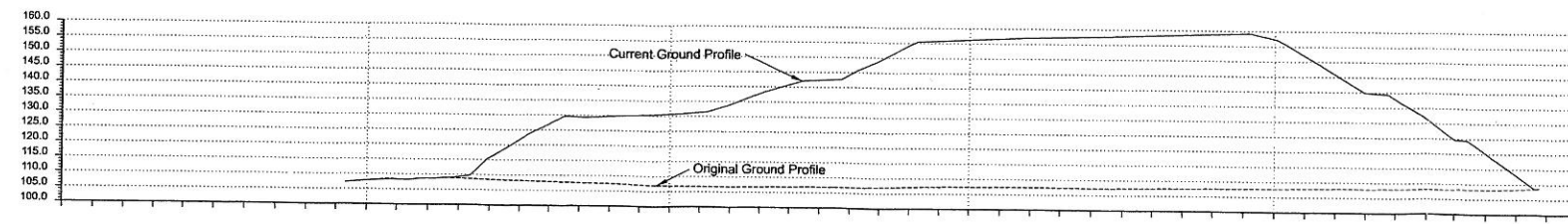
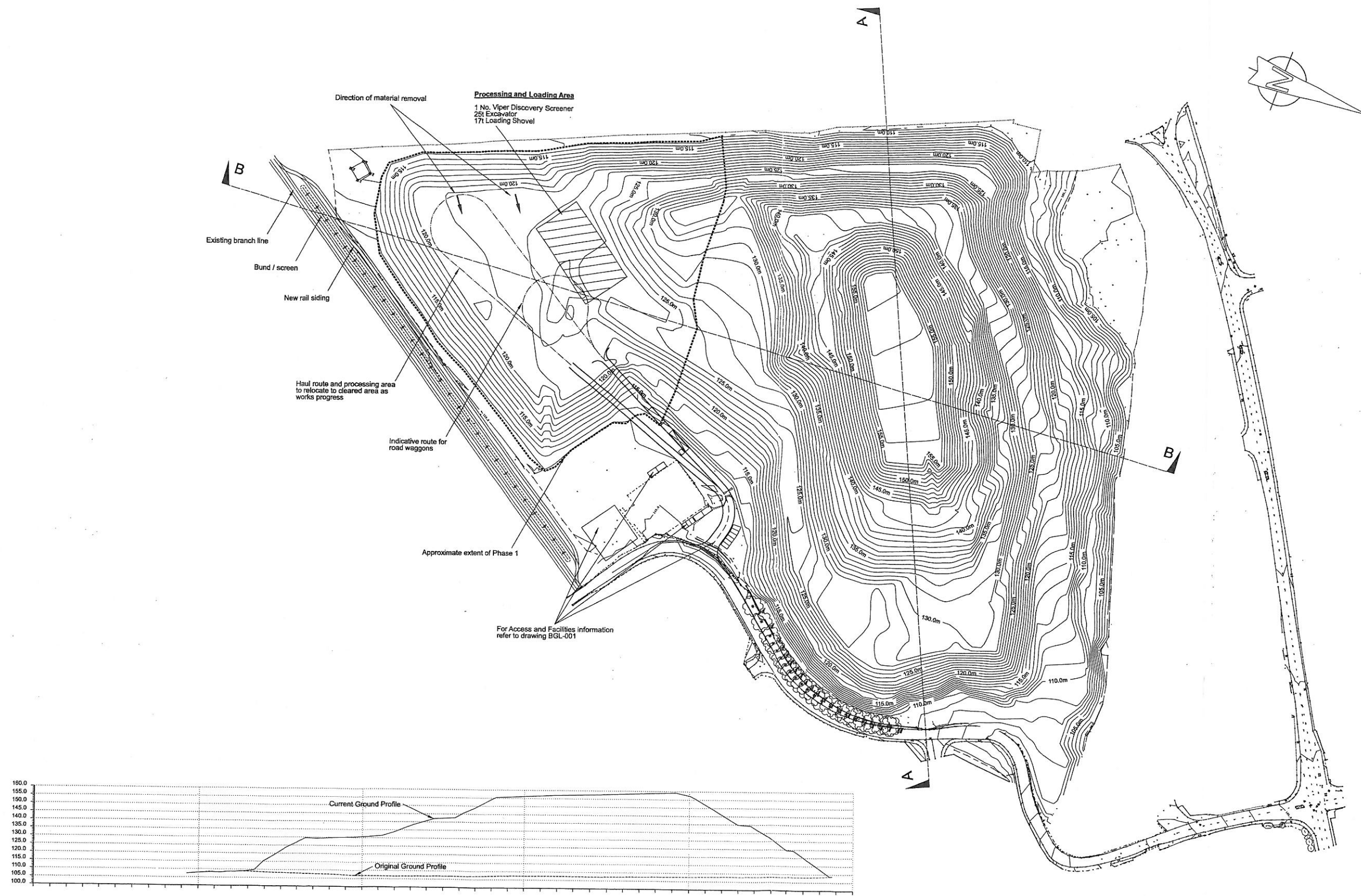
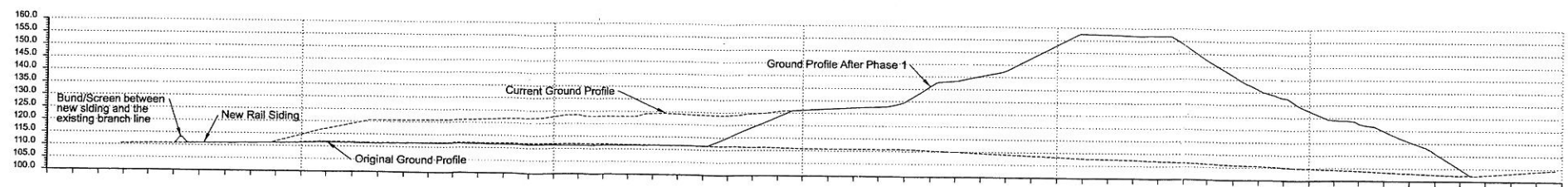


Figure 1.3
Phase 1 Plan



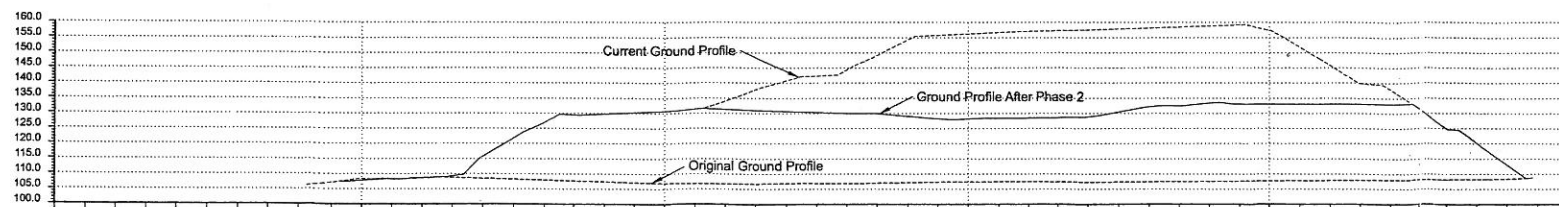
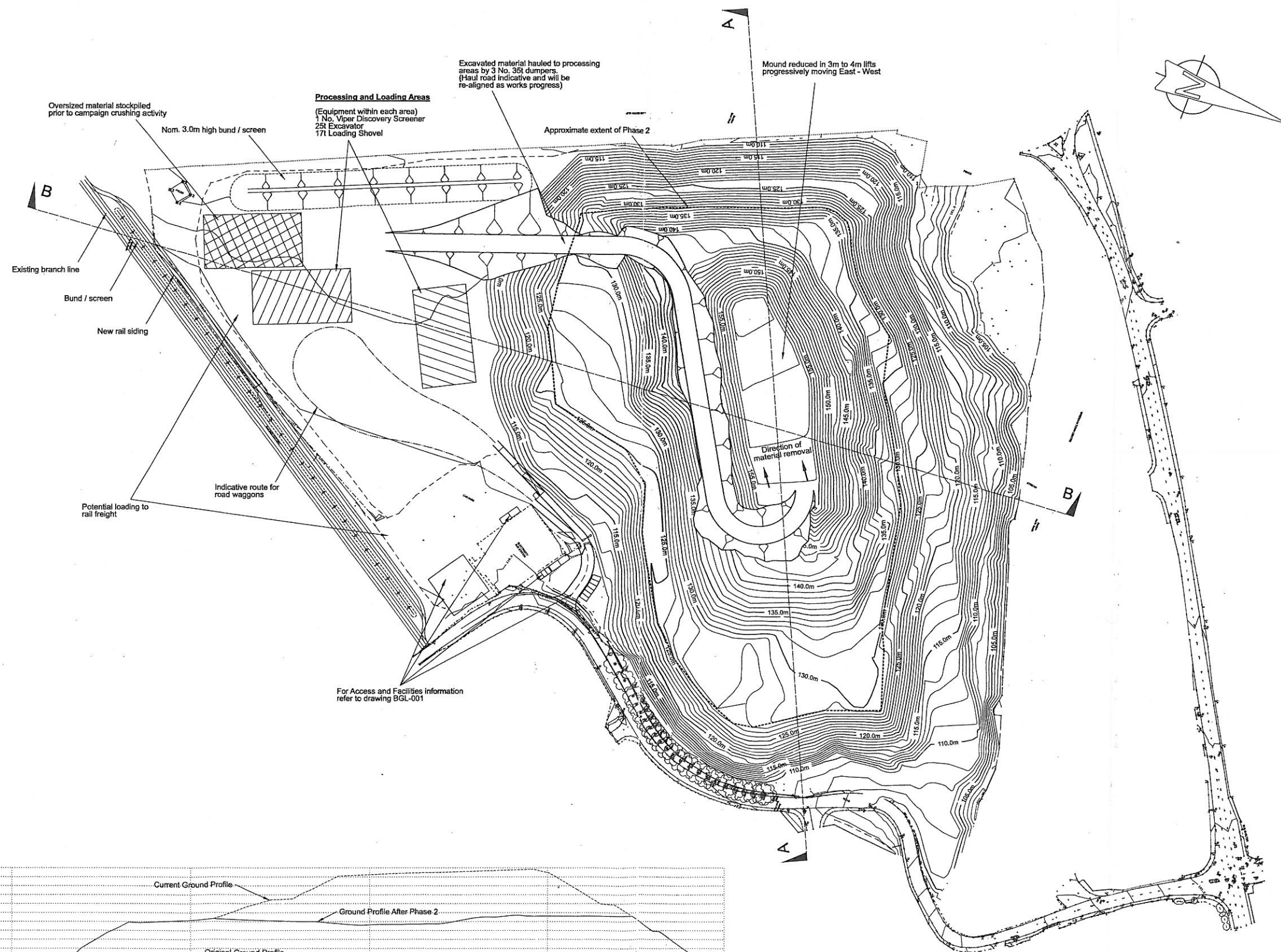
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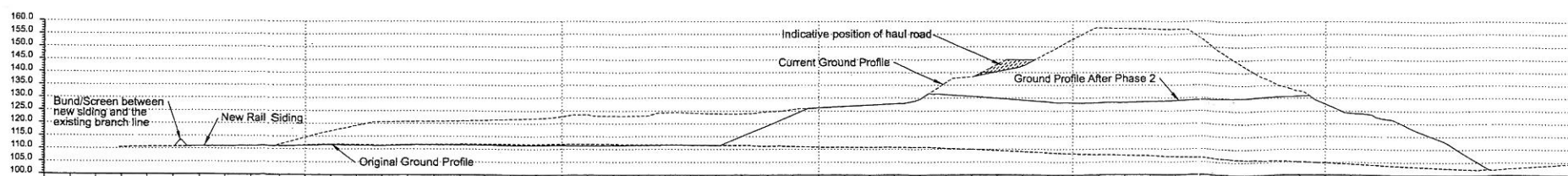
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Client		
BERSHAM GLENSIDE LTD		
Job Title		
Bersham Colliery Tip		
Drawing Title		
Commencement of Phase 1 Plan and Profiles		
Scale at A1 1:1250		
Drawing Status		
Draft - For Information		
Date	Drawing No	Issue
02-10-06	BGL-002	A

Figure 1.4
Phase 2 Plan



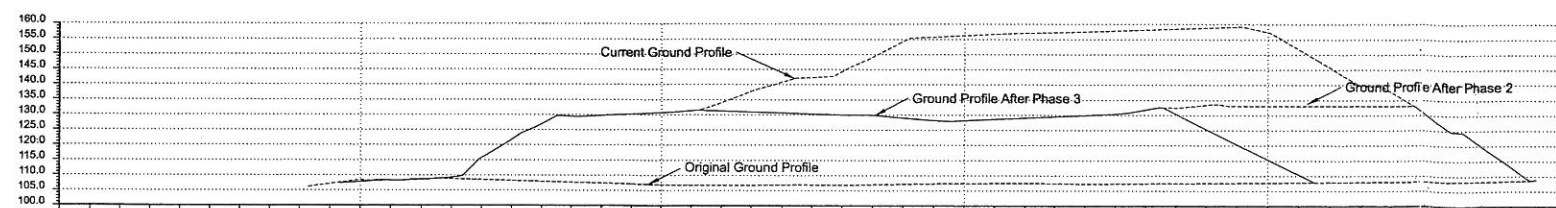
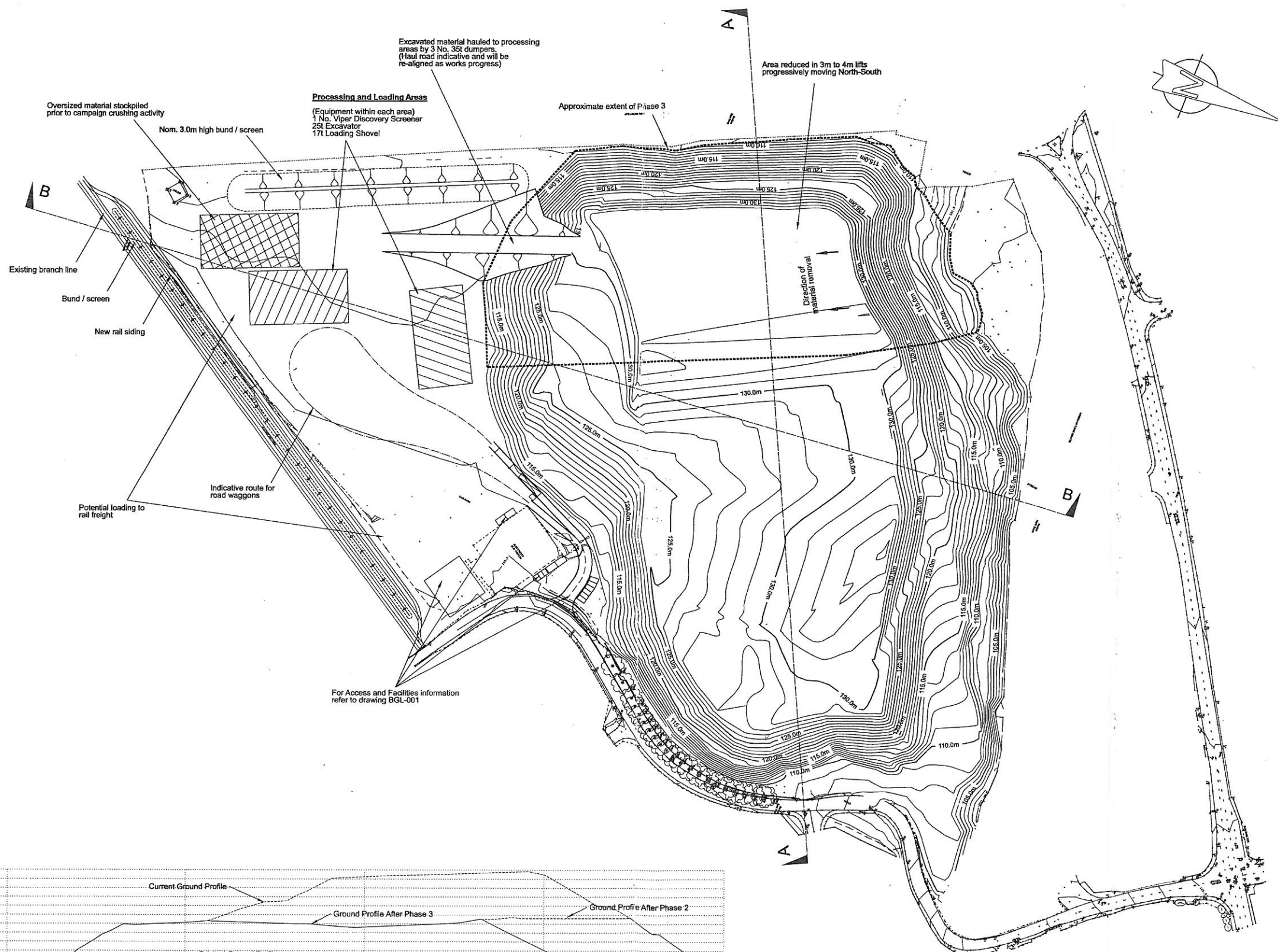
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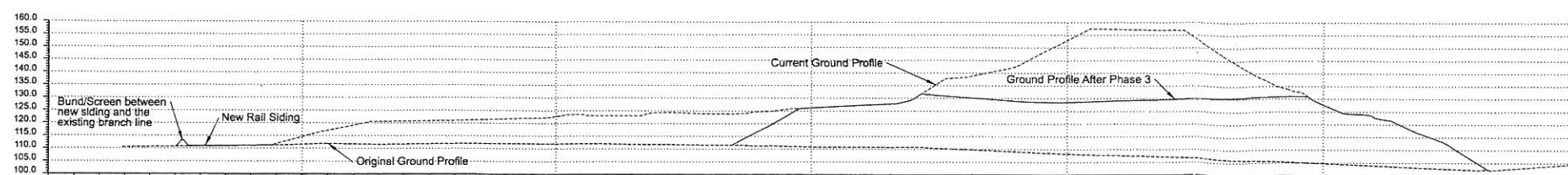
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Job Title	Bersham Colliery Tip
Drawing Title	Commencement of Phase 2 Plan and Profiles
Scale at A1	1:1250
Drawing Status	Draft - For Information
Date	02-10-06
Drawing No	BGL

Figure 1.5
Phase 3 Plan



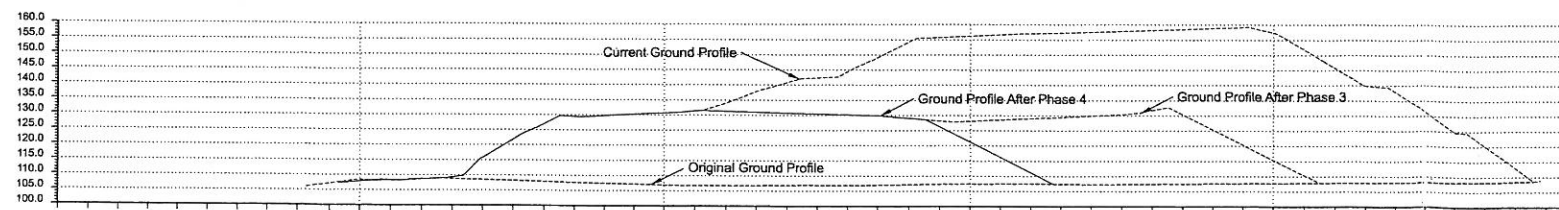
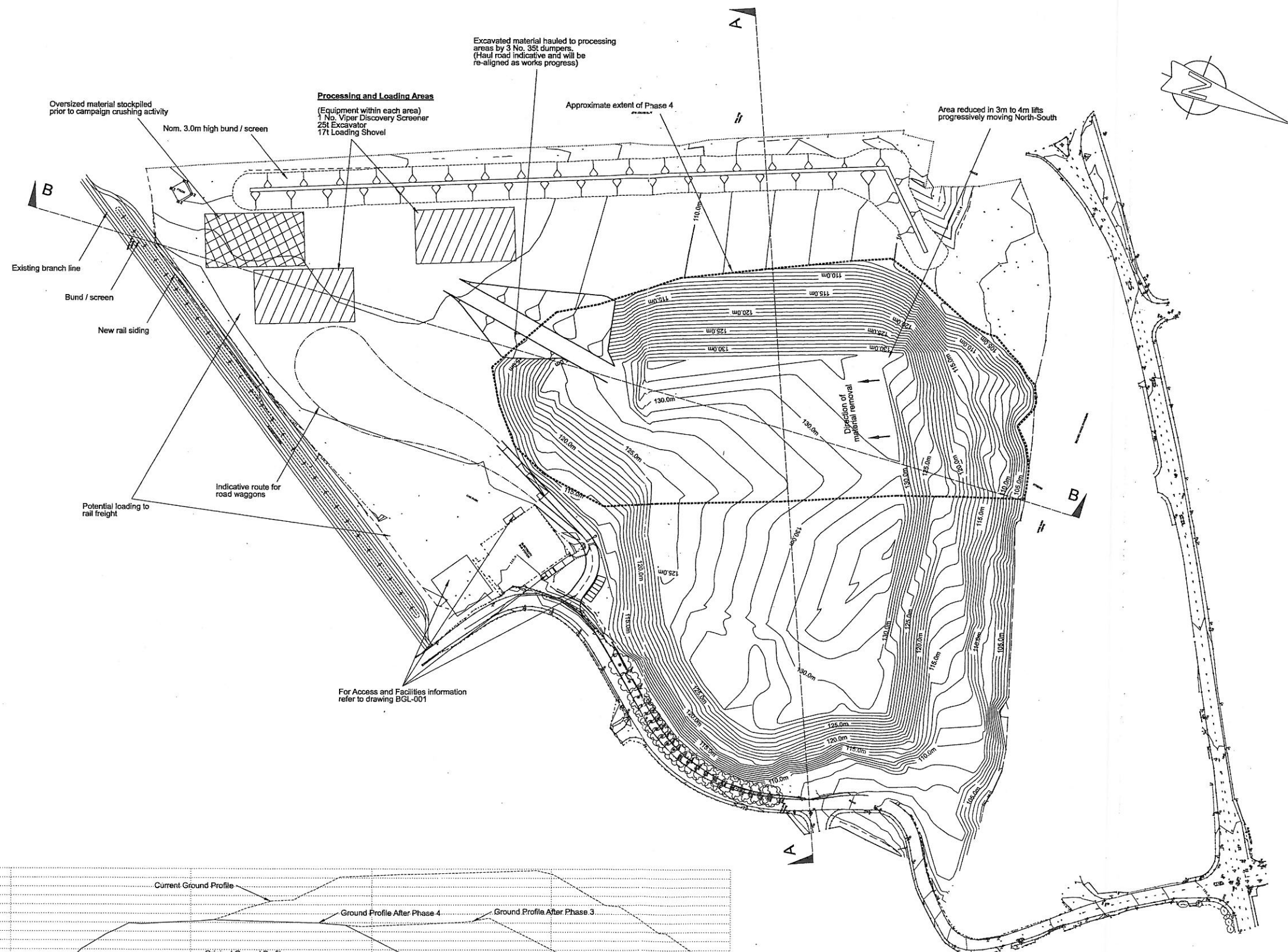
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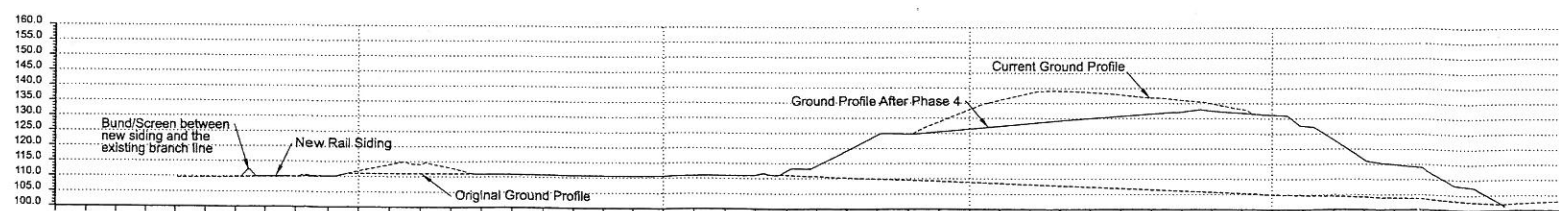
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Job Title		
Bersham Colliery Tip		
Drawing Title		
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Draft - For Information		
Date	Drawing No	Issue
02-10-06	BGL-004	A

Figure 1.6
Phase 4 Plan



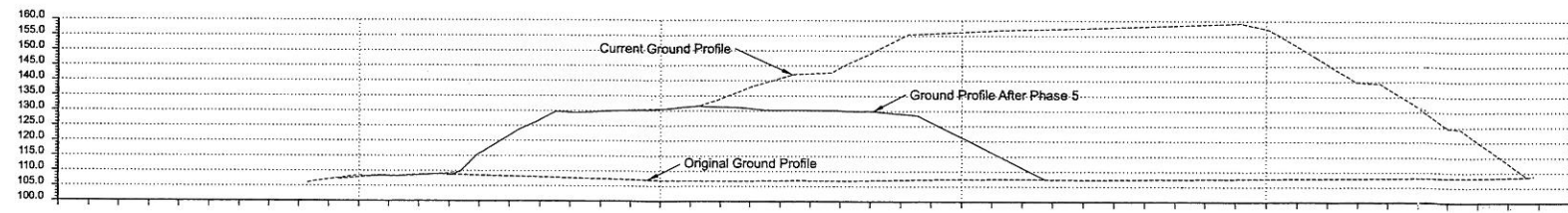
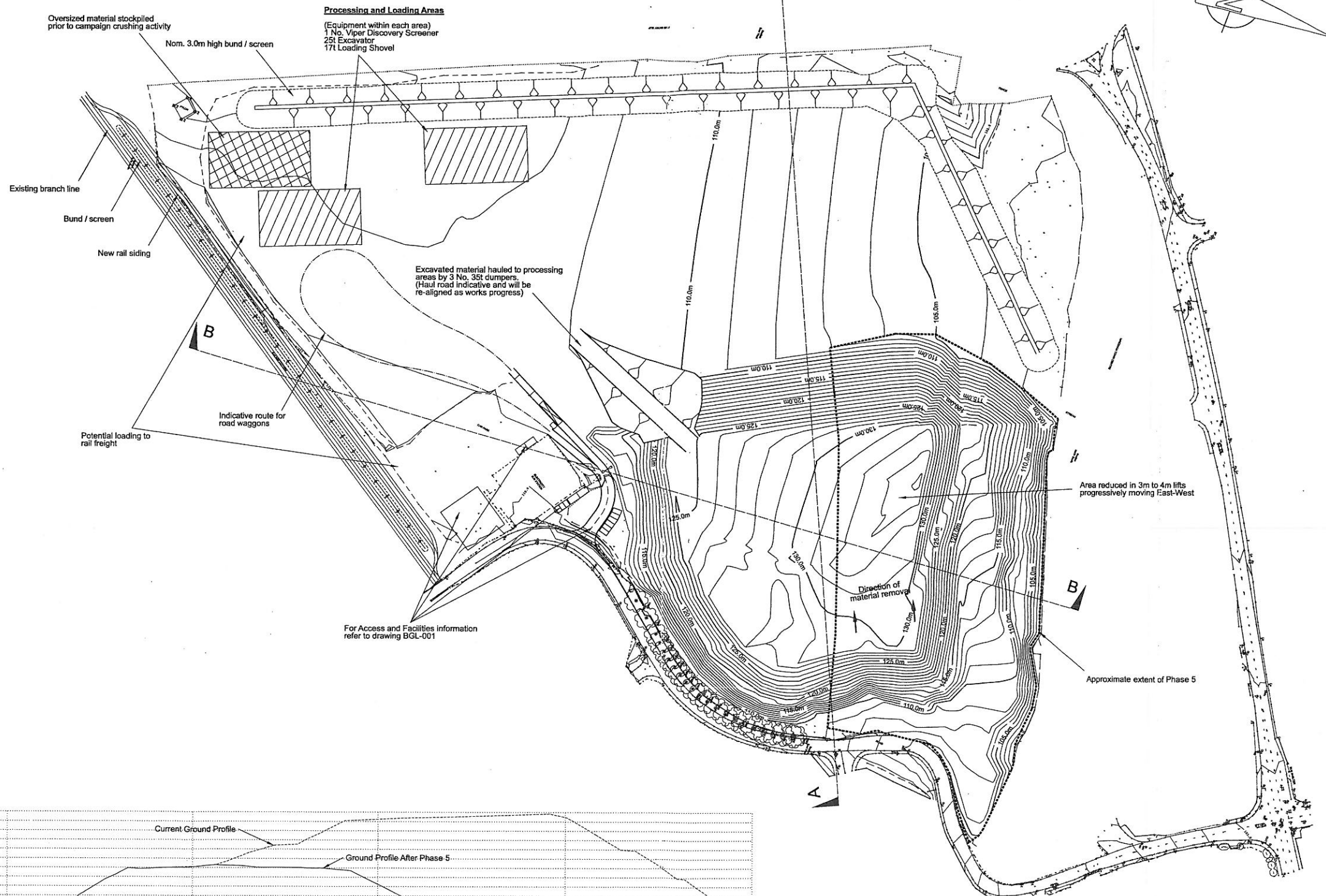
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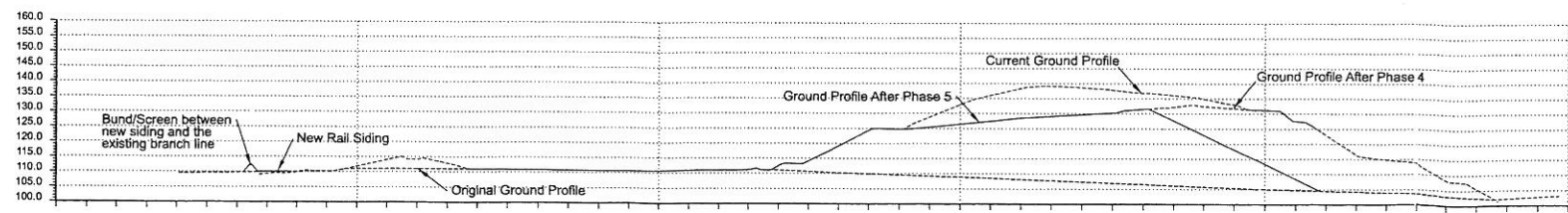
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Drawing Status		
Draft - For Information		
Date	Drawing No	Issue
02-10-06	BGL-005	

Figure 1.7
Phase 5 Plan



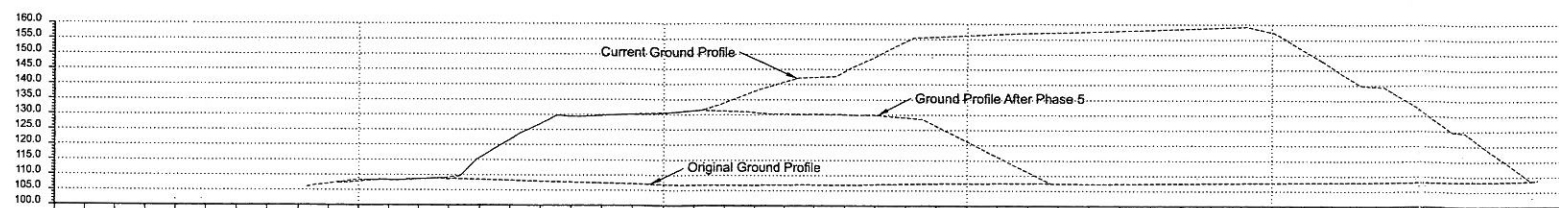
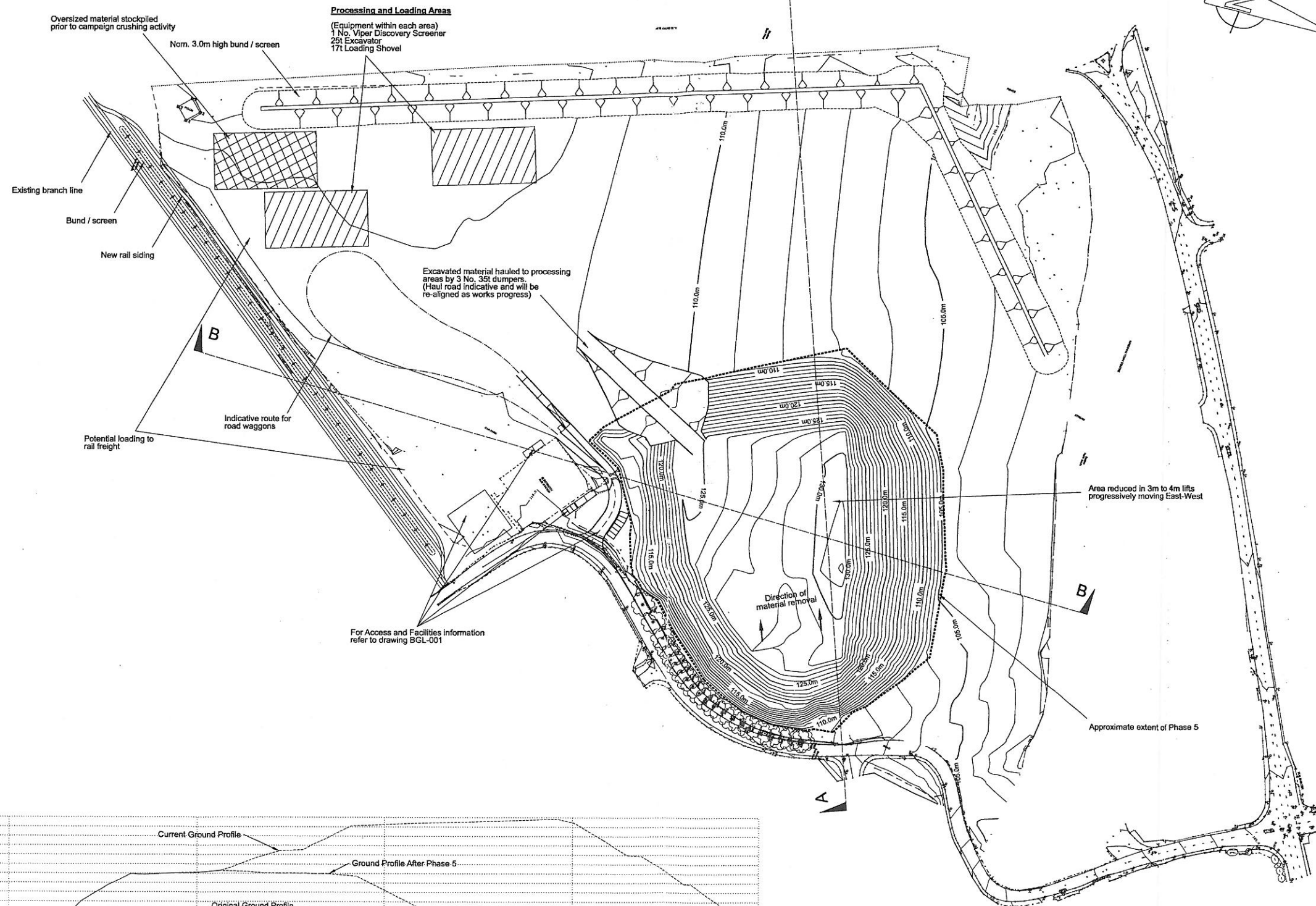
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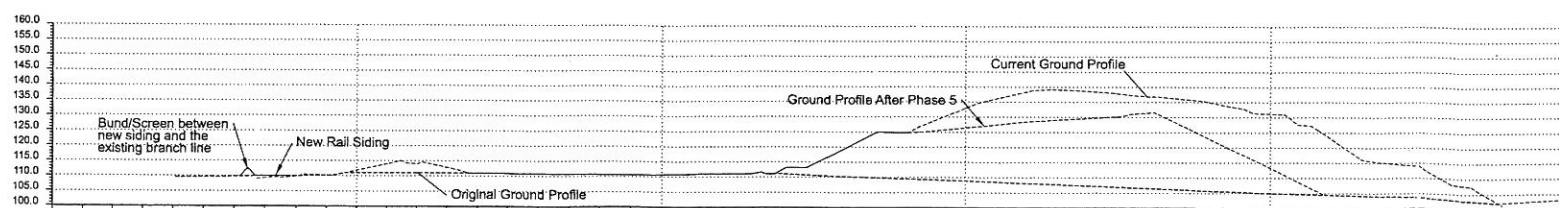
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Drawing Status		
Draft - For Information		
Date	Drawing No	Issue
02-10-06	BGL-006	A

Figure 1.8
Phase 6 Plan



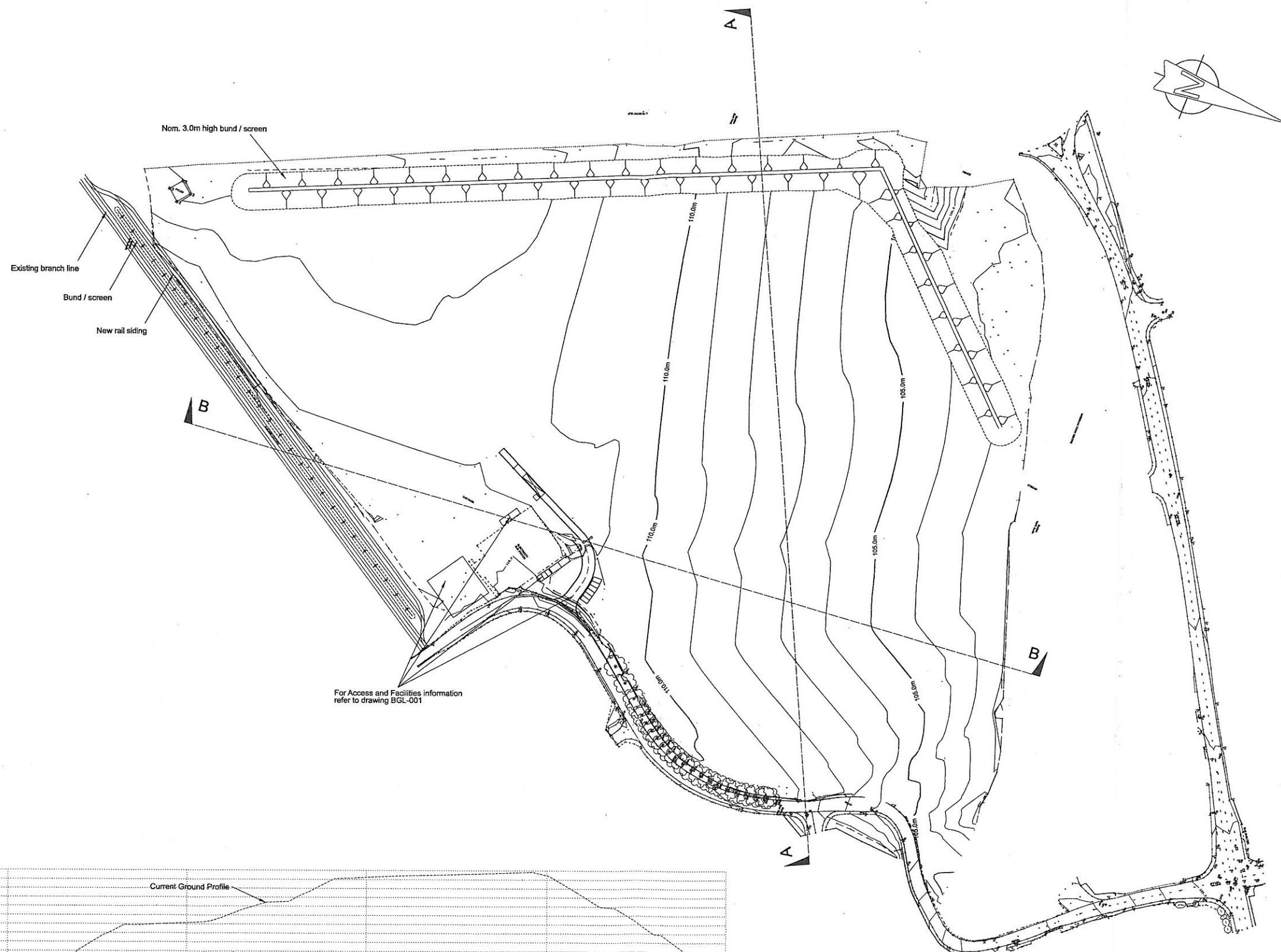
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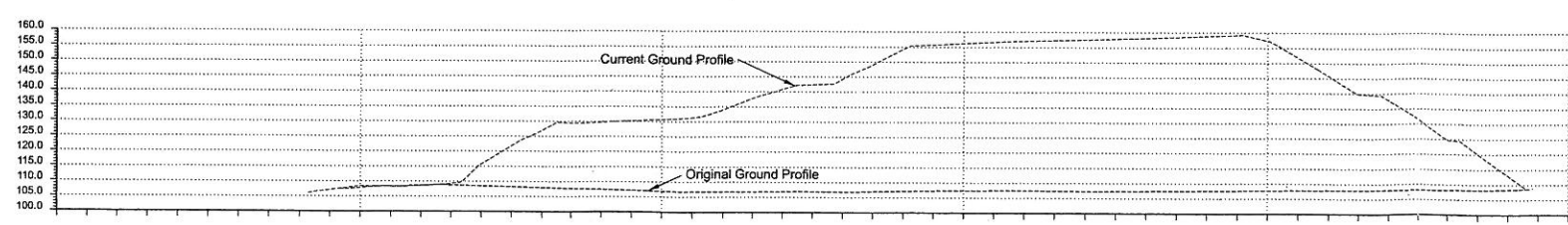
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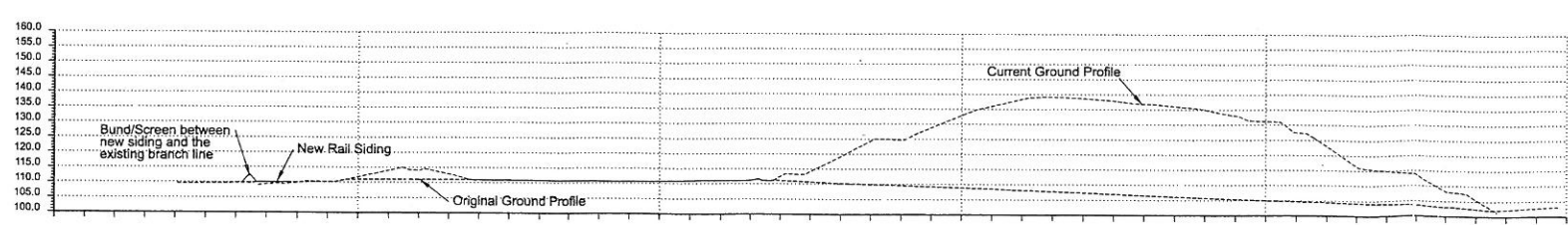
Figure 1.9
Completion Plan



For Access and Facilities information refer to drawing BGL-001



SECTION A:A



SECTION B:B

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BERSHAM GLENSIDE LTD		
Job Title		
Bersham Colliery Tip		
Drawing Title		
Completion Plan and Profiles		
Scale at A1 1:1250		
Drawing Status		
Draft - For information		
Date	Drawing No	Issue
02-10-06	BGL-008	A

Figure 1.10
Final Site Plan

BERSHAM COLLIERY TIP RECLAMATION

Landscape implementation approach

Objectives:

- To establish new woodland and scrub communities that will develop into an amenity for recreational use, landscape improvement and wildlife value
- To achieve plant communities that integrate with the site's surroundings, maximising the connection with adjacent wildlife habitats
- To achieve vegetation that is robust, suited to the site's ground conditions and has low demand for maintenance

Principles to be adopted:

- Colliery spoil can be prepared as a good growing medium, avoiding the importation of soil
- Achieving surface gradients and avoidance of surface compaction are critical to the establishment of robust vegetation
- Existing vegetation and seed-rich soils should be retained or re-used where possible
- Existing plant communities are a good guide to the species that will succeed on this site
- Native species will form the 'backbone' of plant mixtures, but useful non-native species will not be excluded
- Planting of robust 'pioneer' tree species in simple mixtures should be used to generate conditions suited to slower-growing, more desirable long-term woodland species which should be added in later phases of work
- Small plants used in large numbers are far more adaptable to the conditions than larger specimens, and will establish and grow much more rapidly
- Treatments should be suited to the range of micro-habitats that will be created, rather than applying one treatment across the whole site
- The grassland areas should be prepared so that agricultural grass cutting or cropping is facilitated, to reduce the cost of maintenance. Grazing is unlikely to be viable if there is a risk of litter or problems with dogs / visitor behaviour

Outline of species mixtures

- Woodland: Ash, Oak as ultimate canopy; Birch, Alder, Poplar and Willow as short-term 'nurse' species. Understorey allowed to colonise once suitable ground conditions and shelter have developed
- Woodland edge and scrub: Hawthorn, Blackthorn, Field Maple, Dog rose, with Dogwood, Elder and Willow for damper areas
- Riparian and wetland areas: existing Alder carr and ground flora to be extended, using plants propagated from the existing or relocated from areas of disturbance.
- Mown grassland: established using commercial mixture of seed for dry ground conditions, with added clover / Lotus to ensure long-term nitrogen supply. Mixture selected to be hard wearing but with moderate growth rate
- Meadow grassland: established using mixture of deep-rooting species for nutrient-poor conditions, with added clover / Lotus to ensure long-term nitrogen supply. Mixture selected for drought tolerance, suitable for late hay cropping and late autumn final cut.
- Wildflower grassland: selected areas could be created using a variety of shale and other site materials to give a range of ground conditions, suitable for a range of plant species to add interest. These could be sown with a low-density grass mixture and allowed to colonise, or sown with species-rich mixtures from selected local sources.

EXAMPLES OF THIS APPROACH

RECLAMATION OF MINERA LEAD MINES

The design and implementation of a reclamation scheme for 35 hectares of land despoiled by lead mining. Colliery spoil was imported from a nearby tip to provide a cover and growing medium for the proposed vegetation. Plantations were formed using native species selected for the ability to establish and grow well in the newly created soils on the site. The planting was designed to create an attractive setting for the proposed country park and to integrate the finished reclamation scheme with the surrounding landscape.



The Minera project won a regional commendation in the Gold Leaf Awards for 'Commercial Success through Environmental Management' and has also won Civic Trust awards. Minera featured in 20th Century Landscape Design published by the Landscape Institute.



Images: Top right: engine house and chimney for the mine and a general view of lead tailings and waste before reclamation. Below left: planting after 5 years growth on finished landform cleared of contamination. Below right: meadows created on ameliorated colliery spoil and subsoil after 7 years of development.



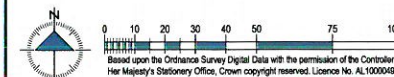
CYFARTHFA AND GEORGETOWN TIP



Reclamation of a former ironworks and colliery tips close to the town centre. The site contained no topsoil and on completion of the earthworks phase, soil was created by deep cultivation in areas to be planted and incorporation of suitable ameliorants to provide water retention capacity, drainage and a structure to allow trees to root adequately. Over 46,000 trees and shrubs of various sizes were planted. These pioneer species were selected for their ability to survive in the harsh conditions of a reclamation site and for their ability to provide a quick vegetation cover into which more permanent and long-lived species could be planted after a number of years. RML's approach to woodland planting ensured rapid establishment of an effective woodland screen in advance of the redevelopment of the platforms. In the 7 years since planting the new plantations have undergone two thinnings to create space for underplanting, with the waste material being chipped and returned to the soil under the remaining trees.



Images: Top left: Part of the site before reclamation. Bottom: Plantations after 7 years.



KEY	
	Existing woodland undisturbed
	Proposed woodland planting
	Short grass
	Long grass/meadow
	Wetland with ponds
	Surfaced paths
	Unsurfaced informal paths

D1	11/01/2008	Issued for comment	RhE	DJ	SMB
Cyfl. Rev.	Dyddiad / Date	Disgrifiad / Description	Gan / By	Owngwyb / Checked	Cymer / Apenn.

Client / Client

BERSHAM

GLENSIDE LTD

Else project / Project name

BERSHAM BANK

COLLIERY TIP RECLAMATION

Title / Drawing title

Landscape Masterplan

RICHARDS

MOOREHEAD & LAING LTD

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and LANDSCAPE SPECIALISTS

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Jan 2008

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DJ

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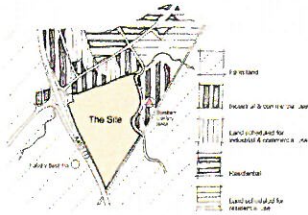
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Location and Land Use

The site, which is located on the southern edge of the village of Rhosyllten, is wholly contained by urban features. It is separated from the industry and residential areas of Rhosyllten to the north only by the Glan-yr-Afon brook. The main A483 Oswestry to Wrexham trunk road runs immediately to the west. The main railway line and industrial units of the Bersham Enterprise Centre bound the site to the south. Wrexham and its surrounding communities are relatively well-provided with public open space such as the Hafod country park and Erddig Park, and with commercially-run active leisure facilities such as riding stables and off-road vehicle driving. The site is poorly connected to a wider network of off-road routes or bridle paths. It is close to the bus route along the A5152, and to the residential area of Rhosyllten. For this reason the site is expected to serve the local population rather than a wider sub-regional function.



Location & Land Use

Landscape Analysis

The old colliery tip is a prominent local landmark with a distinctive flat-topped ridge and steep, stepped slopes that relate to the mining history of the area. Removing the tipped material for positive reuse presents the opportunity to heal the scars of the recent industrial past. Wider area consists of mixed farmland, typified by irregular fields bounded by hedgerows and trees.

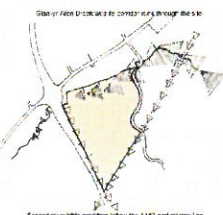
The bare tip and neglected appearance of its immediate surroundings are negative factors in close range views, affecting local residents and users of the adjacent commercial premises.



Landscape Analysis

Ecological Assessment

The majority of the vegetation on site is natural regeneration that has arisen since the site was abandoned. There are areas of more mature woodland, particularly along the Glan-yr-Afon brook and along the lower slopes. The latter is dominated by birch and oak with some sycamore. The vegetation along the brook is predominantly alder woodland with a shrub and ground flora layer. Birch woodland dominates the more recently vegetated areas of the mid and upper slopes and the northern face of the tip, although shrub and ground flora layers are sparse. The tip contains extensive bare ground which offers habitat for invertebrates and possibly reptiles, and for colonisation by plants of low-nutrient soils.



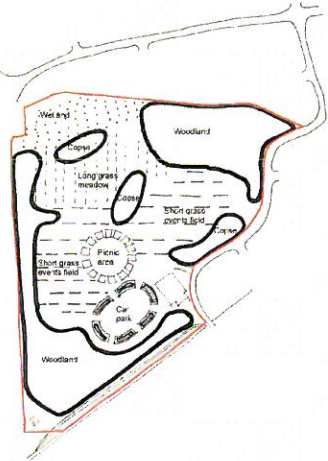
Green Links

Planting and Habitat Creation Strategy

Generally woodland planting will be concentrated around the perimeter of the site, associated with the Brook corridor, screening the railway and A438 that bound the site to the south and west respectively. Noise attenuation mounding will be incorporated into the perimeter treatment adjacent to the railway and the A483. Within the body of the site the irregular 'fields' will be bounded by native species hedges and copses. The open grassy areas offer the opportunity to create a number of both short and long grass/tall herb habitats. The brook corridor on the northern boundary of the site, combined with the site's surface water drainage system, offer the opportunity to create a number of wetland habitats. The noise attenuation mounding constructed from free draining colliery spoil retained on site, offers the recreation of some of drought-tolerant grass communities currently present on site. While the much of the recently-colonised vegetation will be lost during removal of the tip, the existing plant communities and habitats will be used as a model for the restoration where appropriate. Quiet wildlife refuge areas will be created within the site by a careful manipulation of the circulation network, combined with the use of stands of impenetrable vegetation.

General Arrangement

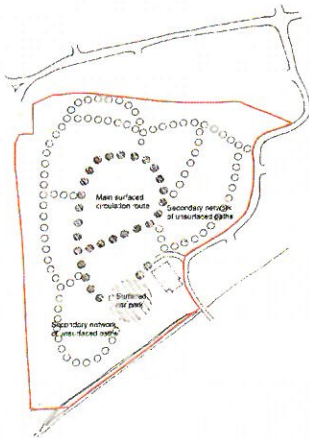
The layout of the scheme is organised around a central 'spine' running south to north through the site, formed by a combination of small copses and hedgerows associated with a very shallow valley. Fields of various irregular shapes and sizes provide a range of spaces suitable for a wide variety of uses. They provide differing levels of enclosure, allowing choice for individuals or groups of people. The proposal retains an existing single vehicular access point adjacent to the electricity sub station, allowing some control of access. This is linked to a small informal car park located a little way into the site. Areas for overflow parking would be designated nearby, if required for specific events or at peak times. Areas for picnicking, possibly including a limited number of fixed BBQ stations, and areas of short grass are located close to the car parking. The style of the site becomes less formal as visitors move further from the car park.



General Arrangement

Circulation

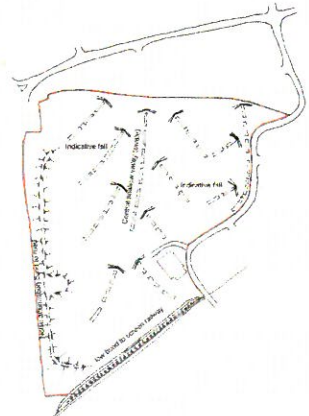
Circulation within the site is guided by a spine of pedestrian paths with unbound stone surfacing, from which a more extensive informal network of grass paths is arranged. The site has a history of unauthorised vehicle access and motorcycling, and so careful and robust detailing of access points and the Plas Grono Road perimeter of the site will be required. Unauthorised vehicle access may be controlled by appropriate selection of kissing gates or lockable (RADA key) gates, decided in consultation with local groups.



Circulation

Drainage

A positive surface water drainage regime, utilising a central valley and perimeter 'swales', is a key element of the proposed restoration. The underlying ground is of variable permeability, being composed of glacial deposits (boulder clay inter-layered with sand and gravel horizons).



Drainage & Landform

Project Description

The project is to restore the tip to amenity and recreational use by reclaiming the colliery spoil for positive reuse off site. The site will be re vegetated and laid out progressively as the spoil is removed, returning the site to a condition close to its original topography.

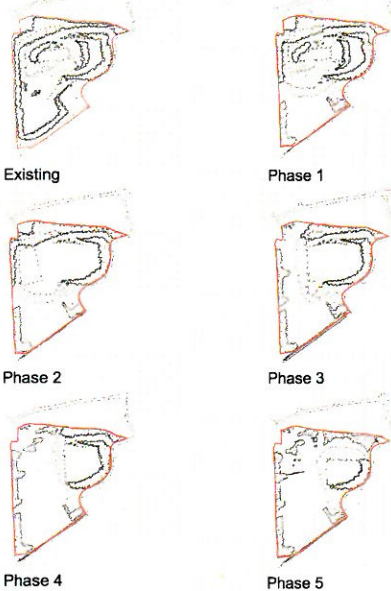
Landscape Strategy

The strategy adopted for this project is to restore pastoral views where possible, and to retain visual connections between the Bersham Colliery Listed Building and SAM and the restored Hafod Tip (Banc yr Hafod, Hafod Community Park) where spoil from the Bersham Colliery was also deposited. Additional sight lines to the Bersham Colliery building and SAM will be opened up. The design will maximise the ecological value of the new landscape, building on the nearby habitats and retained recently-colonised areas. During the removal and restoration of the tip, some key elements of the existing vegetation will be retained for as long as possible to minimise the short term visual and wildlife impacts of the project. Restoration will be phased as works proceed, to reduce the period of visual disturbance.

Amenity and Recreational Uses

The site is close to residential areas and within a short walk of public transport (bus) routes. It is proposed to create a site which will support a variety of low-key informal recreational activities such as sitting out, dog walking, informal exercise and picnicking that complements the nearby Hafod Tip Country Park. A matrix of woodland and open grassland will be flexible and resilient enough to support these uses, and may be suitable for low-key local events if desired in future. The removal of the colliery spoil will generate a largely flat area falling gently towards the brook. In this way it will be similar in character to the original pre-tip topography of the site. The site therefore lends itself to a pattern of open, irregularly-shaped compartments bounded by hedges and copses, as found in the surrounding farmland. The significant woodland belt along the brook will be reinforced. This, combined with perimeter mounding and screen planting alongside the A483 and railway line, will provide containment and create a mosaic of woodland and scrub habitats that link with established wildlife corridors along the line of the A483 and brook

Phasing



Proposed Layout

Surfaces and Materials

Unbound surfacing (eg burnt shale from the site) is proposed for the primary pedestrian circulation routes and main vehicular areas. Galvanised steel gates and access barriers will be required, to give inherent robustness and low maintenance requirements. Timber post and rail fencing is proposed for the permanent fencing within the site. Post and wire temporary fencing is proposed for the establishment phases.

Long Term Management Objectives

The site is designed to be robust and flexible, but the vegetation will need periodic monitoring and management once the initial establishment phase is complete. Grassland and herb communities will require cutting and/or grazing according to the availability of appropriate resources. Site management of and for users, regular presence on a 'ranger' system to visit site each day.

01	11/01/2008	Issued for comment	DJ	SMB	SMB
Civil Rev.	Dyddiad Date	Disgrifiad Description	Gennydd By	Gwilydd Checked	Cymer. Appro.

Client / Client

BERSHAM
GLENSIDE LTD

BERSHAM BANK
COLLIERY TIP RECLAMATION

Rationale

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Credid / Scale (A1)	Dyddiad / Date	Datymwyd gan Drawn by	DJ
Not to Scale	Jan 2008	Gwilydd gan Checked by	SMB
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