Lower Edge Quarry also known as Elland Edge Quarry Off Lower Edge Road Rastrick

Waste Recovery Plan

For

Rand and Asquith Limited

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1.0 Introduction

Rand & Asquith Limited are seeking a permit for the recovery of inert waste as engineering material to support the mineral waste tip on the south side of the quarry and to support the open face on the northeast side of the site as Elland Flag rock is removed from the western side of the site for use in the building industry.
It is proposed to excavate the building stone in the areas to the west of the void that exists on the eastern side of the quarry and fill the east side where stone has been removed in the north east corner of the site.AS the stone has been removed it has been replaced with quarry interburden of mudstone and a drainage layer of sandstone blocks against the face and in the bottom and the floor lifted 4 metres ready for the imported inert material to be placed on a compacted liner of clay.

The importation of inert material will be to provide material to engineer a buttress with a haul road into the bottom of the quarry as shown on plan number RA/LEQ/REC16-05 against the east side face taken from the mineral waste tip that has been placed at the south side of the. The mineral waste tip is 36 metres high and has a slope of shallower than 1V in 1.5H. The slope stability of the mineral waste tip is satisfactory as the factor of safety is medium over the short term and there were no signs of movement on the crest of the tip. There is a risk of riffling and tension cracks so a bench has been placed half way down the slope built in interburden from the quarry which is mudstone and shale that has been compacted in layers to create a road into the floor of the quarry for the preparation of the site for recovery of waste operation.

The bench has been built over the past 4 years as the applicant was going to use recovered waste and applied for a permit on the 25th January 2014 to build the bench against the mineral waste tip and it was deemed a recovery operation. The reference number for the application was AB/3407/CB and it was refused due to emissions management and the risk to surface and groundwater after a hearing held by the Planning Inspectorate on the 8th of March 2016 with reference number EPR/APP/15/395. At the time the scheme was to provide a buttress to the minerals tip on the southside of the quarry and there was some operational constraints in separating the recovery operation from the stone extraction that was ongoing. That is no longer the case as the quarry phase has moved to the western side of the quarry and there is only the bottom of the east side quarry to prepare for the recovery operation now being proposed to fill the void to the surface contours minus 1.5 metres.

Please refer to plan number RA/LEQ/REC16-03 that shows the survey and design of the quarry for the buttress to be built in mineral interburden and the designed buttress with cross sections. Plan RA/LEQ/REC16-04 shows the haul road into the base of the quarry and the filling of the floor of the quarry and represents the situation at present. The latest survey was undertaken on the 5th January 2021 and has drawing reference number RA/LEQ/JAN21-01. The base has been filled with mineral interburden to provide 2 metres of impermeable material above the base of the Elland Flag. A drainage layer of large hewn rejected stone has been placed in the base of the quarry at a level of 136.3 metres aod that was surveyed in February 2019, refer to plan number RA/LEQ/FEB19-01 as the base of the quarry was being worked for ashlar. The base has since been backfilled with mineral interburden consisting of shale and argillaceous mudstone to a level of 140metres aod. It is proposed to fill the northeast corner first of all off the haul road bringing the levels up from 140 metres aod to the surface. Refer to plan number RA/LEQ/REC16-08 showing the cross sections. There is an obligation in the planning permission

16/00439/MCO to restore the site so that the quarry is removed from the land scape and returned to a field with some frontage land along Low Edge Road for a housing allocation. Consequently, the fill will be engineered to compact the various types of material delivered to site so it will be laid in layers not exceeding 1 metre thick. There are sections A-A and B-B' across the first phase of filling in the northeast corner of the site and then extending westward to the access road. Refer to plan number RA/LEQ/CM-02.

The mining material that is produced at the quarry, and not a product, is used in the restoration of the site and to maintain safety with edge protection bunds on haul roads and screen mounds to restrict access to the site. The mining material that is used for this type of work is mudstone and shale which would be suitable for the haul road, buttress and final restoration but there is insufficient produced on a yearly basis to provide the material required to infill the void and engineer the fill for the haul road against the east and north face. The volume required is 499,700 tonnes and at the present time the quarry produces about 25,000 tonnes of mudstone and shale known as interburden every year. This has been tipped on the southside in the minerals tip over the past 20 years. The 2015 recovery scheme required 330,000 tonnes of material and this has been taken from stock and during quarrying of the northeast corner of the quarry. The sandstone removed from the site is approximately 40% of the geological section so the imported material is replacing the sandstone that is taken as building stone with the by product being sandstone aggregate.

The company are looking to fill against the toe of the mining waste slope, form the haul road around the quarry face on the east and northern end in a period of two years and then place inert material against the overburden tip to the surface in the following three years. Refer to plan numbers RA/LEQ/JAN21-02 and 21-03.

The inert waste will be compacted in layers of 1 metre maximum but brought up in 2 layers across the footprint of the permit area so the benches of engineered material can be placed against the tip slope and extended north on the level. Please refer to plan number RA/LEQ/REC 16-08 that shows the drainage layers and the buttress against the existing eastern face. Also refer to plan RA/LEQ/REC16-05 that shows the layers of material brought up in 2 metres levels to 158 metres aod to provide a level platform that is approximately at the same level as the stockyard and access road.

The most recent survey was on 5th of January 2021 and the area where quarrying has taken place is shown in the northwest corner of the site near to the stocking area and access on plan number RA/APR13-01. The base of the quarry where the ashlar is worked is at 150 metres aod and the base is at 142 metres aod.

The company extract Yorkstone from Elland Edge Quarry on Low Edge Road in Rastrick and secured planning permission to extract stone from a northeast extension to the quarry adjacent to the high-pressure water main. The area is shown on the plan RA/LEQ/JAN21-01. The planning permission for the extension area requires the area to be restored to the surface with material as soon as practicable so the majority of the recovered material imported to site will be used in restoring this northeastern area.

The earlier surveys of the site show that water impounded in the base of the quarry is responsive to rainfall as in periods of dry weather such as February 2019 the level was at the base of the quarry at a level of 137 metres aod and when there had been persistent rain the water collects in the lowest level of the quarry. The

level of the water in the quarry on the 5th January 2021 was 141.8 metres aod which is a depth of 5 metres.

The overburden that was available to build the buttress for the mineral overburden tip and the haul roads into the void has been used over the past 6 years since the previous recovery application was refused. Recovered inert waste is required to restore the land to the surface in the northeast corner as part of the first phase of filling as shown on plan numbers RA/LEQ/JAN 21-02.

There is an obligation under the planning permission 16/00439/MCO for the site to be restored to the surface so that the quarry is eventually removed from the landscape as there are several housing projects in the Calderdale Council development plan. The void space is now ready for a permit application as all stone extraction on the east side of the quarry has ceased and quarrying has moved to the west side of the site.

The remainder of the quarry is owned by Samuel Gledhill and Company and under the control by Rand & Asquith (Aceblade) Limited and the building stone operation will continue and stone will be worked to the west and the mudstone and shale interburden will be stored on site for uses a capping material. A materials audit has identified that there will be a shortfall of onsite material to buttress the east and north faces and fill against the overburden tip in the south side of the site whilst maintaining the access to the quarry workings and the permit area. The volume required is equivalent to the sandstone that has been removed for hewn dimension stone over the past 20 years.

The owner wishes to bring in imported recovered inert waste to place it against the slope of the overburden tip to lessen the height and also place material against the face adjacent to the water main located on the eastern boundary of the site. The first part of the scheme will be to cover the base of the quarry where mineral interburden has been used to bring the level upto 140 metres aod with a clay liner that will meet the criteria of 1×10^{-7} per second for infiltration and use recovered inert waste will be used to build the haul road into the site over the liner that will be placed over the mudstone that has been used to fill the base of the quarry where ashlar stone has been removed.

The inert material will be placed in layers and compacted against the slope of the mineral waste tip that has been placed by edge tipping from the top before the bench was constructed over the past 4 years in mudstone and shale. The southern side of the site has been restored to the surface with mineral overburden consisting mainly of shale and mudstone on the south side as shown on the survey of the 5th of January 2021 with reference number RA/LEQ/JAN 21-01. The engineered layer of inert waste will support the mining waste that has been tipped and settled at a natural angle of repose of 34 degrees from horizontal. Cross section positions are shown on plan number RA/LEQ/JUL 18-01 and the sections through the mineral interburden tip shown on plan number RA/LEQ/JUL 18-02. The tipped material from the quarry to prepare the benched slope and haul road is coloured light brown and the remaining stone in 2018 is coloured yellow and it has now been quarried. The haul roads into the quarry are shown olive green on plan number RA/LEQ/JAN21-01 that provides access to three levels in the quarry void for filling.

The inert material will be engineered in layers to support the vertical remnant faces on the east and northside and exposed mineral interburden slope to prevent rotational failure and falling ground into the quarry where the ashlar beds were located and worked. The amount of rain over the past two years has caused the

owner some concern as the material in the quarry tip area could increase in moisture content and slip. The owner tipped shale and mudstone against the slope of the southside to prepare a bench and haul road between 2015 and 2018 after the previous application for a recovery operation to build a buttress for the slope was refused. There have been documented tip failures over the past few years because of excessive rain and the operator wishes to build a haul road to support the exposed faces in the quarry and to fill against the slope to support the mineral waste tipped over the past 20 years as the void space is restored now stone extraction has ceased in that location.

The operation is a recovery of waste as defined in the guidance note EPRGN 13 and the Environment Agency agreed that building a buttress for the mineral tip was a recovery operation for the previous application. The new guidance issued by the Environment Agency since the Tarmac Methley case. The operator has considered the standard rules permits on the Environment Agency website which is SR 2015 No 39. It is based on the standard rules permit but as the volume is more than what is permitted under the standard rules permit the applicant, Rand & Asquith (Aceblade) Limited are applying for a bespoke permit for recovery of inert material so that the void space can be filled to the restoration profile minus the soil thickness.

The applicant has secured planning permission in April 2020 from Calderdale Council for the amalgamated planning permission for the northeast extension to the quarry with reference number 10/01586 and the site has been worked for flag stone, dimension stone and some aggregate for over 10 years until all the reserves of stone have been exhausted. Most of the recovery operation will be in this area. A planning permission existed for the remainder of the quarry that was granted in 1949 and has been reviewed by the Local Authority under their mineral planning remit and was given reference number 98/00579/MCO.

Planning Permission has existed in the recovery permit area for the last 60 years and is now controlled under a reviewed planning permission 16/00439/MCO which has amalgamated the previous planning permission 10/01586/MIN and 98/00579/MCO.

The planning permission granted in 1949, was reviewed in 2006 and has been reviewed again in 2016 where the two planning permissions were amalgamated, and a new decision notice issued which has reference number 16/00439 dated 30th April 2020. Planning conditions 24 and 26 control the tipping of mining material and imported inert waste. Planning condition number 21 does not allow the processing of waste or a waste transfer station.

The applicant is applying to Calderdale Council for imported material such as concrete brick and ceramics to be crushed and screened for secondary aggregate by removing planning condition 21.

The applicant company wish to apply for an environmental permit for recovering inert waste for infilling the void as the ashlar beds of dimension stone that were situated at the base of the quarry have been removed and the slope of the mineral waste tip can be supported by filling the void space remaining, shown on plan number RA/LEQ/JAN21-01. The water shown on the plan has been removed and used for dust suppression and cooling water for the processing of flags and crazy paving on the quarry site. The mineral waste tip rises on a 1V:1.5H slope to the surface from the base of the quarry. The bottom of the working area is at a level of 136 metres aod and the surface is at 172 metres aod.

The project will require 263,000 cubic metres or 499,700 tonnes of material to be imported to provide the platform at a level of 158 metres aod shown on plan number RA/LEQ/REC16-05. The compaction rate is achieved to > 85% and as in situ mudstone and rock is 2.3 tonnes to the cubic metre the compacted material should reach 85 % of this which is 1.96 tonnes to the cubic metre.

In the long term the applicant, Rand and Asquith (Aceblade) Limited wish to import suitable material to the site to improve and restore the land for building land to the frontage and green fields at the back over the quarry for open space. This will be achieved as the quarry is worked to the north and then backfilled as working extends west towards Church Lane. The mining material from the west side will be used for the building up of the land for the final 2 metres on the road frontage and imported material used to support the quarry faces and the open tip slope now quarrying has moved away from the base of the tip and east side face.

The first phase of the reclamation of the quarry is to place materials against the east side face to build a haul road and then fill the base against the slope of the mining waste so that further work on restoring the quarry can continue in a safe working environment and reduce the risk of rotational failure in the tip. Due to the excessive rain possibly increasing the moisture content in the mudstone and shale from the quarrying activity the proposal to fill the void with inert waste that has been recovered as engineering fill will provide physical barrier between the waste tip and the quarry. The mining overburden removed in the future can be placed in layers over the top of the inert waste engineered as cap of natural on site subsoil following good quarry practice for restoration.

The mining waste tip has been inspected at least every two years under the Mines and Quarries (Tips) Act 1969, the 1972 regulations and the Quarries Regulations 1999 and the slope of the tip should be supported by an engineered structure by infilling to restore the quarry void.

The material will be used to begin engineering fill against the faces of the clay material tipped between 2015 and 2018 and the haul roads built between 2018 and 2021 for access to the base. The haul roads coloured olive green on plan number RA/LEQ/JAN21-01 provide various levels to tip off as the fill increases in height from the bottom of the quarry.

The application is for a bespoke permit based on the Standard Permit for the Recovery of Waste for the Permanent Deposit on Land due to the volume required. The site is outside the limit of 500 metres distant to a geological SSSI. The designation of the SSSI is at Elland Park Wood on the north side of the Calder Valley. This proposal will not affect the SSSI site.

The operational site boundary is over a kilometre away from the nearest point and the habitat will not be affected as the SSSI is ancient woodland on the southern flank of the valley side from Elland Road to Brighouse to the village of Southowram and Binns Top.

The proposed final restoration scheme is to create the landform that existed prior to quarrying on the site with pasture and dry stone walls. There will be some open space with biodiverse habitat including bare substrate of inert soil such as mudstone and siltstone and smatter it with a thin stone fines to replicate some of the existing habitat.

The main planning permission is extant until February 21st 2042 and the reserves at the quarry mean there will be stone extraction for the duration of the planning permission, mainly to the west of the permit area being applied for. The planning permission 98/00579/MIN did allow the importation of inert waste to augment the mining waste produced for the complete restoration of the site in the future. It has been carried through into the planning permission 16/00439/MCO. There will be phased restoration scheme to fill the voids created by quarrying, but this is in the future and there is currently a need to support the quarry faces, create a haul road and support the mineral waste tip with infilled layered inert waste.

The restoration of the site has been agreed with the Countryside Officer of the Local Authority to provide areas of habitat to improve the BAP targets so the site can be populated by flora seen on the site at the present time along the boundaries. The remaining area will be returned to pasture until the land to the frontage is allocated for a housing scheme.

A permit to infill the void to the surface with inert waste to augment the mining overburden is being applied for as there is an obligation under the planning consent to restore the site and to place engineered fill in the void space that has been created by the stone removal to bring the levels back to the original surface.

This application for an Environmental Permit to recover imported inert material for the final filling of the void can be undertaken off the slopes in engineered fill along the side of the mineral waste tip and create a haul road and buttress for the open faces of the quarry. Refer to plan numbers; A/LEQ/REC 16-03 to 16-08.

Quarry Working

The stone is removed after the topsoil and subsoil have been stripped and placed in a stockpile on the boundary of the site at the surface. The overburden consisting of mud stone, shale and siltstone is lifted in benches until the first bed of sandstone is exposed. The stone is then lifted in blocks and taken to the dressing sheds to be split for flags. Other blocks are used for slab to make cills and jambs.

The next bed of mud stone and shale is removed to expose the middle bed of Elland Flag rock and this is lifted to produce the same flags.

Mudstone was removed to expose the ashlar beds in the base of the quarry at the toe of the mineral waste tip. The ashlar beds are removed in large blocks in the base of the quarry and underneath the ashlar is thick bed of coal measures mudstone. This bed of mudstone has remained undisturbed and has formed the floor of the recovery area. The bottom of the quarry has been filled with 4 metres of shale and mudstone to bring the level to 140 metres aod.

The floor of the quarry is impermeable to water percolation, so the water is directed to a sump in the north side of the site to be used in damping down the haul roads and working areas to control dust emissions on the site. The quarry manager creates a sump to collect rainwater that falls on the quarry site and flows to the lowest point within the quarry at 136 metres aod. The water is stored until required for environmental controls at the quarry.

Quarrying has ceased in the east side of the access road and stockyard so any rainwater falling on the permit area will be collected in a sump formed on the level being filled and will be used for dust suppression, cooling the stone processing

equipment and managing dust blow from the stockpiles of mineral products and inert waste.

Method of Engineering the Recovered Material as Engineered Fill

Now the ashlar beds have been removed to the floor of the quarry the bottom of the quarry will be filled with mining material which is mainly carboniferous shale and mudstone for a depth of 5 metres before imported excavation material from commercial and housing developments in the area is laid in and compacted.
A layer of screened sandstone has been placed in the base to a thickness of 250mm to 500 mm under the mining material that has been placed in the base to level the contact between the engineered mining material and the start of the recovery level. The recovered inert material will then be placed in layers of 250mm to 1 metre and compacted with the excavator and the dumper as they track over the layer in preparation of the next tipping layer. The material being brought to the site will be inspected for use and hard core such as concrete and brick designated for the drainage blankets, the coarse material in the layer against the face or for haul roads to the tipping area.

It is proposed to build a bund in clay to separate the quarrying area to the west of the permit area so the only rainwater flow in the permit is from the surface area of the permit site. The remainder of the site will be used for quarrying so that water will be impounded in the new workings to the west of the access road. The water that falls on the permit area will be impounded with the permit site and the water can be tested to assess the amount of contaminants and suspended solids.

If the imported material is clay, such as coal measures mudstone, shale or siltstone then it will be laid in 250 mm layers and then compacted with 8 passes of the excavator or bulldozer tracking over the material. If the material is construction waste it will be placed as the coarse material from the fines. The coarse material will be used for drainage material against the face or on the roads.

The screening area is on the south side of the quarry where the stone is processed for aggregate. The fines from the sandstone processing will be mixed with the imported clay excavation material and the coarse material used for the drainage or haul roads. The layers of coarse material will be laid in layers of 250 mm to 1000mm and compacted with the hydraulic excavator tracking over the layer for 8 times. The material will be compacted in the general operation of the site in the slope stability programme.

The recovery operation is to fill the quarry void in a northerly direction restoring the faces with backfilled compacted materials such as mudstone, fines from sandstone, siltstone, shale and the fines from recycled construction and excavation waste. The void on the east side of the site is now available now the working of the ashlar has ceased in the permit area. The waste is replacing the building stone being removed and the coal measures mudstone which will be used to provide a restoration layer for the final levels. The inert material imported to site will be used to support the mudstone tip slope and backfill the area exposed when the ashlar was removed. Refer to plan numbers RA/LEQ/REC16-04, RA/LEQ/REC 16-05, RA/LEQ/REC16-06 and RA/LEQ/REC16-07.

The proposal to import suitable material to the site is a Recovery of Waste operation if the tests set down in the *Abfall case (Abfall Service AG v Bundesminister fur Umwelt, Jugend und Familie C-6/00 ECJ)* and discussed in EPRGN13 Defining Waste Recovery;

Permanent Deposit of Waste on Land are considered. This document has been revoked but is still useful guidance.

In applying the test in practice there seems to be two uses for the material to replace the mineral and improve the condition of the land.

(i) Assist in the restoration of former mineral workings with the use of the imported material as engineering soils to support the mineral waste tip and cover the exposed faces.
(ii) Land levelling / contouring to within 1.5 to 3 metres from the approved restration contours to improve the land quality on the restored quarry through earthworks engineering techniques.

The recovery of waste is for a suitable end purpose and is based on the guidance note EPRGN 13 and the notes accompanying the application for a standard rules 2015 number 39 permit. The guidance discusses the amount needed to achieve the beneficial after use of the recovered material either for engineering fill or land use. As the material being brought to the site is to be used to infill the quarry void there could be a debate on the amount required to achieve a safe working environment. As there is an obligation to restore to the surface and backfill the void which has been created by the quarrying of primary material i.e the building stone then the applicant believes that the schemes complies with a requirements of a recovery plan. The applicant has considered the judgement in the Tarmac Aggregates Limited v SSEFRA and the Environment Agency heard on the 15th October 2015, reference number EWCA CIV 1149.

Article 3(15) of the WF Directive provides a definition of "recovery" as follows:

"'recovery' means any operation, the principle result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or the wider economy. Annex II sets out a non-exhaustive list of recovery operations."

The void that is within the permit area being applied for and shown on plan number RA/LEQ/JAN21-01 and the permit plan based on that survey with reference number RA/LEQ/WML/22-02.

If the selected materials are laid in layers of 250 to 1000 mm and compacted with a tracked machine or roller then a slope of a gradient of 1V:2.5H will satisfy the support of the east and north side faces with a track at the top 6.2 metres wide to compact the material at the crest. With the edge protection the width of the track will be 10 metres. This would provide a factor of safety of 1.5 or more which is satisfactory in the medium term until the void is fitted. The slope would be at a lesser angle that the internal angle of friction based on the shear strength of similar material tested on re-compacted samples. The slope would also be less than the natural angle of repose for the mineral waste of material which is 34° or 1V:1½ H where it has been end tipped over the edge from the crest.

As the site is to be filled to the surface the base will require an engineered foundation and will need to be lined off the floor of the quarry after the mineral interburden has been used to bring the level up to 140 metres aod. The slope in place to buttress the face would require more earth placed against it to reduce the gradient to at least 1V:2.5H for the haul road as shown on plan number RA/LEQ/REC16-04.

A geotechnical assessment has been undertaken on the slope for the mineral tip before the buttress slope that was to be created through a recovery plan and was constructed with mining material after the application was refused was modelled that improves the factor of safety from 1.001 to 1.668 by adding the buttress. The tip slope is 1V:2.5H and this provides a satisfactory factor of safety to allow the backfilling operation to continue at the base of the slope until the level is brought up to 158 metres aod. There are several levels off the switch back road on the slope to allow access to the various levels as the void is filled.

The applicant is seeking to import suitable material to ensure the faces on the quarry now exposed for the full depth since stone extraction has ceased are supported by the imported inert waste and that the inert waste is laid in layers from the base of the quarry, first of all to provide a haul road into the site on the east side against the face and then to fill the void space against the mineral waste tip slope to provide a safer working environment and begin the next phase of restoration.

The proposed method of working at the quarry and restoration of the void is to remove stone in phases working in northerly and westerly direction and follow that with placing imported material in the quarry void to continue with the restoration scheme. Now the ashlar is worked from the northern part of the quarry the Council require to continue in the areas where no extraction is to take place. Refer to Plan number RA/LEQ/JAN21-01 and RA/LEQ/REC16-03 that shows the design to extract the stone and prepare the floor of the quarry for depositing mineral waste and then imported inert waste. The working areas are coloured yellow, the large stockpiles of stone coloured brown and the base of the quarry at the base of the ashlar bed is annotated and coloured yellow.

Depending on the void created and the amount of dimension stone to be removed off site the applicant will require a permit to fill the remainder of the site to the surface contours agreed with the Local Authority. The void space created will be 45% of the total amount of material removed over the life of the quarry. The amount of stone removed is 45% of the whole as it is building stone which is a higher value product that aggregate.

This recovery permit application is to allow imported excavation and construction waste to provide material to engineer the backfilling of the void in the quarry so that it is engineered in compacted layers so that the quarry is removed from the landscape on the eastside of the site as shown on plan number RA/LEQ/REC16-07.

On plan RA/LEQ/REC 16-03 shows the berm that has been built with shale and mudstone to create a way across to the start of the proposed haul road to be built in imported recovered waste. Drawing Number RA/LEQ/REC 16-04 shows the haul road against the faces down to the base of the quarry. Plan number RA/LEQ/REC16-05 shows the basal subbase material which includes granular stone capped with shale in the base of the quarry for a depth of 2 metres. A further 2 metres layer of shale and mudstone has been placed in the floor of the quarry so that inert tipping of imported waste is above the base level of the quarry.

Plan number RA/LEQ/REC16-06 shows the void being filled to 158 metres aod to fill the quarry void to a similar level to the access road and then the northeast corner of the site can be filled to the surface as shown on drawing number

RA/LEQ/REC16-07. Cross sections show the infilling across the quarry void on drawing number RA/LEQ/REC 16-08.

Engineered material from the imported excavation waste will be placed against the face on the east side a shown on plan number RA/LEQ/REC16-04 as there is a high pressure water main in the land to the east. The berm and buttress will be at a slope of 1V in 2H which is the engineered angle of repose for inert material for a medium term factor of safety.

The inert material imported to the site is replacing materials on site that are used for restoration and future backfilling. It substitutes and the use of primary stone that would need to be used to buttress the mining tip. As the quarry is primarily a building stone site there is a significant percentage of stone that is substandard and is processed to provided dry stone walling, rockery, gabion and aggregates. If the void cannot be filled under a recovery of waste scheme, then this stone would have to be used as backfill and the void filled under a landfill permit to procure the material to complete the restoration. The stone that is not of the quality required for building stone but can be processed for the above types of products could be used elsewhere in construction or flood management.

The primary objective of the company is to fill the void not to operate a commercial waste operation and they wish to provide a facility for suitable inert material to be delivered to site that is being discarded by the producer which are construction companies and utilise it for restoring the site and providing more building materials for the industry.

The soil, mudstone and siltstone on site must be used to restore the areas worked and is stored in bunds on the south side of the site on the land that has been brought up to level. An Extractive Minerals Management Plan is in place to ensure that the site is exempt from the Mine Waste Directive. If only the discard from the stone quarrying was used on site, then the levels on the land are lowered by 10 to 15 metres in tipped material within the quarry void which would fill with water from run off on the surrounding fields which are at a higher elevation. The Minerals and Waste Planning Authority recognised this could happen so granted the right for the operator to import inert fill to restore the site to the original land profile and replace the stone with this inert material. The site is allowed to bring 78 wagons per day to site with material to restore the quarry so the volume could be up to 175,000 cubic metres per annum. This is unlikely and a more manageable volume is 50,000 to 75,000 cubic metres per annum.

The quarry will end up with a deficit of material to restore the site to the surface if material was not imported to site, so there would be lower levels on the land due to ratio of sandstone to interburden which is mudstone and shale. The inert material being imported will eventually allow the site to be restored to pasture and some building land along the frontage, as shown on plan number RA/LEQ/REC16-07. The filling of quarry void with imported waste will leave the mudstone and shale from the quarry working on site to be used to as a capping layer to replicate the soil profile near to the surface. The capping layer is likely to be more than 1 metre thick over the site.

The recovered inert waste will provide the first phase of progressive restoration of the workings which will fulfil the obligation under the planning permission conditions 26 and 27 and the list of approved drawings on planning permission 16/00439/MCO. It will mean that inert materials can be secured soon after the

ashlar is worked to have a steady stream of engineering materials on site and fill the void against the mineral overburden tip on site on a phase by phase basis.

The programme of working the quarry is in three parts;

(i) Ashlar extraction from the base of the quarry,
(ii) Fill against the east and north faces with inert material with a slope of 1V:2H to buttress the face and build a haul road.
(iii) Fill the void space on the east side of the quarry with imported inert material to buttress the face adjacent to the high pressure water main and begin restoration of the site to the surface.

The Environmental Permit application by Rand & Asquith is for the importation of inert construction and excavation material, recover it and place against the faces within the permit area shown on plan number RA/LEQ/WML/22-02.

2.0 Location

The site is set in open countryside off Low Edge Road to the south east of the village of Rastrick, approximately 1½ km east of the town centre which is some 8 km south east of Halifax. The site presently contains the quarry and overburden tipping area. The site is surrounded on three sides by agricultural land while the land to the south is restored sandstone quarries filled with fly ash and inert waste.

The national Grid Coordinates are 412800 mE 421250 mN.

SSSI

The SSSI is located 1 kilometre away at Elland Park Wood on the southern flank of the north side valley of the River Calder and is classified as ancient woodland.

3.0 Recovery of Waste

The European Court deemed that the "*essential characteristic of waste recovery operation is that its principal objective is that the waste serves a useful purpose in replacing other materials which would have to be used for that purpose, thereby conserving natural resources".*

There is also the argument that primary energy and construction materials may not be extracted if the planning process deems that the site cannot be satisfactorily restored to a beneficial after use at least similar to the one previous to surface extraction and also recreate the similar water flow characteristics. This is becoming more prevalent as the general public become aware of quarrying operations and what they deem to affect their lives. Good ongoing restoration following quarrying demonstrates that the site is to be restored and the scar as some of the public view quarries will be removed from the landscape.

The materials that are to be taken from civil engineering projects as excavation waste are usually natural strata as detailed in Table 1 of the Standards and Measures for the Deposit of Inert Waste on Land, Inert Waste guidance note In the Halifax area the materials are from the exposed coal measures in the West Yorkshire and Greater Manchester regions where this site centrally is located.

The material being brought to the site will have similar engineering characteristics as the coal measures materials, interburden and overburden, that were removed to

expose the building stone and ashlar in the quarry. The burden materials are clay, shale and mudstone which are stored on site. Most of it has been tipped on the southside of the quarry to bring those levels up to the original surface.

As inert excavation waste can always be used for restoration, construction or earthworks, it may be discarded by the developer as not being useful on the construction site, but it is not being got rid of or discarded to landfill by the contractor if it can be put to a sustainable use. The applicant is using the material and the contractor is delivering the material knowing it is being used for a beneficial use to restore a site for the future, housing, enjoyment by the public and for agriculture. Even at landfill sites inert material is not discarded it is used for engineering such as cover material, earthworks bunds or capping as discussed in the guidance on Earthworks in Landfill Engineering sections 2.5 to 2.14.

The Environment Agency determine each recovery of waste application on its merits with regard to the amount required. The benchmark used is if the material is needed and in the case of quarry faces the factor of safety for any scheme of engineering such as supporting an exposed face, a noise attenuation bund or restoration of the site. It will provide a beneficial after use of the land as most structures in earthworks are to support an imposed vertical load, such as a road or railway or to counteract and side load such as a dam or a quarry face. There is a defined limit for a standard rules recovery operation in terms of volume which is 60,000 cubic metres and more is required for the filling of the land to the surface to secure the after use of the site. The imported material is required to fulfil the obligations under the planning permission for quarrying and restoration so it is not an operation for landfill by disposal. The Environment Agency require substantiation that the material brought to site is a recovery of such material and it is the minimum required. The volume of 263,000 cubic metres is the amount required to fill the void left from stone extraction over the past 25 years.

The position of the Environment Agency is that backfilling a quarry is likely to be recovery if there is an obligation by the operator through the planning permission conditions to restore the site to an approved set of contours. As the planning permission 16/00439/MCO granted on the 30th April 2020 allows the importation of inert material to the site and there are approved drawings of the restoration of the quarry then there is an obligation to fill the void in.

The applicant and the chartered engineer advising on the scheme know there is a direct benefit in using material that can be engineered to provide a safer working environment. The infilling of the quarry with inert material to the surface as voids are created will produce a beneficial after use for the site back to pasture with housing land on the frontage along Low Edge Road.

If these voids are to be filled in then using inert waste for the restoration scheme for agriculture and engineering to bring the land up to levels for housing on the perimeter is recovery.

The infilling levels should be accessible for maintenance or compaction off the haul roads in the quarry and the operator has prepared the site by building a bench and a switchback road to the void area ready for infilling, refer to drawing number RA/LEQ/JAN21-01

If the proposal is considered in detail then all mineral is to be removed and recovered inert waste used to begin the restoration of the east part of the site to provide a beneficial use.

4.0 Discussion on Planning Legislation and Waste.

Some planning permissions are granted to extract a particular type of mineral and any other material must be used in back filling the voids to restore the site. Consequently, the word “waste” in mineral planning legislation does not mean controlled, permitted waste activities but the use of discarded mining material for backfilling activities. Where planning permission allows the importation of inert waste to a quarry then the planning authority recognise that the inert material being imported will replace the mineral being sold and allow restoration to the surface.

In mineral planning ongoing restoration of excavated voids is always a priority and permissions are granted to control the haphazard tipping of mineral waste and use it for the restoration scheme. Just because a planning permission requires void space is filled with “waste” that does not always mean it envisaged imported waste would be required.

All mineral planning permissions issued since December 1988, when the permitted development right under Part 19 (3) of the 1977 GDO to import refuse or waste into the mineral site was removed, have required specific planning permission for the land use to import of controlled waste. The right was removed as the importation of biodegradable waste and mixed streams was deemed a change of use on land and the use of a void for land filling household waste was not seen as beneficial to the restoration of the site.

The reference to waste in mineral planning permissions is mining waste which is being backfilled and replacing primary mineral in the restoration scheme. It does not mean that primary material or lower quality material would have to be used. Put simply mineral planning applications would not be granted unless there is a beneficial after use to the site and this is usually to return the land to the original condition if that can be achieved.

Opencast coal mines and fireclay sites do not need to import any material to achieve the near surface restoration. On the other hand brick clay pits and hard rock quarries remove between 60 and 90% of the mineral so there is 10 to 40 % of mineral waste to use in the restoration. The restoration scheme may be to lower levels with slopes against the faces or a remnant rock face as a feature if inert material cannot be imported to replace the percentage of primary mineral sold.

In summary the term waste in mineral planning does not mean controlled waste it means mining waste and consequently that is why mining waste used in restoration is exempt from permitting in the Mine Waste Directive after the Finnish Avesta Polarit case on waste stone being used to fill the galleries in an underground mine.

It is common for MPA’s to grant planning permissions for mineral working with importation of inert material to augment the mining material for restoration of the quarry.

To import controlled waste to a site to augment the mining waste requires specific planning permission so it can be concluded that the Planning Authority in granting the mineral working and the importation of inert material to restore the site see a use for the inert material in the restoration to the surface. If that is the case then any inert waste imported to a site is recovered and not disposed of as it provides a beneficial use and this has been clarified in the Courts with the Tarmac Aggregates Methley case.

The Council will expect the operating company to complete the restoration of the site using materials specified in planning condition number 26 and to procure them whether through a recovery operation or by purchasing suitable clay for backfilling. The planning permission to restore the site was issued on the 30th April 2020 and restoration of the site is the most important part of the operation so that the site is made safe and will have to take place in any event, whether waste was used or not as the company has accepted the restoration condition from as far back as the 8th February 2001 when planning permission 98/00579/MCO was issued.

5.0 Proposed Recovery Operation

The operation is an R10 activity Annex IIB as the material is being used for the agricultural and ecological improvement of the stone quarry within the surrounding farmland after remediating old mineral workings by extraction of the Elland Flag ashlar beds above and below the old underground flagstone workings. The ashlar and flag material that has been worked in the permit area is a highly sought after product for the building sector. Now the stone has been removed to the base of the Elland Flag in the permit area the recovery operation will support the open faces and buttress the interburden tip to fill the void to 158 metres at first and then to the surface to cover the east side face adjacent to the high pressure water main located on the eastern boundary.

It is not a disposal operation as specially engineered cells that require to be lined and capped are not required as set out in D5 of Annex IIA. Material brought to the site will have similar engineering properties as the rest of the indigenous restoration material and will be inert. The ratio of material brought into the site against the mining restoration material will be the same as the stone recovered in the face area and will engineer a slope from the crest to the base of the quarry. In the northern part of the quarry the face height is 35 metres whilst on the southern side the face height is 35 metres high and the slope length is 450 metres long.

The amount of inert waste to be brought into the site to fill the site to 158 metres aod is 263,000 cubic metres which is 499,700 tonnes using a compaction rate of 85%. The quarry can be filled up to the surface as the phases are worked on the west side of the quarry for stone as there is now room in the base of the quarry. The stone extraction is now on the westside of the site and the stone will be worked in three benches and the quarrying scheme for removal of stone and overburden requires a large area for plant movement and excavation. The preparation of the recovery operation has taken place since 2016 with a programme of stone extraction and deposit of mineral interburden to create an area that would be accessible at different levels to set up tipping areas to engineer the compacted fill. The two operations are in different areas of the site now so the recovery operation can be controlled under the Environment Agency Permitting Regulations.

Once the northeast side of the quarry has been filled the overburden will be required to cap the area to the surface and reinstate the grassland. The planning permission 16/00439/MCO requires the void to be filled with inert waste.

In summary the recovery operation at Elland Edge Quarry is using the material being brought in to;

(1) Replace the Elland Flag Yorkstone that has been removed from the site;

(2) To comply with the first stage of the restoration contours to bring the site back up to the same contours that existed prior to surface mining of the site and buttress the faces where this has been undertaken;

(3) To provide support for the slope on the mineral waste tip in layers from the base which is now the adopted practice for managing extractive industry waste under the Quarries Regulations 1999.

The amount of imported material when compared with the stone material to be used for restoration is 263,000 cubic metres to 158 metres aod and there is a further 86,000 cubic metres to be filled to the surface which is likely to be material from the quarry operation.

As can be seen from the attached plan number RA/LEQ/JAN/21-01 of the mineral extraction permission attached in appendix A, the level of the quarry when the ashlar bed is removed to the floor would be up to 36 metres below the surface on the north side. The amount of imported inert material of 499,700 tonnes is the minimum to achieve restoration of the void.

6.0 Waste Acceptance Procedures

As the quarry site is located in the exposed coalfield and the geology is of the Carboniferous Period in the local area to the east and south for a distance of 25 miles, to the west for 20 miles, and the north for a distance of 25 miles so it is likely similar material will be obtained for the recovery operation as exists as burden on site.

It is clear that the majority of material that can be imported to the site and recovered will be from within a radius of 25 miles. It will be excavation, construction and demolition waste (CDEW) and soil making material that fall within the categories tabulated in appendix C of the WRAP Protocol on the Production of Aggregates from Inert Waste and are tabulated in Table 1 of the Standards and Measures for the Deposit if Inert Waste.

The majority of the material will be used as engineered fill. Some material will be used for haul roads, drainage channels in the quarry and as hardstanding within the permit site. All the material will comply with the procedure outlined in appendix A of the Wrap Protocol for waste acceptance and section 4 of the Guidance on Waste Acceptance Procedures and Criteria published by the Environment Agency.

There has been a great deal of research on the type of materials to be used in the recovery operation, from the mining and quarrying sector and also for road construction culminating in the Specification for Highway Works (SHW 600) and the guidance for the Engineering of Landfill Sites to utilise bulk excavation materials for engineering. The shear strength, compaction and optimum moisture content is well documented of a wide range of Carboniferous and Permian strata which will be imported to use as suitable material for the support of the quarry faces and the levelling of the bottom of the site. Refer to table 1 on page 21.

The waste acceptance procedures for the site will include the inspection of the waste transfer notes, the carrier's certificate of registration and any donor site sample analysis under CLEA or WAC. The load will be recorded with registration number, time, date and load type, ticket number and customer name.

There will be three levels of characterisation for the waste delivered to site which is discussed in the Waste Sampling and Testing for Disposal to Landfill (EPBRI11507B). The sample analysis and inspection will be as discussed in chapter 3 and waste accepted at the site are as listed as inert waste suitable for use in table 5.1 on page 15 together with)1 waste codes listed in the Standards and Measures for the deposit of Inert Waste on land.

The operator will obtain sample analysis sheets of the material and inspect the type of strata and the previous use of the donor site prior to accepting the material from a haulier or for the applicant company to haul the material to Low Edge Quarry for fill material in place of the sandstone.

The acceptance procedures will be the same as described in the WRAP Quality Protocol for Inert Waste discussed in Section 3 of the protocol. No contaminated material will be accepted as the landowner which is Samuel Gledhill and Rand & Asquith (Aceblade) Limited will not allow soils and rock on the site that is not inert as they wish to remediate the land for leisure with pasture and open space with some frontage land for building houses along Low Edge Road.

As the site is located in the Coal Measures the majority of the strata is mudstone, a brick clay and there is no groundwater in the mudstone. The material is impermeable and will provide a geological barrier to the infilled material at the base and the sides.

The floor of the site has been backfilled with on site mudstone, shale and siltstone to a depth of 4 metres and a pathway provided for groundwater flow which is at the base of the Elland Flag due to the old landfills to the south that allow recharge of the water table. The flow of water is in the Elland Flag rock from the south to the north so there is trickle of water flowing into the quarry along the contact of the stone with the mudstone in the floor. There will be no risk to the water environment for the management procedures for waste acceptance and the material to be imported.

Rainwater percolates into the stone as it is exposed at the surface and the dip of the beds is to the north where the stone beds outcrop in the face of the former Calder Brick works and quarry, known as Strangstry Wood. No water will be drained from the quarry working as all the water will be required for processing, dust suppression or damping down the stone when it is processed and stored on site.

There has been a drainage blanket installed in the base of the quarry to allow water to flow underneath the permit area from the southside to the north face. Granular material has been placed below the mining interburden material that has been placed in the quarry as shown on plan number RA/LEQ/REC16-05. A drainage area will be placed on the side of the face before the engineered fill for the haul road is placed to prevent water pressure building up in the engineered material as it flows in the sandstone.

7.0 Planning Permission and Restoration of the Mineral Working.

The planning permission allows the working of the site in phases so that there is a rolling restoration programme with slopes against the exposed high faces first of all to maintain a safe working area and backfilled in layers with inert material to prevent slumping and rock fall.

There is insufficient inter-burden at the site from the quarrying for building stone to fill the void so all of the mudstone, shale and siltstone on site has been used to fill to the southside to the surface and slope it down to the floor of the quarry. The most recent arisings from stone quarrying have been placed in the floor of the quarry to lift the levels by 4 metres as part of the ongoing quarry excavation and deposit of interburden.

To achieve ongoing restoration as required by the planning permission without imported material would mean leaving stone in the mining operation on a benched system with faces no higher than 10 metres. To ensure that the building stone could be removed the faces were worked on a bench system back to the joint sets and then assessed for stability with a remnant face. The building stone has been used for a wide range of architectural or construction material and any material placed in the void is replacing this stone that has been extracted. The stone is used for building stone to make lintels, sawn pavers, house walling and quoins, pipe bedding, dry stone walling, rockery and lump stone.

At the end of the working programme in the east side quarry there is a void to fill which requires material from a level of 140 metres aod to 158 metres aod initially and then to the original surface contours. This can be deemed to be recovery of inert waste as part of the rolling programme of recovery and restoration. All of the mudstone and shale, known as over burden or inerburden has been used to fill the south side of the quarry over the past 20 years and bring that area to the surface level so that it can be used to store stone and mudstone.

The reference to waste in planning terms has a different connotation to waste in regulatory terms. It is due to the use of mining waste or material that is not the primary source of income that is used for restoration which is deemed to be permitted development under Part 17 (C) and (H) of the General Permitted Development Order 2015 and has been since the GDO of 1950, as it is ancillary to the winning and working of minerals for the restoration of voids.

Prior to 1988 the importation of waste and refuse was permitted development under Part 19(3) of the 1977 GDO as well but was omitted from the General Development Order 1988 due to a change in land use as waste disposal. This was due to the regulatory regime introduced in the Control of Pollution Act 1974 as the importation of controlled waste was deemed a change of use if it was disposal to restore a site. That was mainly due to the impact of non-hazardous waste on the environment as landfilling bio degradable waste became more common from 1972 as the use of open fires dwindled due to the Clean Air Acts and central heating through North Sea gas.

Inert waste has always been accepted by planning authorities as usable material as it can provide fill and soil making material to restore mineral workings and, in many cases, old mining permissions have been allowed to continue to import inert waste when the planning conditions have been reviewed as there was usually a clear intent to restore sites to the original surface and importing inert waste was not seen as a change in use to a landfill site.

Inert material does not need to be classed as waste when filling quarries as it is nearly always for a beneficial after use and most planning authorities recognise this if the other impacts can be mitigated such as traffic and dust emissions.

As regards the land contouring aspect of the final surface restoration scheme the site does have the support of the Council’s planning officer for a pasture and open

space area on an area which is mainly agricultural land and amenity. There are allocations for housing in the area over the next development plan so the applicant would like to complete the filling of the west side void within the next 7 years at a rate of 80,000 tonnes per annum.

The site will be completed to an appropriate standard to create a safe working area in the base of the quarry and preparation of the permit site for infilling with inert waste through a bespoke permit for recovery most of the preparatory work has already taken place over a period of 3 years to create the haul roads and benched mineral tip for the wrap around haul road adjacent to the quarry faces.

8.0 Conclusion

The scheme for recovery of waste is to provide a restoration scheme to fill the void that has been created by removing the Elland Flag stone and placing the interburden in the quarry on the south side to fill it to the surface. There is an obligation under the planning permission to restore the site to the surface and if the applicant could not use recovered waste then the material would have to be acquired through appropriate agreements with civil engineering companies to purchase the material arising from their sites.

In conclusion for the questions asked in the replaced EPRGN 13 are still relevant and the answers have been explained in detail above but to summarise;

1) Is there a clear benefit from the activity?

There is a clear benefit to the recovery activity as the material is replacing building stone and raw materials for the construction industry and will support the open faces and the minerals tip in the quarry. It will be to provide a safe working area in the base of the quarry and then fill the void to the surface as is required under the planning permission for the quarry.

The applicant has to apply for a bespoke permit based on a standard rules 2015 No 39 permit for the infilling of the void. The applicant is applying for a permit to fill the total void as there is 263,000 cubic metres (499,700 tonnes) of suitable infilling material to be imported and considered with that is the amount of discard from the mining process. The full void space is now available, and the regulatory position has changed as the waste industry moves away from landfilling to recovery. The Tarmac Aggregates Methley Court case clarified the position with recovery of waste and one of the requirements is the conditions in the planning approval for the development.

2) Is the recovered waste material suitable for its intended use.

The site is likely to accept excavation waste from civil engineering and construction projects and these are likely to be solid strata of the coal measures sequence which are classified as soil and stones, waste code 17 05 04. Waste types in Table 1 in the Standards and Measures for the Deposit of Inert Waste on Land and in Table 5.1 in the guidance on Sampling and Testing of Waste will be used for recovery to buttress the face.

The use of bricks, concrete and tiles reference 17 01 ** will also be used for hard core for use on the haul roads and as specific drainage layers in the slope as they will have a similar property when compacted to stones and provide drainage and stability under load. Refer to plan number RA/LEQ/REC16-04.

An initial design for the first part of the scheme is to provide the buttress against the overburden tip and quarry faces. The previous geotechnical assessment for the 2015 recovery scheme modelled the stability of the slope on the mining burden tip and illustrated a factor of safety of above 1.5 (1.668) which is stable in the medium term. The existing slope on the mining tip has been benched and haul roads constructed at different levels to fill the site to a beneficial after use. Prior to the work that has been undertaken between 2015 and 2018 to make the minerals tip safe the mineral interburden had been end tipped and the slope was loose. The slope had a low factor of safety of 1.001 overall and 0.8 at the toe. Following refusal of the recovery scheme to provide a buttress the company used the stock of mineral interburden on site taken from the northeast corner of the quarry and used that to construct the benched slope.

The mineral waste tip has been benched as can be seen on plan number RA/LEQ/JAN21-01 so the slope angle is shallower so the stability of the tip will be improved and there will be immediate benefit when recovered material is placed at the toe of the tip to start infilling.

The values used for the waste mass (both consolidated and unconsolidated) are based on the work of Jessberger, 1994 (Geotechnical Aspects of Landfill Design and Construction). The parameters are considered on the stability models.

The minimum amount to achieve the infilling to 158 metres aod is 500,000 tonnes.

For a beneficial after use of the land the recovery application is for an inert filling exercise for the surface level restoration project as approved in the planning permission.

Table 1 - Parameters Used In Stability Analysis

Unit Description	Dry Bulk Density (kN/m3)	Saturated Bulk Density (kN/m3)	Cohesion (kN/m2)	Angle of Friction (φ) (in degrees)	Source
Elland Flag Rock (Sandstone)	22.00	24.00	50.00	30.00	Hoek and Bray, 1981
Mudstone	22.00	22.00	50.00	25.00	Hoek and Bray, 1981
Weak Mudstone/ Shale Bands	22.00	22.00	20.00	23.00	Hoek and Bray, 1981
Unconsolidated Waste	19.00	21.00	0.00	40.00	Jessberger, 1994
Consolidated Waste	19.00	21.00	20.00	40.00	Jessberger, 1994

The material will compact in layers to replace the stone taken from site. The material that is brought to the site as excavation material will have the same physical properties as clean sandstone and mud stone that is lifted in coal measures strata.

Most material excavated from the Coal Measures has the same engineering properties as the primary material that is used for construction or earthworks so it is deemed to be suitable for the purpose of building an engineered buttress at the site for a haul road and then filling the site as shown on the drawings in appendix A.

The material will be laid in layers across the environmental permit area shown on plan number RA/LEQ/WML/22-02.

3) Is the minimum amount of waste being used to achieve the intended benefit.

The material being brought to the site is to replace construction minerals and ensure the land is restored eventually to the surrounding contours so that the land can be used for housing, amenity and biodiversity. This permit application is the first phase of the overall long term plan for restoration of the site as the stone is won.

The amount of material is the minimum amount required to fill the void against the overburden tip and the exposed quarry faces to the approved surface levels. The design is substantiated with the stability risk modelling and the slope design to 1V:2.5 H for the mineral tip that it is the minimum required to achieve a long term factor of safety that will maintain the open area for filling the void in the northside of the quarry without the risk of tip failure through rotation or sliding movement as the infilling is being brought up from the base of the quarry.

The overall scheme was granted by the Local Authority on the 30th April 2020 to allow extraction of all the stone for the construction sector as the site could be restored with inert waste that could be imported to replace the material being removed. The material being brought in is recovered waste and the mining material will be used to cap off the inert waste tipped in the permit area.

The inert material will normally be laid in layers of 250 to 1000 mm on benches 2 metres high bringing the levels up to 158 metres aod. Once this level is reached across the site a second stage of filling will take place to bring the contours to the surface as shown on plan number RA/LEQ/REC 16-07. Some mineral waste will be used to cap the site near the surface before providing subsoil and topsoil to compete the site.

The levels achieved in the final restoration scheme under a recovery scheme will be the same as the surface contours before quarrying.

4) Is the Waste being used as a substitute for a non-waste material.

The waste being brought in is to replace the stone being taken which is a highly valued material for the refurbishment of historic buildings and new houses and it is likely that the market will remain steady as house construction is demanding many materials and building stone can be seen to be green as it does not require any further treatment once it has been quarried and dressed.

The owner has decided to apply for a permit to fill the void to the surface to make the quarry safer as the mineral interburden tip is 36 metres high and even though it is benched there is a risk of failure on the slope. There have been tip failures over the past few years due to excessive rainfall, notably at Hatfield Colliery near to the railway line. The recovered waste is being placed in the void where stone was and ensures that the maximum amount of the ashlar in the base of the quarry can be removed and the restoration can be achieved as required by the Planning Authority.

The recovery scheme will assist in the restoration the land as well by placing inert waste in the void as a foundation so that the quarry can be restored permanently to open space, pasture and housing land.

The owner has opted to remove the stone and then replace it with inert recovered waste which will have the same properties as the original mudstone removed as interburden on site and used for restoration of the quarry to the south between 1990 and 2002 to bring the mineral tip to the surface.

5) Will the proposal be completed to an appropriate standard.

The proposal is to use recovered waste in the site to support the faces and the overburden tip to an engineered standard as specified in SHW 600 Series on Earthworks. The void will then be filled to bring the levels back to the original contours as agreed with the Planning Authority. The layers within the site as the void is being filled will be built to a recognised standard and will provide the base for the future use of the site after quarrying has been completed in the remainder of the site. Please refer cross section of the slope on plan number REC/LEQ/JAN2021-03 in appendix A and in the stability risk models that show the inert material in the area shown green.

Now that mineral extraction has ceased in this area this recovery scheme will attract appropriate materials to be used as engineered fill and then cover it with quarry overburden so the soil profile near the surface is replicated and will bring the land to a better standard than it is now. There will be no crown holes or soft ground and the subsoil and topsoil will be laid on a mudstone overburden placed on the site before the soils are laid. As the slope contours will be achieved, the site will not cause soil erosion or increase flood risk as the flow patterns should be the same across the site on restoration.

Conclusion of the Proposal for Recovery of Waste to Restore the Quarry Void on the Eastside when Compared with the Guidance.

In conclusion the proposal to bring inert waste to the site and place it in the mineral working to replace stone removed in the void adjacent and north of the overburden tip will complete the restoration of the site. It will be a separate part of the site as the restoration infilling can be completed as quarrying is located in the west part of the site now. The permit area can be a separate site to recognise the requirements of waste management legislation when compared with the mining and quarrying legislation. The recovery operation means there will not be steep slopes and open faces at the end of the quarrying activity in any void.

The inert material in codes 17 01 01 to 03, 17 01 07, 17 05 04, 19 12 09 and 20 02 02 will provide the fill and soil if required as discussed in appendix C of the WRAP Protocol.

Signed

John Carlon

Eur Ing John Carlon B.Eng (Hons) C.Eng. C.Env. MIMMM MRICS MIQ MCIWM

March 2022.

NOTES:

APPENDIX A – DRAWINGS

APPENDIX B – PHOTOGRAPHS

APPENDIX C – DUST ASSESSMENT

APPENDIX E – HYDROGEOLOGICAL REPORT

APPENDIX F - ENVIRONMENTAL AND SITE SETTING

APPENDIX G – GAS RIAK ASSESSMENT

APPENDIX H – GEOLOGICAL DETAIL

APPENDIX I – NOISE SURVEY.