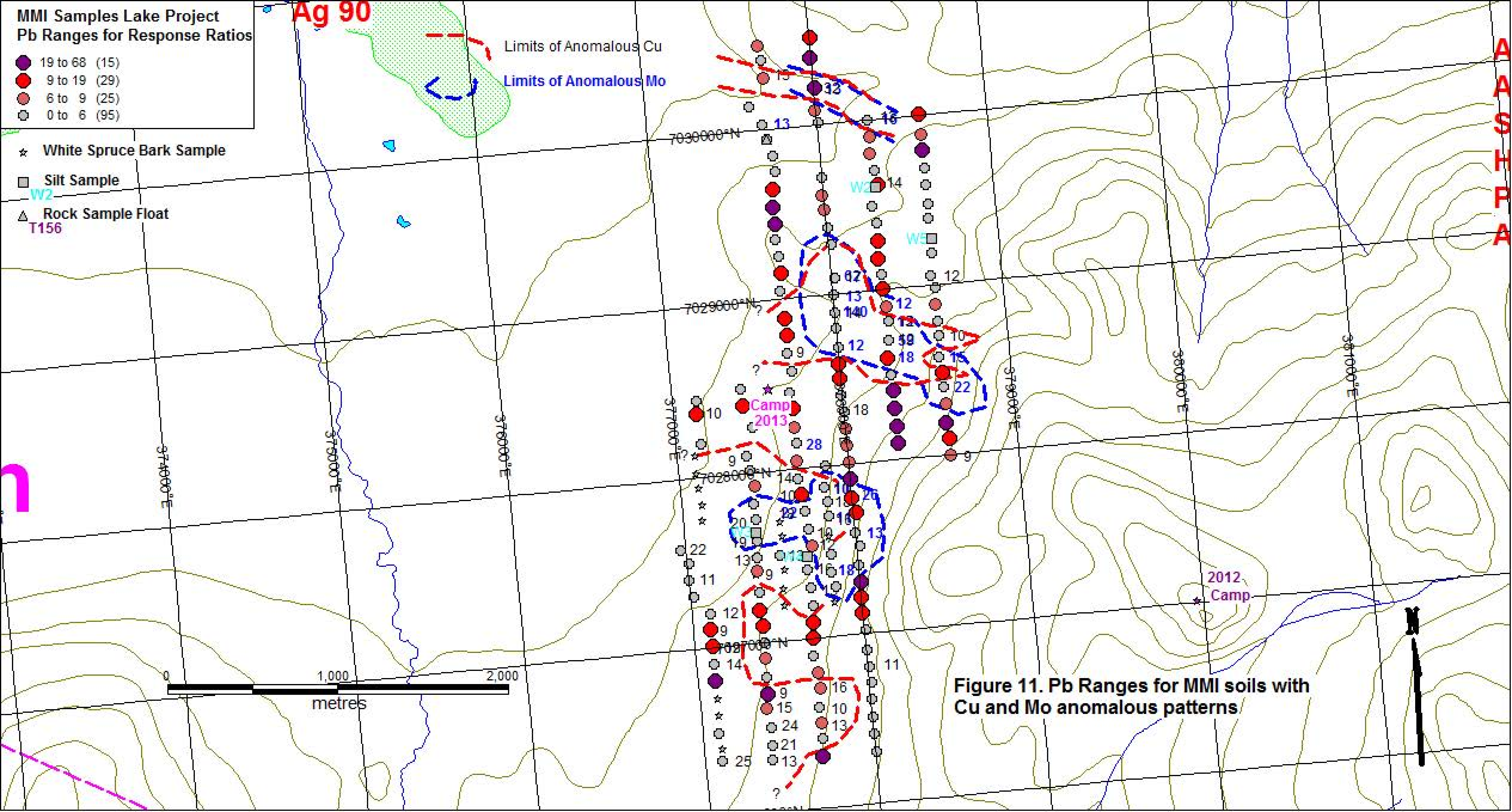

Figure 11. Pb Ranges for MMI soils with Cu and Mo anomalous patterns