

M60/M62/M66 Simister Island Interchange

TR010064

6.5 FIRST ITERATION ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX K: OUTLINE ENERGY AND RESOURCE MANAGEMENT PLAN

APFP Regulation 5(2)(a)

Planning Act 2008

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FIRST ITERATION ENVIRONMENTAL MANAGEMENT PLAN APPENDIX K: OUTLINE ENERGY AND RESOURCE MANAGEMENT PLAN

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Author	M60/M62/M66 Simister Island Interchange Project Team

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Outline Energy and Resource Use Management Plan

K.1 Background to the plan

- K.1.1 This Outline Energy and Resource Use Management Plan sets out the generic measures that will be used by the Principal Contractor (PC) during construction during construction of the M60/M62/M66 Simister Island Interchange (the "Scheme") with the aim of reducing the use of energy and resources.
- K.1.2 This management plan will be updated by the PC and included within the Second Iteration Environmental Management Plan (EMP), as an Energy and Resource Use Management Plan, prior to commencement of works in accordance with the Requirements in Schedule 2 of the draft Development Consent Order (DCO) (TR00064/APP/3.1) and the requirements of this First Iteration Environmental Management Plan (EMP).

K.2 Responsibilities

- K.2.1 In relation to the control and management of energy and resource use, the PC shall establish the appropriate roles and responsibilities for site staff in accordance with the roles and responsibilities set out in Chapter 2, Table 2.1 Role and Responsibilities of this First Iteration EMP. All beneficial reuse of materials, as well as resources saving measures and associated cost reductions on site, shall be recorded, and monitored.

K.3 Energy and resource efficiency

- K.3.1 Opportunities exist to implement measures into the construction of the Scheme to provide more efficient and cost-effective use of energy and resources, and thereby reduce carbon and water footprints.
- K.3.2 The following measures and techniques shall be investigated and evaluated by the PC and, where appropriate and feasible, be incorporated into the design and management of construction compounds and working areas on the Scheme:
- Investigating arrangements to set-up the compounds in the most resource efficient way and that electric (mains), hydrogen, hybrid, or any other low carbon options such as alternative fuels, for example Liquefied Petroleum Gas (LPG) or, Hydrotreated Vegetable Oil (HVO) are implemented where reasonably practical.
 - The use of green energy tariffs, such as Renewable Energy Guarantee of Origin certificate (REGO) tariffs, for the main site compounds.

- The use of alternative energy sources for certain appliances, such as solar power for the site accommodation, task and security lighting and hot water to reduce energy consumption.
- The use of double-glazed windows and efficient insulation within site offices and welfare units to reduce heat loss.
- Conducting regular site audits to identify opportunities for energy savings and to check that lighting, equipment and facilities are running efficiently.
- The control of lighting through passive infrared sensors to reduce energy consumption.
- The control of heating and cooling units individually, allowing areas not in frequent use to be turned down or off when required, to reduce energy consumption.
- The use of 'switch off' labels on electrical switches, lighting, and appliances to encourage users to turn apparatus off when not in use.
- The use of rainwater harvesting equipment and greywater recycling equipment to recycle water resources and reduce reliance on mains water supplies.
- The specification of low-energy or energy star rated appliances and equipment.
- The deployment of toolbox talks to all site operatives to encourage them to switch off construction plant, equipment, and machinery, to reduce fuel and energy consumption.
- Undertaking lifecycle costing for construction plant, equipment and machinery, and accommodation hire, specifying low energy, battery powered and hybrid powered equipment where feasible.
- Installing sub-metering and regularly recording and reporting on-site energy use to identify areas of high consumption and potential efficiencies.
- The sustainable use of soil and aggregate materials won from excavation and demolition activities, to minimise greenhouse gas emissions associated with the importation of materials to site and embodied carbon associated with additional materials.

K.4 Water efficiency

K.4.1 Water minimisation techniques shall be implemented and managed during construction through the application of the water hierarchy. The water hierarchy sets out the priority order that should be considered when managing water. Where practicable the PC would use the hierarchy as a

guide to eliminate water use and to identify techniques and measures to reduce water use, with disposal being a last resort. Water management would target techniques and measures at the top of the hierarchy. Where this is not feasible, a combination of options from within the hierarchy would be applied:

- **Eliminate:** eliminate water use by identifying if the water-using process or activity is necessary and/or if there is a cost-effective alternative to using water.
- **Substitute:** identify and use alternative non-potable sources and eliminate inappropriate use of drinking (potable) water and assess whether rainwater or greywater can be used for the activity or process.
- **Reduce:** explore options that improve efficiency for example, by regular maintenance of water using equipment to ensure they are working to maximum efficiency, metering and monitoring supplies, and the updating of fittings and/or processes.
- **Reuse:** identify whether water, including greywater, can be treated, or filtered for reuse in a process or activity – for example wheel washing.
- **Recycle:** identify if and where water can be recycled for use off-site.
- **Disposal:** dispose of excess water legally and responsibly such that there is no flooding, pollution, or inconvenience to stakeholders.

K.4.2 The following water conservation measures, selected to minimise potable water use shall be investigated and evaluated by the PC and, where appropriate and feasible, be incorporated into the design and management of construction compounds and working areas on the Scheme:

- Connections to mains water to be metered to determine consumption levels.
- Construction of attenuation tanks as early as possible to capture runoff for reuse.
- Utilisation of groundwater obtained from dewatered excavations.
- Utilisation of non-potable water.
- Circulation and treatment of water used for any piling and drilling operations.
- Utilisation of push taps, waterless urinals, and other water-saving devices within welfare facilities.
- Capturing and reuse of rainwater. A closed loop wheel wash to reuse the water for the wheel wash process. Waterless systems are another innovative option that use angled steel grids to clean debris from tyres.