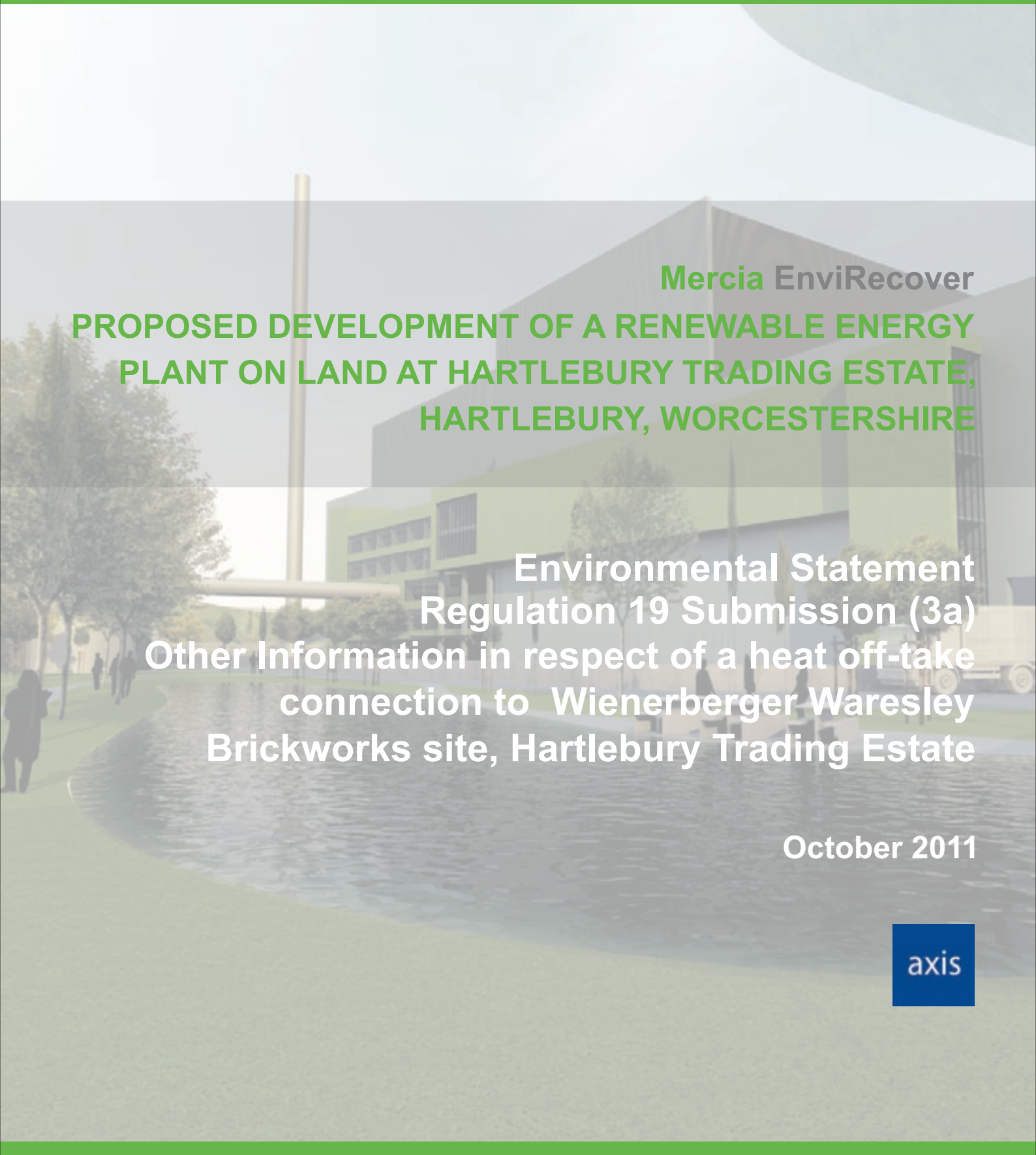

Mercia EnviRecover

PROPOSED DEVELOPMENT OF A RENEWABLE ENERGY PLANT ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

Environmental Statement
Regulation 19 Submission (3a)
Other Information in respect of a heat off-take connection to Wienerberger Waresley Brickworks site, Hartlebury Trading Estate

October 2011

Mercia EnviRecover

PROPOSED DEVELOPMENT OF AN ENERGY FROM WASTE FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

ENVIRONMENTAL STATEMENT
REGULATION 19 SUBMISSION (3a)

OTHER INFORMATION IN RESPECT OF A HEAT OFFTAKE CONNECTION TO WIENERBERGER WARESLEY BRICKWORKS SITE, HARTLEBURY TRADING ESTATE

OCTOBER 2011

This report has been prepared in support of the planning application for the Mercia EnviRecover Development on behalf of Mercia Waste Management. The application has been co-ordinated by Axis with technical inputs from:

- AXIS – Planning, Transportation, Landscape & Visual, Archaeology & Cultural Heritage, Surface Waters & Flood Risk
- Hyder - Geology & Hydrogeology
- Fichtner – Facility Design, Process Description and Justification, Air Quality & Health Assessment
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Camellia House
Water Lane
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Figures

Appendices

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This Environmental Statement is submitted in support of a planning application made by Mercia Waste Management to develop the Mercia EnviRecover facility an Energy from Waste facility, on land at Hartlebury Trading Estate in Worcestershire. The Environmental Statement comprises the following documents:

- The Environmental Statement (ES) Main Report (Volume 1), which contains the detailed project description; an evaluation of the current environment in the area of the proposed development; the predicted environmental impacts of the scheme; and details of the proposed mitigation measures which would alleviate, compensate for, or remove those impacts identified in the study. Volume 1 also includes a summary of the overall environmental impacts of the proposed development and all relevant schematics, diagrams and illustrative figures;
- Technical Appendices (Volume 2), which include details of the methodology and information used in the assessment, detailed technical schedules and, where appropriate, raw data. (Volume 2 is printed in black and white. However, a CD is enclosed that includes a colour version of all the technical reports);
- A Non-Technical Summary (Volume 3), containing a brief description of the proposed development and a summary of the ES, expressed in non-technical language;
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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

1.1.1 In April 2010 Mercia Waste Management (MWM) submitted a planning application, reference 10/000032/CM, to Worcestershire County Council (WCC) for the development of a purpose built Energy from Waste (EfW) plant, on land at Hartlebury Trading Estate, Hartlebury, Worcestershire. The application was accompanied by an Environmental Statement (ES).

1.1.2 The planning application was duly considered by the WCC Planning and Regulatory Committee on the 1st March 2011. The Committee resolved to approve the application. On the 10th May 2011 the application was 'called in' for determination by the Secretary of State. A Public Inquiry into the proposed development will commence on the 22nd November 2011.

1.1.3 The originally submitted ES described how the EnviRecover facility would recover energy from waste by way of exporting electricity to the grid. It also described how the facility would be enabled to export heat (either as steam and / or hot water) should suitable opportunities arise. It highlighted how the facility, due to its location on a large industrial estate, and other factors, had excellent potential for attracting future heat users. In addition, sub-section 5.4 of the ES set out heat off-take opportunities associated with existing businesses within and around Hartlebury Trading Estate. This included (ES paragraph 5.4.11):

The potential for heat use in the Waresley brickworks. The brickworks has a very significant heat demand but the majority of the heat is required at very high temperatures and as such is not suitable for supply from an EfW Combined Heat and Power (CHP) plant. However, there is an opportunity to reduce gas burn on the site by preheating of combustion air to their kilns and this potential is under more detailed investigation with the owner of the works.

1.1.4 Following submission of the planning application the MWM has been exploring a number of opportunities to supply heat generated by the proposed EfW facility to local businesses. This includes ongoing assessment at the Wienerberger Waresley brick manufacturing facility, located on the Hartlebury

Trading Estate only a short distance from the EnviRecover site (circa 500 metres, as the crow flies).

1.1.5 Following ongoing dialogue between MWM and Wienerberger, and completion of technical and economic appraisals, MWM has been established that there is a technically feasible and economically viable heat off-take solution. Wienerberger and MWM are continuing dialogue on its potential implementation. As outlined above, this would comprise utilising heat from EnviRecover (up to circa 60% of which would be renewable) to reduce the amount of gas (a fossil fuel) used at the brickworks to pre-heat the brick kilns. This would be achieved by conveying steam from the proposed EfW facility to Wienerberger Waresley brickworks site via an underground heat off-take pipe. A heat exchanger bundle would then be used to pre-heat the brick kilns.

1.1.6 Wienerberger recognises the economic and environmental benefits of reducing their fossil fuel usage and has expressed support for the proposal. They are committed to continuing dialogue with MWM in respect of this matter.

1.1.7 This report supplements the originally submitted ES and describes the construction works required to connect the EfW to the Wienerberger Waresley brickworks site and provides an assessment of the likely significant effects associated with the construction and operation of the connection.

1.2 Requirement for Environmental Assessment

1.2.1 The planning application for the Mercia EnviRecover EfW facility does not include for the construction of heat off-take pipes to local heat users. This infrastructure would be subject to a separate consenting procedure.

1.2.2 However, following the submission of a recent EfW facility application in Cheshire and a subsequent appeal thereafter, a ruling was made by the Secretary of State in April 2011 that makes it clear that if the export of energy (in the form of electricity or heat) is a necessary and intrinsic part of a development the potential environmental effects of the connection should be assessed within the ES. Whilst the export of heat to Wienerberger is not an essential part of the EnviRecover project, it is clearly beneficial and MWM wishes to rely on this benefit in support of the planning application.

1.2.3 Thus, on the basis that the Wienerberger Waresley brickworks site has now been confirmed as a technically viable potential heat user, it is considered appropriate (and prudent) to include an environmental assessment of the heat off-take connection to the brickworks site. It should be noted that a separate Regulation 19 submission was submitted to the Secretary of State on the 15th August 2011 in respect of an electrical transmission connection from the proposed EfW to the local electricity distribution network.

1.3 This Document

1.3.1 This document is a supplement to the original ES and assesses the likely significant environmental effects of the construction and operation of a heat-off-take pipe that would be used to transport steam from the proposed EfW facility to the Wienerberger Waresley brickworks site.

1.3.2 It has been submitted under Regulation 19 of The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) as *"Further information and evidence respecting environmental statements"*. In this instance the information contained within this report is provided voluntarily by the applicant as *Other Information* specifically for the purposes of an Inquiry held under the Town and Country Planning Act 1990.

1.3.3 The report is divided into four main sections of which this Introduction forms the first. Chapter 2.0 of the report briefly describes the proposal and the construction works required to provide the heat off-take connection. Chapter 3.0 provides an assessment of the potential environmental impact of the proposed connection and any mitigation that may be required to reduce or avoid adverse effects. Finally Chapter 4.0 provides a summary of the residual impacts from the proposal and conclusions of the report. The addendum to the non-technical summary is included as Appendix A to the report.

2.0 HEAT OFFTAKE CONNECTION

2.1 Energy Generation

2.1.1 Chapter 5.0 of the original Environmental Statement describes the energy generation process which is founded upon hot gasses from the combustion

chamber passing to a boiler which converts the energy from the gases into steam. The plant would generate approximately 26 tonnes of steam per hour. The steam would be used to drive a turbine that would generate electricity. The turbine would be equipped with steam extraction points to allow steam to be exported from the site to local heat users.

2.2 Heat Off-take Connection

2.2.1 Discussions with Wienerberger have suggested that there are potentially significant savings to be made should the temperature of air into the brick kiln be increased from presently around 95℃ to 200℃. The proposal involves the supply of steam extracted from the Mercia EnviRecover steam turbine to Wienerberger brickworks to provide this heat input and therefore remove the need to burn fossil fuels for this purpose.

2.2.2 This steam would be extracted from the EnviRecover turbine at approximately 22 bar(a) and delivered via a 1,030m long pipeline buried within a concrete service duct beneath the internal access roads within Hartlebury Trading Estate. The precise diameter of this pipe will be subject to detailed design, but should be in the order of 75mm (3 inches). Heat losses in this transmission pipeline would be minimised by the use of pre-insulated pipe.

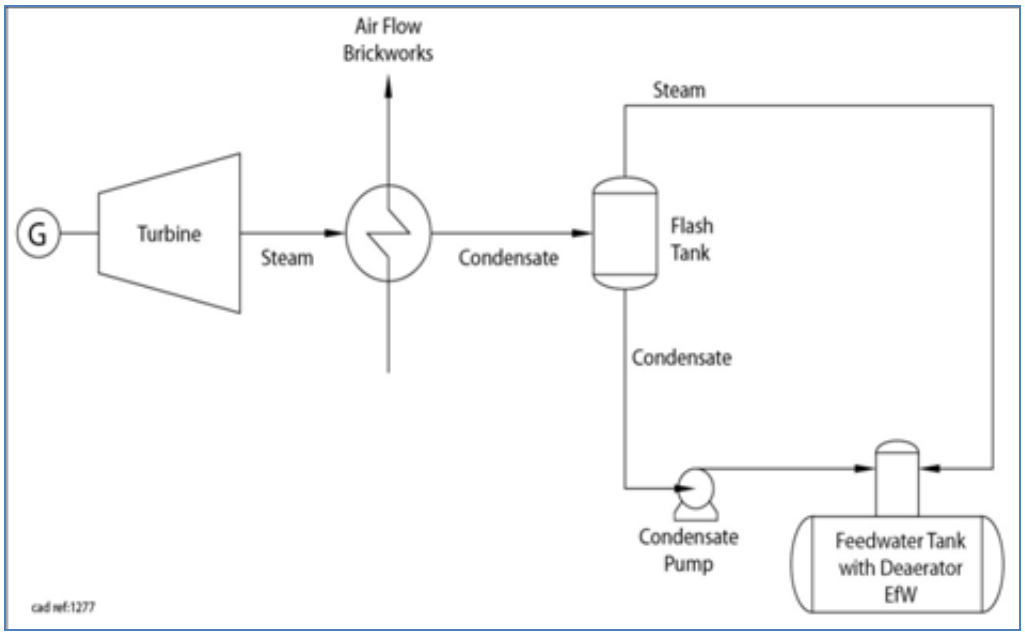
2.2.3 Heat would be transferred from the steam to the secondary air supply via a cross flow tube bundle heat exchanger. The heat exchanger would have a desuperheating section, where the steam donates its sensible heat, and a condensing zone, where the steam is condensed at constant pressure (~21 bar(a)).

2.2.4 The condensate would then be piped to a flash vessel to reduce its pressure prior being returned to the EfW. This is done to reduce the risk of flash steam being produced in the return pipework. By reducing the pressure in a controlled manner, the flash steam can be utilised, either within the brickworks or by returning it to the EnviRecover facility.

2.2.5 The condensate from the flash vessel would be retuned to the EfW via a pipeline located in the same service duct as the steam line. This would be circa 25mm (1 inch) in diameter (subject to detailed design), giving a combined pipe work diameter on circa 100mmm (4 inches). The pressure of

the condensate would be raised via condensate return pumps, increasing its pressure and therefore ensuring its temperature was well below saturation and therefore removing the possibility of flash steam being produced in the return pipeline.

2.2.6 A schematic representation of the proposed solution is shown overleaf.



Construction Methods

2.2.7 The heat off-take pipes would be buried below ground within a trench located within the metalled roadway of the Trading Estate. The trench would be excavated to a depth of approximately 1 m and would be approximately 1.5 m in width.

2.2.8 Pipe supports would be installed within the bottom of the trench prior to the placement of the steel pipe. The pipes would then be lifted and positioned in the trench by an excavator. Once placed in the trench the pipes would be welded and jointed. Following installation of the pipework the trench would be backfilled with sand to cover the pipes, the trench would then be backfilled with excavated material and the road surface would be reinstated.

2.2.9 During the trenching a working area of approximately 3-4 m in width would be required for the operation of machinery and temporary storage of excavated material prior to backfilling. As such appropriate traffic management (e.g. temporary traffic lights) would need to be put in place along the affected highways.

3.0 ASSESSMENT OF EFFECTS

3.1.1 The environmental impacts associated with the pipe laying works would be temporary and the majority of the works would be limited to metalled highways. As such impacts are considered likely to be similar in nature to those that arise from minor highways maintenance works and on this basis implementation of standard best practice construction methods is likely to avoid any significant environmental impacts arising. There would be no above ground plant or equipment required to service the heat off-take pipe along the proposed route once the EfW facility was operational. Above ground infrastructure associated with the heat exchange equipment would be required within the brickworks site but this would be housed within existing buildings at the site. Table 1 (overleaf) summarises the potential environmental impacts of the heat off-take connection and describe potential mitigation measures where appropriate.

Table 1 – Assessment of Environmental Impacts Associated with Heat Off-take Connection Works

EIA Topic	Description of Potential Impacts	Mitigation
Traffic and Transport	During the trenching works the sections of the highway subject to excavation would be closed to traffic. The highways within the trading estate are of sufficient width to enable a single flow of traffic to be maintained during the trenching works. As such a traffic light controlled system would operate for the period of the temporary works to manage traffic movements. Given the relatively low number of traffic movements along the highways affected and the temporary nature of the works any traffic control measures are unlikely to result in significant traffic delays.	Temporary traffic control measures would be provided. Appropriate signage would be installed in advance to inform local road users of the works.
Landscape and Visual	There would be no permanent above ground infrastructure associated with the heat off take pipe. The construction works would be temporary in nature and would not result in any significant landscape or visual impacts.	None considered necessary.
Ecology and Nature Conservation	The construction works would be undertaken entirely within the footprint of the existing highways within the confines of an established industrial estate. As such no habitat of ecological value would be impacted by the proposed construction or operation of the heat off-take connection.	None considered necessary.

EIA Topic	Description of Potential Impacts	Mitigation
Geology, Soils and. Groundwater	Given the shallow nature of the excavations and the routine nature of the works proposed no impacts associated with geology, soils or groundwaters are predicted.	None considered necessary.
Surface Waters and Flood Risk	The construction works would be undertaken entirely within the footprint of the existing highways and there would be no modifications to existing surface water drainage systems. Given the minor nature of the construction works there are unlikely to be significant impacts in relation to surface water quality or flood risk.	Best practise measures would be adopted during the excavation works in line with CIRIA C532 Control of water pollution from construction sites.
Noise and Vibration	The proposed works would be similar in nature to standard road maintenance and no abnormal noisy operations such as piling are proposed. The proposed works would not be close to any residential properties.	No mitigation measures are proposed.
Air Quality	The proposed works would be similar in nature to standard road maintenance and the works are unlikely to result in significant arisings of fugitive dust. As such no significant impacts on air quality are predicted.	No mitigation measures are proposed.
Archaeology and Cultural Heritage	Construction would be undertaken within the footprint of existing highways. As such the excavations are likely to be undertaken in areas already subject to ground disturbance and therefore unlikely to result in impacts on buried archaeology.	No mitigation measures are proposed.

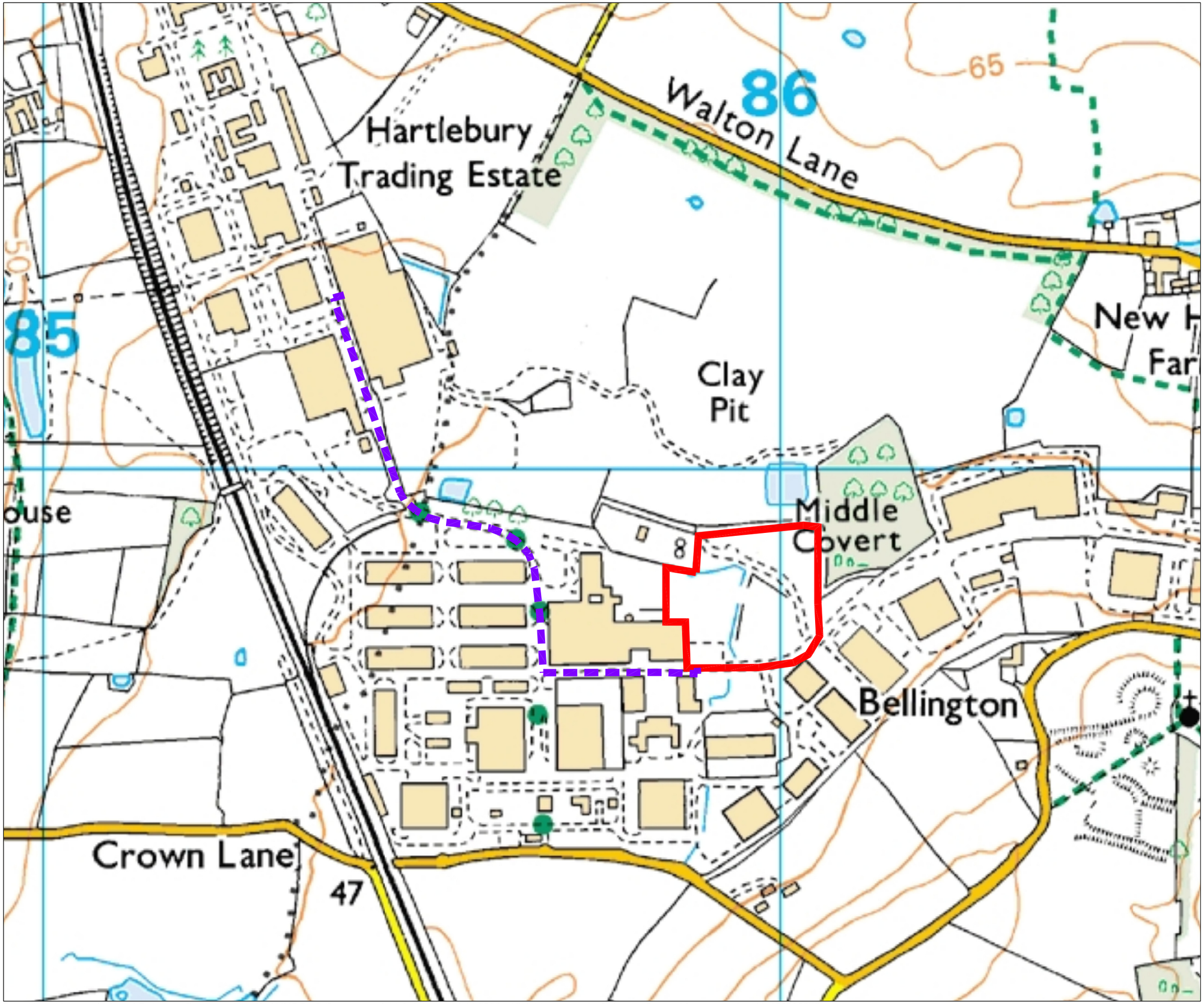
4.0 CONCLUSIONS AND RESIDUAL IMPACTS

4.1.1 The proposed heat off-take connection to Wienerberger Waresley brickworks site would involve laying underground pipes within the footprint of existing metalled highways for a distance of approximately 1,030m. The pipes would enable steam to be transported from the proposed EfW facility to Wienerberger Waresley brickworks site where heat from the steam would be used to pre-heat the brick kilns thus reducing the amount of gas used within the brick manufacturing process.

4.1.2 The environmental impacts associated with the laying of the heat off-take pipes would be similar in nature to those that arise from minor highways maintenance. On this basis implementation of standard best practice construction methods is likely to avoid any significant environmental impacts arising.

4.1.3 In considering the results of this assessment it can be concluded that the proposed heat off-take connection works would not give rise to any significant adverse residual environmental impacts.

FIGURES



axis

Studio E Architects

Site Location

Heat Off-Take Connection Route

mercia waste management

MERCIA ENVIRECOVER

PROPOSED DEVELOPMENT OF A RENEWABLE ENERGY FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

Figure 1

Site Location Plan

Scale	Date
1:5,000@A3	October 2011

Appendix A

Addendum to the Non-Technical Summary

Mercia EnviRecover

PROPOSED DEVELOPMENT OF AN ENERGY FROM WASTE FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

ENVIRONMENTAL STATEMENT
REGULATION 19 SUBMISSION (3a)

NON-TECHNICAL SUMMARY
OF OTHER INFORMATION IN RESPECT OF A HEAT OFFTAKE CONNECTION TO WIENERBERGER WARESLEY BRICKWORKS SITE, HARTLEBURY TRADING ESTATE

OCTOBER 2011

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

1.1.1 This document forms an Addendum to the Mercia EnviRecover Environmental Statement (ES) Revised Non-Technical Summary (NTS) (August 2011). The Revised NTS and the original ES (April 2010) has been submitted in support of a planning application made by Mercia Waste Management (MWM) in April 2010 to develop the Mercia EnviRecover facility an Energy from Waste (EfW) facility, on land at Hartlebury Trading Estate in Worcestershire.

1.1.2 The Addendum has been produced to assess the likely significant environmental effects of the construction and operation of a heat pipe that would be used to transport steam from the proposed EfW facility to the Wienerberger Waresley brickworks site.

1.1.3 It has been submitted under Regulation 19 of The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) as *"Further information and evidence respecting environmental statements"*. In this instance the information contained within this report is provided voluntarily by the applicant as *Other Information* specifically for the purposes of an Inquiry held under the Town and Country Planning Act 1990.

1.1.4 The Addendum contains a brief description, in non-technical language, of the proposed works associated with the grid connection and provides a summary of the potential environmental impacts that could arise from these works. The document should be read in conjunction with the Mercia EnviRecover Environmental Statement Revised Non-Technical Summary (August 2011).

2.0 HEAT OFFTAKE CONNECTION

2.1 Energy Generation

2.1.1 Chapter 5.0 of the original Environmental Statement describes the energy generation process within the EnviRecover facility. This involves hot gasses from the combustion of waste passing to a boiler which converts the energy from the gases into steam. The plant would generate approximately 26 tonnes of steam per hour. The steam would be used to drive a turbine that would generate electricity. The turbine would be equipped with steam extraction points to allow steam to be exported from the site.

2.2 Heat Off-take Connection

2.2.1 Discussions with Wienerberger have suggested that there are potentially significant savings to be made should the temperature of air into the brick kiln be increased from presently around 95℃ to 200℃. The proposal involves the supply of steam extracted from the Mercia EnviRecover steam turbine to Wienerberger brickworks to provide this heat input and therefore remove the need to burn fossil fuels for this purpose.

2.2.2 This steam would be extracted from the EnviRecover turbine and delivered via a 1,030m long pipe buried beneath the internal access roads within Hartlebury Trading Estate. The diameter of this pipe will be in the order of 75mm (3 inches). The pipe would be insulated to minimise heat loss.

2.2.3 Heat would be transferred from the steam to the air that goes into the brick kilns by a device known as a heat exchanger. This exchanger also condenses the steam back to water. This water would then be retuned to the EfW facility via a pipe located in the same trench as the steam pipe. This second pipe would be about 25mm (1 inch) in diameter, giving a combined pipe work diameter on circa 100mmm (4 inches).

Construction Methods

2.2.4 The heat pipes would be buried below ground within a trench located within the internal roads of the Trading Estate that lie between the EfW Plant and Wienerberger's site. The trench would be excavated to a depth of approximately 1 m and would be approximately 1.5 m in width.

2.2.5 Once placed in the trench the pipes would be welded and jointed. Following installation of the pipework the trench would be backfilled with sand to cover the pipes, the trench would then be backfilled with excavated material and the road surface would be reinstated.

2.2.6 During the trenching a working area of approximately 3-4 m in width would be required for the operation of machinery and temporary storage of excavated material prior to backfilling. As such traffic management (e.g. temporary traffic lights) would need to be put in place along the affected highways.

3.0 ASSESSMENT OF EFFECTS

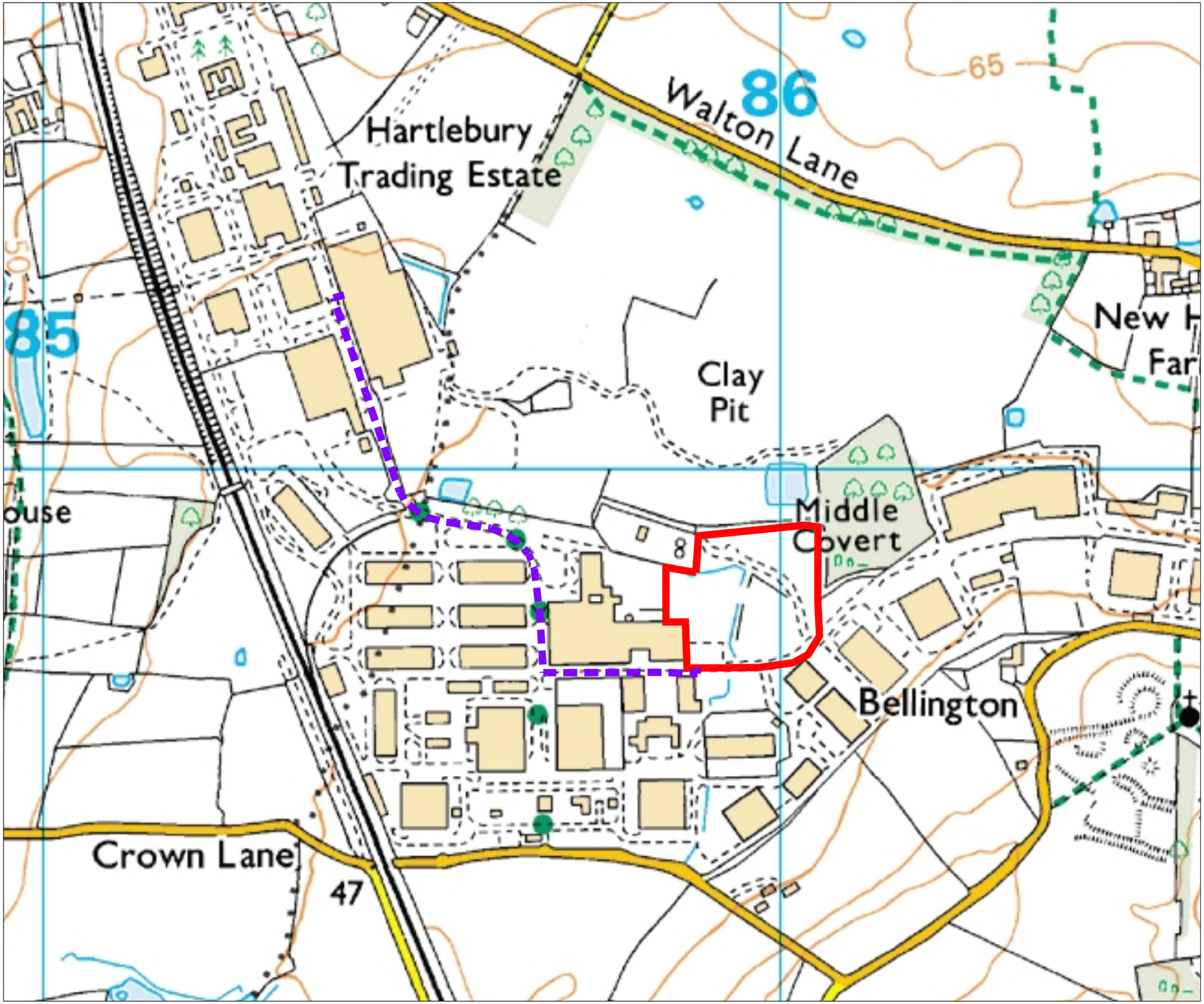
3.1.1 The environmental impacts associated with the pipe laying works would be temporary and the majority of the works would be limited to existing Estate roads. As such impacts are considered likely to be similar in nature to those that arise from minor highways maintenance works and on this basis implementation of standard best practice construction methods is likely to avoid any significant environmental impacts arising. There would be no above equipment required to service the heat off-take pipe along the proposed route once the EfW facility was operational. The heat exchanger equipment would be located within the brickworks site and be housed within existing buildings at the site. Table 1 (overleaf) summarises the potential environmental impacts of the heat off-take connection and describe potential mitigation measures where appropriate.

3.2 In order to understand the likely impacts associated with the heat pipe connection an appraisal of each of the environmental topic areas covered within the original ES has been undertaken.

3.3 Standard best practice construction methods would be implemented to manage potential impacts associated with water quality and traffic management. No significant impacts were identified in relation to ecology, noise, air quality geology and hydrogeology or archaeology and cultural heritage.

3.4 In considering the results of this assessment, it can be concluded that the proposed heat off-take connection works would not give rise to any significant adverse residual environmental impacts.

Figure 1 Proposed Heat Off-Take Connection Route



axis

Studio E Architects

Site Location

Heat Off-Take Connection Route

mercia waste management

MERCIA ENVIRECOVER

PROPOSED DEVELOPMENT OF A RENEWABLE ENERGY FACILITY ON LAND AT HARTLEBURY TRADING ESTATE, HARTLEBURY, WORCESTERSHIRE

Figure 1

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Scale	Date
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