

# Nesbyen mountain bike trail development report 2018



# Nesbyen mountain bike trail development

## Trakk N Roll Project Brief (2016):

### 7.2 Nesbyen Eastern side.

#### Task 1:

Field assessment of Nesbyen eastern side trails

Concept plan, development phases and app. cost for improving trails on eastern side .

The process should pay attention to potential user conflict, hazardous trail and road crossings, and trail exits in residential areas.

#### Task 2:

Building of showcase trail (or trail section).

- either as a completely new trail, or improvement of existing trail.

We should focus the effort on one trail instead of "drips" of maintenance work in the extensive trail network.



# Report (Task 1)

In 2016 Trakk N Roll and Nes Kommune commissioned a report into the state of the mountain bike trails on the East Side of Nesbyen.

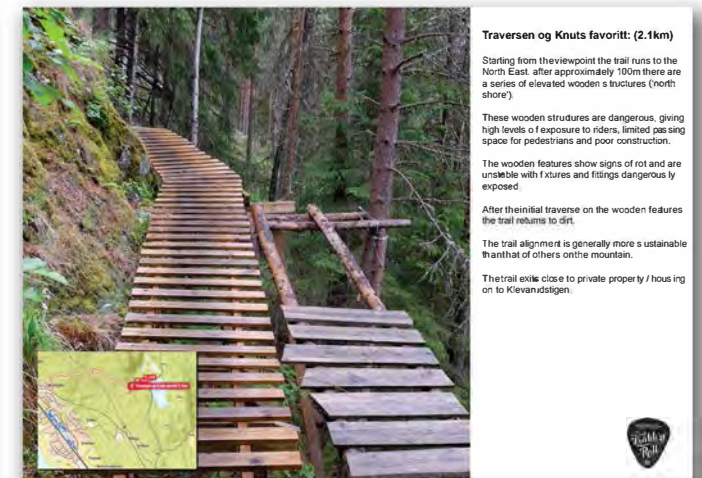
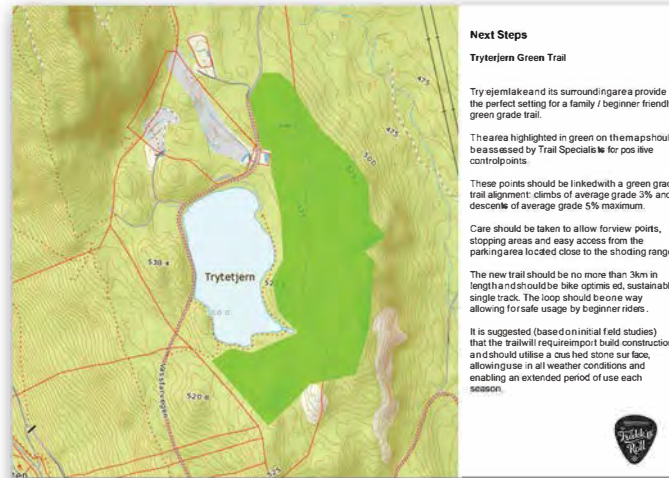
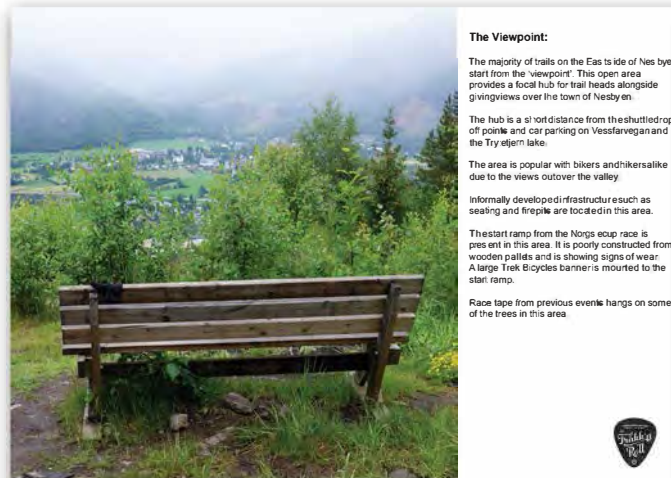
The report detailed that there was a high amount of mountain bike traffic with Nesbyen being a growing destination for mountain bikers, however many trails were of unsustainable alignment and construction methods.

Some of the trails were unsafe with high risk to riders and other trail users.

There were issues with the trails crossing the road.

After field assessment the most dangerous trail was Traversen, this trail starts from the 'view point' and is easily accessed by shuttle vehicle. The trail features 'north shore' elevated wooden bridges. These structures are both extremely unsafe and unsustainable.

It was decided this would be the first trail to be worked on.



## Trakk N Roll Trail (Task 2)

### Requirement:

The trail was originally designed to remove the dangerous wooden bridges which existed in this area, providing the start of a new sustainable route that appeals to experienced mountain bikers. By constructing this new trail traffic will become focussed on one area of the mountain, giving some respite to the unsustainable trails currently favoured by mountain bikers, as detailed in the 2016 report.

### Phase 1

Built 2016

244m

Difficulty: Red

Average grade: 6.8%

Mixed 85% new design and construction and 15% repair of existing alignment.

100% hand built.

### Education:

The trail was used as a vehicle to educate the TNR crew in a number of construction and design techniques. These include; the use of rock as a construction material, safe working and sustainable techniques when working on steep side slopes, correct trail alignment, water management through design and construction, appropriate challenge through feature design for red grade trails. It is far safer to teach rock working techniques with hand construction before attempting mechanised construction techniques.

A section of the trail was constructed by 50 volunteer trail builders as part of the IMBA Europe Trail Building School that was hosted by Trakk N Roll in 2016.

### Trail Description:

The trail follows the original alignment for the first 70m, here water management techniques have been employed by the crew to enhance the sustainability of the trail. The removal of the wooden bridges allows for re-alignment of the trail.

Here the crew worked to construct 200m of new trail across a steep rocky side slope. There were a number of negative control points within this small area which required careful planning to ensure the trail would remain in average grade for the required difficulty level.

Further adjustment and re-alignment of the trail result in approximately 244m of red grade single track trail with a number of Technical Trail Features (TTFs).

This section of trail has relatively high exposure and high risk technical challenges, it should be ridden by experienced mountain bikers, as reflected in the red trail grade. These challenges early in the trail act as qualifiers, riders who cannot complete the technical challenges should not continue to ride the trail.













## Tryte-Trøkket Trail (Task 2)

### **Tryte-Trokket**

Built 2017

1.66km

Average grade: 1.5%

Difficulty: Green

Machine and hand built, import build.

One of the recommendations of the report was to create a family / beginner trail offer close to the Trytetjern lake.

In 2017 Trakk N Roll constructed the first green grade purpose built trail in Nesbyen.

The trail was officially opened in September 2017 and had over 9,000 passes over winter until April.

Construction techniques used are a mixture of import build and bench cut trail building. The trail was machine built and hand finished.

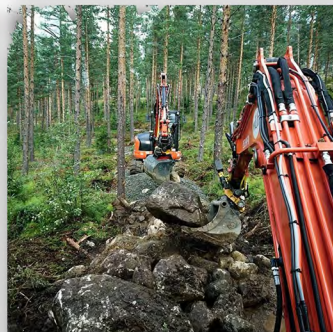
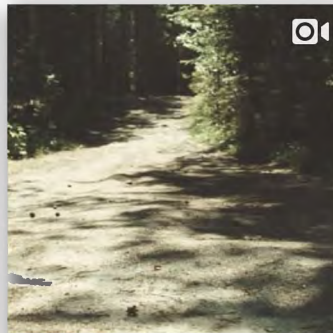
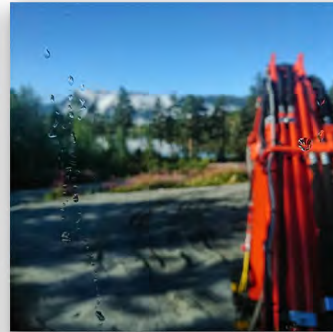
The trail has provided for beginner and young mountain bikers as well as hikers and other trail users.

### **Education:**

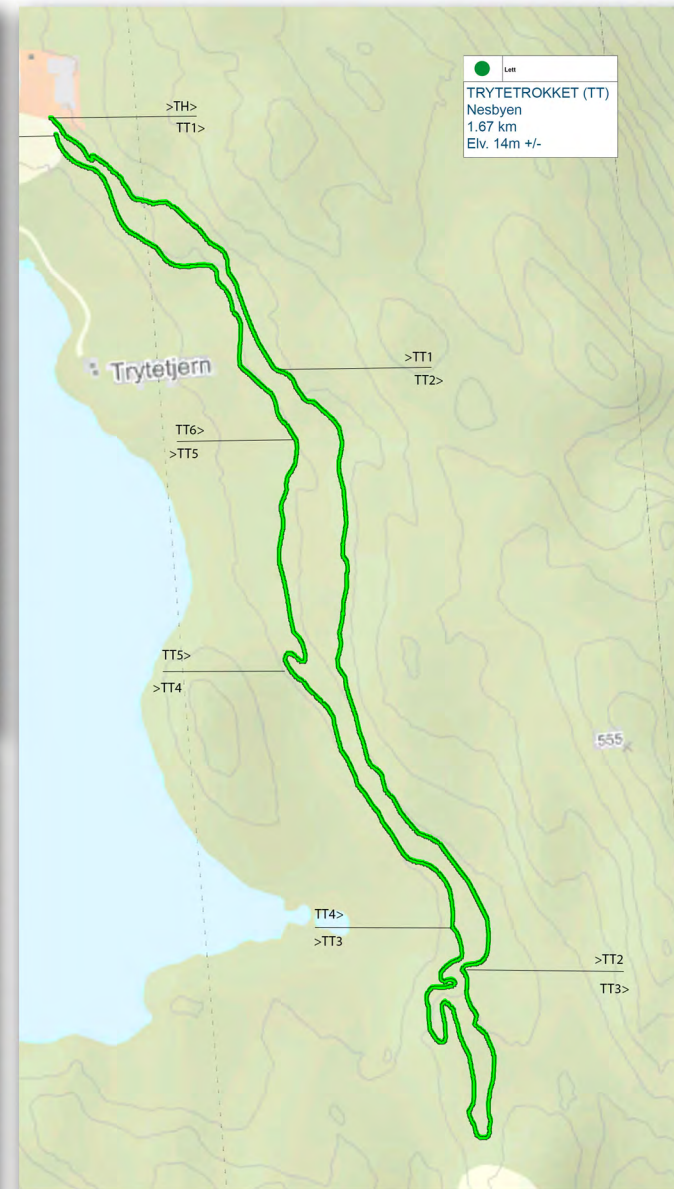
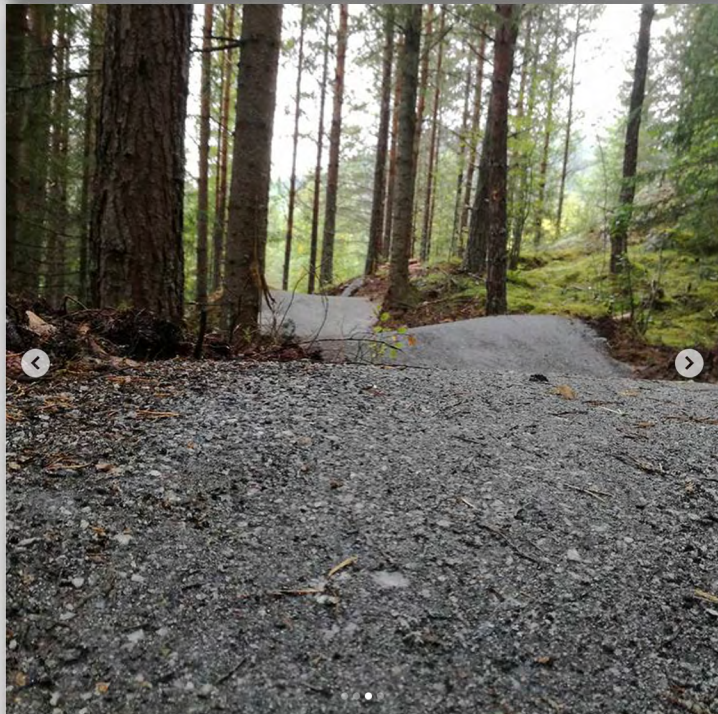
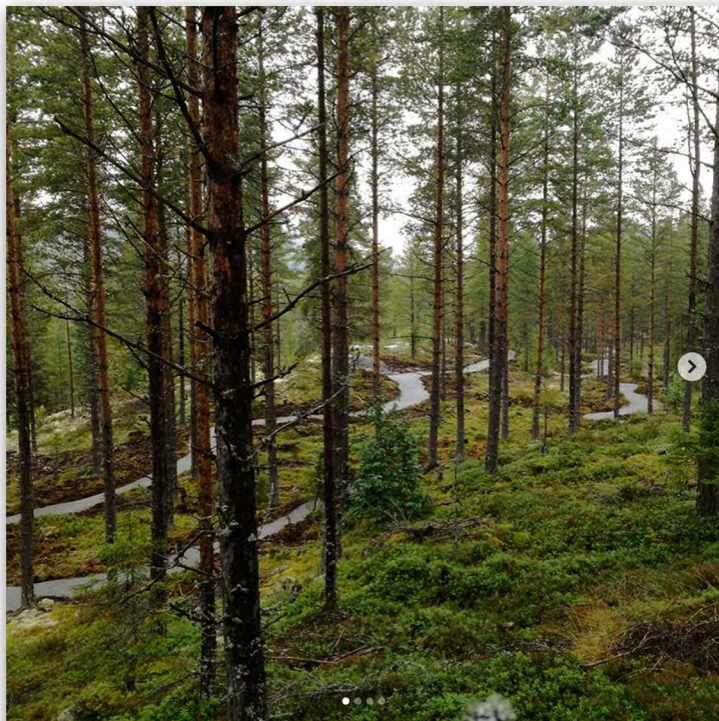
The trail construction was used to fine tune machine building construction techniques with the trail crew and to aid in the understanding of how to create fun trails with shallow grades and sustainable elements.













## Trakk N Roll Trail (Task 2)

### Trakk N Roll Trail

Phase 2

Built 2018

1200m

Average Grade 9.2%

48% Machine build new trail, 50% Machine build road to trail conversion, 2% hand built trail.

#### Education:

The crew exploited machine building techniques learnt on the Tryte-Trøkke trail in Nesyben to further advantage in the second phase of Trakk N Roll.

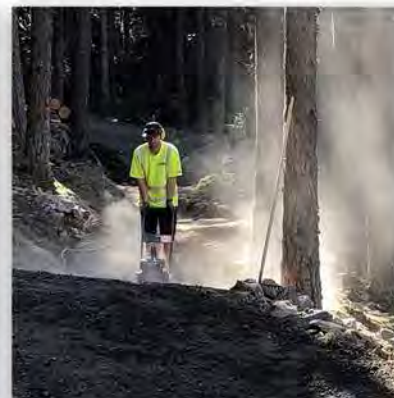
The trail crew used the techniques learned during the first phase of the trail to use rock from an old road bed to create a more sustainable trail alignment.

Erosion management and rider speed management techniques were employed through design and construction.

The crew were able to pin flag the trail, further enhancing their design skills.

There were issues with exceptional dry weather which the crew overcame, getting water to the build site to allow for adequate compaction.

In addition Dustex was applied to the trail surface to assist with soil binding.





## Trakk N Roll Trail (Task 2)

### Trail Description:

The first 60m of trail of hand built construction, linking to the existing trail from the view point constructed in 2016. This follows similar design and construction techniques to the phase 1 construction.

Where the old Traverssen trail met a former forest road a large left hand berm signifies a change in construction techniques from hand built to machine built.

The next 150m of trail follows the alignment of the former forestry road. The trail has four significant berms which manage water and rider speed to reduce erosion. There are a number of roller and jump features. There are no mandatory gaps.

The trail has an ideal ride speed that allows users to flow through the technical trail features, this is 'Trail Speed' is approximately 21 kmh average. At this speed the trail provides a usable surface 'Ride Line' of 0.7m. The trail is constructed at up to 3.8m width in order to allow riders to achieve the required trail speed whilst keeping users safely on the trail. The additional width also allows for hikers or bikers to move aside safely out of the main ride line.

There are a number of optional features that allow riders to adopt different lines. This keeps interest of riders for longer whilst utilising one trail corridor. After 120m the trail uses a large rock slab to provide a turn / wall ride, this key positive control point has been utilised to full effect.

The next 280m of the trail are newly built through the wide spaced forest. Using a bench cut to cross steep side slopes and elevated tread in low lying wet areas the trail combines construction techniques well to produce an engaging, flowing and fast section. There are three large berms within this section alongside a number of rollers, jumps and option lines.

The Norgescup DH trail merges with the Trakk N Roll trail and follows the route for approximately 350m.

An optional rock drop of 0.5m signifies the end of this section.

The next section of trail is road to trail conversion, taking advantage of the cleared space left by the former logging infrastructure. The cutting created by the former logging road and its steep alignment present a number of challenges in this area. In the wide area of the logging road a multi line section has been established, this area has a number of TTF's. These are optional to the main trail alignment however should be considered of a higher difficulty rating due to their exposure / required rider skill.

There is an exit to the Klassikeren trail which has been improved, removing erosion damage.

The remaining 300m of trail is constructed on the former road bed. The steep, constant grade has been reduced and grade reversals introduced to reduce erosion. The trail has a number of large roller / jump features and inslope turns, giving a fast flowing ride to this section of trail.

Rock retaining walls have been created to provide a stable base for the trail.

Phase 2 has the characteristics of a machine built trail, larger turns and TTFs are only possible when using mechanised techniques.

The trail has transformed a former logging road into a purpose built mountain bike trail.





## Trakk N Roll Trail:

Difficulty: Red Gravity

Average Grade: 7.5%

Distance: 1.44km

Start Height: 525moh

Finish Height: 417moh

Elevation +/-: 91m / 206m

Ride time: 4:00 minutes

Average speed: 21.6 km/h





























## Trakk N Roll Trail (Task 2)

### Phase 3

In order to complete the red trail to the proposed shuttle pick up point (detailed in the 1st report) a further 2.5km of new trail is required. This trail corridor has been physically marked on the ground and is awaiting approval and funding for construction.

The final phase of the trail will utilise both machine and hand built techniques.

Natural rock slabs will form sustainable optional trail features adding technical challenge to riders.

The trail will again merge with the Norgescup DH track and further improve a section of this trail.

The shuttle turn-around should be established, reducing the number of riders crossing the road and riding into the residential area.



# Trail System Management

## Signage:

Waymarking and user information signage should be fitted.

A cohesive signage system should be developed for all official trails. The network should be mapped and preferred routes for mountain bikers, hikers and horse riders should be highlighted.

Hiking trail signage should be relocated where appropriate.

## Inspection:

Regular inspection of the trail is required. It is recommended that the trail is inspected once per week during summer months and peak times and once per month during winter.

Each purpose built trail has a maintenance report sheet which can be utilized during the inspection.

3 members of Kommune staff were trained in the inspection process in 2017. It is suggested that further training could be provided to the local mountain bike community.

## Maintenance:

Tasks dictated by the inspection report shall be carried out throughout the year.

There are several seasonal tasks that can be scheduled as regular maintenance;

- In Spring the re-application of salt or dustex may be required to ensure a stable trail tread and continued use with minimal maintenance.
- In Summer the highest usage is expected. Regular inspection of the trail and surrounding area allows for a consistent visitor experience. Expected higher amounts of trash, extra patrols and emptying of trash cans may be required. Additional facilities like toilets could be opened to the public.
- In Autumn it is essential to clear fallen leaves and pine needles from the trail. The removal of organic material assists in the drainage features of the trail working effectively and removes the build up of material that can change the trails character and experience goals.
- In Winter and after any storm event an inspection should be made to remove any debris or fallen trees / branches that may make trail systems dangerous or unusable.

The continued improvement of all trails should be undertaken;

- Lines of site should be extended through the removal of vegetation.
- Stumps and hazards should be removed.
- Signage should inform users of the suitability of trails for different activities.





## Trail System Management





## Nesbyen 5 year trail development plan





# Nesbyen 5 year trail development plan

## Trail Development:

In order to retain the momentum given by the creation of new trails and to ensure effective management and safety for all outdoor user groups it is proposed that the mountain bike trails are formalised.

A consistent and well considered signage system informs all outdoor users of routes that meet their need. Hiking and mountain biking on gravity trails are advised as segregated routes with new trail infrastructure created to fill the gaps in provision.

Some existing trails will be retained within the network, giving a variety of trail experiences to outdoor users. In general the difficulty grading of these trails needs to be increased and basic maintenance work to increase lines of sight and remove dangerous features close to and on the trail.

The trail plan should be implemented in a phased approach over the next 5 years.

The 5 year plan sets out a road map to success, meeting the needs of the community and of tourist visitors. The variety of trail experiences alongside well constructed, well maintained, purpose built trails makes Nesbyen an attractive destination for mountain bikers. Future work will be required to ensure the marketing and management of the trail and tourism offer align to create an attractive product.

## East Side Gravity Trails:

DH Track - Existing - Grade to Double Black - Install signage - Immediate 2018

Klassikeren - Existing - Grade to Red - Install signage - Basic Maintenance - Immediate 2018

Enduro - Existing - Grade to Red - Install signage - Basic Maintenance - Immediate 2018

Tvillingløypa - Existing - Grade to Black - Install signage - Basic Maintenance - Immediate 2018

Trakk N Roll 1- Existing, built 2016 - Red Grade - OPEN 2018

Trakk N Roll 2- Existing, built 2018 - Red Grade - OPEN 2018

Trakk N Roll 3- Conceptual - Red Grade - Construct 2019

Baby Blue - Conceptual - Blue Grade - Design 2019 - Construct 2022

True Blue (with extensions) - Conceptual - Blue Grade - Design 2020 - Construct 2023

## Trytetjern:

Trytetrokke Green - Existing, built 2017 - Green Grade - OPEN 2018






Trytetrokke Blue - Conceptual - Blue Grade - Construct 2020

Trytetrokke Red - Conceptual - Red Grade - Construct 2021



# TRAIL DIFFICULTY RATING SYSTEM

## Guidelines for trail development

						
	FOREST ROAD, PATH AND SIMILAR	GREEN EASY	BLUE MODERATE	RED DIFFICULT	BLACK SEVERE	DOUBLE BLACK EXTREME
<b>TRAIL WITH</b>	175 cm or more	90 cm or more	60 cm or more	30 cm or more	15 cm or more	15 cm or more
<b>TRAIL SURFACE</b>	Relatively flat and wide. Usually surfaced and compacted but may be highly variable and loose.	Common to be smooth and surfaced with compacted materials if native soils are too rocky. May be slightly loose or mildly uneven.	Similar to GREEN, but it will include small obstacles of roots and rocks. May be loose or uneven.	More textured, natural surface material. The surface is usually loose, rough, and includes larger protruding rocks and roots.	Similar to RED but with sections of unavoidable and less predictable technical rocks, roots and features. The surface is usually loose and steep.	Derivative of BLACK but with extended or continuous sections of unavoidable and unpredictable technical rocks, roots and features. The surface is often loose and steep.
<b>AVERAGE CLIMBING GRADE</b>	Varies greatly. Generally moderate but may be very steep.	3%	5%	7%	9%	>10 %
<b>AVERAGE DESCENDING GRADE</b>	Varies greatly. Generally moderate but may be very steep.	5%	7%	9%	12%	>15 %





# Nesbyen 5 year trail development plan


## Official mountain bike trail network

 Shuttle pick up / drop off

**P** Car parking

 Green Trail

 Blue Trail

 Red Trail

 Black Trail



# Nesbyen 5 year trail development plan

## Trakk N Roll 3: Construct 2019

### Description:

On site design work required to pin flag and detail design the marked trail corridor.  
Trail corridor should be cleared prior to pin flagging.  
Machine built, hand finished.

### Spec:

Trail Difficulty: Red

Length: 1.70km

Width: 1.2m

Machinery:

2 x 5t excavator with rototilt

1 x 2t excavator

2 x tracked dumper

1 x plate compactor

### Hours:

Design

2 x TS = (50 hours ea x2 =) 100 hours

Corridor clearing

2 x TS ( 5 days)

Construction

2800 man hours

1 x PM

6 x TS



# Nesbyen 5 year trail development plan

## Trytetrokke Blue 2: Construct 2020

### Description:

Single direction, single track trail with bike optimised elements such as berms, rollers and other technical trail features such as exposed natural rock. Machine built, hand finished.

### Spec:

Trail Difficulty: Blue +

Length: 1.5km

Width: 1.2m

Material:

Crushed stone 0-4mm = 900m<sup>3</sup>

Clean stone Type 1 = 900m<sup>3</sup>

Machinery:

2 x 5t excavator with rototilt

1 x 2t excavator

2 x tracked dumper

1 x roller

1 x plate compactor

### Hours:

Design

2 x TS = (45hours ea x 2=) 90 hours

Construction

1 x TS = 60 hours

1x PM = 400 hours

4 x crew = 360hours (ea. X 4 =) 1440 hours

Total = 1990 man hours

### Signage:

3 x way marker

1 x trail head



# Nesbyen 5 year trail development plan

## Trytetjern 3: Construction 2021

### Description:

Red grade bike optimised single track trail utilising natural features and man made elements to create a challenging ride that features both climbs and descents.

Further onsite analysis of the terrain and the trails ability to integrate to planned trail developments is required.

A design and specification can be completed after onsite investigations.

An area has been suggested for further investigation.

### Hours:

Design 2 x TS= (25 hours ea x 2 =) 50 hours

## Baby Blue: Design 2019 - Construct 2021

### Description:

Blue grade machine built gravity flow trail. This trail links several existing trails in the network with the shuttle pick up point. It is also a stand alone trail product allowing riders to shuttle or pedal to the top, this trail is perfect for those looking to try gravity mountain biking. Further onsite analysis of terrain is required to allow for trail corridor marking and design specification.

### Hours:

Design 2 x TS = 40 hours

## True Blue: Design 2020 - Construct 2022

### Description:

A top to bottom blue grade flow trail is required to meets the need of the market. Further analysis of the terrain is required in order to create a sustainable alignment for this trail.

### Hours:

Design 2 x TS = 70 hours

