



Ref: CE04561/MNu/WPART14-Additional Info

Reg No: W0252-01
BUCHPA Limited ~ (The Norse Falimy)
Article 14 Information Rec'd 15/04/09

Date: 14th April 2009

Loretta Joyce

Original

Office of Climate, Licensing and resource Use
Environmental Protection Agency
McCumiskey House
Richview
Clonskeagh Road
Dublin 14

Dear Loretta,

W0252-01 Waste Licence Article 14 Response – Additional Information

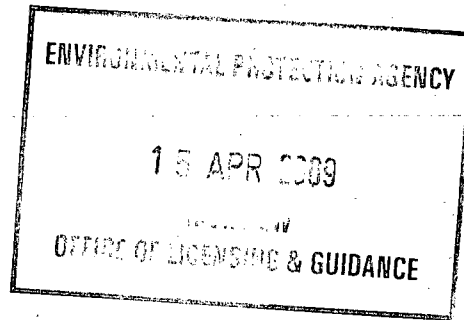
Please find attached one original and two copies of W0252-01 Article 14 Response Additional Information and 16 CD pdf copies for your files.

Our apologies once again for the delay in this response and for any inconvenience caused

I am off on maternity leave as of next week, so if you could please divert all correspondence in relation to the above waste licence application to the attention of Donal Marron.

Yours Sincerely

Natasha Murphy
Senior Scientist
For Buchpa Ltd. and on behalf of WYG



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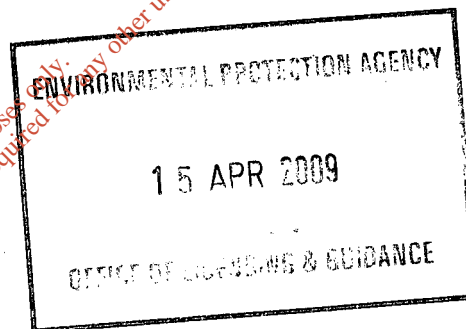
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Article 14 Response – Additional Information**

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WYG Environmental (Ireland) Ltd.

Date April 2009

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REPORT CONTROL

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Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



Contents

1	NON TECHNICAL SUMMARY	1
2	ARTICLE 12 COMPLIANCE REQUIREMENTS	12
	2.1 EWC CODES	12
	2.2 LAND DEVELOPMENT SEQUENCE MAPPING	12
	2.3 DARWING CE04561-08-2A CROSS SECTIONS	13
	2.4 SURFFACE WATER RETENTION TIMES	13
3	ARTICLE 13 COMPLIANCE REQUIREMENTS	15
	3.1 SECTION 3.1.3 OF THE EIS	15

Appendices

Appendix A	-	Drawing 090396_S1_R2	Volumes and Proposed Surfaces
Appendix B	-	Drawing 090396_S2_R2 Drawing 090396_X1_R2	Fill Phases Sections
Appendix C	-	Drawing 090396_S3_R2 Drawing 090396_X1-1 Drawing 090396_X1-2 Drawing 090696_X1-3	Topographic Survey Section A-A1 Section B-B1 Section C-C1

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1 NON TECHNICAL SUMMARY

Buchpa Ltd. (the Norse Family) propose to carry out a land restoration project on their own lands at Kilmartin, Coynes Cross, Newcastle, Co. Wicklow

This non technical summary forms part of the Waste Licence Application Article 14 Response relating to the proposed development and has been prepared by Buchpa Ltd and their Consultants along with an Environmental Impact Statement and a Planning Application which was previously submitted to Wicklow County Council in April 2008.

The Waste Licence Application describes the environment into which the proposed development will be placed, the development, potential impacts resulting from the development, mitigation measures and likely significant effects on the environment along with details of the development company and other relevant data.

This Section summarises the Waste Licence Application and describes the scale and scope of the proposed development including submissions made within the Article 14 Response to the EPA.

In accordance with the Fourth Schedules of the Waste Management Act, 1996 (WMA, 1996) the following classes of activity will be carried out on the site:

The principle activity for the site relates to class 4 of the Fourth Schedule of the Act:

4. Recycling or reclamation of other inorganic materials

Additional activities to take place on site under the Fourth Schedule of the Act are as follows:

2. Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological processes).

10. The treatment or any waste on land with a consequential benefit for an agricultural activity or ecological system

11. Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



13. Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.

Overview

The Kilmartin development will comprise the reclamation of a deep steep sided valley with recovered clean clays, soils and stones. The proposal will in effect comprise a land raise operation by infilling the valley with inert clean clays and soil. The project will be carried out on the Norse family lands who are the directors of Buchpa Ltd. The footprint of the reclamation area will cover an area of some 15.5 ha. In accordance with one of the conditions in the planning permission granted by An Bord Pleanala for the site, the infill material shall not exceed 55mOD. This would represent approximately 2,146,718 tonnes at an estimated rate of 1.8 tonnes per 1m³ of clays and soils for a proposed infill volume of 1,192,621m³.

Location and Setting

The site is located between the Wicklow Mountains and the Irish Sea, along the N11 dual carriageway about 5 km south of Newtownmountkennedy and 4km north of Ashford in the townland of Kilmartin. The lands to the north, east and west of the site are also in family ownership. The southern side of the site is bounded by the Kilmartin stream and then high ground with coniferous forestry to the south of the stream. The western boundary of the footprint area is defined by the Coynes Cross road that links the Cullenmore interchange to Coynes Cross and the eastern boundary of the footprint area is defined by an access lane that links the L5064 to the R761 coast road linking Newcastle to Rathnew. Land in the area is primarily agricultural with a mixture of sheep and cattle grazing and some arable uses. There is a relatively small area of coniferous plantation to the south of the site. The site is drained by the Kilmartin stream which forms much of the southern boundary and the Coynes Cross stream which drains west to east about 300m to the north of the footprint area. Both of these streams join together to the southeast of the site and then flow into Broad Lough where they join with the Vartry River and discharge to the Irish Sea at Wicklow town as the Leitrim River.

Planning Context

The restoration project entails the recovery of clean clays and soils and is consistent with current development planning in County Wicklow and is compatible with the objectives and aspirations of both regional and national waste management policy including those contained in the national policy documents

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



"Changing our Ways", "Delivering Change" and "Taking Stock and Moving Forward" and in the updated Regional Waste Management Plan 2005 to 2010 for County Wicklow.

It is proposed to backfill in the deep valley to 55mOD at the highest point as stipulated in Condition 1 of the planning permission for the site (PL27:229755). The lowest point of the valley is approximately 35mOD and the highest point is approximately 65mOD in the north-western corner of the site.

Buchpa Ltd. (Norse Family) applied for and were granted a waste permit by Wicklow County Council to restore the base of the valley floor with clean clays and soils in January 2007. This entailed placing c. 1.5m of clays over an area of some 5.8 ha at the base of the valley and has just recently been completed. This operation was carried out in full compliance with the conditions of the waste permit and the requirements of Wicklow County Council and there have been no reported incidents or complaints to date. The Norse family wish to restore 15.5ha of the site by infilling that part of the valley with clean inert clays and soils to provide level surfaces suitable for agriculture. The scale of this development requires planning permission and a waste licence from the EPA. The proposed development will be similar in every way to that presently being carried out under waste permit save for it will be at a greater scale in terms of area, height and volumes of material to be used for restoration. It is submitted that the company have demonstrated their ability and expertise in undertaking such an operation efficiently and in compliance with all regulatory controls and requirements.

The site is not situated in or near any areas of Scenic Amenity, High Amenity or any areas of Specific Interest. It is not located in or near a pNHA, pSPA or pSAC.

National and Regional Waste Policies

National Policies on Waste Management and the Waste Management Plan for the Wicklow Region were researched to ensure that the proposed expansion of the facility was compatible with the policies and aspirations of these policy documents. The proposed development fits in well with National Policies and the Waste Management Plans in terms of the following: (i) Meeting national targets by promoting reuse and recovery over landfill (ii) Fits in well with the role of private sector involvement in waste management as stated in the policy documents and waste management plans.

Alternatives

Alternative waste management practices broadly include the 'prevention' of waste, energy recovery (thermal treatment) and waste disposal.

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Buchpa Ltd. W0525-01
Article 14 Response Additional Information
Date April 2009

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



A site selection study was undertaken for the site to verify the site located at Kilmartin was the most suitable site for the proposed development. The current Kilmartin site is considered an optimum location in terms of access, proximity to materials sources and taking into account all environmental considerations.

Existing Environment

The development site is set in a rural landscape in the townland of Kilmartin. There are approximately 30 houses within 500 metres of the landfill footprint.

Average annual rainfall in the order of 796mm is expected at the site. The prevailing wind is from the west and south.

Dust samples were collected at the development site and the results were broadly typical of a rural environment.

Noise measurements were made at nearby locations and the baseline values were low and are representative of a rural setting.

Drainage from the site flows via seasonal drainage ditches into two small streams (the Kilmartin and the Coynes Cross streams). The water quality in both streams was tested and found to be of good quality.

Trial pits excavated at the site indicate a minimum overburden thickness of 2m. The overburden comprises mainly of glacial till consisting of sandy clays and silts. The glacial overburden overlies bedrock consisting of greywacke and quartzite units of the Bray head Formation.

Three boreholes were installed at the site and bedrock consisting of weathered shaly bedrock was encountered at depths ranging from 11 to 14.2m below ground level. Groundwater contours based on water levels in these wells indicated that the northern part of the valley drains northwards and the southern part of the valley drains southwards. However, in a regional sense it is likely that groundwater flow will be to the southeast mirroring the regional surface water flow patterns towards the coast.

The proposed development site is not affected by any nature conservation designation. The Murrough coastal wetland complex (pNHA) is the nearest designated area and it is located about 2.3km to the east.

Mammal, bird and flora surveys indicate that the site contains a number of habitats that are of moderate to low ecological value. These include improved grasslands, hedgerows, re-colonising bare ground,

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



horticultural and tilled land. The site is considered very typical of lands in the region with no distinguishing features or habitats.

Common species of mammal expected at the site include the fox, brown rat, house mouse, wood mouse and rabbit. A number of protected species such as the pygmy shrew, badger and hedgehog are also likely to be present. Bats were not observed but may be present in some of the ivy clad trees.

No Bird species of conservation concern were recorded on site. A number of common bird species were recorded including blackbird, wood pigeon, robin, wagtail, coal tit, magpie, rooks and jackdaw. Many of these were observed flying to and from the adjoining woodland to the south of the site.

The local area is situated in the Newcastle district electoral division whose population has seen an increase of 11.2% (Newcastle Upper) and 4.8% (Newcastle Lower) between 1996 and 2002. The local housing comprises farms and single-family detached bungalows and houses. The nearest house to the site, the Norse Family home is located near to the northern site boundary, c.150m north of the proposed area (footprint). The nearest town land is Coynes Cross consisting mainly of residential homes.

The vast majority of vehicular traffic at the site will be bulk haulage vehicles. Access from the N11 National Primary dual carriageway road will be via the Cullenmore interchange and along approximately 325m of the Coynes Cross road to the site entrance. Vehicles will not pass any houses en route to or from the site and as the Norse family owns the lands on either side of the road from the interchange to the site entrance no houses will be erected along this stretch of road in the future. The N11, the Cullenmore interchange and the Coynes Cross road are all relatively newly constructed roads and all have abundant capacity for additional traffic including HGVs.

The general landscape character of the area is one of hills and valleys with steep slopes at and to the west of the site with rolling fields to the east towards the coast.

The site itself ranges from some 35mOD at the base of the valley to a high point of 65mOD in the northwest of the site.

The valley shaped physiography of the site is such that there are very limited views into the site from most directions. The site cannot be seen from the east or west unless standing at the very site boundaries and looking down into the valley. Views from the south are limited to the high ground in the fields immediately to the south of the southern boundary and also from parts of the western suburbs of Wicklow town some

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



8km distant. Views from the north are limited to a few areas of high ground in the townlands of Ballyvolan, Timore and Kiltimon in excess of 1km distant.

The vast majority of local houses within 1km of the site including those in the Coynes Cross area and Cullenmore have no views into the site due to the unique physiography of the site and adjoining ridges, high ground etc. Some houses immediately to the north of the site along the L-5064 road have limited views of the very northern part of the proposed site. These include the Norse family home and their two immediate neighbours to the west. There are a few views of the site from isolated houses located on high ground to the north of the site in Ballvolan, Timore and Kiltimon though these are in excess of 1km distant.

There are no protected views or aspects, amenity, landscape or scenic designations at or in the vicinity of the site.

There are no designated routes or walkways at or in the vicinity of the site and no views of the site from walkways.

An archaeological assessment was undertaken within the area prior to the construction of the N11 dual carriageway between Newtownmountkennedy and Ballynabarny and the Kilmartin site area was included in the assessment (carried out by Wicklow County Council as part of the EIS for the N11 project). The results for the Kilmartin area indicated that there were no sites of archaeological interest on the proposed footprint of the project area. There are church ruins (SMR19:18) located on the property to the northeast of the footprint. Other sites such as a ringfort and Fulacht Fiadh's are located further north from the site, along with circular earthworks and a mound located further south of the property. A relatively small feature is located outside the southwest corner of the site

The site is well served by road infrastructure with the N11/Dual Carriageway and Cullenmore interchange adjacent to the site. There are ESB transmission lines running north to south to the west of the site and through the northwestern corner of the site and another line of ESB lines running east to west through the site. The Dublin to Rosslare railway line runs north south about 2.5 km to the east of the site. There are no known quarries within 1km of the site. There are no tourist features or areas of tourist importance at or in the vicinity of the site.

Description of the Proposed Development

The development will comprise the backfill and landraise of a deep natural valley with recovered clean inert clays and soils. The development will include the installation of a Porta-cabin administration building to

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



include offices, canteen, toilets, washrooms and file stores. There will be an internal road constructed of hot rolled asphalt from the entrance gate to the office, other internal haul roads constructed of recovered hardcore materials (bricks, blocks, concrete, stones), a steel container for the storage of equipment, a wheelcleaning system, a waste quarantine area, a waste inspection area, an oil tank and oil bund, a silt trap, oil interceptor, soak pit, a septic tank, percolation area, entrance gate, car parking facility, cut-off drains and settlement lagoons, fencing where required and adequate lighting. The bulk of these structures will be temporary in nature and will be removed after the project is complete (estimated between 3 and 8 years).

Cut-off drains and settlement lagoons will be installed at the northern and southern sides and cut off swales along the eastern and western sides, the installation of the gate, internal road, offices, wheelcleaning system and other necessary infrastructural developments will be carried out prior to any infilling operations. The first element of the reclamation project will be the installation of a clay bank from east to west across the northern boundary of the footprint area. This will be completed and seeded and grassed at the earliest opportunity. Thereafter, the vast bulk of the site works will be carried out behind and to the south of this bank. This will mean that the bulk of the site works will be carried out inside the bowl shaped valley which will ensure significant benefits to the operation of the site in terms of potential noise emissions, visual intrusion and to a lesser extent dust emissions.

The infill operation will proceed in a southerly direction until the southern bank is constructed. The final phase of the infill programme will comprise the final capping and shaping of the area. This will include finishing the area off with a dome shape to promote surface water run-off and covering the surface with a layer of good quality topsoil, seeding and grassing the entire surface and landscaping where proposed.

Only clean inert clays, soils and stones will be used in the restoration programme. Some segregated concrete, bricks, blocks and stones may enter the site as recycled material which has already been recovered/processed and certified fit for re-use to be used as part of the on-site engineering works (e.g. haul roads, subbase for hardstand areas etc). The materials will be sourced from County Wicklow, South Dublin and North Wexford.

Typical sources of material will include foundation excavations, road cuttings, site levelling, site clearance works, pipe laying trenches etc.

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



Any suspect or contaminated materials will be placed in the waste inspection area, thoroughly inspected and if necessary placed in the waste quarantine area awaiting export off site to an appropriately licensed facility.

Surface water generated at the internal road, carpark and wheelcleaning system will be collected and directed to a silt trap, oil interceptor and then discharged to ground via a soakpit. Sewage effluent generated at the site (est. 800 litres/day) will be drained to a septic tank and percolation area which will be designed in accordance with the EPA Wastewater Treatment Manual "Treatment Systems for Small Communities, Business, Leisure Centres and Hotels".

Surface water drainage from the entire site will be controlled by cut-off drains to be constructed across the length of both the southern and northern boundaries and these will drain to settlement lagoons prior to discharge to the local stream network. This will ensure that silt and suspended solids will be allowed to settle out of the water prior to draining to the local streams.

The proposed opening hours for materials acceptance at the facility are between 08:00 and 18:30 hrs Monday - Friday and 08:00 to 14:00 hrs Saturday. The site will be closed all day Sundays and bank holidays. There will be pre-opening and post-closure activity on the site from 07:30 to 08:00 and 18:30 to 19:00 in order to prepare the site in the morning and to finish off materials handling and closing the site in the evening. On Saturdays this will be carried out between 07:30 and 08:00 in the morning and from 14:00 to 15:00 in the evening.

It is estimated that there will be 8 to 10 staff required to operate the site.

Site machinery will include dozers, backhoe excavators, a tipper truck, tractor and water bowser.

It is proposed that up to a maximum of 250 trucks per day be permitted to import materials to the site. This will reduce to 200 trucks a day during the traditional holiday months of July and August. It is expected that the actual number of trucks per day will depend to a large degree on the level of activity in the construction industry, weather conditions, time of year etc. and will likely be lower than the maximum numbers given above.

Potential Impacts, Mitigation Measures and Likely Significant Effects

The proposed development has the potential to impact on the receiving or existing environment at Kilmartin. However, the natural location and physiography of the site coupled with specific design features

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



and the operation of the facility under a Waste Licence to be issued by the EPA will limit the potential impacts on the environment. Also, the implementation of a range of mitigation measures at the construction and operation stages will ensure that the project can be operated without causing nuisance in this rural environment.

There will be no impact on the local or global climate from the proposed operation.

Air quality will be controlled by dust control measures at the site. These include the operation of a water bowser during dry windy conditions to dampen down access roads, haul routes and bare soil areas, the installation of a wheelcleaning system, cleaning the internal and external roads of mud if required, and seeding and grassing completed areas on a phased basis and at the earliest opportunity. Dust monitoring will be carried out on a regular basis in accordance with Waste Licence conditions.

There will be no significant impact from noise at any of the nearby dwellings. This is chiefly effected by the relatively low level of operating machinery, distance from the dwellings and natural screening by hills, ridges and embankments between the site and the houses.

It is not expected that there will be any increase in vermin such as birds, rats or insects. Should an increase in rodent populations be observed then a specialist rodent control company will be contracted to deal with the problem. There should be little or no potential for any litter or fly tipping at the facility. However, weekly litter patrols will be carried out at the site and environs and any litter removed. If fly tipping occurs then measures will be adopted to deal with the problem.

There will be no impact on either the geology or hydrogeology of the area. Some minor changes to groundwater recharge mechanisms may occur but will be of no significance in terms of groundwater quantity or quality. There will be no impact on any nearby water wells from the development.

There is a potential for impact on surface water quality in that there is a potential for silt laden water to enter the local drainage network. Specially constructed cut-off drains and settlement lagoons will ensure that all drainage from the site is collected and passed through the lagoons prior to discharge to the drainage network.

The site is not located in any environmentally designated areas and local habitats were mapped as being of low to moderate importance. Site flora and fauna are typical of this region and there are no unusual species present. Normal mitigation measures will be adopted to ensure minimal impact on the local flora

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



and fauna. The development duration will be of medium term and once complete it is expected that natural flora and fauna will re-colonise the area.

There will be no significant impact on the local populace in terms of socio economic, or health aspects. There will be a positive impact in that the facility will provide some local employment directly and to local service providers.

The traffic assessment carried out as part of the EIS indicates that the additional traffic associated with the site will not impact significantly on the roads, road safety or road users. The excellent access provided by the N11 dual carriageway and adjacent Cullenmore interchange ensures that there will be ample capacity for the predicted site related traffic volumes. It is proposed that the fence on the opposite side of the Coynes Cross road will be set back the required distance to provide the sightlines required in both directions from the site entrance/exit. The fence is located on lands in the ownership of the applicant.

There are no protected views or aspects, amenity, landscape or scenic designations at or in the vicinity of the site.

There are no designated routes or walkways at or in the vicinity of the site and no views of the site from walkways. The construction and operation of the site will have minimal effect on the regional landscape character of the area and will not impact significantly on any views or prospects of the site. The landraise operation will raise the valley to a maximum height of 55mOD commensurate or lower than the existing ground levels located to the east and west of the valley. The proposed final contours will blend in with the existing contours along the eastern and western sides. The area will be finished with a slight dome shape in order to promote surface water run-off from the site.

There are no sites of archaeological interest on the footprint area and therefore there will be no impact on the archaeology of the area. The old church ruins located to the northeast of the area are outside and well removed from the footprint and will be protected by additional fencing. A minor feature is located just outside the southwest corner of the footprint, but will not be impacted during the site operation works.

There are no quarries located within the immediate vicinity of the site. While tourism is noted as being an important aspect in County Wicklow generally and there are important tourist sites located regionally there are no significant tourist sites located within 1km of the site.

It is considered that this proposal will be of significant benefit to the County in terms of providing a large scale facility for the recovery of clean inert clays and soils at a site that benefits from excellent access

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



characteristics due to its location adjacent to the N11 dual carriageway and Cullenmore interchange. At present, there are a large number of smaller similar type facilities dotted around the County and many of these are accessed via small County or Regional roads. The proposed facility will provide a very accessible alternative and will reduce the industries reliance on these smaller facilities with a consequent reduction in the numbers of HGVs using smaller County and Regional roads.

It is not expected that there will be any significant negative impact from the interaction between impacts on various environmental media such as soil and water, water and human beings, water and ecology etc.

In summary, it is submitted that the proposed development will be of medium term duration (3 to 10 years) and will be designed and carried out in a manner, including for the implementation of a number of mitigation measures, such that there will be no significant effect on the local environment. In addition, the restoration project will be subject to the conditions of a Waste Licence to be issued by the Environmental Protection Agency and all activities, emissions and controls will be scrutinised rigorously by the EPA on a regular basis and this will ensure that the development is operated to the highest standards.

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2 ARTICLE 12 COMPLIANCE REQUIREMENTS

2.1 EWC CODES

Specify by reference to the relevant European Waste catalogue (EWC) the quantity and nature of the waste proposed to be accepted at the facility including C&D materials for site engineering works. Clarify whether it is proposed to process waste for site engineering works (i.e. screen and/or crushed) on site. Please update the relevant sections of the application form as necessary.

The following fill materials and EWC Codes will be accepted on site. Please note that any construction materials used on site for engineering works such as roads, buildings etc. will comprise of previously recovered, certified fit for use or new materials. No material will be screened or crushed on site.

EWC Code	Quantity
17 05 04	c. 2,146,718 tonnes
17 01 07*	c.15000 tonnes of fit for use or recycled material

*This EWC Code represents any recycled material entering the site which has already been recovered/processed and deemed fit for re-use to be used as part of the on-site engineering works (e.g. haul roads etc).

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2.2 LAND DEVELOPMENT SEQUENCE MAPPING

Provide a drawing showing sequencing of phases and update the description of the sequencing of the proposed land development works, as necessary.

Please find attached Drawing 090396_S1_R2 Volumes and Proposed Surfaces outlining the new final proposed levels for the site attached in Appendix A. A copy of the landraise phasing map Drawing 090396_S2_R2 Fill Phases and Drawing 090396_X1_R2 Section (Phases) are attached in Appendix B. Details of the new phasing programme are outlined below in the Article 13 Repose attached which up-dates Section 3.1.3 of the Environmental Impact Statement.

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



2.3 DARWING CE04561-08-2A CROSS SECTIONS

Given the revised waste quantities identified in your planning appeal to An Bord Pleanála, update Drawing CE04561-08-2A Cross-Sections Through Infill and identify whether there will be any changes in the development footprint

Please find replacement drawings for CE04561-08-2A now referenced Drawing 090396_S3_R2 Topographic Survey, Drawing 090396_X2-1 Sections A-A1, Drawing 090396_X2-2 Sections B-B1 and Drawing 090396_X2-3 Sections C-C1 attached in Appendix C

2.4 SURFACE WATER RETENTION TIMES

Provide details of proposed typical retention times of surface water run-off in proposed settlement ponds prior to discharge to receiving waters

The volume of water discharging as surface water from the site is a function of the amount of precipitation, evapotranspiration and percolation from the site. The average annual precipitation in the area is approximately 796 mm/annum. The site area contributing run-off to the settlement ponds is estimated at 25 ha.

The annual average evapotranspiration for the region is 555mm and 70% of this figure is assumed at the site to allow for non vegetated surfaces in the site area i.e 385mm of evapotranspiration (15 ha bare soil with evaporation only, 10 ha grassed area). This indicates that there is 411mm available for surface water runoff or percolation. Assuming 75% of this is run-off (remaining 25% percolation does not contribute to settlement ponds) then there is 308mm available rainfall to drain to the settlement ponds on an annual basis. This indicates that the annual throughput of water at the settlement ponds is 77,000 m³ per annum or 0.0024416 m³/sec. It is considered that perhaps 60% of runoff from the site drains to the Kilmartin stream settlement pond and the remainder to the Coynes Cross stream. The settlement ponds discharging to both of these streams are equal in dimensions at 10m by 6m by 1m deep. Therefore, taking the worst case scenario where 60% of the site discharge is to the Kilmartin stream settlement pond this indicates that on average 46,200 m³/annum discharges to the Kilmartin stream settlement pond.

The retention time (T) is based on the discharge rate (Q) into the pond, its depth, area and settling velocity and can be calculated using the following formulae:

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



$$T = D/V_s$$

T = retention time (s)

D = depth of settling pond (1m)

V_s = settling velocity (m/sec)

The settling velocity for a pond is based on the flow rate (Q m³/sec) and surface area of the pond (m²).

$$Q = A \cdot V_s$$

A = surface area of pond (6 x 10 = 60m²)

Q = 46,200 m³/annum or 0.001465 m³/sec.

Then V_s = 0.0000244m/s. (this is horizontal velocity).

Therefore T = 40,983.6 secs or 683 mins. on average.

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3 ARTICLE 13 COMPLIANCE REQUIREMENTS

3.1 SECTION 3.1.3 OF THE EIS

Update the description of the sequencing of the proposed land development works in Section 3.1.3 of the EIS

3.1.3 Restoration Plan

The restoration area will cover approximately 15.5 hectares as detailed on Drawing 090396_S3_R2 Topographic Survey attached. The restoration project will be conducted in phases, carried out over a number of years. For the purpose of the phased development the site has been divided up into three main sections; A, B and C and a series of sub-phases or stages. Each section will be infilled to a height of c3.0m during each phasing round (Phase 1 Sections A1, B1, C1, Phase 2 Sections A2, B2, C2, Phase 3 Sections A3, B3 etc) with the exception of the first phase round. The first phasing round will bring Phase 1 Section A1 up to a level which will allow for a c3.0m elevation above Sections B and C throughout the remainder of the phasing process. This is to allow for a barrier along the north end of the site to be developed with the phasing scheme.

3.1.3.1 Phasing Scheme

The final proposed levels for the site are presented in Drawing 090396_S1_R2 Volumes and Proposed Surfaces attached. The phasing scheme including volumes for each phase is attached in Drawing 090396_S2_R2 Fill Phases and Drawing 090396_X1_R2 Sections (Phases).

Phase 1

Section A1

Section A1 will consist of the construction of the northern bund or bank of the backfill material. This will be constructed with imported clean clays and soils. This will be the largest phase of the development. The proposed final height for Section A1 will be at approximately 45mOD. Section A (overall) will always be kept c.3m higher than sections B and C. This will in effect screen out the bulk of further activities from any sensitive receptors located to the north of the site. The bank will provide effective screening for any visual intrusion, noise and to a lesser extent dust generation. Each time a phase is completed in Section A, it will be seeded and grassed at the earliest opportunity. The northern slope of the northern bank will be

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



constructed with a maximum slope of 1 in 3. The southern slope of the bank will be gentler than this at 1 in 4 or 1 in 5 to allow for ease of site traffic movements into Sections B and C to the south.

Section B1

Section B1 will be constructed to a maximum height of c.43mOD using clean clays and soils. The southern slope of the bank will be c.1 in 4/ 1 in 5 to allow for ease of site traffic into Section C1

Section C1

Section C1 will be constructed to a maximum height of c.43mOD using clean clays and soils. The southern slope of the bank will be will be constructed with a maximum slope of 1 in 3. This phase will bring Section C1 level with Section B1

Phase 2

Section A2

Section A2 will be constructed to a maximum height of c.48mOD using clean clays and soils. The northern slope of the bank will be will be constructed with a maximum slope of 1 in 3. The southern slope of Section A will be constructed to a maximum slope of 1 in 4/1 in 5 to allow for traffic flow into Sections B2 and C2.

Section B2

Section B2 will be constructed to a maximum height of c.45mOD using clean clays and soils. The southern slope of the bank will be c.1 in 4/1 in 5 to allow for ease of site traffic into Section C2.

Section C2

Section C2 will be constructed to a maximum height of c.45mOD using clean clays and soils. The southern slope of the bank will be will be constructed with a maximum slope of 1 in 3. This phase will bring Section C2 level with Section B2.

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



Phase 3

Section A3

Section A3 will be constructed to a maximum height of c.51mOD using clean clays and soils. The northern slope of the bank will be will be constructed with a maximum slope of 1 in 3. The southern slope of Section A will be constructed to a maximum slope of 1 in 4/1 in 5 to allow for traffic flow into Sections B3 and C3.

Section B3

Section B3 will be constructed to a maximum height of c.48mOD using clean clays and soils. The southern slope of the bank will be c.1 in 4/1 in 5 to allow for ease of site traffic into Section C3

Section C3

Section C3 will be constructed to a maximum height of c.48mOD using clean clays and soils. The southern slope of the bank will be will be constructed with a maximum slope of 1 in 3. This phase will bring Section C3 level with Section B3

Phase 4

Section A4

Section A4 will be constructed to a maximum height of c.54mOD using clean clays and soils. The northern slope of the bank will be will be constructed with a maximum slope of 1 in 3. The southern slope of Section A will be constructed to a maximum slope of 1 in 4/1 in 5 to allow for traffic flow into Sections B4 and C4.

Section B4

Section B4 will be constructed to a maximum height of c.51mOD using clean clays and soils. The southern slope of the bank will be c.1 in 4/1 in 5 to allow for ease of site traffic into Section C

Section C4

Section C4 will be constructed to a maximum height of c.51mOD using clean clays and soils. The southern slope of the bank will be will be constructed with a maximum slope of 1 in 3. This phase will bring Section C4 level with Section B4

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



Phase 5

Section A5

Section A5 will be constructed to a maximum height of c.55mOD. The upper 150mm will be composed of top soil as part of the final restoration phase for the site. The northern slope of the bank will be will be constructed with a maximum slope of 1 in 3. The southern slope of Section A will be constructed to a maximum slope of 1 in 4/1 in 5 to allow for traffic flow and completion of Sections B5 and C5. Final drainage will occur during this stage and over the last two final phases of the site in Sections B and C. It is planned that the cut-off drains and lagoons will be removed and natural drainage encouraged with the completion of phase 5. This will likely entail the provision of swales around the perimeter of the site draining to either the Kilmartin stream or Coynes Cross stream whichever is the most appropriate.

Section B5

Section B5 will be constructed to a maximum height of c.55mOD using clean clays and soils and top soil for the final surfacing. The southern slope of the bank will be c.1 in 4/1 in 5 to allow for ease of site traffic into Section C5

Section C5

Section C5 will be constructed to a maximum height of c.55mOD using clean clays and soils and top soil for the final capping. The southern slope of the bank will be will be constructed with a maximum slope of 1 in 3. This phase will bring Section C5 level with Section B5 and complete the restoration programme for the site.

It is not possible to predict exactly the amounts of materials that will be brought to the site on any given day, week or month and this will be dependent on a number of variables in the construction industry such as the level of development going on in the catchment area, the weather, seasonal variations in trade, builders holidays etc. However, it is proposed to import up to a maximum of 250 trucks per day of materials from September to June inclusive. It is proposed to reduce this maximum to 200 trucks per day during the months of July and August to provide a reduction in the level of potential impacts to traffic and the local environment during the traditional holiday period. Assuming an overall capacity of 2,146,718 tonnes, 5.5 days a week, 52 weeks a year and 20 tonnes per truck then the following table gives an indication of the likely site life of the development.

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



Table 3.1.1 Likely Site Life of the Development

Trucks per Day	Annual Intake (tonnes)	Site life (years)
250 (200/day in July and August)	1,380,500	c. 1 year and 6 months
200	1,144,000	c. 1 year and 11 months
100	572,000	c. 3 years and 9 months
50	286,000	c. 7 years and 6 months

3.1.3.2 Construction Schedule and Details

It is proposed that construction would proceed upon the granting of a waste licence by the EPA. Assuming this is granted the initial construction phase will entail the construction of the cut-off drains, settlement lagoons, site access road, wheel cleaning system, entrance gate, site administration building, hardstand area for car parking, steel container store, waste inspection area and waste quarantine area in that order. Once the site infrastructure has been constructed and is operational then the restoration project comprising the backfilling in of the site starting with the northern bank (Section A1) will be initiated.

The cut-off drains will be constructed in the first instance. It is envisaged that these will run the length of southern and northern boundaries and will be about 1m wide and up to 1 metre deep. They will discharge to a settlement lagoon to be constructed at the lowest points topographically at both the northern and southern ends of the project area. The lagoons will be designed in terms of areal extent and depth to allow suitable retention time for water passing through.

The site administration comprising offices, toilets, canteen, washroom and file store will consist of portable cabin structure laid on concrete.

The storage container will comprise one forty foot lockable steel container and will be used for storage of tools, equipment, engine oil and lubricants (on containment trays).

The wheel cleaning system will be designed through discussions and in accordance with the requirements of the EPA. It will be of a type suitable for the adequate removal of mud from the wheels of the trucks.

Buchpa Ltd. W0525-01 Article 14 Response – Additional Information



The roads, paved areas and wheel cleaning system will be connected to a storm drain collection system. This will be directed to a silt trap and oil interceptor prior to discharge to a soak pit to be constructed on site.

The toilets, canteen and washrooms located in the administration building will discharge to a septic tank and percolation area to be constructed on site. These will be designed and constructed in accordance with the EPA Wastewater Treatment Manual "Treatment Systems for Small Communities, Business, Leisure Centres and Hotels".

The entrance road will be constructed of hot asphalt laid on 400mm sub-base.

The entrance gate will be a steel palisade gate 2.1m high.

The waste inspection bays and waste quarantine area will be constructed of concrete floor, concrete walls on three sides (1.8m high) and a concrete ramp at the entrance. The two waste inspection bays will measure approximately 6m by 3m each and the waste quarantine bay 6m by 6m.

3.1.3.3 Material Requirements

New topographical contours which include the level of infill material on site from the operation of the current waste permit are provided on Drawing 090396_S3_R2 Topographic Survey. Cross sections are provided in Drawings 090396_X2-1 Section A-A1, 090396_X2-2 Section B-B1 and 090396_X2-1 Section C-C1. It is proposed to backfill in the valley and the footprint and proposed final contours are provided on Drawing 090396_S1_R2 Volumes and Proposed Surfaces. The void space has been calculated at approximately 1,192,621m³. Using an estimated density of 1.8 tonnes per 1m³ for clays and soils indicates that the amount of material required will be some 2,146,718 tonnes.

3.1.3.4 Bank Stability

Bi-annual surveys will be carried out on the banks and slopes at the site to assess slope stability. Any visual evidence of instability will be investigated immediately and a topographical survey and analysis will be carried out.

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