



**Outlying Islands Sewerage Stage 2 –
Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities**

Landscape Plan for EP-488/2014/A

(Rev. 1, November 2022)

	Prepared by:	Checked by:
Name	Sunny Sung	Luke Leung
Position	Environmental Officer	Project Manager
Signature		
Date	November 2022	November 2022



CONTENTS

1. INTRODUCTION.....	1
1.1 Project Description.....	1
1.2 Scope of the Project	2
1.3 Landscape and Visual Mitigation Measures	2
2. LANDSCAPE AND VISUAL MITIGATION MEASURES (CONSTRUCTION PHASE)	3
2.1 Visual Screen / Hoarding	3
2.2 Protection to Existing Trees within Works Areas	4
2.3 Tree Transplanting	4
2.4 Construction Light.....	4
2.5 Dust and Erosion Control for Exposed Soil	5
2.6 Reinstatement of Works Areas.....	5
3. LANDSCAPE AND VISUAL MITIGATION MEASURES (OPERATION PHASE)	5
3.1 Architectural and Landscape Design.....	5
3.2 Establishment Period	6
4. IMPLEMENTATION PROGRAMME, MAINTENANCE AND MANAGEMENT SCHEDULES	6
4.1 Implementation Programme.....	6
4.2 Maintenance and Management Schedules	8



List of Appendices

Appendix A	Site Location Plan
Appendix B	Location of Visual Sensitive Receivers and Visual Envelop
Appendix C	Demarcation Plans and Reference Images of Cheung Chau Sewage Treatment Works and Pak She Sewage Pumping Station
Appendix D	Extracts of Tree Survey Report
Appendix E	Extracts of Trees and Landscape Management from the Accepted Environmental Management Plan
Appendix F	Tree Planting Plan
Appendix G	Requirements of Competent Person in Particular Specification
Appendix H	Method Statement of Tree Transplanting for T4
Appendix I	Proposed Architectural and Landscape Design
Appendix J	Landscape Maintenance Schedule
Appendix K	Landscape and Visual Mitigation Plan
Appendix L	Responses to Comments



1. INTRODUCTION

The purpose of this Landscape Plan is to provide landscape measures to mitigate the potential landscape and visual impacts of this Project during the construction and operation phases in accordance with the approved EIA Report (Register No.: AEIAR-181/2013) titled “Outlying Islands Sewerage Stage 2 – Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities” and, to fulfil the Condition 3.2 of Environmental Permit No. EP-488/2014/A.

This Landscape Plan demonstrates the design details, locations, implementation programme, maintenance and management schedules, and drawings of the landscape and visual mitigation measures of this Project for reducing the landscape and visual impacts during the construction and operation phases of the Project.

Location plan showing the proposed sites is attached in Appendix A. Location of visual sensitive receivers and visual envelop are shown in Appendix B. It is identified that VSR1 - Cheung Kwai Road, VSR2 - Cheung Kwai Estate, VSR3 – Adamasta Channel, VSR4 – Shrine and VSR5 – Beach adjacent to Siu Kwai Wan are the visual sensitive receivers related to this Project.

1.1 Project Description

This Designated Project is the first package of the Design and Construction for Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities under Agreement No. CE 15/2010 (DS). It comprises the following items:

- Upgrading of the existing Cheung Chau Sewage Treatment Works (CCSTW) to increase its treatment capacity to 9,800 m³/day and to upgrade its treatment standard to secondary level. It comprises civil, structural, E&M, architectural and landscape works; and
- Upgrading of the existing Pak She Sewage Pumping Station (PSSPS) to increase its peak pumping capacity to about 42,000 m³/day. It comprises mainly replacement of 3 nos. of screw pumps and the associated E&M works. No major civil works are involved.



1.2 Scope of the Project

The scope of upgrading of Cheung Chau sewage treatment and disposal facilities includes:

- Demolition works for the existing preliminary treatment facilities, primary sedimentation tanks, sludge digestion facilities and transformer room;
- Construction of new buildings and facilities including Preliminary Treatment Facilities, MBR Treatment Facilities, Sludge Centrifuge House, Sludge Digester Building, Sludge Holding Tanks, Effluent Reuse Building, Pump Rooms and Dangerous Goods House.
- Modification works for the existing Sludge Dewatering House, Administration Building and Outfall Pumping Station.
- Ancillary works including utilities diversion, provision of manholes, temporary closure and reinstatement of carriageways/footpaths/open space, building services, architectural and landscaping works.

1.3 Landscape and Visual Mitigation Measures

The requirements on landscape and visual mitigation measures during Construction Phase under the EIA Report (Register No.: AEIAR-181/2013) are summarized as below:

<u>Landscape and Visual Mitigation Measures</u>	<u>Requirements in EIA Report (Register No.: AEIAR-181/2013)</u>	<u>Corresponding Sections in This Landscape Plan</u>
Visual Screen/Hoarding	Table 11.8 CM-1	2
Protection to Existing Trees within Works Areas	Table 11.8 CM-2	2
Tree Transplanting	Table 11.8 CM-3	2
Construction Light	Table 11.8 CM-4	2
Dust and Erosion Control for Exposed Soil	Table 11.8 CM-5	2
Reinstatement of Works Areas	Table 11.8 CM-6	2



The requirements on landscape and visual mitigation measures during Operation Phase under the EIA report (Register No.: AEIAR-181/2013) are summarized as below:

<u>Landscape and Visual Mitigation Measures</u>	<u>Requirements in EIA Report (Register No.: AEIAR-181/2013)</u>	<u>Corresponding Sections in This Landscape Plan</u>
Architectural and Landscape Design	Table 11.9 OM-1	3
Establishment Period	Table 11.9 OM-2	3

Landscape and Visual Mitigation Plan annotating the location of all the proposed mitigation measures is shown in Appendix K.

2. LANDSCAPE AND VISUAL MITIGATION MEASURES (CONSTRUCTION PHASE)

2.1 Visual Screen / Hoarding

- 2.1.1 Part of the existing boundary wall of Cheung Chau Sewage Treatment Works (CCTSW) and whole of the existing boundary wall of Pak She Sewage Pumping Station are remained in use as visual screen and they are maintained by the Contractor during the Construction Phase. Part of the existing boundary wall along the northern and eastern boundary of CCSTW is temporarily removed to facilitate construction, it is now replaced by a screen hoarding during Construction Phase and shall be reinstated at the later stage of this Project.
- 2.1.2 For the site of Cheung Chau Sewage Treatment Works, there are existing trees surrounding the side along Pak Kok Tsui Road (refer to Images 2 and 3 of Appendix C) and the side facing Cheung Kwai Road (refer to Image 1 of Appendix C). Thus, no additional decorative screening would be applied. For the side adjacent to the existing Cheung Chau Slaughterhouse, decoration was provided to the site hoarding and shall be further upgraded (current situation refers to Image 4 of Appendix C). Demarcation plan and reference images are shown in Appendix C.
- 2.1.3 For the site of Pak She Sewage Pumping Station, decoration was applied to the existing boundary wall facing Ping Chong Road (refer to Images 5 and 6 of Appendix C). For the other side of the site, no decorative screen would be applied as the existing boundary wall is blocked by the adjacent Highways Department's site (refer to Image 7 of Appendix C). Demarcation plan and reference images are shown in Appendix C.



2.2 Protection to Existing Trees within Works Areas

- 2.2.1 Before the commencement of works, initial tree survey was carried out by the Contractors and the tree survey report was submitted to the Project Manager. Extracts of the tree survey report are attached in Appendix D.
- 2.2.2 There were 30 nos. of existing trees whilst 15 nos. of existing trees (T5, T9-T16, T22-T27) are retained. These trees shall be properly maintained and protected by means of fencing to prevent vehicular or pedestrian intrusion that may potentially damage tree canopies, trunks and root zones. Locations of the retained trees are shown in the tree survey plan as attached in Appendix D.
- 2.2.3 The Contractor shall implement preservation and protection of existing trees as required in the General Specification (2006 Edition) Clause 26.08.
- 2.2.4 The trees and landscape management is extracted from the accepted Environmental Management Plan and attached in Appendix E.

2.3 Tree Transplanting

- 2.3.1 There is 1 no. of existing tree (T4) [i.e. *Ficus microcarpa*] located within Cheung Chau Sewage Treatment Works (CCSTW) unavoidably affected by the construction works and to be transplanted directly to the final location within CCSTW. For other tree loss which transplanting of trees is not feasible or not preferable, compensatory planting of 27 nos. of compensatory trees will be implemented within CCSTW. Final location of the transplanted tree and locations of compensatory trees are shown in the tree planting plan as attached in Appendix F.
- 2.3.2 The Contractor shall assign a competent person to oversee, supervise and approve the proposed tree works, as required in the Particular Specification, (extracts attached in Appendix G).
- 2.3.3 The method statement for tree transplanting is attached in Appendix H.

2.4 Construction Light

- 2.4.1 Security floodlight for construction areas shall be controlled at night to reduce the night-time glare effect to the surrounding environment.



2.5 Dust and Erosion Control for Exposed Soil

- 2.5.1 Automatic spraying system shall be applied near the excavation works and demolition works to suppress dust.
- 2.5.2 All vehicles shall be washed with high pressure hosing before leaving the site.
- 2.5.3 All dusty material shall be properly covered by tarpaulin or other accepted means.
- 2.5.4 All rubbish and debris during construction shall be cleared and removed in a weekly basis or as necessary.
- 2.5.5 Suitable temporary drainage measure shall be provided on the site to avoid discharge of contaminants and sediments into the adjacent waters.
- 2.5.6 The Contractor should implement all the above measures to minimize disturbance to the existing landscape resources and minimize the impacts on the visual amenity of the area.

2.6 Reinstatement of Works Areas

- 2.6.1 Temporarily affected areas shall be reinstated immediately after completion of construction works and shall be reinstated to their original condition and to the satisfaction of the Project Manager and the relevant government departments.

3. LANDSCAPE AND VISUAL MITIGATION MEASURES (OPERATION PHASE)

3.1 Architectural and Landscape Design

- 3.1.1 The aesthetic design of the Project was presented to the Vetting Committee on Aesthetic Design of Pumping Station Buildings (VCAB) and subsequently endorsed in the 34th VCAB Meeting and the 50th VCAB Meeting on 7 August 2015 and 11 June 2019 respectively. The aesthetic design proposals were also circulated to Architectural Services Department (ArchSD) for comment on 20 February 2012 and 4 September 2019 respectively. ArchSD's comments were received on 16 April 2013 and 9 October 2019 and had been addressed.
- 3.1.2 The use of translucent / transparent material and louvres increase the permeability of the building mass. The feature walls and fins create some visual interest and depth into the elevations, which help to disguise the uninteresting basic building form. Breaking down the mass in creating depth in the facades give



the whole development a more dynamic appearance but also close to the natural environment with the use of vertical greening and green roofs.

3.1.3 The finishing material for the new buildings are terra cotta tiles, grey artificial granite strip tiles. Ceramic facing tiles are also used to blend in with the retained buildings within the site. Natural colours similar to rock and stone are selected to match with the natural landscape of the site.

3.1.4 The use of walls, parapets, metallic fences and boundary wall that blend with the horizontal greening on the roof surfaces and ground level areas allow a nice transition with the surroundings by using the existing trees and proposed trees along the boundary wall as a green buffer screen. The use of vertical green climbers on facades facing the sea allows the whole development close to the natural environment. Proposed architectural and landscape design are attached in Appendix I.

3.2 Establishment Period

3.2.1 A 12-month establishment period for the soft landscape works with monthly monitoring shall be implemented to ensure healthy establishment of new planting during the 12-month period.

4. IMPLEMENTATION PROGRAMME, MAINTENANCE AND MANAGEMENT SCHEDULES

4.1 Implementation Programme

<u>Item</u>	<u>Mitigation Measures</u>	<u>Start From</u>	<u>End in</u>
Construction Phase			
2.1 Visual Screen/Hoarding	Decorative hoarding or boundary wall is installed and maintained. Part of the existing boundary wall along the northern and eastern boundary of CCSTW is temporarily removed to facilitate construction, it is now replaced by a screen hoarding during Construction Phase and shall be reinstated at later stage of this Project.	Mid 2021	Early 2026



2.2 Protection to Existing Trees within Works Areas	The existing trees to be retained are properly maintained and protected by setting up tree protection zones by means of fencing throughout the Construction Phase for protecting the retained trees from damages.	Mid 2021	Early 2026
2.3 Tree Transplanting	Tree Transplanting works. Other Compensatory Planting works. The above planting works shall be supervised by the approved competent person.	October 2022 Mid 2025	November 2022 Early 2026
2.4 Construction Light	Night time lighting such as security floodlight for construction areas shall be controlled, such as equipped with adjustable shield, frosted diffusers and reflective covers to avoid excessive glare to the nearby sensitive receivers / residence.	Mid 2021	Early 2026
2.5 Dust and Erosion Control for Exposed Soil	Apply automatic spraying system to suppress dust.	Mid 2021	Early 2026
2.6 Reinstatement of Works Areas	The affected areas shall be reinstated to the satisfaction of the Project Manager and the relevant government departments.	Mid 2021	Early 2026
Operational Phase			
3.1 Architectural and Landscape Design	The appearance of the proposed structures is properly designed, including a careful selection of material, colour and texture, so as to fit into the existing surroundings. The		



	proposed design and layout depicted in Appendix I are approved by VACB on 11 June 2019. ArchSD's comments received on 16 April 2013 and 9 October 2019 had been addressed.		
3.2 Establishment Period	Upon satisfactory completion of the landscape softworks, a 12-month establishment period with monthly monitoring for the landscape softworks is dedicated under the contract for the Contractor to carry out routine horticultural operations, including watering, pruning, weeding, pest control and replacement of dead plants etc. to ensure healthy establishment of new planting during the aforesaid establishment period.	<u>Start From</u>	<u>End in</u>
		Early 2026	Early 2027

4.2 Maintenance and Management Schedules

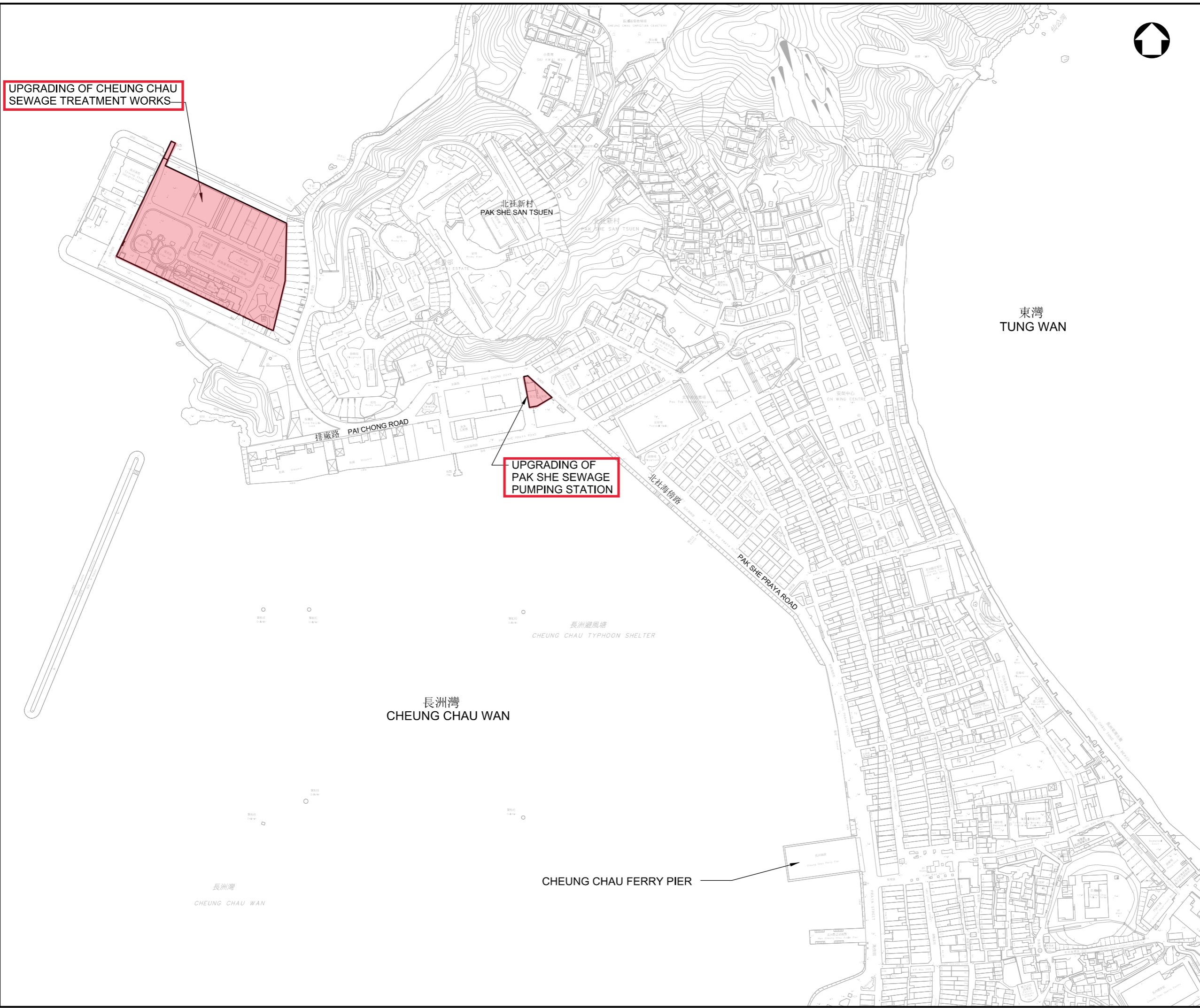
<u>Item</u>	<u>Maintenance and Management Schedules</u>	<u>Management / Maintenance Agent</u>
Construction Phase		
2.1 Visual Screen/Hoarding	Routine inspection is carried out to prevent accumulation of debris and to maintain the quality of the decorative hoarding. Any damage found shall be made good.	Contractor
2.2 Protection to Existing Trees within Works Areas	Routine inspection is carried out to maintain the quality of the protection measures for the retained trees. Any damage to the protection measures found shall be reinstated.	DSD and Contractor
2.3 Tree Transplanting	Tree transplanting works and other Compensatory Planting works will	Contractor



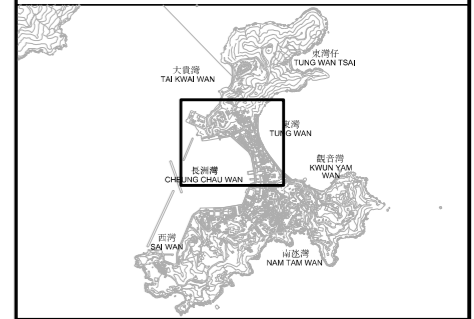
	only be carried out by a specialist landscape sub-contractor under the List of Approved Suppliers of Materials and Specialist Contractors for Public Works maintained by DEVB, and under the supervision of the approved competent person. Transplanted tree and other planted compensatory trees will be under close monitoring by the specialist landscape sub-contractor and the Contractor.	
2.4 Construction Light	Security floodlights will be checked every night to ensure that they will be diverted away from sensitive receivers / residence.	Contractor
2.5 Dust and Erosion Control for Exposed Soil	Daily dust and erosion control inspection for exposed soil and automatic spraying system are carried out.	Contractor
2.6 Reinstatement of Works Areas	Daily inspection of works areas if reinstatement is needed.	Contractor
Operation Phase		
3.1 Architectural and Landscape Design	Not Applicable	DSD
3.2 Establishment Period	Please refer to Landscape Maintenance Schedule shown in Appendix J.	DSD and Contractor

Appendix A – Site Location Plan

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KEY PLAN SCALE : N.T.S.

Rev.	Date	Description	By	CHK'd	App'd
-	12/20	FIRST ISSUE	WYWC	DSJS	XY

Drawing Status **CONTRACT** Suitability =

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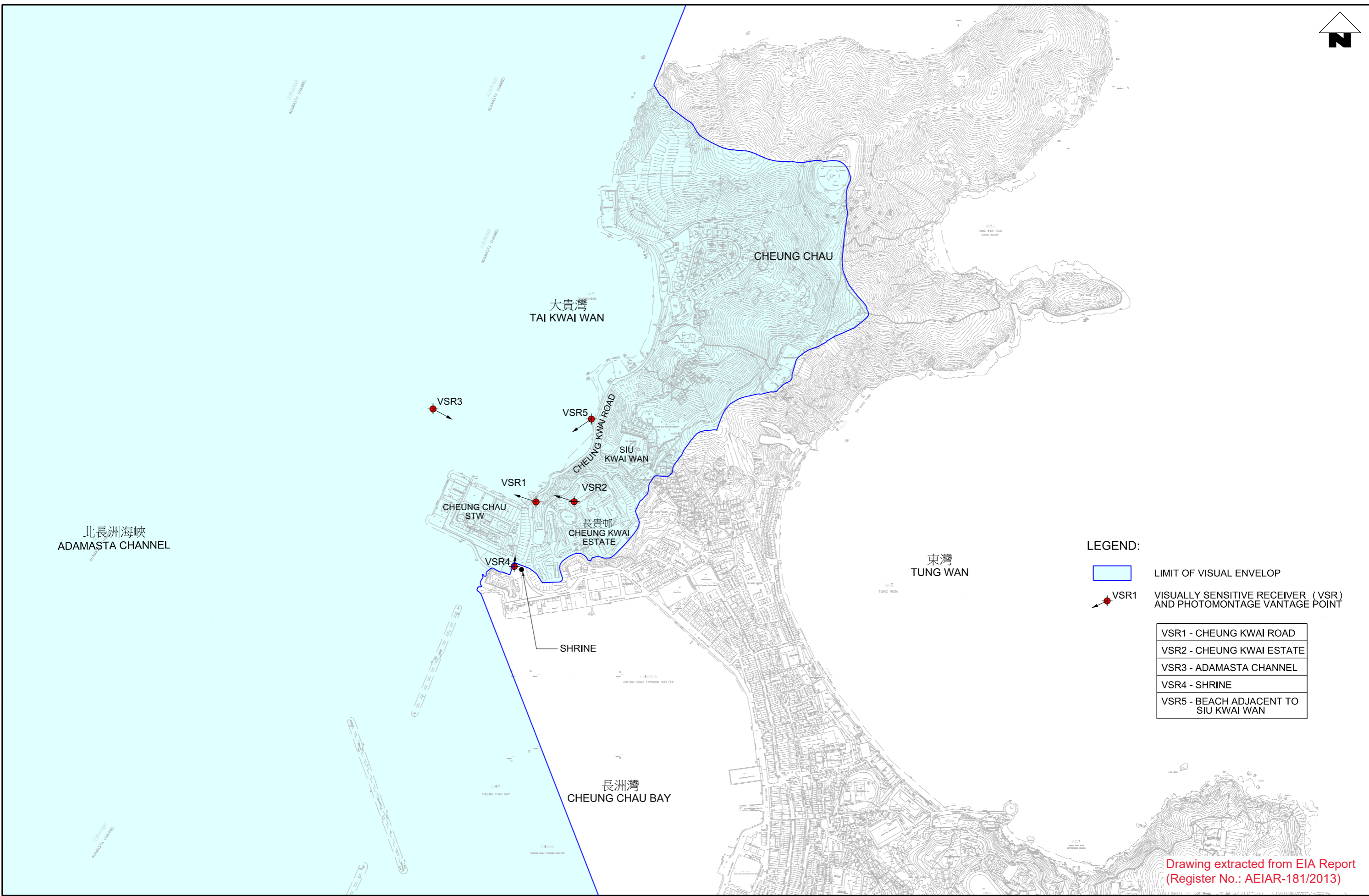
Client  渠務署
 Drainage Services Department
 顧問工程管理部
 Consultants Management Division

Contract Title
 CONTRACT NO. DC/2019/07
 OUTLYING ISLANDS SEWERAGE STAGE 2 -
 UPGRADING OF CHEUNG CHAU SEWAGE
 TREATMENT AND DISPOSAL FACILITIES



Drawing Title
**SITE LOCATION PLAN IN
 CHEUNG CHAU**

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	WYWC	AC	DSJS	XY
Original Size	Date	Date	Date	Date
A1	DEC 2020	DEC 2020	DEC 2020	DEC 2020
Drawing Number	SK-0095			Revision
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**Appendix B – Location of Visual Sensitive
Receivers and Visual Envelop**



LEGEND:

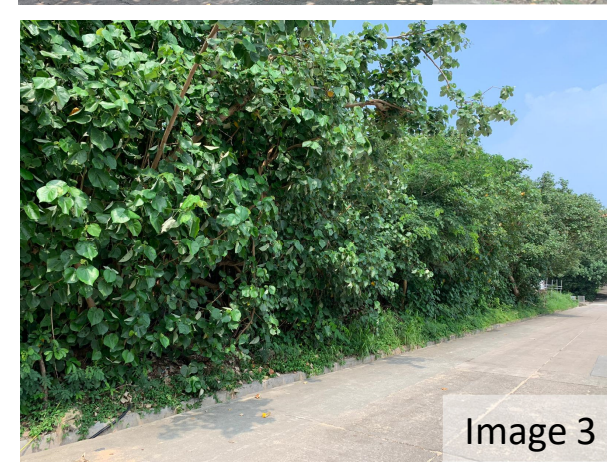
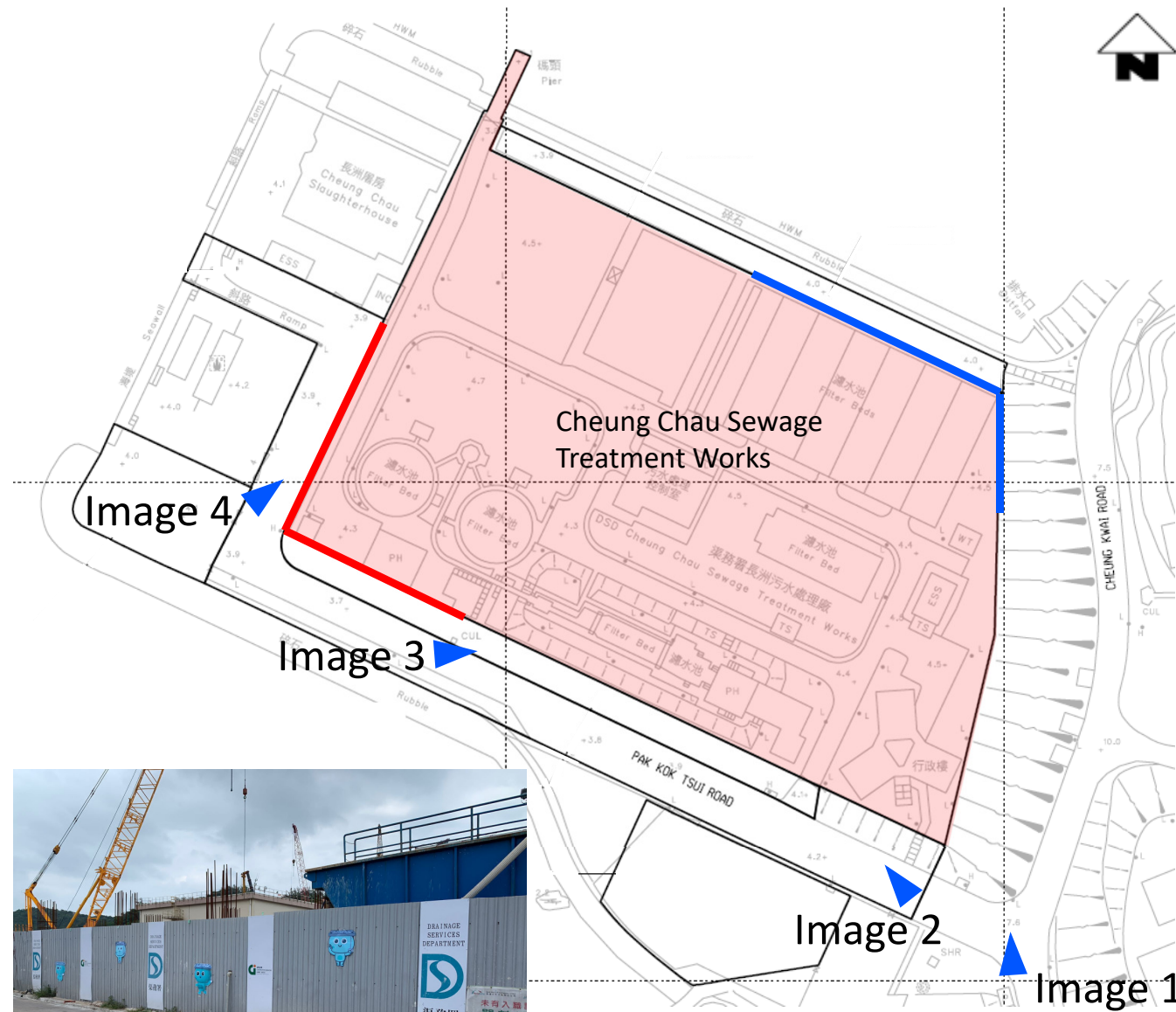
-  LIMIT OF VISUAL ENVELOPE
-  VSR1 VISUALLY SENSITIVE RECEIVER (VSR) AND PHOTOMONTAGE VANTAGE POINT

VSR1 - CHEUNG KWAI ROAD
VSR2 - CHEUNG KWAI ESTATE
VSR3 - ADAMASTA CHANNEL
VSR4 - SHRINE
VSR5 - BEACH ADJACENT TO SIU KWAI WAN

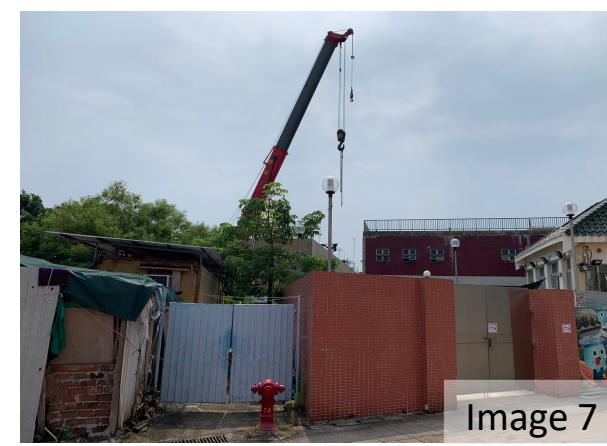
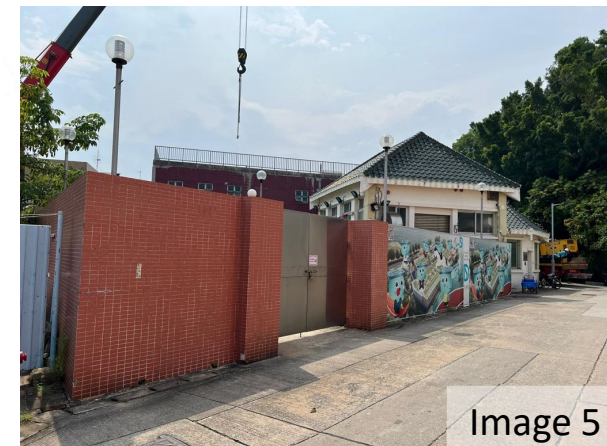
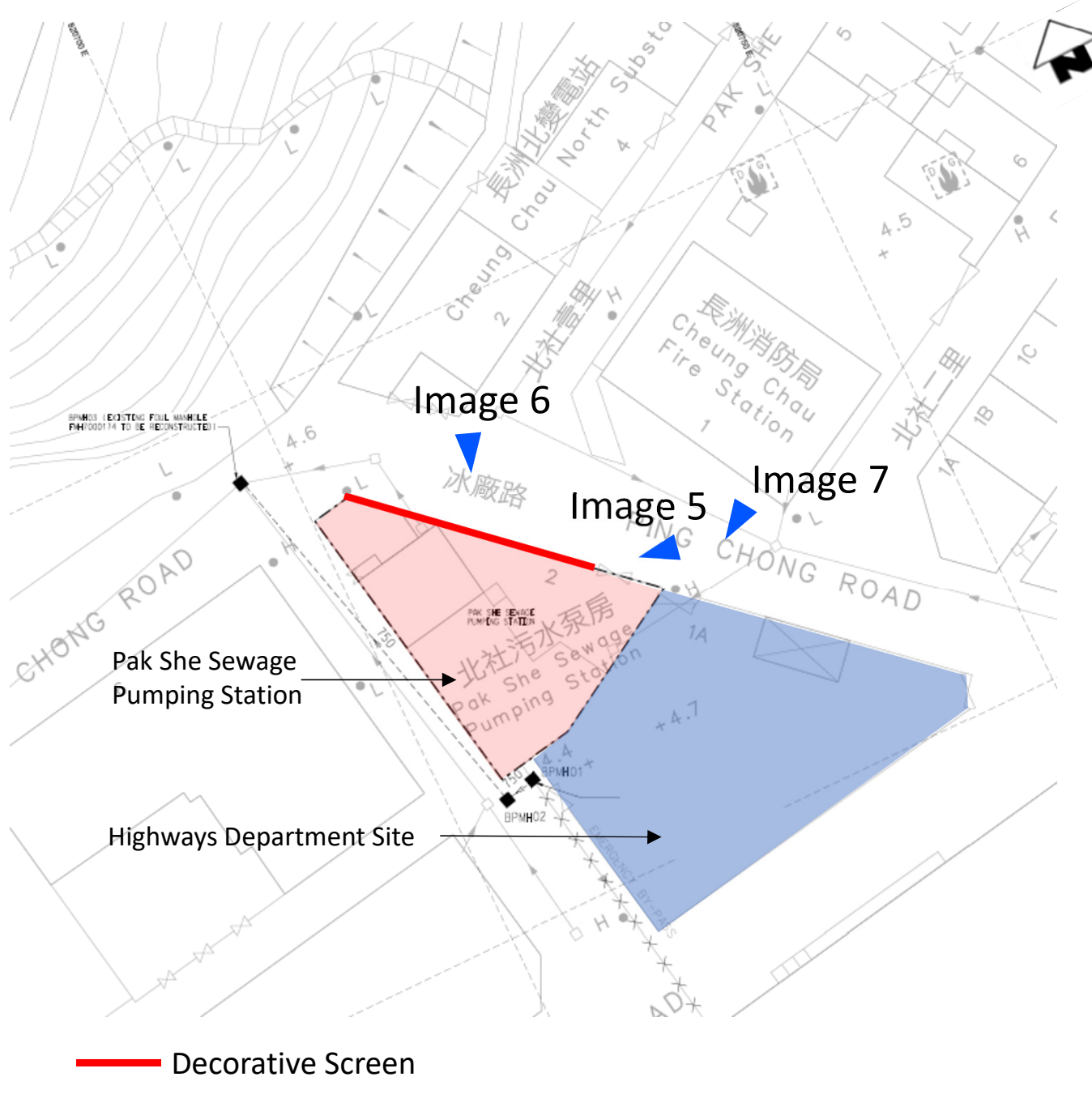
Drawing extracted from EIA Report
(Register No.: AEIAR-181/2013)

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Appendix C – Demarcation Plans and Reference Images of Cheung Chau Sewage Treatment Works and Pak She Sewage Pumping Station

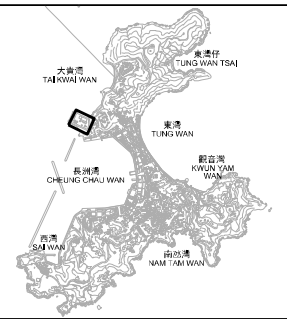


— Decorative Screen
 — Screen Hoarding



Appendix D –Extracts of Tree Survey Report

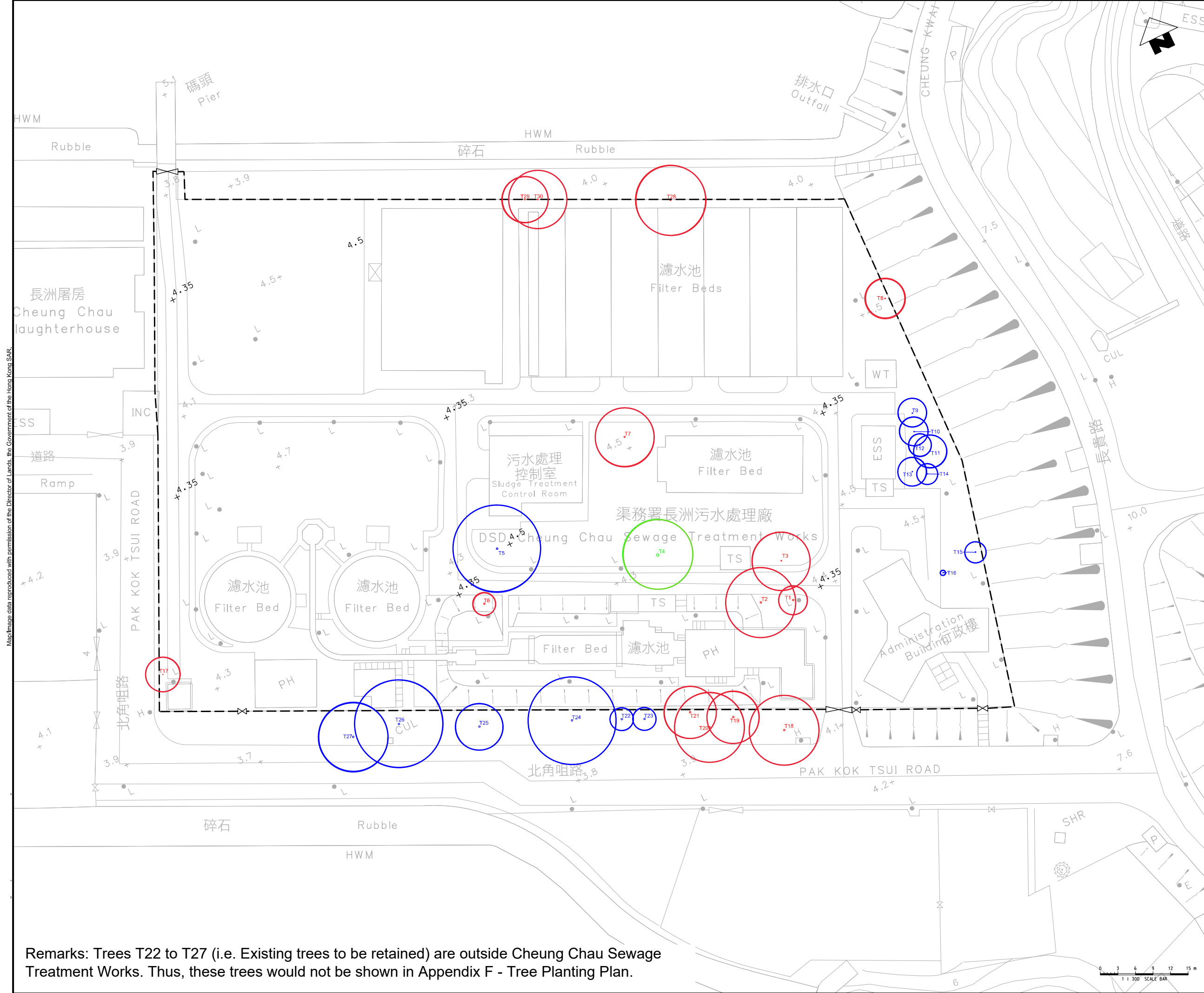
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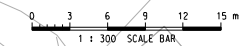
KEY PLAN SCALE : N.T.S.

LEGEND:

- PROJECT BOUNDARY
- EXISTING TREES TO BE TRANSPLANTED
- EXISTING TREES TO BE RETAINED
- EXISTING TREES TO BE FELLED



Remarks: Trees T22 to T27 (i.e. Existing trees to be retained) are outside Cheung Chau Sewage Treatment Works. Thus, these trees would not be shown in Appendix F - Tree Planting Plan.



TREE SURVEY PLAN

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Tree No.	Tree Species		Tree Size Measurements			Amenity value	Health Condition	Structural Condition	Form	Recommendation	Concerned department	Remarks
	Scientific Name	Chinses Name	Height	DBH	Spread	High	Good	Good	Good	Retain		
			(m)	(mm)	(m)	Medium	Fair	Fair	Fair	Fell		
						Low	Poor	Poor	Poor	Transplant		
T1	<i>Ficus elastica</i>	印度榕	7.0	300.0	5.0	Low	Fair	Poor	Poor	Fell	DSD	Codominant trunks; Cavity on trunk; bending trunk; wound; exposed roots; restricted roots
T2	<i>Ficus elastica</i>	印度榕	9.0	350.0	12.0	Medium	Fair	Fair	Fair	Fell	DSD	Codominant trunks; Crossed branches; Dead branches with fungal fruiting bodies; branch wound; Dead stub; Broken branches; ¹
T3	<i>Ficus elastica</i>	印度榕	11.0	720.0	10.0	Low	Fair	Fair	Poor	Fell	DSD	Codominant trunks; Crossed branches; Broken branches; Epicormics; wounds; exposed roots; restricted roots
T4	<i>Ficus microcarpa</i>	細葉榕	10.0	400.0	12.0	Medium*	Fair	Fair	Fair	Transplant	DSD	Codominant trunks; Crossed branches; Broken branches; wounds; exposed roots; restricted roots
T5	<i>Ficus microcarpa</i>	細葉榕	12.0	2000.0	15.0	Medium	Fair	Fair	Fair	Retain	DSD	Multi-trunk; wounds; Epicormics; dieback; broken branches; cross branches; dead stub; exposed roots; restricted roots
T6	<i>Pinus massaniana</i>	馬尾松	11.0	300.0	6.0	Low	Fair	Fair	Poor	Fell	DSD	Unbalance brown; Dead branches; Hanger
T7	<i>Ficus microcarpa</i>	細葉榕	12.0	800.0	13.0	Medium	Fair	Fair	Fair	Fell	DSD	Wounds; cut branches; broken branches; exposed roots; restricted roots; cut root; ²
T8	<i>Morus alba</i>	白桑	7.0	130.0	7.0	Low	Fair	Poor	Poor	Fell	DSD	Bending trunk; Codominant trunks; Included bark; wound; Epicormics; Cavity on trunk; Restricted roots
T9	<i>Psidium guajava</i>	番石榴	10.0	170.0	8.0	Low	Fair	Poor	Poor	Retain	DSD	Codominant trunks; blending trunks; wound; wound; Epicormics; broken trunk; cross branches; dead branches
T10	<i>Psidium guajava</i>	番石榴	11.0	160.0	9.0	Low	Fair	Poor	Poor	Retain	DSD	Codominant trunks; Included bark; wound; Bending trunk; wound; bending branches; cross branches; broken branches; dead branch;

Note:

*Important tree of Cheung Chau Sewage Treatment Works (CCSTW)

Remark:

1. T2: Unrecoverable tree damage during excavation for pipeworks; not suitable for transplanting
2. T7: Difficult to form rootball due to obstruction of pipeworks; not suitable for transplanting

 Trees proposed to be retained

 Tree proposed to be transplanted

T11	<i>Psidium guajava</i>	番石榴	9.0	220.0	8.0	Low	Fair	Poor	Poor	Retain	DSD	Codominant trunks; bending trunk; wounds; epicormics; broken branches
T12	<i>Psidium guajava</i>	番石榴	8.0	220.0	8.0	Low	Fair	Fair	Poor	Retain	DSD	Wound; Codominant branches; dead branches; bending branch; exposed roots
T13	<i>Macaranga tanarius</i>	血桐	8.0	200.0	6.0	Low	Fair	Fair	Poor	Retain	DSD	Codominant trunks; Epicormics; bending trunk; wounds; restricted roots, exposed roots
T14	<i>Carica papaya</i>	番木瓜	5.0	200.0	2.0	Low	Fair	Poor	Poor	Retain	DSD	MISSING; Leaning, Codominant branches, Cavity on trunk, broken branch, dieback, exposed roots, restricted root
T15	<i>Litchi chinensis</i>	荔枝	7.0	160.0	6.0	Medium	Fair	Fair	Fair	Retain	DSD	Codominant trunks, included bark, epicormics
T16	<i>Carica papaya</i>	番木瓜	3.5	160.0	1.0	Low	Fair	Poor	Poor	Retain	DSD	Codominant trunks, broken branch, epicormics, restricted roots, topping trunks
T17	<i>Macaranga tanarius</i>	血桐	2.0	160.0	3.0	Low	Poor	Poor	Poor	Fell	DSD	Codominant trunks, dead trunk, exposed dead wood, abnormal bark crack, broken branch with frangal fruiting bodies, bending
T18	<i>Hibiscus tiliaceus</i>	黄槿	4.0	50.0	4.0	Low	Fair	Poor	Poor	Fell	LCS	Fell already, multi-trunk, cross branches, wounds
T19	<i>Hibiscus tiliaceus</i>	黄槿	8.0	250.0	10.0	Low	Fair	Poor	Poor	Fell	LCS	multi-trunk, cross branches, wounds
T20	<i>Hibiscus tiliaceus</i>	黄槿	12.0	670.0	12.0	Low	Fair	Poor	Poor	Fell	LCS	multi-trunk, epicormics, cut branches, broken branches, exposed root, restricted roots

 Trees proposed to be retained

T21	<i>Acacia confusa</i>	台灣相思	10.0	400.0	9.0	Low	Fair	Poor	Poor	Fell	LCS	Codominant trunks, wound, broken branches, cross branches
T22	<i>Hibiscus tiliaceus</i>	黃槿	6.0	150.0	8.0	Low	Fair	Fair	Poor	Retain	LCS	-
T23	<i>Hibiscus tiliaceus</i>	黃槿	6.0	150.0	8.0	Low	Fair	Fair	Poor	Retain	LCS	-
T24	<i>Hibiscus tiliaceus</i>	黃槿	10.0	350.0	13.0	Low	Fair	Poor	Poor	Retain	LCS	Multi-trunk, decay on trunk, broken branches, bending branch, cut branches
T25	<i>Hibiscus tiliaceus</i>	黃槿	9.0	480.0	8.0	Low	Fair	Poor	Poor	Retain	LCS	Multi-trunk, epicomics, broken trunks
T26	<i>Hibiscus tiliaceus</i>	黃槿	10.0	800.0	16.0	Low	Fair	Poor	Poor	Retain	LCS	Multi-trunk, epicomics, cross branches, cut branches
T27	<i>Hibiscus tiliaceus</i>	黃槿	10.0	650.0	12.0	Low	Fair	Poor	Poor	Retain	LCS	Multi-trunk, epicomics, trunk failure, cross branches, wound, decay on branches
T28	<i>Casuarina equisetifolia</i>	木麻黃	10.0	400.0	10.0	Low	Fair	Poor	Poor	Fell	AFC	Codominant trunk, broken branches, restricted root
T29	<i>Ficus subpisocarpa</i>	筆管榕	3.0	200.0	8.0	Low	Poor	Poor	Poor	Fell	AFC	Multi-trunk, dieback, exposed root, restricted root, root griding with T30
T30	<i>Casuarina equisetifolia</i>	木麻黃	12.0	450.0	10.0	Medium	Fair	Fair	Fair	Fell	AFC	wounds, restricted roots, trunk griding with T29

 Trees proposed to be retained

**Appendix E – Extracts of Trees and Landscape Management
from the Accepted Environmental Management Plan**



- Transport Planning & Design Manual
- Land (Miscellaneous Provisions) Ordinance (Cap 28)
- Public Health and Municipal Services Ordinance (Cap 132)
- Summary Offences Ordinance (Cap 123); and
- Forest and Countryside Ordinance (Cap 96)

Other reference include:

- EIA Report and its EM&A Manual (AEIAR-181/2013)
- Feasibility Study for South East Kowloon Development (SEKDFS), Nov 1998
- Preliminary Outline Development Plan (PODP) for Kai Tak Development; and • Recommended Outline Development Plan for Kai Tak Development.
- General Specification
- Particular Specification

14.3 Proposed Mitigation Strategy

Role of Independent Tree Specialist (ITS) is listed as follows:

- Carry out the supervision work for tree transplanting and tree felling;
- Carry out regular monthly inspection, certify and submit the inspection report;
- Submit the incident report if required;
- Attend the meeting as required by the Supervisor; and
- Provide advance to BK for the tree preservation and protection on site.

The regular tree transplantation, inspection and felling record will be submitted to the Project Manager when necessary.

14.3.1 Tree Preservation and Protection

Specific details of proposed mitigation measures and operating controls with respect to landscape preservation and visual impact are provided below:

- Provide identification marking or labelling system to label trees to be retained prior to the commencement of works;
- Reinstate or replace where necessary the identification labelling or marking systems for the trees to be retained and remove these identification labelling or marking systems from the site upon completion of the Contract;
- Provide fencing to confine tree protection zone for trees to be retained;
- Submit a detailed working method statement on protection of trees, for Project Manager/Supervisor's approval, prior to undertaking any works adjacent to all retained trees;
- Submit a detailed Tree Risk Assessment carried out by Certified Arborist;
- No nails or other fixings will be driven into the trees, including the exposed tree roots;
- No trees will be used as anchorages for ropes or chains used in guying or pulling or for equipment used for removing stumps, roots or other trees, or for any other purposes;
- No soil, materials, equipment or machinery will be stockpiled or stored within the tree protection zones;
- Petrol, oil, bitumen, creosote, cement and other materials likely to be injurious to the trees will be kept away from the tree protection zones, and any accidental spills of these materials will be cleaned up immediately;



- Excessive water will be drained away from the tree protection zones to prevent damage to tree roots by asphyxiation;
- No passage or parking of vehicles and no operation of equipment or machinery will take place within the tree protection zones unless otherwise agreed by the Project Manager/Supervisor;
- Any equipment, in particular delivery vehicles, overhead cranes, mechanical excavations, drilling rigs and piling rigs, will be carefully operated so as not to cause striking of the trunks, branches, foliage or root collars of the trees;
- The trees to be felled that are adjacent to, or that lie within a continuous canopy of, the preserved trees, will be carefully removed, and if necessary in sections but not using bulldozers in any circumstances, so as not to cause damage to the preserved trees such as scraping bark off trunks or breaking branches of trees.

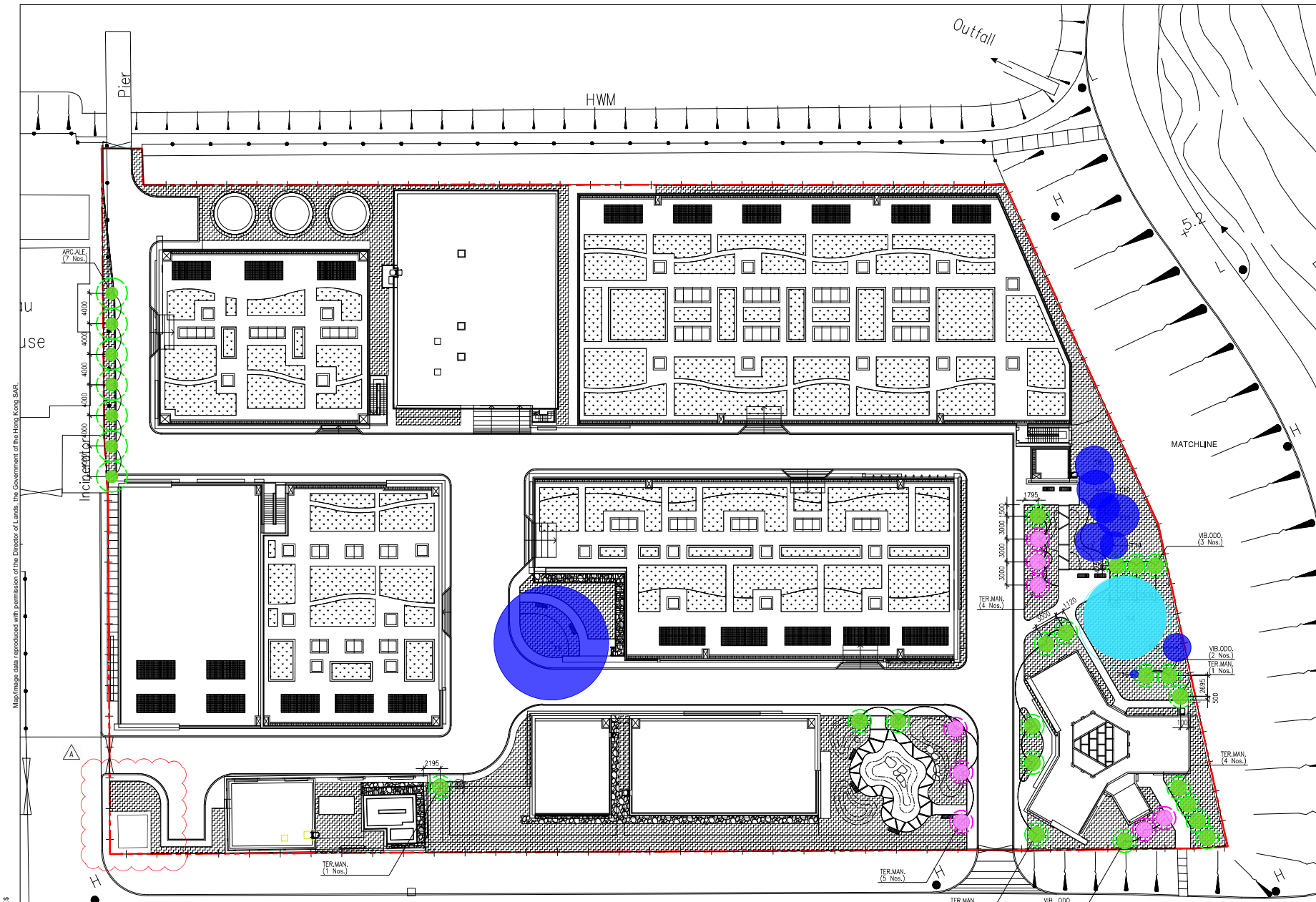
The above are only some of the measures for tree preservation and protection. For details, BK will also make reference to the PS Section 26 for carrying out tree preservation and protection works. For landscape softworks and establishment works, BK will also make reference to the PS Section 3.

14.3.2 Mitigation of Landscape and Visual Impacts

For the mitigation of other landscape and visual impacts to nearby sensitive receivers along the construction works, the following measures should be implemented:

- The type, location and positioning of site lighting shall be carefully considered to prevent glare and nuisance to residents. Night-time lighting glare shall be controlled;
- Transparent hoarding may be used where there is interface with the existing public areas. Decorative screen hoarding may be used to screen off undesirable views of construction sites;
- Reuse existing topsoil for new planting areas within the project can minimize the view of landscape change.

Appendix F – Tree Planting Plan



DO NOT SCALE DRAWINGS, VERIFY ALL DIMENSIONS ON SITE

LEGEND:

- BOUNDARY LINE
- [Hatched Box] PLANTING AREA (GROUND LEVEL)
- [Dotted Box] PLANTING AREA (ROOF LEVEL)
- [Cross-hatched Box] GRAVEL
- [Grid Box] SOLAR PANEL
- [Double Line Box] SKYLIGHT
- [Green Circle] COMPENSATORY TREE (27 Nos.)
- [Pink Circle] PROPOSED TREE (8 Nos.)
- [Blue Circle] RETAINED TREE (9 No. Within Site)
- [Light Blue Circle] TRANSPLANTED TREE (1 No. Within Site)

Rev.	Date	Description	By	CHKD	APPR
A	06/20	TENDER ADDENDUM NO.4			
-	03/20	ISSUE FOR TENDER	AL	PC	XY

CONTRACT

ATKINS

Member of the SNC-Lavalin Group

wsp

A.LEAD architects ltd.
 建築師事務所有限公司

Client:

渠務署
 Drainage Services Department

顧問工程管理部
 Consultants Management Division

Contract Title:

CONTRACT NO. DC/2019/07
 OUTLYING ISLANDS SEWERAGE STAGE 2 -
 UPGRADING OF CHEUNG CHAU SEWAGE
 TREATMENT AND DISPOSAL FACILITIES


Drawing Title:

**TREE PLANTING PLAN
 (ROOF/GROUND FLOOR)**


Scale:	1:250(A1)	Design:	AL	Drawn:	AL	Checked:	PC	Authorized:	XY
Original Size:	A1	Date:	MAR 20	Date:	MAR 20	Date:	MAR 20	Date:	MAR 20
Drawing Number:	4572-STW-CC-5811	Revision:	A						

ABBREVIATION	BOTANICAL NAME	CHINESE NAME	HEIGHT (mm)	SPREAD (mm)	SPACING (mm)	DBH(mm)	QUANTITY	REMARKS
ARC. ALE.	<i>Archontophoenix alexandrae</i>	假桫欏	4000 - 6000	1500	4000	75	7	
TER. MAN.	<i>Terminalia mantaly</i>	細葉欖仁	4000	2000	3000	75	20	
VIB. ODO.	<i>Viburnum odoratissimum</i>	珊瑚樹	2500	2000	3000	75	8	


TREE



Archontophoenix alexandrae
假桫欏
(Compensatory Tree)



Terminalia mantaly
細葉欖仁
(Compensatory Tree & Proposed Tree)



Viburnum odoratissimum
珊瑚樹
(Compensatory Tree & Proposed Tree)

User name: \$USERNAMENAMES Date: \$DATE\$ Time: \$TIME\$
 Filename: \$FILES\$
 Map/Image data reproduced with permission of the Director of Lands, the Government of the Hong Kong SAR.

**Appendix G – Requirements of Competent Person
in Particular Specification**

SECTION 26

PRESERVATION AND PROTECTION OF TREES

GENERAL

General requirements

26.02 The following is added after GS Clause 26.02(4):

- (5) Before commencement of works, the *Contractor* shall verify that all trees within the Site with a trunk circumference of 95 mm or greater at a height of 1300 mm above ground level have been marked, in a clear and visible location on its trunk, with a number in accordance with the Tree Treatment Plan Drawing No. SK-0040, Rev. B in Appendix 26.1. The *Contractor* shall clearly mark any trees of these dimensions not already so marked. The *Contractor* shall also clearly mark on each tree its status of retain, retain and prune, transplant or fell in accordance with the Existing Tree Schedule in Appendix 26.1 of this Particular Specification and GS Clause 26.04, and verify with the *Project Manager*.
- (6) The *Contractor* shall assign a competent member with arboriculture knowledge of the site supervisory staff to oversee and supervise tree works related to arboricultural operations and preservation of trees onsite and any compensatory planting both onsite and offsite including, but without limitation to, planting, transplanting, arboriculture work, and control of pests and diseases. The person assigned shall be working full-time onsite, but not necessarily working solely on tree works. The assigned person shall have attended relevant training in arboriculture organized by recognized local and/or overseas training institutes with cumulative training of at least 30 hours in the past 3 years, and have at least 2 years' practical experience in arboriculture. The *Contractor* shall submit to the *Project Manager* for acceptance within 30 days of the date of the *Client's* letter of acceptance of the Tender particulars of the assigned person (including his name, experience and position) together with a copy of the certificate(s) issued by the training institute(s) confirming "his/her satisfactory completion of the relevant courses" and supporting documents on the required experience.
- (7) The *Contractor* shall carry out an inspection of existing trees which are to be retained and transplanted and produce a Schedule of Work indicating the tree no., species, problem and suitable treatment. The Schedule of Work must be approved by the *Project Manager* prior to commencement of any tree work or transplanting or felling. Only suitable qualified personnel shall be employed to inspect and complete the Schedule of Works.

Appendix H – Method Statement of Tree Transplanting for T4

Build King Civil Engineering Limited

METHOD STATEMENT

Ref No: MS/0060

Revision:

1

Tree Transplanting for T4

Page No: 2

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

1.0 Objective

This method statement describes the working procedures, plants, equipment and the material to be deployed for the existing T4 road side tree transplanting, in order to vacate the working area for completion of works. The following also covers the corresponding risk assessment and enhancement measures.

2.0 Method / Sequence of Works

2.1 Preparation

- Safety precautions will be carried out to protect the public during the execution of works. All the working area / storage area will be fenced off with safety barriers, lights and notices.
- For the roads and pavements, the working area will be clearly defined by safety barrier with adequate warning lights and notices for separating the working area from the public and public protection.
- Detailed lifting plan is attached in **Appendix A**.
- Safety concern and Risk Assessment for the lifting operation to transplant T4 is attached in **Appendix B**.
- The information summary of T4 is extracted from the tree survey as attached in **Appendix D**.

2.2 Programme of Tree Transplanting

Item	Date
Tree Pruning	June to Aug 2022
Tree Transplant	Aug 2022 #
Establishment Period	12 months after transplant

Tree Transplant is postponed to October 2022.

Build King Civil Engineering Limited

METHOD STATEMENT

Tree Transplanting for T4

Ref No: MS/0060

Revision:

1

Page No: 3

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

2.3 Root Pruning

In preparation of the root-ball for transplanting, pruning of the roots shall be conducted in accordance with the following steps;

- a. The width of the root ball of transplant tree should be 6-8 times of the DBH. However, the root developing of transplanting trees are planted in area with restricted growth space (restricted by planter kerb). Moreover, the depth of the root ball should be around 1m and the actual depth of the root ball should be adjusted according to the actual root condition on site.
- b. General maintenance work (e.g. watering, pruning and removing weed growth around the tree base) shall be carried out regularly.
- c. Using 1/2 of the crown spread as radius, mark out a circle on the ground around the tree as a guide to indicate the diameter of the root-ball to be provided for the tree. A wider root-ball for the ease of handling increases the survival chance of the transplanted tree.
- d. The first stage shall involve cutting two parallel straight trenches on two sides of the proposed root ball. Using a sharp spade and drive the blade to full depth around 1/3 of the approximately 2 spits deep.
- e. After a period of no less than 1 month since the 1st root pruning, dig a trench on the outside of the marked circumference in the adjacent two opposing segments.
- f. After another period of no less than 1 month since the 2nd root pruning, dig a trench on the outside of the marked circumference, in the remaining two opposing segments.
- g. After a further period of not less than 1 month since the 3rd root pruning, prepare the root ball and cut the underside of the root ball, followed by uplifting and transplanting.

Build King Civil Engineering Limited

METHOD STATEMENT

Ref No: MS/0060

Revision:

1

Tree Transplanting for T4

Page No: 4

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

2.4 Crown Pruning

Crown pruning shall be done before transplant. The tree crown shall be pruned to reduce water consumption by the tree. In total no more than 25% of the crown shall be pruned and the crown shall be maintained in well balanced form. The following key procedures shall be observed:

- a. Safety precautions shall be taken to protect those engaged in the operations, and people and properties in the vicinity. Tree Climber, who obtains a relevant certificate, will be assigned for crown pruning works.
- b. Tool for the pruning works shall be sharp to ensure clean cuts.
- c. The central main leader of the tree shall not be pruned.
- d. Crown thinning should keep minimal and limited to damaged, dead or diseased branches.
- e. Included bark was found at the trunk of the tree. Included bark is when the bark has turned into itself, and creates a situation where the tree could give way or split down the middle, causing problems with the tree and a safety hazard for humans. Included bark or "ingrown" bark tissues often develop where two or more stems grow closely together causing weak, under-supported branch angles. Bark often grows around the branching stem attachment and into the union between the two stems. Bark has no strong supportive fiber strength as wood does so the connection is much weaker than a union without included bark. It is recommended to remove weaker branches to prevent canopy collapse and further health deterioration.

The crown shall be pruned to 7 – 9 m in height and around 6-8m in spread in order to fit the limit width and length of the reception planter. Around 25% of tree crown will be trimmed off for facilitating the operation of transplanting.

Build King Civil Engineering Limited

METHOD STATEMENT

Tree Transplanting for T4

Ref No: MS/0060

Revision:

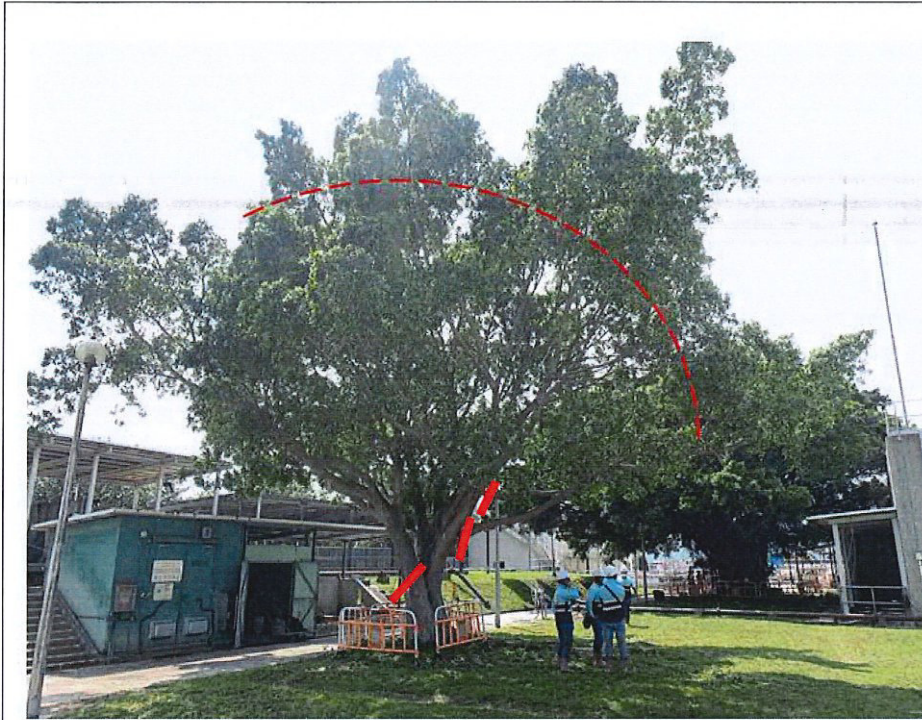
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Page No: 5

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities



The tree should be pruned to 7 – 9 m in height and around 6 – 8 m in spread in order to facilitate the transplanting process

2.5 Lifting of Tree

- a. Any loose soil around of the cut line for the root-ball shall be eased off.
- b. Use spade to cut off the rest of the roots from the root-ball that was not cut previously and then thrust the spade underneath the root-ball at an angle of 45 degrees to cut off more roots for the root-ball.
- c. Tilt the tree to one side to cut the root and place the rope, and the other side to do the same.
- d. When the tree is movable, slide a sheet of burlap or equivalent underneath the root-ball and then wrap up the entire root-ball to retain the soil and prevent moisture loss. Tie the wrapping firmly in place around the trunk. The root ball shall be protected by a metal net in later lifting.
- e. The trees should be lifted up by crawler crane and transplanted at the new location within the same day, following the instruction as described in **Appendix A**.
- g. The donor site will be backfilled with the existing soil.

Build King Civil Engineering Limited

METHOD STATEMENT

Ref No: MS/0060

Revision:

1

Tree Transplanting for T4

Page No: 8

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

especially for any sign and symptom of fungal infestation. Apply approved fungicide and pesticide only when necessary.

2.8 Design and Construction of Supporting Measures

a. Before lifting and transplanting

- Bamboo stakes, length as suit transplanting tree height
- Rubber / plastic protection of tree truck



Bamboo staking to support tree trunk for T4 to be temporarily stay on ground in stable manner.

b. After transplanting tree

- Tree to ground guying (Wire)
- Rubber / plastic protection of tree trunk

2.9 Photographic Record for the Entire Transplant Operation

The photographic records of the entire transplanting operation, including preparatory works, uplifting, and transportation should be taken.

Build King Civil Engineering Limited

METHOD STATEMENT

Ref No: MS/0060

Revision:

1

Tree Transplanting for T4

Page No: 9

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

3.0 Resources/Plant/Equipment

3.1 Plant/Equipment

- i Hand tools including trowel and spade
- ii Pruning tools & secateurs
- iii Bow Saw
- iv Chainsaw
- v Excavator
- vi Crawler crane

3.2 Labour Resources

- i Labour
- ii Foreman
- iii Excavator operator
- iv Crawler crane operator

4.0 Safety and Environmental Concern

4.1 Noise

- General works will be carried out during normal working hours (i.e. 08:00 to 18:00).
- The foreman will inspect all plants, which is likely to cause excessive noise levels to determine if it may be operated in a manner to minimize noise during the works.

4.2 Air Quality

- Effective water spray will be used as necessary during construction to ensure air quality.
- Proper covering to rubbish and debris shall be provided for temporary stockpile.
- All rubbish and debris during progress of the work will be cleared and removed in a weekly basis or as necessary.

4.3 Safety Concern

- Work procedure and safe working measures will be briefed to all relevant workers prior to commencement of work.

Build King Civil Engineering Limited

METHOD STATEMENT

Tree Transplanting for T4

Ref No: MS/0060

Revision:

1

Page No: 10

Date: 20 Apr 2022

DC/2019/07

Upgrading of Cheung Chau Sewage Treatment and Disposal Facilities

- Safety precautions will be carried out to protect the public from injury or death during the execution of works. All the works area or storage area shall be fenced off with safety barriers, lights, notices.
- For the roads and pavements, the working area shall be clearly defined by safety barrier with adequate warning lights and notices for separating the working area from the public.
- All workers shall be fully trained to use all Personal Protective Equipment, such as safety helmet, eye goggles, ear plugs, safety shoes/boots and reflective vest/belts.
- Please refer to **Appendix B** for the safety concern and risk assessment for the lifting operation.

4.4 Safety Training

- Safety Induction Training Course

Workers shall attend the Induction Training Course conducted by the Safety Officer before the commencement of works. The Safety Officer shall explain the safety requirements and nature of the work to all workers.

- General Site Safety

All workers must go through a briefing conducted by the Safety Officer before commencement of any work.

- Special Skill Training

All workers shall be fully trained to use all Personal Protective Equipment, such as safety helmet, eye goggles, ear plugs, safety shoes/boots, safety harness and lifelines, and reflective vest/belts. All workers on site shall obtain "Green Card".

The assigned worker(s) for using chainsaw in pruning works must have passed the Vocational Assessment in Safety Use and Maintenance of Chainsaw Operation and Basic Tree Pruning for the Arboriculture Industry organized by the Vocational Training Council ("VTC") or possesses equivalent qualification from a recognized local/overseas training institute or professional body.

Appendices

Appendix A – Lifting Plan for T4 Transplanting

Appendix B – Risk Assessment

Appendix C – ITP

Appendix D – Information Summary of T4

Appendix I – Proposed Architectural and Landscape Design

- To give a consistency and cohesion, considering that it can be seen by a lot of people.
- To give an aesthetic pleasing look in harmony with the environment and treat all the buildings as part of the landscape
- To give the public a better image of Sewage Treatment Buildings.



Extracted from Stage 2 submission to VCAB

REV	FIRST ISSUE	YFC	03/19	DSJS	XY
	DESCRIPTION	EY	DATE	CHKD	AUTH
<p>渠務署 Drainage Services Department</p>					
<p>顧問工程管理部 Consultants Management Division</p>					
<p>ATKINS 阿特金斯顧問有限公司 Atkins China Ltd</p>					
<p>SUPPORTED BY</p>					
<p>PROJECT</p> <p>Upgrading of Cheung Chau & Tai O Sewage Collection, Treatment & Disposal Facilities Design & Construction</p>					
<p>AGREEMENT NO. CE 15 / 2010 (DS)</p>					
<p>TITLE</p> <p>ARCHITECTURAL DESIGN CONCEPT</p>					
<p>STATUS</p> <p>DESIGN</p>					
SCALE AT A3	DESIGN	DRAWN	CHECKED	AUTHORISED	
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DRAWING NO. FIGURE 4.1					REVISION
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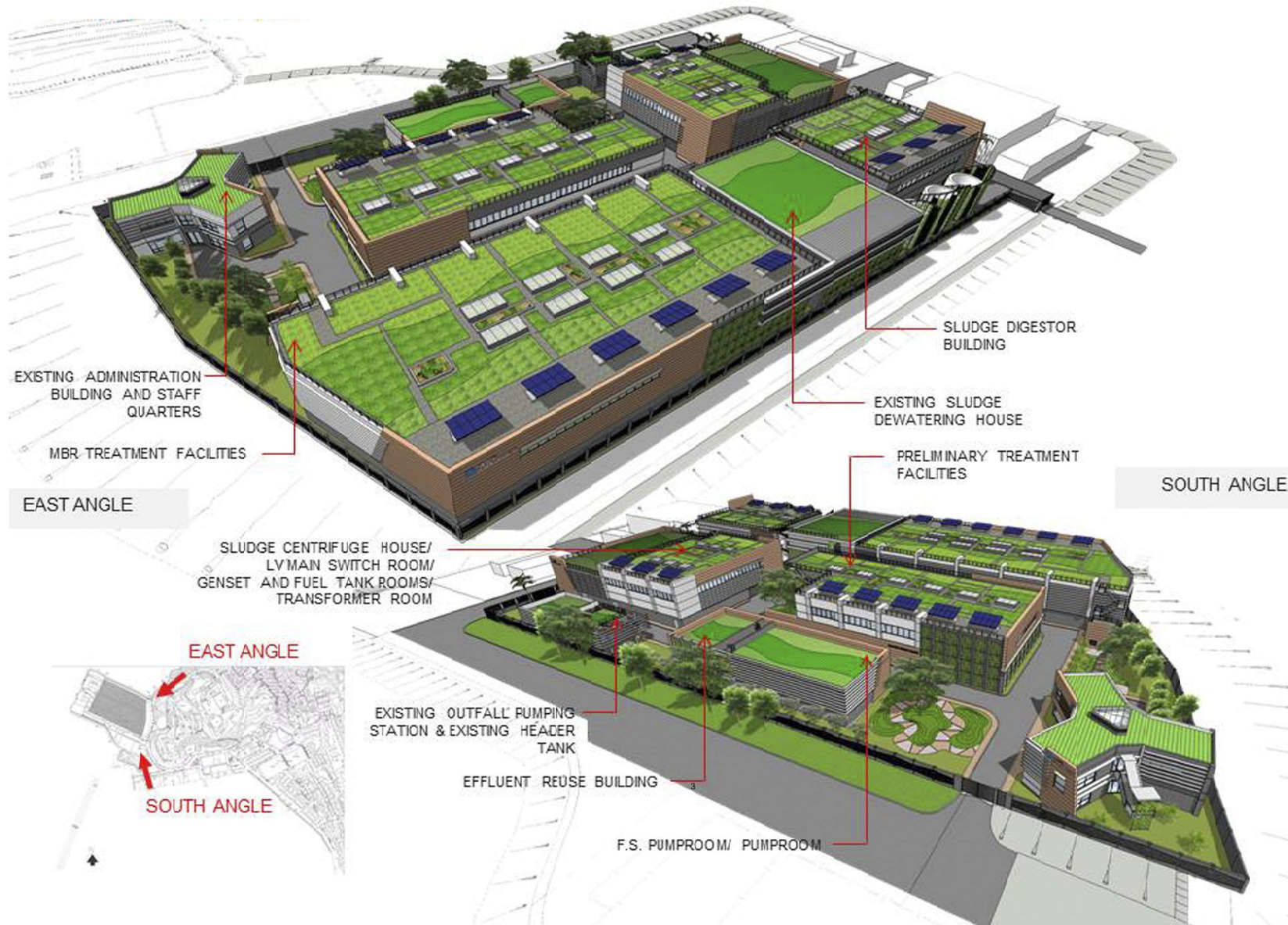
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TITLE
MASTER LAYOUT PLAN (2)

STATUS
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DRAWING NO.	REVISION
FIGURE 4.4	-



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TITLE
AERIAL VIEWS (1)

STATUS
DESIGN

SCALE AT A3	DESIGN	DRAWN	CHECKED	AUTHORISED
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DRAWING NO.	REVISION
FIGURE 5.1	-



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TITLE
AERIAL VIEWS (2)

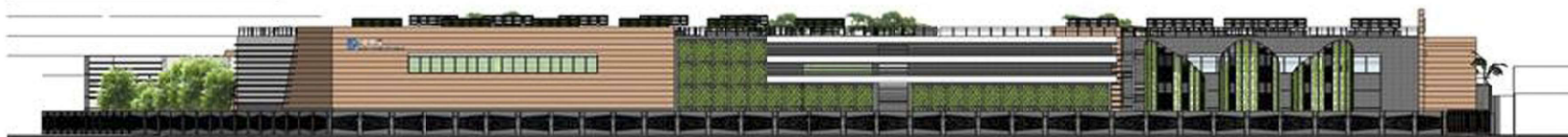
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DRAWING NO. **FIGURE 5.2** REVISION -



NORTH-WEST ELEVATION ①



NORTH-EAST ELEVATION ②



SOUTH-EAST ELEVATION ③



SOUTH-WEST ELEVATION ④

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TITLE
FACADE ELEVATION

STATUS
DESIGN

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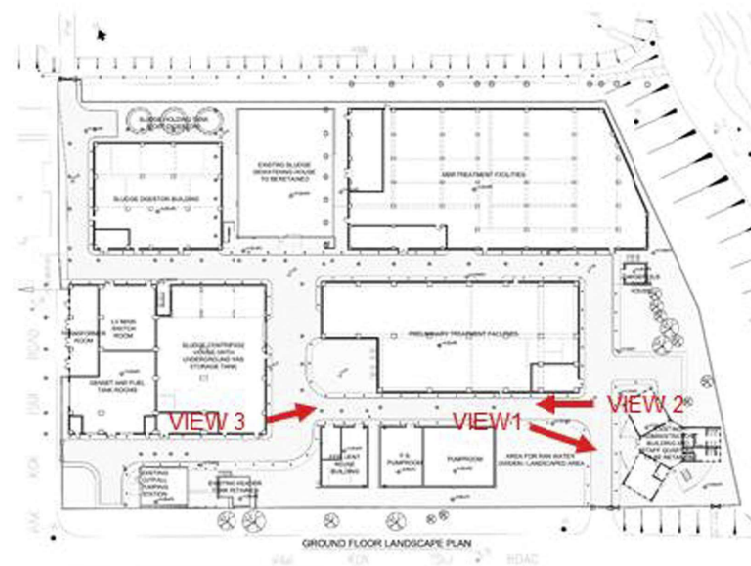
DRAWING NO. **FIGURE 6.1** REVISION -



VIEW 1



VIEW 2



VIEW 3

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PROJECT Upgrading of Cheung Chau & Tai O Sewage Collection, Treatment & Disposal Facilities Design & Construction					
AGREEMENT NO. CE 15 / 2010 (DS)					
TITLE PERSPECTIVE VIEW (1)					
STATUS DESIGN					
SCALE AT A3	DESIGN	DRAWN	CHECKED	AUTHORISED	
	CZ	HY	KB	XY	
1 : 500 (A3)	DATE	DATE	DATE	DATE	DATE
DRAWING NO.	FIGURE 8.1				REVISION
					-



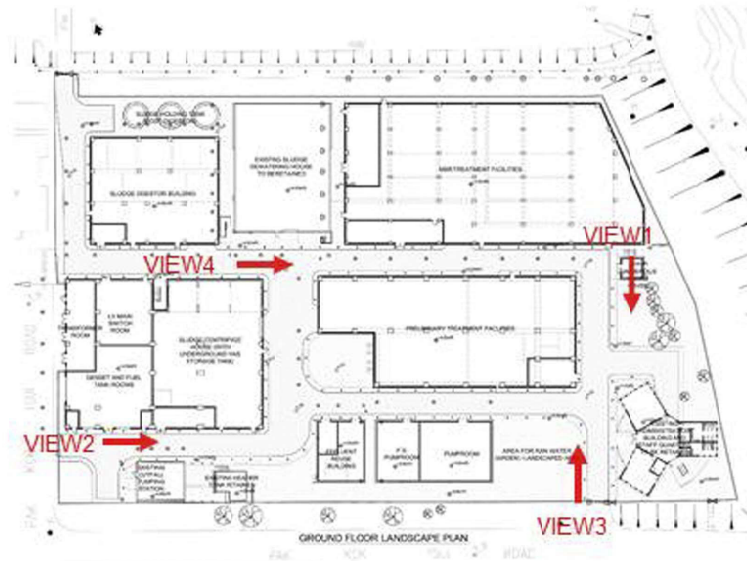
VIEW 1



VIEW 2



VIEW 4



VIEW 3

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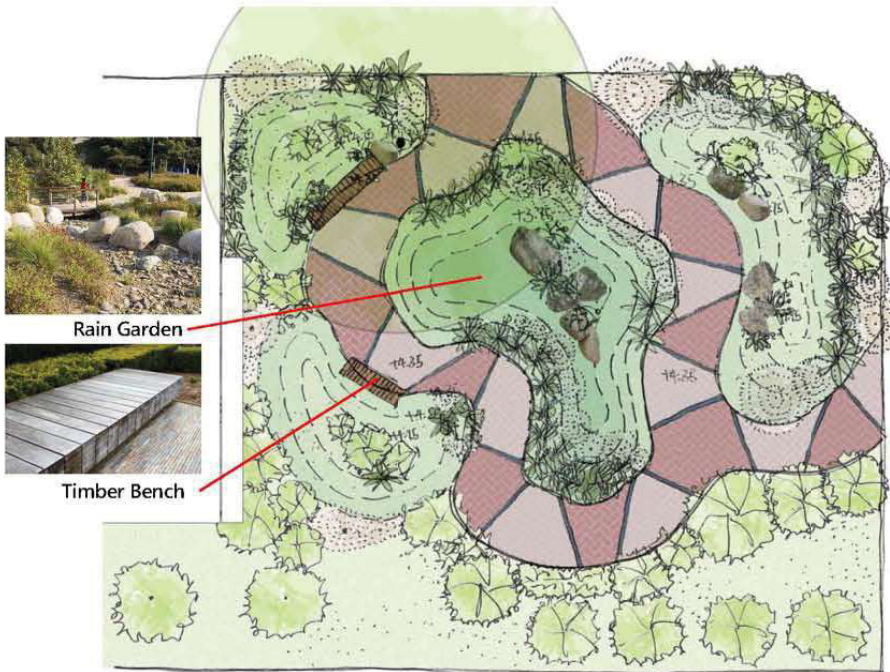
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TITLE
PERSPECTIVE VIEW (2)

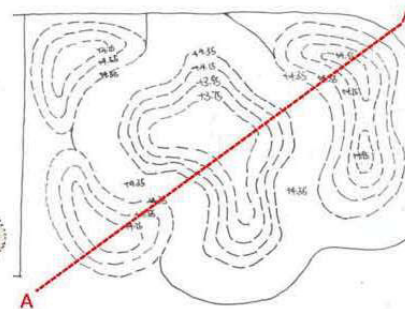
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1 : 500 (A3)	DATE	DATE	DATE	DATE	DATE

DRAWING NO.	REVISION
FIGURE 8.2	-



Rain Garden A

1:100 @ A3



Level Plan



Concept

The design of rain garden aims to provide a sitting open space for staffs of the facility and creates harmonious integration with the surrounding. The planting selection for this garden are low maintenance and flowering in different season. Multi-layered planting with variety in terms of form, height, color and texture is proposed in order to enrich the amenity value of landscape open space. Planting in the basin consist of plant species that can tolerate wet condition in long-period of time so as to survive in different moisture condition.

The paving design is proposed with non-slippery and low reflective glare materials arranged in a irregular pattern and rhythm to define spaces in different form.

Paving Reference



Concept

The design unitizes the shadow of the existing tree to forms a comfortable sitting space and proposed multi-layered planting with different form, height, color and texture to creates a harmonious landscape open space which integrated with the surrounding.

The paving design are proposed with irregular pattern with grass grid lining to define space within the garden.



Rain Garden B

1:100 @ A3

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Design & Construction

AGREEMENT NO. CE 15/2010(DS)

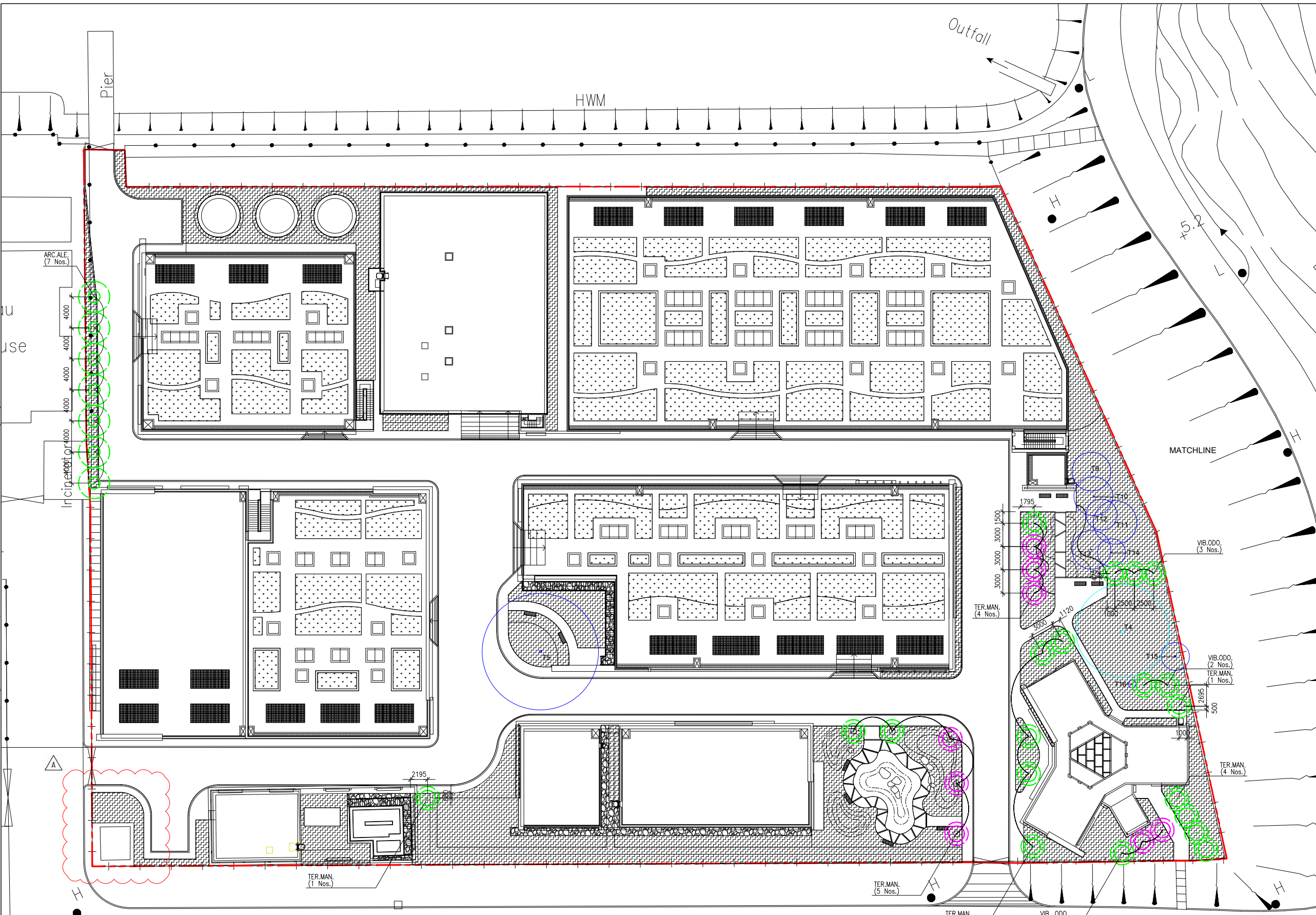
TITLE
RAIN GARDEN CONCEPT 2

STATUS
DESIGN

SCALE AT A1	DESIGN	DRAWN	CHECKED	AUTHORISED
DATE	DATE	DATE	DATE	DATE

DRAWING NO. **FIGURE 11.2** REVISION

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 Filename: \$FILES\$
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LEGEND:

- BOUNDARY LINE
- PLANTING AREA (GROUND LEVEL)
- PLANTING AREA (ROOF LEVEL)
- GRAVEL
- SOLAR PANEL
- SKYLIGHT
- COMPENSATORY TREE (27 Nos.)
TREE CROWN
TREE SPACING
- PROPOSED TREE (8 No.)
TREE CROWN
TREE SPACING
- RETAINED TREE (9 No. Within Site)
TREE CROWN
- TRANSPLANTED TREE (1 No. Within Site)
TREE CROWN

Rev.	Date	Description	By	CHK'd	App'd	Suitability
A	06/20	TENDER ADDENDUM NO.4				
-	03/20	ISSUE FOR TENDER	AL	PC	XY	

Drawing Status

CONTRACT

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Client:

渠務署
 Drainage Services Department

顧問工程管理部
 Consultants Management Division

Contract Title

CONTRACT NO. DC/2019/07
 OUTLYING ISLANDS SEWERAGE STAGE 2 -
 UPGRADING OF CHEUNG CHAU SEWERAGE
 TREATMENT AND DISPOSAL FACILITIES

Drawing Title

TREE PLANTING PLAN
 (ROOF/GROUND FLOOR)

Scale	1:250(A1)	Designed	AL	Drawn	AL	Checked	PC	Authorised	XY	
Original Size	A1	Date	MAR 20	Date	MAR 20	Date	MAR 20	Date	MAR 20	
Drawing Number	4572-STW-CC-5811								Revision	A

TREES									
ABBREVIATION	BOTANICAL NAME	CHINESE NAME	HEIGHT (mm)	SPREAD (mm)	SPACING (mm)	DBH(mm)	QUANTITY	REMARKS	
ARC. ALE.	<i>Archontophoenix alexandra</i>	假檳榔	4000 - 6000	1500	4000	75	7		
TER. MAN.	<i>Terminalia mantaly</i>	細葉欖仁	4000	2000	3000	75	20		
VIB. ODO.	<i>Viburnum odoratissimum</i>	珊瑚樹	2500	2000	3000	75	8		

TREE



Archontophoenix alexandra
 假檳榔
 (Compensatory Tree)



Terminalia mantaly
 細葉欖仁
 (Compensatory Tree & Proposed Tree)



Viburnum odoratissimum
 珊瑚樹
 (Compensatory Tree & Proposed Tree)

SHRUBS AND GROUNDCOVER

ABBREVIATION	BOTANICAL NAME	CHINESE NAME	HEIGHT (mm)	SPREAD (mm)	SPACING (mm)	AREA (m ²)	QUANTITY	REMARKS
ARA. DUR.	<i>Arachis duranensis</i>	蔓花生	50	50	50	575	265,580	△
CHL. COM.	<i>Chlorophytum comosum</i>	吊蘭	250	200	200	23	670	
COD. VAR.	<i>Codiaeum variegatum</i>	變葉木	500	250	250	53	980	△
CUP. HYS.	<i>Cuphea hyssopifolia</i>	雪茄花	250	250	250	91	1,830	
CYP. INV.	<i>Cyperus involucratus</i>	風車草	800	500	500	20	90	
HIB. ROS.	<i>Hibiscus rosa-sinensis</i>	大紅花	700	700	600	18	60	
IRI. DIC.	<i>Iris dichotoma</i>	野鳶尾	500	450	400	88	650	
NEP. AUR.	<i>Nephrolepis auriculata</i>	腎蕨	450	450	400	136	900	
OPH. JAB.	<i>Ophiopogon jaburan</i>	花葉沿階草	300	250	200	146	3,730	
PEN. ALO.	<i>Pennisetum alopecuroides</i>	狼尾草	600	400	400	19	150	
PHY. BAM.	<i>Phyllostachys bambusoides</i>	剛竹	3000	-	200	159	4,590	Root Barrier to be provided along the edge of planting area of this species Stem Colour: Green / Stem size: 25-30mm. One shoot for each of bag of soil
RHA. HUM.	<i>Rhapis humilis</i>	細葉棕竹	1200	250	250	242	4,470	
RUE. COE.	<i>Ruellia coerulea</i>	翠蘆莉	400	300	300	124	2,330	
TIB. SEM.	<i>Tibouchina semidecandra</i>	巴西野牡丹	600	400	400	180	1,310	

CLIMBER

BAU. COR.	<i>Bauhinia Corymbosa</i>	首冠藤	-	-	-	-	450	Evergreen. Each pre-grown to 1.2M tall
POD. RIC.	<i>Podranea ricasoliana</i>	紫雲藤	-	-	-	-	75	Evergreen. Each pre-grown to 1.2M tall
QUI. IND.	<i>Quisqualis indica</i>	使君子	-	-	-	-	490	Semi - Deciduous. Each pre-grown to 1.2M tall

GROUND COVER FOR ROOF PLANTING

ALT. DEN.	<i>Alternanthera dentata uby</i>	紅龍莧	150	150	150	232	11,900	
ASP. DEN.	<i>Asparagus densiflorus</i>	非洲天門冬	300	200	200	268	7,700	
TRA. PAL.	<i>Tradescantia pallida</i>	紫鴨跖草	150	250	200	842	24,300	
ZEP. CAN.	<i>Zephyranthes candida</i>	蔥蓮	200	150	150	325	16,700	

A	06/20	TENDER ADDENDUM NO.4			
-	03/20	ISSUE FOR TENDER	AL	PC	XY
Rev.	Date	Description	By	CHK'd	App'd
Drawing Status			Suitability		
CONTRACT			-		



Client: 渠務署
Drainage Services Department
顧問工程管理部
Consultants Management Division

Contract Title: CONTRACT NO. DC/2019/07
OUTLYING ISLANDS SEWERAGE STAGE 2 -
UPGRADING OF CHEUNG CHAU SEWAGE
TREATMENT AND DISPOSAL FACILITIES

Drawing Title: SHRUBS, CLIMBER AND GROUND COVER
PLANTING SCHEDULE

Scale	Designed	Drawn	Checked	Authorised
	AL	AL	PC	XY
Original Size	Date	Date	Date	Date
A1	MAR 20	MAR 20	MAR 20	MAR 20
Drawing Number:	4572-STW-CC-5813			Revision
				A

SHRUBS AND GROUNDCOVER



Arachis duranensis 蔓花生
Chlorophytum comosum 吊蘭
Codiaeum variegatum 變葉木
Cuphea hyssopifolia 雪茄花
Cyperus involucratus 風車草

CLIMBER



Bauhinia corymbosa 首冠藤
Podranea ricasoliana 紫雲藤
Quisqualis indica 使君子

ROOF GROUNDCOVER



Hibiscus rosa-sinensis 大紅花
Iris dichotoma 野鳶尾
Nephrolepis auriculata 腎蕨
Opiopogon jaburan 花葉沿階草
Pennisetum alopecuroides 狼尾草
Alternanthera dentata 'Ruby' 紅龍草
Asparagus densiflorus 非洲天門冬
Tradescantia pallida 紫萼蘭草
Zephyranthes candida 蔥蓮



Phyllostachys bambusoides 剛竹
Rhapis humilis 細葉棕竹
Ruellia coerulea 翠籬莉
Tibouchina semidecandra 巴西野牡丹

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status	CONTRACT	Suitability	-
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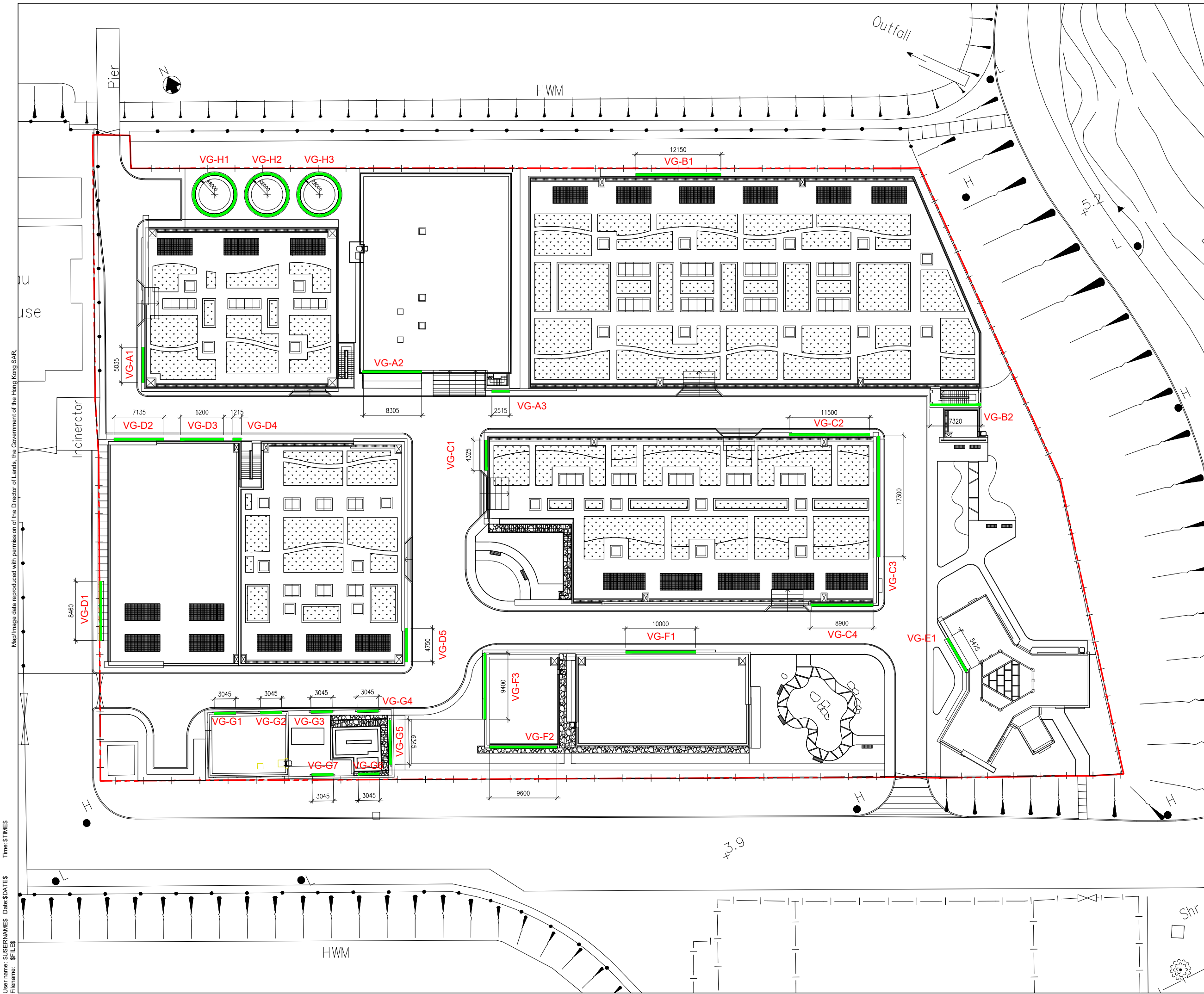
顧問工程管理部
 Consultants Management Division

Contract Title
 CONTRACT NO. DC/2019/07
 OUTLYING ISLANDS SEWERAGE STAGE 2 -
 UPGRADING OF CHEUNG CHAU SEWAGE
 TREATMENT AND DISPOSAL FACILITIES

Drawing Title
 SHRUBS, CLIMBER AND GROUND COVER
 PLANTING IMAGE

Scale	Designed AL	Drawn AL	Checked PC	Authorised XY
Original Size A1	Date MAR 20	Date MAR 20	Date MAR 20	Date MAR 20

Drawing Number	4572-STW-CC-5814	Revision	-
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DO NOT SCALE DRAWINGS, VERIFY ALL DIMENSIONS ON SITE

- LEGEND:
- BOUNDARY LINE
 - VERTICAL GREEN (CLIMBERS)
 - SOLAR PANEL
 - SKYLIGHT

User name: \$USERNAME\$ Date: \$DATE\$ Time: \$TIME\$
 Filename: \$FILES\$
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Rev.	Date	Description	By	Chk'd	App'd
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Contract Title

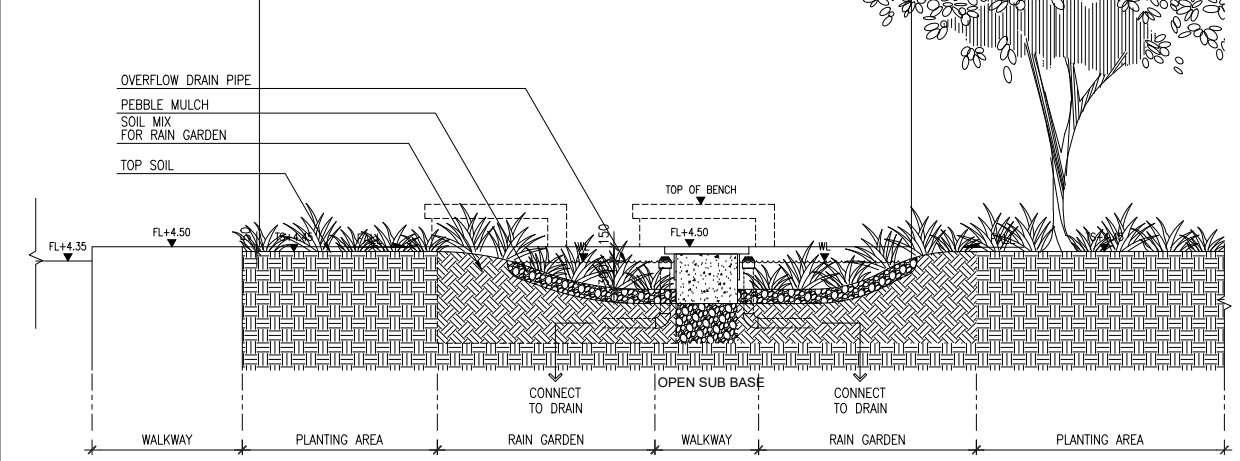
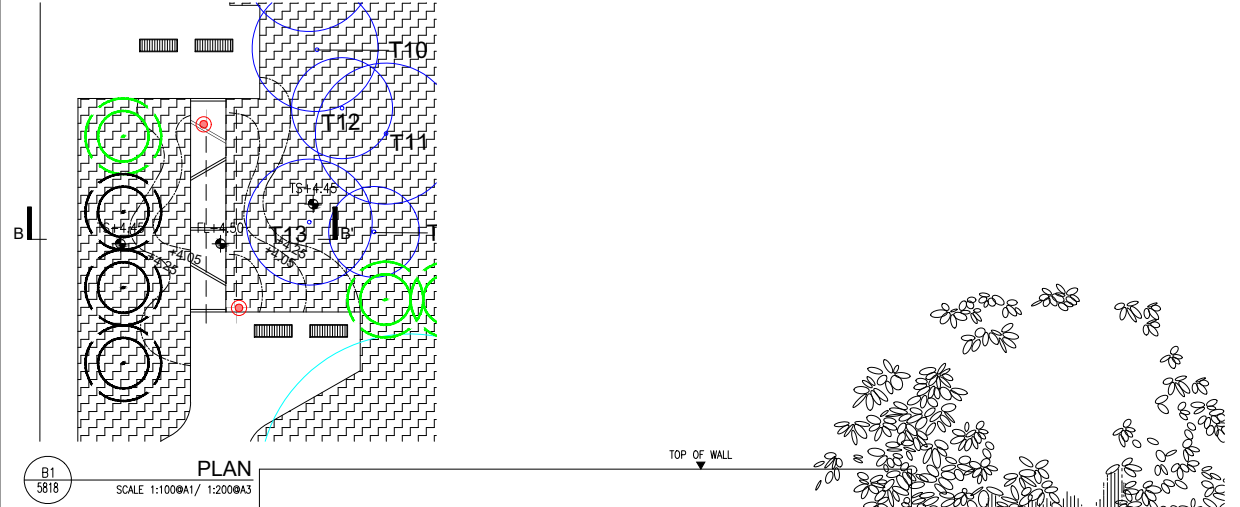
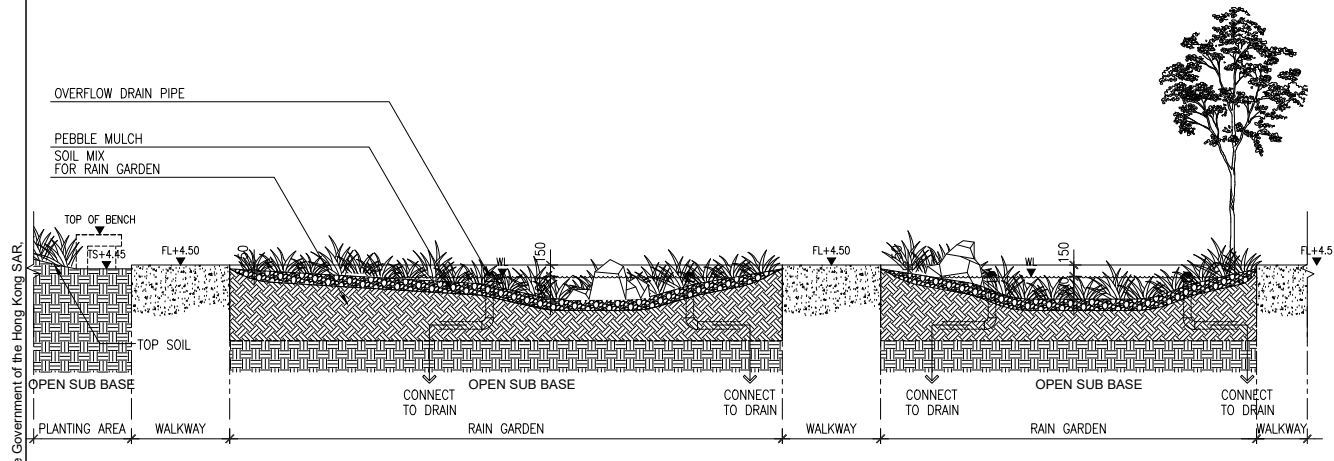
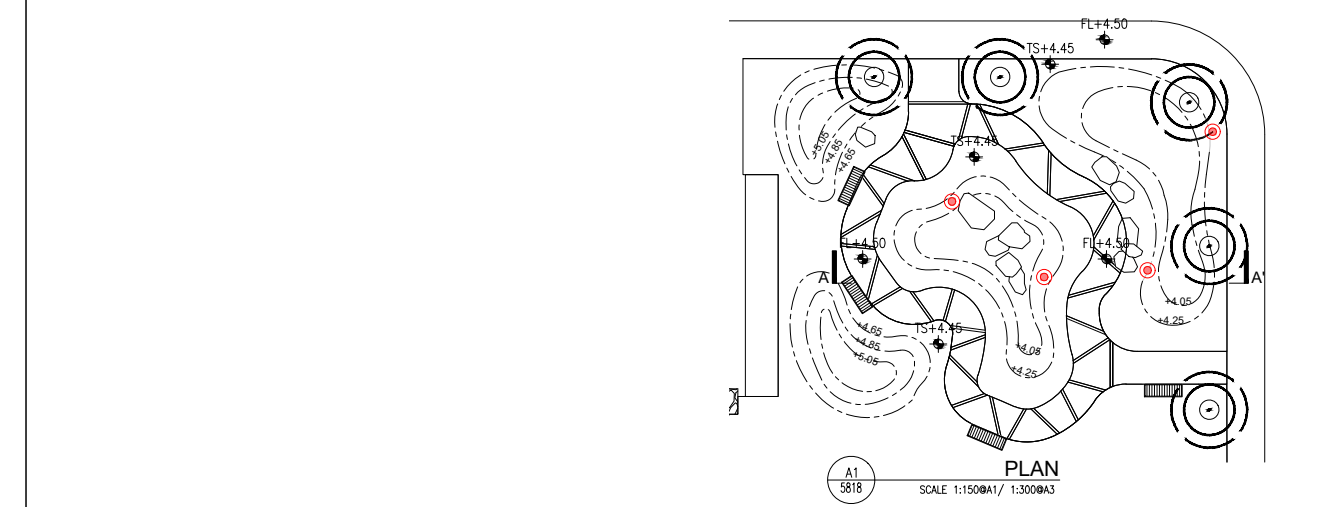
CONTRACT NO. DC/2019/07
 OUTLYING ISLANDS SEWERAGE STAGE 2 -
 UPGRADING OF CHEUNG CHAU SEWERAGE
 TREATMENT AND DISPOSAL FACILITIES

Drawing Title

VERTICAL GREEN LOCATION PLAN
 ROOF / GROUND FLOOR

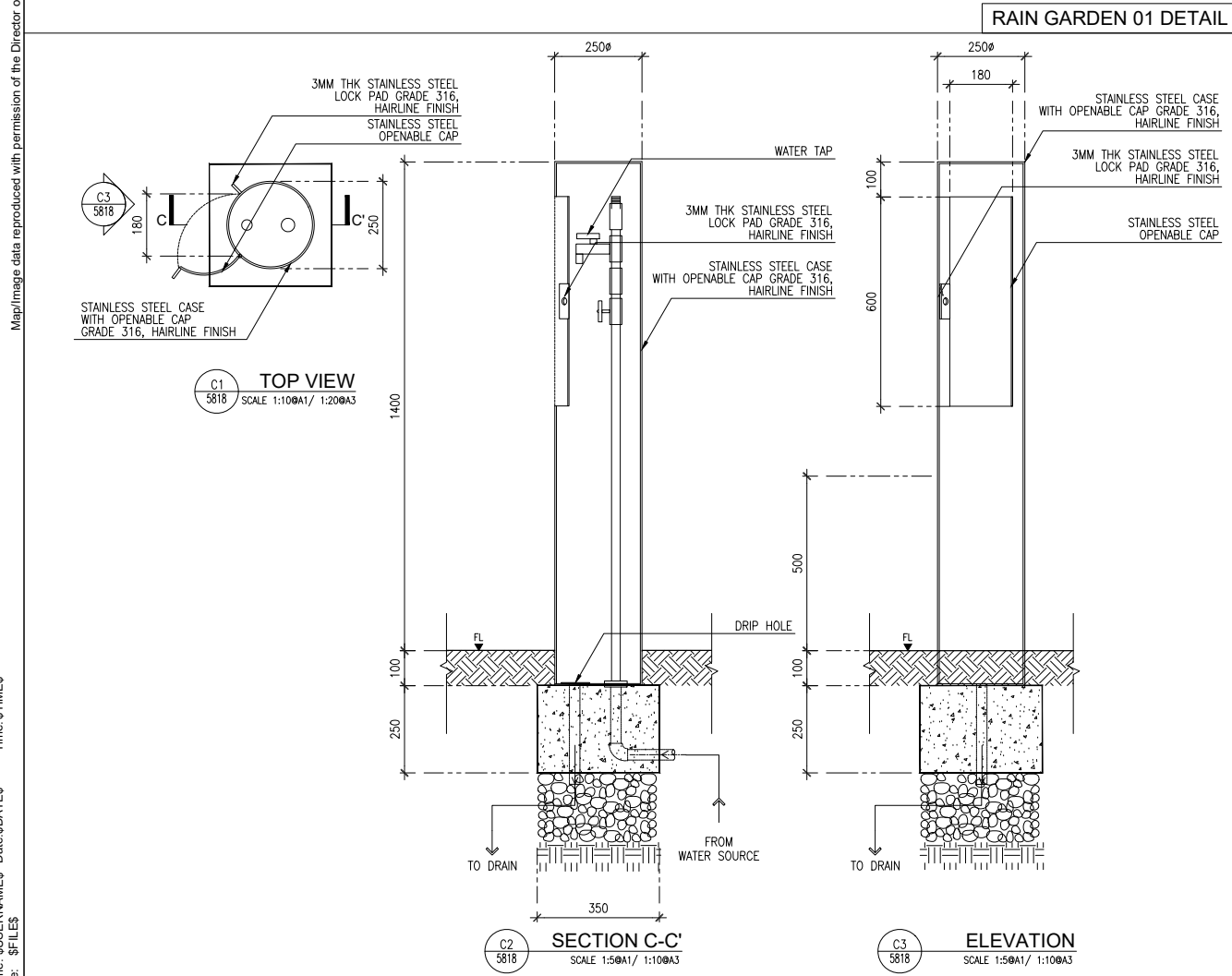
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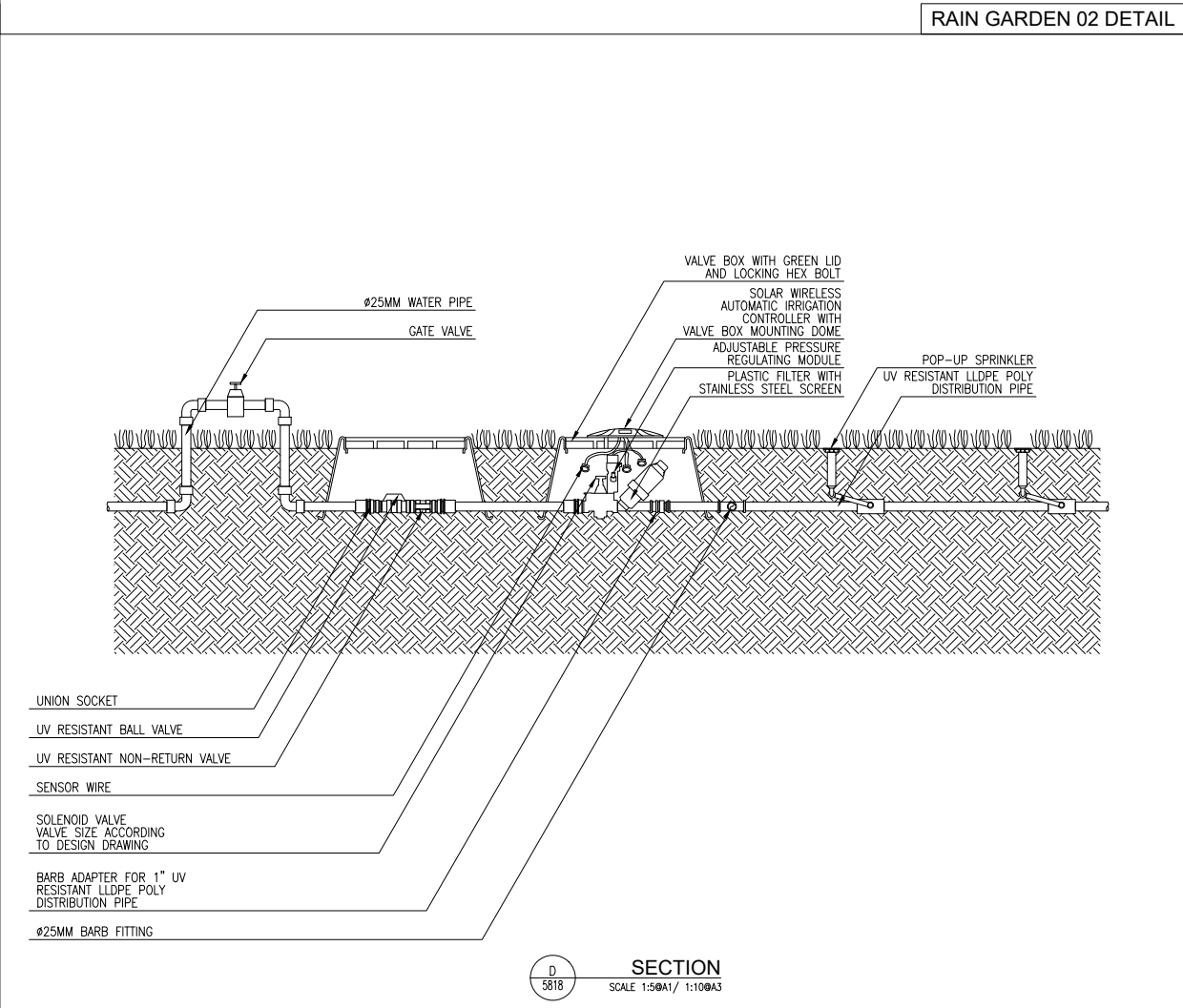


RAIN GARDEN 01 DETAIL

RAIN GARDEN 02 DETAIL



IRRIGATION POINT DETAIL (MANUAL TYPE)



IRRIGATION POINT DETAIL (AUTOMATIC TYPE)

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LEGEND:
○ OVERFLOW DRAIN

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User name: \$USERNAMEx\$ Date: \$DATE\$ Time: \$TIMES\$
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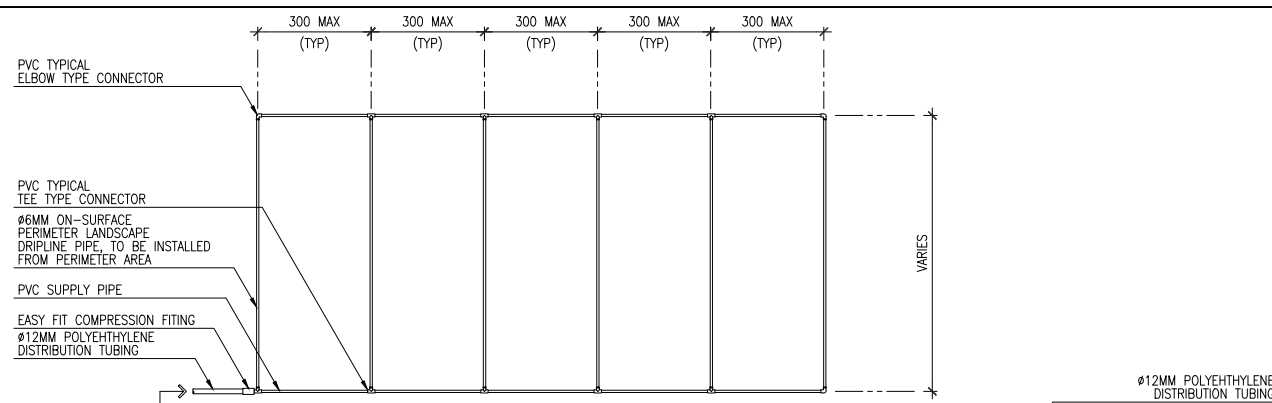
Contract Title:
**CONTRACT NO. DC/2019/07
OUTLYING ISLANDS SEWERAGE STAGE 2 -
UPGRADING OF CHEUNG CHAU SEWAGE
TREATMENT AND DISPOSAL FACILITIES**

Drawing Title:
DRAWING DETAILS (SHEET 1 OF 2)

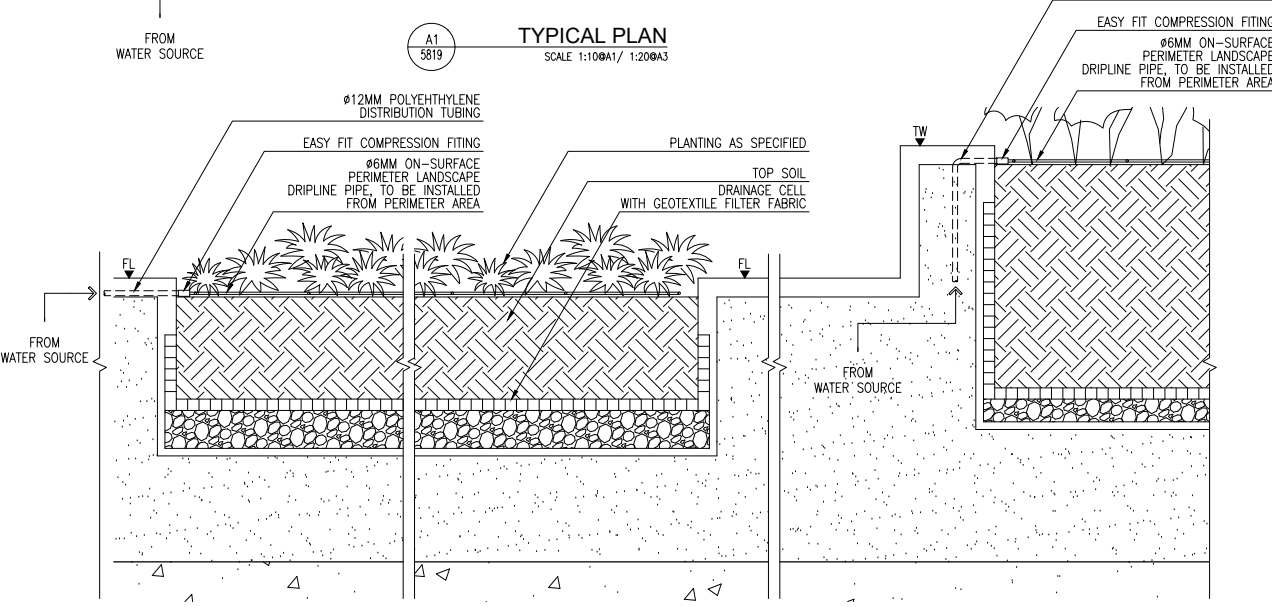
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AS SHOWN	AL	AL	PC	XY
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Drawing Number: **4572-STW-CC-5818**

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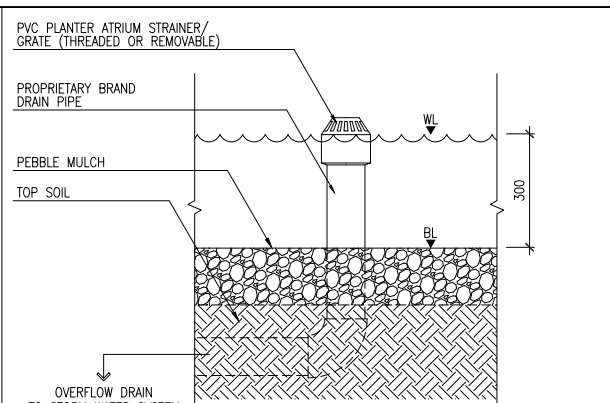


TYPICAL PLAN
SCALE 1:100A1/ 1:200A3

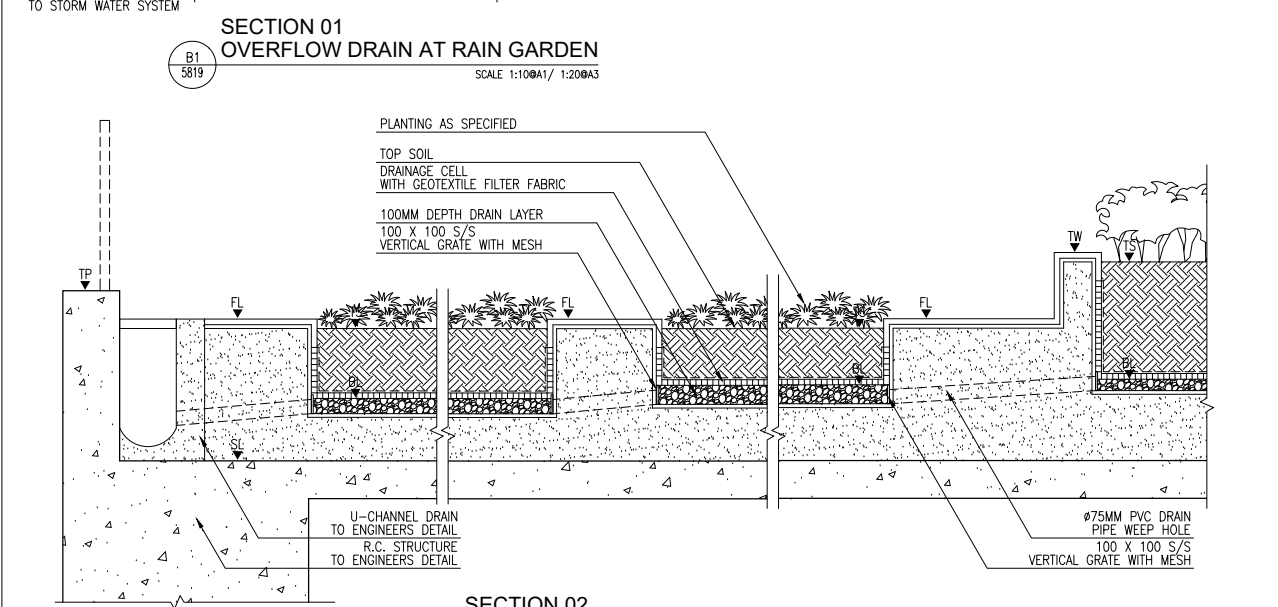


TYPICAL SECTION
SCALE 1:100A1/ 1:200A3

IRRIGATION POINT DETAIL (DRIP LINE SYSTEM)

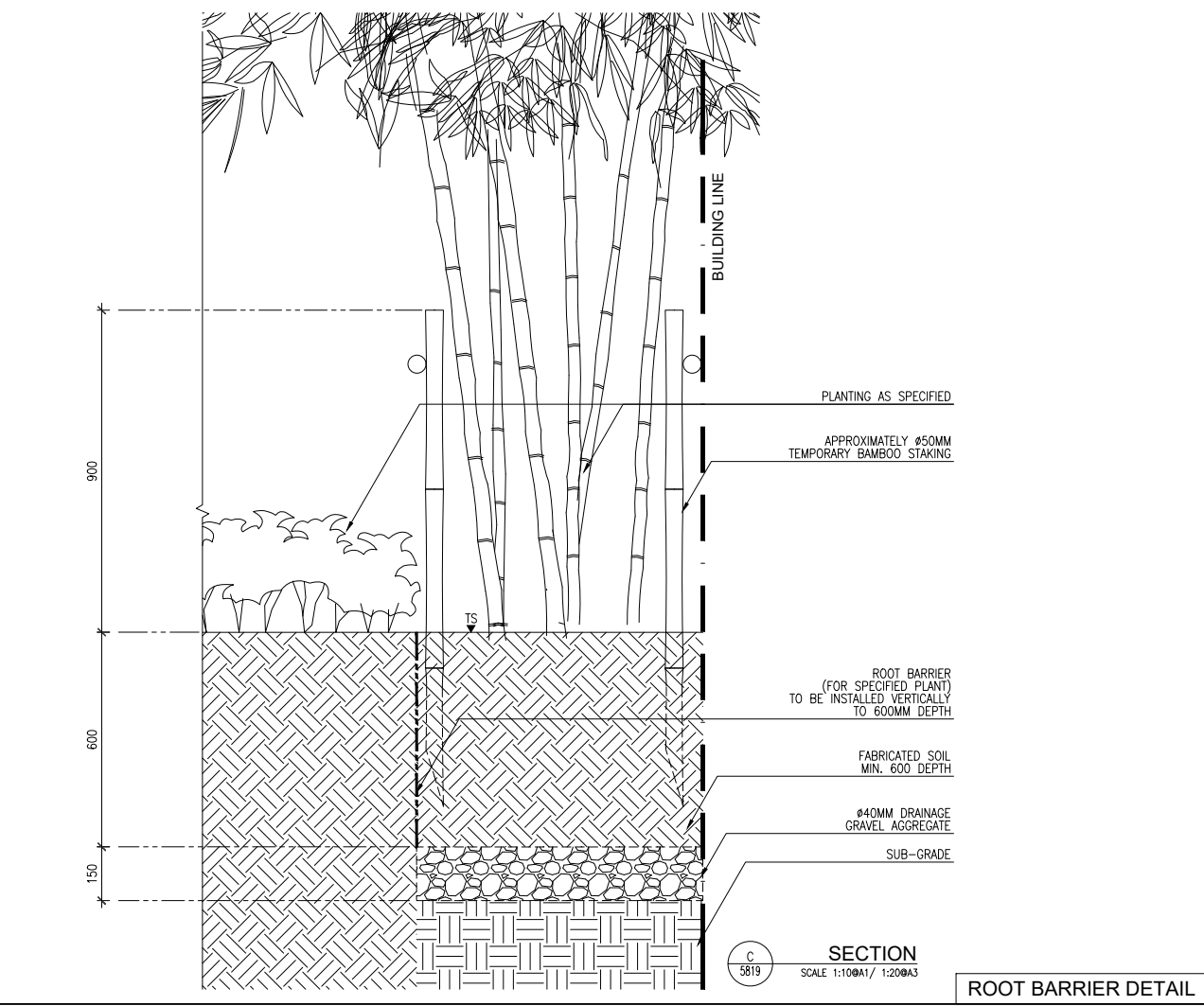


SECTION 01 OVERFLOW DRAIN AT RAIN GARDEN
SCALE 1:100A1/ 1:200A3



SECTION 02 TYPICAL WEEP HOLE DRAINING AT ROOF PLANTER
SCALE 1:200A1/ 1:400A3

DRAIN TYPE DETAIL



SECTION
SCALE 1:100A1/ 1:200A3

ROOT BARRIER DETAIL

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Rev.	Date	Description	By	Chk'd	App'd
-	03/20	ISSUE FOR TENDER	AL	PC	XY

Drawing Status: **CONTRACT** Submittal: -

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Consultants Management Division

Contract Title: **CONTRACT NO. DC/2019/07 OUTLYING ISLANDS SEWERAGE STAGE 2 - UPGRADING OF CHEUNG CHAU SEWAGE TREATMENT AND DISPOSAL FACILITIES**

Drawing Title: **DRAWING DETAILS (SHEET 2 OF 2)**

Scale	Designed	Drawn	Checked	Authorised
AS SHOWN	AL	AL	PC	XY
Original Size	Date	Date	Date	Date
A1	MAR 20	MAR 20	MAR 20	MAR 20

Drawing Number: **4572-STW-CC-5819** Revision: -

Appendix J – Landscape Maintenance Schedule

LANDSCAPE MAINTENANCE SCHEDULE

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Watering	x	x	x	x	x	x	x	x	x	x	x	x
Fertilizing			x						x			
Weeding		x	x	x	x	x	x	x	x		x	
Thinning/Pruning			x				x		x			
Spray of fungicide/insecticide			x			x			x			x
Securing						x						

Watering : Water all the plants ensure satisfactory grow

Fertilizing : Twice a year after analyze quality of the soil as necessary

Weeding : Picking up by hand is necessary

Spray fungicide/

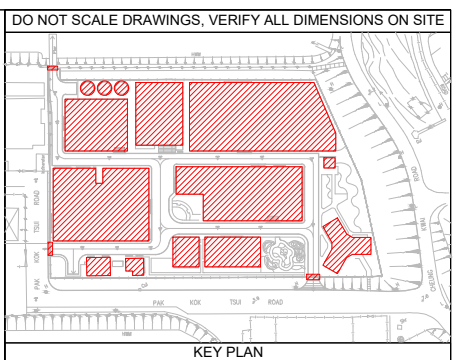
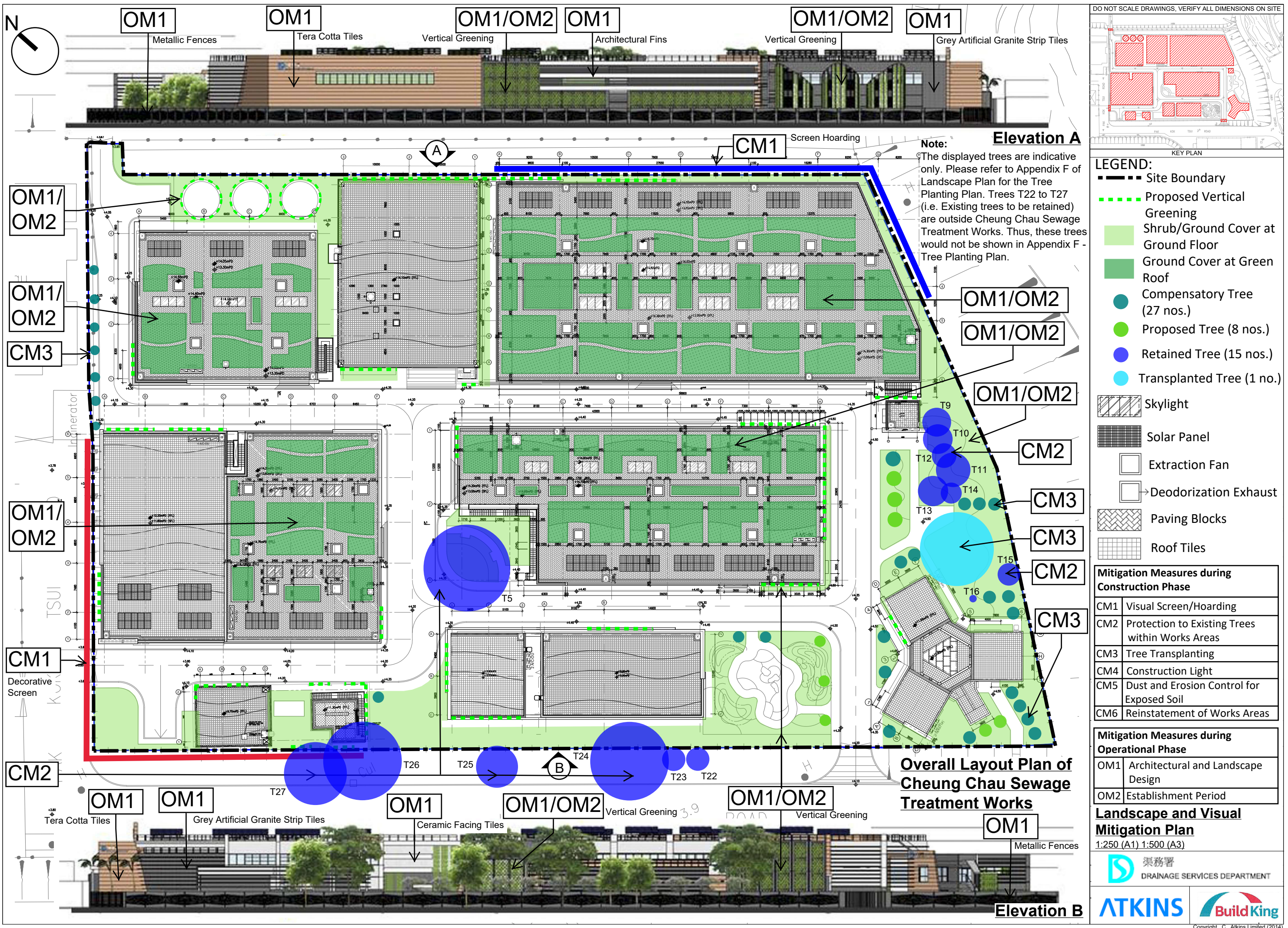
Insecticide : Shall be apply when considered necessary. Inspect regularly to confirm the need to apply

Securing : Maintain temporary fencing and tree guard for protection and establishment. Check all staking before typhoon season

Thinning/

Pruning : Reduce overcrowding plant as necessary at selected period

Appendix K – Landscape and Visual Mitigation Plan



- LEGEND:**
- Site Boundary
 - Proposed Vertical Greening
 - Shrub/Ground Cover at Ground Floor
 - Ground Cover at Green Roof
 - Compensatory Tree (27 nos.)
 - Proposed Tree (8 nos.)
 - Retained Tree (15 nos.)
 - Transplanted Tree (1 no.)
 - Skylight
 - Solar Panel
 - Extraction Fan
 - Deodorization Exhaust
 - Paving Blocks
 - Roof Tiles

Mitigation Measures during Construction Phase

CM1	Visual Screen/Hoarding
CM2	Protection to Existing Trees within Works Areas
CM3	Tree Transplanting
CM4	Construction Light
CM5	Dust and Erosion Control for Exposed Soil
CM6	Reinstatement of Works Areas

Mitigation Measures during Operational Phase

OM1	Architectural and Landscape Design
OM2	Establishment Period

Landscape and Visual Mitigation Plan
 1:250 (A1) 1:500 (A3)

Note:
 The displayed trees are indicative only. Please refer to Appendix F of Landscape Plan for the Tree Planting Plan. Trees T22 to T27 (i.e. Existing trees to be retained) are outside Cheung Chau Sewage Treatment Works. Thus, these trees would not be shown in Appendix F - Tree Planting Plan.

Overall Layout Plan of Cheung Chau Sewage Treatment Works

Appendix L – Responses to Comments

Responses to Comments

EPD's Comment dated 4 November 2022	Response to Comment
Having reviewed the Landscape Plan, please provide the landscape and visual mitigation plan annotating the location of all the proposed mitigation measures.	Landscape and visual mitigation plan was added as Appendix K of the revised Landscape Plan. Minor revision made on Page ii and Page 3 of the revised Landscape Plan was highlighted in yellow for easy reference.