SMEC

Member of the Surbana Jurong Group

local people
global experience

Our ref: 7076466/L28447/AB/AW/rw

6 April 2022

Water Supplies Department
6/F Sha Tin Government Offices
1 Sheung Wo Che Road
Sha Tin, NT

**By Email & By Post**

Attn: Mr Simon LAU (Engineer/Consultants Mgt 8)

Dear Sir

**First Stage of Desalination Plant at Tseung Kwan O – Investigation, Design and Construction**
**Landscape and Visual Mitigation Proposal for Desalination Plant**
**IEC Verification Letter**

Reference is made to the captioned *Landscape and Visual Mitigation Proposal (Document No.: ASCL/200168078/LVMP/6.0, dated 31 March 2022)* certified by the Environmental Team (ET) Leader received on 31 March 2022 and the responses to comments on 6 April 2022 respectively.

We do not have adverse comment on the aforementioned Landscape and Visual Mitigation Proposal, and considered it conforms to the requirements as stipulated in Condition 2.11 of EP-503/2015/A and Condition 2.11 of FEP-01/503/2015/A. We hereby verify the aforementioned Landscape and Visual Mitigation Proposal in accordance with Condition 2.11 of EP-503/2015/A and Condition 2.11 of FEP-01/503/2015/A.

Should you have any queries regarding this submission, please do not hesitate to contact the undersigned on tel. 3995 8120 or email to antony.wong@smec.com.

Yours faithfully

**Antony WONG**
Independent Environmental Checker – Design and Investigation

| | | | | |
|---|---|---|---|---|
| cc: | BV | – | Mr Roger WU | (by email) |
| | IEC (Construction) | – | Mr Louis KWAN | (by email) |
| | ET | – | Mr Jacky LEUNG | (by email) |
| | AJCJV | – | Messrs Stephen YEUNG and Brian KAM | (by email) |

**SMEC ASIA LIMITED**
27/F Ford Glory Plaza, 37-39 Wing Hong Street
Cheung Sha Wan, Kowloon, Hong Kong
**T** +852 3995 8100
**F** +852 3995 8101
**E** hongkong@smec.com
**W** www.smec.com

ACUITY
SUSTAINABILITY
CONSULTING LIMITED

Website: www.acityhk.com
Unit E, 12/F, Ford Glory Plaza
Nos. 37-39 Wing Hong Street,
Cheung Sha Wan, Kowloon.
Tel. : (852) 2698 6833
Fax.: (852) 2698 9383

水務署
Water Supplies Department

## Contract No. 13/WSD/17

## Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant

# Landscape and Visual Mitigation Proposal

FEP Condition 2.11

Document No.

| | | | | | | |
|---|---|---|---|---|---|---|
| ASCL | / | 200168078 | / | LVMP | / | 6.0 |
| Publisher | | Project Code | | Sequential No. | | Revision Index |

| | Prepared by: | Checked by: | |
|---|---|---|---|
| Name | Aloysius WONG | Howard Chan | Jacky LEUNG |
| Position | Landscape Architect | Environmental Team Member | Environmental Team Leader |
| Signature |  |  |  |
| Date: | 31 March 2022 | 31 March 2022 | 31 March 2022 |

© This document contains confidential and proprietary information belonging to Acuity Sustainability Consulting Limited and/or its affiliates. The contents of this document shall not be used for any other purpose than that for which they were provided. Any disclosure, copying, distribution or the taking of any action in reliance on the contents of this document is strictly prohibited. This document confers upon the recipient no right or license of whatsoever nature based on the information as described herein. If you have received this document in error, please immediately arrange for the return to Acuity Sustainability Consulting Limited or destruction of this document.

## REVISION HISTORY

| REV. | DESCRIPTION OF MODIFICATION | DATE |
|---|---|---|
| 1 | First Issue for Comment | 5 Mar 2020 |
| 2 | Revision according to EPD's comments | 3 Jun 2020 |
| 3 | Revision according to EPD's comments | 10 Nov 2020 |
| 4 | Revision according to EPD's comments | 29 Jan 2021 |
| 5 | Revision according to RSS's and IEC's comments | 18 Jan 2022 |
| 6 | Revision according to EPD's comments | 31 Mar 2022 |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# CONTENTS

Page





The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

**LIST OF APPENDICES**





The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# 1. INTRODUCTION

## 1.1. BACKGROUND

Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection granted the Environmental Permit (No. EP-01/503/2015) and Variation of Environmental Permit (No. EP-01/503/2015/A) to Water Supplies Department (WSD); and granted the Further Environmental Permit (No. FEP-01/503/2015/A) to AJCJV for the Contract.

The Acciona Agua, S.A. Trading, Jardine Engineering Corporation, Limited and China State Construction Engineering (Hong Kong) Limited As AJC Joint Venture (AJCJV) is contracted by WSD to carry out the Design, Build and Operate First Stage of Tseung Kwan O Desalination Plant (DPTKO) under Contract No. 13/WSD/17 ("the Contract"). The Further Environmental Permit (No. FEP-01/503/2015/A) to AJCJV to construct the designation contract.

Acuity Sustainability Consulting Limited (ASCL) is commissioned by AJCJV to undertake the Environmental Team (ET) services as required and/or implied, both explicitly and implicitly, in the Environmental Permit (EP), Environmental Impact Assessment Report (EIA Report) (Register No. AEIAR-192/2015) and Environmental Monitoring and Audit Manual (EM&A Manual) for the Contract; and to carry out the Environmental Monitoring and Audit (EM&A) programme in fulfillment of the EIA Report's EM&A requirements and Contract No. 13/WSD/17 Specification requirements.

Before WSD taking over the area for DPTKO development, the construction and demolition (C&D) materials being stockpiled and grown vegetation had been removed for construction projects. Prior to being handed over the area for DPTKO development, the area for the proposed desalination plant had been cleared of the stockpiled C&D materials and grown vegetation. It was then handed over to WSD when the finished ground level reached +5.2mPD.

In 2017, design variations of Contract were proposed, the design variations in relation to landscape and visual impacts are mainly the changes in Contract layouts, which includes; the relocation of building blocks with increase in building height within the original earmarked site defined in the EIA report; the reduction of the site area for desalination plant and; the reduction of slope mitigation works inside the Clear Water Bay Country Park (CWBCP).

The change in magnitude of landscape and visual impacts of the design variations from the EIA report have been thoroughly assessed and discussed in the Environmental Review Report (ERR) prepared by Black & Veatch (now known as Binnies HK Ltd.) on 03 November 2017. The ERR has concluded that the revised Contract layout will not change the overall landscape and visual impact levels presented in the EIA Report with mitigation measures in place. No additional mitigation measures are considered required for the proposed Contract variations. The environmental outcome from landscape and visual perspectives anticipated in the EIA Report will remain valid and applicable to the latest design.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

## 1.2. CONTRACT DESCRIPTION

The Contract includes the following key components/works:-

Stage 1 Desalination Plant works (undertaken by Contract No. 13/WSD/17)

- construction of the seawater treatment components for the First Stage of the proposed desalination plant with a water production capacity at 135,000 cubic metres (m3) per day and with provision for future expansion to the ultimate water production capacity at 270,000 m3 per day when necessary, and associated facilities;
- formation of an eight-hectare site in TKO Area 137 for the construction of the proposed desalination plant and associated facilities with the ultimate water production capacity at 270,000 m3 per day;
- construction of the intake and outfall facilities of the proposed desalination plant to cater for the ultimate water production capacity of the proposed desalination plant at 270,000 m3 per day.
- natural slope mitigation works within the Clear Water Bay Country Park, which overlooks the northeast boundary of the desalination plant at TKO Area 137; and
- associated works including engineering, environmental mitigation works and landscaping works.

Stage 2 Desalination Plant works (to be undertaken in other works contract(s))

- (under planning stage);

Freshwater Main Alignment (undertaken by Contract No. 13/WSD/16)

A dedicated trunk feed system including about 9 km long water mains for the transfer of freshwater output from the desalination plant to the existing Tseung Kwan O Fresh Water Primary Service Reservoir in Po Lam.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

## 1.3. PURPOSE OF THE PLAN

According to Condition 2.11 of the FEP and EP-503/2015/A, a landscape and visual mitigation proposal shall be submitted to the Director of Environmental Protection for approval no later than 1 month before the commencement of construction of the desalination plant of the Contract. The proposal, with drawings in the scale of 1:1000 or other appropriate scales as agreed by the Director, shall show the landscape and visual mitigation measures of the Contract, and shall include at least the following information:

(1) aesthetic landscape and architectural treatment for above ground structures;

(2) tree felling and preservation proposal showing quantity, plant species, location(s) and size of trees to be retained/transplanted/felled/compensated, and location(s) of transplanted trees;

(3) Landscape Plan showing location(s) of greening works including green roofs, roadside planting, vertical greening, screen planting, amenity planting, edge treatment along boundary and any other landscape enhancement to mitigate landscape impact of the Contract.

The scope of this LVMP covers the landscape and visual mitigation measures under Contract No. 13/WSD/17. The site layout plan for Contract No. 13/WSD/17 is shown in **Appendix A**. Before submission to the Director, the Landscape and Visual Mitigation Proposal shall be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) as conforming to the requirements and recommendations contained in the EIA Report (Register No. AEIAR-192/2015), EP/FEP and ERR. All measures recommended in the approved Proposal shall be fully and properly implemented and maintained for the Contract.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

## 2. PROPOSED LANDSCAPE AND VISUAL MITIGATION MEASURES

Section 11.10.3 of the approved EIA Report and Annex A of the EM&A Manual recommended the following mitigation measures. Explanations of how the measures are fulfilled are given in **Table 2.1** and subsequent sections. Implementation details of mitigation measures under the Contract and the implementation schedule are described in **Table 2.1** and subsequent sections, a layout plan showing the implementation location of landscape and visual mitigation measures is shown in **Appendix C.**

**Table 2.1 Landscape and Visual Mitigation Measures**

| ID in EIA Report | Recommended Mitigation Measure in Table 11.5 of the approved EIA report | Implementation Stage | Implementation Details of Mitigation Measures under the Contract | Timing for Implementation | Agent for Implementation, maintenance and management |
|---|---|---|---|---|---|
| MM1 | The construction area and area allowed for temporary structures, such as the contractor's office, will be minimized to a practical minimum.<br>(Clause no. 2.11 (i) of EP) | Construction Stage | The construction area is limited to the contract area allowed in the EP.<br><br>Three temporary works areas are available in this Contract. All of them are all located in brown field (see **Appendix A**). | Jan 2020 - Apr 2023 | AJCJV<br>(The Contractor) |
| MM2 | At the detailed design stage, the design team will seek to minimize the landscape footprint of the Project and above ground facilities, while satisfying all other requirements.<br>(Clause no. 2.11 (i) of EP) | Detailed Design Stage | The landscape footprint is restricted to the contract area allowed in the EP. Please refer to **Section 3** for explanation on how the coverage of ground facilities has been minimized. | May 2020 - Sep 2021 | Design Team of AJCJV |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

| ID in EIA Report | Recommended Mitigation Measure in Table 11.5 of the approved EIA report | Implementation Stage | Implementation Details of Mitigation Measures under the Contract | Timing for Implementation | Agent for Implementation, maintenance and management |
|---|---|---|---|---|---|
| MM3 | Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to:<br>- green roofs where practical (i.e. without equipment on the roof);<br>- roadside planting;<br>- aesthetic treatment of all structures;<br>- vertical greening;<br>- screen planting along application site; and<br>- landscape enhancement with amenity planting where practical, including planting along the edge (site boundary) fence with native shrubs where feasible, to reduce their visual impact and blend them into the surrounding landscape.<br><br>(Clause no. 2.11 (iii) of the EP) | Detailed Design Stage, Construction Stage, Operational Stage | Please refer to **Section 3** for aesthetic landscape and aesthetic treatment of all above ground structures and **Section 4** for soft landscape plan. | May 2020 - Apr 2023 | Design & Construction Teams of AJCJV, and Operational Stage Contractor/WSD |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

| ID in EIA Report | Recommended Mitigation Measure in Table 11.5 of the approved EIA report | Implementation Stage | Implementation Details of Mitigation Measures under the Contract | Timing for Implementation | Agent for Implementation, maintenance and management |
|---|---|---|---|---|---|
| MM4 | All trees within the Project Site or the slope mitigation works area will be carefully protected during construction according to DEVB TCW No. 4/2020 – Tree Preservation.<br>(Clause no. 2.11 (ii) of the EP) | Construction Stage | A tree survey was conducted in Feb 2020, 11 nos. of tree are identified tree within the site area, 11 nos. of tree are proposed to be retained on site. Please refer to Section 4 for tree details.<br><br>For tree located within the proposed slope mitigation works in Clear Water Bay Country Park, the existing trees will be carefully protected during the construction stage in accordance with DEVB TCW No. 4/2020 – Tree Preservation. The details of tree preservation shall refer to the approved Detailed Design Plan for Slope Mitigation Works. | Jan 2020 - Apr 2023 | AJCJV |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

| ID in EIA Report | Recommended Mitigation Measure in Table 11.5 of the approved EIA report | Implementation Stage | Implementation Details of Mitigation Measures under the Contract | Timing for Implementation | Agent for Implementation, maintenance and management |
|---|---|---|---|---|---|
| MM5 | No Tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government departments.<br><br>A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 4/2020.<br><br>(Clause no. 2.11 (ii) of the EP) | Construction Stage, Operational Stage | The slope behind the proposed Desalination Plant is located within the Clear Water Bay Country Park. For tree located within the proposed slope mitigation works in Clear Water Bay Country Park, as flexible barriers are redesigned and located away from the slope toe of the Clear Water Bay Country Park area, no flexible barriers or soil nailing works are required, thereby no tree felling is proposed.<br><br>In case of tree felling is necessary for slope mitigation works, a Tree Preservation and Removal Application will be submitted to relevant authorities for approval prior to tree felling works. | Jan 2020 - Apr 2023 | AJCJV and Operational Stage Contractor/WSD |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

| ID in EIA Report | Recommended Mitigation Measure in Table 11.5 of the approved EIA report | Implementation Stage | Implementation Details of Mitigation Measures under the Contract | Timing for Implementation | Agent for Implementation, maintenance and management |
|---|---|---|---|---|---|
| MM6 | Any slope mitigation works necessary to address natural terrain hazards, will be minimized to minimize any potential environmental impact to the Country Park e.g. soil nailing and rock stabilization will aim to avoid existing trees e.g. should any restoration of vegetation be necessary, the best planting matrix with native species will be established, with the aim of resembling the existing vegetation.<br><br>(Clause no. 2.11 (ii) of the EP) | Detailed Design Stage, Construction Stage, Operational Stage | The slope mitigation works have been designed to avoid landscape impact, such as temporary working platform and access to approach unstable boulders will be designed to avoid tree in rock slope stabilization work; wire mesh covering the rock face will be provided with opening to existing trees to avoid the trees. Details shall be referred to the approved Detailed Design Plan for Slope Mitigation Works.<br><br>Grass hydroseeding will be provided to reinstate vegetation loss and disturbance at the area of slope stabilization works due to construction works (refer to Appendix E for the hydroseeding area and planting matrix), with regular monitoring and appropriate maintenance works carried out for a 12-month establishment period. | Jan 2020 - Apr 2023 | Binnies (SOR), AJCJV and Operational Stage Contractor/WSD |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

| ID in EIA Report | Recommended Mitigation Measure in Table 11.5 of the approved EIA report | Implementation Stage | Implementation Details of Mitigation Measures under the Contract | Timing for Implementation | Agent for Implementation, maintenance and management |
|---|---|---|---|---|---|
| MM7 | Dredging works for the installation of intake structures and outfall diffusers should be minimized to avoid or reduce any potential environmental impacts to as low as reasonably practicable (ALARP). The intake and outfall structures (e.g. intake openings and diffuser heads) will be prefabricated and transferred to site for installation.<br><br>(Clause no. 2.11 (iii) of the EP) | Construction Stage | The Contractor will follow the requirement accordingly. | Jan 2021 - Aug 2022 | AJCJV |
| MM8 | All night-time lighting will be reduced to a practical minimum both in terms of number of units and lux level and will be hooded and directional.<br><br>(Clause no. 2.11 (iii) of the EP) | Construction Stage, Operational Stage | Please refer to **Section 3.4** for lighting arrangement in construction and operational stages. | Jan 2020 - Apr 2033 | AJCJV, and Operational Stage Contractor/WSD |

As recommended in the ERR, the following suggestions will be implemented by the Main Contractor:

- to minimise disturbances to vegetation during the construction works and shall be responsible to reinstate the vegetation in all temporary disturbed areas due to construction works to its original condition;
- Where appropriate, hydroseeding shall be applied to restore the green appearance on site;
- For any vegetation reinstatement or hydroseeding works, the appointed landscape contractor shall carry out regular monitoring and appropriate maintenance (e.g. replacement for unsatisfactory plant specimens) for a 12-month establishment period;
- The actual extent of rock slope works will be determined by the Supervising Officer during construction stage


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# 3. AESTHETIC LANDSCAPE AND ARCHITECTURAL TREATMENT FOR ABOVE GROUND STRUCTURES

## 3.1. MINIMIZATION OF CONSTRUCTION AREA AND AREA FOR TEMPORARY ABOVE GROUND STRUCTURES (MM1)

The construction site is limited to the contract area allowed in the EP. Three temporary works areas are available in this Contract. All of them are located in the brown field (see Appendix A). The dimension of the DPTKO is around 500m long and 180m wide.

## 3.2. MINIMIZATION OF ABOVE GROUND STRUCTURES (MM2)

The site for the desalination plant is essentially a linear site and is oriented North West – South East along the longer side (Appendix A**)**.

All the buildings setback from the lot boundary for not less than 15m on all sides. Their heights do not exceed 35m above the future ground level, the most of them are mainly one to two storeys high for accommodating the process plants and building services, with the exception of the administration building, which is a five-storey office building with height around 33m. The layout plan and sectional elevation of DPTKO are shown in Appendix D.

Heights of all buildings do not exceed 35m above the future ground level. The roof level over the lift machine room of the Administration Building, the highest building for DPTKO, is +39.975mPD, about 33m above the ground level of +6.65mPD.

The entire development contains two types of buildings – desalination process plants and ancillary buildings. Following the flow of operational layout, the desalination process plant is separated into 4 treatment zones, namely Intake & Outfall Zone (Combined Shaft), Pre-treatment Zone (ActiDAFF), Reverse Osmosis Processing Zone (Reverse Osmosis Building) and Post-Treatment Zone (Post-Treatment Building). They span from southeast seashore toward the northwest side of the site. Processed water will be gone through the final treatment process in the Product Water Storage Tank before fed to the TKO fresh water primary service reservoir.

The elongated site is enveloped by the richly vegetated Tin Ha Shan on the east and faces the sea (Tai Miu Wan) on the southeast. To integrate, blend, and connect/align the design with these surrounding natural environments, DPTKO is divided into 15 building blocks, dispersed around the site to avoid putting a large, single, disproportionate building mass on the site.

## 3.3. AESTHETIC LANDSCAPE AND ARCHITECTURAL TREATMENT FOR ABOVE GROUND STRUCTURES (MM3)

The aesthetic landscape and architectural treatment of the site are designed to respond to occupational, recreational, and travelling sensitive receivers including the residents in the nearby Tseung Kwan O residential developments. The site has a high proportion of soft landscape



The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

(including at-grade greening, roof greening, and vertical greening), and numerous landscape areas are provided at various location of the site. The use of local species for both ornamental and boundary buffer facilitate the attainment of not less than 30% of landscape coverage areas to be planted with local plant species. These soft landscape designs provide a pleasant visual environment for the neighbouring communities is to create a successful destination with attractive external environment for the enjoyment of future visitors/ users. The soft landscape design of the DPTKO is shown in the **Appendix E**.

The key aesthetic landscape (soft landscape) includes the following;

1. Green Roofs

2. Roadside Planting

3. Vertical Greening

4. Screening planting along the site

4. Landscape Areas

### 3.3.1. GREEN ROOF

Six nos. of buildings, namely, Administration Building, Chemical Building, Reverse Osmosis & Electrical Building, Post-treatment Building, On-site Chlorine Generation System Building and CO2 Tanks Area, and Workshop are designed with green roof as showed in **Appendix E**. Groundcover will be the main vegetation provided in green roofs, the planting schedule and the proposed planting pattern for green roofs showed in **Appendix E**. The idea of the soft landscape design is to provide an extensive greening with low maintenance. The avoidance of tall shrubs and trees, especially near the PV panels which is situated in building Reverse Osmosis and Electrical Building are the concern not to block the normal operation of the PV panels.

### 3.3.2. ROADSIDE PLANTING

Apart from the undisturbed slopes in the periphery, the design incorporates roadside planting verges for ornamental trees, shrubs and groundcovers along the internal vehicular road. This will help provide shade while enhancing the visual amenity to the road users for visitors to the site. The proposed planting location and planting schedule are shown in **Appendix E**.

### 3.3.3. VERTICAL GREENING

7 no. of building, namely, Administration Building, Reverse Osmosis Building, Main Electrical and Chiller Plant Building, ACTIDAFF, Product Waters Storage Tank, Post-treatment Building and Combined Shaft Building are designed with vertical greening. Due to the nature of the industrial site, features of climbers on a vertical fence of 1.5m/ 3.5m high are proposed along its east and west boundary. Along the northern edge abut to WSD reserve, 2.5m high wire mesh fence with vertical green is proposed. A 3.5m high fence wall with vertical green is also proposed to the west of the



The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

Site. Stainless steel wire and rope will be installed on wall and will act as the training system for the proposed climbing plant. The proposed planting location and species list are shown in **Appendix E**.

### 3.3.4. SCREENING PLANTING ALONG THE SITE

A 1.5m setback of fence at the main entrance is provided. In this setback zone, low shrubs and groundcover at a wavy pattern (**Appendix E**) is also provided to enhance the first impression of this particular Contract.

The establishment of functional tree belts to ameliorate external environmental effects such as noise, dust and unpleasant views is important consideration for this site – since it will be surrounded by roads with industrial heavy vehicles.

In addition to the aesthetic considerations the proposed trees, shrubs and groundcover planting will perform a number of functional roles. This will also provide a physical barrier between the hillside environment outside the site boundary and the areas inside the grounds of the facility, particular those adjacent to the main building blocks.

The plantation of heavy standard trees is extensively proposed on site as shown **Appendix E**. This will realize multiple environmental benefits including the provision of shade. Apart from the physical screening, the green buffer also functions as a noise barrier psychologically.

### 3.3.5. LANDSCAPE AREAS

Numerous landscape areas are provided at various locations such as, Main Entrance, Drop-off Plaza, Main Plaza, Landscape Plaza, Rain Garden, Courtyard area in Administration Building. Landscape designs at these locations are showed in **Appendix E**.

### 3.3.6. AESTHETIC TREATMENT OF ALL STRUCTURES

The siting and configuration of the DPTKO is designed to achieve a coherent suburban development consistent with the planning vision for TKO, and to create a compatible visual identity with the surrounding especially the adjacent Country Park (Clear Water Bay). The visual identity will focus on vigour and liveliness of TKO by identifying a family of façade materials, visual permeability at waterfront, matching of colour schemes, and fenestration control. The intervention of this contract activates the neighbourhood, inviting people to appreciate the built environment in the suburban distract.

The architectural design theme is a linear interpretation of water wave in macroscopical scale, which enhance/blend in with the surrounding environment and promote the green image of DPTKO. As “water” is the essence of the desalination plant, the character of water will be expressed throughout the design. The proposed construction materials and surface finishes will enhance/ blend in with the surrounding environment.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

The key aesthetic treatment (hard landscape) includes the following;

1. Fairface concrete finishing for building structures;
2. Prefabricated fairface concrete façade cladding for building structures;
3. Paving materials of grey-tone colors in random mix as main floor finishes;
4. Permeable perimeter fence;
5. Architectural feature fins

### 3.3.7. FAIRFACE FINISHING

The buildings of DPTKO primarily use reinforced concrete with fairface concrete finish. The roofs are green or paved with light-colour materials and installed with solar panels. For the Administration Building, full-height glazing is designed to face north to maximise and diffuse natural light.

External façade deliberately uses fairface concrete as finish. The light grey colour of fairface concrete is a mixture of the natural colour of its ingredients, including aggregates, sand and cement. It is a neutral colour that blend in with other building materials and natural vegetation superbly. Architects world-wide are fond of using fairface concrete, to create creative identity to their buildings. With the combination of fairface concrete softened by vertical greening, the buildings blend into the surroundings, minimising the visual impact to both the neighbourhood and building users.

Some of the water storage tank and ancillary buildings will be appeared in traditional on-site cast fairfaced concrete façade. To enrich the façade and reduce the dullness along the site, texture paint finish is introduced to the buildings to echo with the rhythmic pattern for the DfMA façade building.

### 3.3.8. PREFABRICATED FAIRFACE CONCRETE FAÇADE CLADDING

Prefabricated fairface concrete façade cladding through DfMA system would be adopted for five buildings: ActiDAFF (a building in Pre-treatment Zone), Reverse Osmosis Building & Electrical Building, Post-Treatment Building, On-Site Chlorine Generation System Building and Product Water Storage Tank & Electrical Building. Typical building elevation with prefabricated fairface concrete cladding and colors selected for the facade panels are shown in **Appendix F**. Arrangement of DfMA façade on these buildings is shown in **Appendix F**.

### 3.3.9. PAVING MATERIALS

Paving materials (mainly Paving Blocks) shall be hard wearing, durable and of low maintenance. Concrete paver in grey tone (dark grey, light grey, and brown) mix in a random manner will be employed as the main floor finishes for the pavement, the material schedule and paving module plan are as shown in **Appendix F.**


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

#### 3.3.10. PERMEABLE PERIMETER FENCE

Two area of the fence will adopt permeable perimeter fence to capture sea breeze, the linear arrangement of the building blocks creates "cooling corridors" in the complex by facilitating air flow and maximising natural breezes during summer. This corridor cooling effect helps create more effective cross ventilations and avoid heat accumulation in the summer days. The design details are shown in **Appendix F**.

#### 3.3.11. ARCHITECTURAL FEATURE FINS

Architectural feature fins with blue color tone at ActiDAFF Building Shades of blue color tones were adopted along the visitors' route. The selected colors will be applied to water pipes, GRP covers and architectural fins, to enrich the grey color of the fairface concrete. Most of the architectural fins articulated to form a wavy form in representing the relationship of the desalination plant and the sea. The rendering of feature fins is shown in **Appendix F.**

### 3.4. SLOPE MITIGATION WORKS (MM6)

The *Detailed Design Plan for Slope Mitigation Works* at Clear Water Bay Country Park have recommended protection/ mitigation measures to be implemented on site during the construction stage of this Project. All recommended protection/ mitigation measures shall be fully and properly implemented. No site clearance works for slope mitigation works of this Project shall be allowed prior to the completion of such protection/ mitigation works on site. The key slope mitigation measures extracted from Detailed Design Plan for Slope Mitigation Works include:

Flexible Barrier

The flexible barriers will be located away from the slope toe of the Clear Water Bay Country Park area. Thus, no flexible barriers will be installed within the Clear Water Bay Country Park area.

Rock Slope Stabilisation/ Improvement Works

Rock stabilization works shall be adjusted such that no tree will be felled, and no plant species of conservation importance shall be affected. The anchorage for the temporary working platform and access to be erected will be designed to avoid the plant species of conservation importance.

Hydroseeding and/or planting shrub seedlings will be provided to reinstate vegetation loss and disturbance at the area of slope stabilization works due to construction works, with regular monitoring and appropriate maintenance works to be carried out for a 12-month establishment period. Stone facing and tree rings to constructed hard surfaces (such as buttress wall and dentition) at the rock slope will be provided as landscaping measures to restore the natural finishes of the slopes. Wire mesh covering the rock face will be provided with opening to existing trees to avoid the trees.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

Boulder Removal/ Break-off

The proposed boulder removal works will involve provision of temporary working platform and access of 600 mm around the boulder. To avoid direct conflict between the boulder removal and nearby plant species of conservation importance, protection zones/ works exclusion zones will be established at least 1 m radius from the identified plant species of conservation importance to preserve them on site.

The protection zones/ works exclusion zones will be established prior to site clearance and throughout the construction period to separate the identified protected plant individuals from the works.

The temporary working platform and temporary access will be designed to avoid anchorage on the plant species of conservation importance.

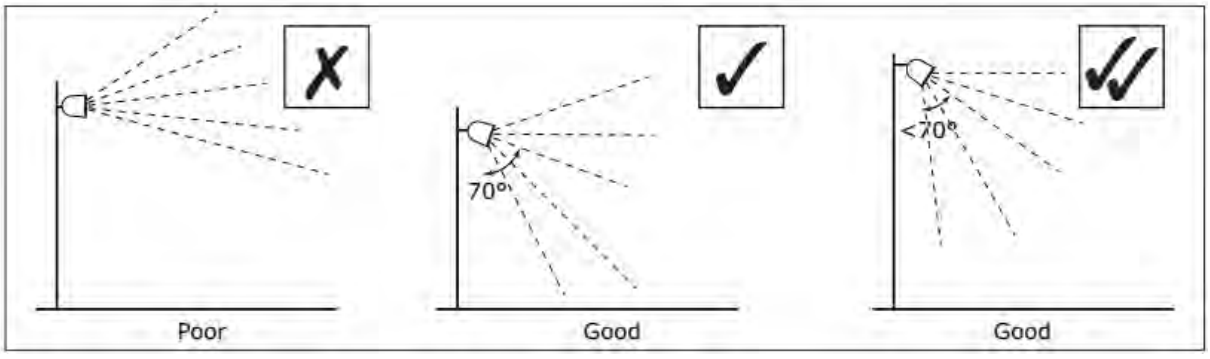
Detailed design of the slope mitigation measures at Clear Water Bay Country Park could be referred to Appendix H and *Detailed Design Plan for Slope Mitigation Works*. (*https://www.tkodesal.hk/images/bv_tko_data/data/file/Detailed%20Design%20Plan_1.pdf*)

## 3.5. LIGHTING ARRANGEMENT (MM8)

### 3.5.1. GENERAL

All lights provided in the construction site or the proposed desalination plant should have the following features to minimize light spill outside the contract area:

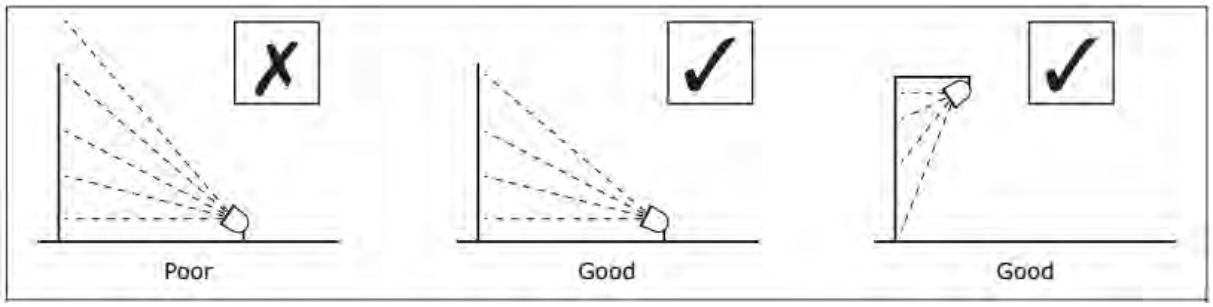
- The number of lighting should be kept minimum;
- The lux level should be designed just sufficient for safety purpose;
- Point light towards the Site to minimize light spill outside the contract boundary;
- Shielded with hood to prevent sky glow;
- High mounting light will have less spill light and glare;
- Aim light no greater than 70º;




Reference: Guidance Note 01/20 Guidance Notes for the Reduction of Obtrusive Light


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

- Where light has to be pointed upward, adjust the light direction to ensure no spillage outside the target.




Reference: Guidance Note 01/20 Guidance Notes for the Reduction of Obtrusive Light

### 3.5.2. GARDEN LIGHTS IN OPERATION PHASE

The outdoor landscape lighting system is crafted with LED bollard lighting along the pathway and spotlight implants to the landscape area will light up the entire garden at night-time that creates a fascinating foreground focal area. Bollard light with low lux level just enough for illuminating the garden will be adopted. The light will be diffused without pointing in one direction. The proposed lighting plan can be found in **Appendix G**.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

## 4. TREE FELLING AND PRESERVATION PROPOSAL (MM4)

As mentioned in the background in Section 1, the site was formed and handed over to WSD for desalination plant development. A tree Survey was carried out by the Contractor after possession of site. 11 nos. of existing trees were recorded within the Site boundary in the Tree Survey conducted on 10 & 19 February 2020. Nine trees are proposed to be removed and two trees will be retained on site. A tree survey result is provided in **Table 4.1** and **Appendix B**, tree treatment summary is provided in **Table 4.2**

11 nos. of existing trees were recorded within the Site boundary in the Tree Survey conducted on 10 & 19 February 2020. A summary of findings is provided below:

**Table 4.1 Summary of Tree Survey Results**

| Scientific Name | Chinese Name | No. of tree(s) |
|---|---|---|
| *Acacia confusa* | 台灣相思 | 2 |
| *Ficus microcarpa* | 細葉榕 | 1 |
| *Ficus subpisocarpa* | 筆管榕 | 2 |
| *Macaranga tanarius var. tomentosa* | 血桐 | 4 |
| *Mallotus paniculatus* | 白楸 | 1 |
| *Sterculia lanceolata* | 假蘋婆 | 1 |
| | **Total nos. of trees** | **11** |

**Table 4.2 Summary of Proposed Treatment to Existing Trees**

| Report record | No. of tree(s) to be retained | No. of tree(s) to be transplanted | No. of tree(s) to be removed | Total nos. of tree(s) |
|---|---|---|---|---|
| **Tree Survey** | 2 | 0 | 9 | 11 |

9 nos. of compensatory trees are proposed to make up 1:1 compensatory ratio in terms of quantity. The Tree Survey Plan, Tree Assessment Schedule and Compensatory Tree Planting Plan has been included in **Appendix B** for reference. The compensatory tree planting schedule is illustrated below:

**Table 4.3 Compensatory Tree Planting Schedule**

| Scientific Name | Chinese Name | Size | DBH (mm) | Live Crown Ratio | Planting Spacing | Quantity (No.) |
|---|---|---|---|---|---|---|
| *Pongamia pinnata* | 水黃皮 | Heavy Standard (6m(HT) x 2m (Spread)) | 95mm | 60% | 5m | 6 |
| *Grevillea banksii* | 紅花銀樺 | Heavy Standard (6m(HT) x 2m (Spread)) | 95mm | 60% | 5m | 3 |


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# 5. CONSTRUCTION MITIGATION MEASURES

Located in the public filling area, the site is not visually attractive and looks similar to a construction site. Nevertheless, landscape and visual mitigation measures in construction phase are recommended as below:

## 5.1. BLENDING IN WITH THE EXISTING LANDSCAPE AND VISUAL

- Construction area and works shall be minimized to prevent affecting nearby landscape environment;
- Area of temporary structures, such as the contractor's office, shall be minimized to a practical minimum and located at less visual prominent locations.
- Decorative hoarding with appropriate colours compatible with the surrounding area shall be erected around all works areas to minimize the visual impacts;
- Avoid potential impact on existing coastline and seashore

## 5.2. PROVIDING SOFT LANDSCAPING

- Exposed area and soil stockpiles shall be hydroseeded or covered with visually unobtrusive materials/ tarpaulins;
- Green roofs shall be considered on site office where possible;
- Commence landscape planting at locations where construction work has been completed.

## 5.3. CONSERVING/RECOVERING EXISTING GREENERY

- Existing trees near the Contract Boundary and slope mitigation work areas, and retained trees within site boundary shall be carefully protected. Detailed Tree Protection Specification shall be followed;
- The Contractor shall include a detailed working method statement for the protection of trees prior to conducting any works next to all retained trees;
- Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries.

## 5.4. IMPLEMENTING GOOD SITE PRACTICES/ OTHER RECOMMENDED MITIGATION MEASURES

- Sufficient drainage system shall be provided to control run-off from entering the sea;
- All night-time lighting will be reduced to a practical minimum both in terms of number of units and lux level and will be hooded and directional (See Sec.**3.4**).

## 5.5. CONDUCTING REGULAR SITE AUDIT

- Site inspection shall be undertaken regularly to ensure mitigation measures are being effectively implemented;
- Coordinate implementation programme with concurrent contract, if any, to minimize potential cumulative impacts and where possible reduce the period of disturbance to visual context.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

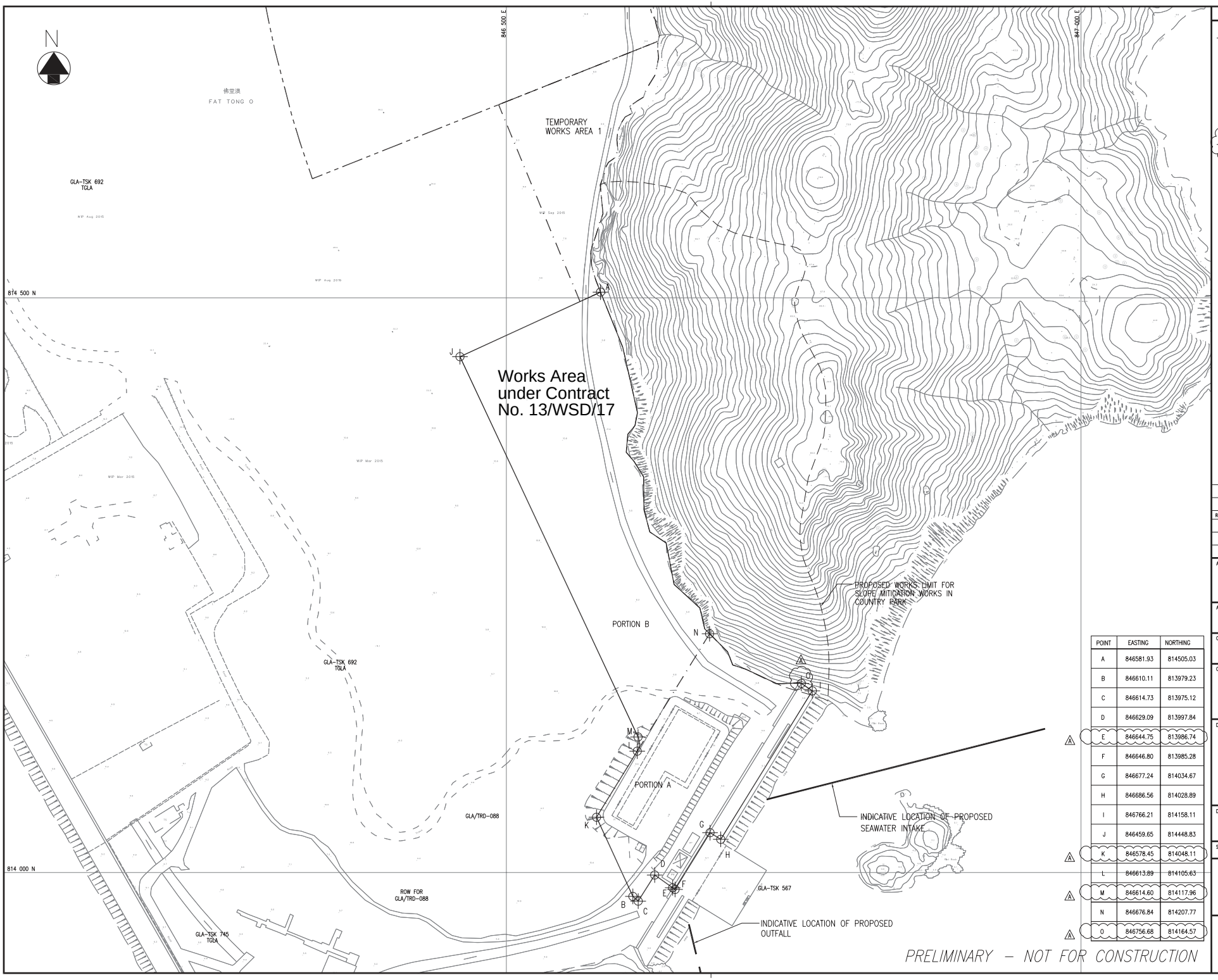
## 6. CONCLUSION

The landscape and visual mitigation measures to be implemented under Contract No. 13/WSD/17 have complied with the requirements and recommendations contained in the EIA Report (Register No. AEIAR-192/2015), the EP, the FEP and ERR. All measures recommended in this LVMP will be fully and properly implemented and maintained for the Contract.


The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# Appendix A – Layout Plan of Works Area under Contract No. 13/WSD/17

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.




| POINT | EASTING | NORTHING |
|---|---|---|
| A | 846581.93 | 814505.03 |
| B | 846610.11 | 813979.23 |
| C | 846614.73 | 813975.12 |
| D | 846629.09 | 813997.84 |
| E | 846644.75 | 813986.74 |
| F | 846646.80 | 813985.28 |
| G | 846677.24 | 814034.67 |
| H | 846686.56 | 814028.89 |
| I | 846766.21 | 814158.11 |
| J | 846459.65 | 814448.83 |
| K | 846578.45 | 814048.11 |
| L | 846613.89 | 814105.63 |
| M | 846614.60 | 814117.96 |
| N | 846676.84 | 814207.77 |
| O | 846756.68 | 814164.57 |

© Copyright by Black & Veatch Hong Kong Limited

LEGEND:

- BOUNDARY OF SENT LANDFILL EXTENSION
- BOUNDARY OF WORKS AREA FOR TKO DESALINATION PLANT
- SITE PHASING
- ALLOCATED LAND BOUNDARIES
- GLA-TSK 692 TGLA

NOTE: TEMPORARY WORKS AREA 1 WILL BE HANDED OVER AT +6 MPD WITH A TOLERANCE OF ±500mm.

| Revision | Date | Description | Initial |
|---|---|---|---|
| B | 10/03 | UPDATE NOTES | YLC |
| A | 07/18 | UPDATE COORDINATES | YLC |

| | Designed | Checked | Drawn | Checked |
|---|---|---|---|---|
| Initial | YLC | CKH | SZ | WLS |
| Date | 02/18 | 02/18 | 02/18 | 02/18 |

Approved

Agreement No.
CE 8/2015 (WS)

Contract No.
13/WSD/17

Contract Title
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing Title
SITE HANDOVER WORKS AREAS

Drawing No.
190495/K/TEND/10/0003

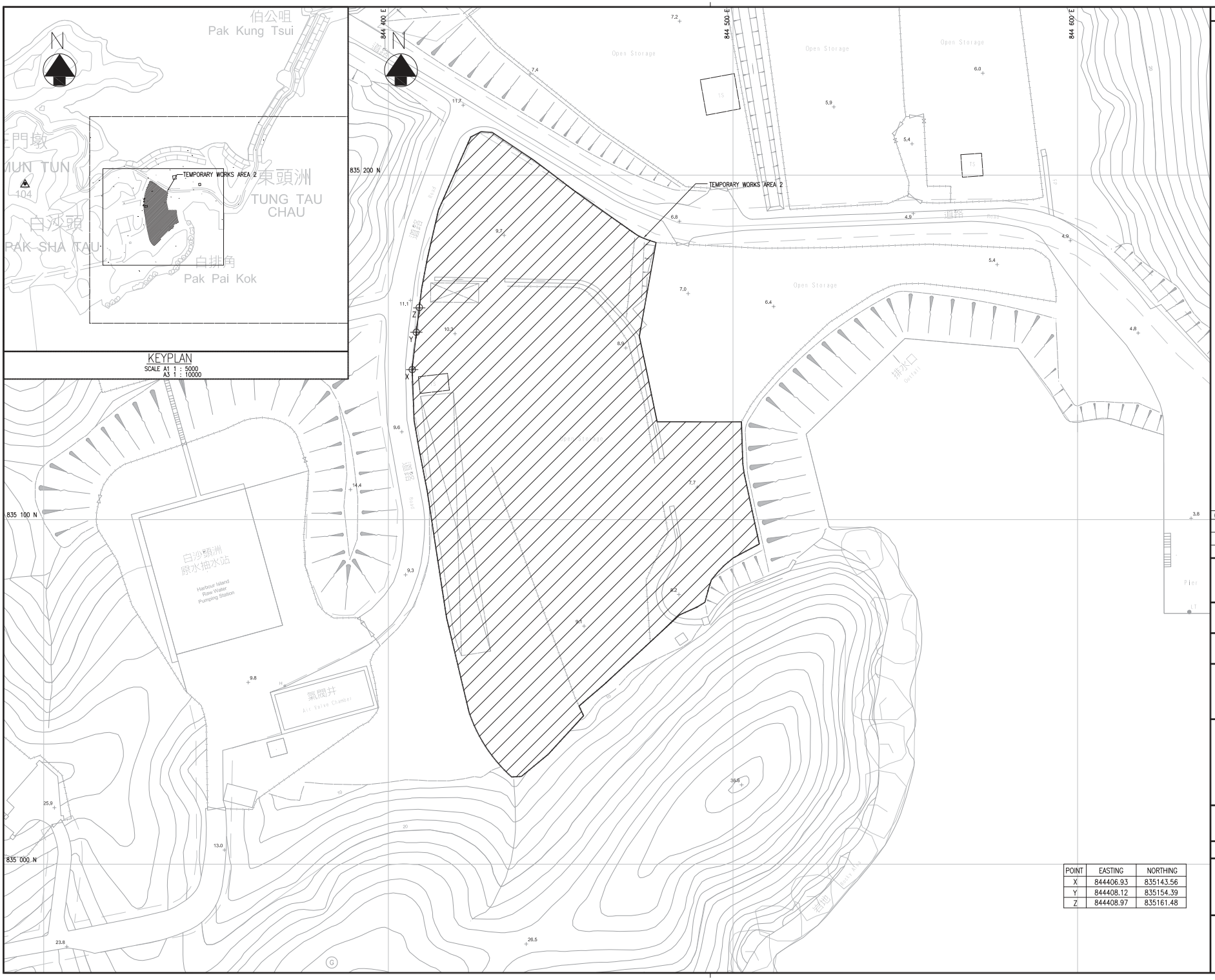
Revision
B

Scale
A1 1 : 1500
A3 1 : 3000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

PRELIMINARY – NOT FOR CONSTRUCTION




© Copyright by Black & Veatch Hong Kong Limited

LEGEND:

TEMPORARY WORKS AREA 2

| POINT | EASTING | NORTHING |
|---|---|---|
| X | 844406.93 | 835143.56 |
| Y | 844408.12 | 835154.39 |
| Z | 844408.97 | 835161.48 |

| Revision | Date | Description | | | Initial |
|---|---|---|---|---|---|
| | Designed | Checked | Drawn | Checked | |
| Initial | TT | CKH | SZ | WLS | |
| Date | 02/18 | 02/18 | 02/18 | 02/18 | |

Approved

Agreement No.
CE 8/2015 (WS)

Contract No.
13/WSD/17

Contract Title
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing Title
TEMPORARY WORKS AREA 2

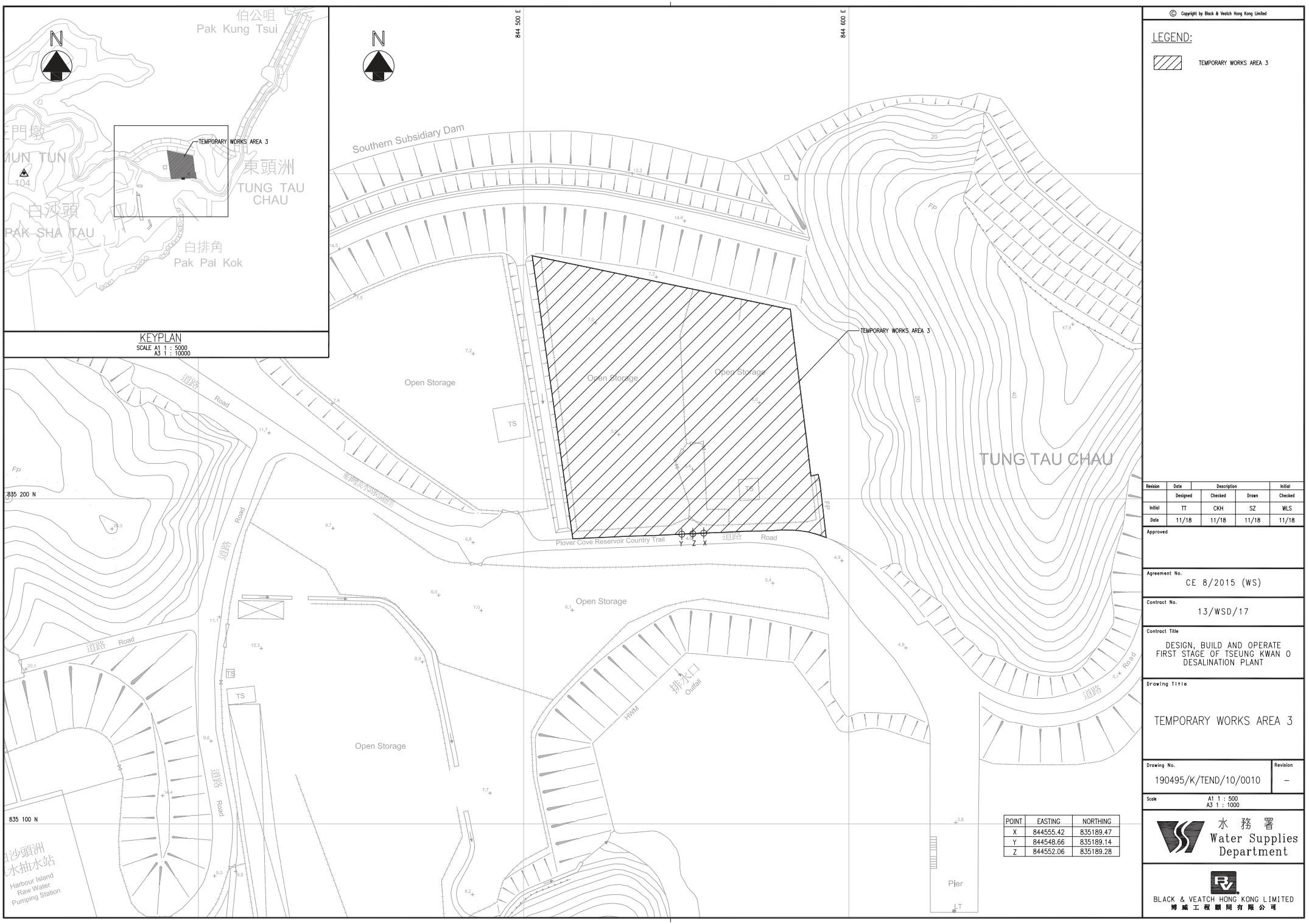
Drawing No.
190495/K/TEND/10/0007

Revision
–

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司




© Copyright by Black & Veatch Hong Kong Limited

LEGEND:

TEMPORARY WORKS AREA 3

| POINT | EASTING | NORTHING |
|---|---|---|
| X | 844555.42 | 835189.47 |
| Y | 844548.66 | 835189.14 |
| Z | 844552.06 | 835189.28 |

| Revision | Date | Description | | | Initial |
|---|---|---|---|---|---|
| | Designed | Checked | Drawn | | Checked |
| Initial | TT | CKH | SZ | | WLS |
| Date | 11/18 | 11/18 | 11/18 | | 11/18 |

Approved

Agreement No.
CE 8/2015 (WS)

Contract No.
13/WSD/17

Contract Title
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing Title
TEMPORARY WORKS AREA 3

Drawing No.
190495/K/TEND/10/0010

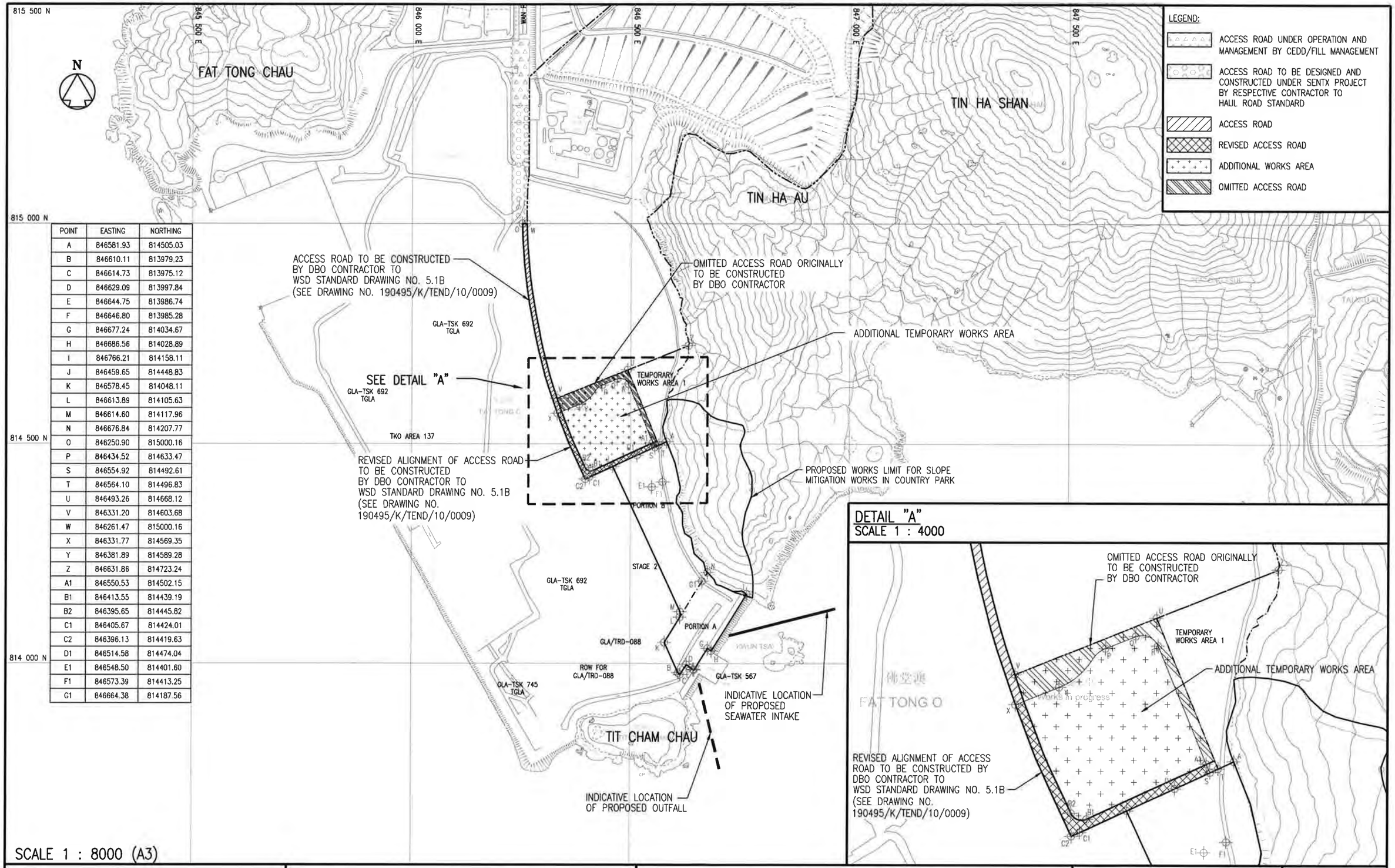
Revision
–

Scale
A1 1 : 500
A3 1 : 1000

水務署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

| POINT | EASTING | NORTHING |
|---|---|---|
| A | 846581.93 | 814505.03 |
| B | 846610.11 | 813979.23 |
| C | 846614.73 | 813975.12 |
| D | 846629.09 | 813997.84 |
| E | 846644.75 | 813986.74 |
| F | 846646.80 | 813985.28 |
| G | 846677.24 | 814034.67 |
| H | 846686.56 | 814028.89 |
| I | 846766.21 | 814158.11 |
| J | 846459.65 | 814448.83 |
| K | 846578.45 | 814048.11 |
| L | 846613.89 | 814105.63 |
| M | 846614.60 | 814117.96 |
| N | 846676.84 | 814207.77 |
| O | 846250.90 | 815000.16 |
| P | 846434.52 | 814633.47 |
| S | 846554.92 | 814492.61 |
| T | 846564.10 | 814496.83 |
| U | 846493.26 | 814668.12 |
| V | 846331.20 | 814603.68 |
| W | 846261.47 | 815000.16 |
| X | 846331.77 | 814569.35 |
| Y | 846381.89 | 814589.28 |
| Z | 846631.86 | 814723.24 |
| A1 | 846550.53 | 814502.15 |
| B1 | 846413.55 | 814439.19 |
| B2 | 846395.65 | 814445.82 |
| C1 | 846405.67 | 814424.01 |
| C2 | 846396.13 | 814419.63 |
| D1 | 846514.58 | 814474.04 |
| E1 | 846548.50 | 814401.60 |
| F1 | 846573.39 | 814413.25 |
| G1 | 846664.38 | 814187.56 |




DETAIL "A"
SCALE 1 : 4000



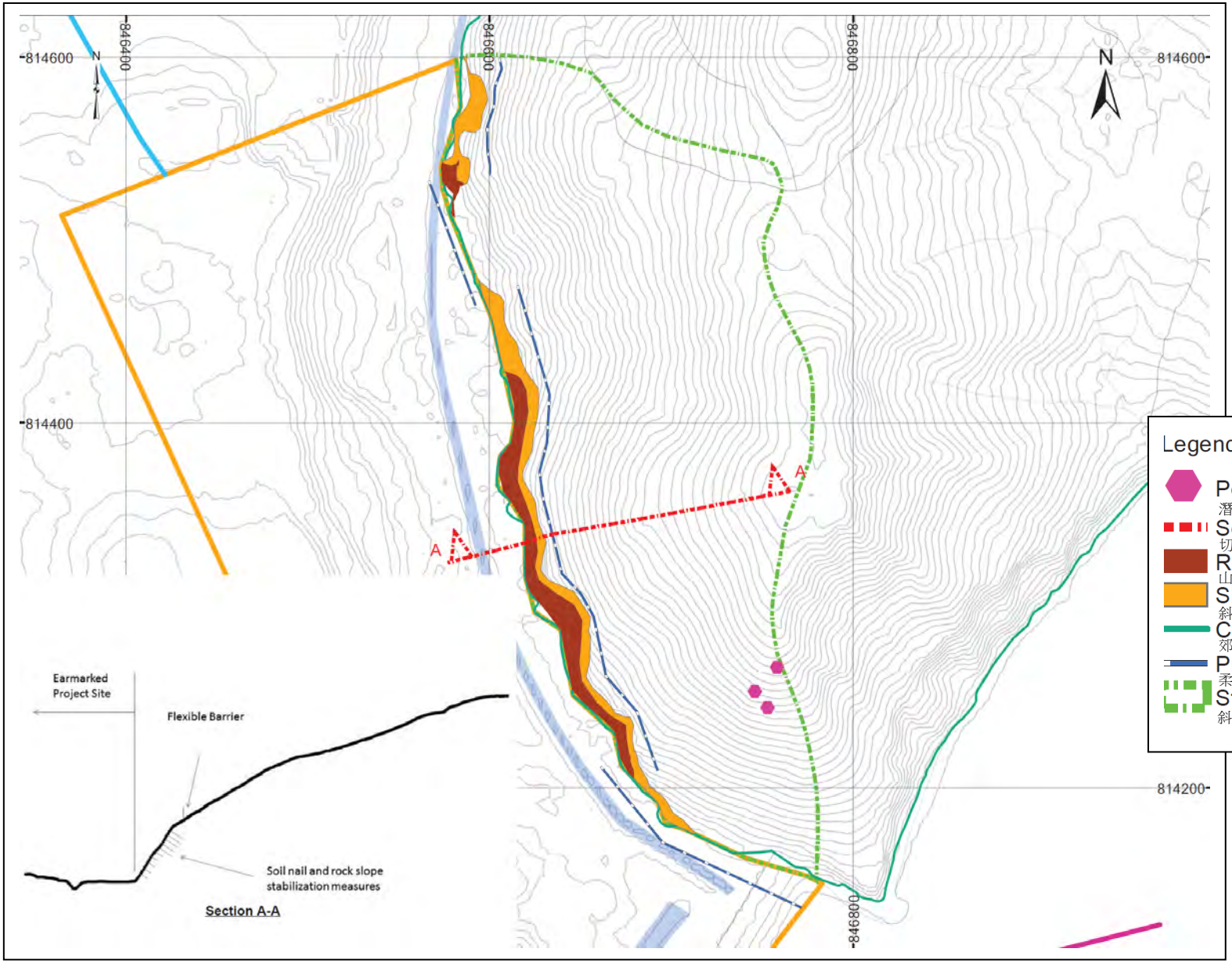

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

CONTRACT NO. 13/WSD/17
DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Title:
REVISED ACCESS ROAD AND
ADDITIONAL WORKS AREA

| | |
|---|---|
| Date: 05/12/2019 | Drafted by SCT |
| Outgoing letter Ref. No.: --- | Checked by SW |
| Reference Drawing: --- | Approved by RW |
| Sketch No.: SK/190495B/C13/48-05001 | Rev.: 0 |

Z:\TO\CAD\C13WSD17\Site Sketch\SK_190495B_C13_48-05001_0z.dwg, 7/12/2019 11:27:01




Legend **圖例:**

- Potential Unstable Boulder 潛在不穩定巨石
- Section A - A 切面圖 A-A
- Rock Slope Stabilization Measures 山坡礫石穩固措施
- Slope Stabilization Measures 斜坡穩定措施
- Country Park Boundary 郊野公園界線
- Proposed Flexible Barrier (Note 1) 柔性泥石防禦網 (註一)
- Study Area for Slope Mitigation Work 斜坡緩解工程的研究範圍

Note (註):

1) Indicative alignment opening will be provided for wildlife passage
指示對準開口將提供野生動物通道

Project Title: Desalination Plant at Tseung Kwan O
工程項目名稱: 將 軍 澳 海 水 化 淡 廠
Slope Mitigation Works within the Clear Water Bay Country Park
位於清水灣郊野公園範圍內的斜坡緩解工程

**Plan originated from the Figure 2.3d of approved EIA Report: AEIAR-192/2015**
**圖則源自已批准環評報告–AEIAR-192/2015 內的圖 2.3d**

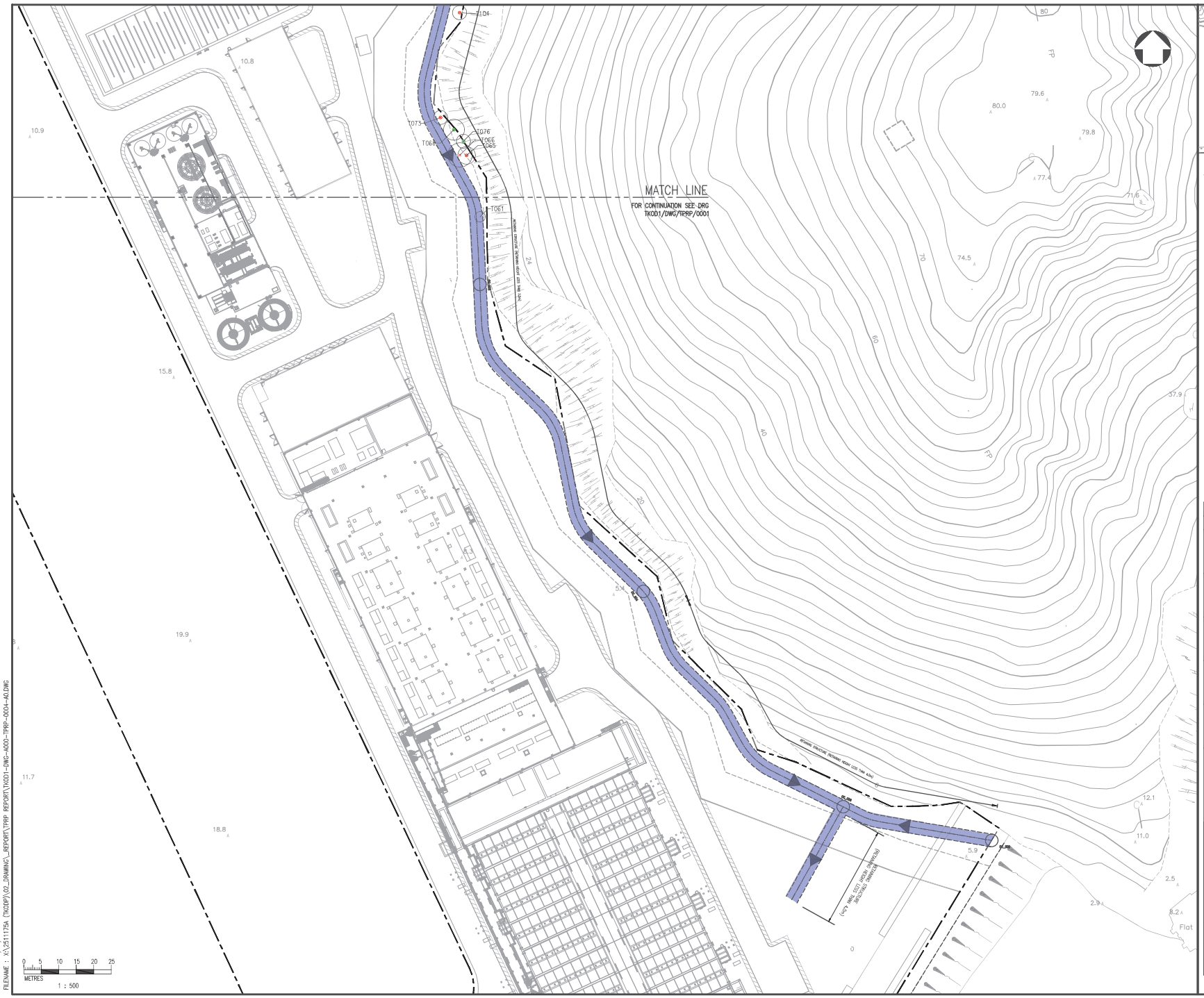
**Environmental Protection Department**
環境保護署

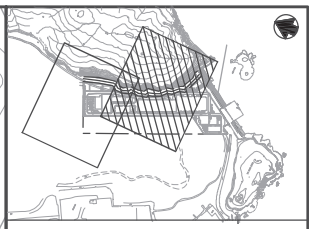
Environmental Permit No. FEP-01/503/2015/A
環境許可證編號: FEP-01/503/2015/A

Figure 2
圖二

# Appendix B – Tree Survey Result

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.



LEGEND

- SITE BOUNDARY
- PROPOSED OPEN CAHNNEL
- T175 — EXISTING TREE TO BE RETAINED
- T173 — EXISTING TREE TO BE FELL

| Rev | Description | By | Date |
|---|---|---|---|
| A0 | APPROVAL IN PRINCIPLE | CAD | 11 AUG 2020 |

Employer: 水務署 Water Supplies Department

Supervising Officer designate: BLACK & VEATCH

Design Checker: ARCADIS Design & Consultancy for natural and built assets

Contractor: acciona AJC Joint Venture

Designer: wsp In Association with APU

Project title:
Contract No. 13/WSD/17
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title:
TREE SURVEY PLAN
OVERLAID PROPOSED WORKS

(SHEET 2 OF 2)

| Drawing no. | Rev. |
|---|---|
| TKOD1/DWG/A000/TPRP/0004 | A0 |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CAD | 15JUL2020 | VT | – |

Scale: 1:500 (A3) | Status: –

©COPYRIGHT RESERVED

DATE: 8/20/20
FILENAME : X:\2511175A (TKODP)\02_DRAWING_REPORT\TPRP REPORT\TKOD1-DWG-A000-TPRP-0004-A0.DWG

Tree Assessment Schedule

Project Title: Contract No. 13/WSD/17 Design, Build and Operation First Stage of Tseung Kwan O Desalination Plant

Appendix B

Date of inspection: 10 & 19 Feb 2020

Prepared by Tree Specalist: Mr. Curtis Lai (#ISA Certified Arborist: HK-1584A) & Mr. Drek Yeung (#ISA Certified Arborist: HK-1093A)

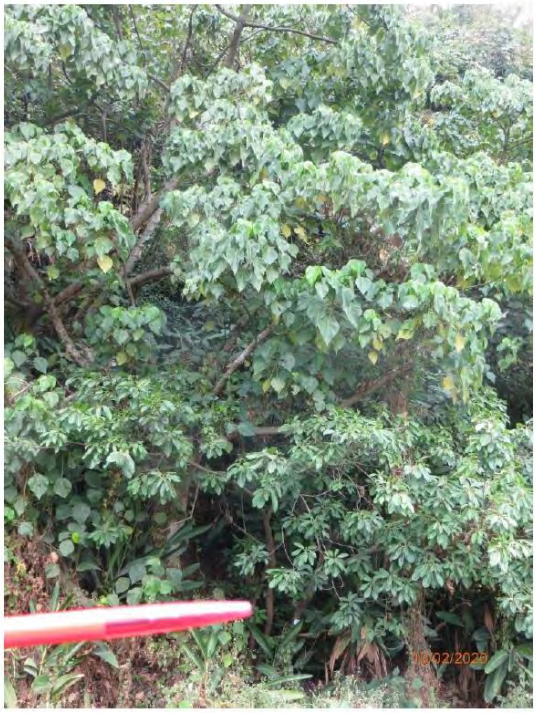
| Tree No. | Species | | Measurements | | | Amenity Value | Form | Health condition | Structural condition | Suitability for transplanting | | Conservation Status (Yes/ No) | OVT or Potential OVT (Yes/ No) | Maintenance department to provide comments on TPRP | | Recommendation | Justification of tree felling | Additional Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Scientific name | Chinese Name | Height (m) | DBH (mm) | Crown Spread (m) | (High/Medium/Low) | (Good/Average/Poor) | | | (High/Medium/Low) | Remarks | | | Before | After | (Retain/ Transplant/Remove) | | |
| T061 | *Mallotus paniculatus* | 白楸 | 5 | 130 | 3 | M | A | A | A | L | - | N | N | CEDD | WSD | R | 1, 4, 5 | Leaning |
| T065 | *Ficus subpisocarpa* | 菩提榕 | 5 | 188 | 5 | M | A | A | A | L | - | N | N | CEDD | WSD | R | 1, 4 | Multiple trunks |
| T066 | *Ficus subpisocarpa* | 菩提榕 | 9 | 200 | 7 | M | A | A | A | L | - | N | N | CEDD | WSD | R | 1, 4 | - |
| T068 | *Macaranga tanarius* var. *tomentosa* | 血桐 | 7 | 165 | 6 | L | P | A | A | L | On slope | N | N | CEDD | WSD | Re | - | Crooked trunk |
| T073 | *Macaranga tanarius* var. *tomentosa* | 血桐 | 7 | 160 | 4 | L | P | A | A | L | - | N | N | CEDD | WSD | R | 1, 4, 5 | Trunk wound, crooked trunk |
| T076 | *Ficus microcarpa* | 細葉榕 | 5 | 120 | 4 | M | A | A | A | L | On slope | N | N | CEDD | WSD | Re | - | - |
| T104 | *Sterculia lanceolata* | 假蘋婆 | 6 | 105 | 4 | M | A | A | A | L | - | N | N | CEDD | WSD | R | 1, 2, 4 | - |
| T109 | *Macaranga tanarius* var. *tomentosa* | 血桐 | 6 | 160 | 4 | M | A | A | A | L | - | N | N | CEDD | WSD | R | 1, 4, 5 | - |
| T129 | *Acacia confusa* | 台灣相思 | 9 | 300 | 7 | L | P | A | A | L | - | N | N | CEDD | WSD | R | 1, 4, 5 | Asymmetric crown |
| T137 | *Acacia confusa* | 台灣相思 | 13 | 472 | 12 | M | A | A | A | L | - | N | N | CEDD | WSD | R | 1, 3, 4, 5 | Branch conflict with T138 |
| T138 | *Macaranga tanarius* var. *tomentosa* | 血桐 | 10 | 180 | 7 | L | P | A | A | L | - | N | N | CEDD | WSD | R | 1, 3, 4, 5 | Branch conflict with T137 |

**Remarks:**

***Justification of tree felling**

1. Tree is in direct conflict with the proposed works
2. Preparation of intact and sufficient-sized root ball is not practical due to the topography (e.g. steep slope, shallow substratum, structures)
3. Tree with poor health and/or form and/or structural condition for transplantation.
4. Lack of access for transplantation machinery or vehicle.
5. Species of low post-transplantation survival rate.

T061



T065

T066

T068


T073

T076

T104


T109

## Appendix B – Photographic Records of Existing Trees

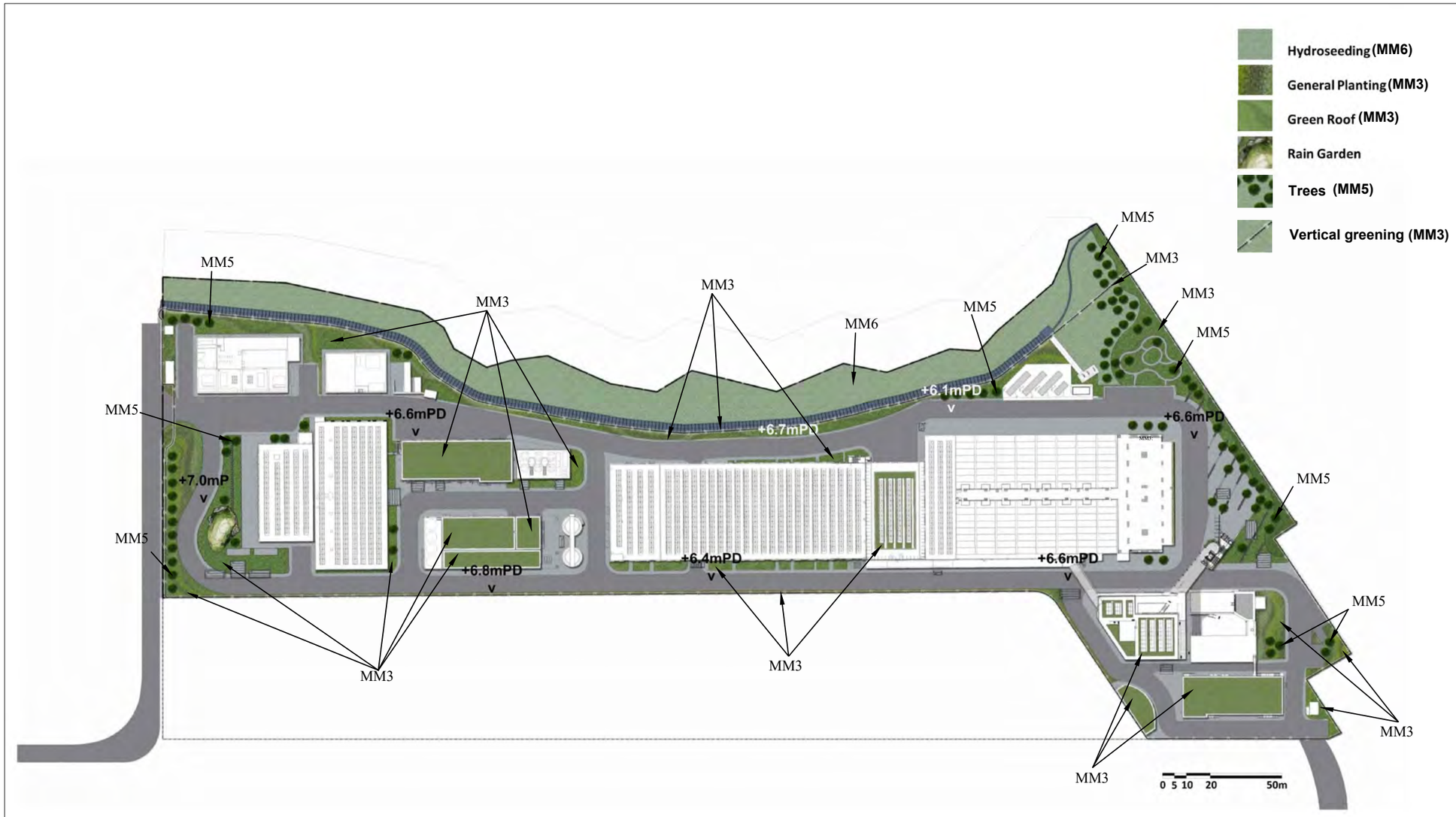

T129


T137


T138

# Appendix C – Implementation of L&V Mitigation Measure (Operational Stage)

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.




# Mitigation Measure:

MM3:
Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to:

- green roofs where practical (ie without equipment on the roof);
- roadside planting;
- aesthetic treatment of all structures;
- vertical greening;
- screen planting along application site; and
- landscape enhancement with amenity planting where practical, including planting along the edge (site boundary) fence with native shrubs where feasible, to reduce their visual impact and blend them into the surrounding landscape.

MM 5:
No Tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government departments.

A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 4/2020.

MM6:
Any slope mitigation works necessary to address natural terrain hazards, will be minimized to minimize any potential environmental impact to the Country Park e.g. soil nailing and rock stabilization will aim to avoid existing trees e.g. should any restoration of vegetation be necessary, the best planting matrix with native species will be established, with the aim of resembling the existing vegetation.

Remark:

1. The mitigation measure only include operation stage mitigation measure
2. Detail of MM8 could be refer to Appendix G.

Project:
Contract No. 13/WSD/17
Design, Build and Operation of Tseung Kwan O Desalination Plant

# Implementation of L&V Mitigation Measure (Operational Stage)

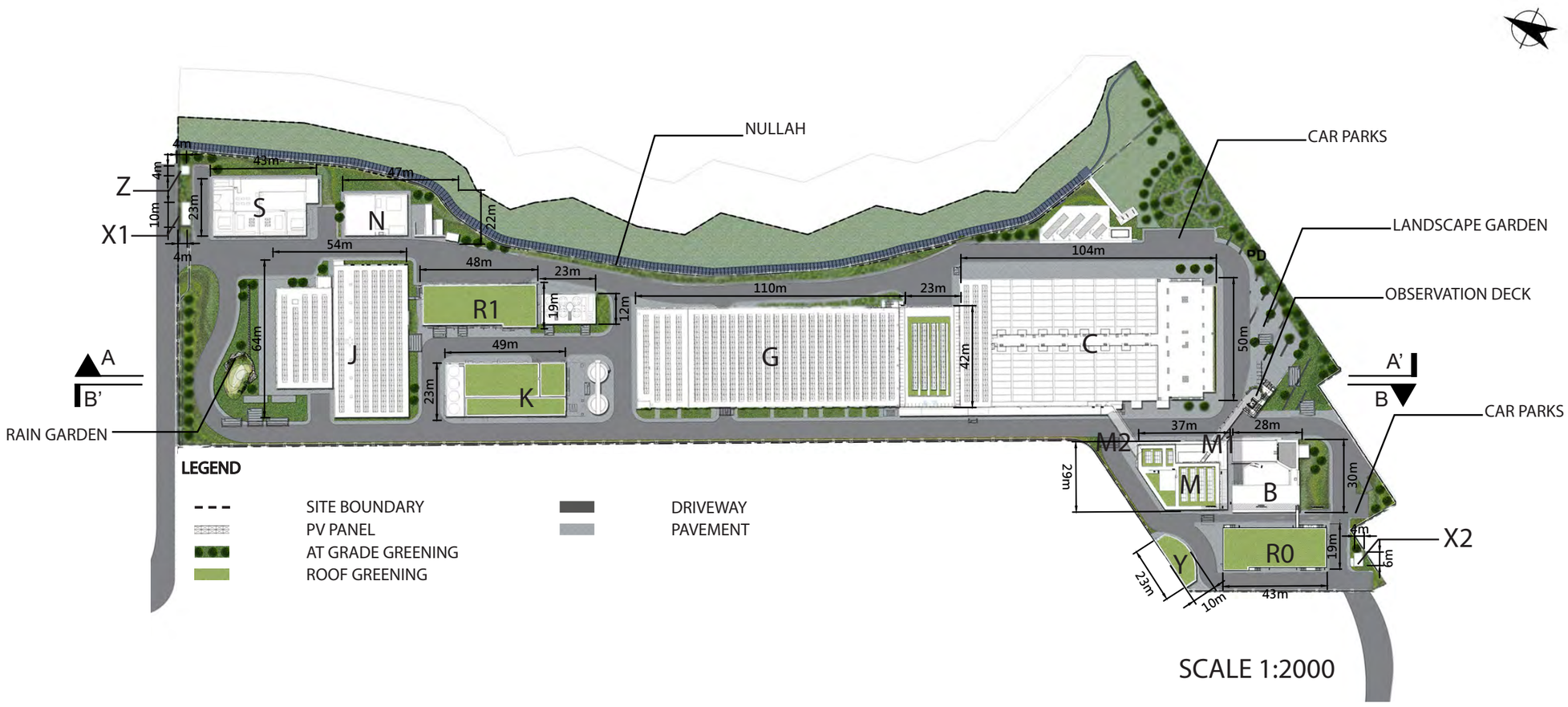
Scale
A4 1:500

ACUITY SUSTAINABILITY CONSULTING LIMITED

# Appendix D – DPTKO Building Layout Plan

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# Appendix D - Layout Plan of TKO Desalination Plant




**LEGEND**

M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA

N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B
Y - WORKSHOP


**LEGEND**

M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA
N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B

**LEGEND**

- SITE BOUNDARY
- PV PANEL
- AT GRADE GREENING
- ROOF GREENING
- DRIVEWAY
- PAVEMENT

SCALE 1:1000


**LEGEND**

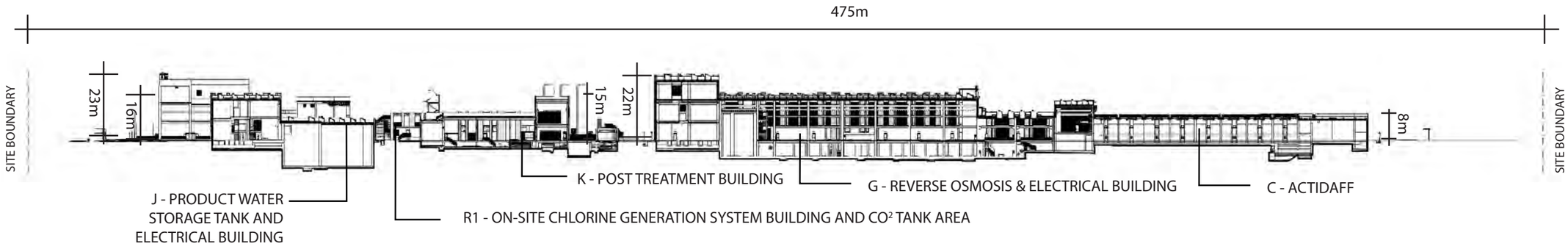
M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA
N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B

**LEGEND**

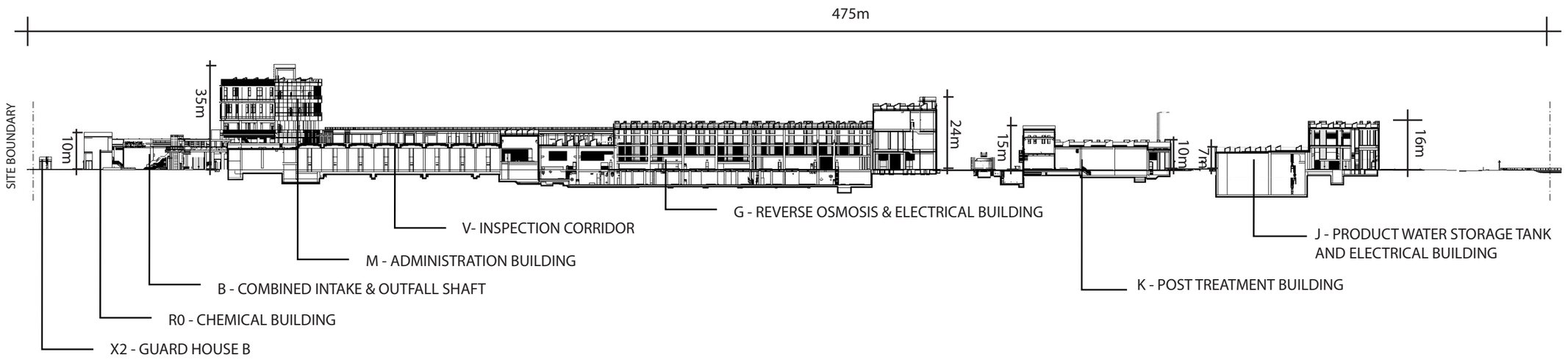
SITE BOUNDARY
PV PANEL
AT GRADE GREENING
ROOF GREENING
DRIVEWAY
PAVEMENT

SCALE 1:1000

## SITE SECTION AA'




## SITE SECTION A-A (SCALE 1:500)

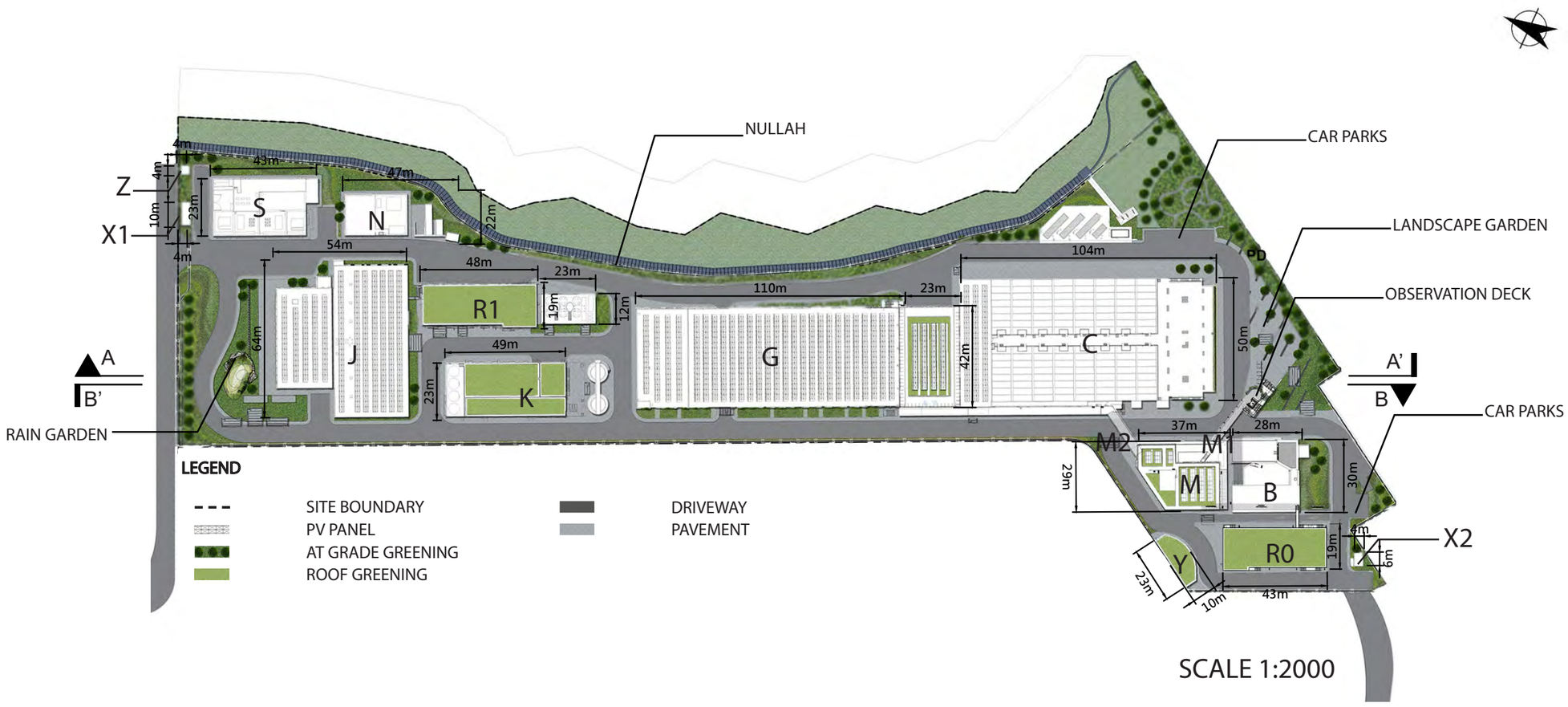



## SITE SECTION B-B (SCALE 1:500)

# Appendix E – Soft Landscape Design

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# App E - Soft landscape design (Overview)

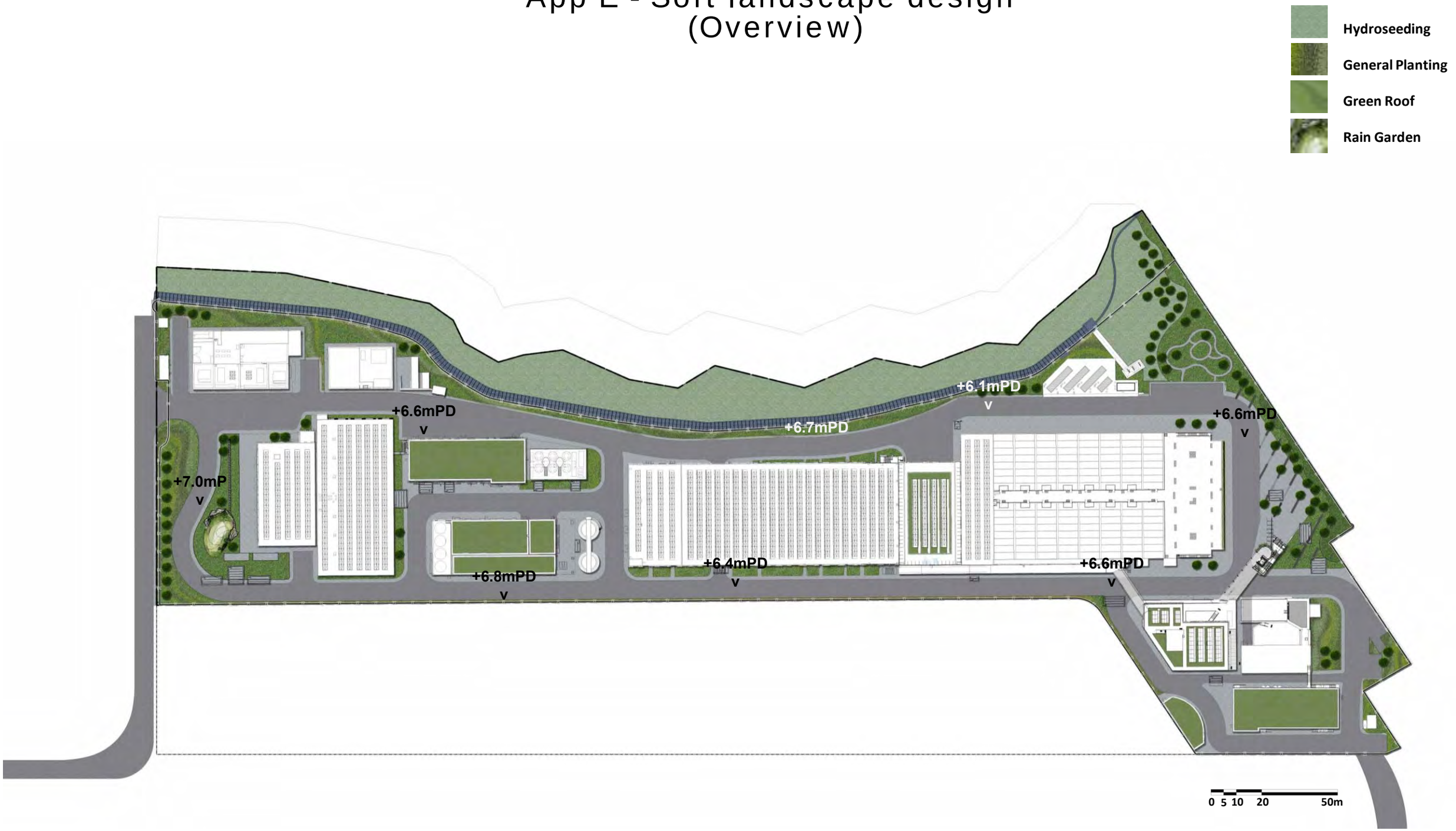



**LEGEND**

M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA

N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B
Y - WORKSHOP

# App E - Soft landscape design (Overview)



PLANTING LIST

# App E - Soft landscape design (Planting List)

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 胸徑 DBH (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) | Admin Building 1/F Qty. (nos.) | 總數量 Total Qty. (nos.) | 備註 Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| **Trees** | | | | | | | | | | |
| BJ | *Bischofia javanica* | 秋楓 | 5000 | 3000 | 100 | 7000 | 19 | - | 19 | Native |
| IR | *Ilex rotumda var.microcarpa* | 小果鐵冬青 | 3000 | 2000 | 60 | 5000 | 6 | 2 | 8 | Native |
| LF | *Liquidambar formosana* | 楓香 | 5000 | 3000 | 90 | 5000 | 6 | - | 6 | Native |
| PP | *Pongamia pinnata* | 水黃皮 | 4000 | 3000 | 80 | 5000 | 12 | - | 12 | Native |
| SL | *Sterculia lanceolata* | 假蘋婆 | 5000 | 3000 | 90 | 6000 | 17 | - | 17 | Native |
| TM | *Terminalia mantaly* | 小葉欖仁 | 5000 | 2500 | 90 | 5000 | 18 | - | 18 | Exotic |
| TS | *Triadica sebifera* | 烏桕 | 4000 | 2000 | 80 | 5000 | 8 | - | 8 | Native |
| | | | | | | | | **Total** | 88 | |

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) | R/F 數量 R/F Qty. (nos.) | Admin Building 1/F Qty. (nos.) | 2/F Qty. (nos.) | 3/F Qty. (nos.) | 4/F Qty. (nos.) | 總數量 Total Qty. (nos.) | 本地品種/外來品種 Native / Exotic | 備註 Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Groundcovers** | | | | | | | | | | | | | | |
| Adu | *Arachis duranensis* | 蔓花生 | 100 | 100 | 200 | 630 | 10913 | - | - | - | - | 11543 | Exotic | - |
| Ccm | *Chlorophytum comosum cv. Marginatum* | 金邊吊蘭 | 200 | 200 | 200 | - | 9303 | - | - | - | - | 9303 | Exotic | - |
| Lmo | *Lantana montevidensis* | 紫花馬纓丹 | 200 | 200 | 200 | 2797 | 16692 | - | - | - | - | 19489 | Exotic | - |
| Nau | *Nephrolepis auriculata* | 腎蕨 | 250 | 200 | 200 | 8918 | 9903 | 210 | 93 | - | - | 19124 | Native | - |
| Oja | *Ophiopogon japonicus* | 麥冬 | 250 | 200 | 200 | - | 6024 | - | - | - | - | 6024 | Native | - |
| Ojs | *Ophiopogon jaburan (Siebold) Lodd.* | 花葉沿階草 | 250 | 200 | 200 | 446 | 13208 | - | - | - | - | 13654 | Exotic | - |
| Pmy | *Phyllanthus myrtifolius* | 錫蘭葉下珠 | 250 | 200 | 150 | 8147 | 17537 | - | 148 | - | - | 25832 | Exotic | - |
| **Shrubs** | | | | | | | | | | | | | | |
| Aca | *Allamanda cathartica* | 軟枝黃蟬 | 400 | 300 | 200 | 10834 | - | - | - | - | - | 10834 | Exotic | - |
| Acu | *Asclepias curassavica* | 馬利筋 | 300 | 200 | 200 | 14651 | - | - | - | - | - | 14651 | Exotic | - |
| Aod | *Aglaia odorata* | 米仔蘭 | 400 | 300 | 200 | 5575 | - | 70 | 122 | - | - | 5767 | Exotic | - |
| Cal | *Cassia alata* | 翹荚決明 | 1200 | 800 | 600 | 576 | - | - | - | - | - | 576 | Exotic | - |
| Drg | *Duranta repens 'golden'* | 金連翹 | 300 | 250 | 150 | 28249 | - | - | 102 | - | - | 28351 | Exotic | - |
| Drv | *Duranta repens 'Variegata'* | 花葉連翹 | 300 | 250 | 200 | 3482 | - | - | - | - | - | 3482 | Exotic | - |
| Fja | *Fatsia japonica* | 八角金盤 | 500 | 350 | 300 | 6043 | - | 30 | - | - | - | 6073 | Exotic | - |
| Gja | *Gardenia jasminoides* | 梔子花 | 500 | 350 | 250 | 1692 | - | 30 | 147 | - | - | 1869 | Native | - |
| Ich | *Ixora chinensis* | 龍船花 | 500 | 300 | 200 | 13092 | - | 130 | - | - | - | 13222 | Native | - |
| Lcr | *Loropetalum chinensis var. rubrum* | 紅繼木 | 300 | 200 | 150 | 10387 | - | - | - | - | - | 10387 | Exotic | - |
| Lsi | *Ligustrum sinense* | 山指甲 | 500 | 350 | 250 | 9191 | - | - | - | - | - | 9191 | Exotic | - |
| Msa | *Melastoma sanguineum* | 毛茎 | 500 | 300 | 200 | 13910 | - | - | 41 | - | - | 13951 | Native | - |
| Rsi | *Rhododendron simsii* | 紅杜鵑 | 400 | 300 | 200 | 19040 | - | - | 67 | - | - | 19107 | Native | - |
| Rto | *Rhodomyrtus tomentosa* | 桃金娘 | 500 | 300 | 200 | 19705 | - | - | - | - | - | 19705 | Native | - |
| She | *Schefflera heptaphylla* | 鵝掌柴 | 400 | 300 | 250 | 17750 | - | 40 | 17 | - | - | 17807 | Native | - |
| Zpo | *Zanthoxylum piperitum cv 'odorum'* | 胡椒木 | 300 | 200 | 150 | 3964 | - | - | 116 | - | - | 4080 | Exotic | - |
| **Rain Garden** | | | | | | | | | | | | | | |
| Cin | *Canna indica* | 美人蕉 | 400 | 300 | 200 | 1167 | - | - | - | - | - | 1167 | Exotic | - |
| Hfu | *Hemerocallis fulva* | 萱草 | 400 | 300 | 200 | 603 | - | - | - | - | - | 603 | Exotic | - |
| Ite | *Iris tectorum* | 鳶尾 | 500 | 300 | 200 | 510 | - | - | - | - | - | 510 | Exotic | - |
| Lsa | *Lythrum salicaria* | 千屈菜 | 400 | 400 | 200 | 826 | - | - | - | - | - | 826 | Exotic | - |
| Msi | *Miscanthus sinensis* | 細葉芒 | 400 | 300 | 200 | 595 | - | - | - | - | - | 595 | Exotic | - |
| **Climber** | | | | | | | | | | | | | | |
| BcoC | *Bauhinia corymbosa* | 首冠藤 | 800 | 300 | 500 | 550 | - | - | - | - | - | 550 | Exotic | - |
| LjaC | *Lonicera japonica* | 金銀花 | 800 | 300 | 500 | 550 | - | - | - | - | - | 550 | Native | - |
| QinC | *Quisqualis indica* | 使君子 | 1000 | 300 | 500 | 700 | - | - | - | 10 | 10 | 720 | Exotic | - |
| **Hydroseed** | | | | | | | | | | | | | | |
| Cga | *Chloris gayana* | 非洲虎尾草 | - | - | - | 1130m$^2$ | - | - | - | - | - | 1130m$^2$ | Exotic | 按平方米計算(m$^2$) |
| Cda | *Cynodon dactylon* | 狗牙根 | - | - | - | 1130m$^2$ | - | - | - | - | - | 1130m$^2$ | Native | 按平方米計算(m$^2$) |
| Lpe | *Lolium perenne* | 黑麥草 | - | - | - | 1130m$^2$ | - | - | - | - | - | 1130m$^2$ | Exotic | 按平方米計算(m$^2$) |
| Msa | *Melastoma sanguineum* | 毛茎 | - | - | - | 1130m$^2$ | - | - | - | - | - | 1130m$^2$ | Native | 按平方米計算(m$^2$) |
| Rhi | *Rhus chinensis* | 鹽膚木 | - | - | - | 1130m$^2$ | - | - | - | - | - | 1130m$^2$ | Native | 按平方米計算(m$^2$) |
| Rto | *Rhodomyrtus tomentosa* | 桃金娘 | - | - | - | 1130m$^2$ | - | - | - | - | - | 1130m$^2$ | Native | 按平方米計算(m$^2$) |
| **Lawn** | | | | | | | | | | | | | | |
| Zja | *Zoysia japonica* | 台灣草 | - | - | - | 410m$^2$ | - | - | - | - | - | 410m$^2$ | Exotic | 按平方米計算(m$^2$) |

| Rev | Description | By | Date |
|---|---|---|---|
| A | GENERAL REVISION | AC | 2021/11/11 |

Employer
水務署 Water Supplies Department

Supervising Officer designate
binnies

Design Checker
ARCADIS Design & Consultancy for natural and built assets

Contractor
acciona JEC CSCEC
AJC JOINT VENTURE

Designer
wsp
In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
PLANTING LIST
—
—
—
—

Drawing no. TKOD1-DWG-A000-WLA3101 Rev. A

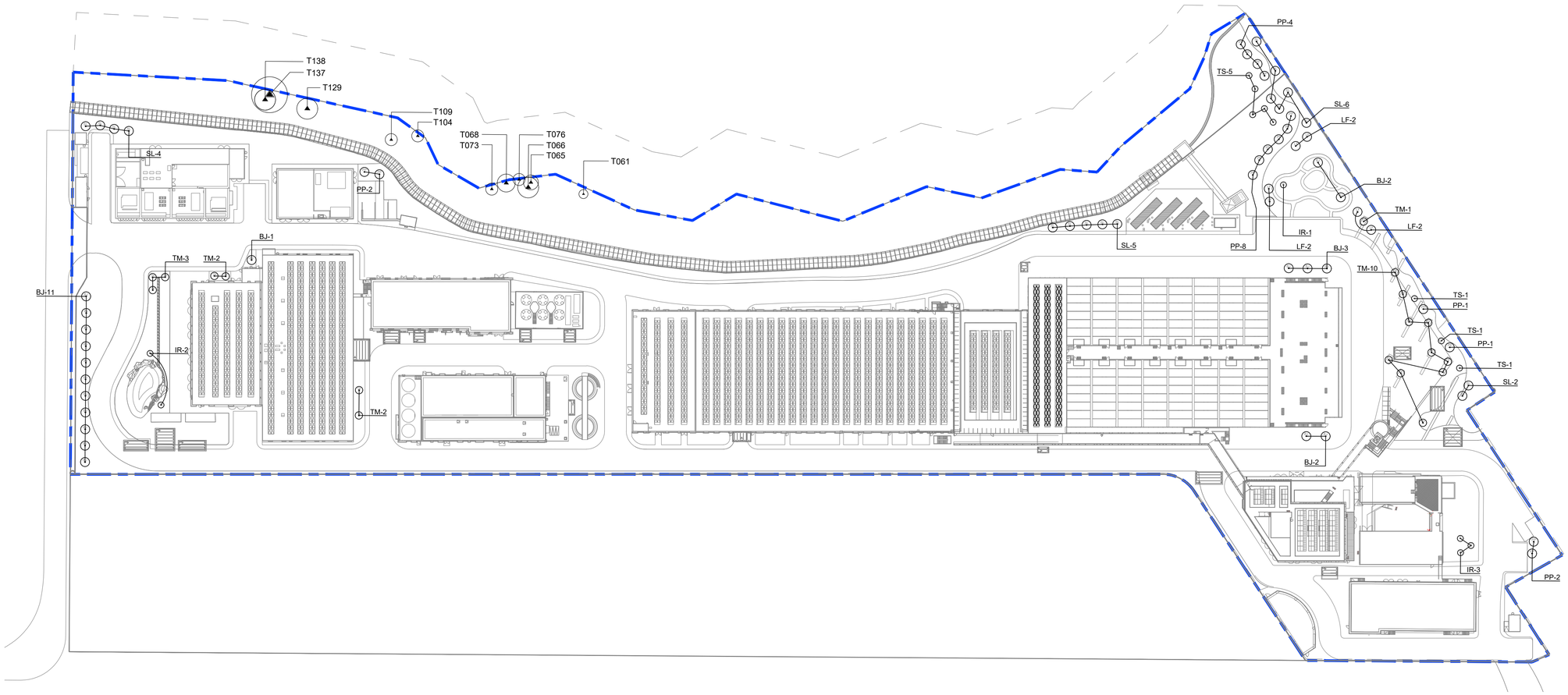
| Drawn | Date | Checked | Approved |
|---|---|---|---|
| AC | 10 MAY 2021 | XL | - |

Scale: N.T.S.
Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

PLANTING LIST

| 序號 Item | 植物名稱 Botanical Name Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 胸徑 DBH (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) |
|---|---|---|---|---|---|---|---|
| **Trees** | | | | | | | |
| BJ | *Bischofia javanica* | 秋楓 | 5000 | 3000 | 100 | 7000 | 19 |
| IR | *Ilex rotumda var.microcarpa* | 小果鐵冬青 | 3000 | 2000 | 60 | 5000 | 6 |
| LF | *Liquidambar formosana* | 楓香 | 5000 | 3000 | 90 | 5000 | 6 |
| PP | *Pongamia pinnata* | 水黃皮 | 4000 | 3000 | 80 | 5000 | 12 |
| SL | *Sterculia lanceolata* | 假蘋婆 | 5000 | 3000 | 90 | 6000 | 17 |
| TM | *Terminalia mantaly* | 小葉欖仁 | 5000 | 2500 | 90 | 5000 | 18 |
| TS | *Triadica sebifera* | 烏桕 | 4000 | 2000 | 80 | 5000 | 8 |




LEGEND:

- SITE BOUNDARY
- PROPOSED NEW TREE
- RETAINED TREE

REMARKS:
NOT LESS THAN 1200mm CLEAR SOIL WIDTH AND DEPTH SHOULD BE PROVIDED FOR ALL TREE PLANTING AREAS.

| Rev | Description | By | Date |
|---|---|---|---|
| A | GENERAL REVISION | AC | 2021/11/11 |

Employer: 水務署 Water Supplies Department

Supervising Officer designate: binnies

Design Checker: ARCADIS Design & Consultancy for natural and built assets

Contractor: acciona JEC CRCEC AJC JOINT VENTURE

Designer: wsp In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
TREE PLAN – GROUND FLOOR
–
–
–
–

| Drawing no. | Rev. |
|---|---|
| TKOD1–DWG–A000–WLA3111 | A |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| AC | 10 MAY 2021 | XL | – |

Scale: 1:800@A1
Status: DETAILED DESIGN APPROVAL

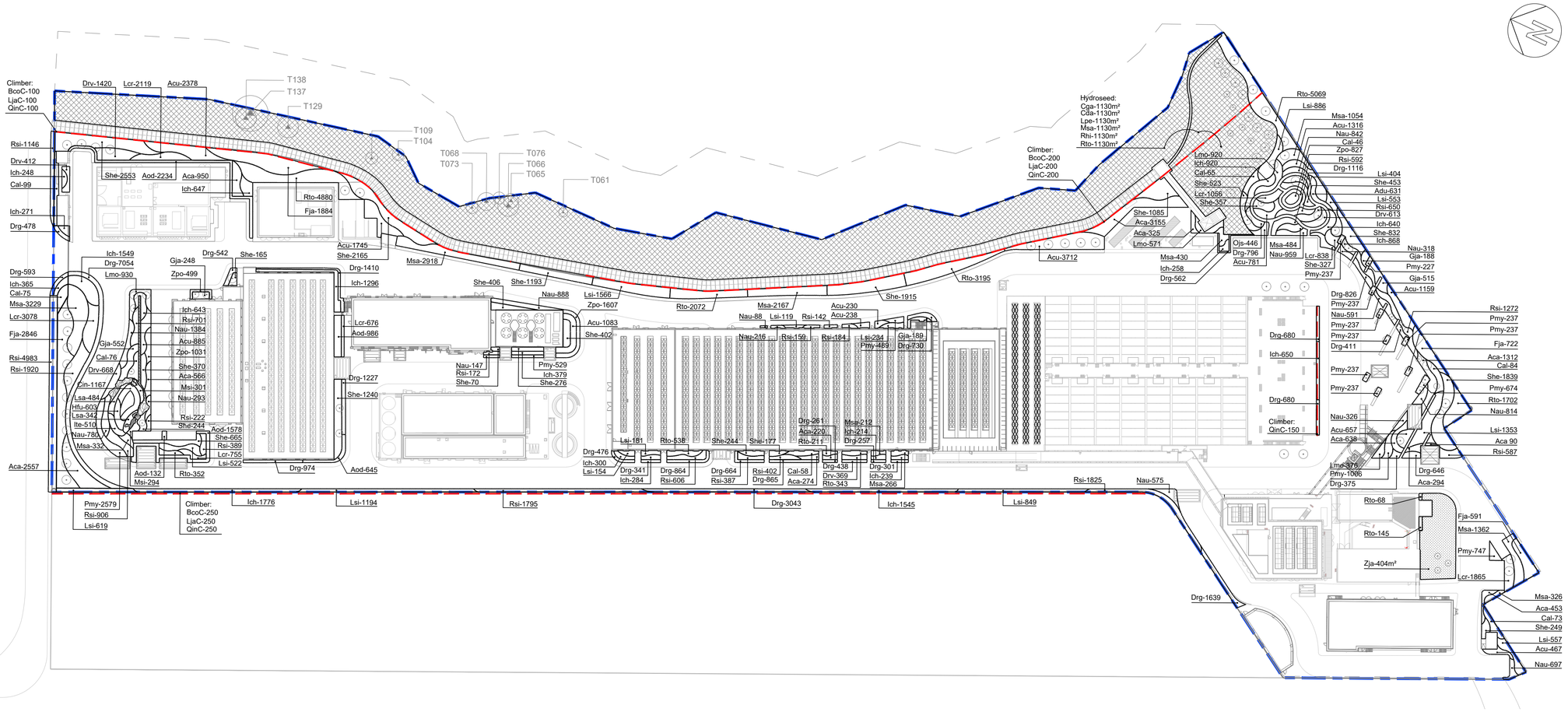
©COPYRIGHT RESERVED

# App E - Soft landscape design (Shrubs Planting Plan)

## PLANTING LIST

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) |
|---|---|---|---|---|---|---|
| **Groundcovers** | | | | | | |
| Adu | *Arachis duranensis* | 蔓花生 | 100 | 100 | 200 | 630 |
| Lmo | *Lantana montevidensis* | 紫花馬纓丹 | 200 | 200 | 200 | 2797 |
| Nau | *Nephrolepis auriculata* | 腎蕨 | 250 | 200 | 200 | 8918 |
| Ojs | *Ophiopogon jaburan (Siebold) Lodd.* | 花葉沿階草 | 250 | 200 | 200 | 446 |
| Pmy | *Phyllanthus myrtifolius* | 錫蘭葉下珠 | 250 | 200 | 150 | 8147 |
| **Shrubs** | | | | | | |
| Aca | *Allamanda cathartica* | 軟枝黃蟬 | 400 | 300 | 200 | 10834 |
| Acu | *Asclepias curassavica* | 馬利筋 | 300 | 200 | 200 | 14651 |
| Aod | *Aglaia odorata* | 米仔蘭 | 400 | 300 | 200 | 5575 |
| Cal | *Cassia alata* | 翅莢決明 | 1200 | 800 | 600 | 576 |
| Drg | *Duranta repens 'golden'* | 金連翹 | 300 | 250 | 150 | 28249 |
| Drv | *Duranta repens 'Variegata'* | 花葉連翹 | 300 | 250 | 200 | 3482 |
| Fja | *Fatsia japonica* | 八角金盤 | 500 | 350 | 300 | 6043 |
| Gja | *Gardenia jasminoides* | 梔子花 | 500 | 350 | 250 | 1692 |
| Ich | *Ixora chinensis* | 龍船花 | 500 | 300 | 200 | 13092 |
| Lcr | *Loropetalum chinensis var. rubrum* | 紅繼木 | 300 | 200 | 150 | 10387 |
| Lsi | *Ligustrum sinense* | 山指甲 | 500 | 350 | 250 | 9191 |
| Msa | *Melastoma sanguineum* | 毛茎 | 500 | 300 | 200 | 13910 |
| Rsi | *Rhododendron simsii* | 紅杜鵑 | 400 | 300 | 200 | 19040 |
| Rto | *Rhodomyrtus tomentosa* | 桃金娘 | 500 | 300 | 200 | 19705 |
| She | *Schefflera heptaphylla* | 鵝掌柴 | 400 | 300 | 250 | 17750 |
| Zpo | *Zanthoxylum piperitum cv 'odorum'* | 胡椒木 | 300 | 200 | 150 | 3964 |

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) | 備註 Remark |
|---|---|---|---|---|---|---|---|
| **Rain Garden** | | | | | | | |
| Cin | *Canna indica* | 美人蕉 | 400 | 300 | 200 | 1167 | - |
| Hfu | *Hemerocallis fulva* | 萱草 | 400 | 300 | 200 | 603 | - |
| Ite | *Iris tectorum* | 鳶尾 | 500 | 300 | 200 | 510 | - |
| Lsa | *Lythrum salicaria* | 千屈菜 | 400 | 400 | 200 | 826 | - |
| Msi | *Miscanthus sinensis* | 細葉芒 | 400 | 300 | 200 | 595 | - |
| **Climber** | | | | | | | |
| BcoC | *Bauhinia corymbosa* | 首冠藤 | 800 | 300 | 500 | 550 | - |
| LjaC | *Lonicera japonica* | 金銀花 | 800 | 300 | 500 | 550 | - |
| QinC | *Quisqualis indica* | 使君子 | 1000 | 300 | 500 | 700 | - |
| **Hydroseed** | | | | | | | |
| Cga | *Chloris gayana* | 非洲虎尾草 | - | - | - | 1130m$^2$ | 按平方米計算(m$^2$) |
| Cda | *Cynodon dactylon* | 狗牙根 | - | - | - | 1130m$^2$ | 按平方米計算(m$^2$) |
| Lpe | *Lolium perenne* | 黑麥草 | - | - | - | 1130m$^2$ | 按平方米計算(m$^2$) |
| Msa | *Melastoma sanguineum* | 毛茎 | - | - | - | 1130m$^2$ | 按平方米計算(m$^2$) |
| Rhi | *Rhus chinensis* | 鹽膚木 | - | - | - | 1130m$^2$ | 按平方米計算(m$^2$) |
| Rto | *Rhodomyrtus tomentosa* | 桃金娘 | - | - | - | 1130m$^2$ | 按平方米計算(m$^2$) |
| **Lawn** | | | | | | | |
| Zja | *Zoysia japonica* | 台灣草 | - | - | - | 410m$^2$ | 按平方米計算(m$^2$) |




LEGEND:

- SITE BOUNDARY
- SHRUBS & GROUNDCOVERS
- LAWN
- PLANTING AREA FOR HYDROSEED
- CLIMBER
- PROPOSED NEW TREE
- RETAINED TREE

REMARKS:
NOT LESS THAN 600mm SOIL DEPTH SHOULD BE PROVIDED FOR THOSE AREAS PLANTED WITH SHRUBS AND 300mm SOIL DEPTH FOR GROUNDCOVERS.

| Rev | Description | By | Date |
|---|---|---|---|
| A | GENERAL REVISION | AC | 2021/11/11 |

Employer: 水務署 Water Supplies Department

Supervising Officer designate: binnies

Design Checker: ARCADIS Design & Consultancy for natural and built assets

Contractor: acciona JEC CRCC AJC JOINT VENTURE

Designer: wsp In Association with APU

Project title:
CONTRACT NO. 13/WSD/17
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing title:
SHRUBS PLAN – GROUND FLOOR

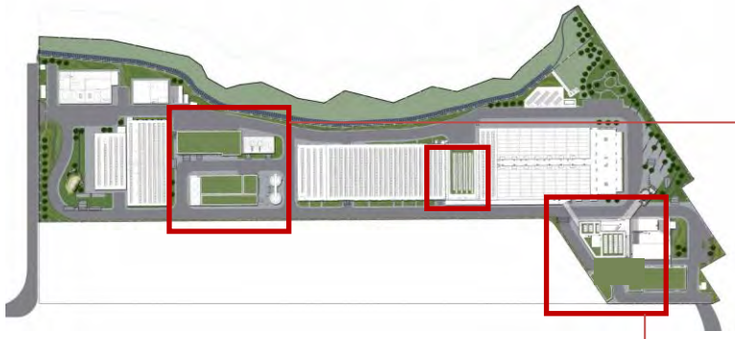
Drawing no.: TKOD1-DWG-A000-WLA3112 Rev. A

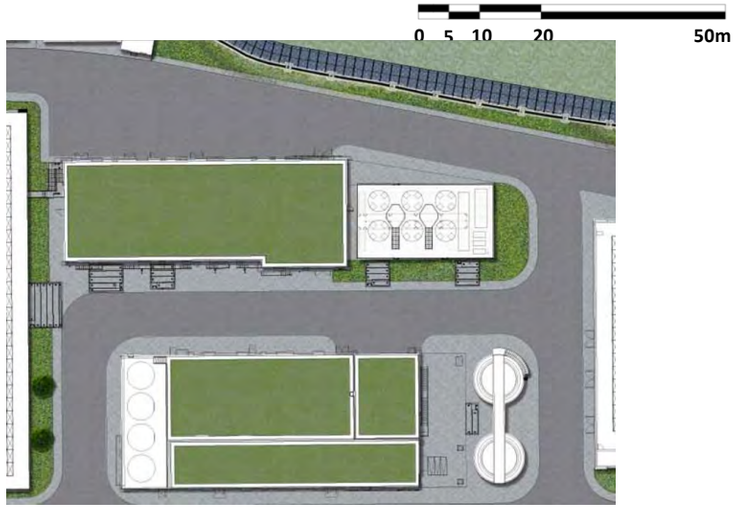
| Drawn | Date | Checked | Approved |
|---|---|---|---|
| AC | 10 MAY 2021 | XL | - |

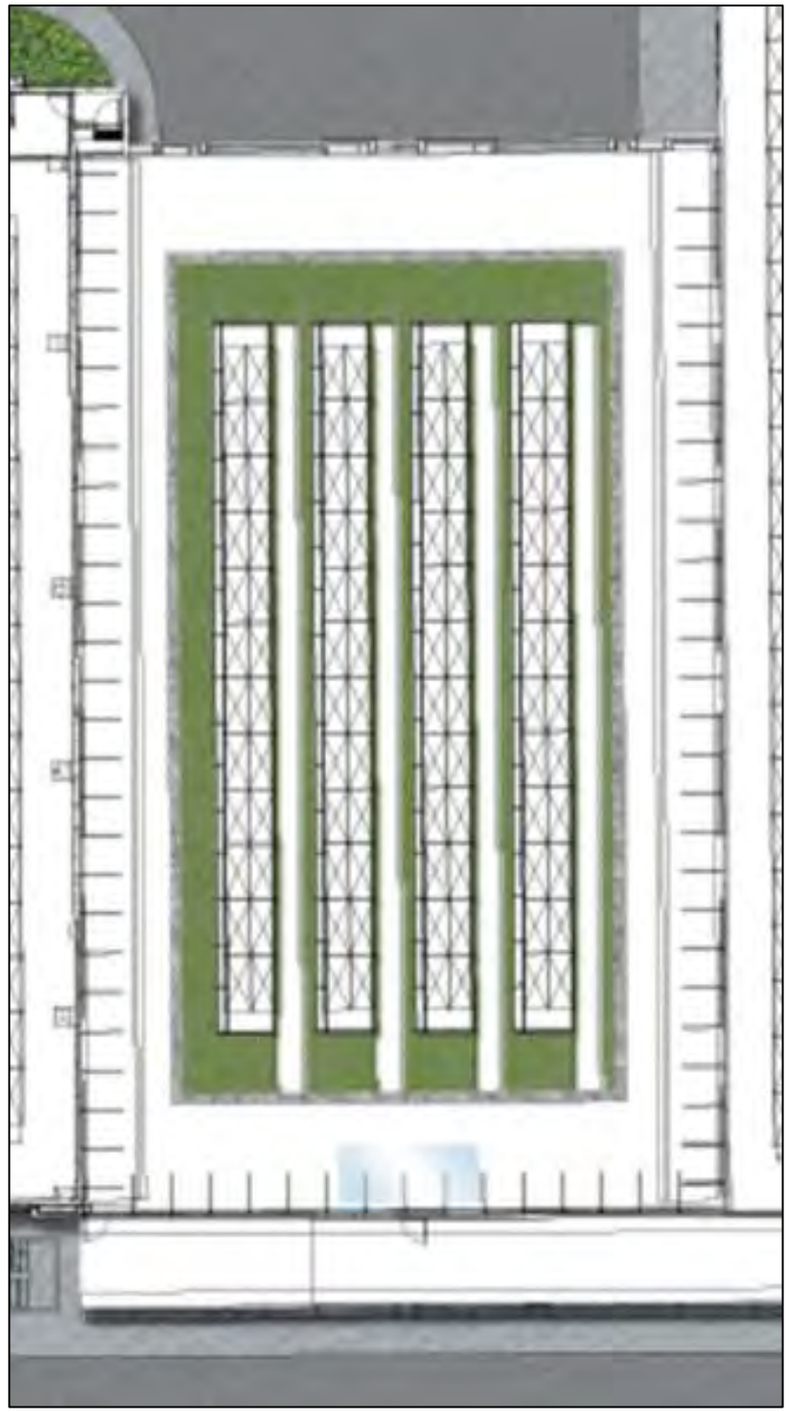
Scale: 1:800@A1
Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

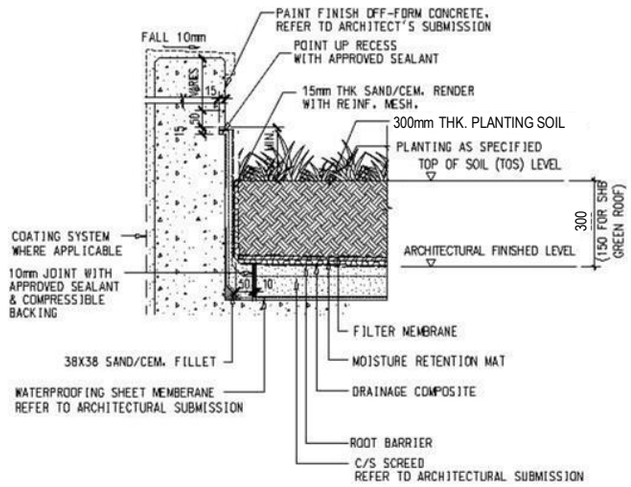
# Appendix E - Soft Landscape Design (Green Roof)



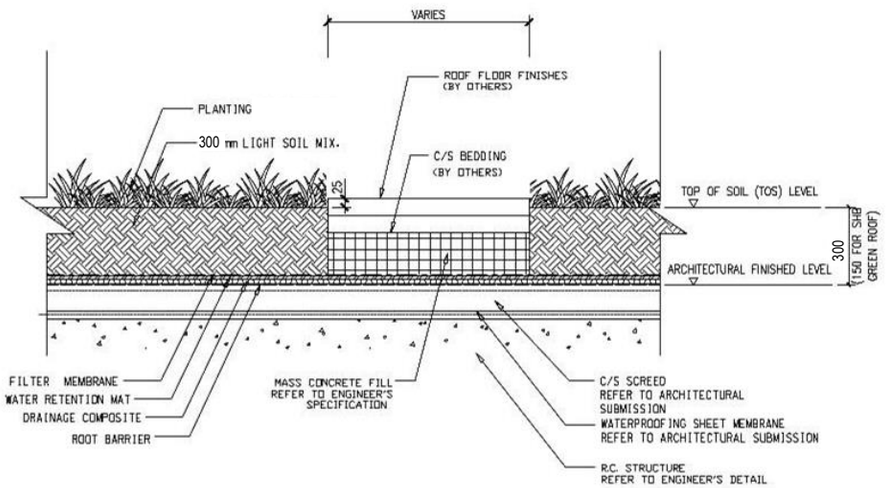


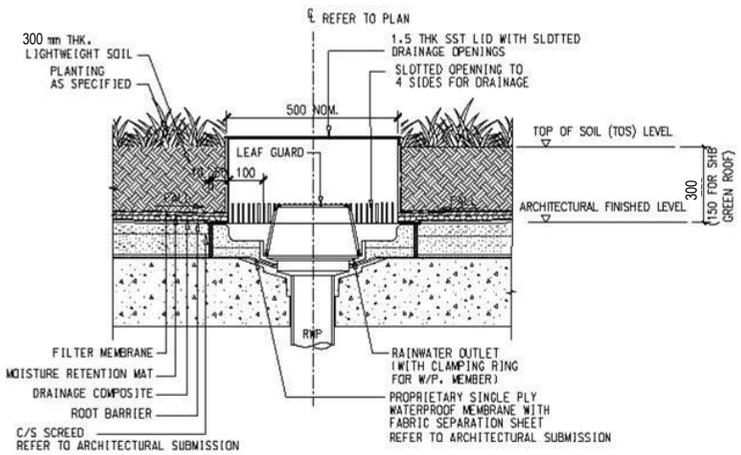
## Typical Edge Detail

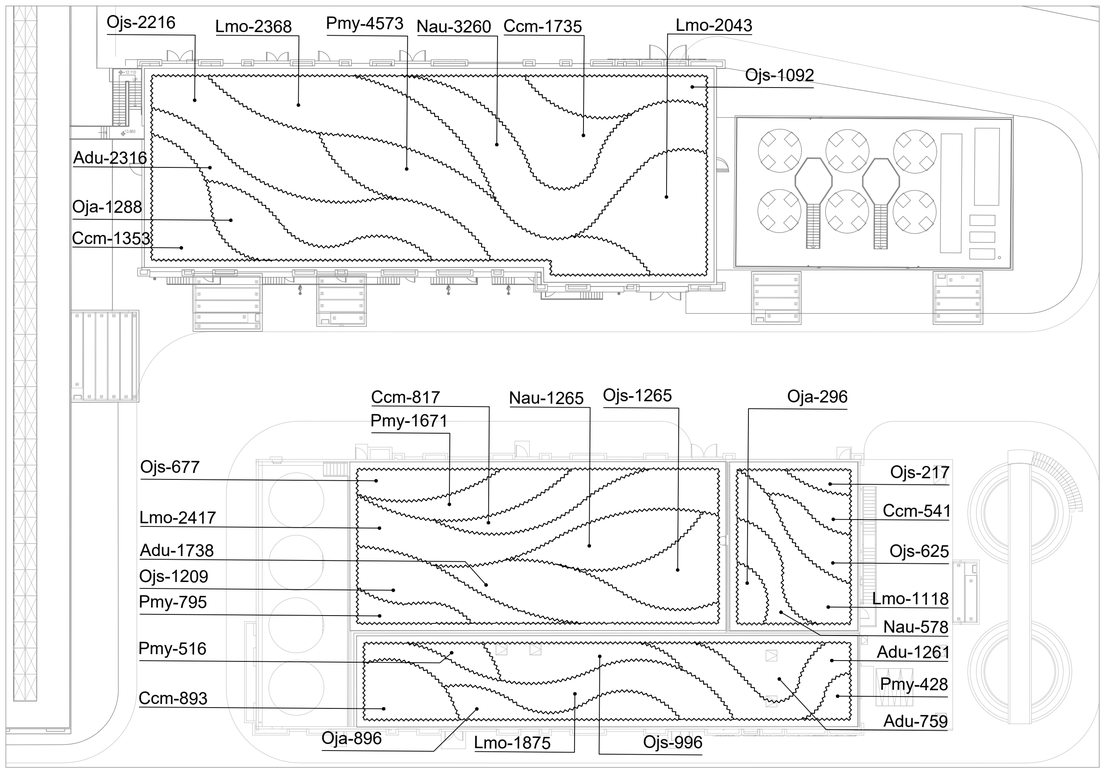



## Typical Green Roof Detail

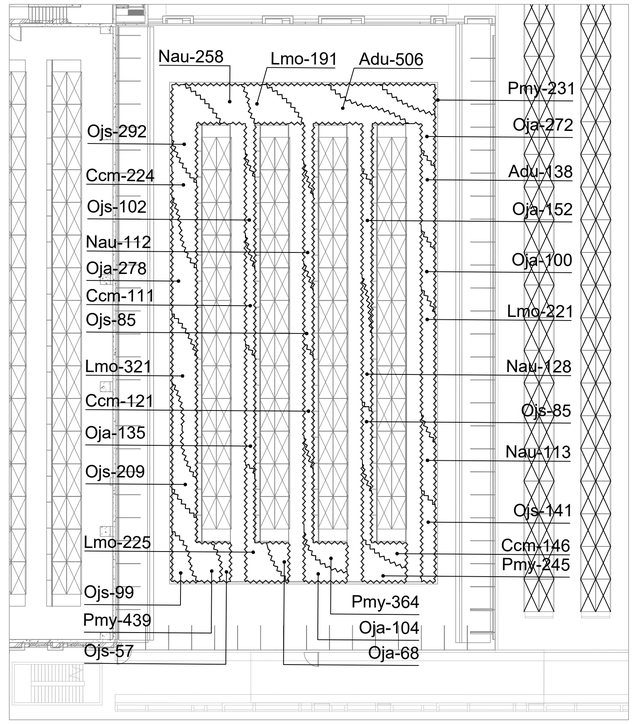



## Typical Drainage Detail (Location to Engineer's Requirement)

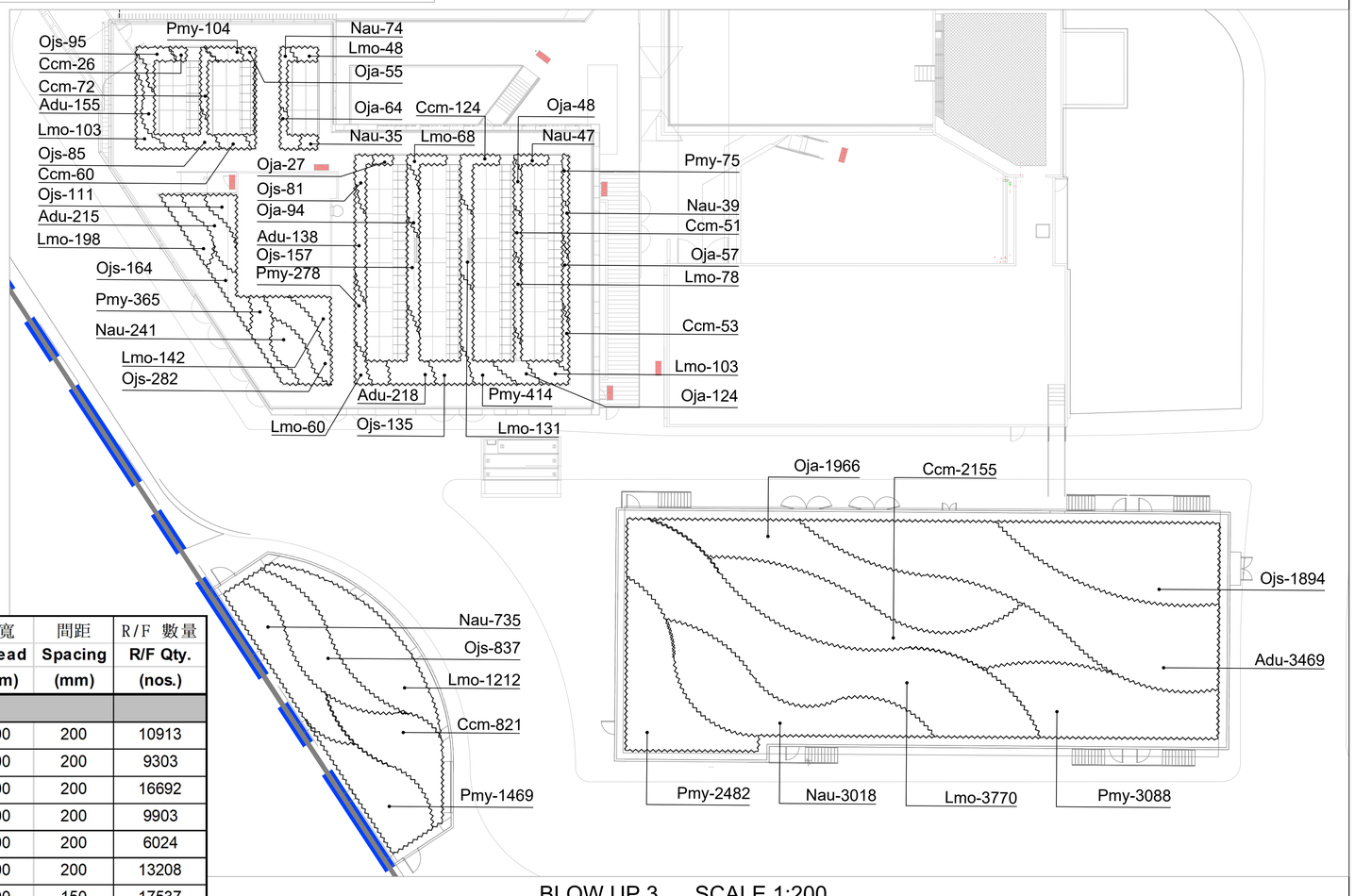





BLOW UP 1 SCALE 1:250




BLOW UP 2 SCALE 1:200

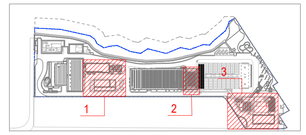



BLOW UP 3 SCALE 1:200

PLANTING LIST

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | R/F 數量 R/F Qty. (nos.) |
|---|---|---|---|---|---|---|
| **Groundcovers** | | | | | | |
| Adu | *Arachis duranensis* | 蔓花生 | 100 | 100 | 200 | 10913 |
| Ccm | *Chlorophytum comosum cv. Marginatum* | 金邊吊蘭 | 200 | 200 | 200 | 9303 |
| Lmo | *Lantana montevidensis* | 紫花馬纓丹 | 200 | 200 | 200 | 16692 |
| Nau | *Nephrolepis auriculata* | 腎蕨 | 250 | 200 | 200 | 9903 |
| Oja | *Ophiopogon japonicus* | 麥冬 | 250 | 200 | 200 | 6024 |
| Ojs | *Ophiopogon jaburan (Siebold) Lodd.* | 花葉沿階草 | 250 | 200 | 200 | 13208 |
| Pmy | *Phyllanthus myrtifolius* | 錫蘭葉下珠 | 250 | 200 | 150 | 17537 |

KEY PLAN scale 1:6000




LEGEND:

SHRUBS & GROUNDCOVERS

REMARKS:
NOT LESS THAN 300mm SOIL DEPTH SHOULD BE PROVIDED FOR THOSE AREAS PLANTED WITH FOR GROUNDCOVERS.

| Rev | Description | By | Date |
|---|---|---|---|
| A | GENERAL REVISION | AC | 2021/11/11 |

Employer: 水務署 Water Supplies Department

Supervising Officer designate: binnies

Design Checker: ARCADIS Design & Consultancy for natural and built assets

Contractor: acciona JEC CRCG AJC JOINT VENTURE

Designer: wsp In Association with APU

Project title:
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title:
SHRUBS PLAN – ROOF FLOOR
–
–
–
–

| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WLA3113 | A |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| AC | 10 MAY 2021 | XL | – |

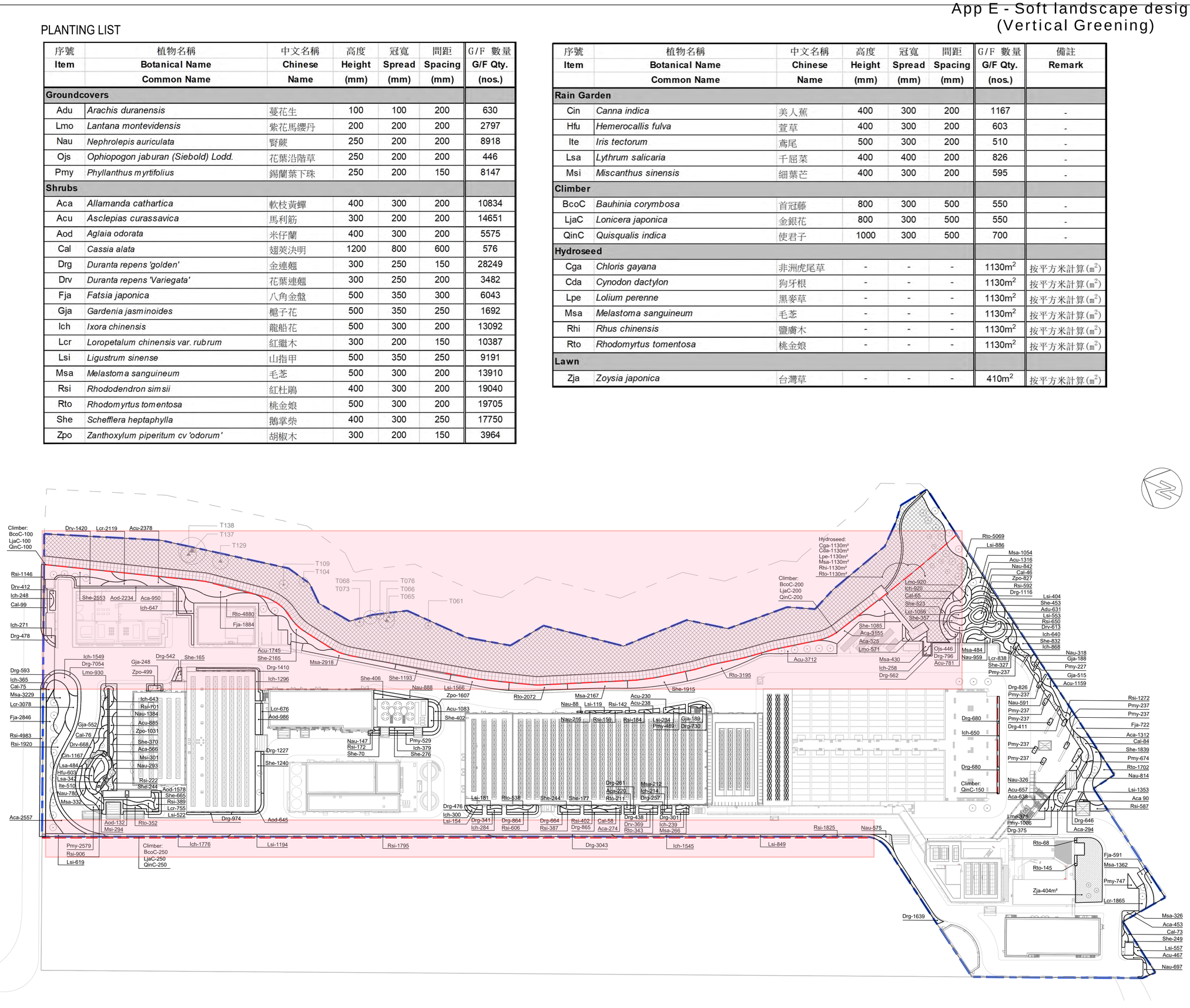
Scale: AS SHOWN@A1
Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

## PLANTING LIST

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) |
|---|---|---|---|---|---|---|
| **Groundcovers** | | | | | | |
| Adu | *Arachis duranensis* | 蔓花生 | 100 | 100 | 200 | 630 |
| Lmo | *Lantana montevidensis* | 紫花馬纓丹 | 200 | 200 | 200 | 2797 |
| Nau | *Nephrolepis auriculata* | 腎蕨 | 250 | 200 | 200 | 8918 |
| Ojs | *Ophiopogon jaburan (Siebold) Lodd.* | 花葉沿階草 | 250 | 200 | 200 | 446 |
| Pmy | *Phyllanthus myrtifolius* | 錫蘭葉下珠 | 250 | 200 | 150 | 8147 |
| **Shrubs** | | | | | | |
| Aca | *Allamanda cathartica* | 軟枝黃蟬 | 400 | 300 | 200 | 10834 |
| Acu | *Asclepias curassavica* | 馬利筋 | 300 | 200 | 200 | 14651 |
| Aod | *Aglaia odorata* | 米仔蘭 | 400 | 300 | 200 | 5575 |
| Cal | *Cassia alata* | 翅莢決明 | 1200 | 800 | 600 | 576 |
| Drg | *Duranta repens 'golden'* | 金連翹 | 300 | 250 | 150 | 28249 |
| Drv | *Duranta repens 'Variegata'* | 花葉連翹 | 300 | 250 | 200 | 3482 |
| Fja | *Fatsia japonica* | 八角金盤 | 500 | 350 | 300 | 6043 |
| Gja | *Gardenia jasminoides* | 梔子花 | 500 | 350 | 250 | 1692 |
| Ich | *Ixora chinensis* | 龍船花 | 500 | 300 | 200 | 13092 |
| Lcr | *Loropetalum chinensis var. rubrum* | 紅繼木 | 300 | 200 | 150 | 10387 |
| Lsi | *Ligustrum sinense* | 山指甲 | 500 | 350 | 250 | 9191 |
| Msa | *Melastoma sanguineum* | 毛萋 | 500 | 300 | 200 | 13910 |
| Rsi | *Rhododendron simsii* | 紅杜鵑 | 400 | 300 | 200 | 19040 |
| Rto | *Rhodomyrtus tomentosa* | 桃金娘 | 500 | 300 | 200 | 19705 |
| She | *Schefflera heptaphylla* | 鵝掌柴 | 400 | 300 | 250 | 17750 |
| Zpo | *Zanthoxylum piperitum cv 'odorum'* | 胡椒木 | 300 | 200 | 150 | 3964 |

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | G/F 數量 G/F Qty. (nos.) | 備註 Remark |
|---|---|---|---|---|---|---|---|
| **Rain Garden** | | | | | | | |
| Cin | *Canna indica* | 美人蕉 | 400 | 300 | 200 | 1167 | - |
| Hfu | *Hemerocallis fulva* | 萱草 | 400 | 300 | 200 | 603 | - |
| Ite | *Iris tectorum* | 鳶尾 | 500 | 300 | 200 | 510 | - |
| Lsa | *Lythrum salicaria* | 千屈菜 | 400 | 400 | 200 | 826 | - |
| Msi | *Miscanthus sinensis* | 細葉芒 | 400 | 300 | 200 | 595 | - |
| **Climber** | | | | | | | |
| BcoC | *Bauhinia corymbosa* | 首冠藤 | 800 | 300 | 500 | 550 | - |
| LjaC | *Lonicera japonica* | 金銀花 | 800 | 300 | 500 | 550 | - |
| QinC | *Quisqualis indica* | 使君子 | 1000 | 300 | 500 | 700 | - |
| **Hydroseed** | | | | | | | |
| Cga | *Chloris gayana* | 非洲虎尾草 | - | - | - | 1130m² | 按平方米計算(m²) |
| Cda | *Cynodon dactylon* | 狗牙根 | - | - | - | 1130m² | 按平方米計算(m²) |
| Lpe | *Lolium perenne* | 黑麥草 | - | - | - | 1130m² | 按平方米計算(m²) |
| Msa | *Melastoma sanguineum* | 毛萋 | - | - | - | 1130m² | 按平方米計算(m²) |
| Rhi | *Rhus chinensis* | 鹽膚木 | - | - | - | 1130m² | 按平方米計算(m²) |
| Rto | *Rhodomyrtus tomentosa* | 桃金娘 | - | - | - | 1130m² | 按平方米計算(m²) |
| **Lawn** | | | | | | | |
| Zja | *Zoysia japonica* | 台灣草 | - | - | - | 410m² | 按平方米計算(m²) |




LEGEND:

- SITE BOUNDARY
- SHRUBS & GROUNDCOVERS
- LAWN
- PLANTING AREA FOR HYDROSEED
- CLIMBER
- PROPOSED NEW TREE
- RETAINED TREE

REMARKS:
NOT LESS THAN 600mm SOIL DEPTH SHOULD BE PROVIDED FOR THOSE AREAS PLANTED WITH SHRUBS AND 300mm SOIL DEPTH FOR GROUNDCOVERS.

| Rev | Description | By | Date |
|---|---|---|---|
| A | GENERAL REVISION | AC | 2021/11/11 |

Employer: 水務署 Water Supplies Department

Supervising Officer designate: binnies

Design Checker: ARCADIS Design & Consultancy for natural and built assets

Contractor: acciona JEC CSCEC AJC JOINT VENTURE

Designer: wsp In Association with APU

Project title:
CONTRACT NO. 13/WSD/17
DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing title:
SHRUBS PLAN – GROUND FLOOR
–
–
–
–

| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WLA3112 | A |

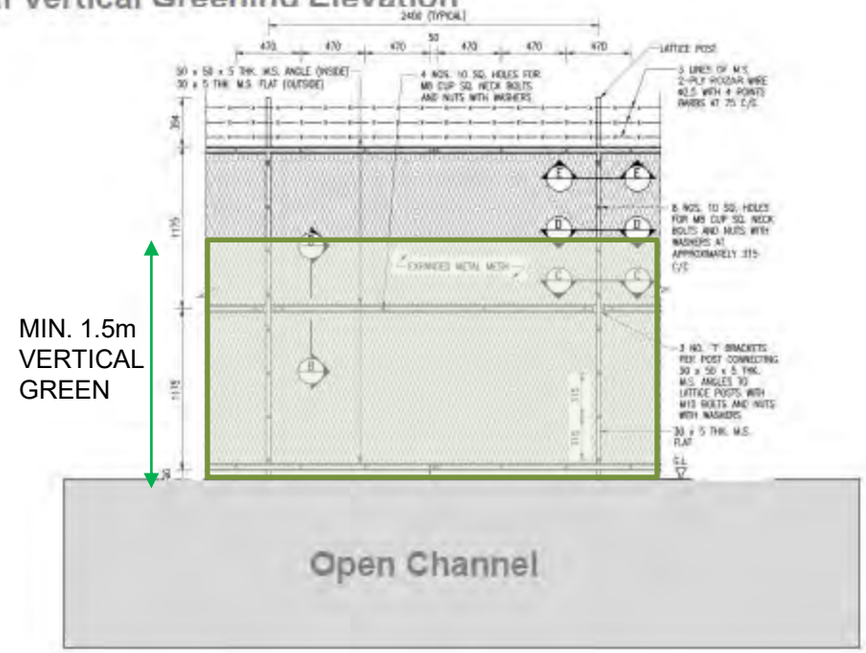
| Drawn | Date | Checked | Approved |
|---|---|---|---|
| AC | 10 MAY 2021 | XL | - |

Scale: 1:800@A1
Status: DETAILED DESIGN APPROVAL

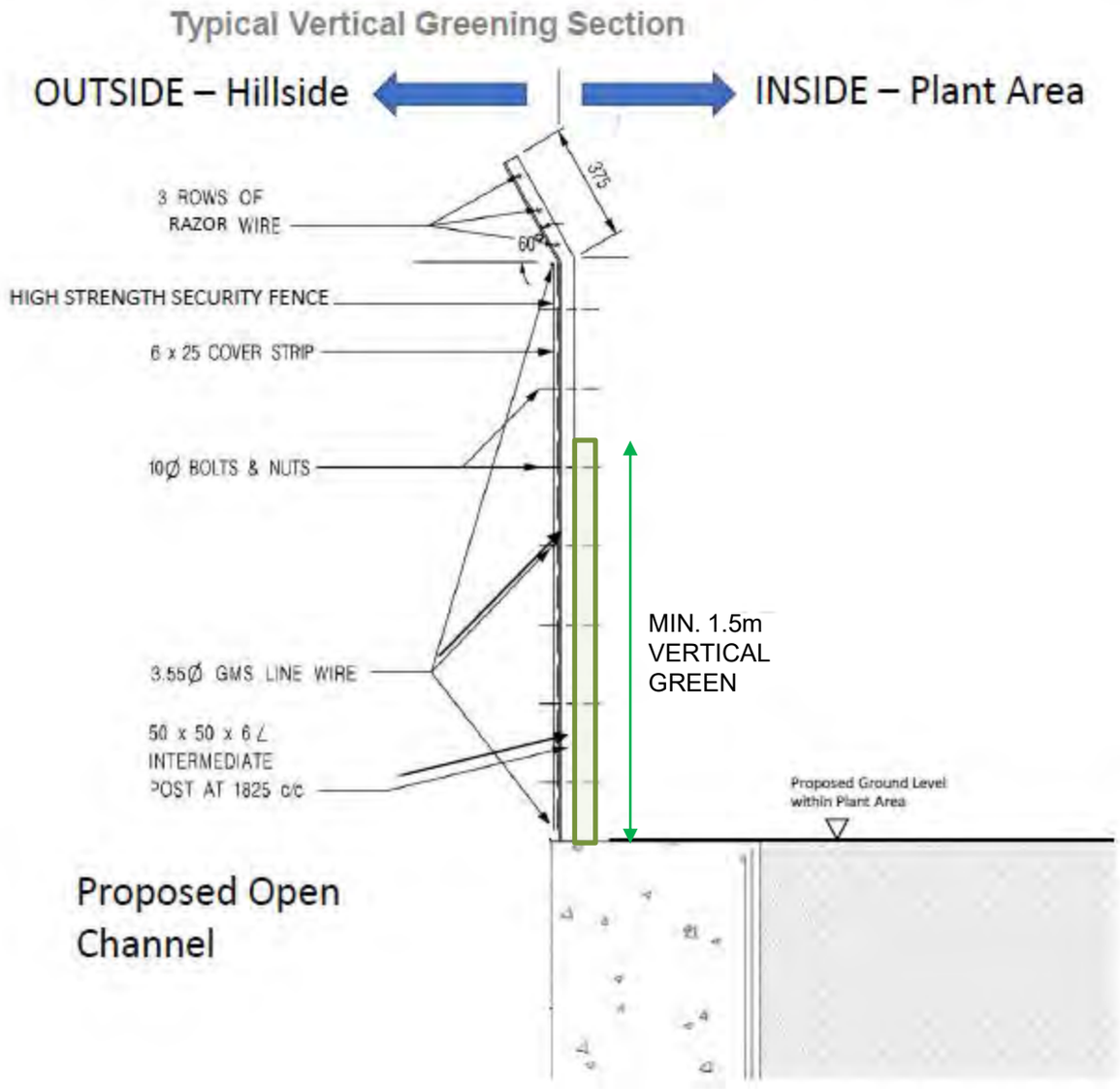
©COPYRIGHT RESERVED

# Appendix E - Soft Landscape Design (Vertical Greening)

## Typical Vertical Greening Elevation

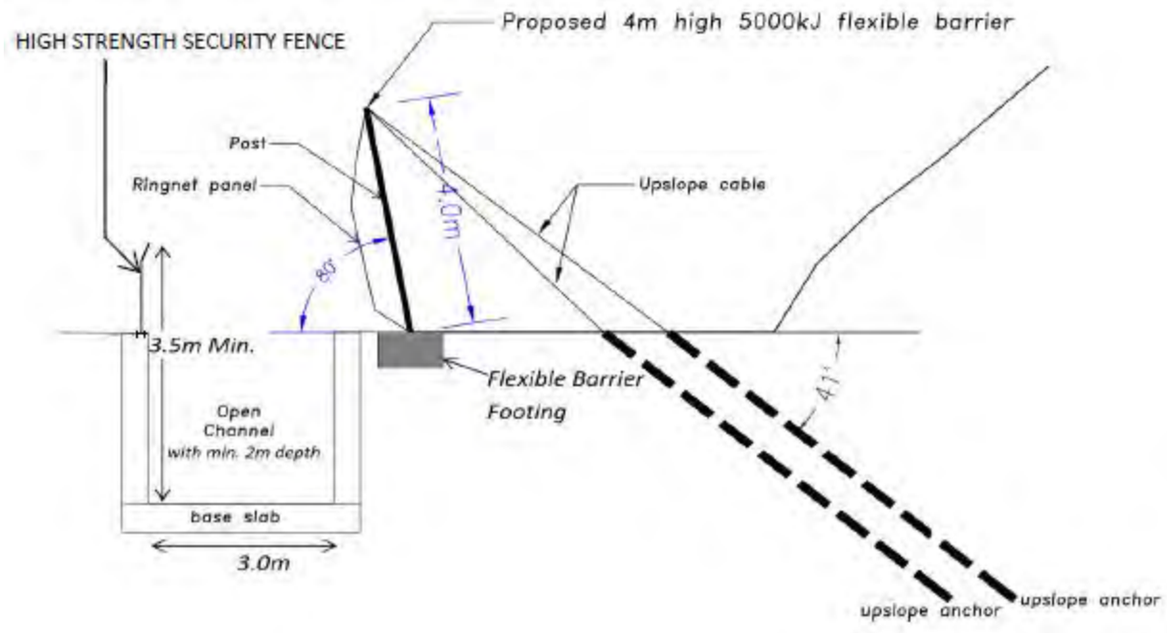



## Typical Vertical Greening Section



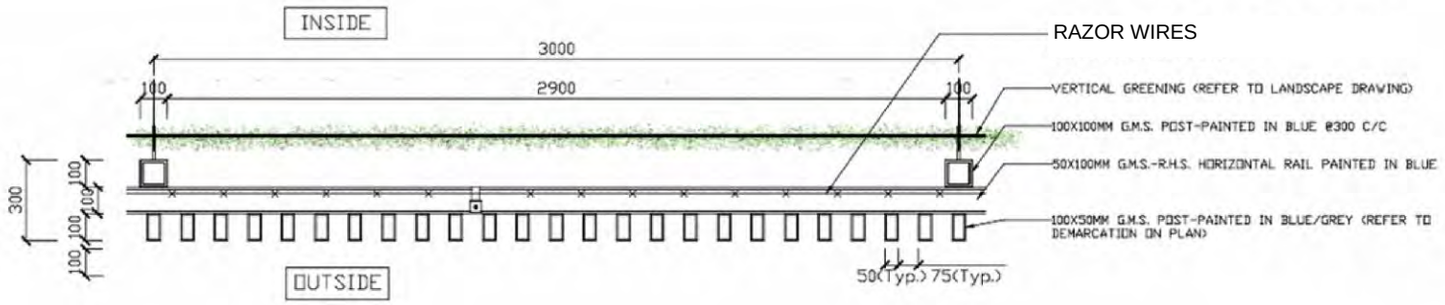

Proposed Open Channel

## Vertical Greening adjacent to Open Channel

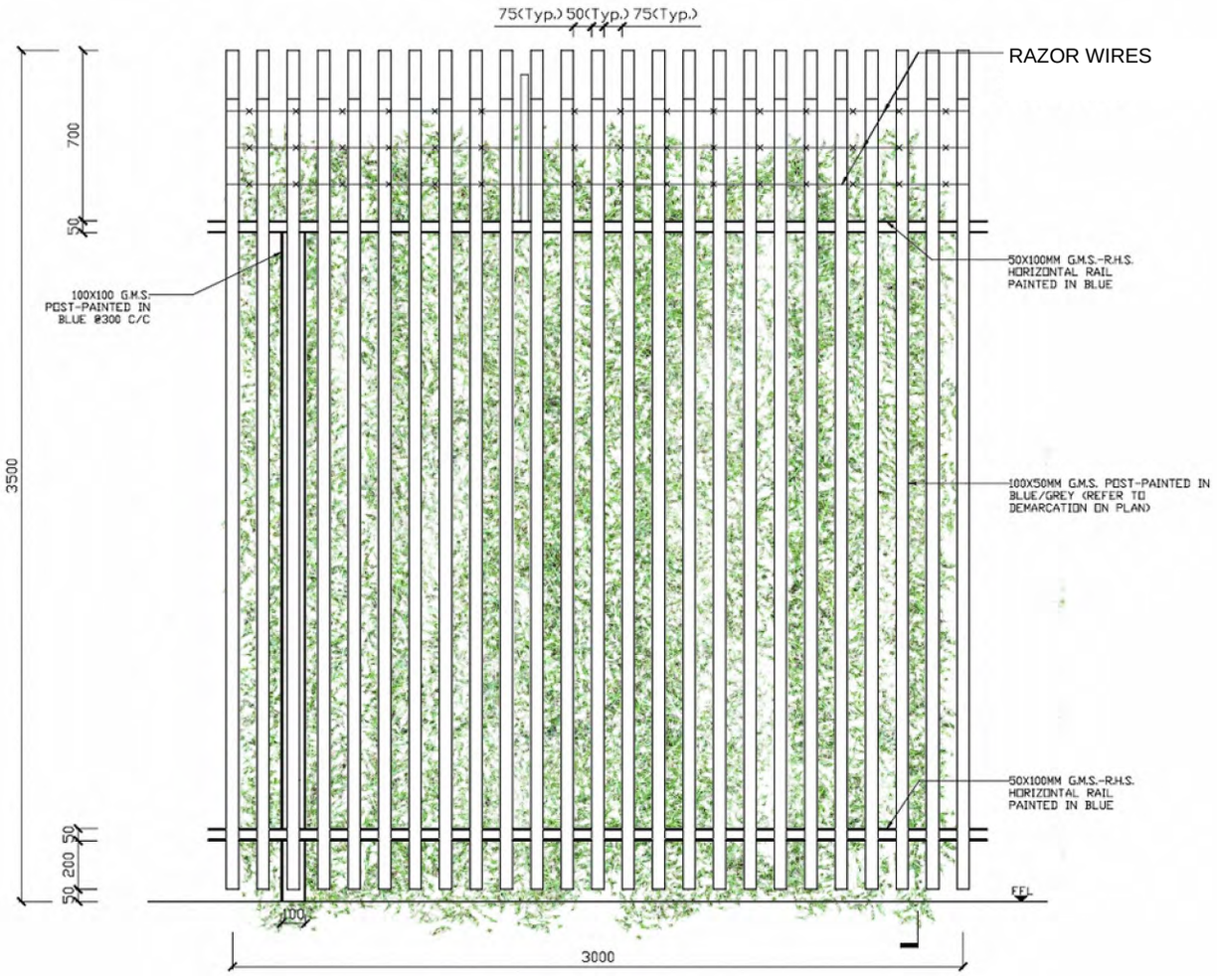


# Appendix E - Soft Landscape Design (Vertical Greening)

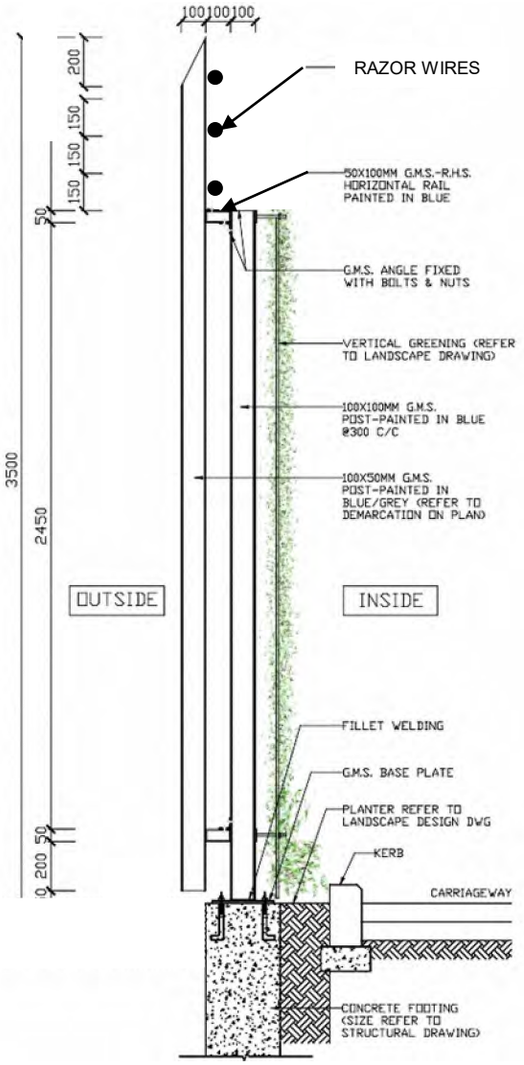
## Typical Vertical Greening Zoomin Plan




## Typical Vertical Greening Elevation

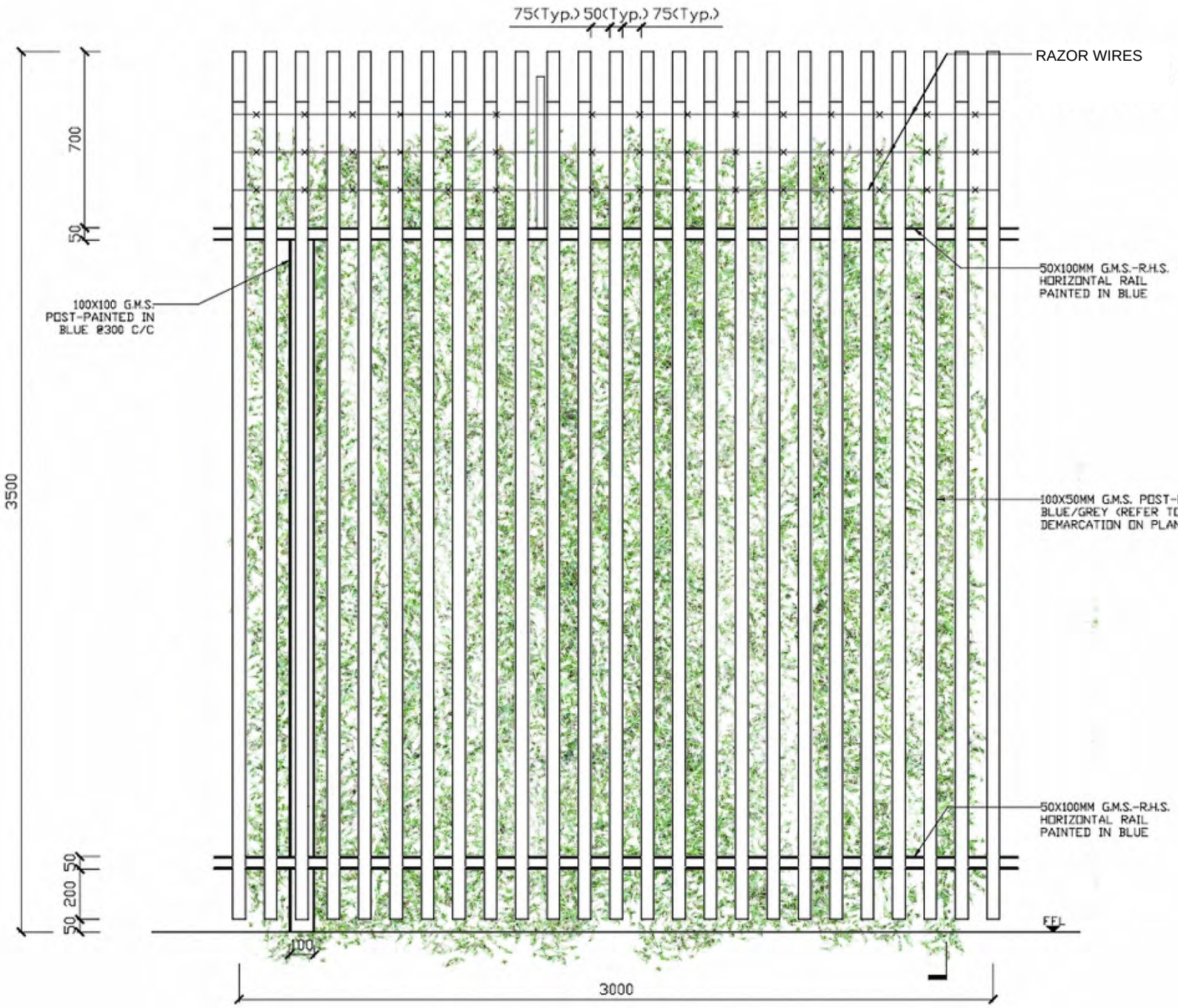



## Typical Vertical Greening Section

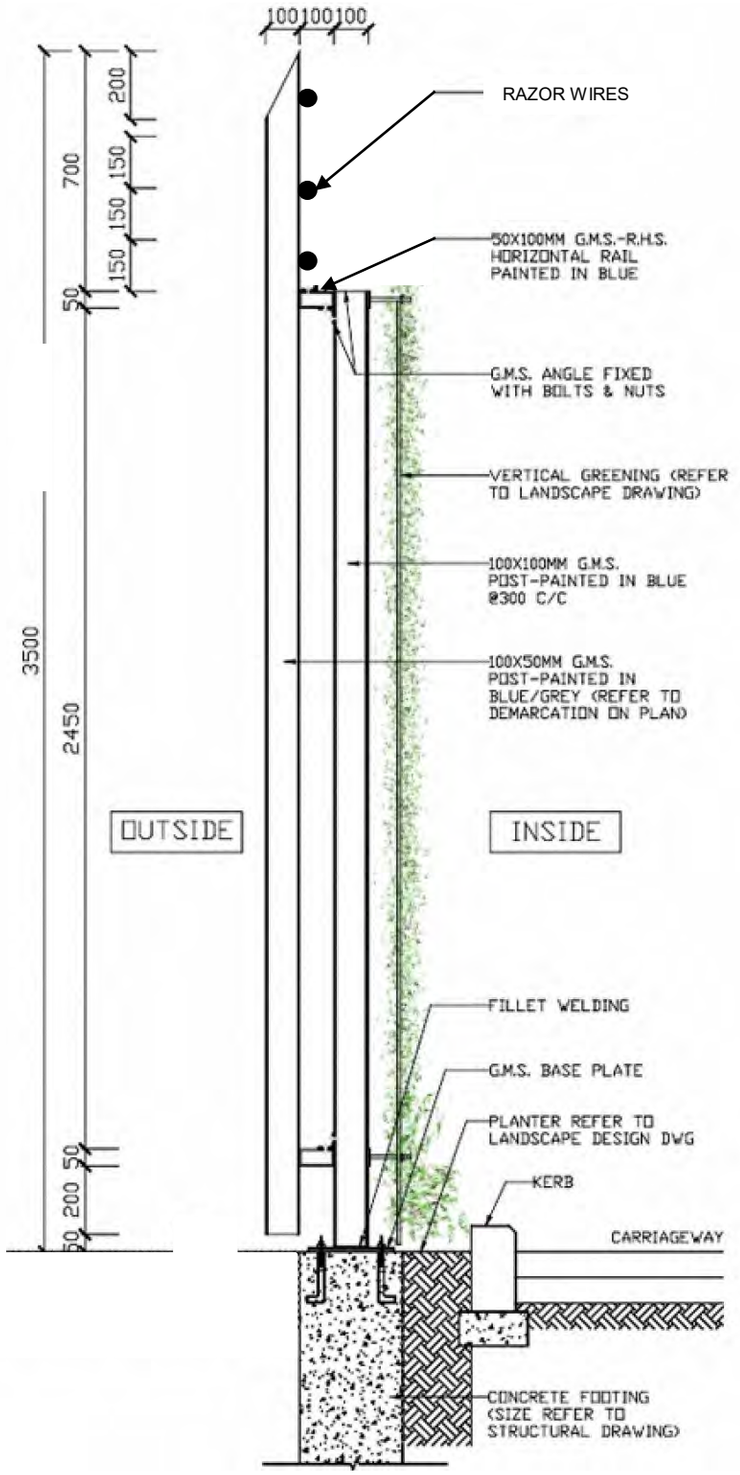


# Appendix E - Soft Landscape Design (Vertical Greening)

## Typical Vertical Greening Elevation

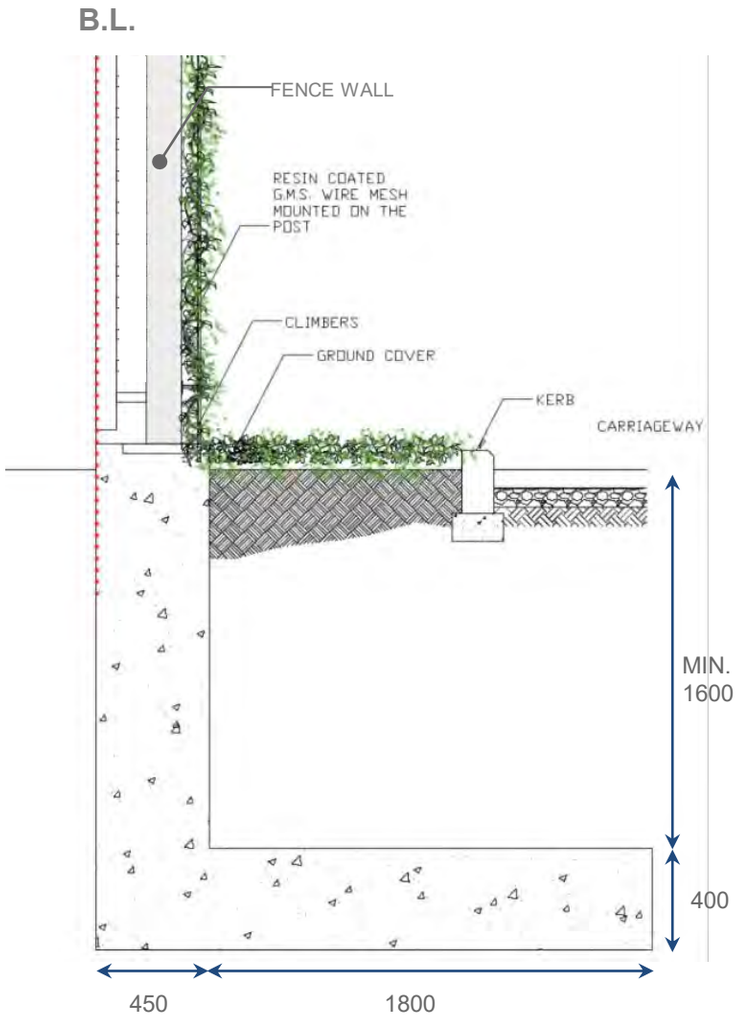



## Typical Vertical Greening Section

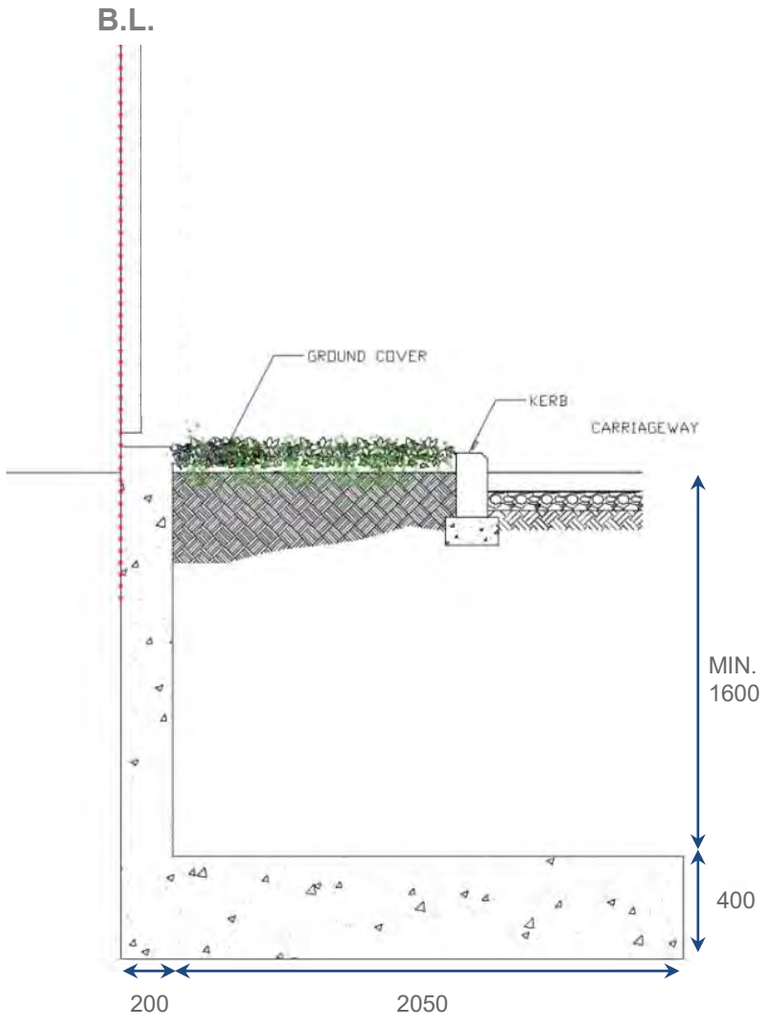


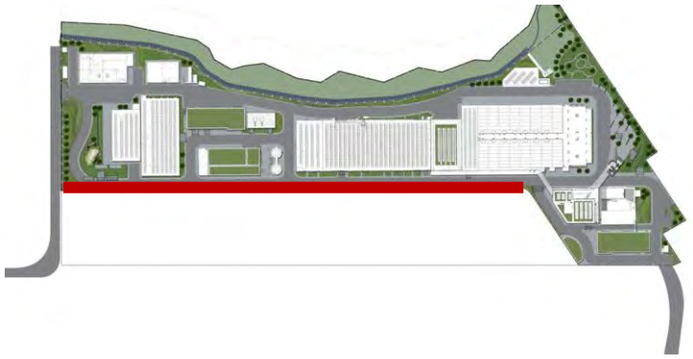
# Appendix E - Soft Landscape Design (Vertical Greening)

## Typical Vertical Greening
## Blow-up Section A-A (FENCE WALL)

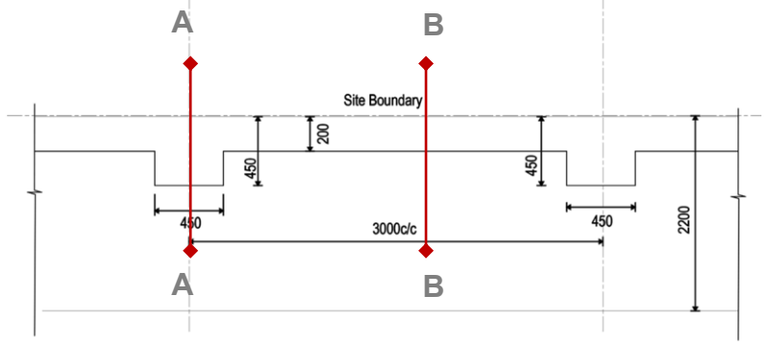


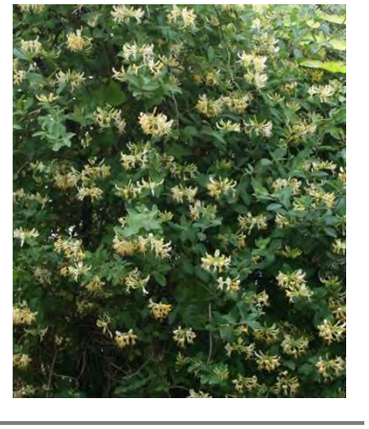

## Blow-up Section B-B (FEATURES ONLY)



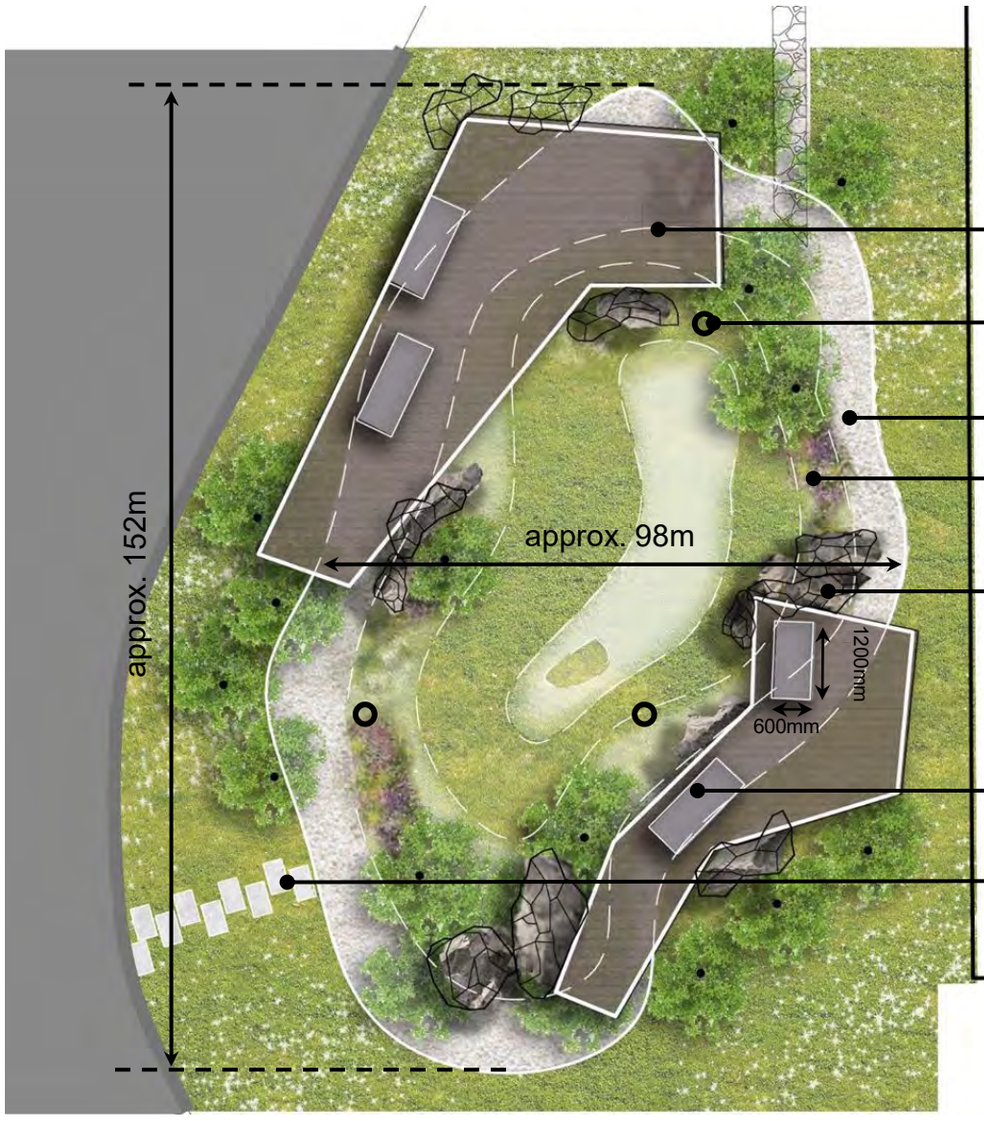
## Footing Location Plan



# Appendix E - Soft Landscape Design

## Landscape Design | Rain Garden




CONCRETE PAVER BLOCK

OVERFLOW DRAIN

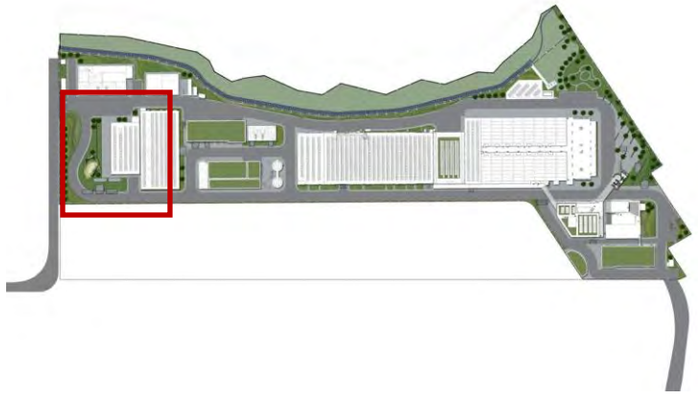
PEBBLES W/ 15 - 20mm DIA

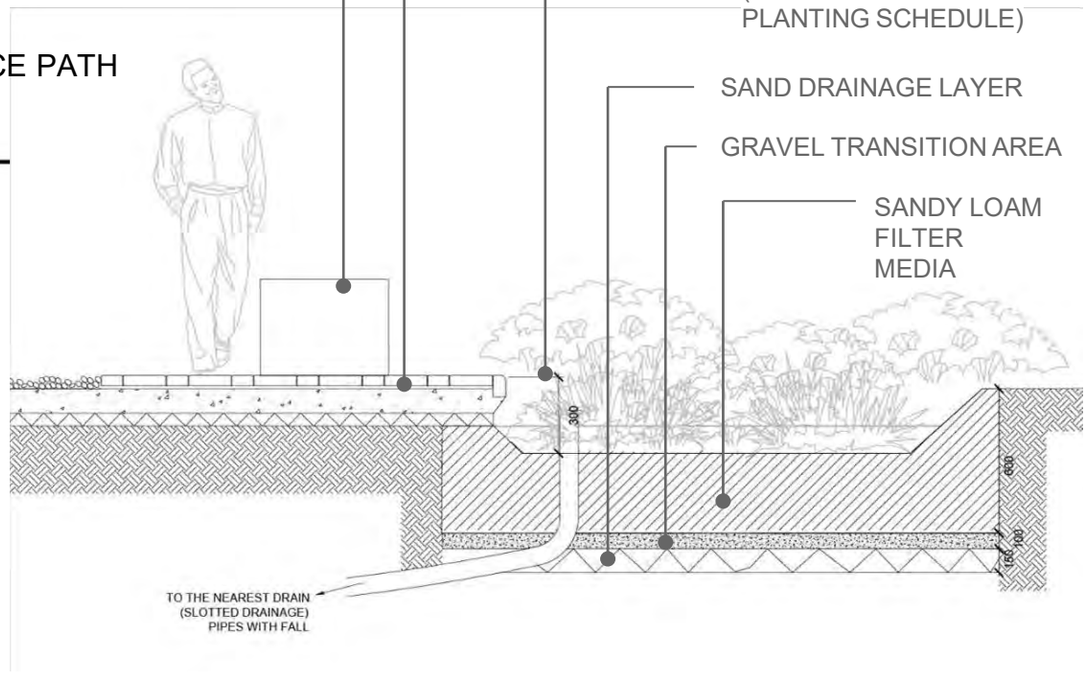
RAIN GARDEN PLANTING

FEATURE ROCKERIES (NATURAL ROCK)

STONE BENCH

MAINTENANCE PATH

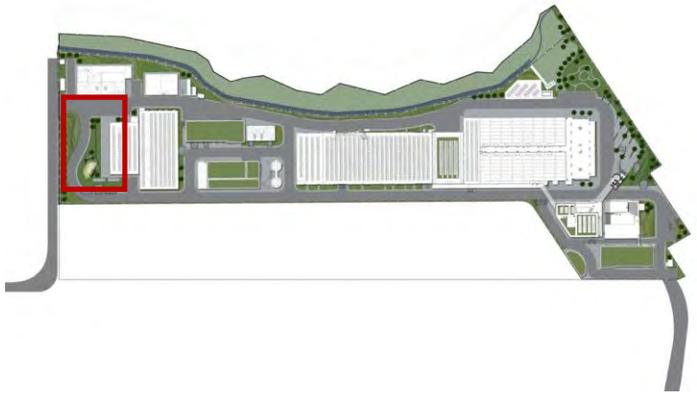





0 5 10m

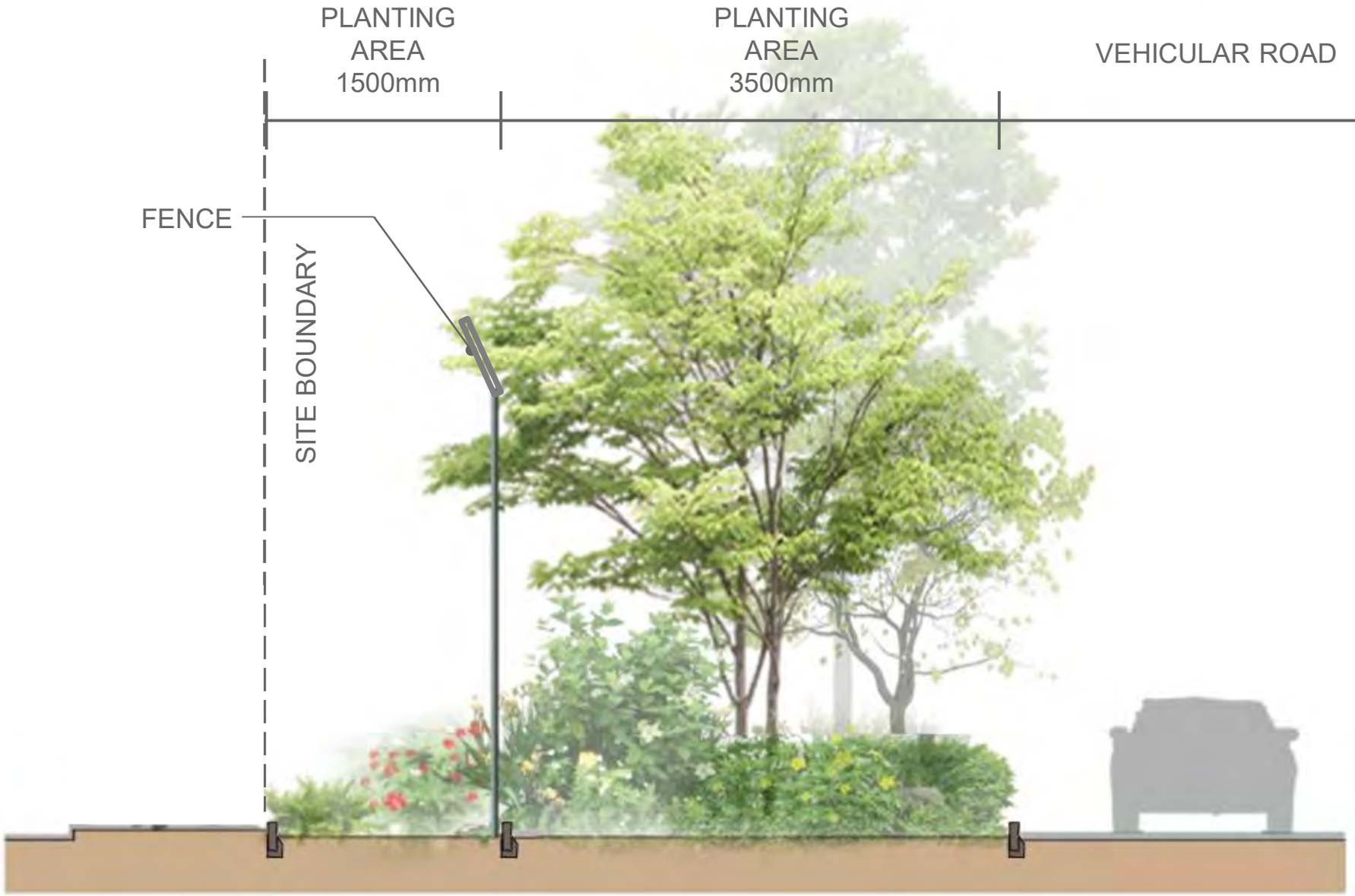
# Appendix E - Soft Landscape Design

## Landscape Design | Main Entrance



# Appendix E - Soft Landscape Design

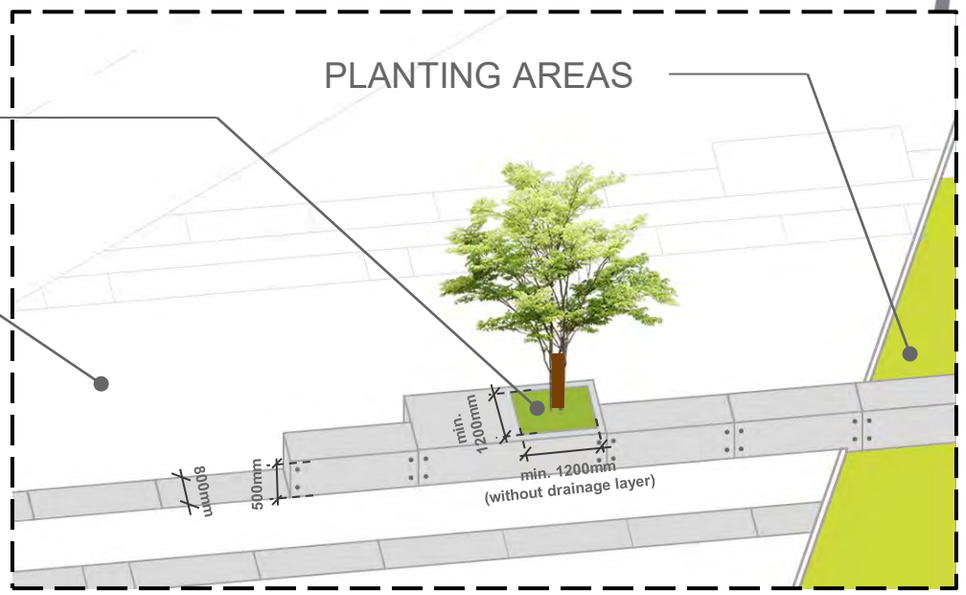
## Landscape Design | Main Entrance



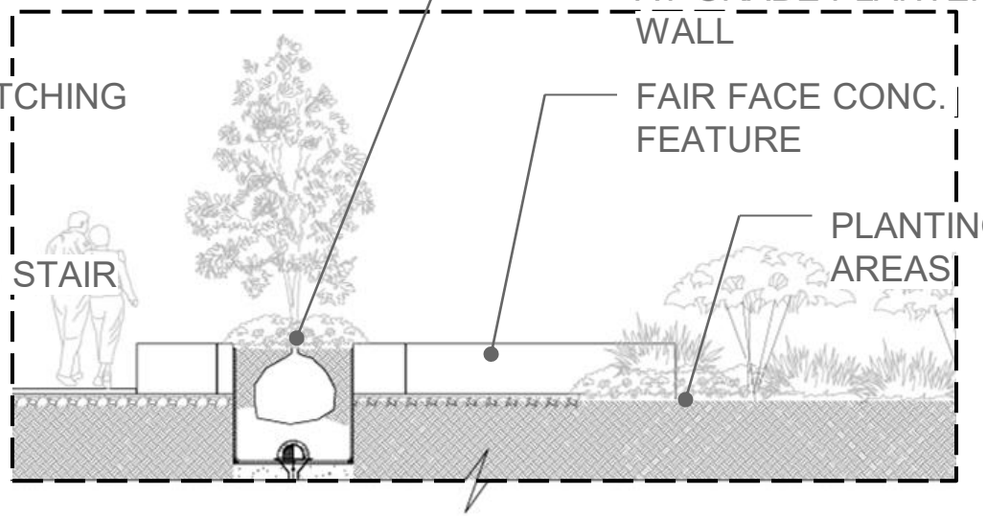
# Appendix E - Soft Landscape Design

## Landscape Design | Drop off Plaza


BLOW UP AXON

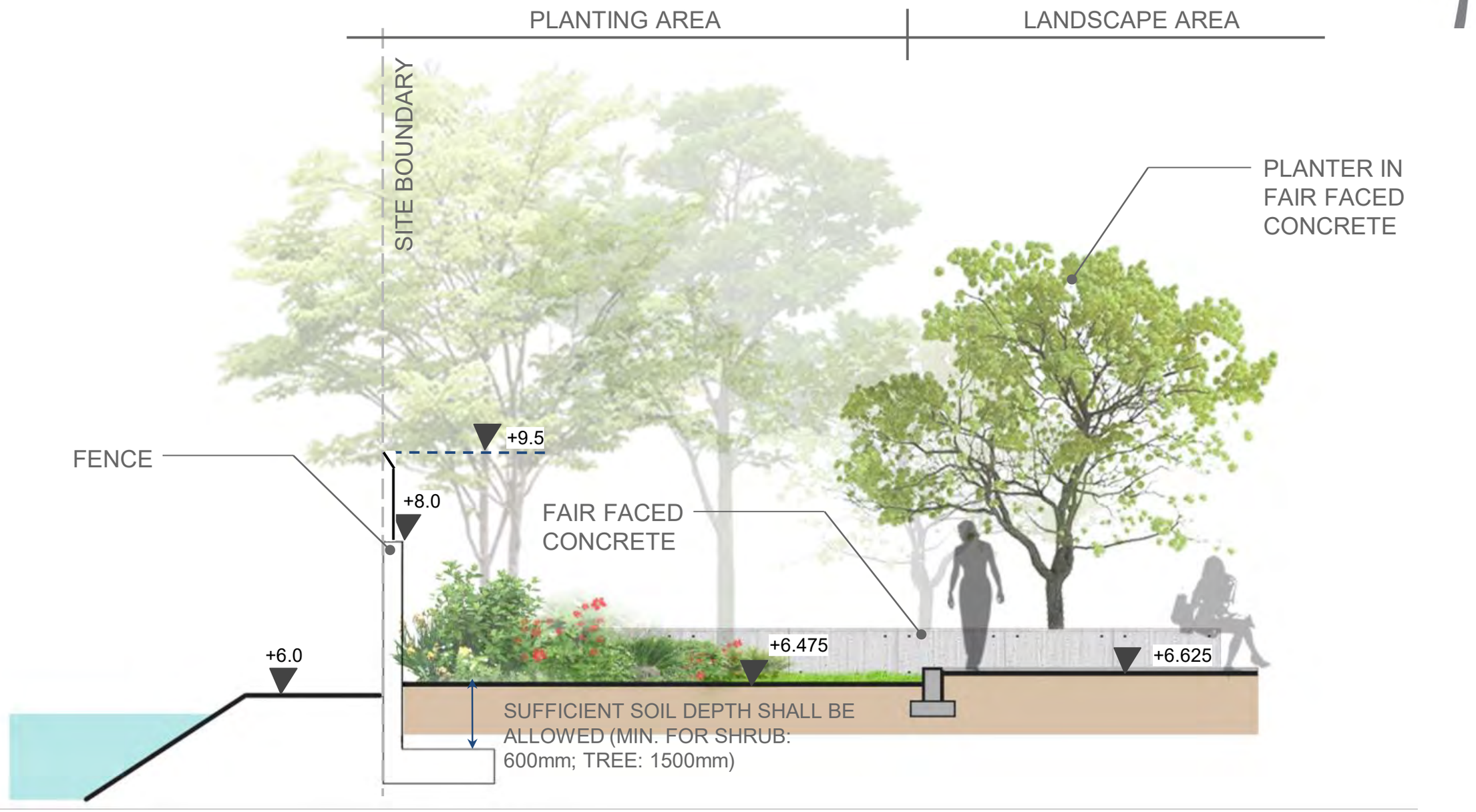



SECTION



# Appendix E - Soft Landscape Design

## Landscape Design | Main Plaza



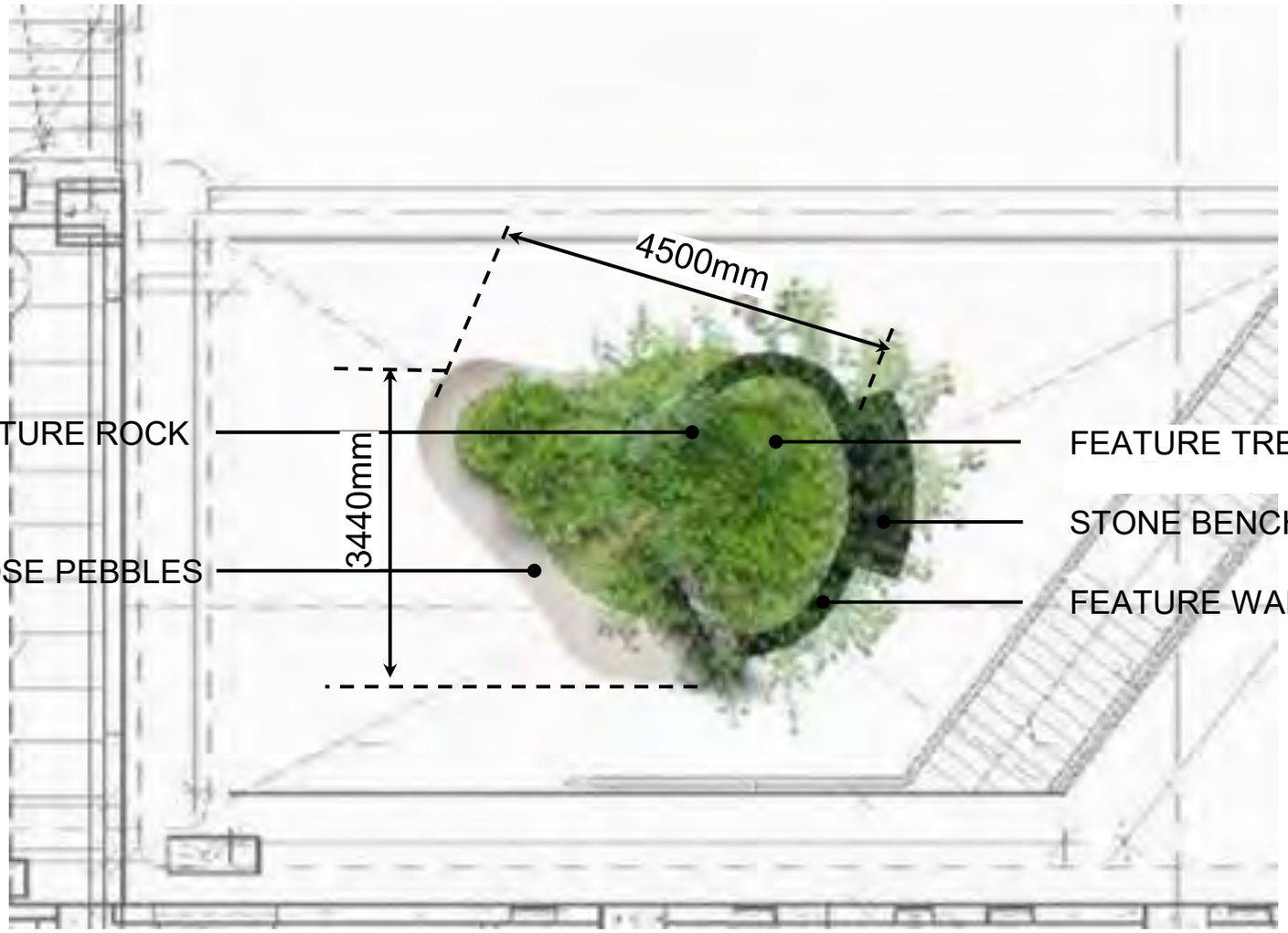
# Appendix E - Soft Landscape Design

## Landscape Design | Admin Building


Admin Building - 2nd Floor

# Appendix E - Soft Landscape Design

## Landscape Design | Admin Building



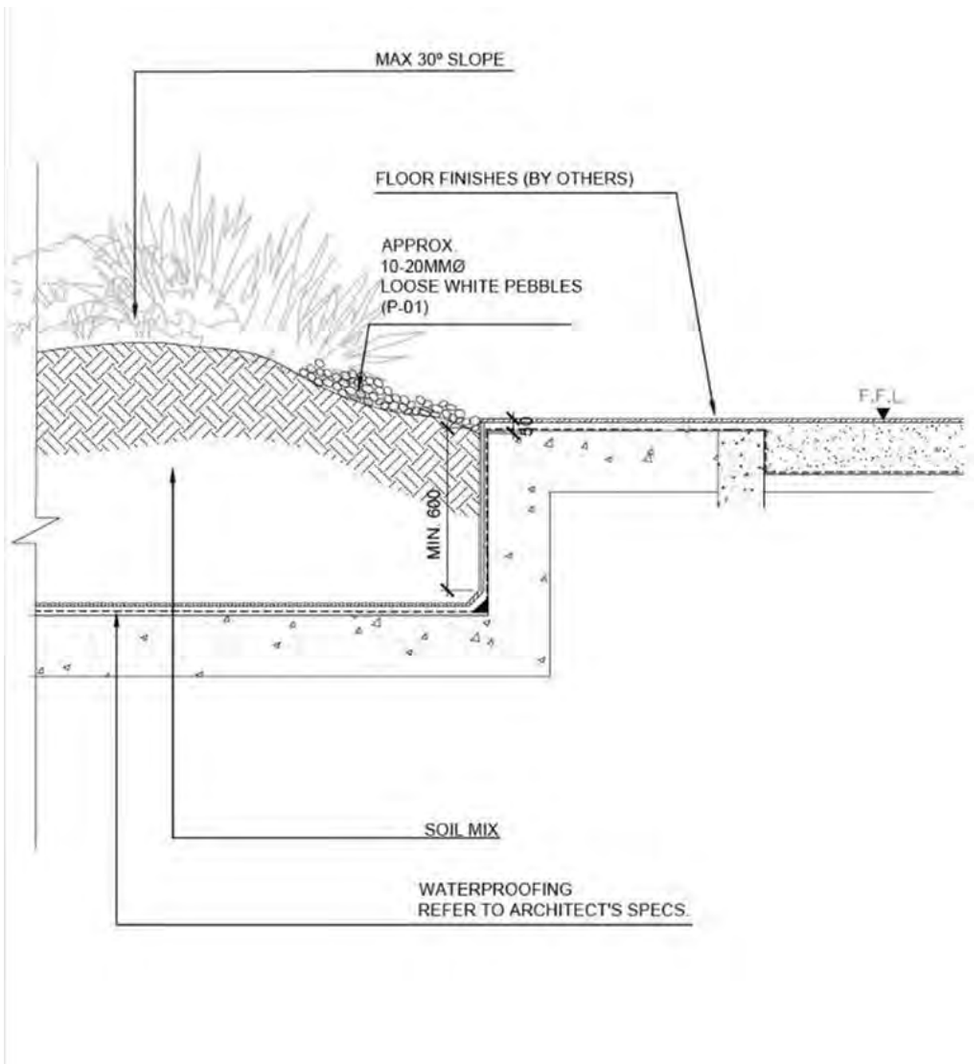

Admin Building - 1st Floor

0 5 10m

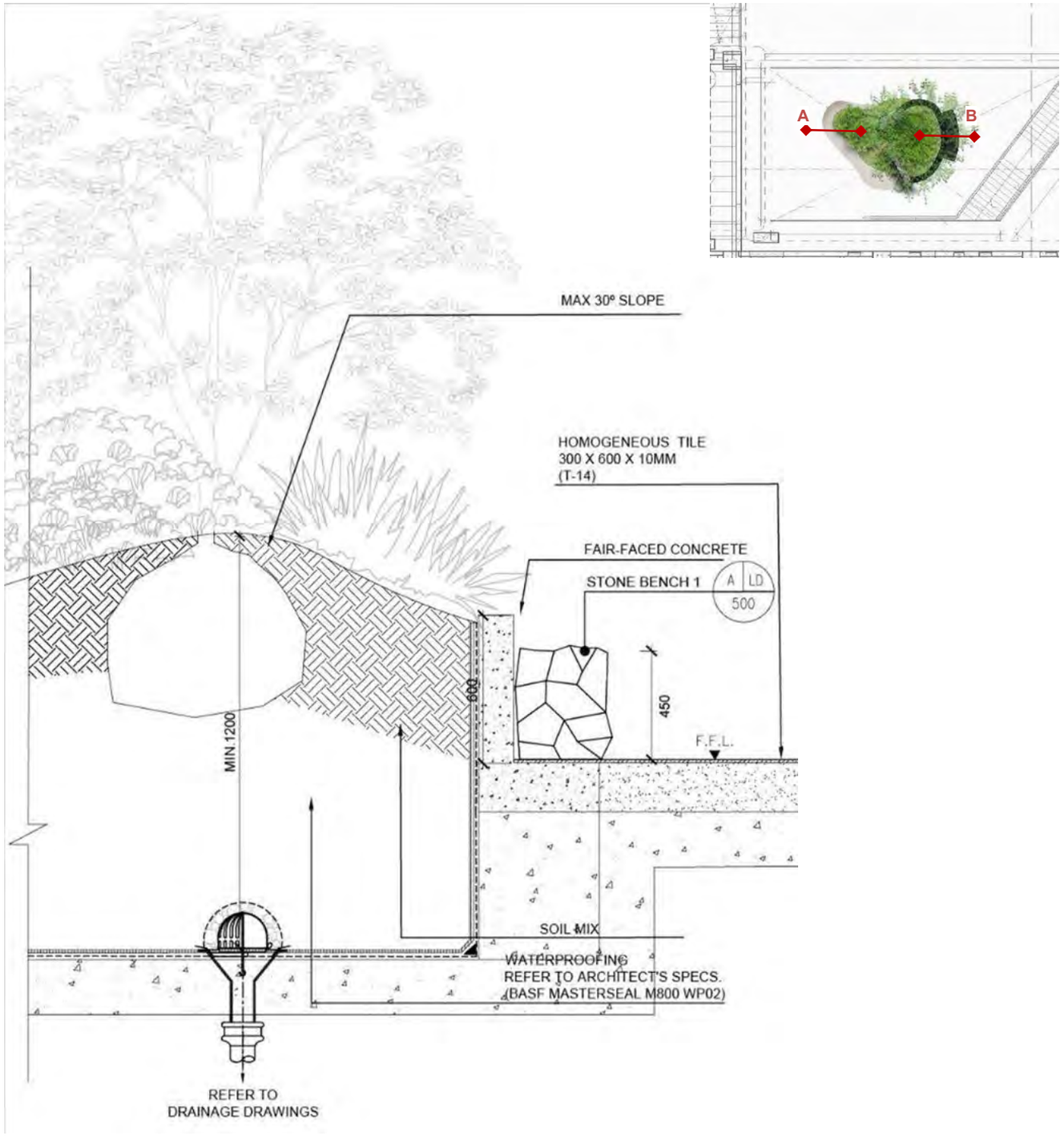


# Appendix E - Soft Landscape Design

## Landscape Design | Admin Building

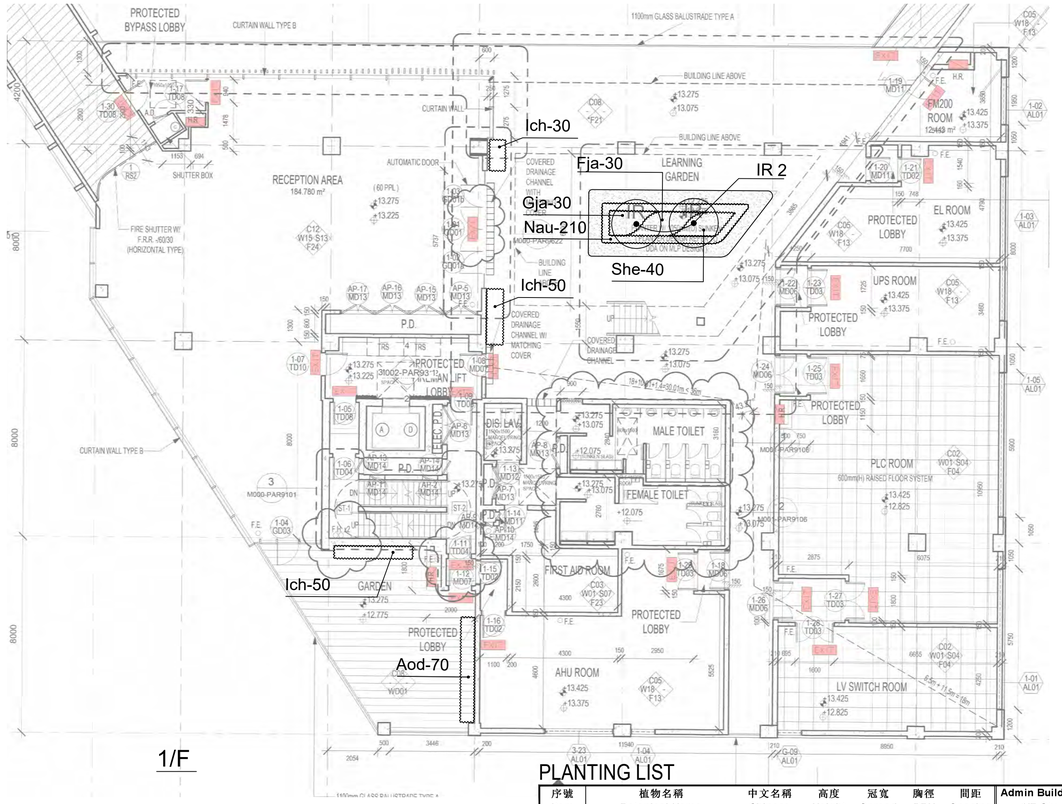


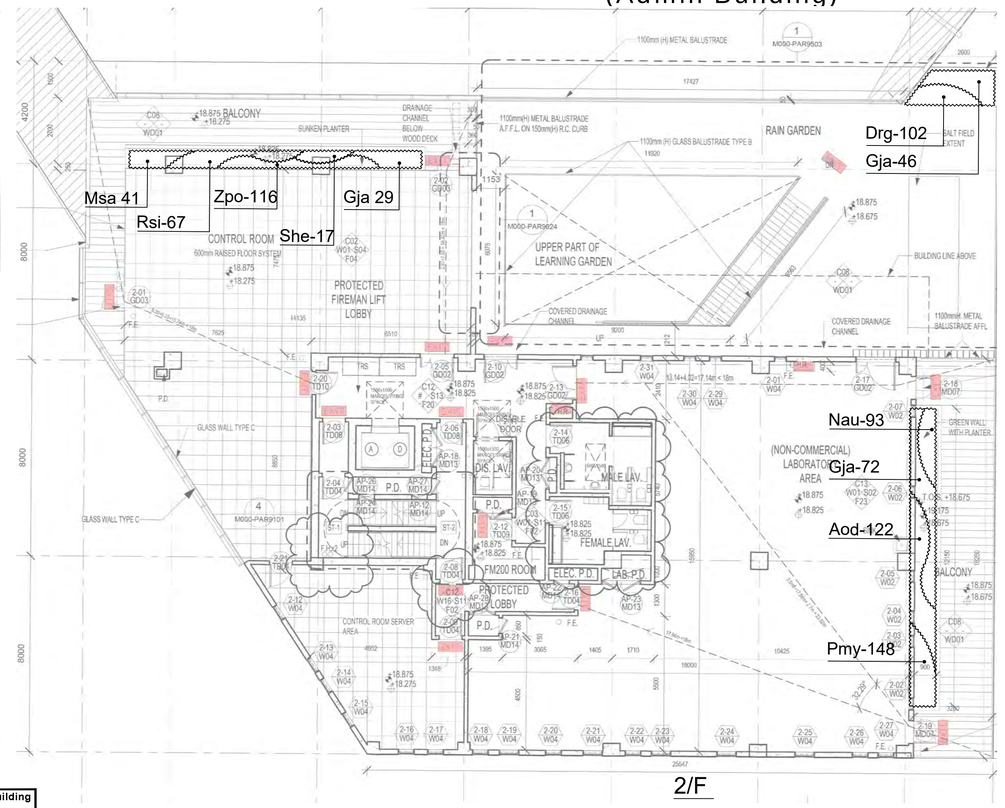

Section A




Section B

# Appendix E - Soft Landscape Design (Admin Building)

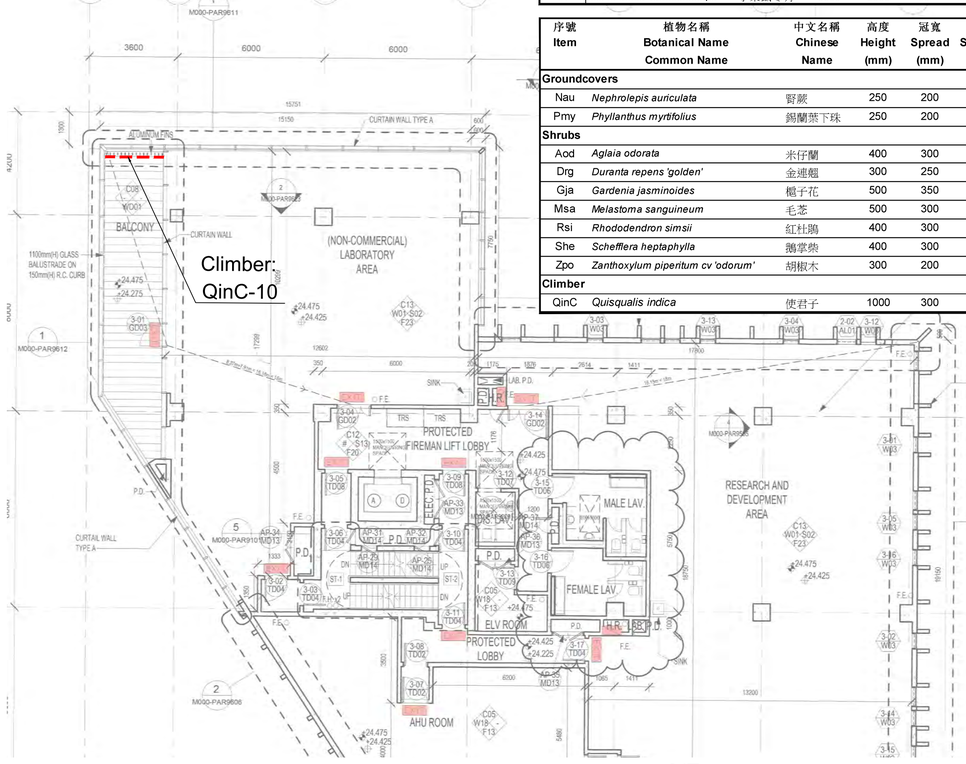


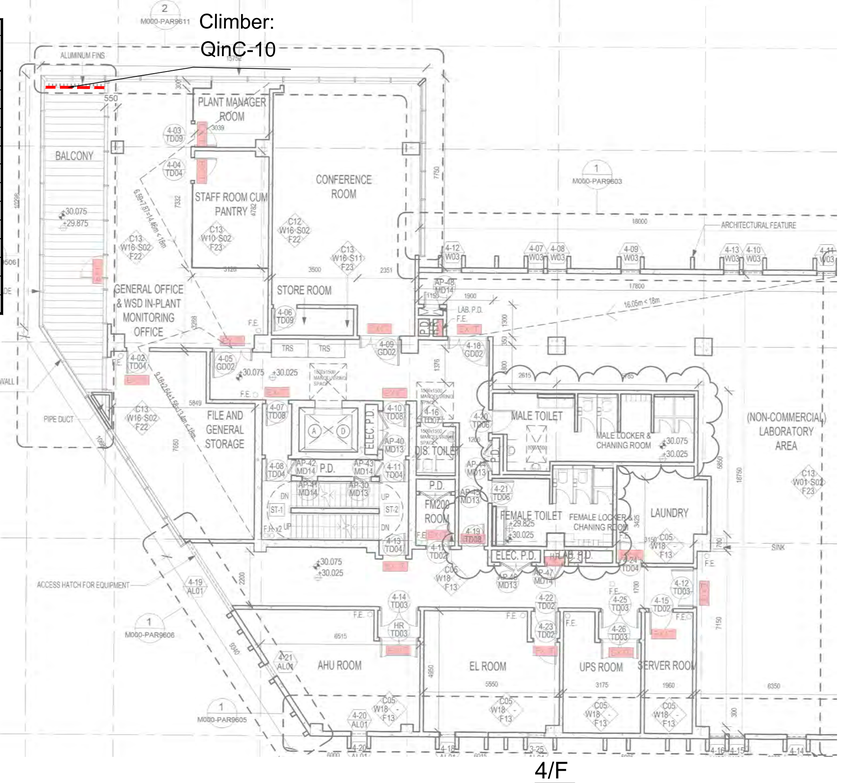




## PLANTING LIST

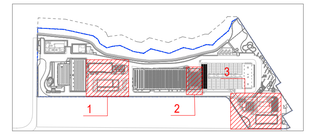
| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 胸徑 DBH (mm) | 間距 Spacing (mm) | Admin Building 1/F Qty. (nos.) |
|---|---|---|---|---|---|---|---|
| **Trees** | | | | | | | |
| IR | *Ilex rotumda var.microcarpa* | 小果鐵冬青 | 3000 | 2000 | 60 | 5000 | 2 |

| 序號 Item | 植物名稱 Botanical Name / Common Name | 中文名稱 Chinese Name | 高度 Height (mm) | 冠寬 Spread (mm) | 間距 Spacing (mm) | Admin Building 1/F Qty. (nos.) | 2/F Qty. (nos.) | 3/F Qty. (nos.) | 4/F Qty. (nos.) |
|---|---|---|---|---|---|---|---|---|---|
| **Groundcovers** | | | | | | | | | |
| Nau | *Nephrolepis auriculata* | 腎蕨 | 250 | 200 | 200 | 210 | 93 | - | - |
| Pmy | *Phyllanthus myrtifolius* | 錫蘭葉下珠 | 250 | 200 | 150 | - | 148 | - | - |
| **Shrubs** | | | | | | | | | |
| Aod | *Aglaia odorata* | 米仔蘭 | 400 | 300 | 200 | 70 | 122 | - | - |
| Drg | *Duranta repens 'golden'* | 金運艷 | 300 | 250 | 150 | - | 102 | - | - |
| Gja | *Gardenia jasminoides* | 檀子花 | 500 | 350 | 250 | 30 | 147 | - | - |
| Msa | *Melastoma sanguineum* | 毛苳 | 500 | 300 | 200 | - | 41 | - | - |
| Rsi | *Rhododendron simsii* | 紅杜鵑 | 400 | 300 | 200 | - | 67 | - | - |
| She | *Schefflera heptaphylla* | 鵝掌柴 | 400 | 300 | 250 | 40 | 17 | - | - |
| Zpo | *Zanthoxylum piperitum cv 'odorum'* | 胡椒木 | 300 | 200 | 150 | - | 116 | - | - |
| **Climber** | | | | | | | | | |
| QinC | *Quisqualis indica* | 使君子 | 1000 | 300 | 500 | - | - | 10 | 10 |




KEY PLAN scale 1:6000



LEGEND:

TREE

SHRUBS & GROUNDCOVERS

CLIMBER

REMARKS:
NOT LESS THAN 1200mm CLEAR SOIL WIDTH AND DEPTH SHOULD BE PROVIDED FOR ALL TREE PLANTING AREAS AND 600mm SOIL DEPTH FOR SHRUBS AND 300mm SOIL DEPTH FOR GROUNDCOVERS.

| Rev | Description | By | Date |
|---|---|---|---|
| | | | |
| | | | |

Employer: 水務署 Water Supplies Department

Supervising Officer designate: binnies

Design Checker: ARCADIS Design & Consultancy for natural and built assets

Contractor: acciona / JEC / CRCC — AJC JOINT VENTURE

Designer: wsp — In Association with APU

Project title:
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE FIRST STAGE OF TSEUNG KWAN O DESALINATION PLANT

Drawing title:
PLANTING PLAN – ADMIN BUILDING

Drawing no.: TKOD1-DWG-A000-WLA3114 Rev. –

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| AC | 10 MAY 2021 | XL | – |

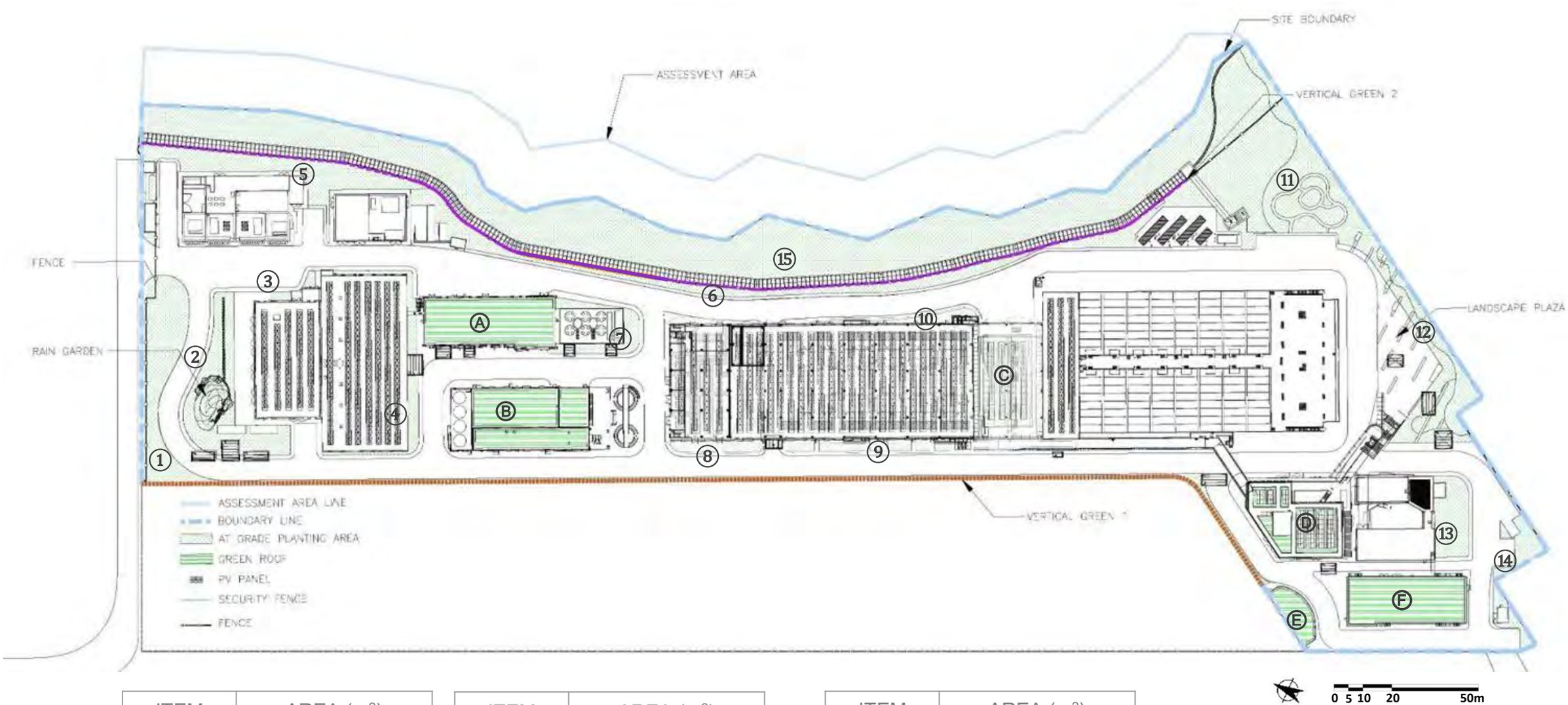
Scale: 1:125@A1

Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

# Appendix E - Soft Landscape Design

## Landscape Design | Green Area Calculation



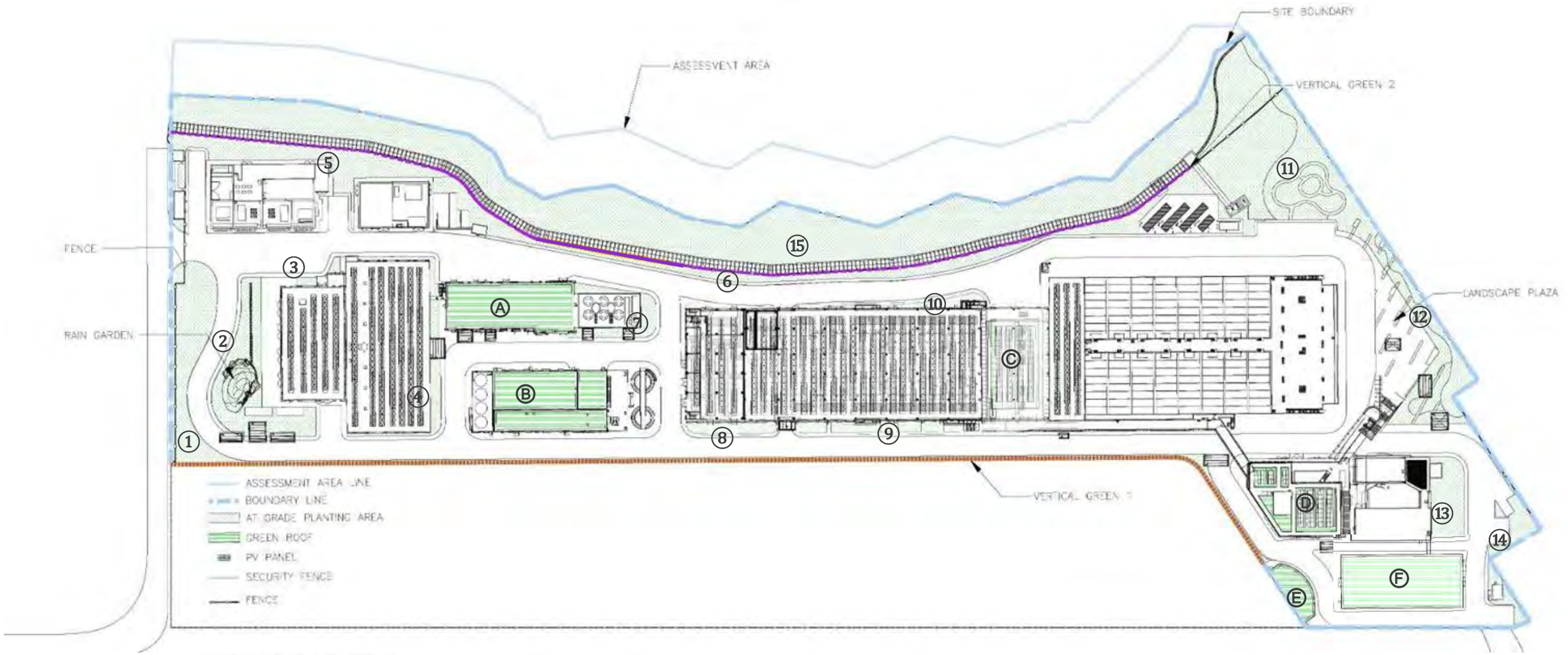

| ITEM | AREA ($m^2$) |
|---|---|
| ① | 1252.578 |
| ② | 736.357 |
| ③ | 42.288 |
| ④ | 250.301 |
| ⑤ | 805.819 |
| ⑥ | 1101.13 |
| ⑦ | 196.241 |
| ⑧ | 109.888 |

| ITEM | AREA ($m^2$) |
|---|---|
| ⑨ | 200.463 |
| ⑩ | 91.075 |
| ⑪ | 2245.921 |
| ⑫ | 663.355 |
| ⑬ | 318.392 |
| ⑭ | 259.803 |
| ⑮ | 5426.849 |
| TOTAL | 13700.46 |

| ITEM | AREA ($m^2$) |
|---|---|
| Ⓐ | 696.932 |
| Ⓑ | 736.342 |
| Ⓒ | 197.214 |
| Ⓓ | 162.64 |
| Ⓔ | 152.508 |
| Ⓕ | 622.136 |
| TOTAL | 2,567.772 |

# Appendix E - Soft Landscape Design

## Landscape Design | Green Area Calculation




SITE BOUNDARY: 56,120.8 SQM
30% GREENERY REQUIREMENT: 16,836.2 SQM
15% AT GRADE REQUIREMENT: 8,418.12 SQM
MAX. 30% CAP OF ALL GREENERY (VERTICAL GREEN, GRASS PAVER, COVERED PLANTING AREA): 5,050.86 SQM

AT GRADE TOTAL PLANTING AREA (EXCLUDING VERTICAL GREENING) : 13,700.46 SQM (Hence, the at grade greenery calculation requirement is achieved)
[1+2+3+4+5+6+7+8+9+10+11+12+13+14+15]

GREEN ROOF (EXCLUDING VERTICAL GREENING) : 2,567.772 SQM
[A+B+C+D+E+F]

VERTICAL GREEN 1: 585.137(L) X 3(H) = 1,755.411 SQM (Detail refer to A15 and A16)

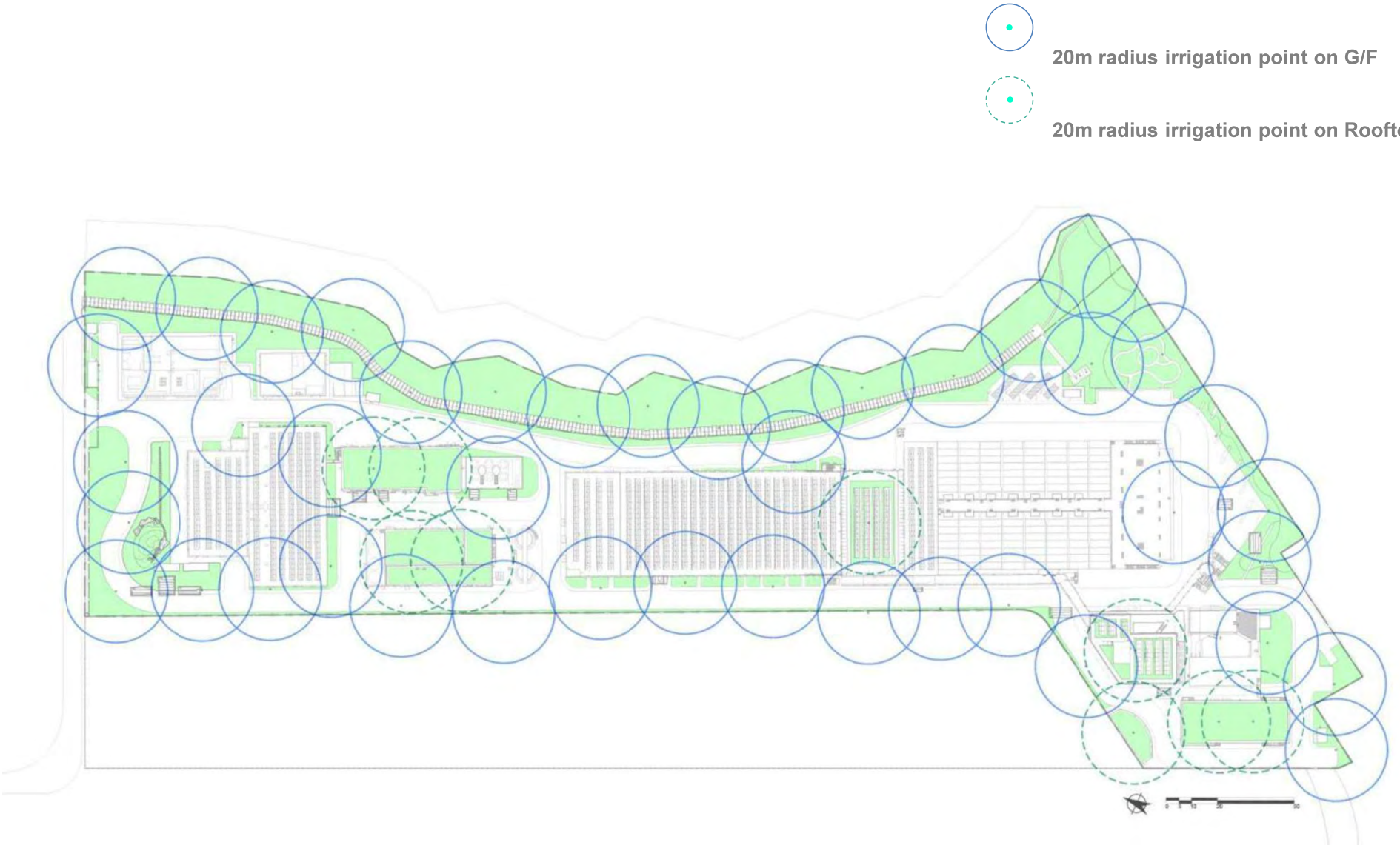
VERTICAL GREEN 2: 222.689(L) X 1.5(H) = 334.034 SQM (Detail refer to A14)

TOTAL GREENERY AREA: 13,700.46 + 2,567.772 + 1,755.411 + 334.034 = 18,357.677 SQM (32.71%)

**Proposed GAC 32.7% (18358 SQ.M.) > Required GAC 30% (16836 SQ.M.)**

# App E - Soft landscape design

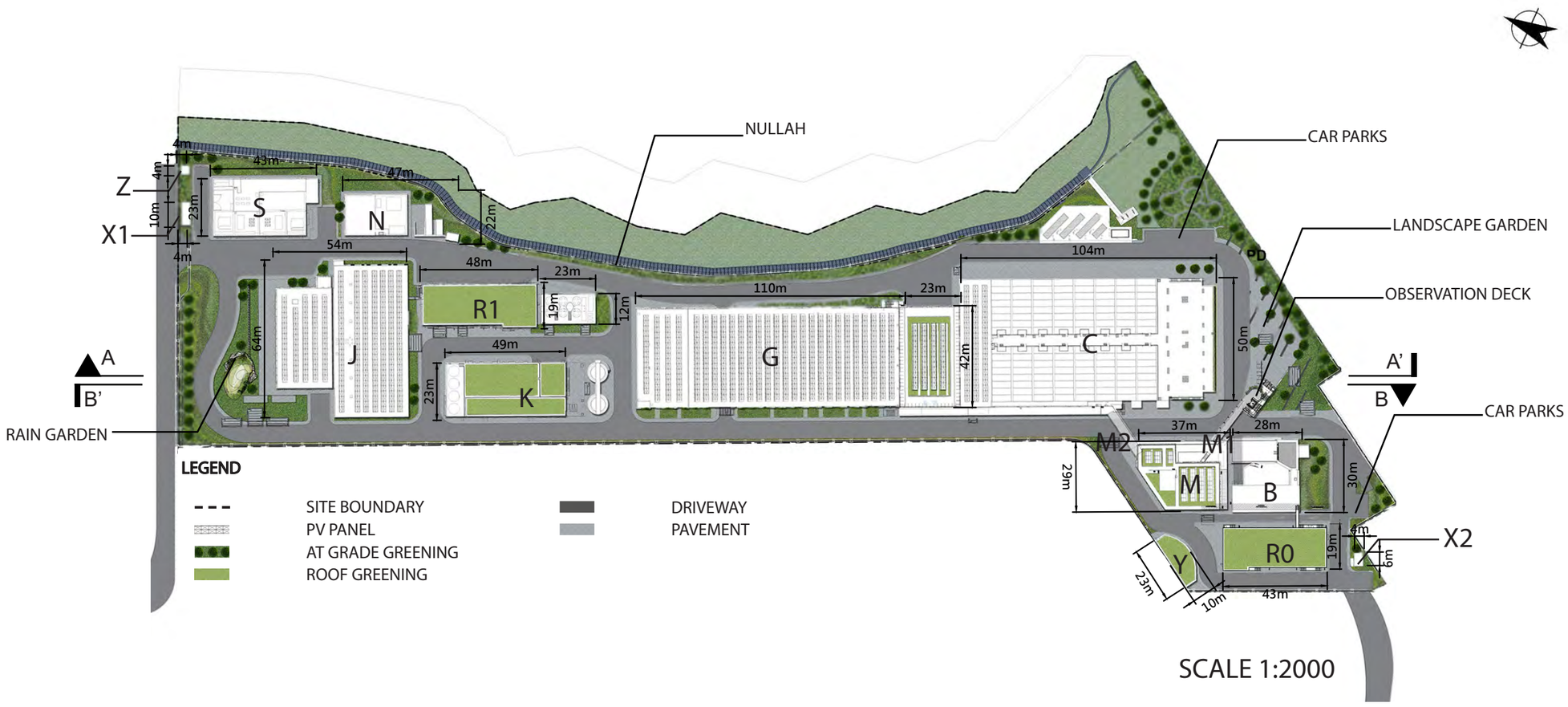
## Landscape Design | Irrigation Points



# Appendix F – Hard Landscape Design

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

# App F - Hard landscape design (Overview)




**LEGEND**

M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA

N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B
Y - WORKSHOP

# App F - Hard landscape design (Overview)


**LEGEND**

M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA
N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B

**LEGEND**

SITE BOUNDARY
PV PANEL
AT GRADE GREENING
ROOF GREENING
DRIVEWAY
PAVEMENT

SCALE 1:1000

# App F - Hard landscape design (Overview)


**LEGEND**

M - ADMINISTRATION BUILDING
M1- ELEVATED WALKWAY
V- INSPECTION CORRIDOR
B - COMBINED INTAKE & OUTFALL SHAFT
R0 - CHEMICAL BUILDING
C - ACTIDAFF
G - REVERSE OSMOSIS & ELECTRICAL BUILDING
K - POST-TREATMENT BUILDING
J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING
R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING AND $CO^2$ TANK AREA
N - MAIN ELECTRICAL & CHILLER PLANT BUILDING
S - TKO DESALINATION PLANT SUBSTATION
Z - MASTER METER ROOM
X1 - GUARD HOUSE A
X2 - GUARD HOUSE B

**LEGEND**

SITE BOUNDARY
PV PANEL
AT GRADE GREENING
ROOF GREENING
DRIVEWAY
PAVEMENT

SCALE 1:1000

# Appendix F - Hard Landscape Design

M - ADMINISTRATION BUILDING


ELEVATION 1 (SCALE 1:300)


ELEVATION 2 (SCALE 1:300)

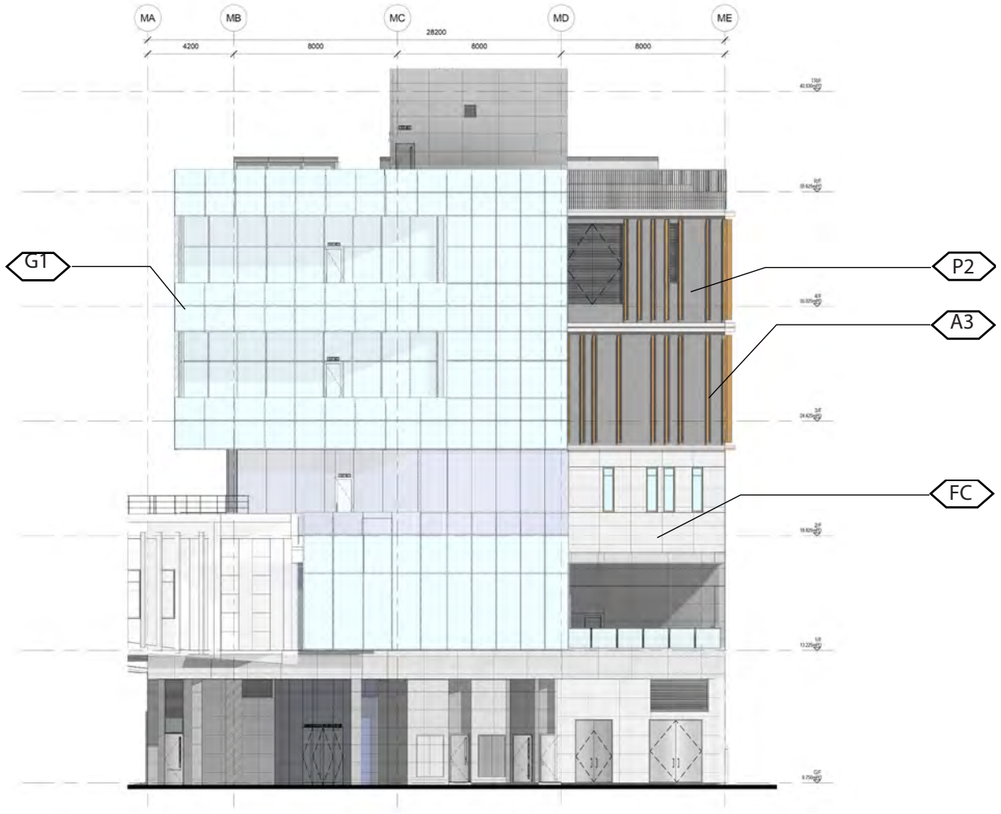
**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FC | FAIRFACED CONCRETE | A1 | ALUMINIUM (BRIGHT COPPER) | A2 | ALUMINIUM (BLUE) | A3 | ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 | ALUMINIUM (WHITE) |
| SS | S.S. (BEAD BLASTED) | G1 | CURTAIN WALL | G2 | GLASS WALL | G3 | GLASS BLOCK | G4 | GLASS WALL W/. REFLECTIVE COATING |
| P1 | PAINT IN GRAY | P2 | TEXTURED PAINT IN GRAY | D1 | DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 | DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 | DFMA CONCRETE PANEL (DARK GRAY, RIBBED) |

A5 ALUMINIUM (GREY)

# Appendix F - Hard Landscape Design

M - ADMINISTRATION BUILDING




ELEVATION 3 (SCALE 1:300)

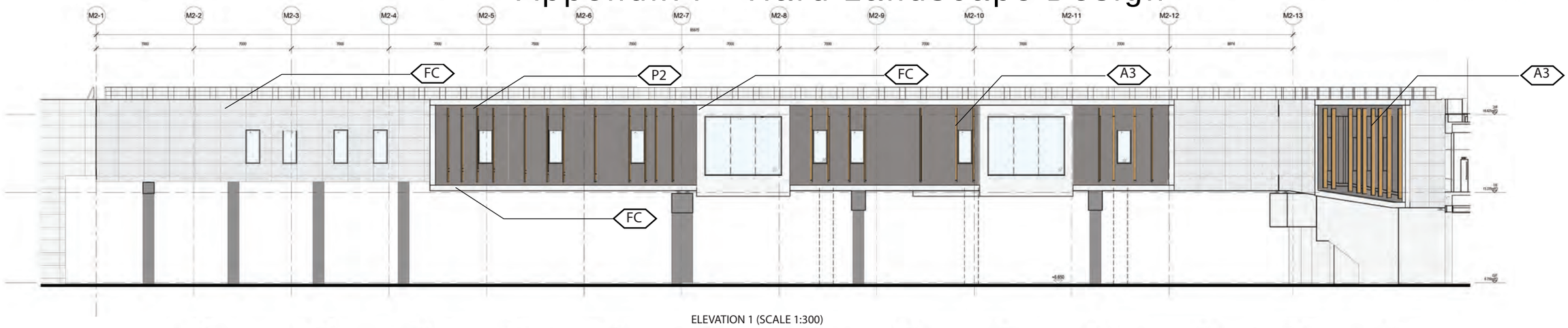

ELEVATION 4 (SCALE 1:300)

**LEGEND**

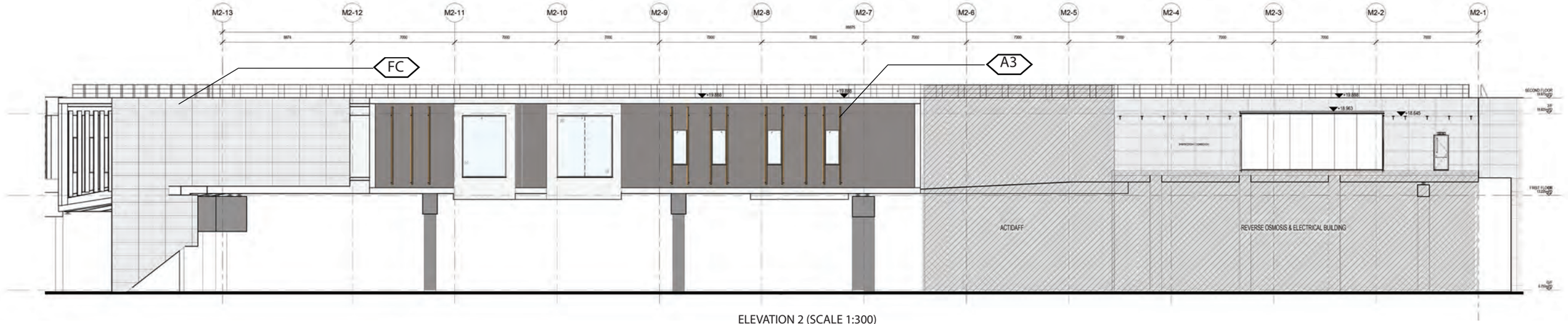
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

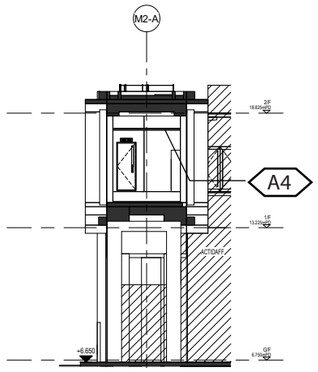
M2- INSPECTION CORRIDOR



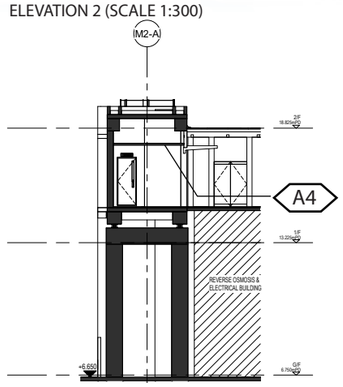

ELEVATION 1 (SCALE 1:300)



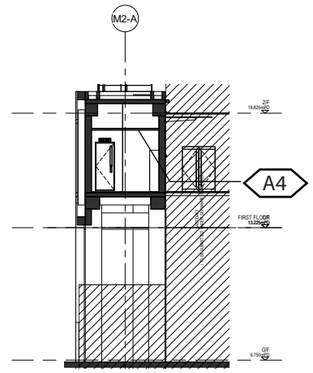

ELEVATION 2 (SCALE 1:300)




SECTION A-A (SCALE 1:300)




SECTION B-B (SCALE 1:300)




SECTION C-C (SCALE 1:300)

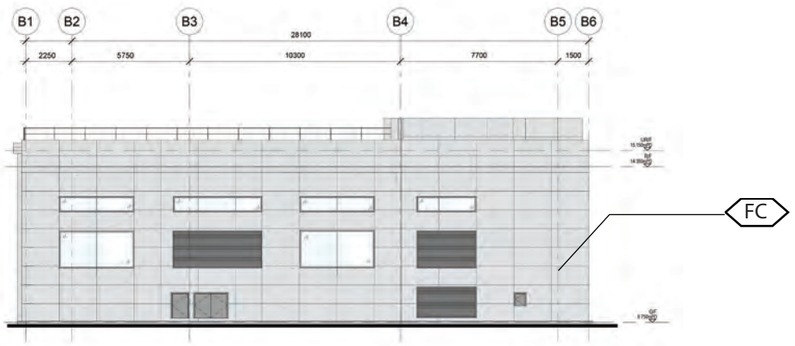
**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

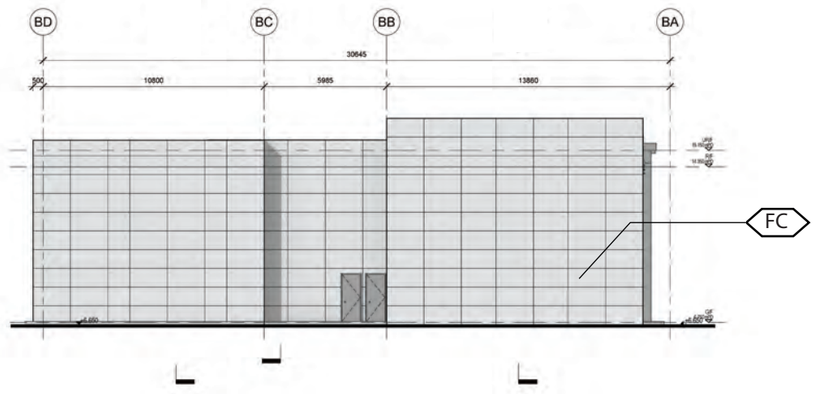
## M2-03 - ELEVATION AND SECTION

# Appendix F - Hard Landscape Design

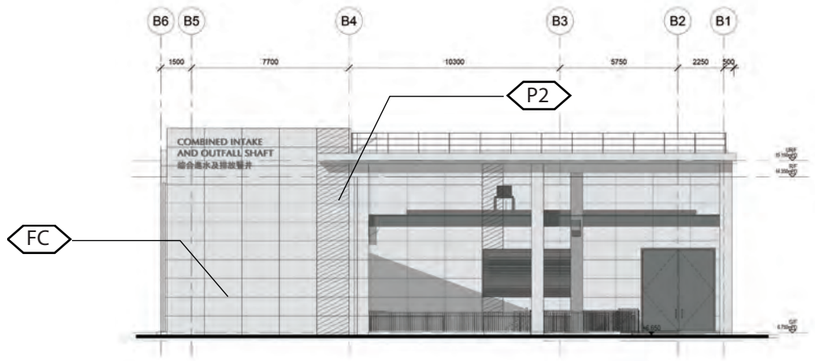
## B - COMBINED INTAKE & OUTFALL SHAFT



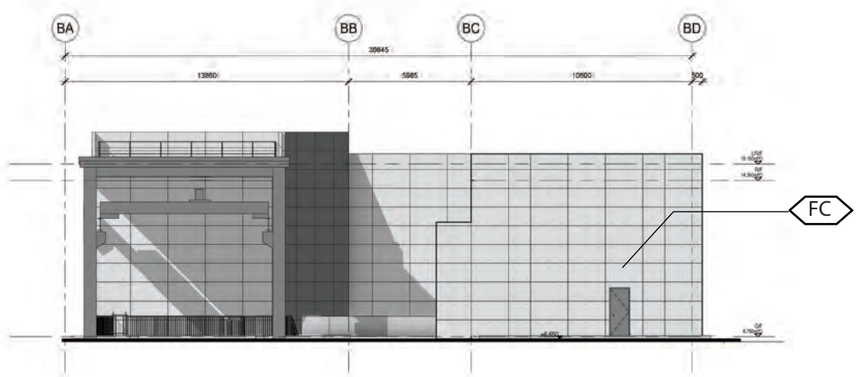

ELEVATION 1 (SCALE 1:300)




ELEVATION 2 (SCALE 1:300)




ELEVATION 3 (SCALE 1:300)



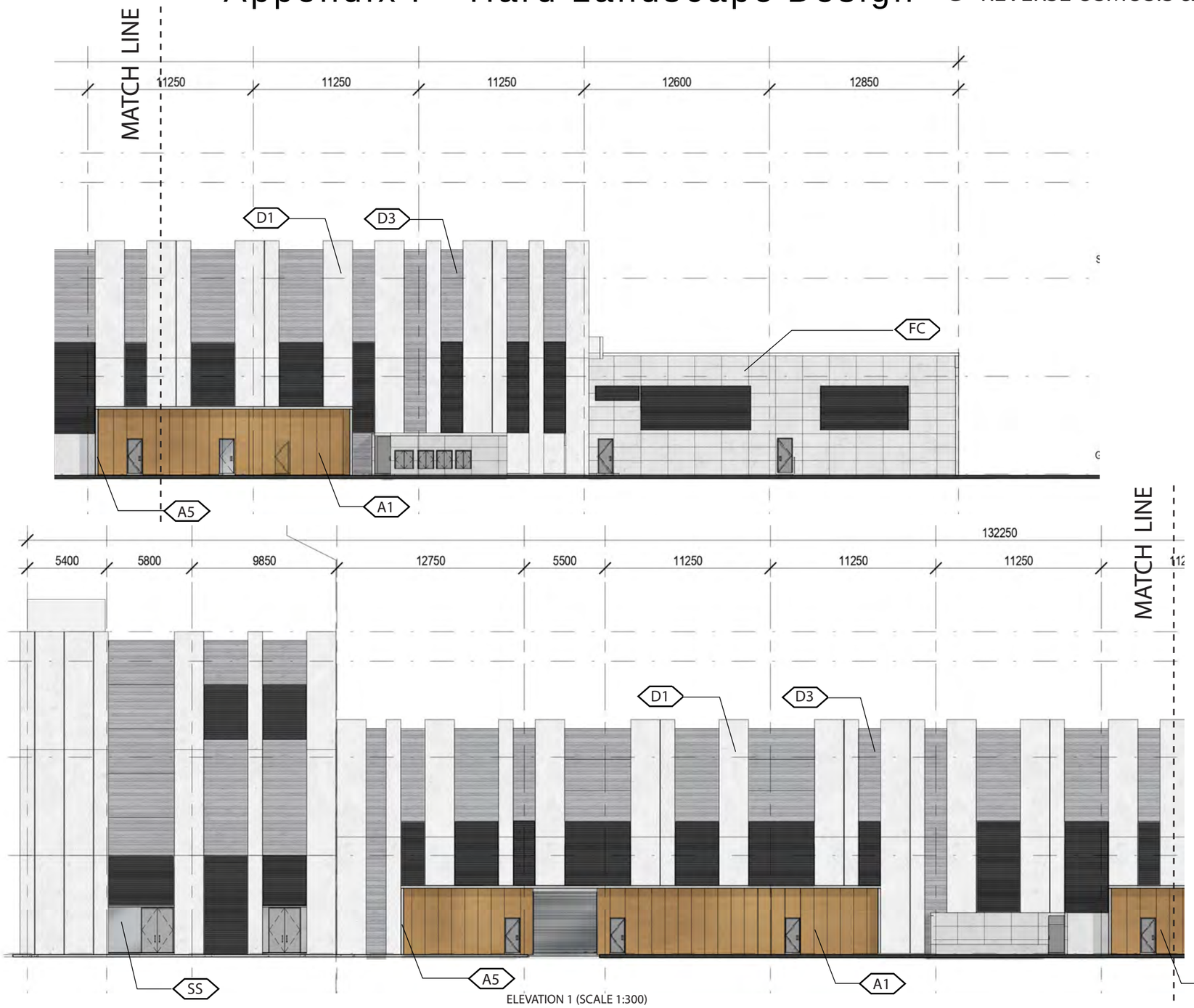

ELEVATION 4 (SCALE 1:300)

**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

## G - REVERSE OSMOSIS & ELECTRICAL BUILDING



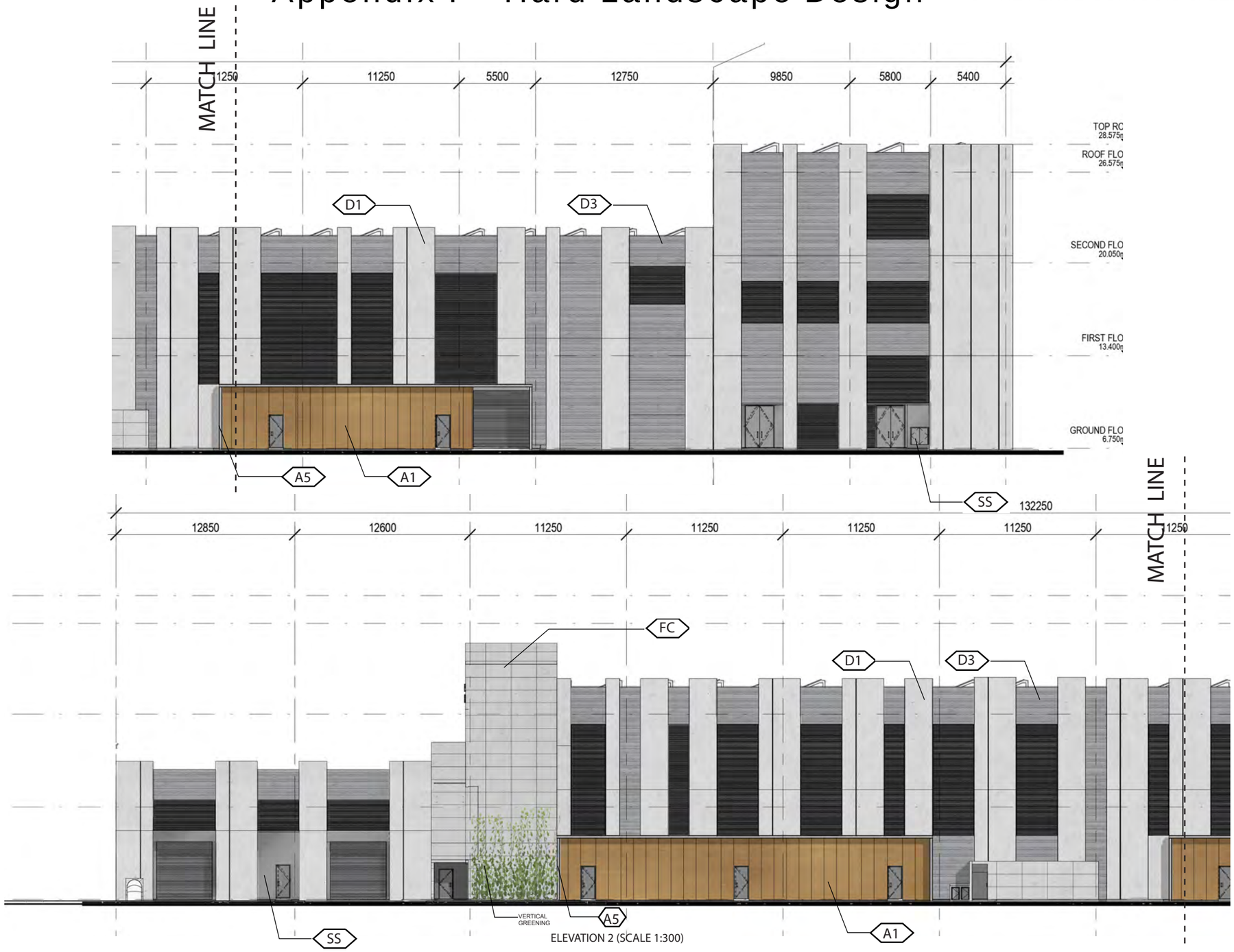

ELEVATION 1 (SCALE 1:300)

**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

## G - REVERSE OSMOSIS & ELECTRICAL BUILDING

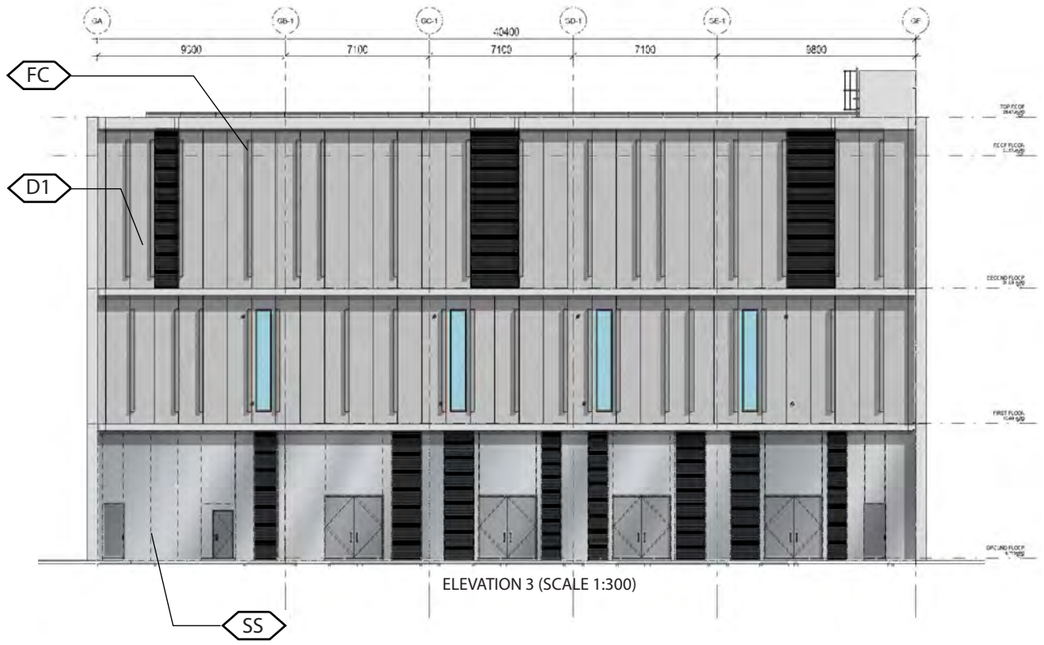



ELEVATION 2 (SCALE 1:300)

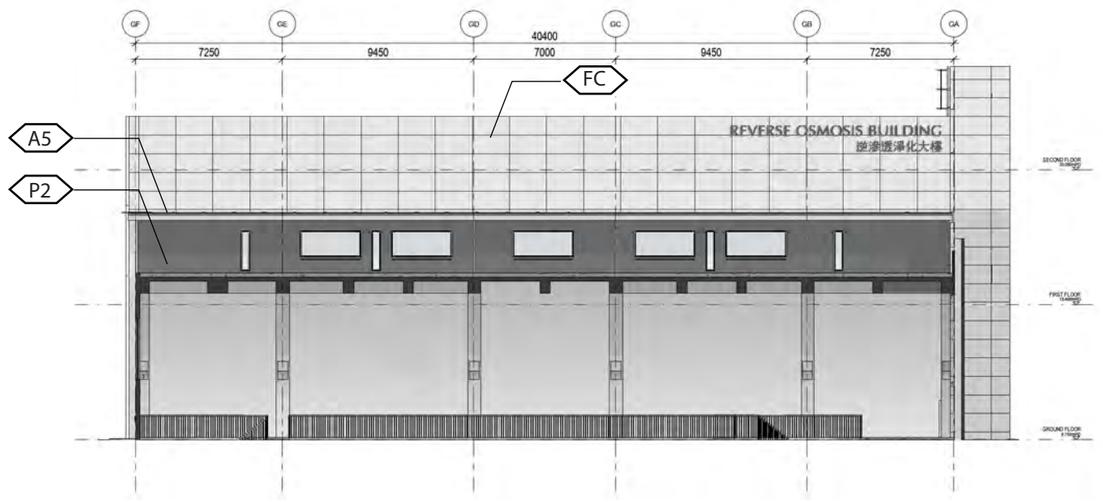
**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design G - REVERSE OSMOSIS & ELECTRICAL BUILDING




ELEVATION 3 (SCALE 1:300)



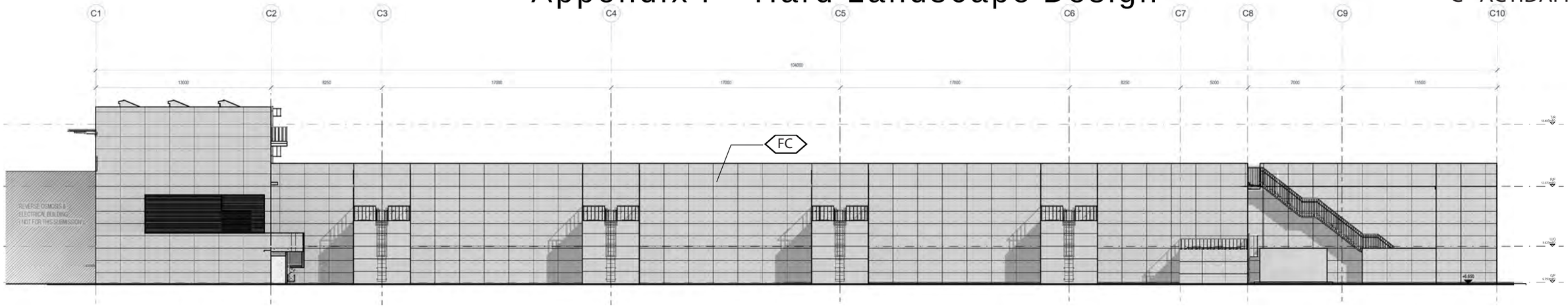

ELEVATION 4 (SCALE 1:300)

**LEGEND**

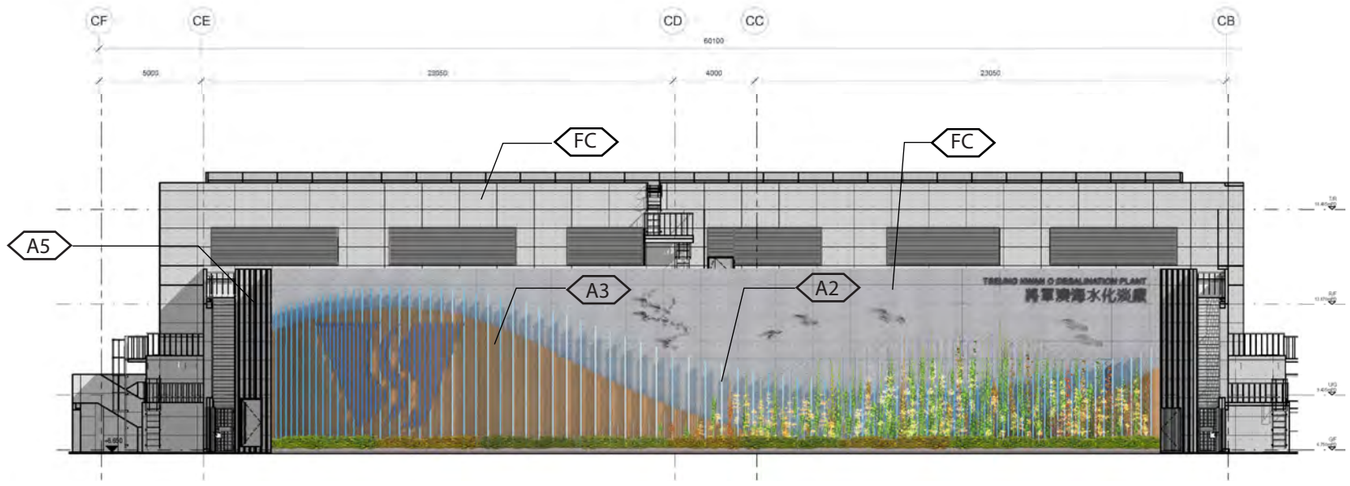
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

C - ACTIDAFF




ELEVATION 1 (SCALE 1:300)



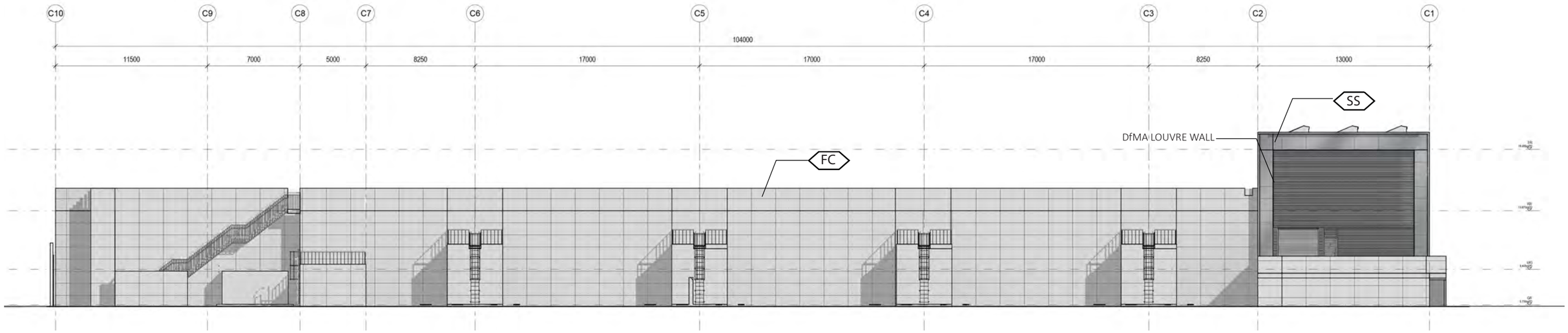

ELEVATION 2 (SCALE 1:300)

**LEGEND**

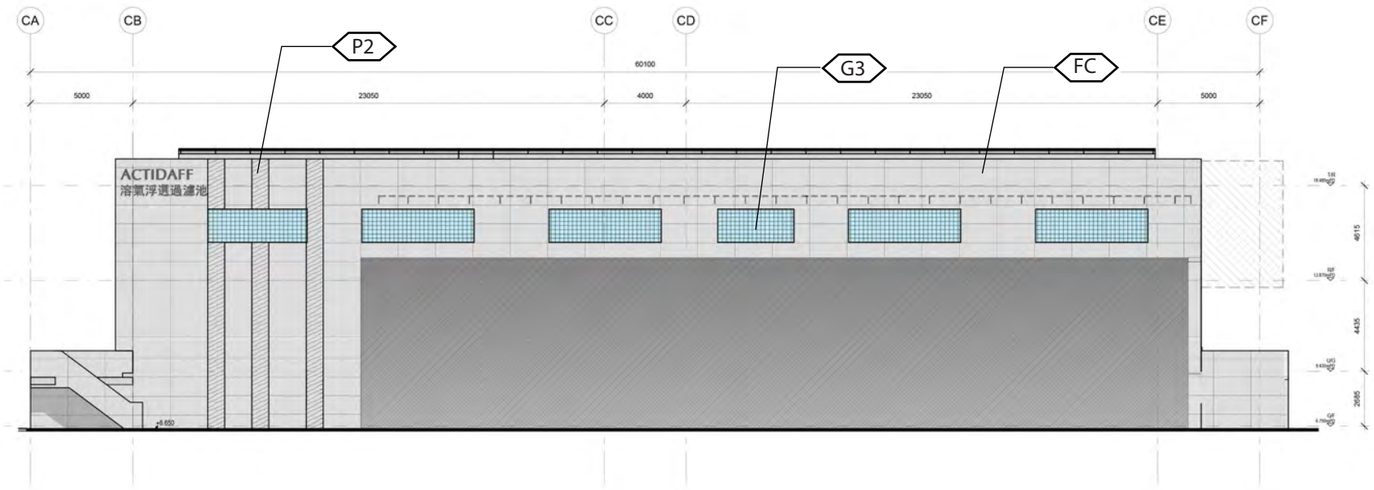
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

C - ACTIDAFF




ELEVATION 3 (SCALE 1:300)



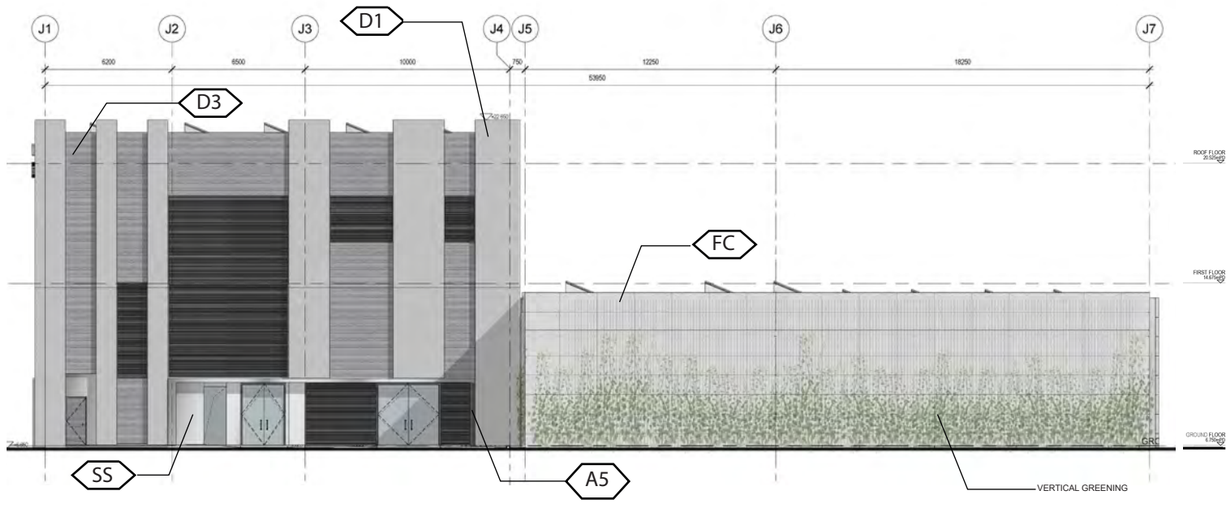

ELEVATION 4 (SCALE 1:300)

**LEGEND**

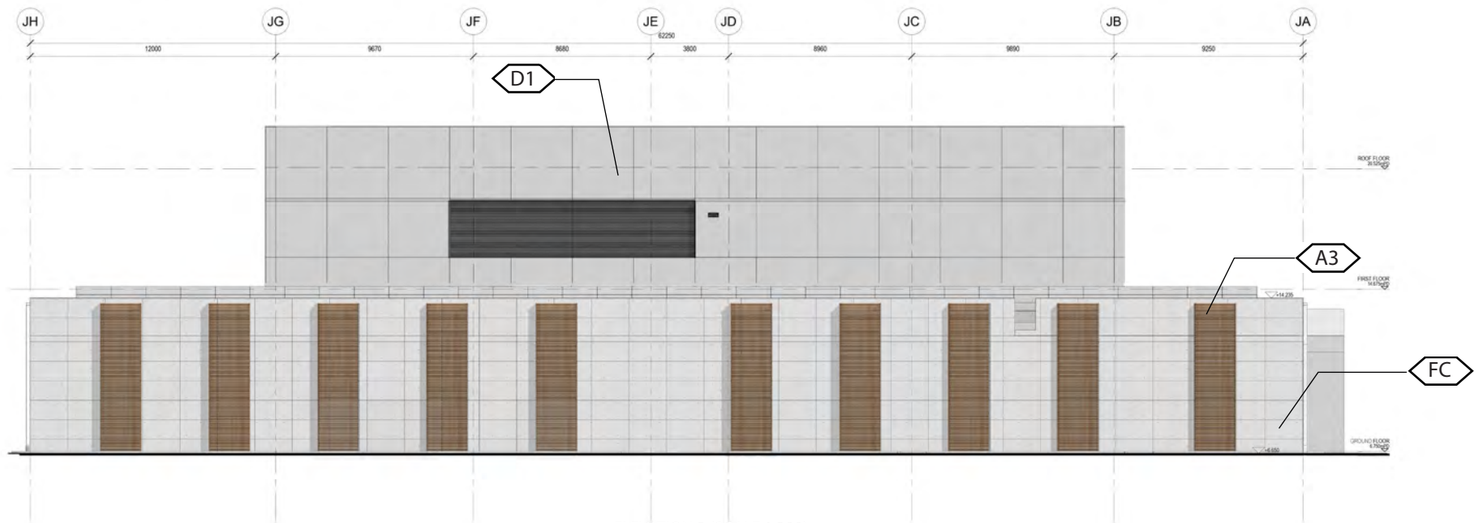
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

## J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING




ELEVATION 1 (SCALE 1:300)




ELEVATION 2 (SCALE 1:300)

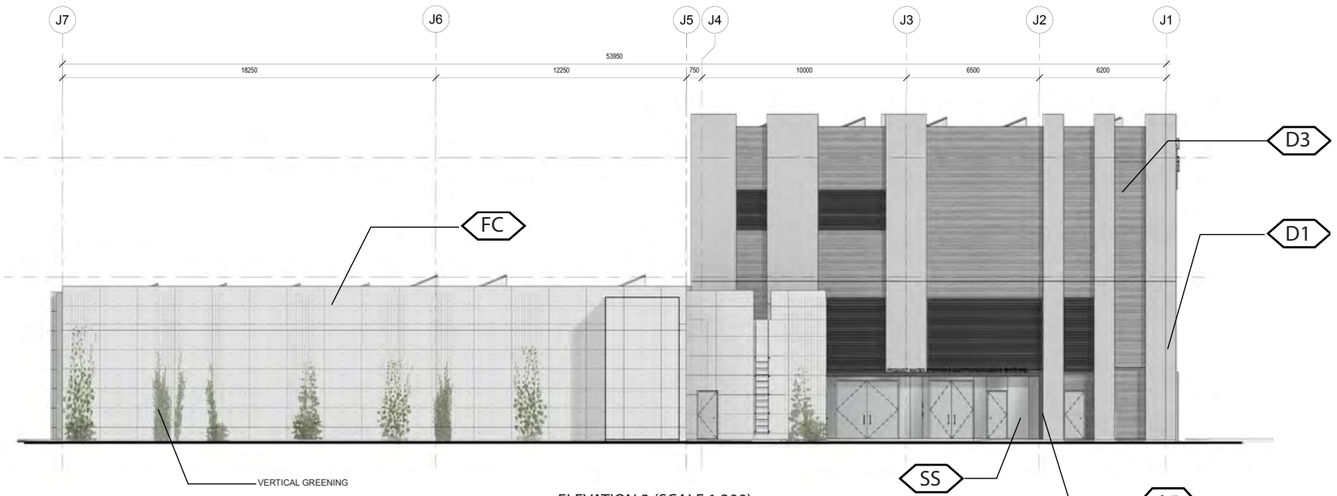
**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

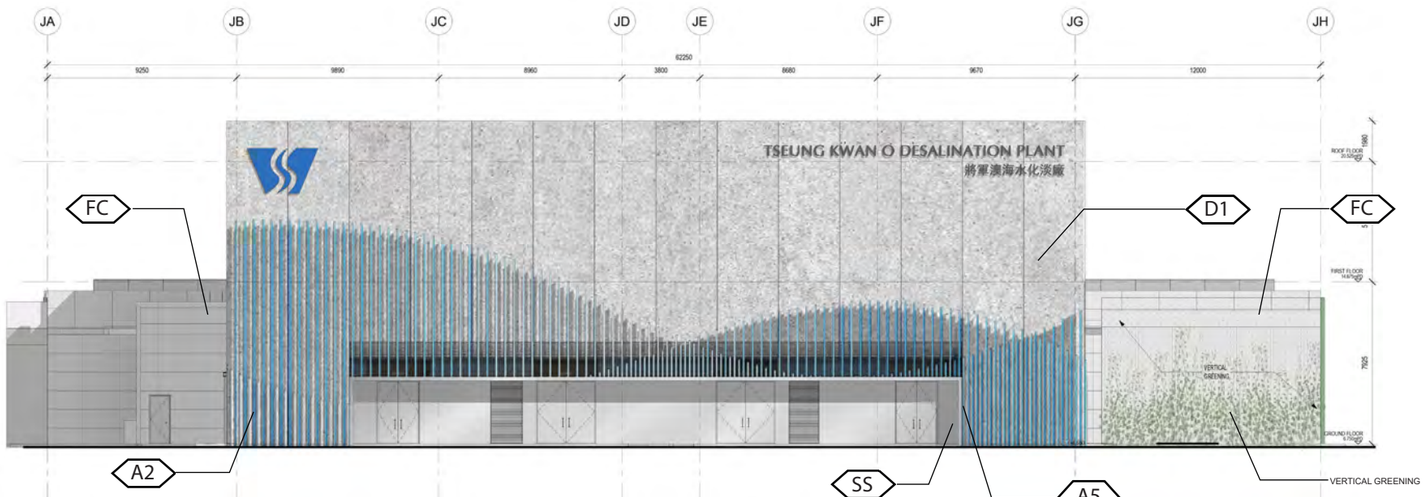
## J - 02 - ELEVATION

# Appendix F - Hard Landscape Design

## J - PRODUCT WATER STORAGE TANK AND ELECTRICAL BUILDING




ELEVATION 3 (SCALE 1:300)



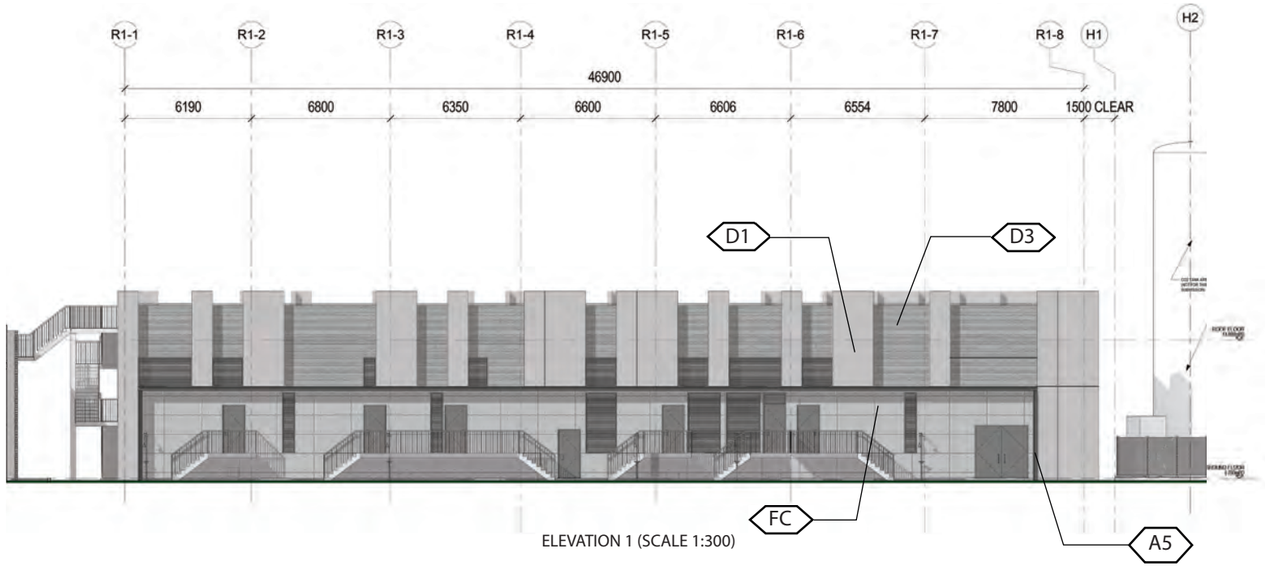

ELEVATION 4 (SCALE 1:300)

**LEGEND**

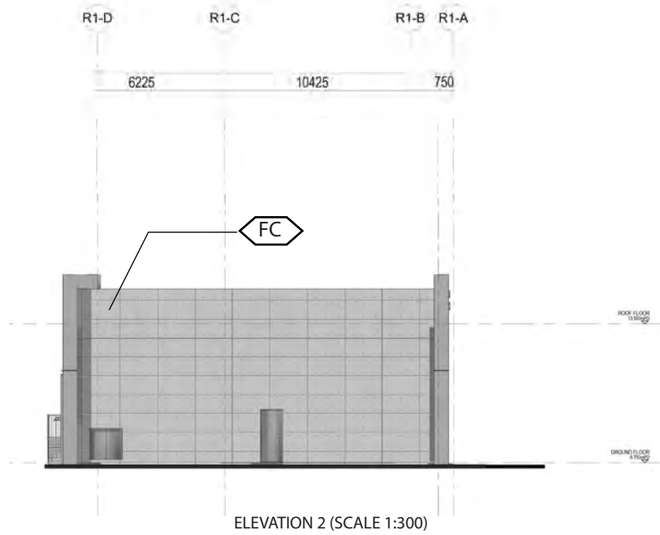
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

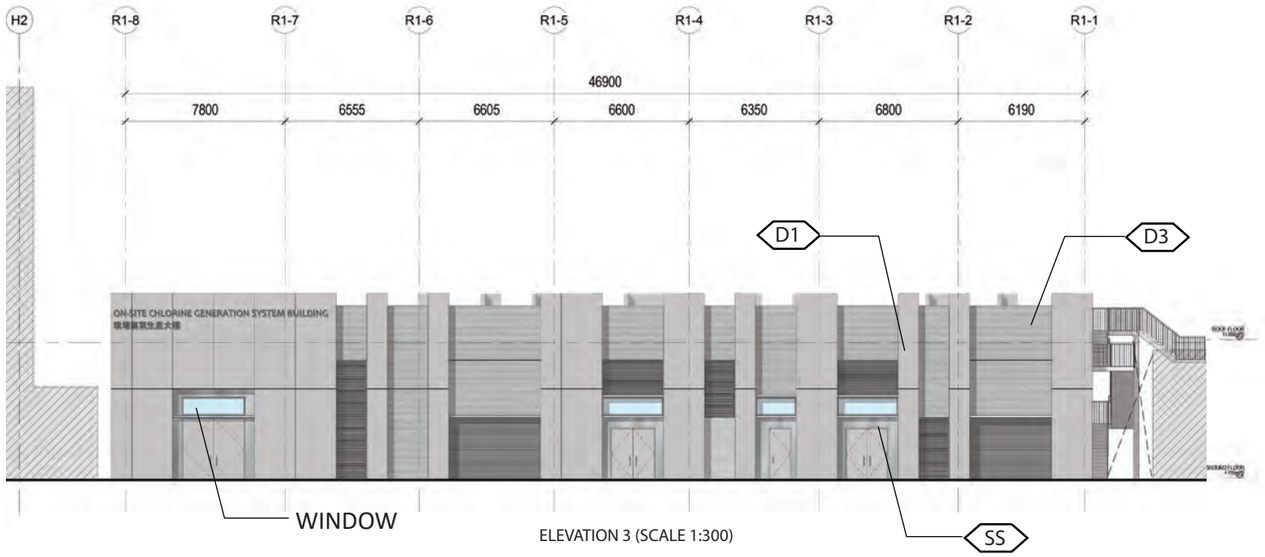
## R1 - ON-SITE CHLORINE GENERATION SYSTEM BUILDING



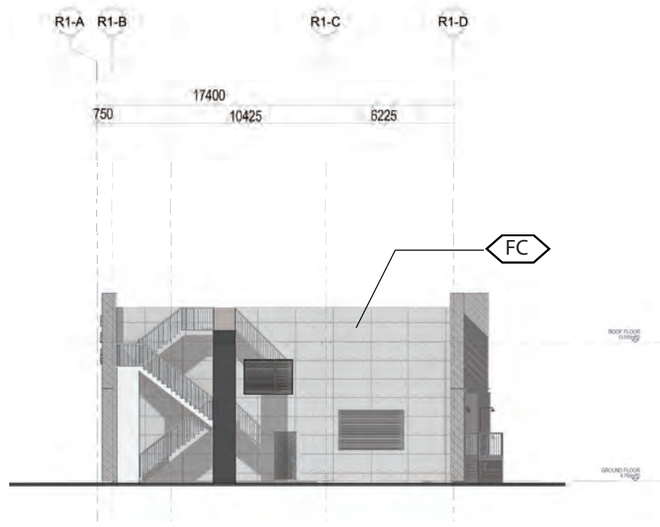

ELEVATION 1 (SCALE 1:300)




ELEVATION 2 (SCALE 1:300)




ELEVATION 3 (SCALE 1:300)



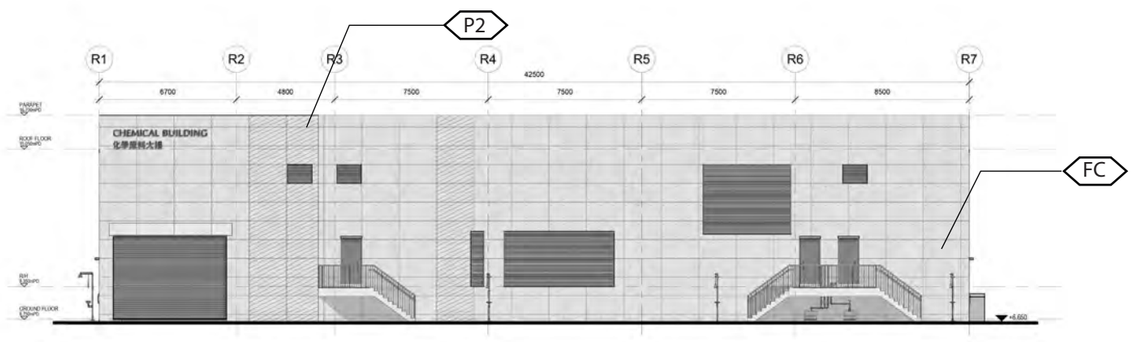

ELEVATION 4 (SCALE 1:300)

**LEGEND**

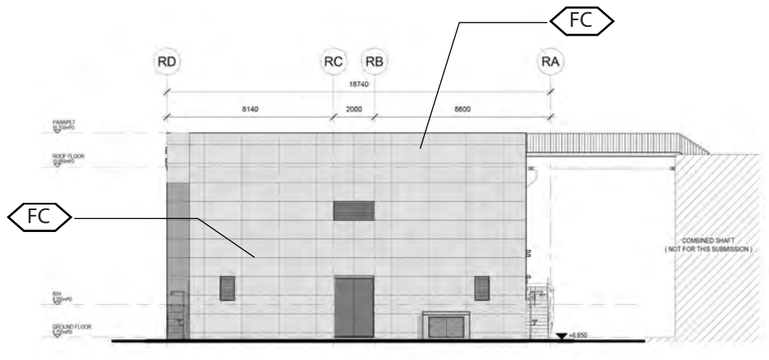
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

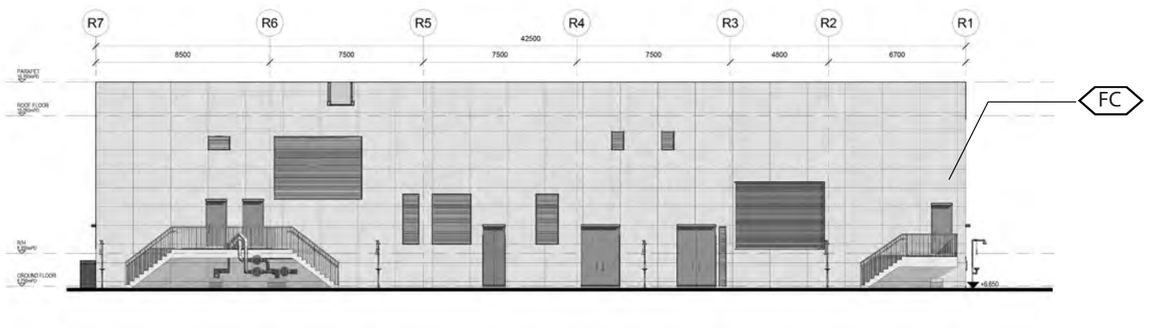
## R0 - CHEMICAL BUILDING



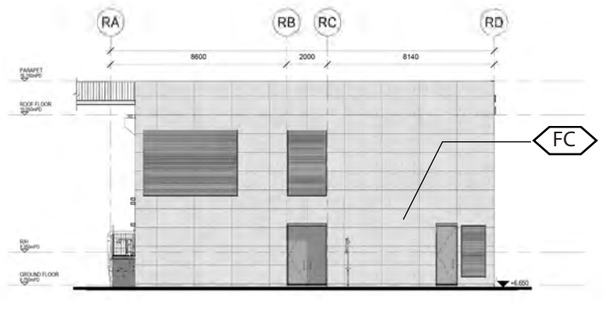

ELEVATION 1 (SCALE1:300)




ELEVATION 2 (SCALE1:300)




ELEVATION 3 (SCALE1:300)



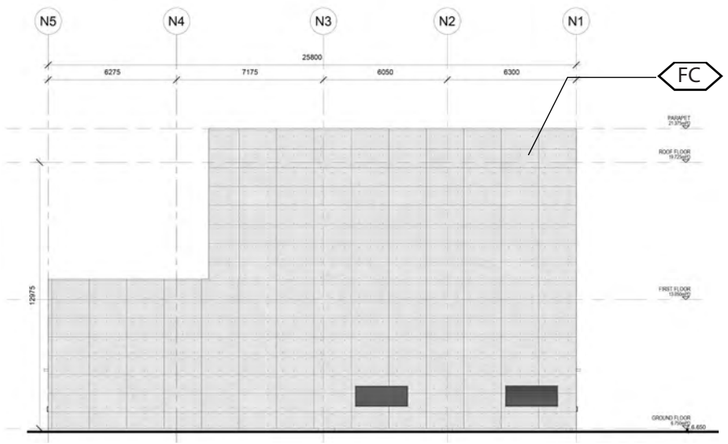

ELEVATION 4 (SCALE1:300)

**LEGEND**

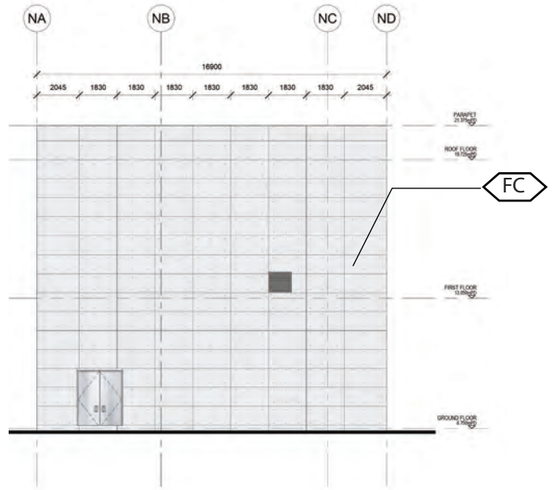
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

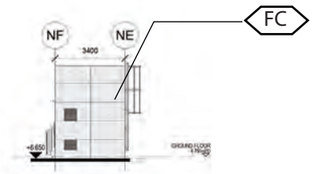
## N - MAIN ELECTRICAL & CHILLER PLANT BUILDING



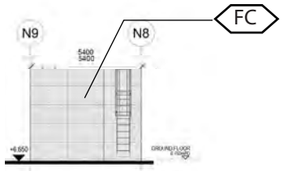

ELEVATION 1 (SCALE 1:300)



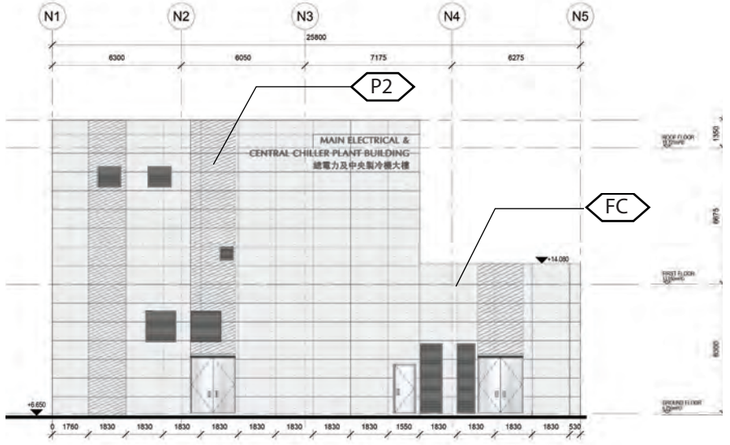

ELEVATION 2 (SCALE 1:300)



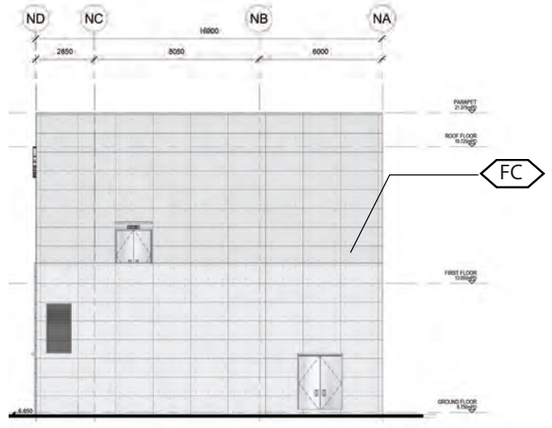

ELEVATION 5 (SCALE 1:300)



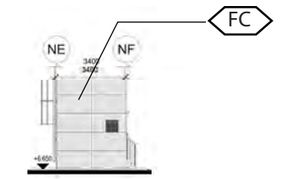

ELEVATION 6 (SCALE 1:300)



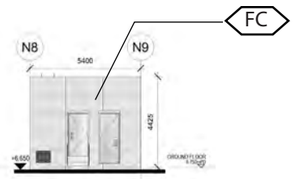

ELEVATION 3 (SCALE 1:300)




ELEVATION 4 (SCALE 1:300)




ELEVATION 7 (SCALE 1:300)



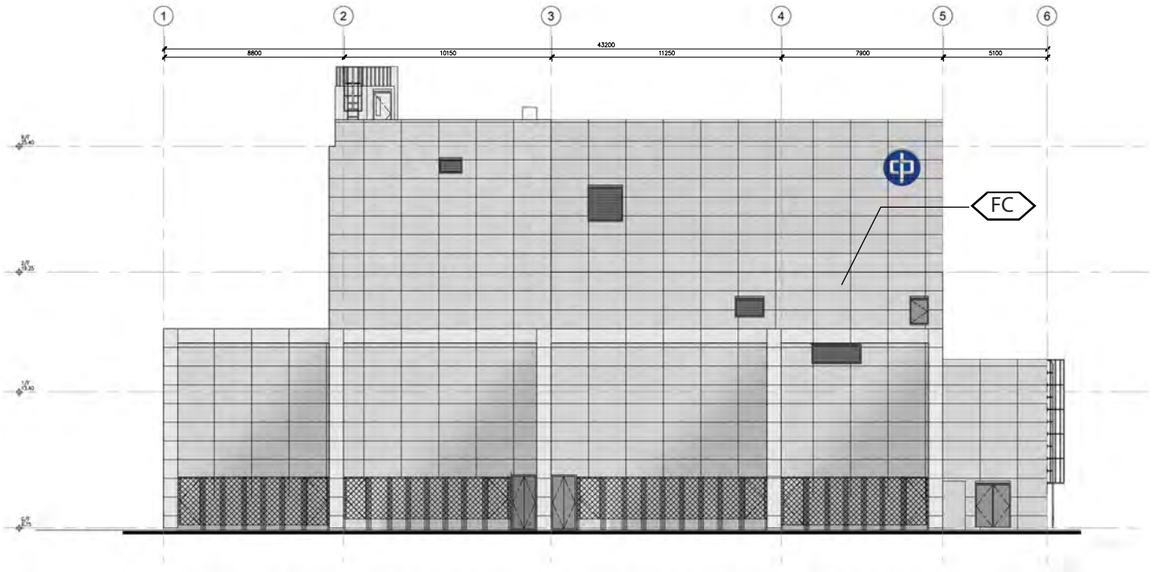

ELEVATION 8 (SCALE 1:300)

**LEGEND**

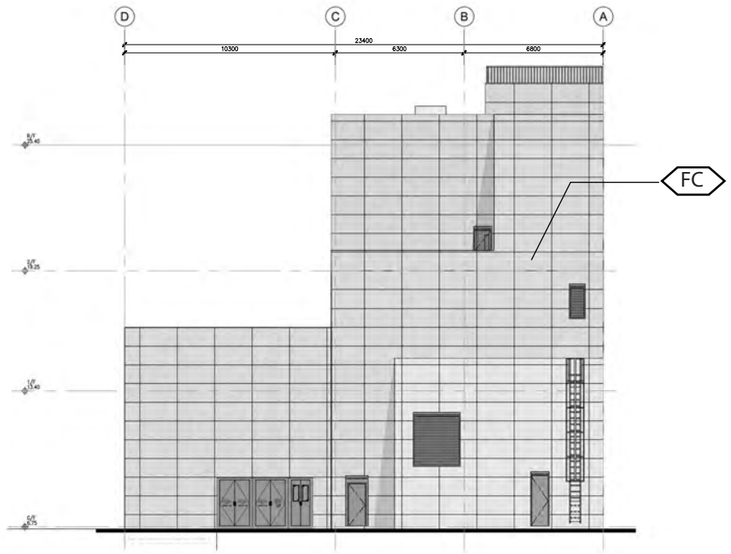
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

## S - TKO DESALINATION PLANT SUBSTATION



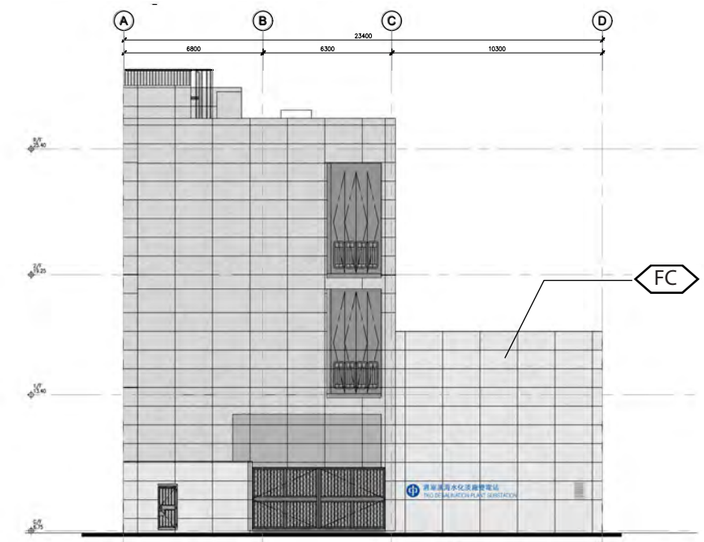

ELEVATION 1 (SCALE 1:300)




ELEVATION 2 (SCALE 1:300)




ELEVATION 3 (SCALE 1:300)



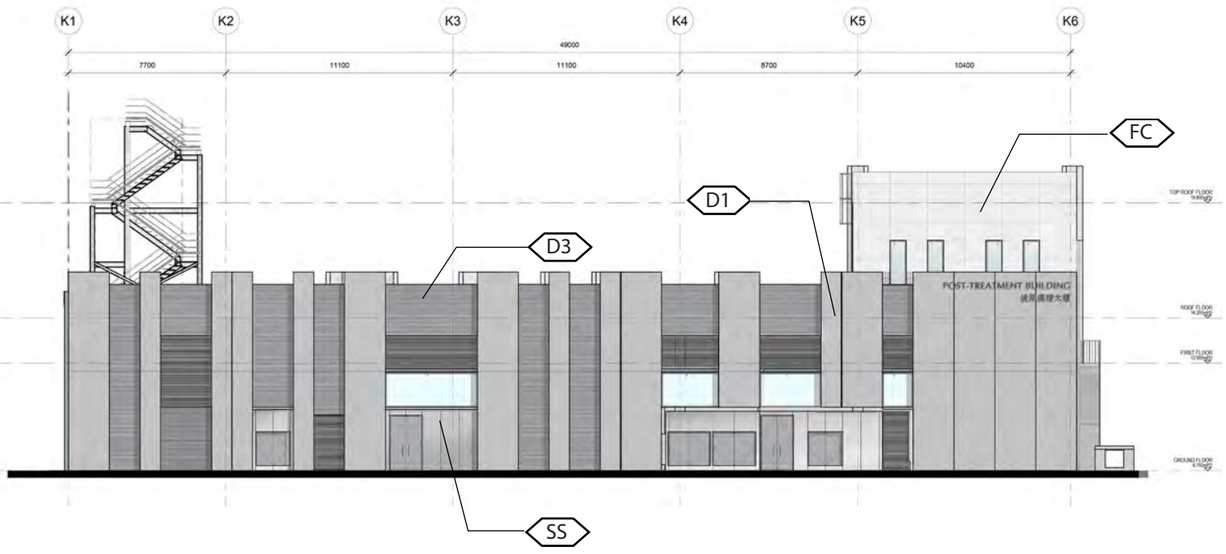

ELEVATION 4 (SCALE 1:300)

**LEGEND**

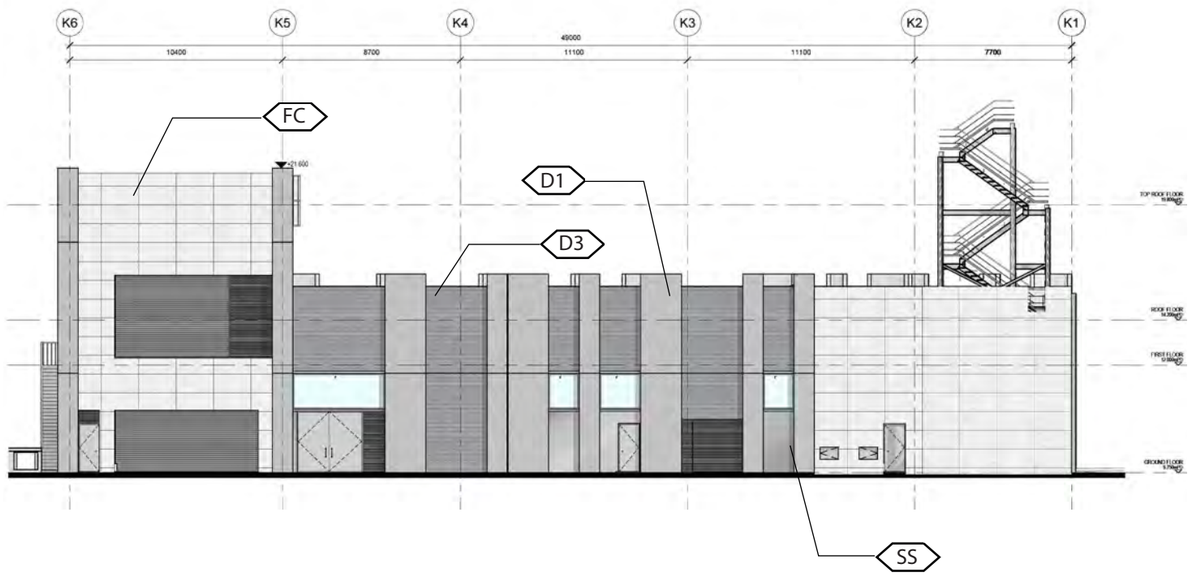
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

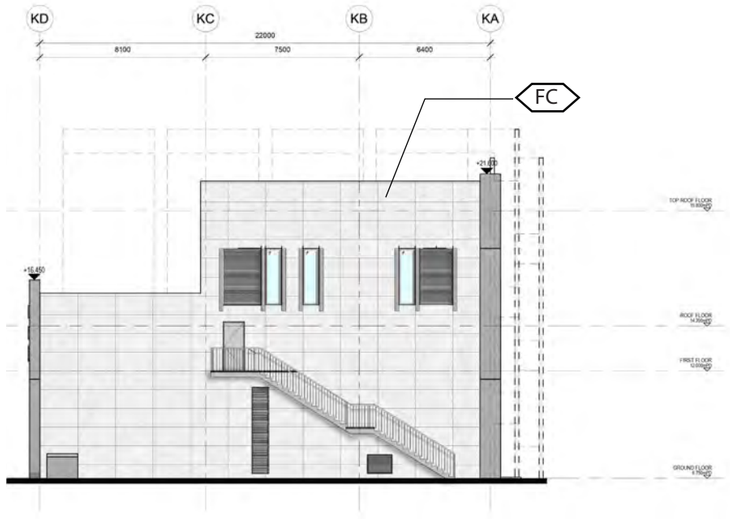
## K - POST TREATMENT BUILDING



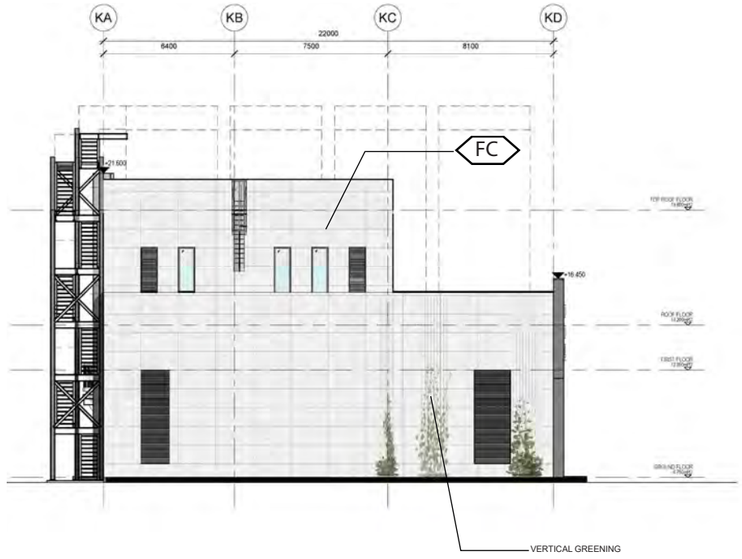

ELEVATION 1 ( SCALE 1:300)




ELEVATION 2 ( SCALE 1:300)




ELEVATION 3 ( SCALE 1:300)



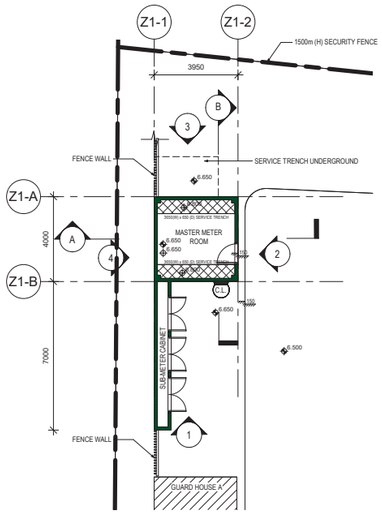

ELEVATION 4 ( SCALE 1:300)

**LEGEND**

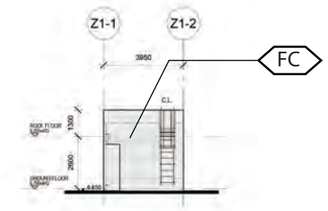
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

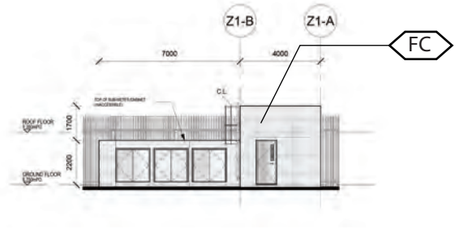
## Z - MASTER METER ROOM



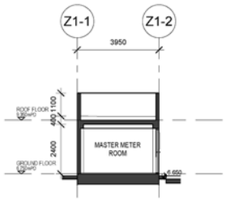

GROUND FLOOR PLAN (SCALE 1:300)



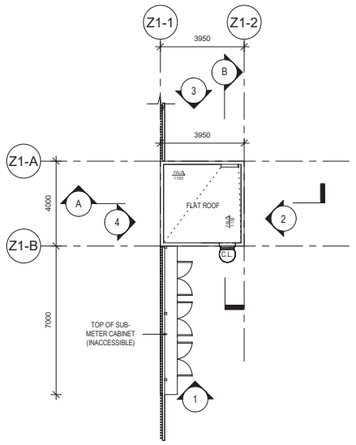

ELEVATION 1 (SCALE 1:300)



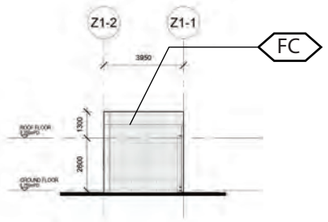

ELEVATION 2 (SCALE 1:300)



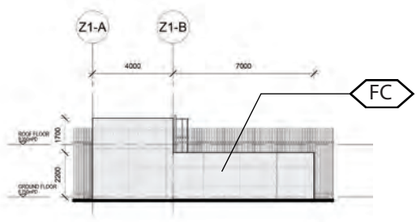

SECTION A-A (SCALE 1:300)



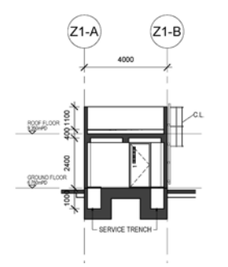

ROOF FLOOR PLAN (SCALE 1:300)




ELEVATION 3 (SCALE 1:300)




ELEVATION 4 (SCALE 1:300)



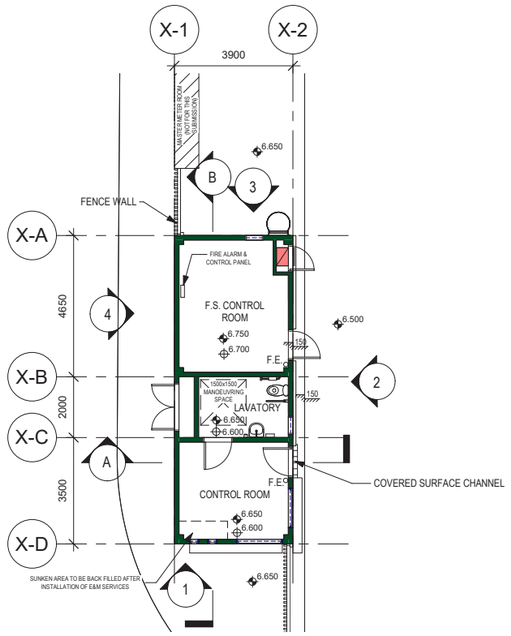

SECTION B-B (SCALE 1:300)

**LEGEND**

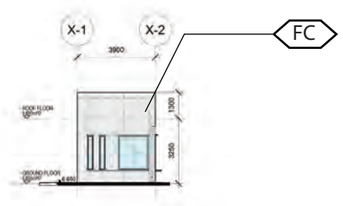
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

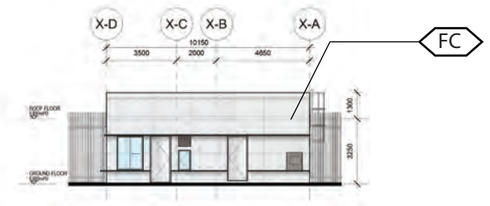
## X0 - GUARD HOUSE A



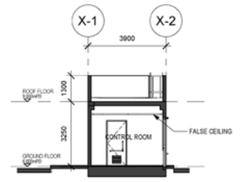

GUARD HOUSE A GROUND FLOOR PLAN (SCALE 1:300)



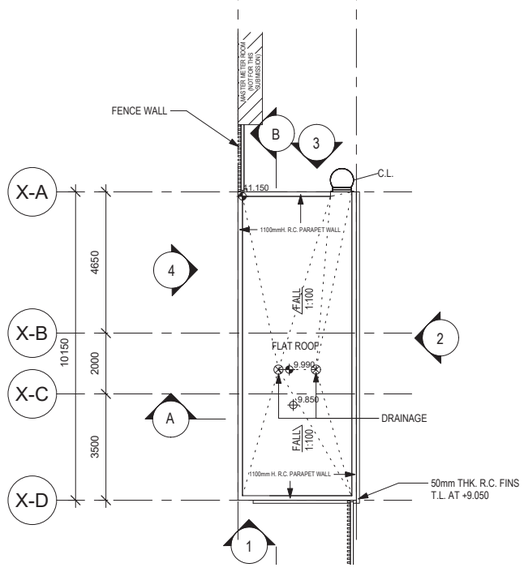

GUARD HOUSE A ELEVATION 1 (SCALE 1:300)



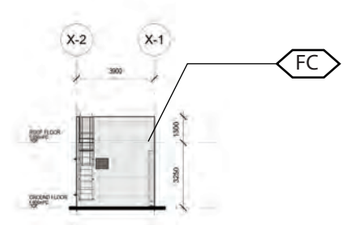

GUARD HOUSE A ELEVATION 2 (SCALE 1:300)



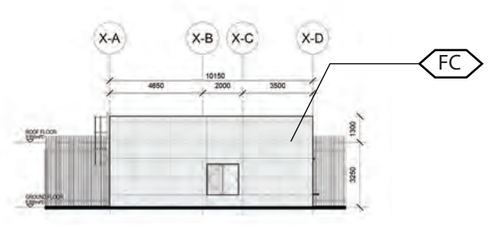

GUARD HOUSE A SECTION A-A (SCALE 1:300)



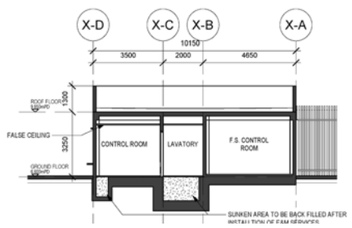

GUARD HOUSE A ROOF FLOOR PLAN (SCALE 1:300)




GUARD HOUSE A ELEVATION 3 (SCALE 1:300)




GUARD HOUSE A ELEVATION 4 (SCALE 1:300)



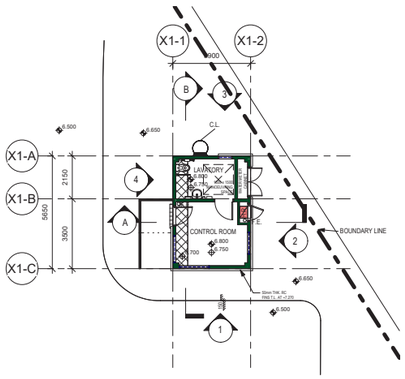

GUARD HOUSE A SECTION B-B (SCALE 1:300)

**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

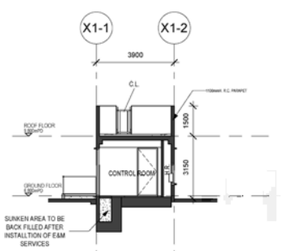
X1- GUARD HOUSE B



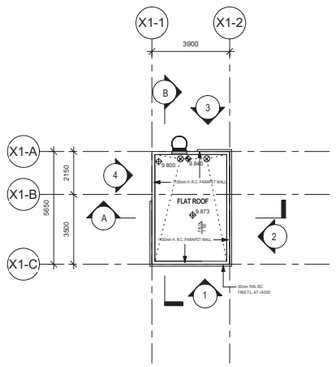

GUARD HOUSE B GROUND FLOOR PLAN (SCALE 1:300)


GUARD HOUSE B ELEVATION 1 (SCALE 1:300)

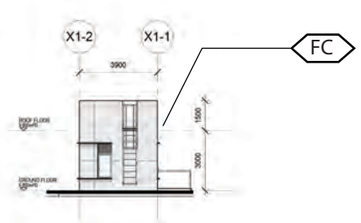

GUARD HOUSE B ELEVATION 2 (SCALE 1:300)



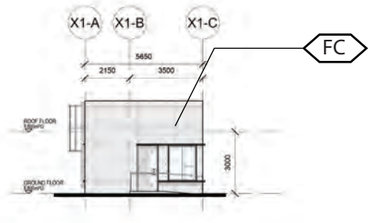

GUARD HOUSE B SECTION A-A (SCALE 1:300)



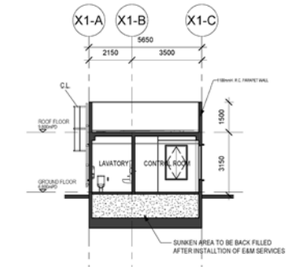

GUARD HOUSE B ROOF FLOOR PLAN (SCALE 1:300)




GUARD HOUSE B ELEVATION 3 (SCALE 1:300)




GUARD HOUSE B ELEVATION 4 (SCALE 1:300)



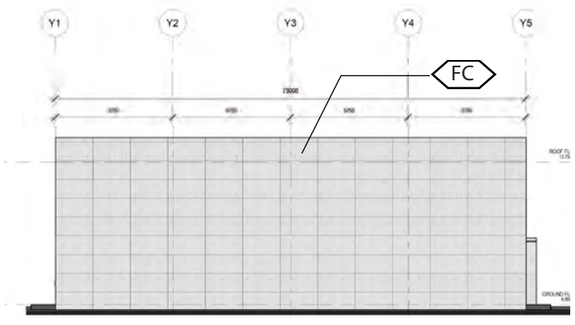

GUARD HOUSE B SECTION B-B (SCALE 1:300)

**LEGEND**

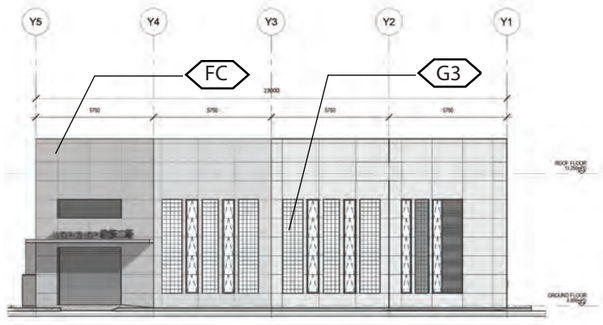
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design

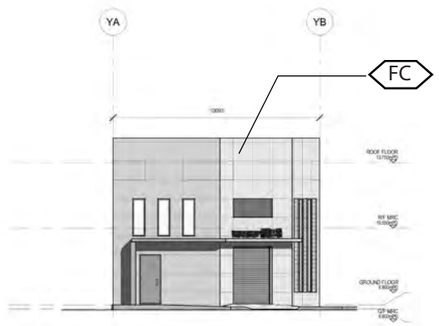
Y - WORKSHOP



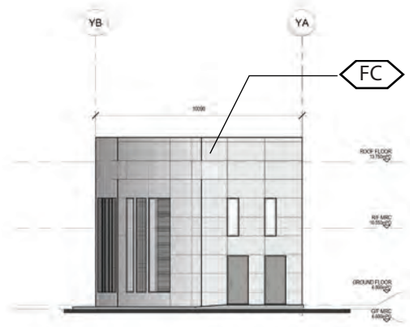

ELEVATION 1 (SCALE 1:300)



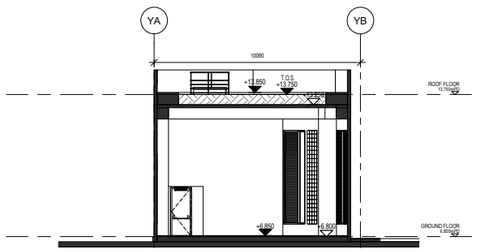

ELEVATION 2 (SCALE 1:300)



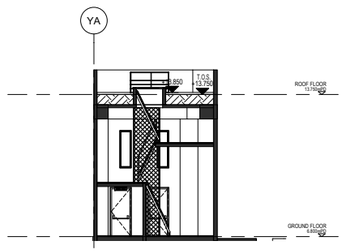

ELEVATION 3 (SCALE 1:300)



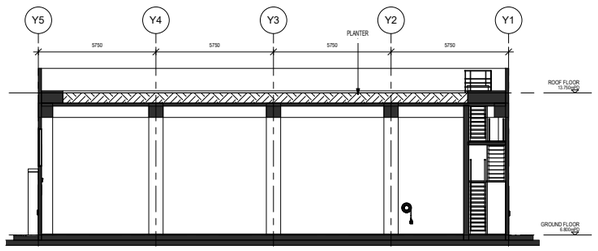

ELEVATION 4 (SCALE 1:300)




SECTION A-A (SCALE 1:300)




SECTION B-B (SCALE 1:300)




SECTION C-C (SCALE 1:300)

**LEGEND**

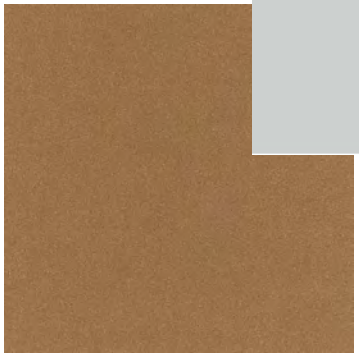
| | | | | | |
|---|---|---|---|---|---|
| FC FAIRFACED CONCRETE | A1 ALUMINIUM (BRIGHT COPPER) | A2 ALUMINIUM (BLUE) | A3 ALUMINIUM (W/. WOOD GRAIN PATTERN) | A4 ALUMINIUM (WHITE) | A5 ALUMINIUM (GREY) |
| SS S.S. (BEAD BLASTED) | G1 CURTAIN WALL | G2 GLASS WALL | G3 GLASS BLOCK | G4 GLASS WALL W/. REFLECTIVE COATING | |
| P1 PAINT IN GRAY | P2 TEXTURED PAINT IN GRAY | D1 DFMA CONCRETE PANEL (LIGHT GRAY, PLAIN) | D2 DFMA CONCRETE PANEL (LIGHT GRAY, BRUSHED) | D3 DFMA CONCRETE PANEL (DARK GRAY, RIBBED) | |

# Appendix F - Hard Landscape Design Material Board (Exterior)



DfMA CONCRETE PANEL
(TYPE A1, PLAIN)
D1

DfMA CONCRETE PANEL
(TYPE B, RIBBED)
D3



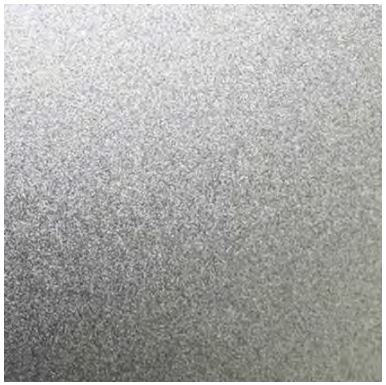
ALUMINIUM CLADDING
(BRIGHT COPPER)
A1

ALUMINIUM CLADDING
(GRAY TIMBER WOLF)
A5

M04 3mm ALUMINIUM WOOD GRAIN PATTERN FINISH
*FOR ALUMINIUM FINS/ PANEL WITH TIMBER FINISH & FOR EXTERNAL CEILING AT ADMINISTRATION BUILDING*
A3

ST02 BLACK GRANITE
WITH BUSH HAMMERED FINISH
*EDGE OF STEPS AT SAIRCASE AND PLANTER*

D2 DfMA CONCRETE PANEL
(TYPE A2, BRUSHED)

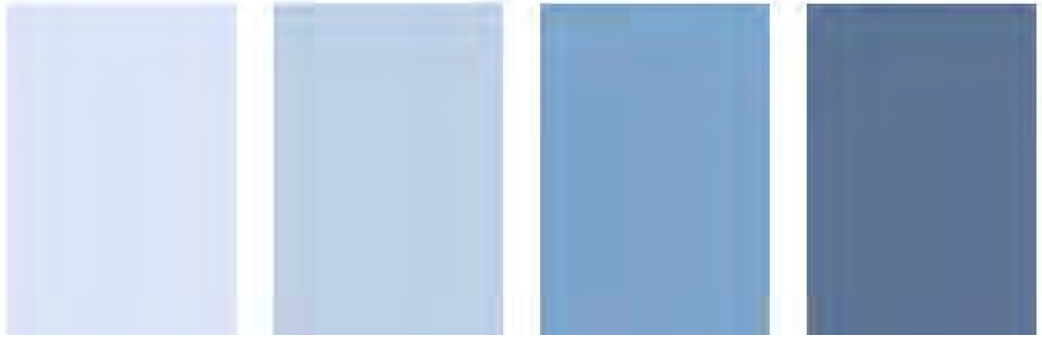


SS STAINLESS STEEL ( SATIN )

F38 300x600x10mm OUTDOOR FULL-BODY
PORCELAIN TILE ON (IVORY FLOW L2)
*STEPS AT GRAND STAIRCASE*

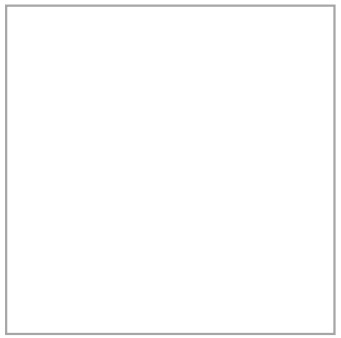
# Appendix F - Hard Landscape Design Material Board (Exterior)





**PANTONE** 649CP 552CP 292CP 2386CP

A2 ALUMINIUM (BLUE)

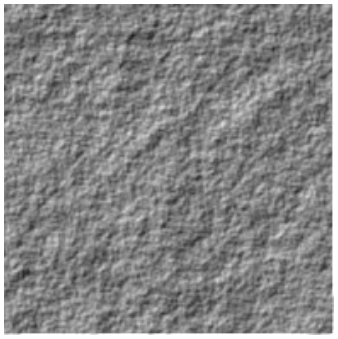


**PANTONE** WHITE 000C

A4 ALUMINIUM (WHITE)

**PANTONE** COOL GRAY 9C

P1 GRAY PAINT

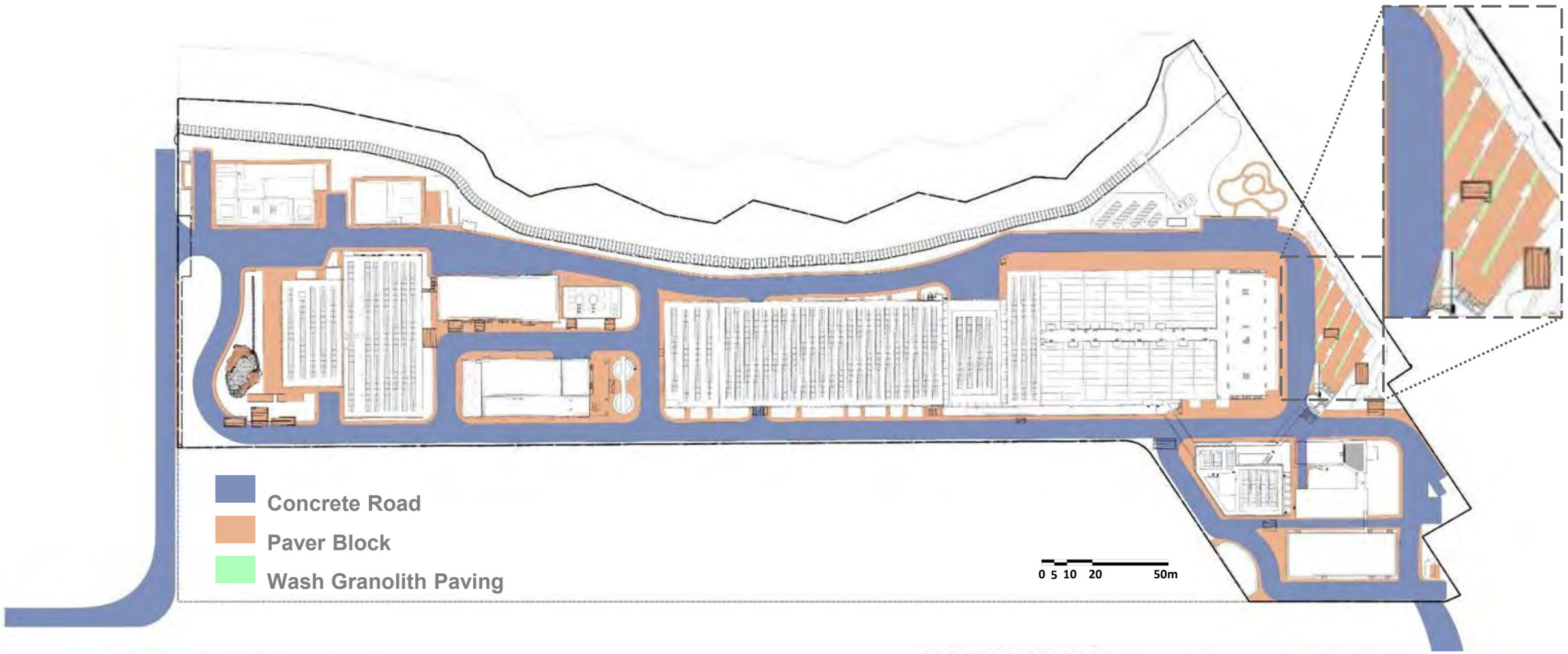


STONE TEXTURED PAINT

P2 TEXTURED PAINT

# Appendix F - Hard Landscape Design

## Landscape Design | Pavement




### MATERIAL SCHEDULE

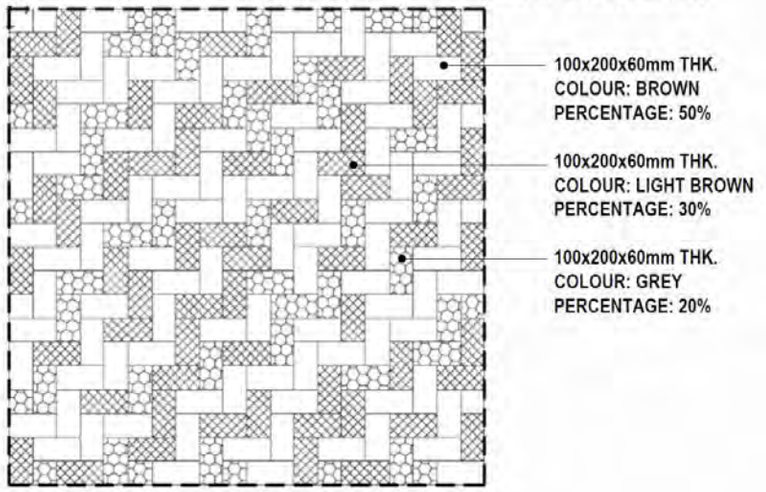
PAVER BLOCK

CONCRETE ROAD
(FOR VEHICULAR)

WASH GRANOLITH PAVING

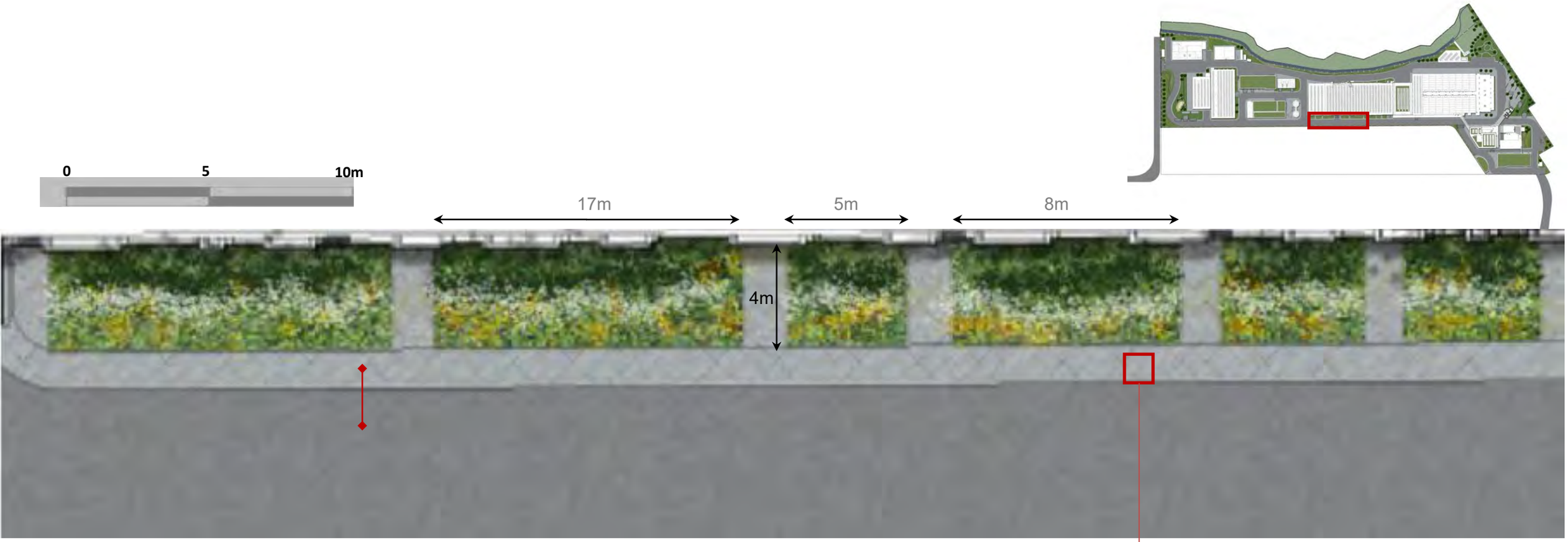
### PAVING MODULE PLAN

(ILLUSTRATION OF DIFFERENT COLOURS OF THE RANDOM MIX OF PAVING BLOCKS)



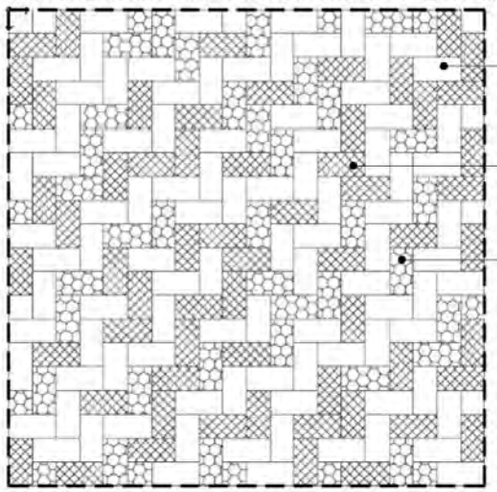
# Appendix F - Hard Landscape Design (Paving Pattern)

## Landscape Design | Typical Details




### Paving Pattern

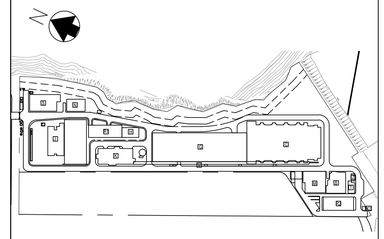
(ILLUSTRATION OF DIFFERENT COLOURS OF THE RANDOM MIX OF PAVING BLOCKS)



# Appendix G – Lighting Plan

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.

B1



SHEET 1 REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3101

SHEET 2 REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3102

SHEET 3 REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3103

SHEET 4 REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3104

SHEET 5 REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3105

LIGHTING LAYOUT LOCATION PLAN
SCALE 1:1000

| Rev | Description | By | Date |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |

Employer
水務署 Water Supplies Department

Supervising Officer designate
BLACK & VEATCH

Design Checker
ARCADIS Design & Consultancy for natural and built assets

Contractor
acciona JEC CRCC
AJC JOINT VENTURE

Designer
wsp
In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ELECTRICAL –
LIGHTING LAYOUT –
LOCATION PLAN

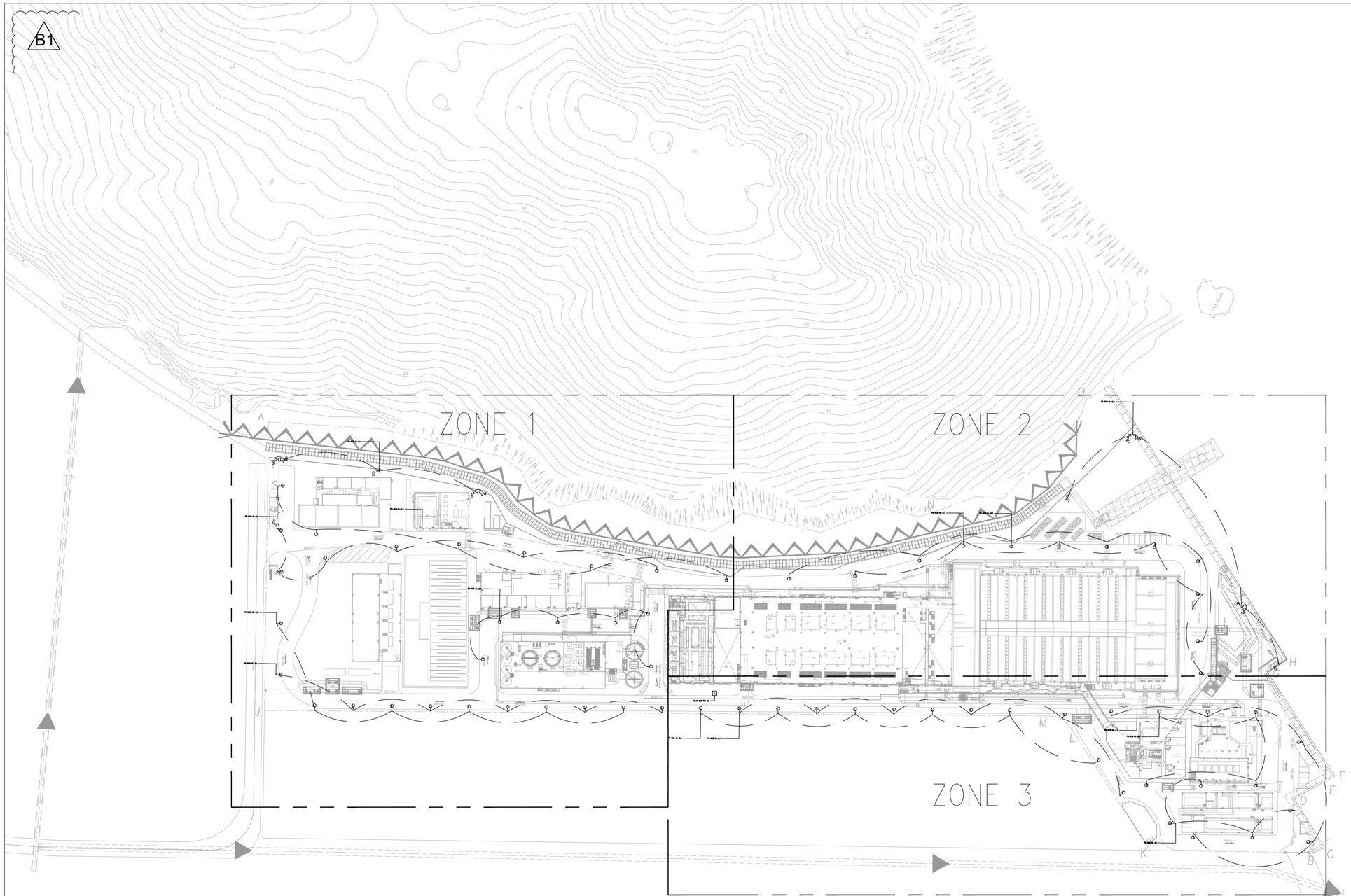
| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WEL3000 | B1 |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

| Scale | Status |
|---|---|
| A1 1:1000 | DETAILED DESIGN APPROVAL |

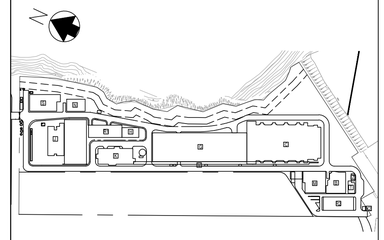
©COPYRIGHT RESERVED

B1




LIGHTING LAYOUT ZONING PLAN

SCALE 1:1000



| Rev | Description | By | Date |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |

Employer

水務署 Water Supplies Department

Supervising Officer designate

BLACK & VEATCH

Design Checker

ARCADIS Design & Consultancy for natural and built assets

Contractor

acciona JEC CSCEC

AJC JOINT VENTURE

Designer

wsp

In Association with APU

Project title

CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title

ELECTRICAL –
LIGHTING LAYOUT –
ZONING PLAN

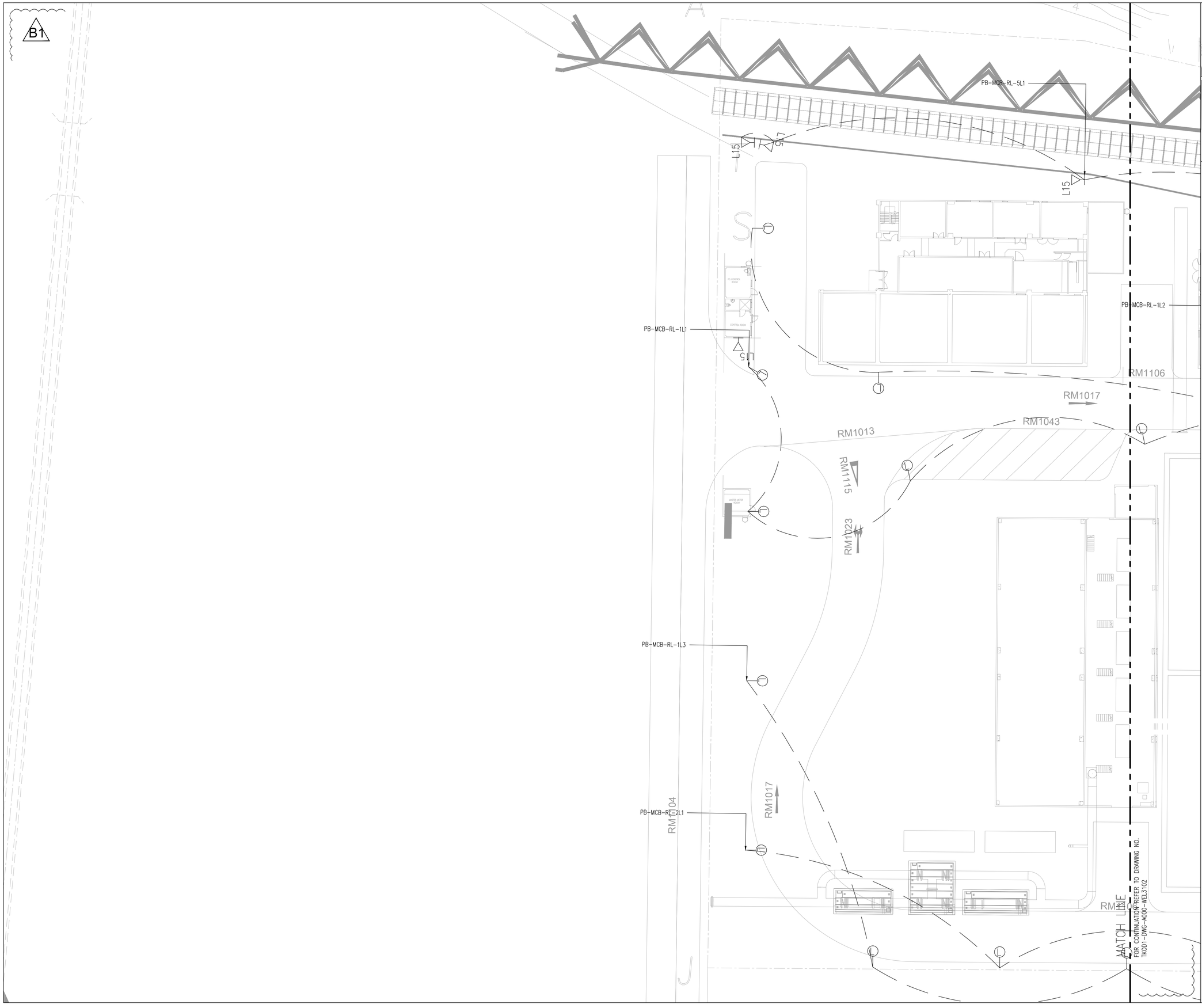
| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WEL3001 | B1 |

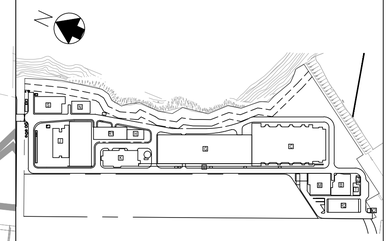
| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

| Scale | Status |
|---|---|
| A1 1:1000 | DETAILED DESIGN APPROVAL |

©COPYRIGHT RESERVED

B1



| Rev | Description | By | Date |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |

Employer

水務署 Water Supplies Department

Supervising Officer designate

BLACK & VEATCH

Design Checker

ARCADIS Design & Consultancy for natural and built assets

Contractor

acciona JEC CRCG

AJC JOINT VENTURE

Designer

wsp

In Association with APU

Project title

CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title

ELECTRICAL –
LIGHTING LAYOUT –
GROUND FLOOR
(SHEET 1 OF 5)

| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WEL3101 | B1 |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

Scale: A1 1:250

Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

B1

L15

PB-MCB-RL-1L2

11 kV SWITCHGEAR ROOM

ELECTRICAL CHILLER AND PUMP ROOM

RM1106

RM1017

RM1017
RM1109

RM1052
RM1106

RM1025

PB-MCB-RL-2L2

RM1109

RM1021

RM1115

RM1013

RM1117

RM1021

RM1115

RM1013

RM1017

RM1025

PILLAR BOX "PB-01"

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3101

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3103

| Rev | Description | By | Date |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |

Employer
水務署
Water Supplies Department

Supervising Officer designate
BLACK & VEATCH

Design Checker
ARCADIS Design & Consultancy for natural and built assets

Contractor
acciona JEC CSCEC
AJC JOINT VENTURE

Designer
wsp
In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ELECTRICAL –
LIGHTING LAYOUT –
GROUND FLOOR
(SHEET 2 OF 5)

Drawing no. TKOD1-DWG-A000-WEL3102 Rev. B1

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

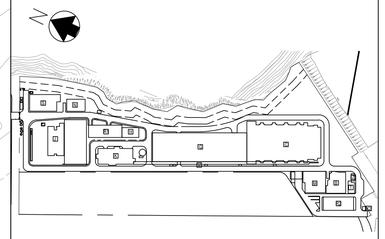
Scale A1 1:250

Status DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

B1

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3104



PB-MCB-RL-4L3

PB-MCB-RL-4L2

RM1109

RM1106

RM1017

0.050

SWITCHGEAR ROOM

UPPER PART OF FLUSHING TANK

H.R.

REMOVABLE GRATING COVER

2nd PASS RO RACK

1st PASS RO RACK

RO RACK HALL

ROLLER SHUTTER

LOADING AREA

INSPECTION GALLERY

PILLAR BOX "PB-01"

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3102

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3105

| Rev | Description | By | Date |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |

Employer
水務署
Water Supplies Department

Supervising Officer designate
BLACK & VEATCH

Design Checker
ARCADIS Design & Consultancy for natural and built assets

Contractor
acciona JEC CSCEC
AJC JOINT VENTURE

Designer
wsp
In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ELECTRICAL –
LIGHTING LAYOUT –
GROUND FLOOR
(SHEET 3 OF 5)

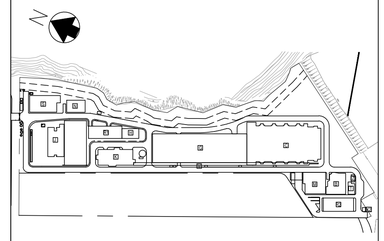
| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WEL3103 | B1 |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

Scale: A1 1:250
Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

B1



PB-MCB-RL-5L2

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3103

RM1017

RM1053

RM1021

RM1117

RM1107

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3105

| | | | |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |
| Rev | Description | By | Date |

Employer
水務署
Water Supplies Department

Supervising Officer designate
BLACK & VEATCH

Design Checker
ARCADIS Design & Consultancy for natural and built assets

Contractor
acciona JEC CSCEC
AJC JOINT VENTURE

Designer
wsp
In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ELECTRICAL –
LIGHTING LAYOUT –
GROUND FLOOR
(SHEET 4 OF 5)

| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WEL3104 | B1 |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

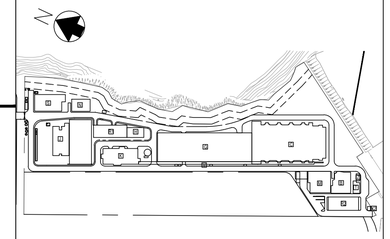
| Scale | Status |
|---|---|
| A1 1:250 | DETAILED DESIGN APPROVAL |

©COPYRIGHT RESERVED

B1

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3103

MATCH LINE
FOR CONTINUATION REFER TO DRAWING NO.
TKOD1-DWG-A000-WEL3104



RM1017
RM1107
RM1021
RM1027
RM1013
RM1115
RM1106
RM1043
RM1053
RM1065
RM1019

LAYBY WITH
GLASS CANOPY

PB-MCB-RL-3L2
PB-MCB-RL-3L3
PB-MCB-RL-4L1

INSPECTION
GALLERY
PROTECTED
BYPASS
ENTRY
RECEPTION
AREA
LEARNING
GARDEN
FM200 ROOM
TEL ROOM
UPS ROOM
PLC ROOM
SWITCH
ROOM
PROTECTED
FREMAN
ENTRY
MALE LAV.
FEMALE LAV.
FIRST AID ROOM
AHU ROOM
GARDEN

| | | | |
|---|---|---|---|
| B1 | DDA SUBMISSION | CYW | 23 DEC 2020 |
| B0 | DDA SUBMISSION | CYW | 09 OCT 2020 |
| Rev | Description | By | Date |

Employer
水務署
Water Supplies Department

Supervising Officer designate
BLACK & VEATCH

Design Checker
ARCADIS Design & Consultancy for natural and built assets

Contractor
acciona JEC CRCG
AJC JOINT VENTURE

Designer
wsp
In Association with APU

Project title
CONTRACT NO. 13/WSD/17

DESIGN, BUILD AND OPERATE
FIRST STAGE OF TSEUNG KWAN O
DESALINATION PLANT

Drawing title
ELECTRICAL –
LIGHTING LAYOUT –
GROUND FLOOR
(SHEET 5 OF 5)

| Drawing no. | Rev. |
|---|---|
| TKOD1-DWG-A000-WEL3105 | B1 |

| Drawn | Date | Checked | Approved |
|---|---|---|---|
| CYW | 09 OCT 2020 | EF | SY |

Scale: A1 1:250
Status: DETAILED DESIGN APPROVAL

©COPYRIGHT RESERVED

# Appendix H – Detailed Design for Slope Mitigation Works

The copyright of this document is owned by Acuity Sustainability Consulting Limited. It may not be reproduced except with prior written approval from the Company.


| BOULDER ID | EASTING | NORTHING |
|---|---|---|
| B105 | 846658 | 814272 |
| B106 | 846662 | 814284 |
| B107 | 846660 | 814292 |
| B160 | 846741 | 814415 |
| B169 | 846734 | 814289 |
| B182 | 846632 | 814448 |
| B196 | 846640 | 814416 |
| B198 | 846639 | 814406 |
| B199 | 846639 | 814399 |
| B203 | 846634 | 814343 |
| B206 | 846628 | 814433 |
| B207 | 846626 | 814430 |
| B216 | 846606 | 814461 |
| B53 | 846746 | 814327 |
| B124 | 846730 | 814418 |

| BARRIER_SECTION | BARRIER_TYPE | CONTROL_POINT | EASTING | NORTHING |
|---|---|---|---|---|
| 1 | 3000KJ | A | 846764 | 814147 |
| | 3000KJ | B | 846738 | 814155 |
| | 3000KJ | C | 846688 | 814174 |
| | 3000KJ | D | 846683 | 814191 |
| | 3000KJ | E | 846664 | 814209 |
| | 3000KJ | F | 846660 | 814225 |
| | 3000KJ | G | 846640 | 814244 |
| | 3000KJ | H | 846635 | 814255 |
| 2 | 5000KJ | H | 846635 | 814255 |
| | 5000KJ | I | 846630 | 814266 |
| | 5000KJ | J | 846625 | 814282 |
| | 5000KJ | K | 846617 | 814286 |
| | 5000KJ | L | 846610 | 814310 |
| | 5000KJ | M | 846611 | 814316 |
| | 5000KJ | N | 846611 | 814340 |
| | 5000KJ | O | 846604 | 814343 |
| | 5000KJ | P | 846596 | 814364 |
| | 5000KJ | Q | 846596 | 814382 |
| | 5000KJ | R | 846604 | 814393 |
| | 5000KJ | S | 846605 | 814402 |
| 3 | 3000KJ | S | 846605 | 814402 |
| | 3000KJ | T | 846593 | 814451 |
| | 3000KJ | U | 846567 | 814525 |
| | 3000KJ | V | 846569 | 814560 |
| | 3000KJ | W | 846577 | 814578 |
| | 3000KJ | X | 846575 | 814596 |

© Copyright by Black & Veatch Hong Kong Limited

## NOTES:

1. EXTENTS OF WORKS AS SHOWN ARE TENTATIVE ONLY.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. 190495/B/DD/00-20001 TO 20011, 30001 TO 30004.
3. SETTING OUT COORDINATES ARE BASED ON HK GRID REFERENCE.
4. SETTING-OUT POINTS OF FLEXIBLE BARRIER ARE TENTATIVE. DIMENSIONS OF LENGTH, SEPARATION AND OVERLAP OF THE FLEXIBLE BARRIER SECTIONS SHALL BE SUBJECT TO THE MANUFACTURER'S RECOMMENDATION.

## LEGEND:

- PROPOSED BOULDER TO BE IN-SITU BROKEN OFF INTO PIECES WITH ALL DIMENSIONS LESS THAN 1m AND DEPOSITED IN STABLE CONDITION
- PROPOSED BOULDER TO BE REMOVED
- PROPOSED ROCK SLOPE IMPROVEMENT/ STABILISATION WORKS (REFER TO DRG. NO. 190495/B/DD/00-20001 TO 20011)
- PROPOSED 4m HIGH FLEXIBLE BARRIER

| Revision | Date | Description | | Initial |
|---|---|---|---|---|
| | Designed | Checked | Drawn | Checked |
| Initial | KK | CKH | SZ | WLS |
| Date | 03/17 | 03/17 | 03/17 | 03/17 |

Approved

Agreement No.
CE 8/2015 (WS)

Contract Title
FIRST STAGE OF DESALINATION PLANT AT TSEUNG KWAN O – INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title
PROPOSED SLOPE MITIGATION WORKS

Drawing No.
190495/B/DD/00-10001

Revision
–

Scale
A1 1 : 1000
A3 1 : 2000

水 務 署
Water Supplies Department

BLACK & VEATCH HONG KONG LIMITED
博 威 工 程 顧 問 有 限 公 司

**Legend**

500m Study Boundary

**Slope Mitigation Works**

- Rock Slope Stabilisation
- Work platform
- Slope Mitigation Works Area
- Flexible Barrier
- Temporary Access
- Boulder Stabilisation Works

**Habitat**

- Rocky Shore
- Sandy Shore
- Seawall
- Shrubland and Hillside Grassland Mosaic
- Urbanised/Disturbed Area
- Wasteland
- Watercourse
- Mixed Woodland

**Plant**

- ***Marsdenia lachnostoma***

N

Meters

0 50 100

Appendix G

Species of Conservation Importance in the Revised Scheme of Slope Mitigation Works and Recommended Temporary Access and Working Platform

File: T:\GIS\CONTRACT\0332378\Mxd\0332378_new slope scheme+species_JY.mxd
Date: 14/7/2017

**Environmental Resources Management**

ERM