

AGENDA ITEM 6

APPENDIX 19

2018/0151/DET

CONSTRUCTION METHOD STATEMENT



Dalwhinnie Quarry

Construction Method Statement

Revision 2

July 2018

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Drawings

RG547/CMS/F/01 Screening Bund Schematic

Rear

1 Existing Landscaping

The existing quarry is surrounded by a steeply sloping bund, the only areas of this bund which will remain in situ are towards the South and adjacent to the A889. The purpose of this existing screening bund was to provide both a visual and acoustic screen to quarry operations in the existing quarry.

From Survey data the existing quarry bund towards the South locally ranges up to an angle in excess of 35°. Typically, the bund has an angle around 30°. The steep slope on the existing bunds has developed a range of plants which are not typical for the general area which results in the bunds being a clearly visible feature in the landscape.

This section of bund towards the South will be reprofiled to form a shallower angle as part of the quarry extension design. Apart from this area and the area adjacent to the A889, the remainder of the existing bund will be removed and incorporated into the new peripheral bunds planned for the development.

There are no existing trees within the quarry site.

2 Planned Landscaping – During Extractive Operations

The tree planting and associated fencing which will be undertaken during the first planting season following commencement of the development is detailed in the Dalwhinnie Quarry Woodland Planting Plan.

Landscaped screening mounds or bunds will be formed at the perimeter of the proposed development. The initial bund will be formed to the South and South East of the quarry as part of Phase 1 of the development. This bund will be formed as a continuation of the reprofiled bund in the South surrounding the existing quarry, a schematic of the bund construction is detailed in Drawing RG547/CMS/F/01.

The Phase 1 bunds are shown on plan RG547/PA/F/03 included in Volume 2 of the Planning and Environmental Statement.

The phased development of the quarry has additional screening formed as part of Phase 2 and Phase 3 of the development.

The development of the Phase 2 and Phase 3 bunds are shown on plans RG547/PA/F/04 and RG547/PA/F/05 respectively.

These screening bunds will provide a visual screen to the quarry, help shield the quarry operations from wind and they will also function as an acoustic screen.

2.1 Bund Profile

The profile of the landscaped screening mounds has been designed with a gently sloping outer profile with a grade of up to 1:3 which is equivalent to an angle of 18.4°. This bund profile has been designed to better integrate into the surrounding landscape than the bunds surrounding the existing quarry.

The slope of the existing ground in the application area ranges from approximately 5° to 7°. Further to the South the slope increases significantly to between 24° and 28°, in this steeply sloping area the vegetation cover is similar to the area where the quarry is to be located.

Only in the lower lying area towards the junction of the A889 and General Wades Military Road (U2387) in the South does the vegetation show a significant change.

2.2 Soil and Overburden

There is a thin top soil within the application area averaging 0.2m thick as recorded in both site investigation trial pits and in the peat survey. The trial pits confirm that the overburden is a free draining granular material of glacial origin and contains a large percentage of rock fragments. No ground water was encountered in any of the site investigation trial pits excavated. No clearly defined subsoil was identified in the trial pits, with the thin topsoil and vegetation directly overlying the overburden. The top soil is described as a fibrous soil rather than a peat in the peat probe survey undertaken EIAr. (*Hydrology, hydrogeology and peat assessments MNV Consulting Ltd*).

The top soil and overburden will be stripped separately over the quarry footprint, the topsoil and existing vegetation will be used to cap the bunds which will be formed of overburden. Turf / vegetation stripped from the quarry extension footprint will be used on the outer bund slope to help promote development of vegetation similar to the surrounding area.

It is the intention to strip the turf / vegetation separately to promote re-establishment on the outer face of the new screening bunds.

Following advice from CNPA the depth of top soil in any temporary storage mounds will be kept to a maximum of 2m to minimise long term degradation of the topsoil. These temporary storage mounds will only be in situ until the bund profile has been formed and the soil reused.

3 Screening Bund Construction

3.1 Weather

Soil Stripping will only take place in suitable weather conditions with heavy rain or snow potentially causing localised areas to become temporarily water logged.

3.2 Season

Without mitigation in place there is a high degree of risk that a breach of the Wildlife & Countryside Act 1981 could result (nest loss, destruction of eggs, young, or dependent fledglings) if the stripping of soils and overburden and construction of the screening bunds is undertaken the breeding bird season.

Site preparation activities such as dewatering, surface stripping, and bunding, etc. will be undertaken as far as practicable between mid-August and mid-April and therefore outwith the bird breeding season.

If it is not possible to commence site preparation between mid-August and mid-April then a pre-start of works briefing of staff and contractors should be completed by an ecologist on legal obligations, signs to watch out for that may indicate breeding bird presence, and appropriate course of action to take if the staff or contractor believes a nest or young may be present.

The ecologist would then complete a site walkover of the works area to look for evidence of any breeding bird activity. If none is present then works may proceed. If any active nest was present or dependent young then a suitable works stand-off zone will be established until such time as the breeding is complete.

3.3 Bund Footprint Preparation

The vegetation/turf and top soil will be stripped from the footprint of the bund by excavator prior to work to form the bund commencing.

The soil and turf will be stored separately adjacent to the bund and will be re-used in capping the bund once the profile is formed

3.4 Soil Stripping

3.4.1 Top Soil

A tracked excavator will be used to initially strip the turf from the site area with a dump truck moving the turf to an area adjacent to the bund location for re-use. The turf/vegetation will be kept separate from the overburden.

A tracked excavator will be also used to strip the remaining top soil with a dump truck moving the soil to a stockpile area adjacent to the bund for re-use. The top soil will be kept separate from the overburden.

3.4.2 Overburden

The overburden is then stripped from the site to expose the rock surface using an excavator. A dump truck is used to transport the overburden to the bund. A bulldozer is used to create the screening mound profile by spreading the tipped overburden.

The overburden is loose tipped to form the general profile of the screening mound with a dozer being used to spread the overburden, this minimises the potential of localised over-compaction which could form a barrier to free drainage.

3.5 Capping Bund – Soil and Turf / Vegetation

When the bund profile is achieved the top soil stripped from the quarry footprint is then used to cap the mound.

The turf / vegetation will then be used to form the outer bund surface.

3.6 Drainage

The trial pits excavated as part of the site investigation over the quarry site did not encounter groundwater and the overburden between the top soil and bedrock is a free draining material. There were localised pockets (puddles) of standing water around the quarry area where the top soil was impermeable.

With the nature of the material in the bund, how the feature is being formed and the slope of the mound there is no requirement for artificial drainage.

In the unlikely event that water build up or erosion occurs given the gentle slope of the bund French (gravel) drains will be used to improve the drainage where required.

A shallow blind catch ditch will be excavated at the outer edge of the bund to trap any run-off during periods of high rainfall which may initially occur until vegetation becomes re-established on the bund.

3.7 Vegetation

The bund is to be formed of loose tipped glacial overburden from within the footprint of the site capped with soil and turf from within the site footprint. While the bund will have an increased slope by comparison to the existing site (maximum 18.4° compared to 5° - 7°) there are nearby areas where a steeper slope currently exists ranging from 24° to 28° which supports a similar range of vegetation.

If the existing vegetation / turf from the site footprint does not become established then planting will be undertaken following ecological advice. All planting will use plants with local progeny.

4 Quarry Restoration

4.1 Restoration Blasting and Rollover

As discussed in Annex 1 of PAN 64 there are a number of techniques available for reducing the visual impact of hard rock quarries. Production benches and quarry faces can be designed to create a landform in keeping with the surrounding landscape. Alternatives to final face treatment, such as restoration blasting and rollover, can create a more natural appearance by reducing the face angle and creating buttresses and scree slopes.

It is proposed that a section of quarry face along the north of the proposed extraction area will be retained to provide habitat for cliff nesting bird species. The remainder of the quarry faces will be subjected to a combination of restoration blasting and rollover.

During the course of mineral extraction, the rock is won by the drilling of near vertical shot holes above the quarry face. The shot holes are then loaded with explosives and then detonated to release the rock.

Restoration blasting or landscape blasting is a technique where the final stage of quarry blasting is designed to form a shallow slope angle and the rock released from the blast is left in situ to form a scree or debris pile against the face. Reducing the face angle, in conjunction with the development of scree slopes formed by the blasted rock in front of the face has the additional benefit of promoting long-term face stability.

At this site restoration blasting will be used in conjunction with rollover where the overburden and soil from the screening bunds is in turn tipped and spread over the scree slopes formed during restoration to provide a variety of slope angles and remove uniformity while providing a growing medium on the resulting slopes.

4.2 Screening Bund Restoration

The footprint of the screening bunds will be restored back to the original vegetation cover and ground level as existed before quarrying commenced.

The top soil and turf / vegetation will be stripped from the bund for restoration of the bund footprint, promoting the redevelopment of the existing moorland vegetation.

4.3 Lochan

The restored slopes of the Application Site will lead into a lochan, the sides of which will gently slope in to the waterbody to a depth of 2m. This is primarily for safety should anyone attempt to go into the lochan, but will also provide a variety of habitats along the shoreline.

The resting water level within the existing quarry has been recorded at a level of between 390.5 and 391.0mAOD, depending on the season.

The general aims of lochan management will be to improve water quality, increase biodiversity and enhance amenity and appeal. Monitoring of the lochan will be carried out for a period of 5 years in accordance with PAN64, this may include the following, as required:

- Water quality (for example, by identifying concentrations and sources of pollutants (nutrients));
- Biodiversity (for example by surveys for aquatic plants, zooplankton and invertebrates);
- Amenity and appeal (for example by visual inspection, to include erosion, odour, plant and animal deaths);
- Freshwater algae (for example monitoring for excessive accumulations of foams, scums and discolouration of the water); and
- Erosion of the margins / banks (for example caused by wave action, generated by wind).

4.4 Restored Habitat

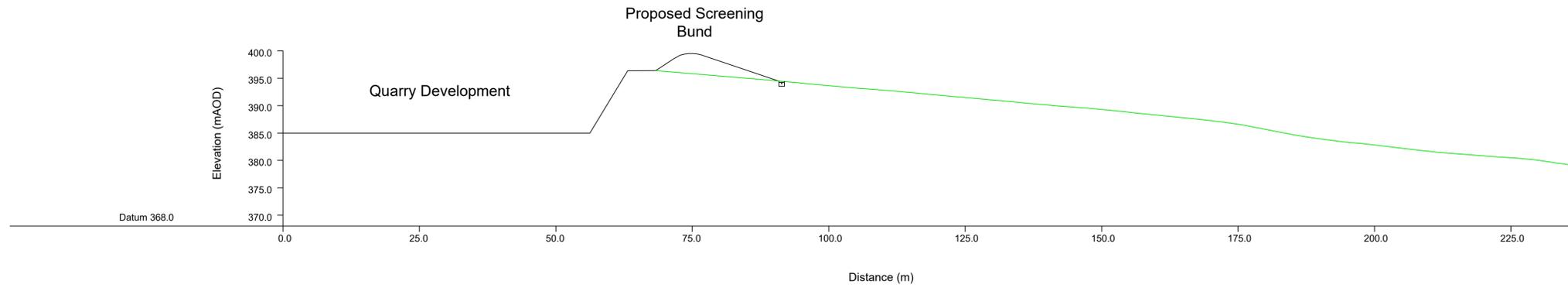
The existing ground cover covering the Application Site comprises of a mix of dry heath and species rich acid grassland. The periphery of the site, which will contain the soils storage/screening bunds will be restored back to dry heath containing heather. The heather turfs that will have established on the screening bunds, along with some of the overburden material will be used to restore the footprint of the bunds back to original ground level.

The remainder of the overburden and some of the seedbank material will be used in the areas where restoration blasting has been undertaken.

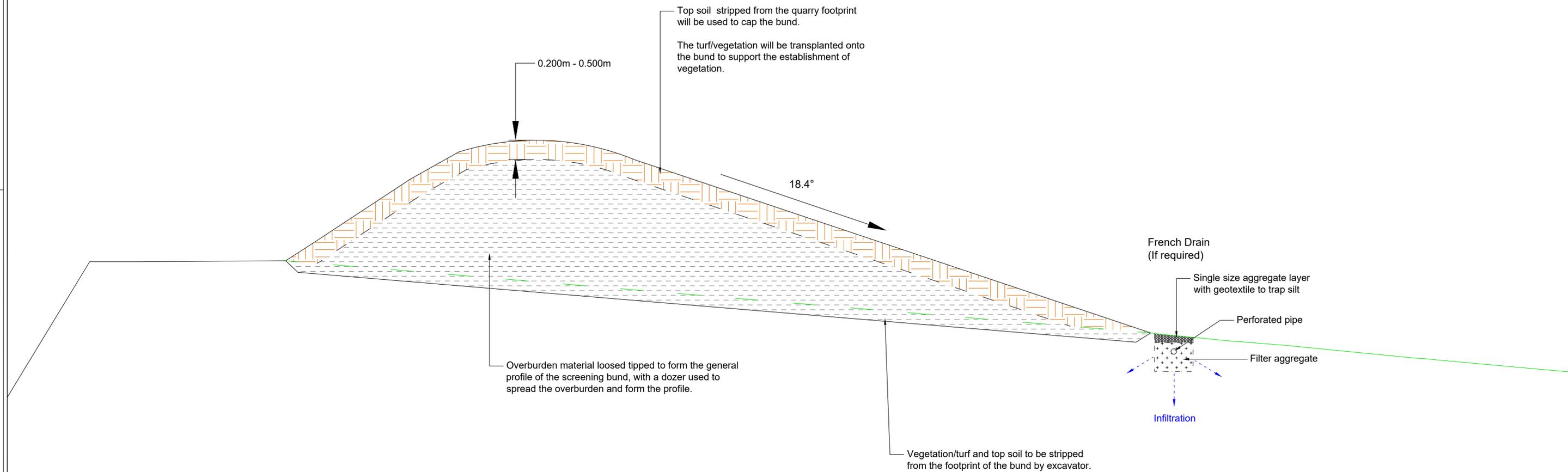
The utilisation of existing seed bank material will aid in the natural regeneration of the site, but it may also be complemented by the sowing of seed if required.

The Highland Grassland mix as prepared by Scotia Seeds recreates a moorland grass community found on well-drained highland sites with acidic soils. On upland sites this does not need to be cut. This mix is based on the calcifugous British Plant Communities U2 & U4. There are 18 wildflower & 10 grass species in this mix.

The mix is an ideal baseline mix for use during restoration, with some site-specific tailoring of the mix to suit the local conditions. The ecologist will consult with Scotia Seeds at the appropriate time for further advice and to help design site-specific seed mixes, which will be informed by the NVC survey results.



Scale 1:500



Scale 1:50



CLIENT DETAILS
JOB TITLE
DALWHINNIE QUARRY

DRAWING TITLE
SCREENING BUND SCHEMATIC

NOTES

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