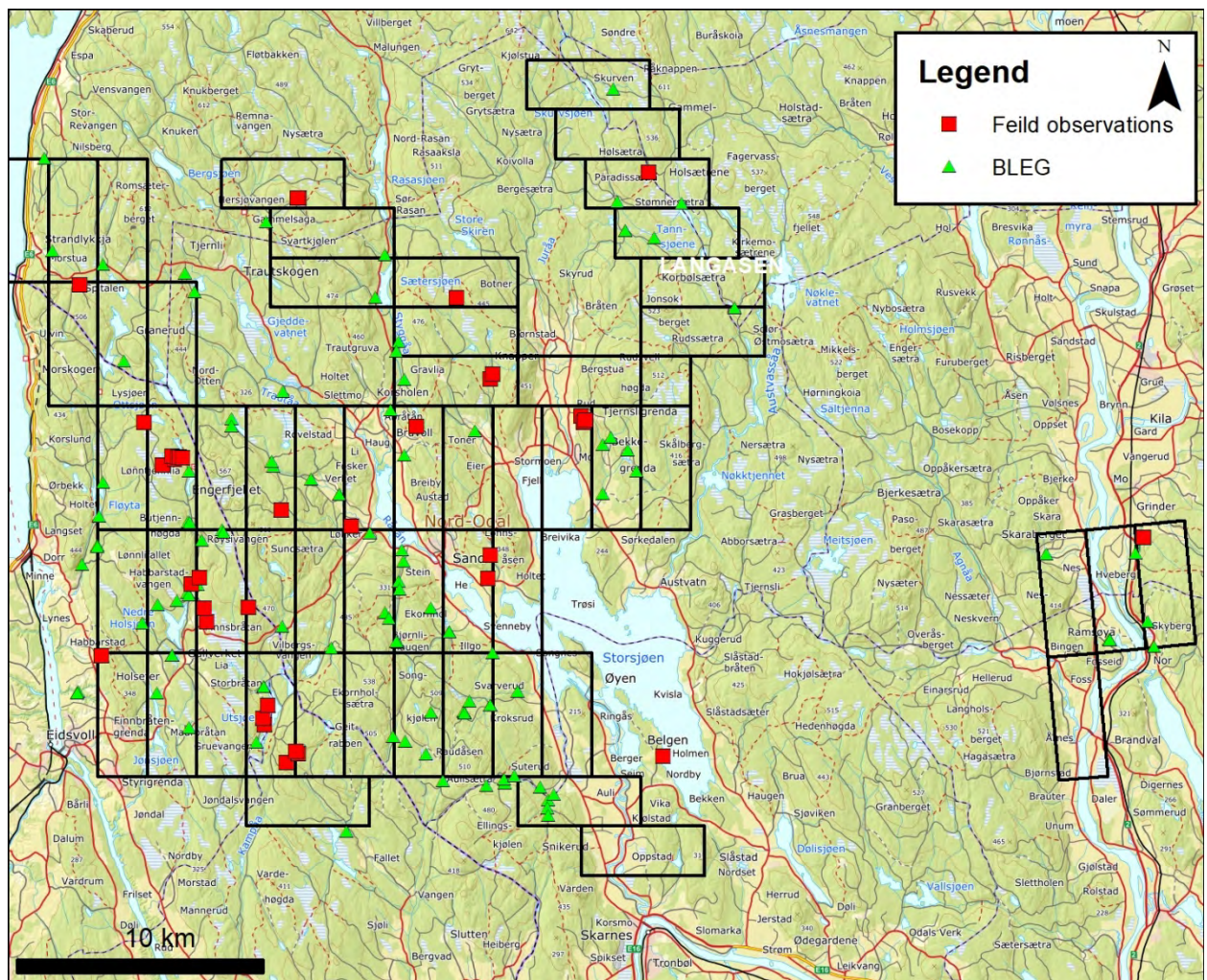


## Data Summary:

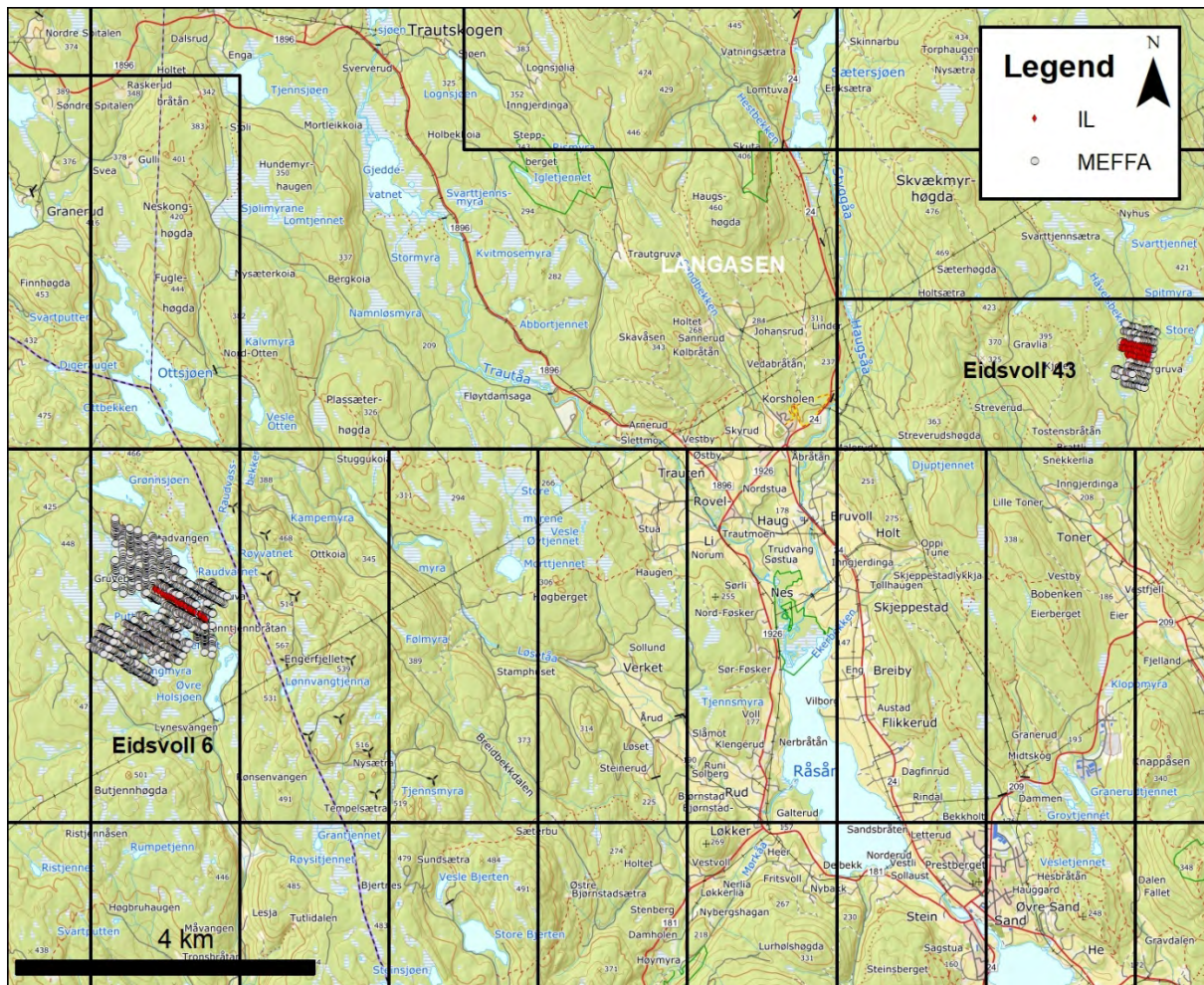
**Permit holder:** EMX Norwegian Services AS

**Project Name:** Eidsvoll 1-27, Eidsvoll 30-39, Eidsvoll 41, Eidsvoll 43-62

## Project Overview:







## Performed Work:

### BLEG

A total of 107 stream sediment samples including 7 duplicates have been collected in the Eidsvoll area and analysed as Bulk Leach Extractable Gold samples (BLEG). The samples have therefore been processed in the field to separate the fine fraction for analysis.

### Field Observations

A total of 96 field observation sites were visited, at each site a rock chip sample was collected and sent off for analysis.

### Soil sampling – IL

Soil campaigns were also completed comprising of 152 IL samples including 12 duplicates that were collected and analysed as Ionic leach samples (IL).



## Soil sampling – MEFFA

Soil campaigns comprising of 1793 **M**ulti-**E**lement **F**ine **F**raction **A**alysis (MEFFA) samples that were collected and scanned by a pXRF.

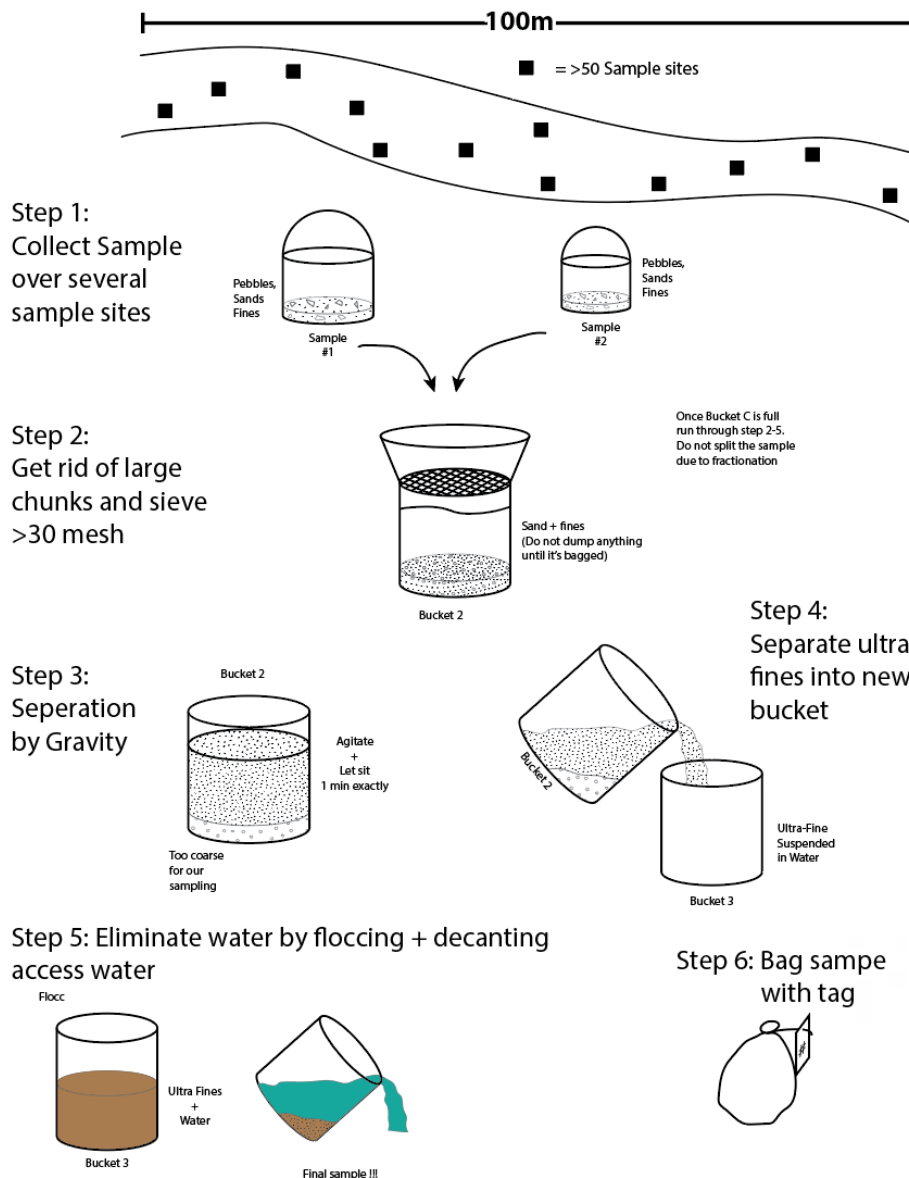
### Method Overview

#### *BLEG Sampling Protocol:*

1. After arriving at the designated sampling site, all equipment has to be washed downstream of sampling site
2. Sample material is collected over a wide range of points to increase sample homogeneity. >50 spots. (Step 1 in Figure)
3. Sampling has to be done with U-dig-it stainless steel trowels to avoid contamination from paint.
4. After enough material is collected coarse and organic debris is removed by sieving through a 30mesh (<0.6mm) sieve into a new clean bucket. (Step 2 in Figure)
5. The material in the bucket is agitated vigorously and decanted into a new bucket. This step is repeated until agitated water stays clear and only coarse grains remain. This can be difficult in organic rich environments.
6. The fine material in the third bucket is agitated again until all material is in suspension. The material has to settle for 1min (accurate time measure is important for consistency through out the sampling campaign) (Step 3 in Figure)
7. After 1min settling time the remaining material in suspension is carefully decanted into a 4<sup>th</sup> bucket in one gentle continuous go in order to not stir up fine fraction at the bottom. (Step 4 in Figure)
8. The 4<sup>th</sup> bucket is stirred again, and a flocculant is added. The flocculant lets the ultra-fine fraction settle quickly at the bottom and after 10min the remaining water can be carefully decanted and discarded. (Step 5 in Figure).
9. During the 10min the sample description has to be filled in the ipad.
10. The ultra-fine fraction is then collected in a micropore bag. (Step 6 in Figure)
11. A sample tag is added in a ziplock bag to the micropore bag. The sample is carefully stored for transportation so no fines can leak out at the seams (bag needs to hang freely).
12. All equipment has to be cleaned again.
13. Around every 20<sup>th</sup> sample needs to be a field duplicate. Where the process above has to be repeated. It is not acceptable to split the material in step 5 since that is a prep duplicate. The field duplicate can be collected where more fine sediments are present.
14. At the temporary field camp the sample have to be safely stored and regularly massaged to break up the drying lumps.
15. Samples have to be safely stored for final transportation to prep-lab at EMX in Mala.
16. The Samples then have to be analysed at ALS in Ireland using the Au-CN44a method. The mehthod differs from the regular Au-CN44 method that the sample is not agitated (active leach) but only gently stirred every 6h (static leach) to minimize the leaching of larger whole gold grains to avoid nugget effects.

## Things to note:

- Stay within 200m of the planned BLEG point
- Don't take sample from the stream bank
- Both people collect 1/3 of a bucket
- If stream is coarse sand to gravel, more will need to be collected to get enough fines
- Need at least 100g of ultrafine sediment
- Collect metadata on TouchGIS
- For duplicates the whole process must be started over, or preferable a different team does the same site
- Samples must always be hanging and massaged at least once a day





#### *Rock chip Sampling Protocol:*

1. Before sampling, ensure that everybody has taken safety precautions and required PPE is worn.
2. With a hammer (and chisel), fresh chips of rock are extracted from the bedrock or boulder.
3. The sample should be representative for the main rock type observed, including economic mineral and alteration content.
4. In case of dump sampling, good care should be taken to avoid inclusion of any foreign objects like wood, iron pieces, nails, and plastics.
5. At least 200g of material needs to be collected and separate rock chips should not be larger than 10cm across in any dimension.
6. The rock chips must be stored in a calico bag, together with a sample tag with a unique sample ID. This sample ID should match the ID that is written down in the field observation.
7. Location coordinates must be saved on a GPS to be extracted afterwards.
8. After every 10<sup>th</sup> sample a standard (CRM) should be inserted.
9. All samples must be safely stored in a plastic box for transportation out of the field or to the lab.

#### *IL Sampling Protocol:*

1. After the survey is planned in GIS. Points need to be exported in GPX and KMZ format to upload on GPS units and field iPads.
2. The material to sample needs to be collected at a constant depth relative to the organic-soil interface. The sample should be taken from the B horizon, see diagram below to help define the sub section of the B horizon. If no B horizon sample 15cm down from the base organics, but avoid the leached (grey to white) A-horizon.
3. Once the hole is dug, the sides of the hole need to be scraped with a plastic shovel to avoid any potential contamination from the steel shovels.
4. 100-200g of material need to be collected with a plastic scoop and stored in an air tide zip lock bag. A second bag is used for additional protection against spilling. Between bag 1 and two a sample tag with a unique sample ID is inserted.
5. While hole is dug the sample-log has to be filled out in the ipad, see below for classifications for each subsection.
6. Hole needs to be back filled.
7. Every 20th sample has to be a field duplicate collected within 1-2m of the first sample site following the same procedures.
8. At the end of each day all collected samples have to be sorted and accounted for to avoid the loss of samples.
9. All samples have to be safely stored in a plastic box for transportation out of the field or to the lab
10. Data from the ipads has to be exported and imported into MXDeposit
11. Dispatch form must be created using MX-deposit. Samples must be dropped off by EMX staff at an ALS facility (Mala or Pitea) for ME-MS23 analysis.

#### Things to note:

- No sunscreen or bug spray
- Not on/near roads (15m)





- Remove jewelry from/around hands

#### *Defining the B Horizon*

**Bf** Ferruginous illuviated, which is bright orange in colour

**Bt** Clay rich Bm Brown unmodified

**Bc** Transition from B to C horizon, is more grey in colour

#### *MEFFA Sampling Protocol:*

1. The survey needs to be planned in GIS-software, creating parallel lines with 200 m spacing, filling the area that needs to be sampled.
2. After the survey is planned in GIS, the lines need to be exported in GPX and KMZ format to be uploaded on GPS units.
3. The samples are taken using an auger (photo 1). It is jammed vertically into the ground, twisted at least 360 degrees and pulled up again.
4. Samples are taken along the lines indicated on the GPS. Sample spacing should be roughly 15 meters.
5. The material to sample needs to be collected from the B-horizon. Depending on the soils, the depth of this horizon can differ. The B-horizon can be recognised by its red-orange to brown colouring (photo 2).
6. The soils of the B-horizon are collected in small sample bags with pre-printed sample-IDs. At least 10 grams of sample is needed.
7. When a sample is taken, the location of the sample is marked in the GPS. The location is tagged with the sample-ID of the taken sample.
8. At the end of each day, all collected samples have to be counted and sorted to avoid the loss of samples. In case of a lost sample, the supervisor should be informed (if applicable).
9. Samples should be safely stored in a plastic box for eventual transportation to the office or lab.
10. GPS-data have to be exported into Global Mapper. They should also be saved as .gpx file on Nextcloud in the -KML > GPX > MEFFA DOWNLOADS
11. Samples are then scanned by pXRF which is done internally by EMX.



Photo 1: auger used for MEFFA sampling

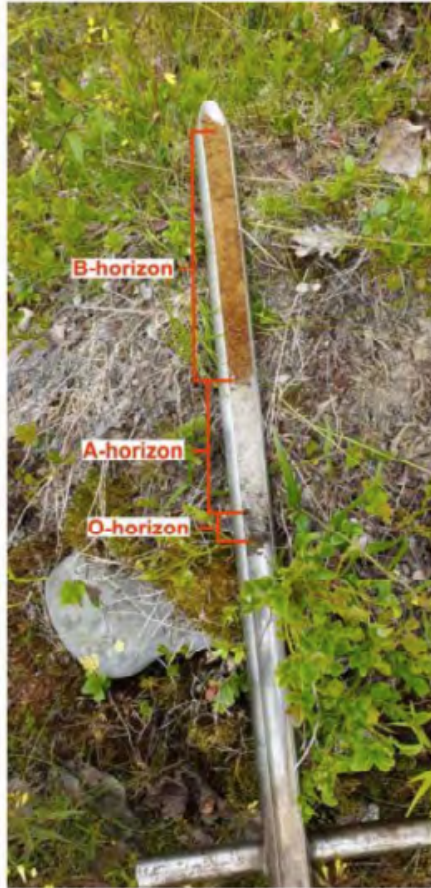


Photo 2: different horizons indicated. Sample should consist of solely B-horizon sediments

#### Things to note:

- No organics
- Take out pebbles/rocks
- Not on/near roads (15m)
- Fill until white line of sample bag
- Remove jewelry from/around hands
- 80 samples/student/day