AGGREGATE INDUSTRIES

A14 Asphalt Plant, Godmanchester

Permit Application

Appendix 2 – Supporting Information

15 January 2018

Contents

1 Introduction

This document contains information in support of the application for a permit for a roadstone coating plant being made by Aggregate Industries UK Limited for its new installation near Godmanchester, Huntingdon. Where information is provided in respect of a specific question on the application form, the question number is shown in square brackets, e.g. [X1].

The coating of roadstone with tar or bitumen is a prescribed process according to Part 2, Chapter 3, Section 3.5, Part B (e) of the Environmental Permitting (England and Wales) Regulations 2016.

Asphalt pavement will be recycled at the installation; this will be undertaken as a directly associated activity to the roadstone coating process.

2 Installation

The coating plant will be a new installation [B2]. It is being built to support the £1.5 billion Highways England scheme to upgrade the A14 Huntingdon to Cambridge road and will be the main plant supplying roadstone to the scheme during the construction phase.

The plant site is located on land off the A1198 road to the south of Godmanchester, close to the new alignment for the A14 road and the main contractor's Ermine Street Compound; a location map is included as Figure 1 [B3]. The site for the plant forms part of the permitted development area given over to the construction phase of the scheme [C9]; this will enable a large proportion of the roadstone supply requirements to be delivered from within the construction area given to the main contractor.

Figure 2 shows that there are no sites of special scientific interest (SSIs) or European protected sites within a 2 km radius of the site [B4].

The coating plant will be modular in nature to allow for it to be removed from the site once the project has been completed. Figure 3 shows elevation drawings of the plant. The plant will have a maximum width of 34 m on its south western elevation and 22 m on its south eastern elevation, and will be a maximum of 31 m from ground level to the top of the stack.

Aggregates will be delivered to the site by road; however, to minimise vehicle movements it is intended to deliver a large proportion of the virgin aggregates required by train to Cambridge and then transfer these to site during off-peak working hours to minimise vehicle impacts on the surrounding road network during busy periods.

Aggregates will be unloaded from road vehicles into defined aggregate storage bays. The storage bays will occupy an area approximately 200 m long and 25 m wide; the bays will be enclosed on three sides and the dedicated dust storage bay will also be covered [C11]. No materials will be stored in the open [C12]. Wheeled loading shovels will move aggregates from the storage bays to the plant. A site plan is included as Figure 4 [B3].

Deliveries from the plant will be made using specialist insulated delivery vehicles. Part of the A14 construction scheme can be reached without the need for delivery vehicles entering the public highway. The area around the plant will be hard surfaced; beyond this well compacted granular material will be used as a running surface. Where site roads are hard surfaced, they will be maintained and regularly swept to ensure that vehicles do not track material onto the public highway [C18].

Figure 4 shows that part of the site has been demarked for a CBGM (cement bound granular material) plant. This operation will not form part of the roadstone coating operation as it will be undertaken using a mobile concrete plant with its own Part B environmental permit.

3 Process

The plant will be a new Benninghoven Type TBA3000 roadstone coating plant fitted with an EVO JET 3 G “N” 18.9 MW rated monoblock burner. The fuel source for the burner will be LPG [C20]. The TBA3000 has the design capacity to produce 80 no. 3 tonne batches per hour, allowing the production of up to 240 tonnes of coated stone per hour.

The key components of the plant and the roadstone coating process are described below and shown diagrammatically in Figure 5. The batch process will be followed and the main coating process will take place within the enclosed section of the plant [C19].

3.1 Cold feed system

The cold feed system serves as an intermediate aggregate storage facility, with aggregates stored in one of 9 no. 12 m^3 capacity hoppers according to their particle size and type. The hoppers are enclosed on three sides [C11] and fed by an enclosed conveyor with a hood at the discharge point [C13, C14].

Aggregates are fed from the hoppers via proportioning belts to the collection belt in the quantities required by the mix recipe, and then via a transfer belt to the drying and heating unit; all belts are enclosed.

3.2 Drying and heating system

The mixed aggregates supplied from the cold feed unit are dried in a direct-fired drum and heated to the temperature required for their further treatment. The drum operates according to the counter flow method, which means the mixed aggregates are conveyed towards the flame; flights and lifters assure that the aggregates are split up and fed through the pre-heating, evaporation and heating zones to the drum discharge opening, whilst shovels in the firing area guide the aggregates around the flame in order not to disrupt combustion.

3.3 Dust collection system

Exhaust from the dryer will be handled by a dust collection system capable of extracting up to 58,000 m^3/hour. The separation of dust and gas is performed in the double-oval shaped

filter bags that are hanging in the baghouse. Dust builds up as a coating on the outside surface of filter bags. Bag cleaning is achieved by a rotating reverse air valve mechanism. Section by section, it allows an amount of atmospheric air through the bag thus inflating the bag. The dust coating on the outside of the bags breaks up, drops into the collecting hopper and can be used as reclaimed filler in the asphalt process. The clean air will be let out into atmosphere through a 30 m high chimney.

The dust collection plant has been designed to achieve a maximum emission of 20 mg/m^3 of dry particulate matter; Process Guidance Note 3/15(12) requires arrestment plant to be designed to a limit of 50 mg/m^3. Emissions from the plant will be monitored for particulates using a continuous emission monitor with visible and audible alarms, which will be operated in accordance with the manufacturer's instructions; the alarm will be set to operate at 75% of the emission limit and activation of the alarm will be recorded automatically [C2]. Emissions from the stack will also be tested for particulate matter once a year in accordance with the main procedural requirements of BS ISO 9096:2003.

3.4 Mixing tower

A sealed bucket chain elevator initially conveys the dried and heated aggregates to the screen. The vibration screen then separates the aggregates according to their grain sizes and leads them into the chambers of the hot mineral silo. The dosing flaps portion the aggregate components defined by the corresponding recipe; their weight is then determined by the mineral scale. The same procedure is made with bitumen and filler. Further additives are either determined by their weight or their volume. The complete batch is finally given to the mixer. During this operation, the plant control system is in charge of the correct order.

3.5 Hot mineral storage

The plant will have the capacity to store up to 60 tonnes of hot mineral in four 7.8 tonne capacity bins, a 19.8 tonne capacity sand chute and an 9 tonne capacity by-pass chute, each fitted with an electro-pneumatically activated outlet door.

3.6 Asphalt storage silo

The asphalt storage silo comprises 4 no. bins with a total capacity of 200 tonnes, all sited within the building enclosure. The weight of asphalt discharged from each bin is controlled by a weighbridge under the silo and integrated into the asphalt plant control system. A single foul batch hopper is also part of the system, and is again controlled through the weighbridge system.

3.7 Filler

Imported filler will be stored in a 60 m^3 capacity silo, with a separate 60m^3 capacity silo for reclaimed filler. [C4]. The silos will be fitted with alarms to warn of over-filling [C6].

Dust recovered from the dust collection system during the drying process is first conveyed mechanically (by conveyor screws, elevator) to a buffer silo in the mixing tower from where it

can be used directly. Excess reclaimed filler is then stored in the reclaimed filler silo from where it can be utilised as a filler material, if required.

The imported filler silo will be filled by the delivery trucks' own pneumatic fill system, with deliveries automatically stopping for over-filling or over-pressurisation [C8]. The displaced air in the silo, as well as the conveying air, is vented to atmosphere via an exhaust filter [C5]. Transport from the silo is either directly through a screw conveyor or through an intermediate elevator and buffer silo.

3.8 Recycled aggregate (RA) addition system

The RA addition unit serves to process reclaimed asphalt which may be crushed or milled material. Cold RA is conveyed into the front wall of the fresh mineral drum or into the hot elevator or directly into the mixer. The RA is heated up when it gets in touch with the hot fresh mineral.

3.9 Bitumen supply

The electrically heated bitumen supply (E-Bit) comprises 4 no. 80 m^3 tanks for the storage of binding agents of different qualities [C4]; it also heats up the binding agent to the processing temperature and leads it to the mixing process. On account of intelligent heating circuit controls with temperature monitoring, the heatings of tanks, pipework, fittings and pumps only require minimum energy. The mostly thermal bridge free insulation results in insignificant temperature losses and allows the use of the heating during low-tariff time periods or outside of the load peaks. An elaborate pipe scheme for the supply and discharge system maintains the operating temperature in pipes and fittings during the operation. This is achieved without activation of the heating and by means of the bitumen temperature only. The E-Bit is emission free and causes no direct environmental pollution.

Deliveries of bitumen will be made by tanker, with deliveries automatically stopping for over-filling [C8].

3.10 Control systems

The plant will have a dedicated control room from which operators will be able to monitor and control all aspects of the process using a computerised control system.

Should a fault occur in any section of the plant, automatic fail safe trip systems will be initiated to shut down the faulty motor or device, and also trip out any related sections of the process in order to prevent damage to the plant, fire or danger to life. Audible and visual alarms will also be initiated in the control room and remotely. In addition, a data logging system will continuously record all operational aspects of the plant. These precautions will also prevent loss of product and any secondary nuisance that might lead to fugitive environmental problems.

Regardless of these systems, a contingency plan for dealing with breakdowns, emergencies and uncontrolled fugitive emissions will also be drawn up.

4 Recycling operation

Waste asphalt generated by the A14 Huntingdon to Cambridge road upgrade scheme will be recycled as a directly associated activity to roadstone coating. The rationale for this being a directly associated activity is that the recycled asphalt will be used on site in the roadstone coating plant. The replacement of primary materials with recycled asphalt in bituminous mixtures is an established practice under BS EN 13108-8 *Bituminous mixtures – Material specifications – Part 8: Reclaimed asphalt*, and both increases resource efficiency and reduces the overall environmental impacts of the roadstone coating process.

The recycling operation will take place in a dedicated area separate to the permitted area for the roadstone coating plant, as shown in Figure 4. Within the recycling area, waste materials will be stored and treated to produce fully recovered products in accordance with the Quality Protocol for the production of aggregates from inert waste. Treatment will consist only of sorting, separating, screening, crushing and blending. Storage of waste asphalt will not exceed 40,000 tonnes at any one time and no more than 75,000 tonnes of waste asphalt will be treated per year.

Waste materials will either be delivered to the site by road (for example, returned loads of asphalt or asphalt planings generated from existing roads) or are produced as part of site production processes (for example, cleanout from the plant).

Rigorous waste acceptance procedures will be implemented to ensure that only non-hazardous bituminous wastes (EWC code 17 03 02) will be treated.

Unwanted materials, which make up a small fraction of the waste, will be segregated and disposed of under the provisions of the Duty of Care Regulations.

5 Emission monitoring and control

The main sources of particulate emissions associated with the roadstone coating process and the methods that will be used to control them are summarised in Table 1.

Table 1: Potential emission sources and control methods proposed

Source	Emission	Type	Control method
Site roads	Dust (particulates)	Fugitive	Main trafficked areas are hard surfaced and regularly swept.
Aggregate bays	Dust (particulates)	Fugitive	Bays will be surrounded on three sides with aggregates not stocked higher then the bay walls. Fine aggregate bays will also be covered.
Hoppers	Dust (particulates)	Fugitive	Feed hoppers will be covered on three sides.

Source	Emission	Type	Control method
Conveyors	Dust (particulates)	Fugitive	Aggregate conveyors will be fully enclosed and fitted with belt scrapers.
Silos	Dust (particulates)	Point source	Fitted with warning systems to prevent over-pressurisation and over-filling
Dryer	Dust (particulates) Oxides of Carbon, Nitrogen and Sulphur	Fugitive	Extraction and filtration system will be used to ensure particulate emissions < 50 mg/m^3. Continuous indicative monitoring will be used to assess the effectiveness of the filter system.
Chimney	Dust (particulates) Oxides of natural gas	Point source	Daily visual inspection combined with annual extractive monitoring.
Other plant	Dust (particulates)	Fugitive	Enclosed within modular plant structure.

The main sources of odour or bitumen fume are associated with bitumen loading, storage and handling. Release of odour will be controlled through temperature control, enclosure and the use of ground based pumps as appropriate.

There will be no point source emissions associated with the recycling operation. Generally waste asphalt comprises large heavy cohesive particles; as such, fugitive emissions of dust from stockpiles are unlikely. The waste materials that will be stored are inert and do not have the potential to create odour or leach in normal circumstances.

Crushing and screening of aggregates is deemed a prescribed process for air pollution control by local authorities under the Environmental Protection Act 1990 Part 1, and a separate permit will be obtained for these activities. Where a contractor undertakes these activities, they shall provide a copy of their permit to the site manager prior to commencement of the works. The design and layout of the crushing and screening operations will be based on the requirements of Process Guidance Note 3/16(12). Although following this guidance should ensure that the process is dust and odour free outside of the boundary, dust levels will be monitored visually at least daily during crushing activities and appropriate remedial actions taken in the unlikely event that dust emissions are identified at the site boundary.

Thus, through the implementation of appropriate mitigation measures and good operational practices, it is anticipated that emissions from the facility will not have any significant environmental effects [B5].

6 Environmental Management

Aggregate Industries has an Integrated Management System (IMS) which is certified by BSI to ISO 14001 (environmental management) as well as ISO 9001 (quality management) and OSHAS 18001 (health and safety management). This system sets out the policies and procedures to be used by all Aggregate Industries' sites to identify and minimise the risk of

pollution from site activities associated with normal operations, maintenance activities, incidents and non-conformances [C21]. The system is accessible through the IMS section of the Company intranet.

The IMS will require the site to have:

- Trained and competent employees, fully conversant in the operation of the concrete batching plant, its impacts and environmental controls (Logbook & Inspections), management system policies and emergency procedures. A record of all training will be kept and will be available for inspection.
- Access to management supervision and specialist knowledge as and when required.
- A planned preventive maintenance inspection regime which will include the holding of critical spares (e.g. rubber loading socks and filters) on site to repair/rectify any malfunctions that may give rise to any abnormal emission as and when these are detected.
- A set of emergency procedures to respond to any unforeseen event. These procedures will be practised and evaluated on an ongoing basis.

The activities taking place at this site will be subject to both internal audit and external audit as part of the ISO14001 certification process.

Figures