Upton House
Market Street
Charlbury
Oxfordshire, OX7 3PJ
United Kingdom
tel +44 (0)1608 810374
fax +44 (0)1608 810093
e-mail info@gwp.uk.com
www.gwp.uk.com

SPECIFICATION FOR WORK FOR THE ALTERNATE RESTORATION WORKS AT MOSS RAKE EAST QUARRY

For

PEAK DISTRICT NATIONAL PARK AUTHORITY

December 2017

GWP Consultants LLP
Registered No. OC326183
Registered Office: Upton House, Market Street, Charlbury, Oxfordshire, OX7 3PJ, UK

Report Title: **Specification for Work for the alternate restoration works at Moss Rake East Quarry**

Client: **Peak District National Park Authority**

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Report Number: 171218
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Issue Date: 19th December 2017

Prepared by: Jeremy Baldock
Approved by: Alan Cobb Date: 19/12/17
Signature:
Issue History:

Issue No.	Issue Date	Description	Prepared	Checked	Approved
v.01	19/12/17	Issued to Client	JCB	GM	AEC

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CONTENTS

DRAWINGS

SPECIFICATION FOR WORK FOR THE ALTERNATE RESTORATION WORKS AT MOSS RAKE EAST QUARRY

1. OBJECTIVES OF THE REVISED RESTORATION SCHEME

There are a number of objectives for this alternate restoration scheme.

- To construct a small Upper Exclusion Bund across the access track to the northern crest of the excavation. This is aimed at dissuading people and vehicles from unwittingly approaching the excavation crest.
- To reinstate edge protection close to the Upper Exclusion Bund again to dissuade people and vehicles from unwittingly approaching the excavation crest.
- To construct a larger Main Exclusion Bund across the access track which leads into the excavation area. The purpose of this bund is two-fold: A) To dissuade people and prevent vehicles from accessing the excavation area, within which rock fall will become an increasing risk to persons entering the area; B) To act as a screening bund to views from Shatton Moor to the northeast.
- To construct Gate Bunds to form a chicane close to the entrance to Moss Rake East Quarry. The construction of the chicane is to prevent access to articulated and rigid lorries.
- To re-grade the large dust stockpile in the south-western corner of the processing yard. The ecologists desire a 3m high face to be excavated into the tip to provide a nesting habitat for Sand Martin. To reduce surface water erosion on the tip face a rock filled drainage channel is to be installed around the crest of the tip to divert water away from the main face.
- To backfill the old void on the southern side of the entrance track with the gravel from the eastern end of the yard area.
- Use the gravel stockpiles along the southern edge of the stockyard to level the yard area.
- Soil and seed the eastern flank and crest of the Main Exclusion Bund, the re-profiled Yard Area, Backfilled Void and Gate Bund.

2. SOURCE MATERIALS AND FILL VOLUMES

The sources and available volumes of the various materials on the site to be used within these works are shown on Drawing No. MOSSRE1712-1. The volumes of fill required for the bunds and re-profiling are shown on Drawing No. MOSSRE1712-2. The landform and extent of soil cover in the completed works is shown on Drawing No. MOSSRE1712-3.

3. DESCRIPTION OF THE WORKS

3.1 Main Exclusion Bund

The Main Exclusion Bund shall be formed using:

- rock and coarse rockfill sourced from the tip, just to the west of the Main Exclusion Bund footprint (Drawing No. MOSSRE1712-4);
- rockfill from western end of the floor of the yard area;
- the remaining material is to be sourced from the rock and rocky soil stockpiles to the north of the bund location. Sourcing material from the upper area will enable the rock and soil to be end tipped onto the bund area.

The material shall be bladed out in layers no thicker than 500mm and compacted with a 12-14 tonne self-propelled roller using a minimum of 6 passes.

The gradient of the eastern slope of the Main Exclusion Bund shall be no steeper than 1:2 (v:h), whereas the western slope shall be *c* 1:1.5 (v:h).

The crest and eastern slope of the Main Exclusion Bund are to be finished with a 150mm thick layer of soil and seeded with an appropriate seed mix. The soil is to be sourced from the north-western

part of the site (see Drawing No. MOSSRE1712-1). The final excavated slopes within the soil tip shall be left no steeper than 1:2.5 (v:h).

3.2 Upper Exclusion and Edge Protection Bund

The location of the Upper Exclusion Bund is shown on Drawing No. MOSSRE1712-5. The bund shall be formed using rock fill and rocky soil sourced from the nearby tip areas shown on Drawing No. MOSSRE1712-1.

The side slopes of the Upper Exclusion Bund shall be formed at a gradient of 1:2 (v:h). The eastern slope shall be finished with rocky soil to enable rough grassland to become established over time. The western slope of the Upper Exclusion Bund shall be left as a rock covered slope.

The adjoining edge protection shall be 1.5m high using rocky soil material from the tips nearby.

The final faces of any tips from where material has been removed shall be left at a gradient no steeper than 1:2 (v:h).

3.3 Dust Stockpile re-profiling

The dust stockpile is to be re-profiled so that the upper and lower face is no steeper than 1:2.5 (v:h). The ecologist would like a 3m high 80 degree face above a 6m wide bench to be excavated into the face of the dust stockpile, to provide a habitat into which Sand Martins can nest.

Once the re-profiling has been completed, a 1m wide x 500mm deep rock filled drainage trench shall be constructed behind the crest of the dust tip, to the toe of the Main Exclusion Bund (see Drawing No. MOSSRE1712-7). The drainage channel shall be filled with clean coarse rockfill (>100mm diameter) sourced from the western end of the yard. This rockfill will reduce the velocity of the surface water runoff, to minimise erosion.

3.4 Yard Area

Following the removal of all non-inert material from the yard area and the old void off the southern side of the entrance way.

- Remove the row of 6 to 8 No. conifers at the eastern end of the yard area.
- Using an excavator, wheel loader or bulldozer, move 2,100m^3 of gravel from the eastern end of the stockyard into the void to the east.
- Use the remaining 1,000m^3 of gravel from the eastern end of the yard and the gravel stockpiles along the southern edge of the excavation area to re-profile the dust stockpile at the western end of the yard and to backfill the voids within the yard area, once the plant and non-inert materials have been removed.

Note: The final elevation of the yard area is not fixed and can be tailored to the volume of material available, providing the final ground level has a gradual fall from southwest to northeast.

Once the yard area has been re-graded, a layer of 150mm thick soil shall be spread over the yard area (shown in Drawing No. MOSSRE1712-3) and sown with an appropriate seed mix.

3.5 Gate Bunds

Drawing No. MOSSRE1712-6 shows the location of the Gate Bunds. These bunds shall be formed using *c* 80m^3 of rocky soil fill material sourced from the tip on the upper level (the same sources used for forming the Upper Exclusion Bund) and 6 No. 2.5m sections of 305mm x 165mm x 54kg per metre Universal I-beam (material to EN 10025-2:2004).

Each I-beam shall be set in a 1m deep hole, backfilled with C30 concrete. The top of each I-beam shall be 1.5m above the existing ground level.

The positioning of the I-beams as bollards is critical to prevent access by rigid or articulated lorries to the site.

An I-beam shall be installed:

- at the toe of the bank opposite each gate bund;
- at the toe of each gate bund, 3m from the I-beam at the toe of the opposite slope;
- within the footprint of each Gate Bund, 1.5m behind the I-Beam at the toe of each gate bund.

The distance between the I-beam bollards installed at the toe of each Gate Bund shall be no more than 10m. The toe bollard shall in installed in a line with each other and parallel to the road alignment (see Drawing No. MOSSRE1712-6).

It is strongly recommended that the positions of the I-beam bollard locations are marked on the ground and checked carefully, prior to the holes being drilled/excavated and the I-beams installed.

The Gate Bunds shall be formed using rocky soil fill constructed around the I-Beams. The Gate Bunds shall be topped with 150mm of soil and seeded with a suitable seed mix.

3.6 Making good

The excavated slopes resulting from where fill and soil material have been soured from the upper levels, shall be left no steeper than 1:2.5 (v:h). The exposed soil slope shall be seeded with a suitable seed mix. The exposed slopes left from the excavation of rock and rocky soil shall be left no steeper than 1:2 (v:h) and left to vegetate over time.

All rubbish to be removed from the site before the contractor leaves site.

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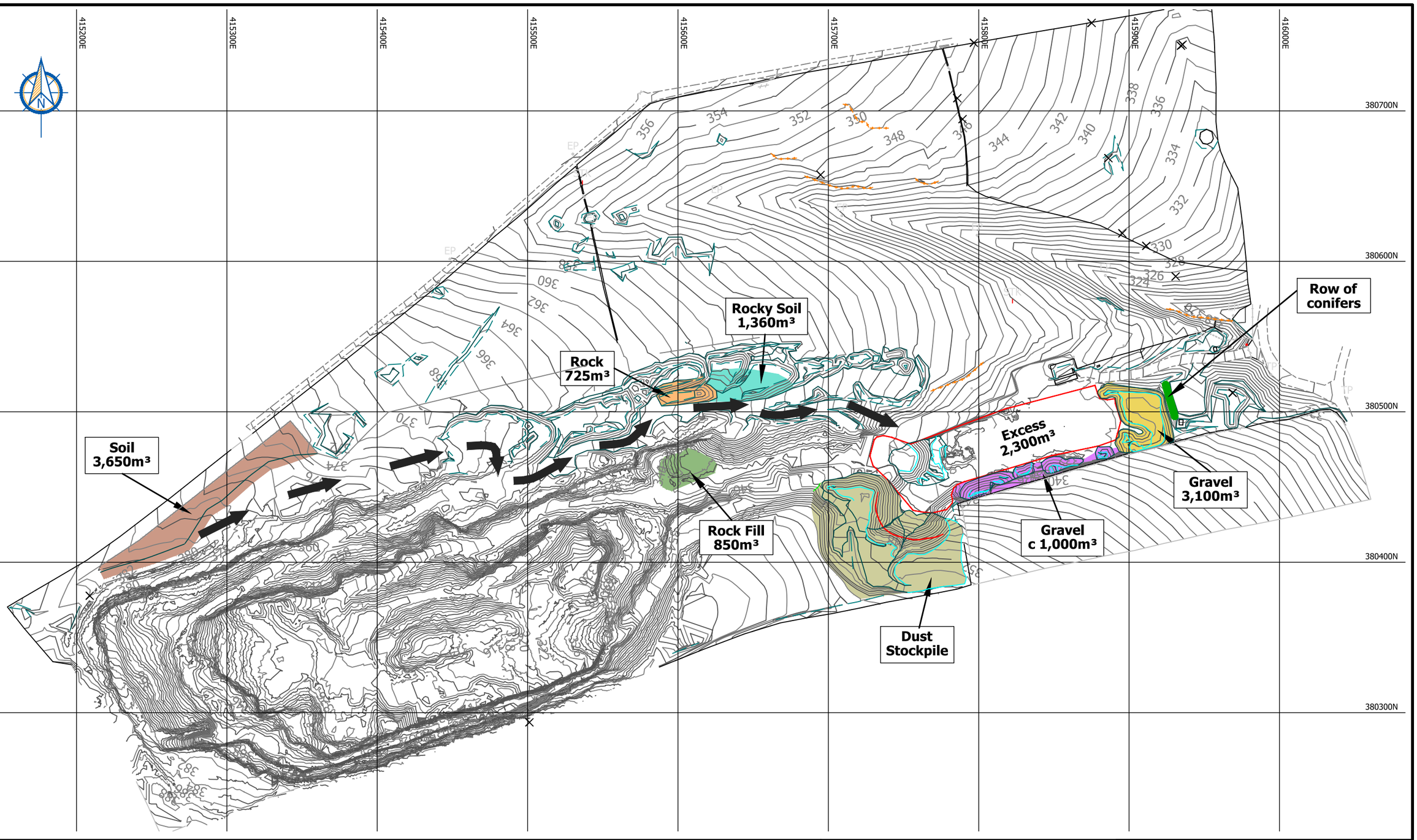
DECEMBER 2017



LEGEND

- Crest / Toe of slope
- 365 — Ground surface contour mAOD
- Road
- Haulage route for soils

Version	Revision and compilation notes	Date
A	Draft for comment	14.12.2017
B	Issued with report v.01	19.12.2017

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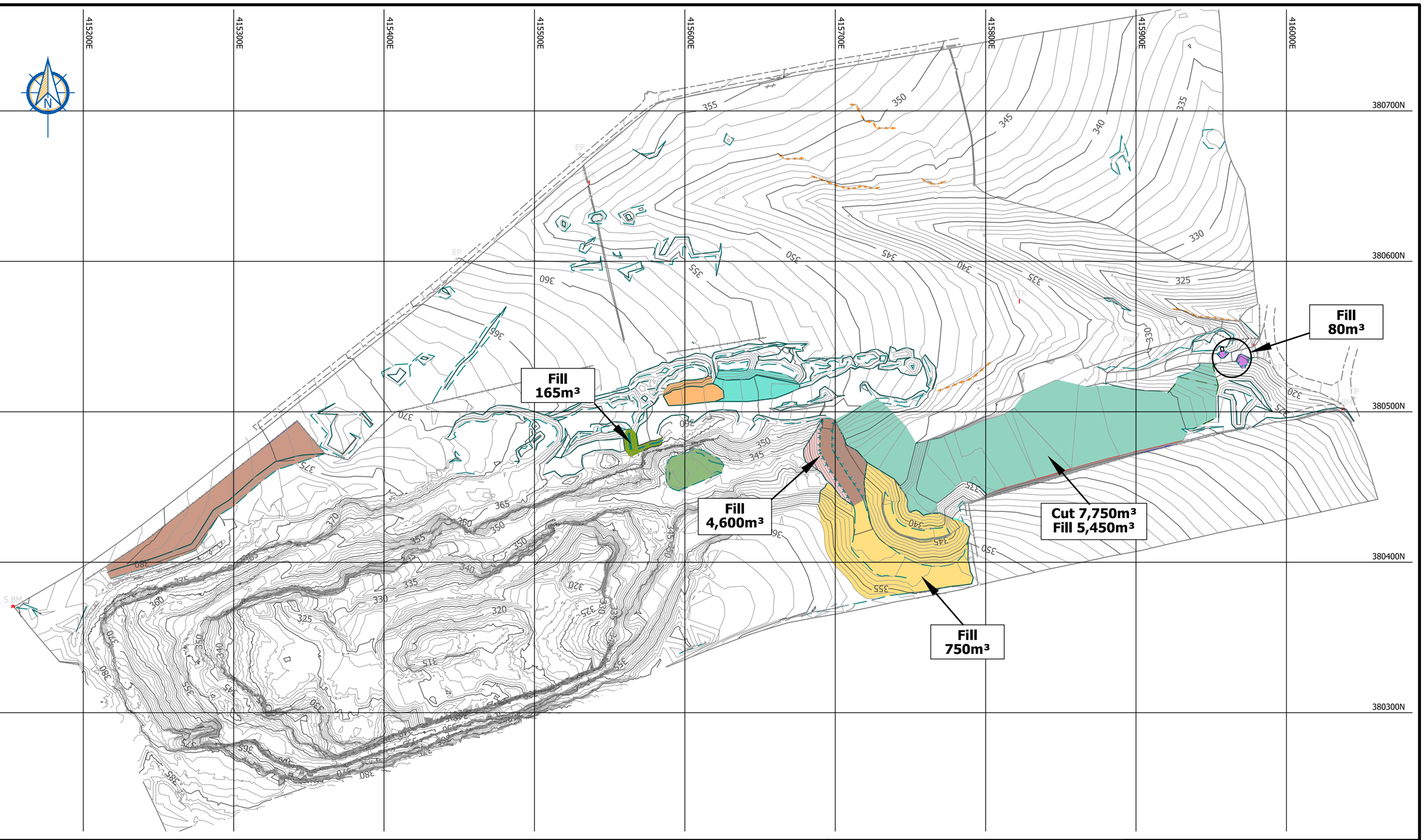
Project: Moss Rake East Alternate Restoration Scheme

GWP consultants
earth & water resources
Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
GWP Consultants LLP. Registered No. OC326183. Registered Office: Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, UK

Restoration material sources

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	1:2500 at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	1	B



LEGEND

- Crest / Toe of slope
- 365 — Ground surface contour mAOD
- Road

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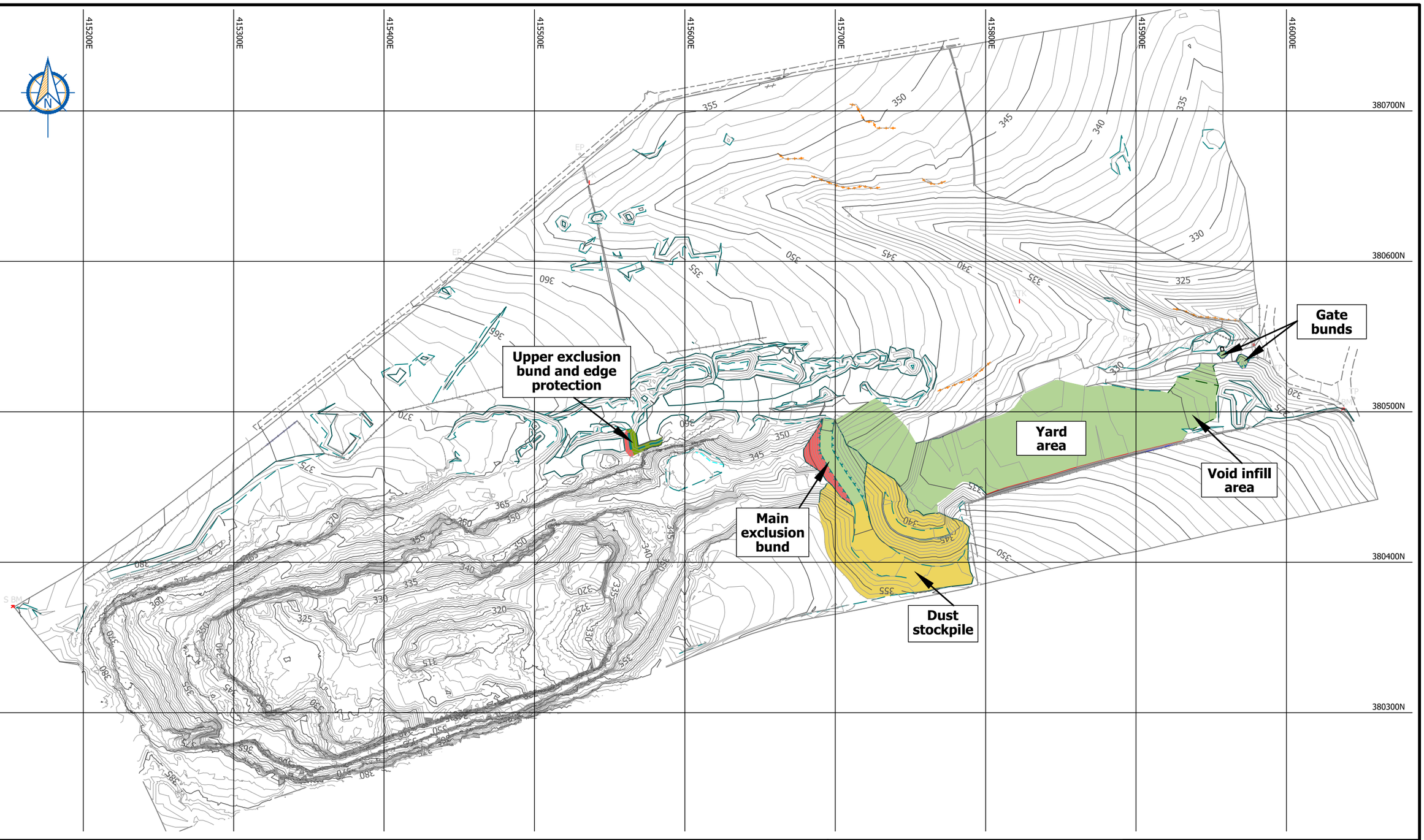
Final contour pre-soiling with fill volumes

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	1:2500 at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	2	B



LEGEND

- Crest of slope
- Toe of slope
- 365 Ground surface contour mAOD
- Road
- Rock
- Rough grassland
- Soils - 300mm soil cover and seeded
- Dust

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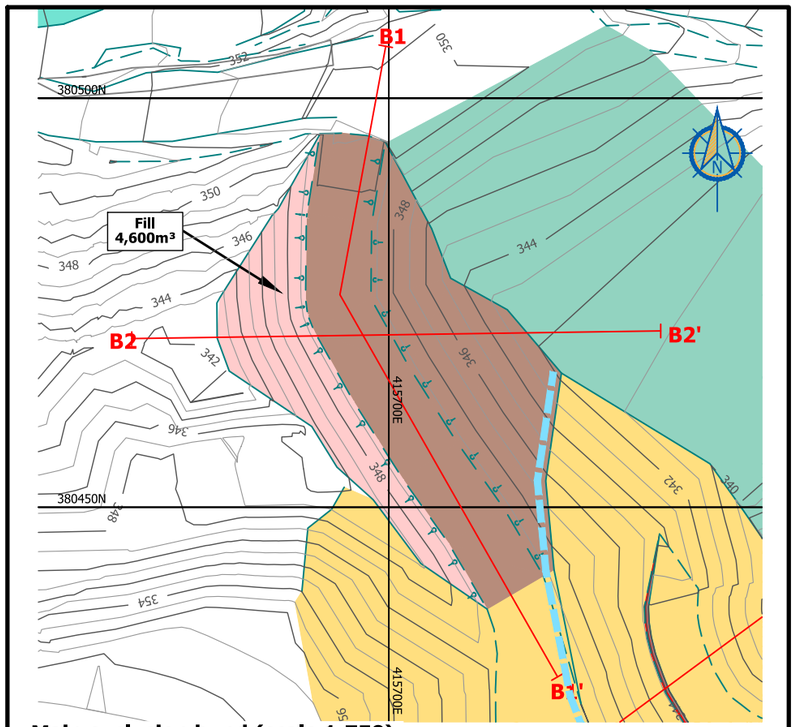
Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
earth & water resources
GWP Consultants LLP. Registered No. OC326183. Registered Office: Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ. UK

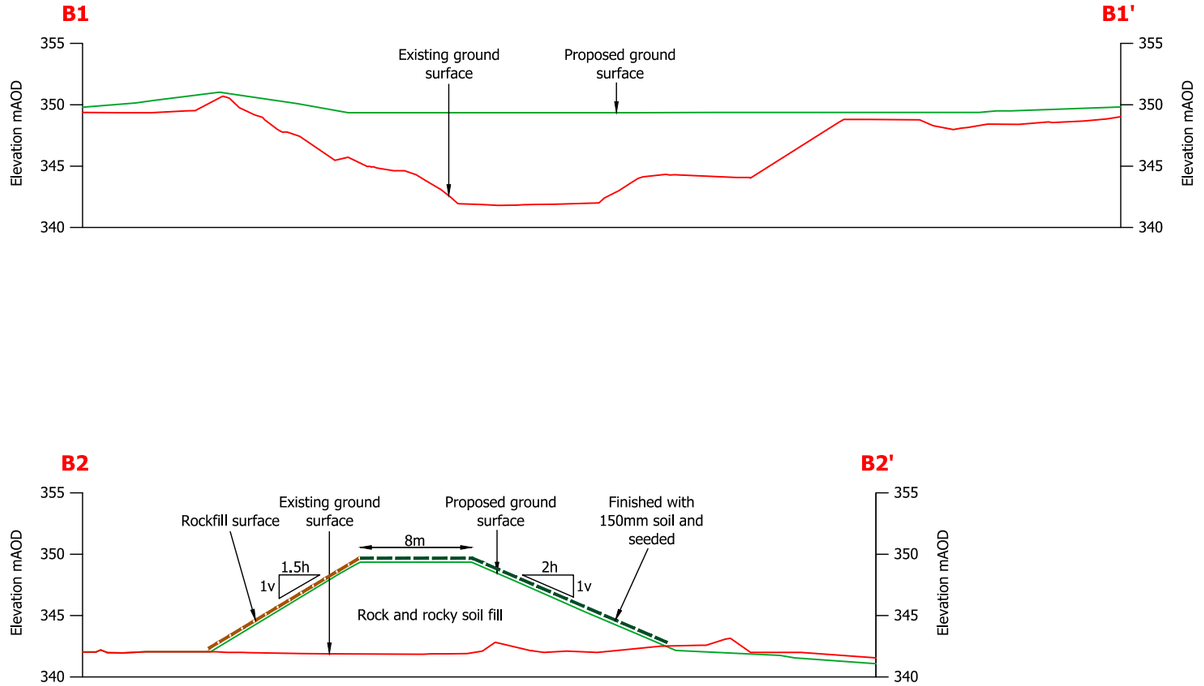
Final contours including soils

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	1:2500 at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	3	B



Main exclusion bund (scale 1:750)



Cross sections through main exclusion bund (scale 1:500)

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Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
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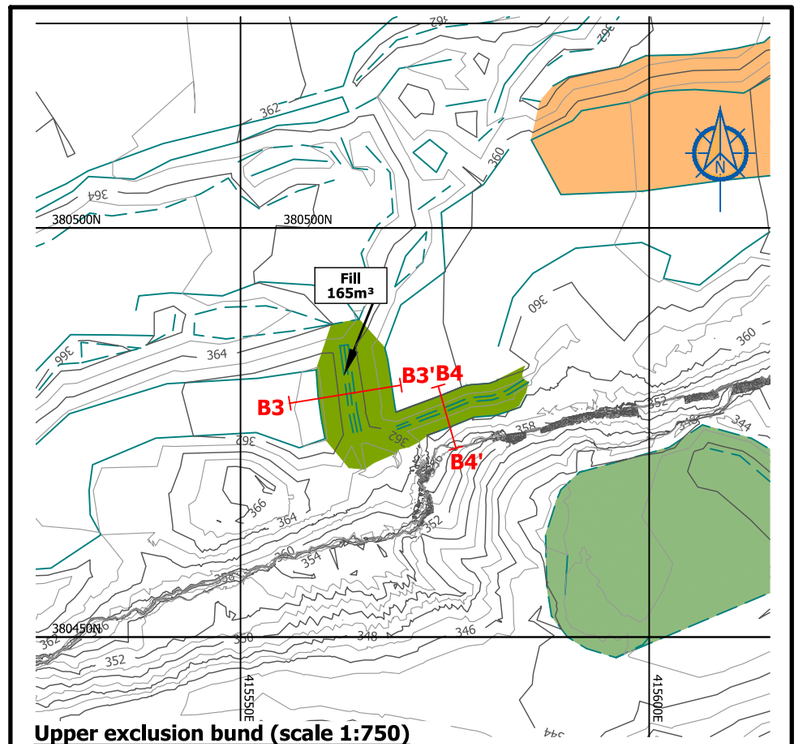
GWP Consultants LLP. Registered No. OC326183. Registered Office: Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, UK

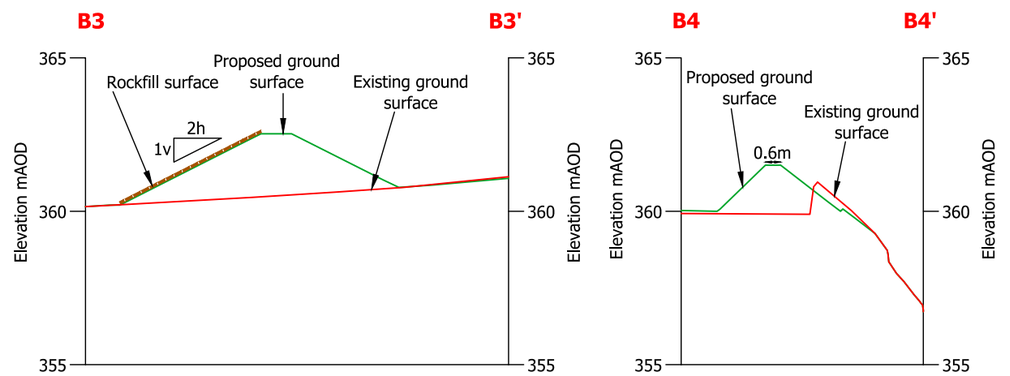
Detail of Main exclusion bund

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	As shown at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	4	B



Upper exclusion bund (scale 1:750)



Cross sections through upper exclusion bund (scale 1:200)

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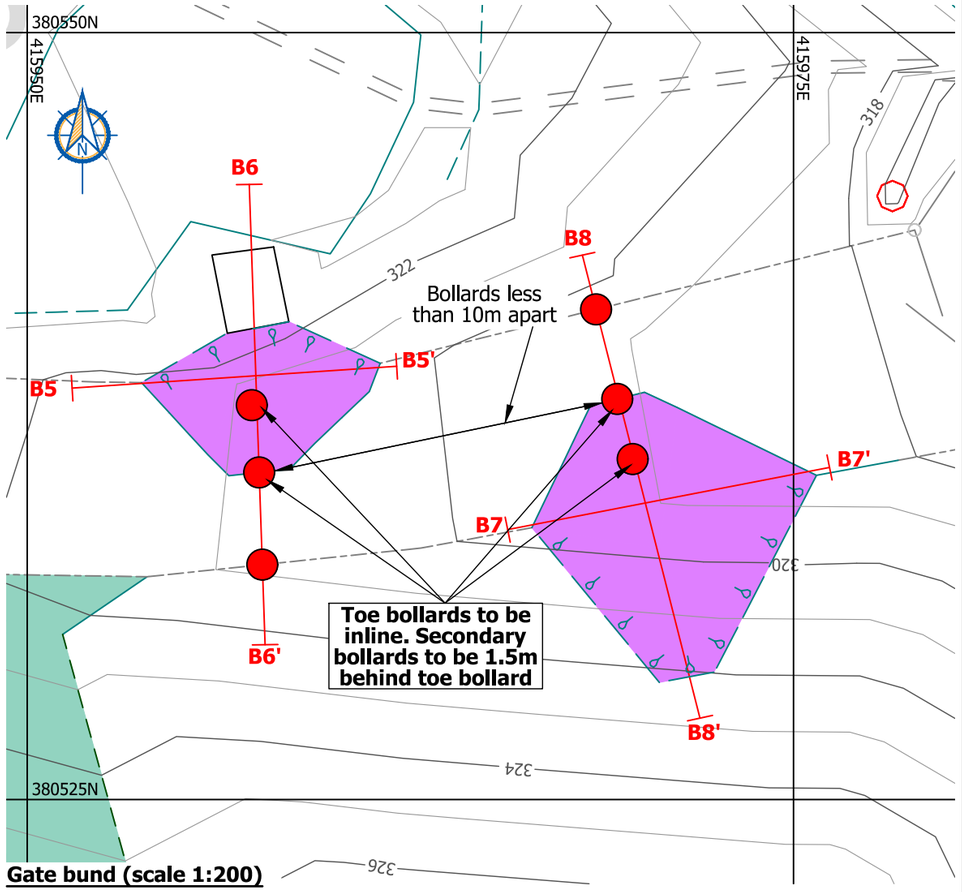
GWP consultants
Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
earth & water resources
GWP Consultants LLP. Registered No. OC326183. Registered Office: Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ. UK

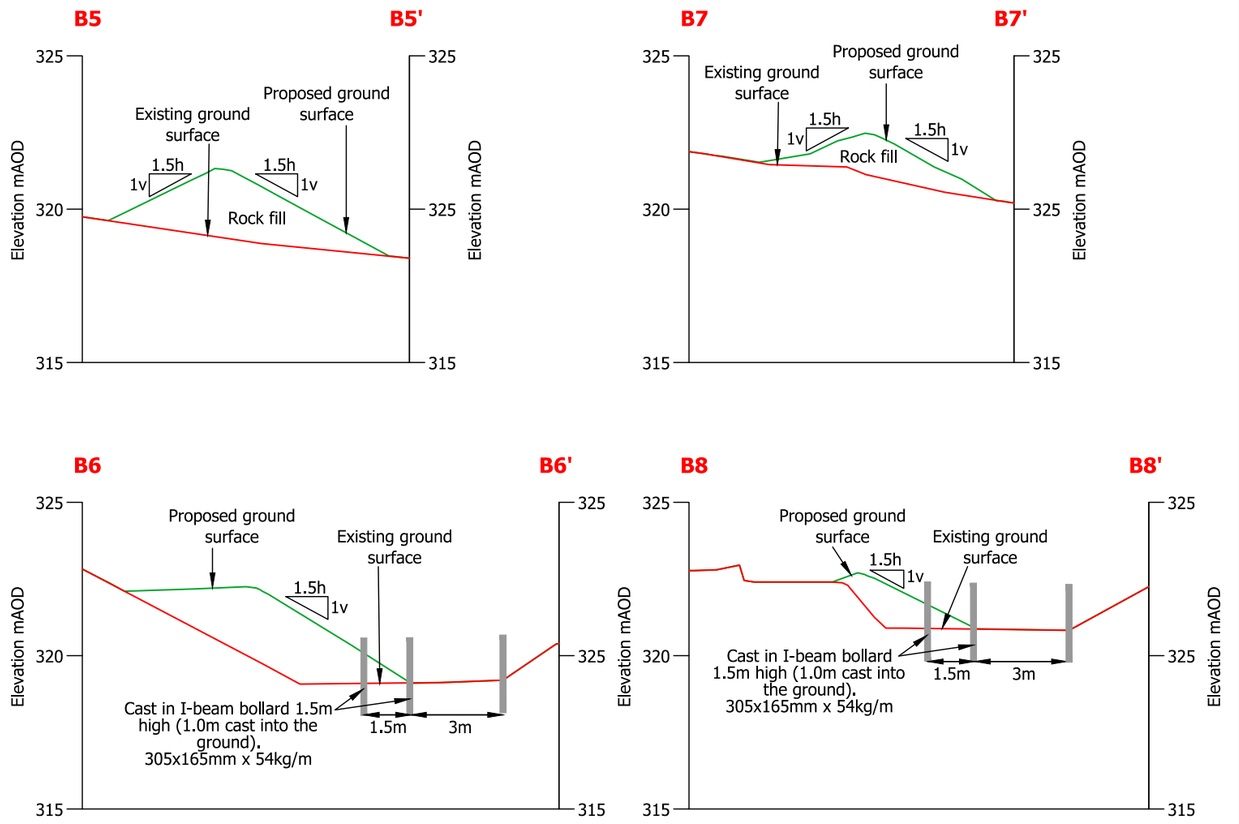
Detail of Upper exclusion bund

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	As shown at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	5	B



Gate bund (scale 1:200)



Cross sections through gate bund (scale 1:200)

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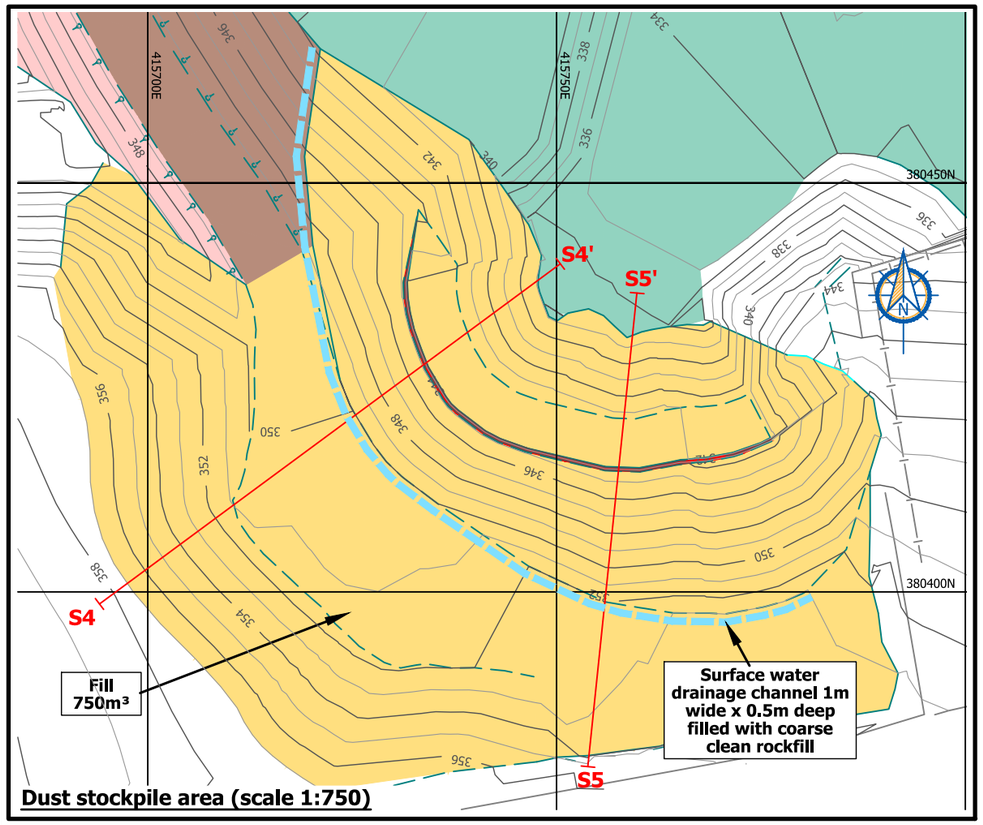
earth & water resources
Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
GWP Consultants LLP. Registered No. OC326183. Registered Office: Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, UK

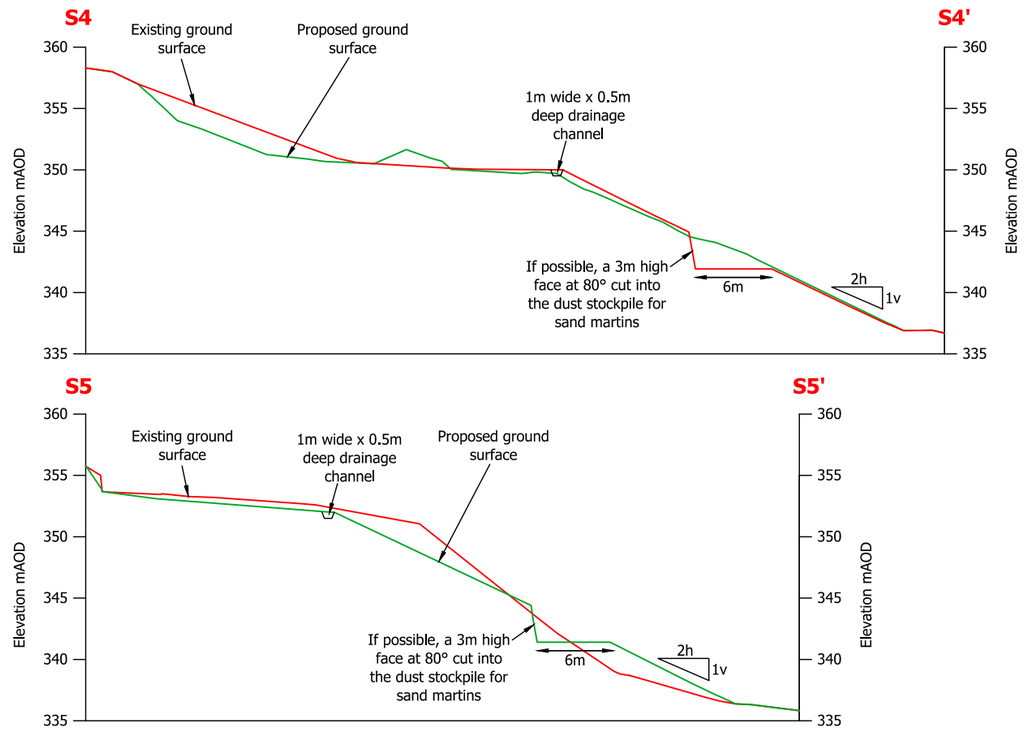
Detail of Gate bund

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	As shown at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	6	B



Dust stockpile area (scale 1:750)



Cross sections through dust stockpile (scale 1:500)

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Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
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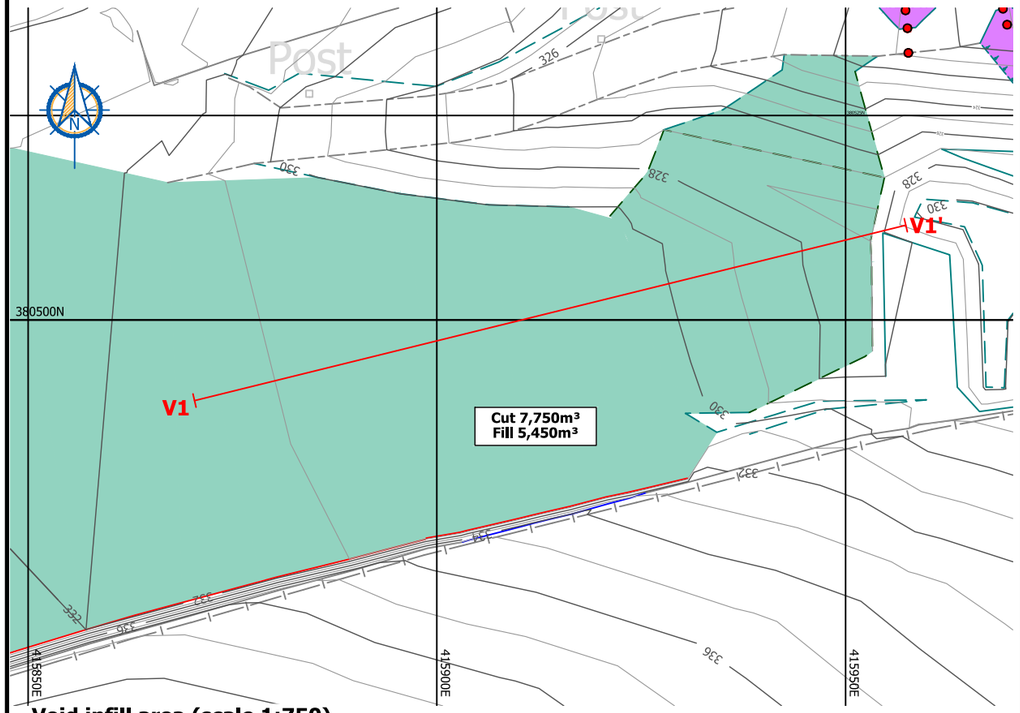
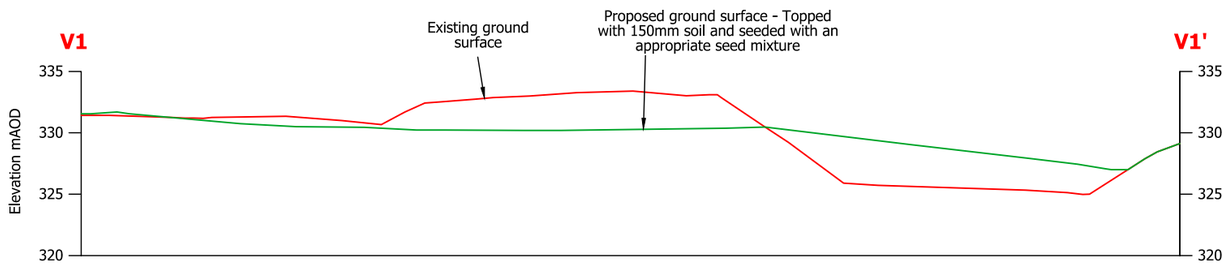
Detail of Dust stockpile area

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	As shown at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	7	B



Void infill area (scale 1:750)



Cross sections through void infill area (scale 1:500)

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Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, United Kingdom
tel +44 (0)1608 810374 fax +44 (0)1608 810093 e-mail info@gwp.uk.com web www.gwp.uk.com
earth & water resources
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Detail of void infill area

Date	Drawn	Checked	Scale
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Drawing Ref	Drawing No	Version
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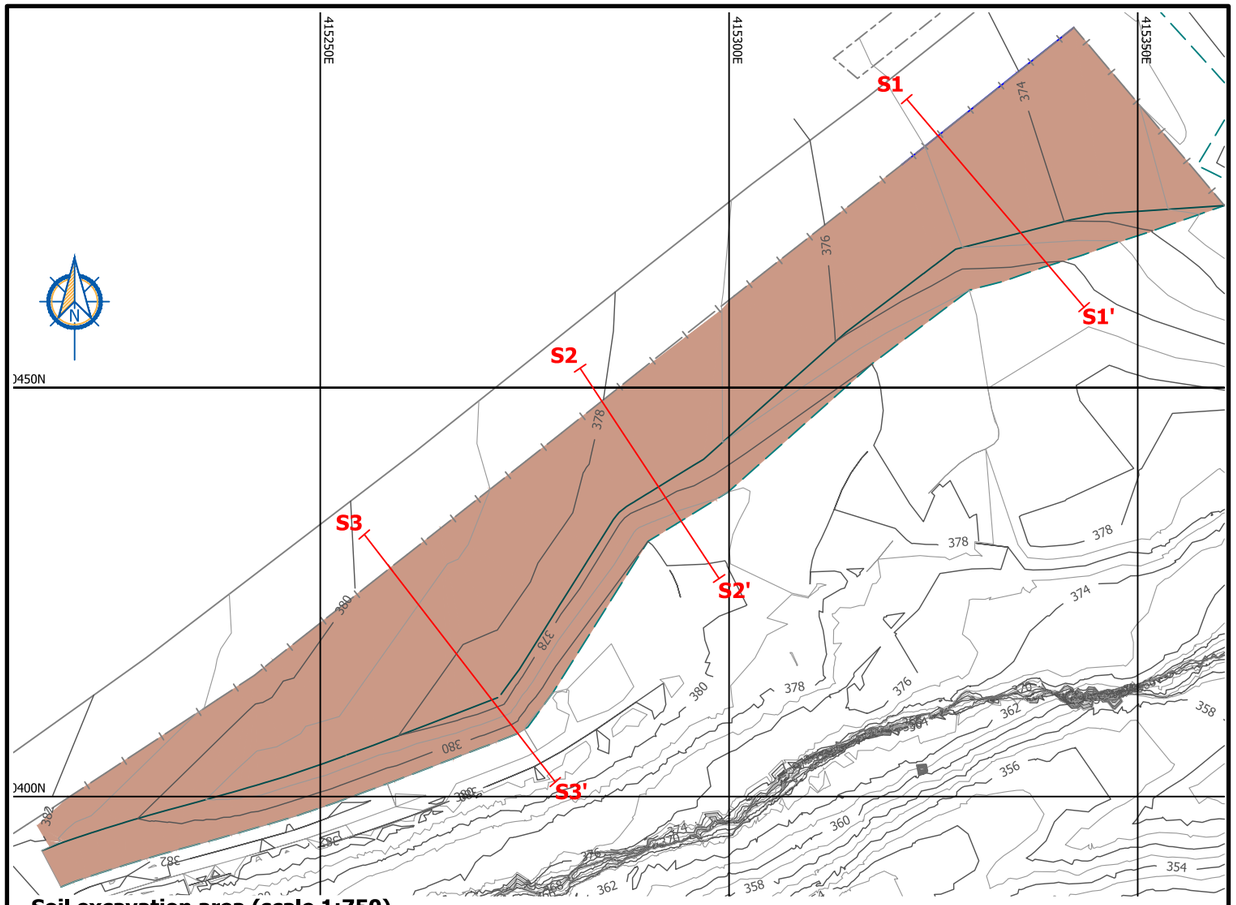
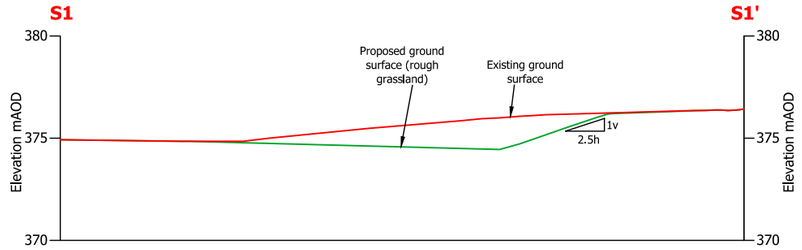
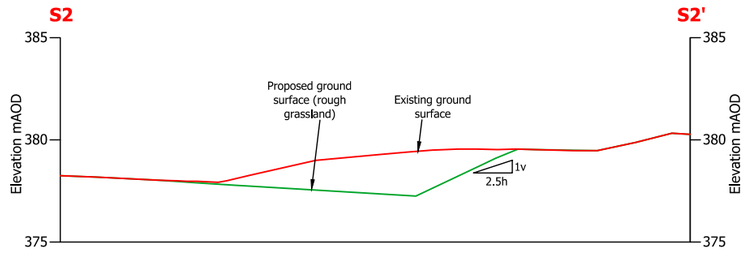
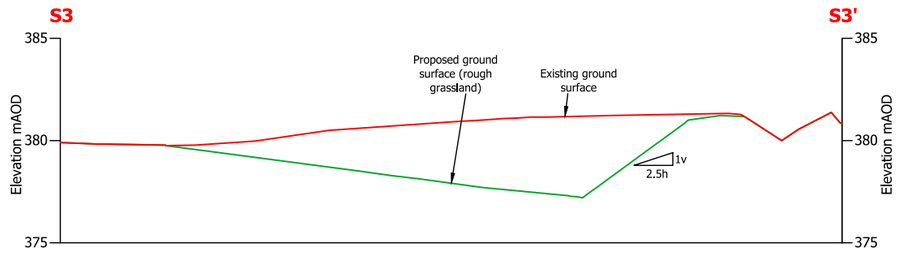


Soil excavation area (scale 1:750)







Cross sections through soil excavation area (scale 1:300)

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GWP consultants
Upton House
Market Street, Charlbury
Oxfordshire OX7 3PJ
United Kingdom
tel +44 (0)1608 810374
fax +44 (0)1608 810093
e-mail info@gwp.uk.com
web www.gwp.uk.com
earth & water resources
GWP Consultants LLP. Registered No. OC326183.
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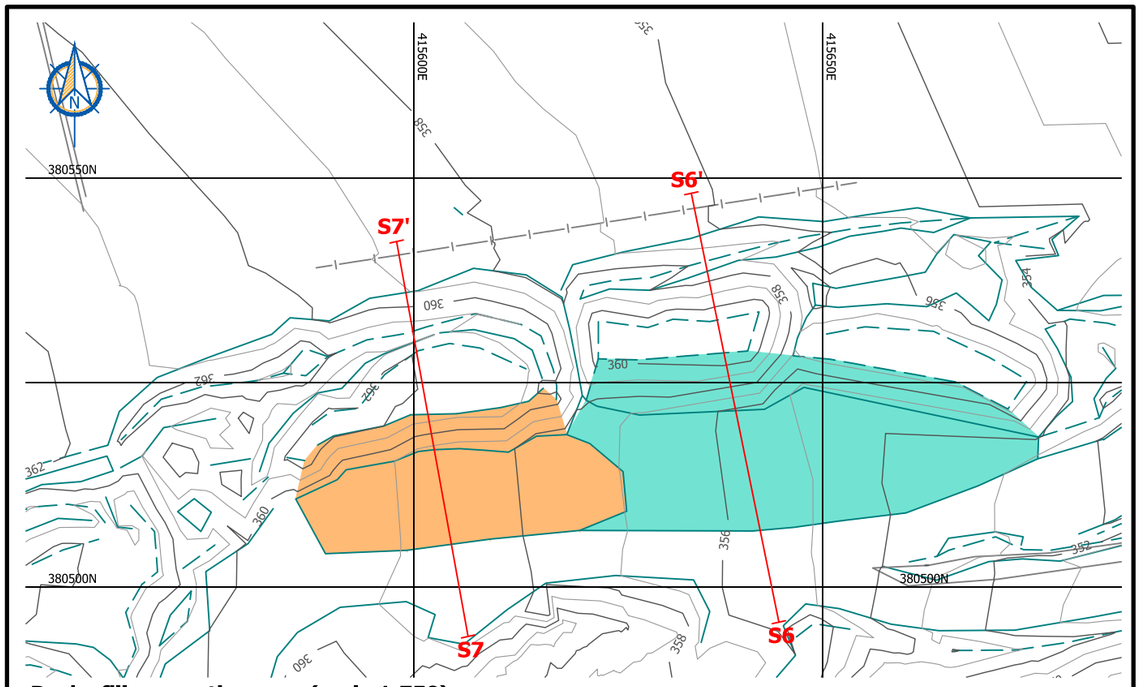
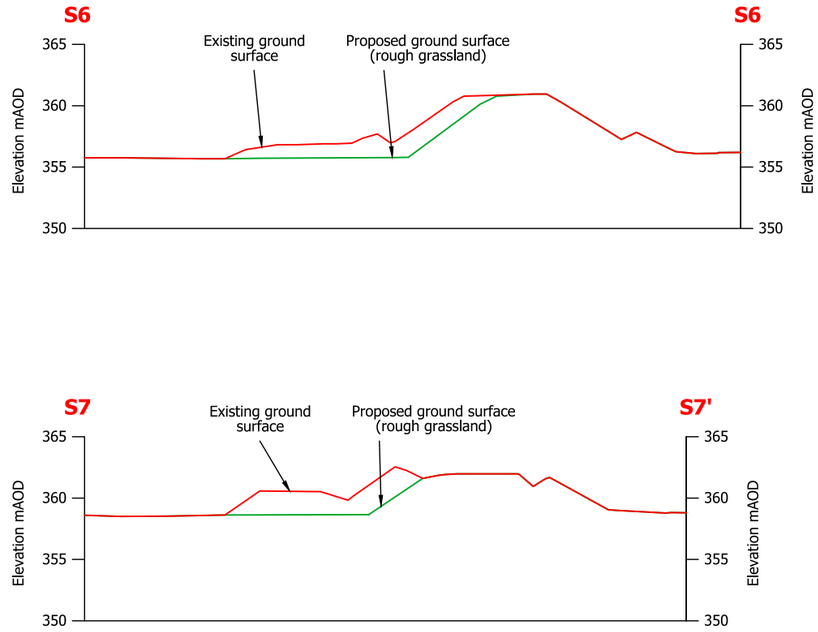
Detail of soil excavation area

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	As shown at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	9	B



Rocky fill excavation area (scale 1:750)



Cross sections through rocky fill excavation area (scale 1:500)

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Detail of rocky fill excavation area

Date	Drawn	Checked	Scale
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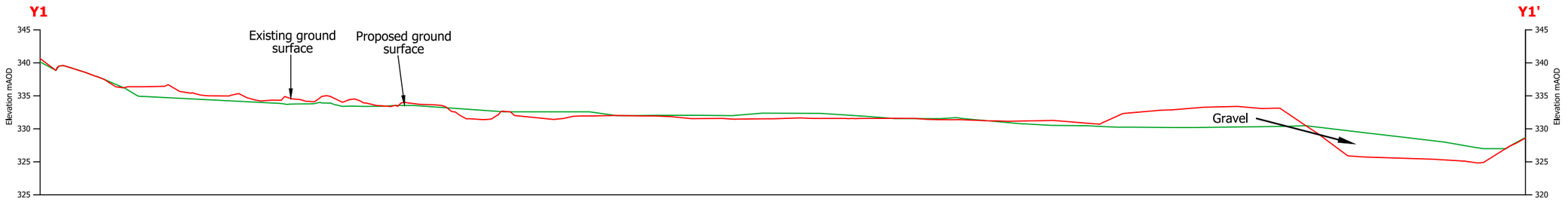
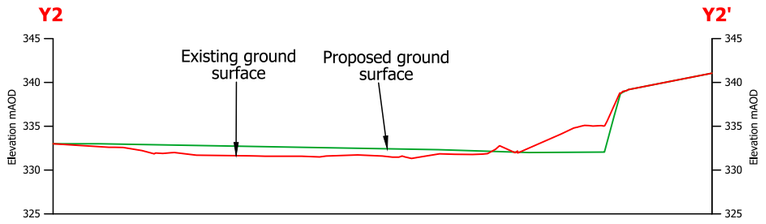
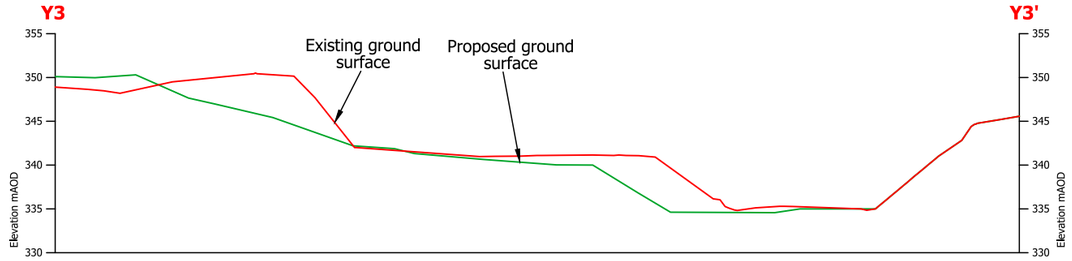
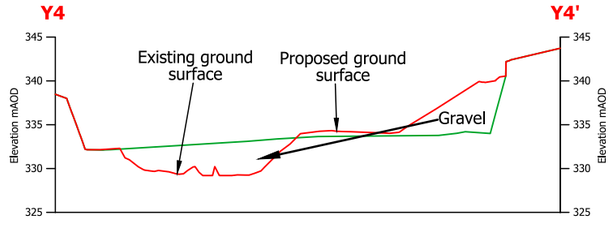
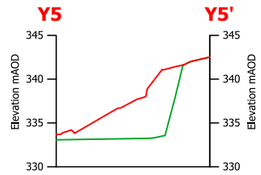
Drawing Ref	Drawing No	Version
MOSSRE1712	10	B

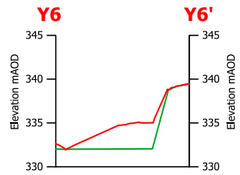


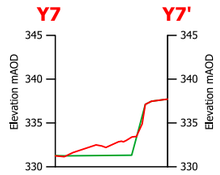










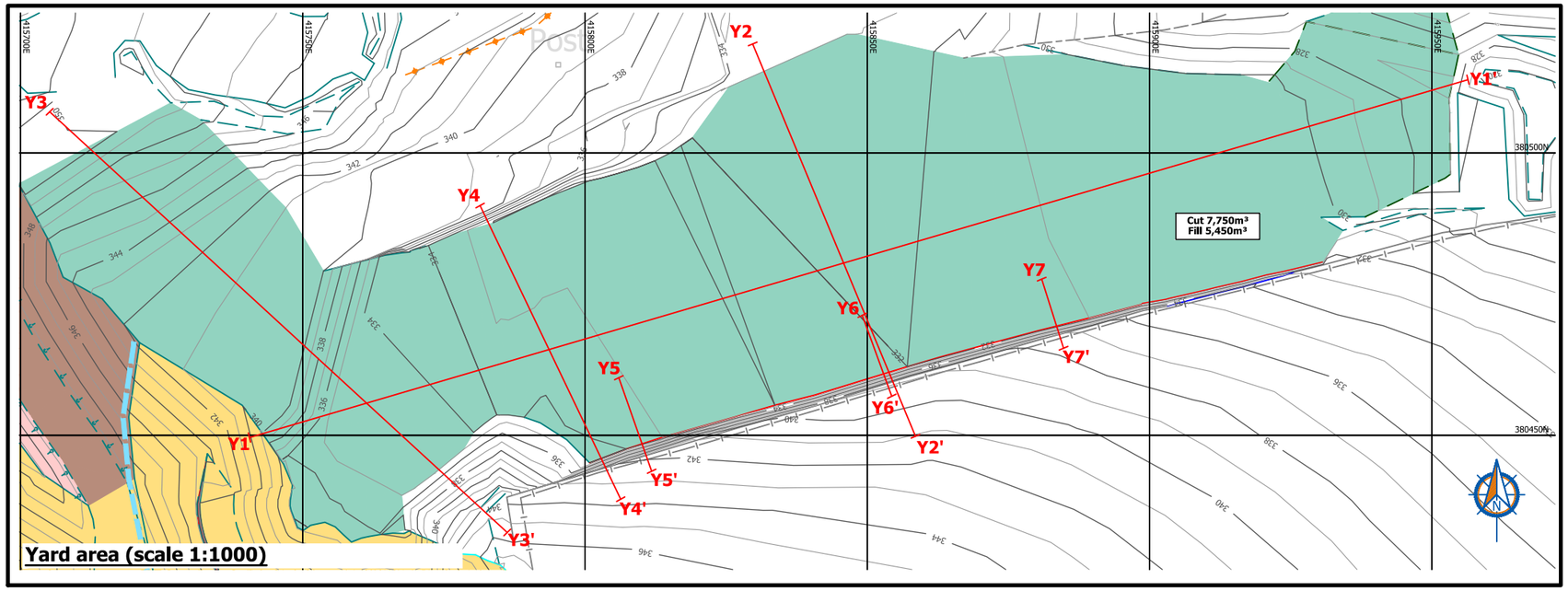


Cross sections through yard area (scale 1:700)

LEGEND

Existing ground surface

Proposed ground surface



Yard area (scale 1:1000)

Version	Revision and compilation notes	Date
A	Draft for comment	15.12.2017
B	Issued with report v.01	19.12.2017

Client
Peak District National Park Authority

Project
Moss Rake East Alternate Restoration Scheme

GWP consultants
Upton House
Market Street, Charlbury
Oxfordshire OX7 3PJ
United Kingdom
tel +44 (0)1608 810374
fax +44 (0)1608 810093
e-mail info@gwp.uk.com
web www.gwp.uk.com
earth & water resources
GWP Consultants LLP. Registered No. OC326183.
Registered Office: Upton House, Market Street, Charlbury, Oxfordshire OX7 3PJ, UK

Detail of Yard area

Date	Drawn	Checked	Scale
19.12.2017	JCB/EMB	*AEC*	As shown at A3

Drawing Ref	Drawing No	Version
MOSSRE1712	11	B