

| Location:             | <i>C6</i>    | Site:                     | <i>A11</i>                      | Date:                          | <i>2024/12/11</i>         |                        |            |                                  |                              |          |
|-----------------------|--------------|---------------------------|---------------------------------|--------------------------------|---------------------------|------------------------|------------|----------------------------------|------------------------------|----------|
| Time:                 | <i>1046</i>  | Observers:                | <i>Erica Kelder</i>             | Interval board SWE measurement |                           |                        |            |                                  |                              |          |
| Precip Rate           | <i>None</i>  | Very Light<br>(0.5 cm/hr) | Light<br>(1 cm/hr)              | Moderate<br>(5 cm/hr)          | Heavy<br>(10 cm/hr)       | Depth (cm)             | SWE (mm)   | Density (kg/m³)                  | Evidence of melt loss? (Y/N) |          |
| Precip Type           | Rain         | Snow                      | Graupel                         | Hail                           | Rain/Snow                 | Sample A               | <i>4.6</i> | <i>4.5</i>                       | <i>76</i>                    | <i>N</i> |
| Sky                   | Clear        | Few ( $< 1/4$ of sky)     | Scattered ( $1/4 - 1/2$ of sky) | Broken ( $> 1/2$ of sky)       | Overcast (complete cover) | Sample B               | <i>6.8</i> | <i>6.5</i>                       | <i>96</i>                    |          |
| Wind                  | Calm (0 mph) | Light (4-16 mph)          | Moderate (17-25 mph)            | Strong (26-38 mph)             | Extreme (> 38 mph)        | Sample C               | <i>6.0</i> | <i>6.0</i>                       | <i>100</i>                   |          |
| Tree Canopy           | No trees     | Sparse (5-20%)            | Open (20-70%)                   | Closed ( $> 70\%$ )            | Ground Vegetation         | Ground Condition       | Frozen     | Moist                            | Saturated                    |          |
| Instrument            | Y/N          | SN                        | Instrument                      | Y/N                            | SN                        | Additional Comments    |            | Height of Ground Vegetation (cm) |                              |          |
| Digital LWC           | <i>✓</i>     |                           | Snow Scope                      | <i>✓</i>                       | <i>234</i>                | <i>Thin New Clouds</i> |            | <i>10cm</i>                      |                              |          |
| Stratigraphy pictures | <i>✓</i>     |                           | Lyte Probe                      | <i>N</i>                       |                           | Weather                |            |                                  |                              |          |
| Standard ram          | <i>✓</i>     |                           | SMP                             | <i>N</i>                       |                           |                        |            |                                  |                              |          |
| Powder Ram            | <i>✓</i>     |                           | Force Ram                       | <i>✓</i>                       |                           |                        |            |                                  |                              |          |
| Slush Ram             | <i>N</i>     |                           | Force Snow Scope                | <i>✓</i>                       |                           |                        |            |                                  |                              |          |
| HS Transects          | <i>✓</i>     |                           | Snow Scope Transects            | <i>N</i>                       |                           |                        |            |                                  |                              |          |
| Pit Pictures          | <i>✓</i>     |                           | SSA / NIR Box                   | <i>N</i>                       |                           |                        |            |                                  |                              |          |
| Other                 |              |                           | Misc                            |                                |                           | <i>10 cm of snow</i>   |            |                                  |                              |          |



**Ram Penetrometer Field Data Sheet**

|                                |                |     |       |   |                      |                            |   |      |         |      |
|--------------------------------|----------------|-----|-------|---|----------------------|----------------------------|---|------|---------|------|
| Location:                      | Co             |     |       |   |                      | Tube weight                | T | kg   |         |      |
| Site:                          | Am             |     |       |   |                      | Hammer weight              | H | kg   |         |      |
| Associated pit/transect/point: | Am 20241211    |     |       |   |                      | Number of falls            | n |      |         |      |
| Date:                          | 20241211       |     |       |   |                      | Fall height                | f | cm   |         |      |
| Observer:                      | Emelie KELDER  |     |       |   |                      | Location of point          | p | cm   |         |      |
| UTME:                          | UTMN:          |     | Zone: |   | $RN = T + H + nfH/p$ |                            |   |      |         |      |
| Ram type:                      | PENETRATOR STD |     |       |   |                      | $RR = 9.81(T + H + nfH/p)$ |   |      |         |      |
|                                | T              | H   | n     | f | p                    | T                          | H | n    | f       | p    |
| POW                            | 0.1            | 0   | 0     | 0 | 5                    | 2                          | 5 | 45.5 | STD RAM | 1202 |
|                                | 0.1            | 0.1 | 0     | 0 | 5                    |                            |   | 46.5 |         | 59   |
|                                |                |     | 1     | 1 | 8.5                  |                            | 3 | 5    | 47.5    |      |
|                                |                |     | 2     | 1 | 9.5                  |                            |   | 48.5 |         |      |
|                                |                |     |       |   | 10.5                 |                            |   | 49.5 |         |      |
|                                |                |     |       |   | 11.5                 |                            |   | 50.5 |         |      |
|                                |                |     |       |   | 12.5                 |                            | 5 | 5    | 51.5    |      |
|                                |                |     |       |   | 13.5                 |                            | 3 | 10   | 52.5    |      |
|                                |                |     |       |   | 14.5                 |                            | 2 | 15   | 53.5    |      |
|                                |                | 4   | 1     | 1 | 15.5                 |                            | 1 | 20   | 54.5    |      |
|                                |                | 1   | 3     | 1 | 16.5                 |                            | 2 | 20   | 55.5    |      |
|                                |                | 2   | 3     | 1 | 17.5                 |                            |   | 56.5 |         |      |
|                                |                | 1   | 4     | 1 | 18.5                 |                            |   | 57.5 |         |      |
|                                |                | 2   | 4     | 1 | 19.5                 |                            | 3 | 20   | 59      |      |
|                                |                | 2   | 5     | 2 | 20.5                 |                            | 2 | 20   | 60      |      |
|                                |                | 2   | 5     | 2 | 21.5                 |                            | 1 | 20   | 61      |      |
|                                |                |     |       |   | 22.5                 |                            |   | 62   |         |      |
|                                |                |     |       |   | 23.5                 |                            |   | 63   |         |      |
|                                |                | 3   | 5     | 2 | 24.5                 |                            |   | 64   |         |      |
|                                |                |     |       |   | 25.5                 |                            | 3 | 20   | 65      |      |
|                                |                |     |       |   | 26.5                 |                            |   |      |         |      |
|                                |                | 4   | 5     | 2 | 27.5                 |                            |   |      |         |      |
|                                |                | 2   | 10    | 2 | 28.5                 |                            |   |      |         |      |
|                                |                |     |       |   | 29.5                 |                            |   |      |         |      |
|                                |                | 2   | 15    | 3 | 30.5                 |                            |   |      |         |      |
|                                |                | 1   | 20    | 3 | 31.5                 |                            |   |      |         |      |
|                                |                | 1   | 20    | 3 | 33                   |                            |   |      |         |      |
|                                |                | 1   | 10    | 3 | 34                   |                            |   |      |         |      |
|                                |                |     |       |   | 35                   |                            |   |      |         |      |
|                                |                |     |       |   | 36.5                 |                            |   |      |         |      |
|                                |                | 1   | 5     | 3 | 37.5                 |                            |   |      |         |      |
|                                |                | 2   | 5     | 3 | 38.5                 |                            |   |      |         |      |
|                                |                | 1   | 5     | 3 | 39.5                 |                            |   |      |         |      |
|                                |                |     |       |   | 40.5                 |                            |   |      |         |      |
|                                |                |     |       |   | 41.5                 |                            |   |      |         |      |
|                                |                |     |       |   | 42.5                 |                            |   |      |         |      |
|                                |                |     |       |   | 43.5                 |                            |   |      |         |      |
|                                |                | 2   | 5     | 4 | 44.5                 |                            |   |      |         |      |

Notes:

160  
17

Location: CO Date: 2024/12/11

Site: AM

Pit: AM 2024/12/11 Time: 1204

| Force     | Depth      | Depth   | Grnd     |
|-----------|------------|---------|----------|
| max       | manual     | digital |          |
| N         | cm         | cm      | Y/N      |
| Profile # | Force Gage |         | Comments |

X-Coord Y-Coord

Time

Data Type

SN

Profile #

Force Gage

N

cm

cm

Y/N

Comments

|    |    |      |          |     |      |      |    |    |    |   |  |
|----|----|------|----------|-----|------|------|----|----|----|---|--|
| 15 | 15 | 1152 | Raw Run  |     |      |      |    |    |    |   |  |
| 30 | 30 | 1202 | STD Run  |     |      |      |    |    |    |   |  |
| 15 | 20 | 204  | ScalE    | 234 | 924  | NA   | NA | 63 | 61 | ✓ |  |
| 30 | 30 | 1204 |          | 925 |      |      |    | 62 | 59 |   |  |
| 45 | 45 | 1205 |          | 926 |      |      |    | 63 | 61 |   |  |
| 60 | 60 | 1205 | ↓        | 927 |      |      |    | 65 | 69 |   |  |
| 75 | 75 | 1205 | ↓        | 928 | ↓    |      |    | 64 | 62 | ↓ |  |
| 15 | 15 | 1206 | Rock Run | 12A | 1000 | 10   | 51 | NA |    |   |  |
| 30 | 30 | 1206 |          |     | 14   | 48   |    |    |    |   |  |
| 45 | 45 | 1207 |          |     | 10   | 49   |    |    |    |   |  |
| 60 | 60 | 1207 | ↓        |     | 10   | 48   |    |    |    |   |  |
| 75 | 75 | 1208 | ↓        |     | 13   | 49   | ↓  |    |    |   |  |
| 15 | 60 | 1209 | ScalE    | 234 | 929  | 1000 | 4  | 41 | 39 |   |  |
| 30 | 60 | 1209 | ↓        | 930 |      |      | 4  | 43 | 41 |   |  |
| 45 | 60 | 1209 | ↓        | 931 |      |      | 0  | 44 | 42 |   |  |
| 60 | 60 | 1210 | ↓        | 932 |      |      | 1  | 44 | 41 |   |  |
| 75 | 75 | 1210 | ↓        | 933 | ↓    | 3    | 42 | 40 |    |   |  |

NO APPARENT  
HARD LAYER IN  
ANY PROFILE

| Location (regional scale) |         | Site (study plot) |         | Transects       |         | Date     | Time    |     |  |  |
|---------------------------|---------|-------------------|---------|-----------------|---------|----------|---------|-----|--|--|
| CO                        |         | Am                |         | A, B            |         | 20241211 | Start   | End |  |  |
| Observer(s)               |         | Wx Description    |         |                 |         |          |         |     |  |  |
| <i>Emelie Kerec</i>       |         |                   |         |                 |         |          |         |     |  |  |
| 1029 Transect A           |         | 1038              |         | 1019 Transect B |         | 1628     |         |     |  |  |
| Point                     | HS (cm) | Point             | HS (cm) | Point           | HS (cm) | Point    | HS (cm) |     |  |  |
| 0                         | 63      | 31                | 72      | 0               | 63      | 31       | 67      |     |  |  |
| 1                         | 66      | 32                | 64      | 1               | 65      | 32       | 68      |     |  |  |
| 2                         | 66      | 33                | 70      | 2               | 64      | 33       | 68      |     |  |  |
| 3                         | 73      | 34                | 70      | 3               | 66      | 34       | 70      |     |  |  |
| 4                         | 70      | 35                | 76      | 4               | 69      | 35       | 71      |     |  |  |
| 5                         | 69      | 36                | 76      | 5               | 73      | 36       | 69      |     |  |  |
| 6                         | 67      | 37                | 81      | 6               | 65      | 37       | 72      |     |  |  |
| 7                         | 68      | 38                | 72      | 7               | 67      | 38       | 73      |     |  |  |
| 8                         | 70      | 39                | 71      | 8               | 66      | 39       | 72      |     |  |  |
| 9                         | 75      | 40                | 78      | 9               | 72      | 40       | 72      |     |  |  |
| 10                        | 76      | 41                |         | 10              | 67      | 41       |         |     |  |  |
| 11                        | 75      | 42                |         | 11              | 67      | 42       |         |     |  |  |
| 12                        | 74      | 43                |         | 12              | 64      | 43       |         |     |  |  |
| 13                        | 73      | 44                |         | 13              | 67      | 44       |         |     |  |  |
| 14                        | 70      | 45                |         | 14              | 65      | 45       |         |     |  |  |
| 15                        | 75      | 46                |         | 15              | 63      | 46       |         |     |  |  |
| 16                        | 69      | 47                |         | 16              | 66      | 47       |         |     |  |  |
| 17                        | 66      | 48                |         | 17              | 64      | 48       |         |     |  |  |
| 18                        | 70      | 49                |         | 18              | 67      | 49       |         |     |  |  |
| 19                        | 78      | 50                |         | 19              | 65      | 50       |         |     |  |  |
| 20                        | 68      | 51                |         | 20              | 62      | 51       |         |     |  |  |
| 21                        | 71      | 52                |         | 21              | 63      | 52       |         |     |  |  |
| 22                        | 68      | 53                |         | 22              | 67      | 53       |         |     |  |  |
| 23                        | 72      | 54                |         | 23              | 65      | 54       |         |     |  |  |
| 24                        | 81      | 55                |         | 24              | 66      | 55       |         |     |  |  |
| 25                        | 72      | 56                |         | 25              | 64      | 56       |         |     |  |  |
| 26                        | 79      | 57                |         | 26              | 66      | 57       |         |     |  |  |
| 27                        | 77      | 58                |         | 27              | 66      | 58       |         |     |  |  |
| 28                        | 80      | 59                |         | 28              | 67      | 59       |         |     |  |  |
| 29                        | 73      | 60                |         | 29              | 69      | 60       |         |     |  |  |
| 30                        | 74      |                   |         | 30              | 69      |          |         |     |  |  |