

1 Introduction

1.1 Background and Purpose

- 1.1.1 Drainage Services Department (DSD) appointed Binnies Hong Kong Limited (the consultants) to undertake the consultancy “Agreement No. CE 50/2019 (DS) Upgrading of Tai Po Sewage Treatment Works - Investigation” on 31 March 2020. The scope of the consultancy includes the carrying out an Environmental Impact Assessment (EIA) study for the Project.
- 1.1.2 The existing Tai Po Sewage Treatment Works (TPSTW) is located within Tai Po Industrial Estate (TPIE) and has undergone various stages of extension since it was first commissioned in 1979. Currently, the existing TPSTW is a secondary treatment works with a design capacity of 120,000 m³/day, in Average Dry Weather Flow (ADWF), serving TPIE, Tai Po, Lam Tsuen and Ting Kok areas.
- 1.1.3 The objective of the Project is to upgrade the existing TPSTW to 160,000 m³/day in ADWF, with a view to meeting the future needs of Tai Po District, and allowing provision to receive and digest sludge from other existing and proposed sewage treatment works (STW) in New Territories for co-digestion with pre-treated food waste.
- 1.1.4 The Project mainly comprises the following works:
- (a) Construction and operation of new treatment facilities, modification / demolition of existing treatment facilities of TPSTW;
 - (b) Providing effluent reuse facilities to produce reclaimed water for non-portable use within the Project site; and
 - (c) Providing co-digestion facilities for imported sewage sludge and pre-treated food waste.
- 1.1.5 Owing to the space limitation within the existing TPSTW and in order to maintain the sewage treatment services of the existing TPSTW, which is almost fully utilized, a piece of government land to the south of the existing TPSTW (1.6 hectares) is identified as the proposed expansion site for the Project. The location plan of the Project is shown in **Figure 1.1**.

1.2 Environmental Impact Assessment Ordinance Requirements

- 1.2.1 The Project consists of the following Designated Projects (DPs) under Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO):
- Item F.1 - Sewage treatment works with an installed capacity of more than 15,000 m³ per day; and
 - Item F.4 - An activity for the reuse of treated sewage effluent from a treatment plant;
 - Item D.1 – A public utility electricity power plant; and
 - Item D.2 – A public utility gas generation plant.
- 1.2.2 The implementation of this Project requires an Environmental Permit (EP) from the Environmental Protection Department (EPD) under the EIAO. An application for an Environmental Impact Assessment (EIA) Study Brief (Application No. ESB-321/2019) for the Project was submitted by DSD on 5 September 2019. An EIA Study Brief (No. ESB 321/2019) was subsequently issued by EPD on 16 October 2019 to facilitate the EIA study.

1.3 Purpose of the EIA Study

- 1.3.1 The purpose of the EIA Study is to provide information on the nature and extent of the environmental impacts arising from construction and operation of the Project and related activities that take place concurrently. This information will contribute to decisions on:
- (a) the overall acceptability of any adverse environmental consequences that are likely to arise as a result of the Project;
 - (b) the conditions and requirements for the detailed design, construction and operation of the Project to mitigate against adverse environmental consequences wherever practicable; and
 - (c) the acceptability of residual impacts after the proposed mitigation measures are implemented.

1.4 Objectives of the EIA Study

- 1.4.1 The objectives of the EIA Study described in the EIA Study Brief (No. ESB-321/2019) are listed below:
- (i) to describe the Project and associated works together with the requirements and environmental benefits for carrying out the Project;
 - (ii) to identify and describe elements of community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including both the natural and man-made environment and the associated environmental constraints;
 - (iii) to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;
 - (iv) to identify and quantify any potential loss or damage and other potential impacts to fisheries, flora, fauna and wildlife habitats and to propose measures to mitigate these impacts;
 - (v) to identify any potential hazard to life due to generation, storage, utilization, processing and transmission (if applicable) of biogas within the Project site and due to neighboring fuel gas dangerous goods (DGs) facilities during the construction and operation of the Project and to propose measures to mitigate these impacts if required;
 - (vi) to identify and quantify waste management requirements and to propose measures to mitigate these impacts;
 - (vii) to identify and quantify contaminated land within any project area for development works, and to propose measures to avoid disposal in the first instance;
 - (viii) to identify any potential human health impacts associated with reuse of treated sewage effluent during operation of the Project and to propose measures to avoid and mitigate these impacts;
 - (ix) to identify and evaluate any potential landscape and visual impacts and to propose measures to mitigate these impacts;
 - (x) to propose the provision of infrastructure or mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operation of the Project;
 - (xi) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;
 - (xii) to identify, predict and evaluate the residual (i.e. after practicable mitigation)

environmental impacts and the cumulative effects expected to arise during the construction and operational phases of the Project in relation to the sensitive receivers and potentially affected uses;

- (xiii) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;
- (xiv) to design and specify environmental monitoring & audit requirements; and
- (xv) to identify any additional studies necessary to implement the mitigation measures or monitoring and proposals recommended in the EIA Report.

1.5 Structure of the Report

1.5.1 The remainder of this EIA Report are organized as follows:

- Section 2 describes the Project including the alternatives considered;
- Section 3 presents the air quality impact assessment;
- Section 4 presents the water quality impact assessment;
- Section 5 presents the ecological impact assessment;
- Section 6 presents the fisheries impact assessment;
- Section 7 presents the landscape and visual impact assessment;
- Section 8 presents the hazard to life impact assessment;
- Section 9 presents the landfill gas hazard assessment;
- Section 10 presents the waste management implication;
- Section 11 presents the land contamination impact assessment;
- Section 12 presents the noise impact assessment;
- Section 13 describes the requirements for environmental monitoring and audit;
- Section 14 summarizes the environmental outcomes associated with the Project; and
- Section 15 summarizes the conclusions of this EIA Study.