Muni Arborist

Contract No. CV/2016/10
Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery

Woodland Compensation Plan

Revision	0	1	2	3
Date of issue	26 Apr 2018	16 Aug 2018	3 Dec 2018	16 Jul 2019
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Prepared by	Mike Leung Qualified Ecologist			
Certified by	T.W. Tam Environmental Team Leader			
Verified by	Jacky Leung Independent Environmental Checker (IEC)			

Our Ref: TCS00881/18/300/L0734

Hsin Chong Tsun Yip Joint Venture
Hsin Chong Center,
107-109 Wai Yip Street,
Kwun Tong,
Kowloon, Hong Kong

Attn: Mr. HO Man To

21 April 2023
By e-mail

Dear Sirs,

Re: CEDD Contract CV/2016/10
Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery
Woodland Compensation Plan (Revision 9)

With referenced to the Woodland Compensation Plan (Revision 9) prepared by the qualified ecologist, we herewith certify the Woodland Compensation Plan (Revision 9) and confirm this submission conforms to the information and recommendations contained in the approved EIA report (Register No. AEIAR-198/2016), pursuant to Specific Condition 2.17 of the Environmental Permit no. FEP-01/534/2017/A.

Should you have any queries, please feel free to contact the undersigned at Tel: 2959-6059 or Fax: 2959-6079 or Email: twtam@fordbusiness.com.

Yours sincerely,
For and on Behalf of
Action-United Environmental Services & Consulting (AUES)

T. W. Tam
Environmental Team Leader
TW/nh

cc	CEDD	Mr. SHUM Ngai Hung, Steven	By-email
	Arup (RE)	Mr. Anthony Lau	By-email
	Acuity (IEC)	Mr. Jacky Leung	By-email

Our ref: PL-202304027

Hsin Chong Tsun Yip Joint Venture (CV/2016/10)
Hsin Chong Centre
107-109 Wai Yip Street
Kwun Tong, Kowloon
Hong Kong

Attention: Mr. HO Man-to

25 April 2023

Dear Sir,

Contract No. CV/2016/10
Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery
Woodland Compensation Plan

Referring to the email of your ET regarding the Woodland Compensation Plan (Revision 9), we have no adverse comment on it. According to section 2.17 of the FEP, we herewith verify the captioned and confirm this submission conforms to the information and recommendations contained in the approved EIA report (Register No. AEIAR-198/2016).

Yours faithfully,

CH Leung

Leung CH Jacky
Independent Environmental Checker

cc. CEDD-DPTL/Land Works – Mr. SHUM Steven
ARUP – Mr. LAU Anthony
ET Leader – Mr. TAM

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1. INTRODUCTION

1.1 BACKGROUND

1.1.1 The main objective of the proposed site formation and associated infrastructural works for development of columbarium, crematorium (C&C) and related facilities at Sandy Ridge Cemetery is to increase the public cremation services and supply of public niches to meet the future demand.

1.1.2 The Project is to carry out site formation and associated infrastructural works for the columbarium and crematorium (C&C) facilities at Sandy Ridge Cemetery. The scopes for the Project include:

Area	**Proposed Works**
Works Within Study Area	● Site formation of about 5.5 hectares of land and associated drainage, sewerage and landscape works for development of Columbarium and Crematorium facilities at the Sandy Ridge Cemetery; ● Construction of a new road (about 800m) connecting the Crematorium and Man Kam To Road and the pick-up/drop-off point at Man Kam To Road; ● Widening of two sections of the existing Sha Ling Road (about 900m and 500m respectively); ● Widening of about 1.4km of the existing Lin Ma Hang Road; and ● Improvement works to the existing barging point at Siu Lam

1.1.3 The Project consists of the following designated projects under Part I, Schedule 2 of the EIAO:

- Item I.1 (b)(vii) – A drainage channel or river training and diversion works which discharges or discharge into an area which is less than 300 m from the nearest boundary of an existing or planned conservation area

1.1.4 The EIA report was approved with conditions on 8 August 2016 (Register No.: AEIAR-198/2016). Environmental Protection Department (EPD) issued an Environmental Permit (EP) for the Project (EP-534/2017) on 7 April 2017. A

Further Environment Permit (FEP) for the Project (FEP-01/534/2017) was issued on 23 February 2018. Amended EP (EP-534/2017/A) and amended FEP (FEP-01/534/2017/A) were issued on 24 December 2018.

1.1.5 The proposed works of that project will be divided into three main works packages and constructed by three main contractors. The extent of the project boundary for Contract Package 1 is shown in **Appendix A** of this Plan. This Plan will cover the loss of woodland identified in the approved EIA report. Works details of the proposed contract packages are summarized as follow:

Contract Package 1:

- Site formation of about 1.77 ha of land for the proposed pick-up and drop-off area for shuttle bus operation;
- Upgrading of a section of 900m existing Sha Ling Road from 3m wide carriageway to 7.3m wide carriageway with footpath at both sides;
- Construction of one EVA with a total length of about 160m;
- Construction of noise barriers along Sha Ling Road;
- Modification of junction between Man Kam To Road and Sha Ling Road;
- Construction of a new pick up / drop off point at Man Kam To Road;
- Relocation and construction of a new refuse collection point near junction between Man Kam To Road and Sha Ling Road;
- Associated geotechnical works including cut and fill slopes, soil nailing works and retaining structures;
- Associated drainage, sewerage and waterworks along Sha Ling Road; and
- Associated landscaping works

Contract Package 2:

- Construction of a new road connecting Columbarium site to Crematorium site;
- Construction of one EVA with a total length of about 300m;
- Widening of a section of 1.4 km long Lin Ma Hang Road (between Man Kam To Road and Ping Yuen River) from 6m wide carriageway to 7.3m with 2m width footpath on both sides;
- Provision of a pair of lay-by at Lin Ma Hang Road;
- Construction of a new vehicular access connecting the Sheung Shui Landmark North PTI and Lung Sum Avenue;
- Construction of covered walkway along Fanling Station Road;
- Removal of planters and central divider along Fanling Station Road and

San Wan Road;

- Associated drainage, sewerage, waterworks and utility works along Man Kam To Road and Lin Ma Hang Road;
- Associated geotechnical works including cut and fill slopes, soil nailing works and retaining structures; and
- Associated landscaping works.

Contract Package 3 (Tentative):

- Site formation for the platform of the Crematorium site;
- Construction of two 2 at-grade access roads;
- Construction of road junction between Man Kam To Road and the new access road;
- Associated drainage, sewerage and waterworks along the two new access roads;
- Associated geotechnical works including cut and fill slopes, soil nailing works and retaining structures; and
- Associated landscaping works

1.2 OBJECTIVE

1.2.1 As stipulated in Clause No. 2.18 of the EP and Clause no. 2.17 of the FEP: " *The Permit Holder shall, no later than one month before the commencement of construction of the Project, submit four hard copies and on electronic copy of a Woodland compensation Plan (the Plan) to the Director for approval. The Plan shall identify and quantify the area of loss of woodland with moderate or high ecological value, and provide at least 1:1 compensatory woodland planting. The Plan shall include details on plant species selection, planting scheme and schedule, fire control, post-planting monitoring and maintenance, as well as setting of action targets. The Plan shall be prepared by a qualified ecologist/botanist and shall be certified by the ET Leader and verified by the IEC. All recommended measures set out in the approved Woodland Compensation Plan shall be fully and properly implemented*". The above requirements are fulfilled by this Woodland Compensation Plan.

1.2.2 The objective of the establishment of the Woodland Compensation Area is to mitigate for the loss of woodland with moderate ecological value due to the implementation of the Project. By providing compensatory shrub and whips planting, woodland habitats would be created in vicinity of the project area.

Hydrological linkages with the wet woodland and other wetland habitats in the immediate environs are anticipated in part of the Woodland Compensation Area. Details would be included in Section 2 of this report.

1.2.3 As stated in the EM&A Manual, a qualified ecologist/botanist approved by EPD shall be responsible for preparing the Woodland Enhancement Proposal. Planting of native tree and shrub species, including plant species selection, planting scheme and schedule and fire control, should be supervised by a qualified botanist/ horticulturist/ Certified Arborist with relevant experience in reforestation. Monitoring of the reinstated area shall be conducted by the Environmental Team (ET) and supervised by a qualified botanist/horticulturist/ecologist of the ET.

1.2.4 All recommended measures as set out in the Woodland Compensation Plan shall be fully and properly implemented.

1.3 SITE DESCRIPTION

1.3.1 The proposed site for development of columbarium, crematorium and related facilities is located at the hillsides at Sandy Ridge to the northwest of Man Kam To Road and is partially occupied by Sandy Ridge Cemetery. MTR Lo Wu Station is located to the west of Project Site. The adjacent area of Lin Ma Hang Road is characterized by rural land uses with scattered village houses, agricultural land and natural terrain. In addition, utilities construction will be constructed along Man Kam To Road.

1.3.2 Scattered patches of woodland are present throughout the assessment area, with the largest contiguous block located immediately to the east of the Project boundary. Such areas comprise secondary woodland which is largely derived from natural regeneration and colonization of trees as a result of seed dispersal by birds and/or bats.

1.3.3 The loss of woodland by the project was quantified in EIA report and summarize in Table 2.1. In total 1.65ha woodland was identified with the project boundary and would be lost as part of the proposed development. 1.2ha of woodland was identified in the approved EIA report, including 1.0ha within Sandy Ridge and Man Kam To Road development and works areas, 0.2ha within Lin Ma Hang Road works area. In the revised project boundary of the amended EP (EP-534/2017/A), an additional 0.45ha woodland area would be lost in eastern part of the project area

along Sha Ling Road. Tree species recorded are predominantly native species and are common in Hong Kong. The ecological value of the all identified woodland area was categorized as Moderate. Location of affected woodland is given in **Appendix B**.

1.3.4 Woodland fragments within project boundary are naturally regenerated secondary woodlands. These woodlands are relatively young with single-layered of canopy dominants (~10 – 15m tall) including *Aporusa dioica, Bridelia tomentosa, Cinnamomum burmannii, Cratoxylum cochinchinense, Daphniphyllum calycinum, Litsea glutinosa, Microcos nervosa, Rhus succedanea, and Zanthoxylum avicennae*. The understory of these woodlands was dominated by shrub species such as *Ficus hirta, Psychotria asiatica, Litsea rotundifolia var. oblongifolia*, and the climbing shrubs *Desmos chinensis* and *Mussadena pubescens*. Common shrubland plant species such as *Rhaphiolepis indica, Smilax china, Melastoma malabathricum and Embelia laeta* were found in the forest margins or in canopy gaps. The woodland structure and the dominance of light demanding plant species suggest that these woodlands are relatively young and at the early stage of woodland succession.

2. WOODLAND COMPENSATION PLAN

2.1 EXTENT OF WOODLAND COMPENSATION AREA

2.1.1 The location of WCAs was chosen and agreed with relevant maintenance party:

- On the slope north of MacIntosh Fort and Sha Ling Road (Site 1)
- In the valley below MacIntosh Fort (Site 2)
- On the filled slope west of the platform (Site 3)
- Within Sandy Ridge Cemetery, north of SIMAR slope 3NW-C/C433 (Site 4)
- On the top of proposed cut slope south of Sha Ling Road (Site 7)
- On the south of proposed cut slope east of Sha Ling Road (Site 8)
- On the top of proposed cut slope east of Sha Ling Road (Site 9)

Affected woodland		**Woodland Compensation**	
	Approx. area (ha)		Approx. area (ha)
Identified in approved EIA		Site 1	1.01
Sandy Ridge and Man Kam To Road development and works areas	1.00	Site 2	0.27
Lin Ma Hang Road works area	0.20	Site 3	0.33
		Site 4	0.39
Additional area in revised project boundary		Site 5	(Deleted)
Sandy Ridge development and works areas	0.45	Site 6	(Deleted)
		Site 7	0.26
		Site 8	0.08
		Site 9	0.22
Total	1.65	**Total**	2.56
Compensation ratio: **1:1.55**			

Table 2.1 Compensation ratio

2.1.2 In the selection of the WCA, the locations with low-valued vegetation and no rare flora species were identified. The sites are mostly natural slopes with no human

settlement/agricultural activities in the vicinity.

2.1.3 Site 5, located within Sandy Ridge Cemetery, north of SIMAR slope 3NW-C/C432, was removed as WCA as sign of soil erosion was observed and the stability of the concerned site is questionable. Site 6, located on the slope north of Lo Wu Station Road near Sandy Ridge and Cemetery, was also removed from Woodland Compensation Plan due to objection from responsible party (FEHD). The proposed compensation whips are distributed to Site 1, 2, 4, 7 and 9. Quantity of whips in Site 3, Site 8 and the total number of compensatory trees remains unchanged and details are provided in **Appendix D**.

2.1.4 Maintenance parties of WCAs are given in Table 2.2. For details and confirmation on the responsibility, please refer to **Appendix H**.

Woodland Compensation Area	To be maintained by
Site 1	FEHD
Site 2	FEHD
Site 3	ArchSD
Site 4	FEHD
Site 7	FEHD
Site 8	FEHD
Site 9	FEHD

Table 2.2 Maintenance agent of Woodland Compensation Area

2.1.5 The indicative location of the Woodland Compensation Area is shown in Landscape Drawing of Contract No. CV/2016/10 Site Formation and Associated Infrastructure Works for Development of Columbarium at Sandy Ridge Cemetery. Relevant drawings were extracted in **Appendix C**.

2.1.6 Site 1 is a natural slope located on the north of MacIntosh Fort and Sha Ling Road. The existing plantation composed mainly by *Lophostemon confertus* on the western and southwestern part of the site would be retained. Other part of the slope is currently upland grassland dominated by *Dicranopteris pedata*, *Baeckea frutescens*, *Rhodomyrtus tomentosa* and young *Lophostemon confertus*.

2.1.7 Site 2 is currently low-valued grassland dominated by *Panicum maximum*, which has developed through succession from abandoned former paddies and agricultural

land.

2.1.8 Site 3 is a naturally regenerated secondary woodlands which is retained and sheltered from storms and hill fire events due the protection afforded by natural topography. The woodland canopy dominants include *Bridelia tomentosa*, *Litsea glutinosa* and *Cratoxylum cochinchinense*. The understory was dominated by shrub species such as *Ficus hirta*, *Psychotria asiatica* and *Litsea rotundifolia var. oblongifolia*. The site would be a man-made filled slope on the southwest of the proposed platform after completion of relevant works.

2.1.9 Site 4 to site 9 are in general natural grassland within Sandy Ridge Cemetery. These areas are dominated by typical upland grassland species including herbaceous species such as *Dicranopteris pedata*, *Neyraudia reynaudiana*, the climbing vines *Smilax china*, *Smilax glabra*, and *Embelia laeta*, and shrub species such as *Rhodomyrtus tomentosa*, *Baeckea frutescens* and *Helicteres angustifolia.*

2.1.10 Actual quantity of whips to be planted in WCAs would be subject to actual site condition during planting stages including but not limited to slope gradient, soil condition and space available.

2.2 PLANTING SCHEME – DETAILS ON PLANT SPECIES SELECTION

2.2.1 The compensatory woodland planting shall be in woodland mixed shrubs, seeding, and whips. The principle of the location shall be the extension of the existing woodland, as well as the original lost woodland location. Please refer to **Appendix D** for the proposed planting species.

2.2.2 The proposed species are native species which are commonly found in natural woodland environment in Hong Kong. Species that are lost in the affected fragments of woodland and in the vicinity of the WCAs are also included.

2.3 ECOLOGICAL ENHANCEMENT

2.3.1 As stated in EM&A Manual, enhancement planting of native tree species in 0.4ha on the filled slope west of the platform (WCA Site 3) and 0.2ha of woodland is created in the valley below MacIntosh Fort in the northwest of the Project Site (WCA Site 2) will provide ecological linkages between the existing woodlands in the area. By replicating features of the nearby wet woodland, the WCAs would provide shelter and food sources for species that occur locally in the wet woodland,

including some species of conservation concern along with the suite of terrestrial mammal species that occur locally.

2.3.2 For Site 2, prior to planting, the local topography should be mechanically manipulated to reflect that of the wet woodland, such as a series of pools and interconnecting ditches to form a range of ephemeral and permeant wetland features, interspersed with woody shrubs and trees to create a closed canopy woodland. Planting of native species found in the vicinity is considered to be beneficial to create an ecological linkage with the existing wet woodland and marsh mosaic habitat in this area.

2.3.3 Ground trimming into 5 stepped levels is proposed at Site 2 to allow natural water flow towards the wet woodland. Site clearance would be conducted prior commencement of land formation works. Trimming off of ground level to +6.0mPD would be conducted in 5 phases in within one month. Details and methodology for site formation of Site 2 is given in **Appendix E**.

2.3.4 Constant water flow from Site 2 to the wet woodland is expected after mechanical trimming of ground level and creation of pools to create hydrological connection with the nearby wet woodland and wetland. Continuous monitoring should be conducted to evaluate the progress and successfulness of the establishment of hydrological and ecological linkage. Sign of connection, such as migration of flora and fauna species in newly formed WCA from nearby wet woodland, should be checked and reported in monitoring survey reports. Please refer to Section 3 and **Appendix G** for details of monitoring programme.

2.4 PLANTING SCHEME – SCHEDULE

2.4.1 Planting of shrubs & whips will be conducted from end of October to mid-December 2022 while planting of trees will be conducted from end of February to early April 2023. Planting of shrubs/whips/trees should be supervised by a qualified botanist/ horticulturist/ Certified Arborist with relevant experience in reforestation.

2.4.2 As mechanical site formation is required in Site 2, the planting schedule is separated from other WCAs. Please refer to **Appendix E** for detailed programme for works at Site 2.

2.4.3 As discussed in approved EIA report, woodland planting shall be scheduled to be undertaken in two Phases, each with a time frame of approximately 3 months. For Phase 1, species that are more tolerant of exposed areas and the consequent effect of sunlight, wind and drying out of soils shall be planted. Pioneer species are selected to be planted in Planting Phase 1 in order to improve the existing microclimate condition at the beginning for Phase 2 planting. The proposed schedule for planting is shown in **Appendix G**.

Scientific Name	Chinese Name	Standard (mm)	Spacing (mm)	Quantity
Phyllanthus emblica	油甘子	Whips	1500	As stated in **Appendix D**
Schima superba	木荷	Whips	1500	
Litsea rotundifolia var. oblongifolia	豺皮樟	300 x 300	400	
Melastoma sanguineum	毛蒽	350 x 350	350	
Melastoma malabathricum	野牡丹	350 x 350	350	
Psychotria asiatica	九節	350 x 350	400	
Rhaphiolepis indica	石斑木	300 x 300	400	
Ligustrum sinense	山指甲	350 x 350	350	
Ardisia crenata	朱砂根	300 x 300	350	

Table 2.3 Proposed species in Planting Phase 1

2.4.4 For Phase 2, as a more favorable soil condition is created by the ground cover planted in Phase 1, tree species in form of whips should be planted according to the methodology stated in **Appendix E**.

Scientific Name	Chinese Name	Standard (mm)	Spacing (mm)	Quantity
Cratoxylum cochinchinense	黃牛木	Whips	1500	As stated in **Appendix D**
Daphniphyllum calycinum	牛耳楓	Whips	1500	
Machilus pauhoi	刨花潤楠	Whips	1500	
Cleistocalyx nervosum	水翁	Whips	1500	
Bridelia tomentosa	土蜜樹	Whips	1500	
Bischofia javanica	秋楓	Whips	1500	
Celtis sinensis	朴樹	Whips	1500	
Glochidion zeylanicum	香港算盤子	Whips	1500	
Glochidion hirsutum	厚葉算盤子	Whips	1500	
Cinnamomum camphora	樟	Whips	1500	
Liquidambar formosana	楓香	Whips	1500	
Machilus chekiangensis	浙江潤楠	Whips	1500	

Table 2.4 Proposed species in Planting Phase 2

2.4.5 Stock of whips/shrubs would be obtained from nursery propagation 2 months prior commencement of planting works, or sourced from supplier if nursery stock is not available.

2.4.6 Thinning of exotic species should be carried out where appropriate in order to provide space for the native species for further growth in advance or during the planting phases.

2.5 FIRE CONTROL

2.5.1 To reduce the potential for hill fires, appropriate measures should be adopted keep sources of fire (over heated machinery, hot works, smoking areas) away from areas of upland grassland. These are as follows:

- Put up signs to alert site staff about any locations which are ecologically sensitive and measures to prevent accidental impacts;
- Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses;
- Prohibition of soil storage against trees or close to waterbodies;
- Delineation of works site to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value;
- No smoking, hot works or sources of fire close to upland grassland;

- No on-site burning of waste; and
- Waste and refuse in appropriate receptacles.

2.5.2 Fire protection zone will be proposed along the edge of compensatory woodland which is adjacent to human activities and existing villages. Native species *Schima superba* (木荷) will be planted in this buffer zone as a shelterbelt and therefore serve as a firebreak. Proposed location of the fire protection zone is given in **Appendix F**.

3. POST-PLANTING MONITORING

3.1 MONITORING PROGRAMME

3.1.1 The monitoring includes the existing woodland and wet woodland, and part of the Yuen Leng Chai Conservation Area, given the connectivity and ecological linkages between these habitats. A 5-year monitoring and maintenance period of the enhancement planting is proposed (please refer to **Appendix G**). During the monitoring and maintenance period, the progress and success of the establishment of the woodland compensation area and the growth performance should be reviewed.

3.1.2 A baseline quantitative monitoring and a walk-through survey should be carried out after the completion of the planting. The baseline monitoring conducted in the third quarter of the year of planting (preferably late August/early September) can allow measurement of the growth/establishment increment during the wet season.

3.1.3 Monitoring inspection should be conducted in both walk-through survey and quantitative monitoring. Bi-annual (twice per year) quantitative monitoring will be carried out in the followed Years 2 to 5. For walk-through survey, monitoring should be conducted on a bi-monthly basis (once every two months) in the year of planting, while reduced to quarterly in the following year. Change of monitoring frequency shall be advised by the Project Ecologist / Botanist of the ET and approved by EPD. The monitoring shall be conducted by the Environmental Team (ET) and supervised by a qualified botanist/ horticulturist/ ecologist of the ET.

3.1.4 The walk-through survey should be undertaken in order to inform any adaptive or proactive management measurement, such as the need to clear invasive vegetation. The survey should cover all representative areas of the planting area. All 7 WCA should be visited in the selected transect route. Examples of criteria for selecting representative areas include variety of planting species, topography, aspect of slope, habitats etc. During the walk-through survey, the surveyor should inspect the general health condition and survival of the planted species by direct observation. The surveyor should also check other factors that may be influencing establishment, such as aggressive grasses or forbs, or human interference.

3.1.5 Quantitative survey should be conducted on a fixed number of 10m x 10m quadrats in the area. The sampling quadrats should be selected based on the planting pattern/arrangement, topography of the planting site and accessibility. A minimum of one quadrat should be selected in each WCA and at least one quadrat ($100m^2$) should be defined for every $2000m^2$ of planting area. If more than one quadrat is to be defined within a WCA, all quadrats should be evenly distributed within the WCA as far as practical. Actual number and location of sampling quadrats should be defined in a method statement prepare by the ET prior commencement of monitoring.

3.1.6 For quantitative monitoring, the surveyor should measure growth parameter (height and basal diameter), health condition, and survival rate of each planted individual within each surveyed quadrat.

3.1.7 Should the establishment of the enhancement woodland area by end of Year 5 is less than satisfactory (including but not limited to poor survival rates (< 70%) of the overall number of the planted seedlings and poor site condition), the duration of the monitoring and maintenance would be extended not less than 6 months to allow recovery in wet season. Remedial works such as replanting or weeding should be conducted whenever appropriate. Continuous monitoring should be conducted in form of both walk-through and quantitative inspection. Exact length of extended monitoring period and inspection frequency should be adjusted subject to the situation and advice provided by the qualified ecologist/ botanist of the Environmental Team.

Factors which aid in provision of verifiable measurements of the success of establishment should be monitored along the transects. All parameters should be taken in to account when drawing the conclusion on whether the compensatory planting is considered successful.

Parameter		**General standard for successful planting by the end of Year 5**
Health condition	Direct observation of foliage color, density and size	Over 70% of sampled living individuals in good/Fair health condition

Survival rate	Measurement of survival rate of individual plant species	Over 70% of individual planting living when compare to baseline study
Rate of growth	Measurement of height and diameter	Increment in size recorded on over 70% of sampled individuals when compare to baseline data

Table 3.1 Parameters of successful planting

3.2 ACTION PLAN

3.2.1 The Action and Limit Levels for monitoring and Action Plan of the Woodland Compensation Area is shown in Table 3.1.

Parameters	**Action and Limit Level**		**Action Plan**
General health condition of plants (based on parameters such as wilting, insect attack, sign of disease/fungal infection)	Action Level	Percentage of individual plant species in poor health condition >20% in any WCA	- ET notify Contractor and IEC - Identify the cause(s) of deterioration in plant health - advise Contractor the necessity of replanting
	Limit Level	Percentage of individual plant species in poor health condition >30% in any WCA	- ET notify Contractor and IEC - Identify the cause(s) of deterioration in plant health - advise remedial action and work out solution including but not limited to change of species in replanting; and seek acceptance from IEC - The Contractor should implement the remedial action once the remedial action has been accepted by IEC
Survival rate (based on survival rate of individual plant species)	Action Level	Survival rate of individual plant species <80% in any WCA	- ET notify Contractor and IEC - Identify the cause(s) of decrease in survival rate - advise Contractor the necessity of replanting

	Limit Level	Survival rate of individual plant species <70% in any WCA	- ET notify Contractor and IEC - Identify the cause(s) of deterioration in survival rate - advise remedial action and work out solution including but not limited to change of species in replanting; and seek acceptance IEC - The Contractor should implement the remedial action once the remedial action has been accepted by IEC

Table 3.2 Action and Limit Levels for monitoring and Action Plan of the Woodland Compensation Area

3.3 REPORTING

3.3.1 The monitoring findings, site observations and recommendations should be reported in periodic monitoring reports prepared by a qualified ecologist. Relevant government department(s) should be included in the circulation list of the monitoring reports. The reporting frequency should be at least once per year or as agreed with Project Ecologist / Botanist of the ET and approved by EPD.

3.3.2 The monitoring should include at least but not be limited to the following information:

- Project background
- Action and Limit levels
- Monitoring results
  - monitoring locations
  - monitoring date, time, frequency, and duration
  - parameters monitored
  - monitoring methodology
- Analysis and interpretation of monitoring results
- Any non-compliance (exceedances) of the environmental quality performance limits
- Actions taken in the event of non-compliance and deficiency, and follow-up actions related to earlier non-compliance

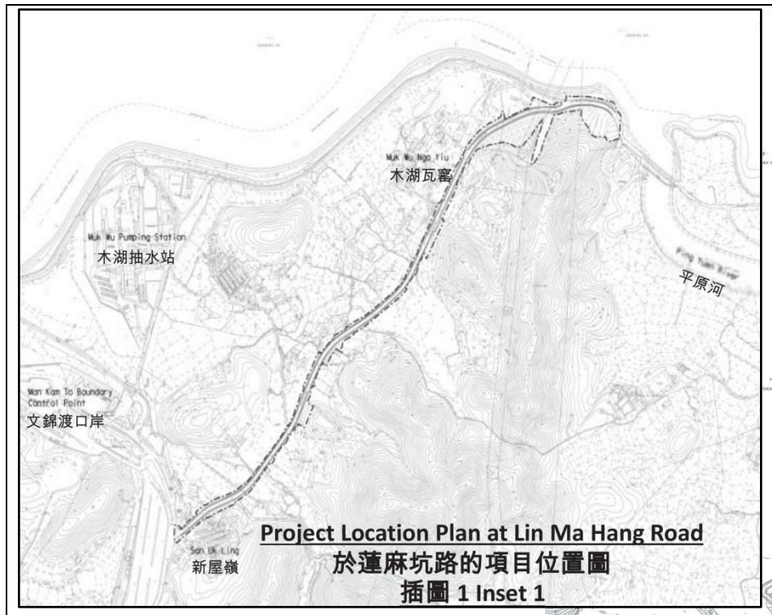
3.3.3 Each monitoring report shall be submitted to the following parties: the Contractor, the Independent Environmental Checker (IEC), the Engineer Representative (ER), Civil Engineering and Development Department (CEDD) and Environmental Protection Department (EPD) (Environmental Compliance Division). Before the submission of the monitoring report, the ET shall liaise with the parties on the required number of copies and format of the monitoring reports in both hard copy and electronic medium.

3 CONCLUSION

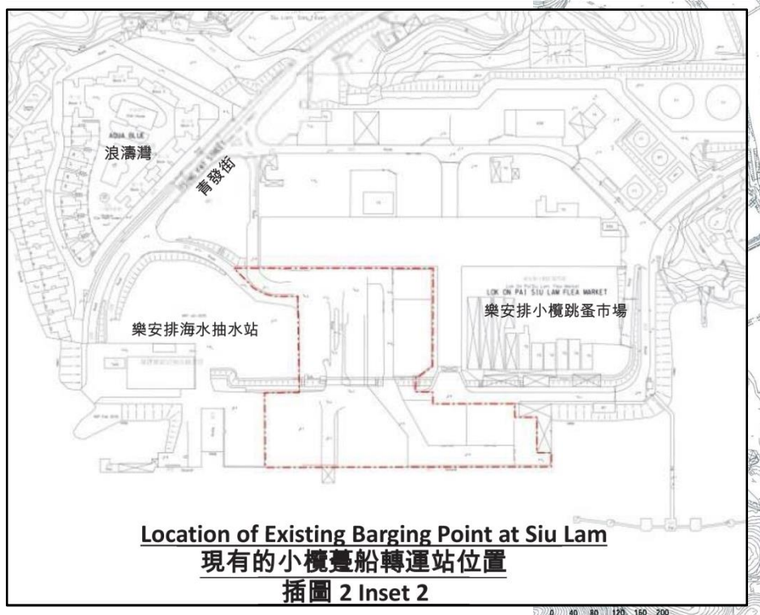
Fragments of woodland habitats with moderate ecological value would be inevitably affected by the Project. The Woodland Compensation Plan provides a comprehensive guide on implementation, establishment, monitoring and maintenance of the proposed woodland mitigation. The compensatory woodland planting shall be in woodland mixed shrubs, seeding, and whips. Species proposed for woodland planting are pioneer native tree and shrub species often present in natural woodlands in Hong Kong. The planting works would be carried out in two phases, followed by a 5-year monitoring programme. The necessity for further monitoring shall be reviewed after the 5-year post-planting monitoring programme.

APPENDIX A

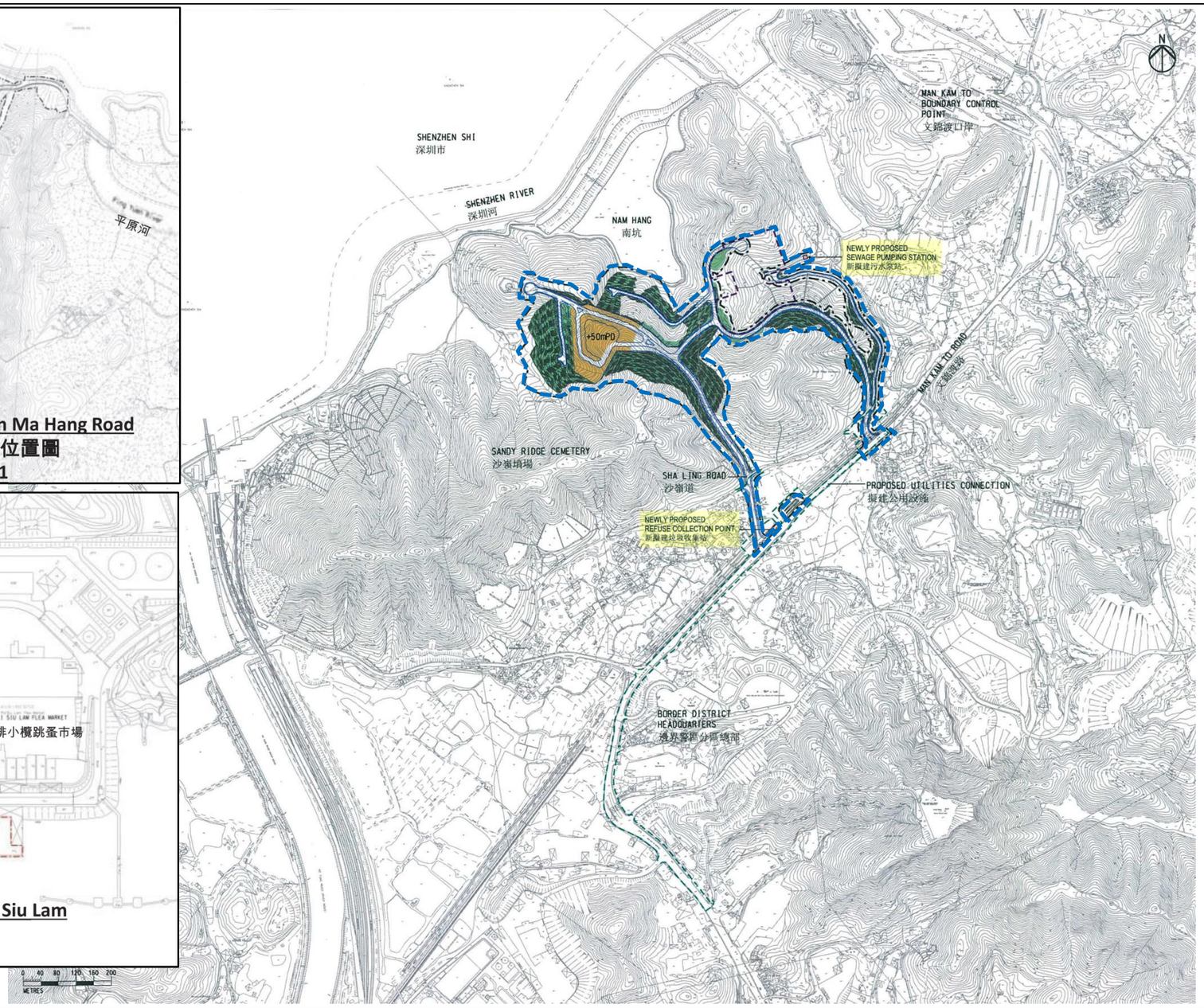
Project Boundary



Project Location Plan at Lin Ma Hang Road
於蓮麻坑路的項目位置圖
插圖 1 Inset 1



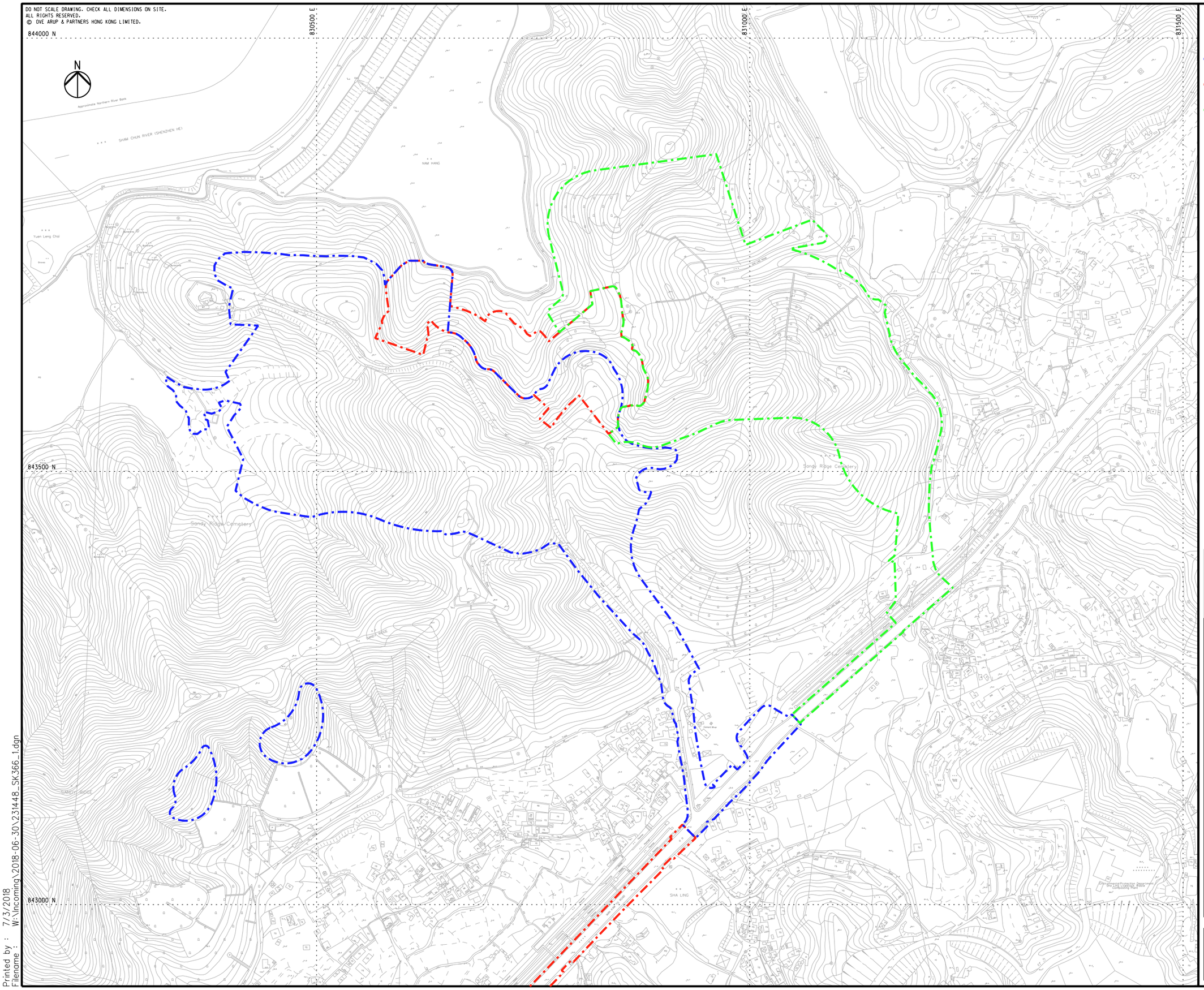
Location of Existing Barging Point at Siu Lam
現有的小欖蓼船轉運站位置
插圖 2 Inset 2



Project Title: Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery
工程名稱：沙嶺墳場興建骨灰龕、火葬場及有關設施的工地平整及相關基建工程

Figure 1: Project Location Plan
圖 1：項目位置圖
(This figure was prepared based on Figure 1 attached to the VEP Application No. VEP-554/2018 and Figures 1.2 and 1.3 of the Approved EIA Report No. AEIAR-198/2016))
(本圖是根據更改環境許可証申請文件編號 VEP-554/2018 所隨附的圖 1 和環境影響評估報告編號 AEIAR-198/2016 圖 1.2 及 1.3 編制)

Environmental Permit No.: EP-534/2017/A
環境許可證編號：EP-534/2017/A



LEGEND:

- CONTRACT 1 SITE BOUNDARY
- CONTRACT 2 SITE BOUNDARY
- CONTRACT 3 SITE BOUNDARY

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2017/02

Development of Columbarium at Sandy Ridge Cemetery - Infrastructural Works at Man Kam To Road and Lin Ma Hang Road

Drawing title

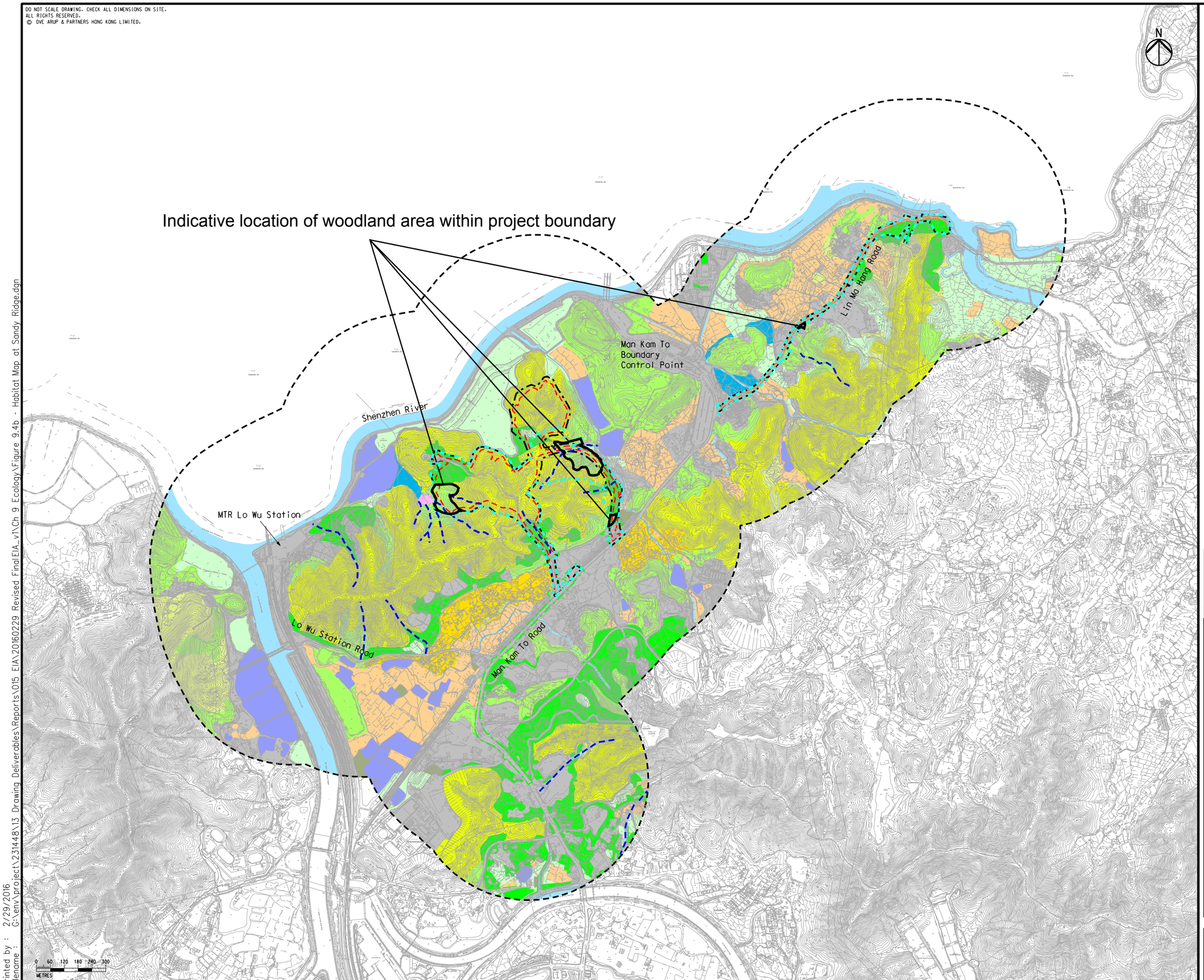
Drawing no.		Rev.
231448/SK/366		-
Drawn: XXX	Date: 06/18	Checked: AW / Approved: DL
Scale: 1:2000 @A1	Status: PRELIMINARY	

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 7/3/2018
Filename : W:\Incoming\2018-06-30\231448_SK366_1.dgn

APPENDIX B

Habitat Map at Sandy Ridge



Legend

- Project Boundary
- Utilities Construction
- Sandy Ridge Works Area
- Lin Ma Hang Road Works Area
- 500m Assessment Area
- Watercourse
- Seasonal Watercourse
- Pond
- Developed Area
- Agricultural Land
- Marsh
- Wasteland
- Grassland
- Upland Grassland
- Shrubland
- Plantation
- Woodland
- Wet Woodland
- Village Area
- Revised project boundary

Rev	Description	By	Date
G	SEVENTH ISSUE	GL	02/16
F	SIXTH ISSUE	GL	01/16
E	FIFTH ISSUE	GL	12/15
D	FOURTH ISSUE	GL	10/15

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 1/2013(CE)

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery - Design and Construction

Drawing title

Habitat Map at Sandy Ridge

Drawing no.	Rev.
Figure 9.4b	G

Drawn	Date	Checked	Approved
GL	02/16	EL	ST

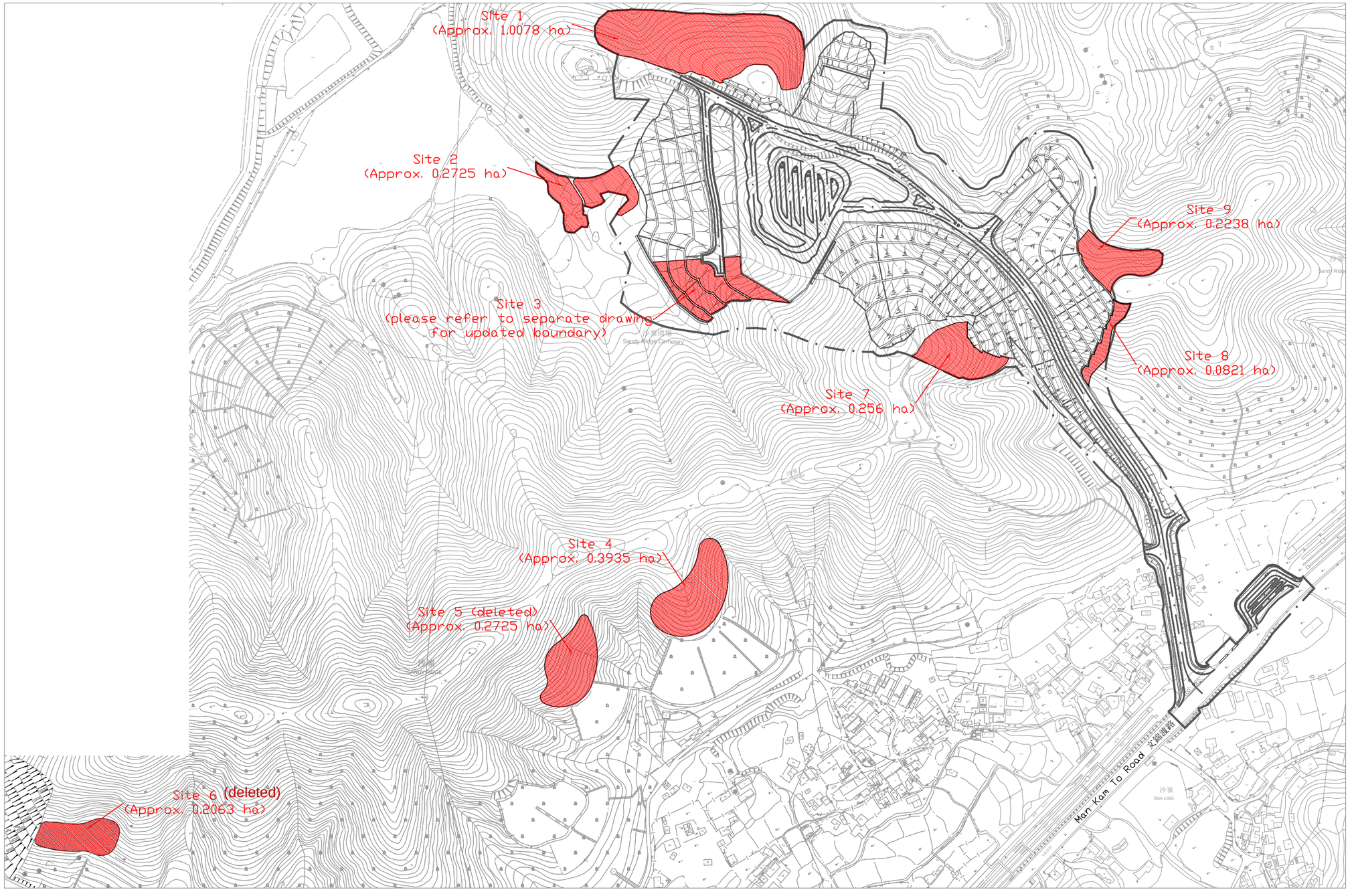
Scale	Status
AS SHOWN	PRELIMINARY

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 2/29/2016
Filename : G:\env\project\231448\13 Drawing Deliverables\Reports\015 EIA\20160229 Revised Final\EIA_v1\Ch 9 Ecology\Figure 9.4b - Habitat Map at Sandy Ridge.dgn

APPENDIX C

Location of Woodland Compensation Area

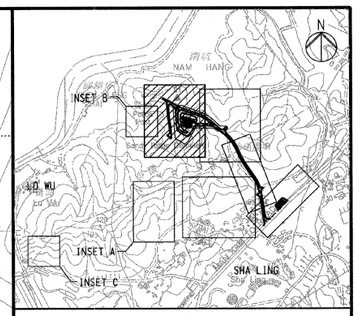


Layout Plan for Woodland Compensation Area

Site 2

Site 1
(Approx. 1.0078 ha)

Site 3
(please refer to seperate drawing for updated boundary)



KEY PLAN

NOTES:

1. ALL DIMENSIONS ARE IN METERS, UNLESS NOTES OTHERWISE.
2. ALL LEVEL ARE IN METERS AND REFER TO PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH HK(1980) GRID CO-ORDINATE SYSTEM.
4. FOR ROAD SETTING OUT DETAILS REFER TO DRAWING NO. 231448/C1/RD/1021 - 1023.
5. FOR ROAD VERTICAL PROFILE REFER TO DRAWING NO. 231448/C1/RD/1031 - 1033.
6. FOR KERB AND PAVING LAYOUT REFER TO DRAWING NO. 231448/C1/RD/1051 - 1053.

LEGEND:

- PROPOSED WORK SITE
- PROPOSED CUT SLOPE
- PROPOSED FILLED SLOPE
- PROPOSED WOODLAND PLANTING WITH WHIPS AND SHRUBS
- PROPOSED HEAVY STANDARD TREE
- PROPOSED LIGHT STANDARD TREE
- PROPOSED IRRIGATION POINT
- PROPOSED NEW HyD SIMAR SLOPE
- RECEPTOR SITE FOR TRANSPLANTED TREES MAINTAINED BY FEHD

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title

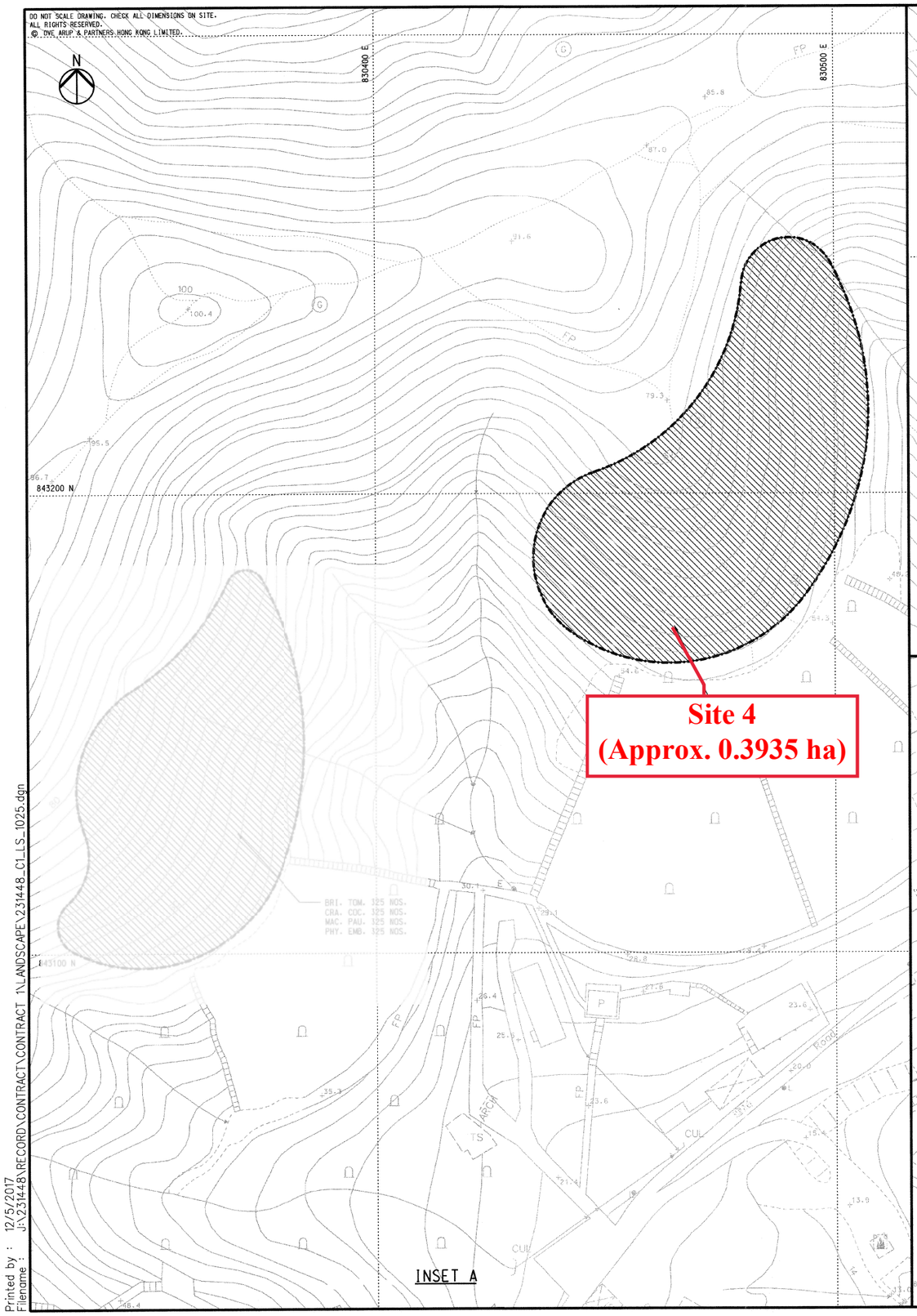
TREE PLANTING AND IRRIGATION PLAN (SHEET 1 OF 5)

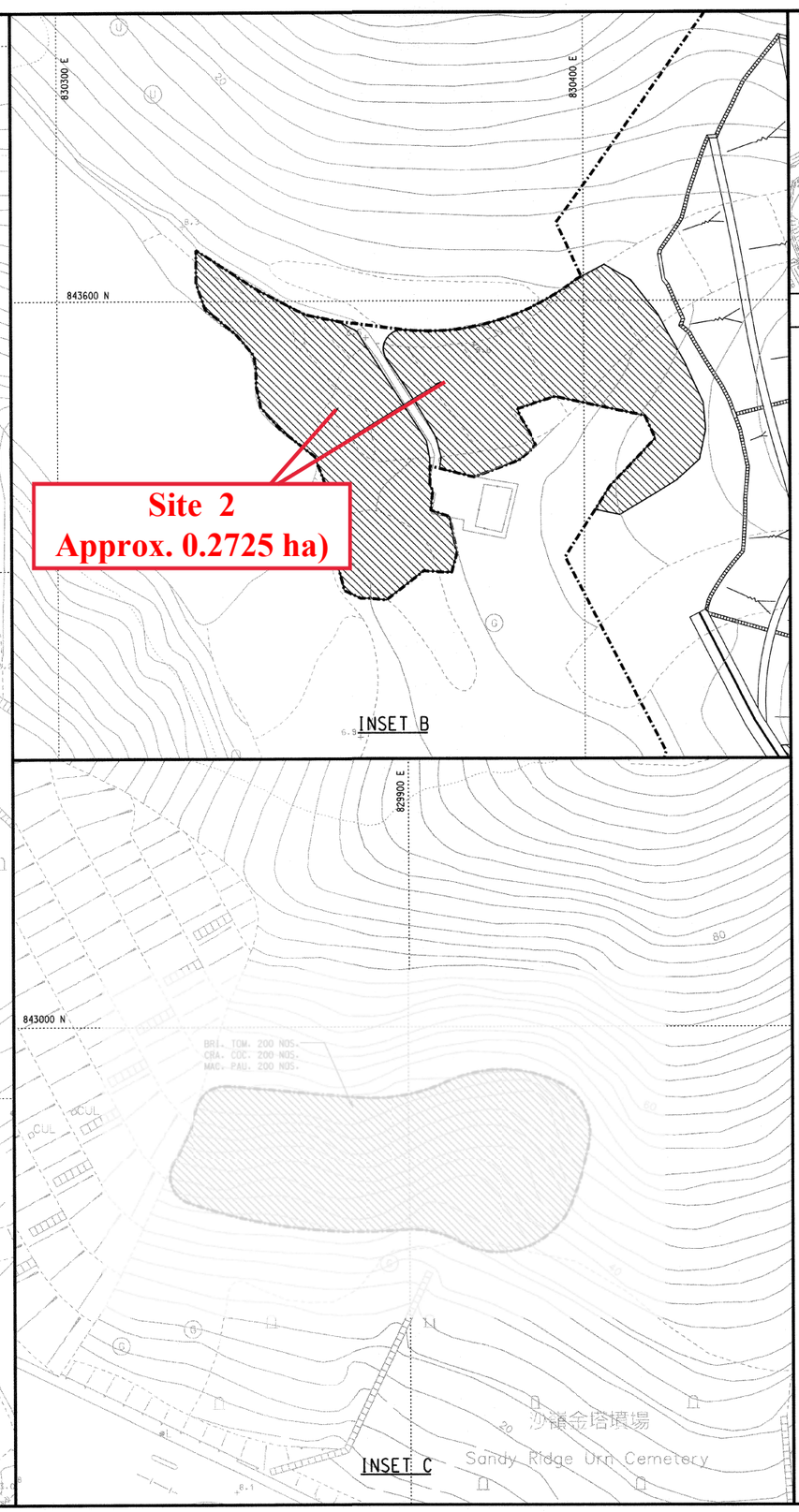
Drawing no.			Rev.
231448/C1/LS/1021			-
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: 1:500 @A1		Status: CONTRACT	

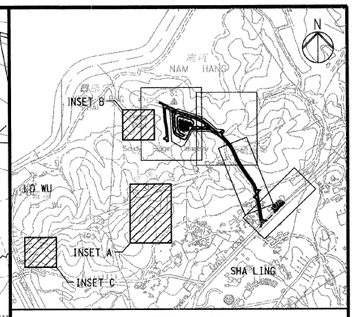
CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 12/5/2017
Filename : J:\231448\RECORD\CONTRACT\CONTRACT 1\LANDSCAPE\231448_C1_LS_1021.dgn

MATCH LINE
FOR CONTINUATION
SEE DRG 231448/C1/LS/1022







KEY PLAN

NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 231448/C1/LS/1021.
2. WHIPS PLANTING LOCATION WERE INDICATION TO SHOW THE INTENTION ONLY.
3. THE AREA OF WOODLAND PLANTING ARE INDICATION ONLY. THE CONTRACTOR SHALL CARRY OUT SITE SURVEY TO IDENTIFY SUITABLE WHIPS AND SHRUBS PLANTING AREA, AND SUBMIT WOODLAND PLANTING PROPOSAL ACCORDING TO THE SITE CONDITION TO THE PROJECT MANAGER FOR APPROVAL PRIOR PLANTATION.

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title

TREE PLANTING AND IRRIGATION PLAN (SHEET 5 OF 5)

Drawing no.			Rev.
231448/C1/LS/1025			–
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: 1:500 @A1		Status: CONTRACT	

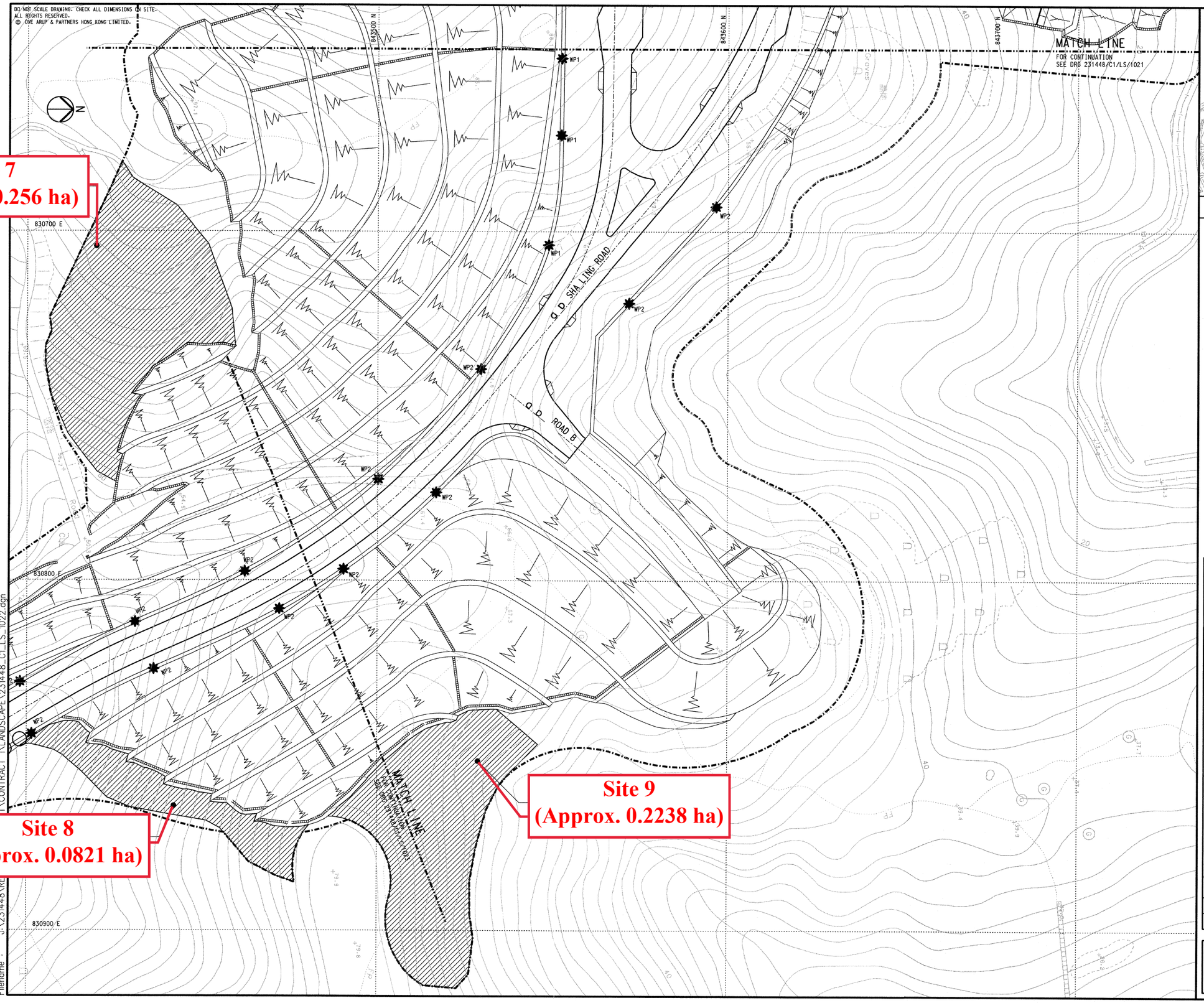
CEDD 土木工程拓展署 Civil Engineering and Development Department

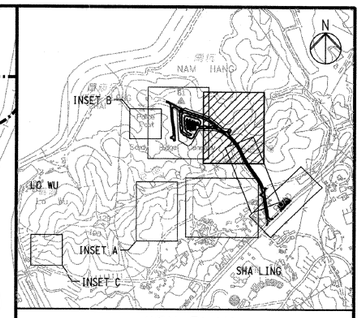
Printed by : 12/5/2017
Filename : J:\231448\RECORD\CONTRACT\CONTRACT 1\LANDSCAPE\231448_C1_LS_1025.dgn

Site 7
(Approx. 0.256 ha)

Site 8
(Approx. 0.0821 ha)

Site 9
(Approx. 0.2238 ha)





KEY PLAN

NOTES:
1. FOR NOTES AND LENGED REFER TO DRAWING NO. 231448/C1/LS/1021.

Rev	Description	By	Date

Consultant
ARUP

Contract No. and Title:
Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title
TREE PLANTING AND IRRIGATION PLAN (SHEET 2 OF 5)

Drawing no.	Rev.
231448/C1/LS/1022	–

Drawn	Date	Checked	Approved
WM	12/16	AW	DL

Scale: 1:500 @A1
Status: CONTRACT

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 12/5/2017
Filename : J:\231448\RE\CONTRACT 1\LANDSCAPE\231448_C1_LS_1022.dgn


Site 3
Compensatory woodland
(Area = 3320 sq.m)
墓地
Graves
道路
RAMP
WT
HL

APPENDIX D

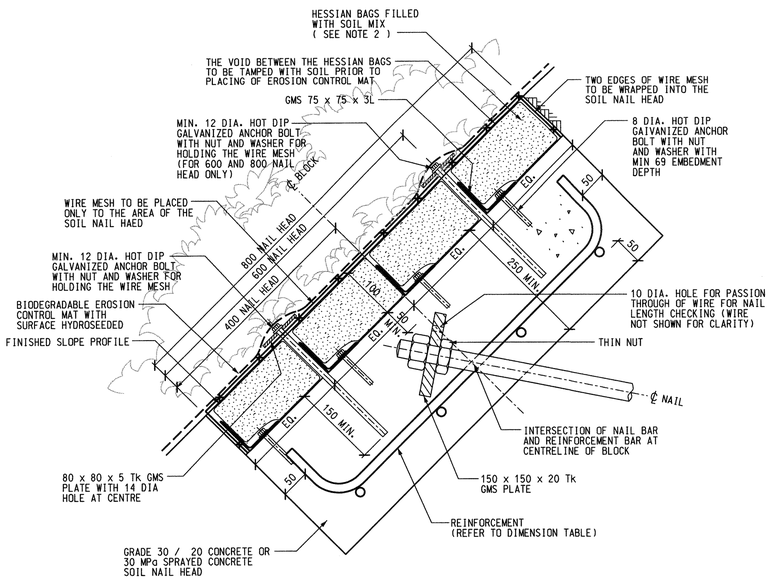
Proposed Planting Species

WCA	Area (hectare)	Tree						Ground cover/Shrubs					
		Species		Standard	Spacing (mm)	Quantity	Total	Species		Standard	Spacing (mm)	Quantity	Total
Site 1	1.0078	*Cratoxylum cochinchinense*	黃牛木	Whips	1500	700	3000						
		Machilus pauhoi	刨花潤楠	Whips	1500	700							
		Bridelia tomentosa	土蜜樹	Whips	1500	200							
		*Schima superba**	木荷	Whips	1500	700							
		*Phyllanthus emblica**	油甘子	Whips	1500	700							
Site 2	0.2725	*Cleistocalyx nervosum*	水翁	Whips	1500	250	975	*Melastoma malabathricum**	野牡丹	350 x 350	350	3000	6000
		Bridelia tomentosa	土蜜樹	Whips	1500	125		*Psychotria asiatica**	九節	350 x 350	400	3000	
		Cratoxylum cochinchinense	黃牛木	Whips	1500	200							
		Glochidion zeylanicum	香港算盤子	Whips	1500	100							
		Glochidion hirsutum	厚葉算盤子	Whips	1500	100							
		Daphniphyllum calycinum	牛耳楓	Whips	1500	200							
Site 3	0.3320	*Bridelia tomentosa*	土蜜樹	Whips	1500	400	1200	*Rhaphiolepis indica**	石斑木	300 x 300	400	2000	6000
		Cratoxylum cochinchinense	黃牛木	Whips	1500	400		*Melastoma malabathricum**	野牡丹	350 x 350	350	2000	
		Machilus pauhoi	刨花潤楠	Whips	1500	400		*Ardisia crenata**	朱砂根	300 x 300	350	2000	
Site 4	0.3935	*Celtis sinensis*	朴樹	Whips	1500	425	2100	*Melastoma sanguineum**	毛蒽	350 x 350	350	700	2100
		Machilus chekiangensis	浙江潤楠	Whips	1500	425		*Litsea rotundifolia var. oblongifolia**	豺皮樟	300 x 300	400	700	
		Cratoxylum cochinchinense	黃牛木	Whips	1500	200		*Ligustrum sinense **	山指甲	350 x 350	350	700	
		Machilus pauhoi	刨花潤楠	Whips	1500	200							
		Daphniphyllum calycinum	牛耳楓	Whips	1500	425							
		Bischofia javanica	秋楓	Whips	1500	425							
Site 5	Deleted from compensation plan												
Site 6	Deleted from compensation plan												
Site 7	0.2560	*Cratoxylum cochinchinense*	黃牛木	Whips	1500	486	1333	*Melastoma sanguineum**	毛蒽	350 x 350	350	1000	2000
		Bridelia tomentosa	土蜜樹	Whips	1500	200		*Litsea rotundifolia var. oblongifolia**	豺皮樟	300 x 300	400	1000	
		Daphniphyllum calycinum	牛耳楓	Whips	1500	161							
		*Phyllanthus emblica**	油甘子	Whips	1500	486							
Site 8	0.0821	*Bischofia javanica*	秋楓	Whips	1500	161	483	*Melastoma malabathricum**	野牡丹	350 x 350	350	500	500
		Cinnamomum camphora	樟	Whips	1500	161							
		Machilus pauhoi	刨花潤楠	Whips	1500	161							
Site 9	0.2238	*Bischofia javanica*	秋楓	Whips	1500	161	808	*Melastoma sanguineum**	毛蒽	350 x 350	350	2500	4500
		Cinnamomum camphora	樟	Whips	1500	161		*Litsea rotundifolia var. oblongifolia**	豺皮樟	300 x 300	400	2000	
		Liquidambar formosana	楓香	Whips	1500	161							
		Machilus pauhoi	刨花潤楠	Whips	1500	325							
							9899						21100

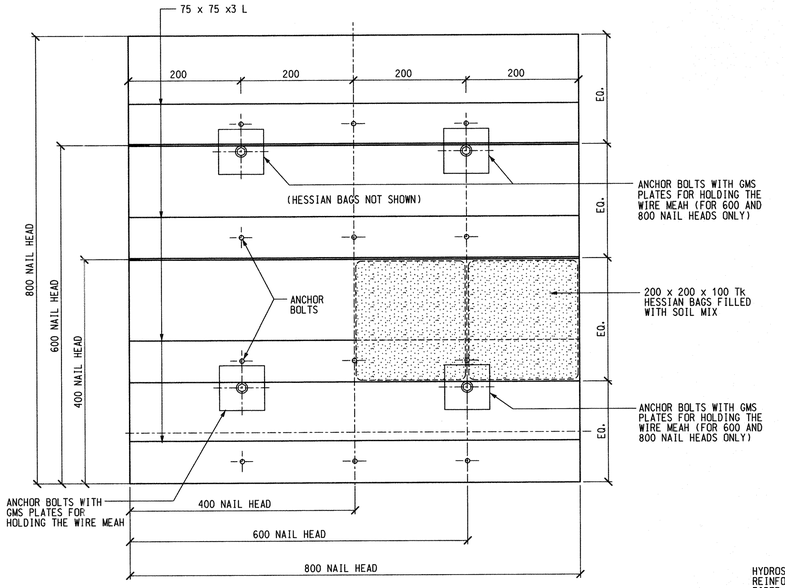
* Proposed species in Planting Phase 1

APPENDIX E

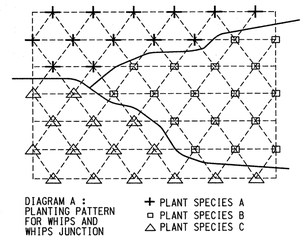
Planting Details



TYPICAL SECTION OF PLANTING ON ROCK SLOPE (CASE 1)



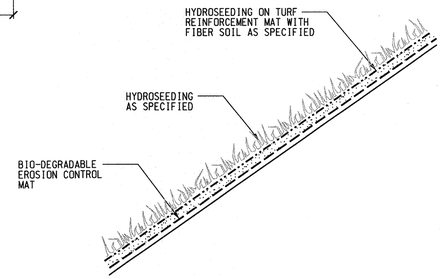
TYPICAL PLAN OF PLANTING ON ROCK SLOPE (CASE 1)



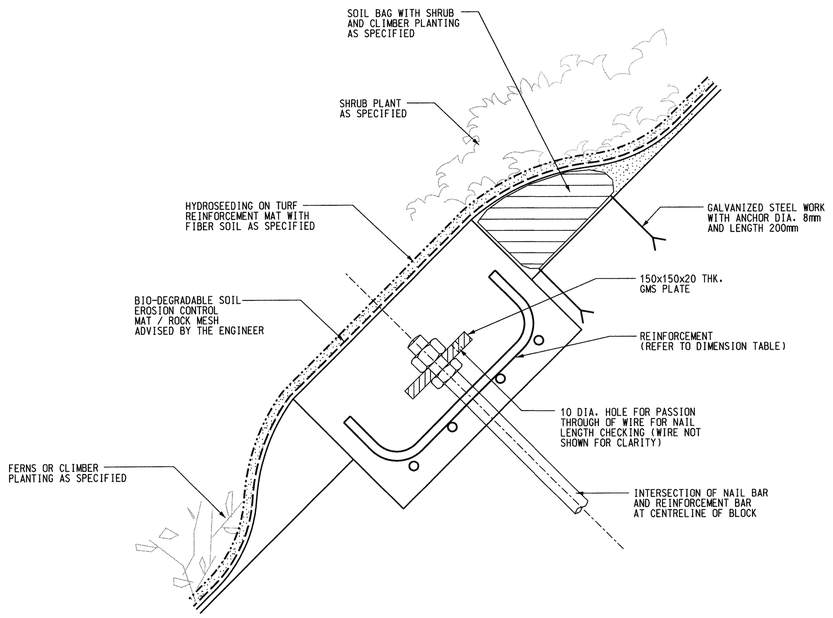
TYPICAL WOODLAND MIXED SPECIES PLANTING PATTERN

NOTE:

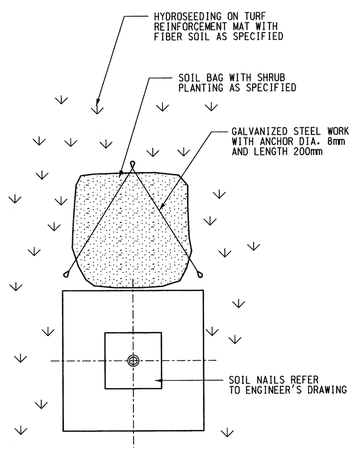
1. ALL DIMENSIONS ARE IN MILLIMETER.
2. FOR EVERY 200x200x100 Tk BAG OF SOIL MIX, INCORPORATE 50g OF PRE-PLANTING FERTILIZER AND 10g OF WATER RETAINING CRYSTALS.
3. B DENOTES GRADE 500B RIBBED REINFORCEMENT.
4. WIRE MESH SHALL BE 80x60x2.2 DIA. PVC COATED GALVANIZED STEEL WIRE WOVEN INTO A DOUBLE TWIST HEXAGONAL MESH OR EQUIVALENT. COLOUR OF PVC COATING SHALL BE DARK GREEN OR AS SPECIFIED.
5. FOR SOIL NAIL HEADS CONSTRUCTED BY 2-STAGE SPRAYED CONCRETE ACCORDING TO GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS, THE THIN NUT SHALL BE OMITTED.
6. SOIL NAIL DETAILS SHALL REFER TO CEDD STANDARD DARWINGS.



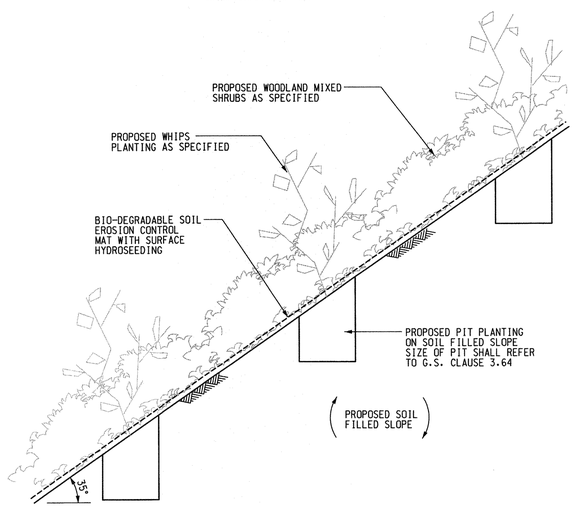
TYPICAL SECTION OF PLANTING ON ROCK SLOPE (CASE 3)



TYPICAL SECTION OF PLANTING ON ROCK SLOPE (CASE 2)



TYPICAL PLAN OF PLANTING ON ROCK SLOPE (CASE 2)



TYPICAL WHIPS PLANTING ON SOIL FILLED SLOPE

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

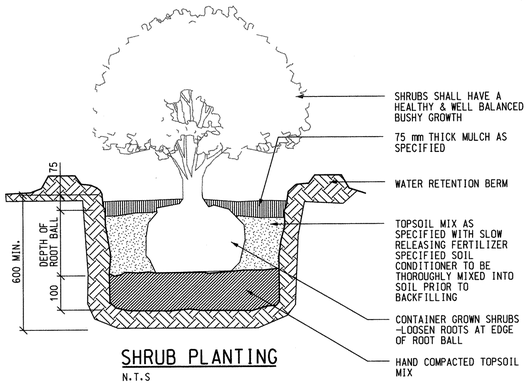
Drawing title

SLOPE PLANTING DETAILS

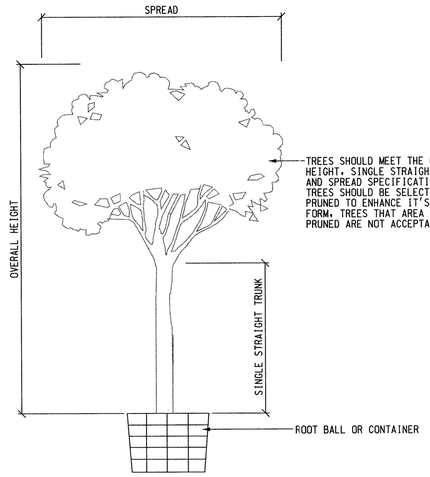
Drawing no.			Rev.
231448/C1/LS/1072			-
Drawn: NM	Date: 12/16	Checked: AW	Approved: DL
Scale: N.T.S.		Status: CONTRACT	

土木工程拓展署
Civil Engineering and Development Department

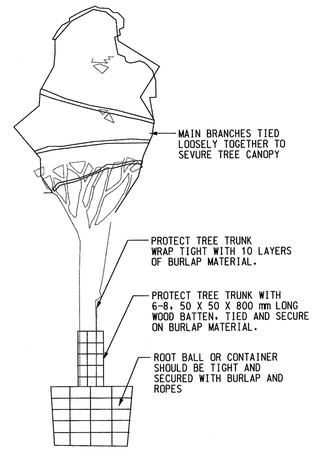
Printed by : 12/5/2017
Filename : J:\231448\RECORD\CONTRACT\CONTRACT 1\LANDSCAPE\231448_C1_LS_1072.dgn



SHRUB PLANTING
N.T.S

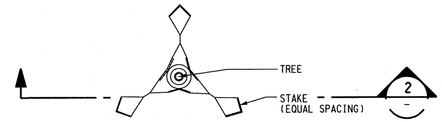


TREE FORM
N.T.S

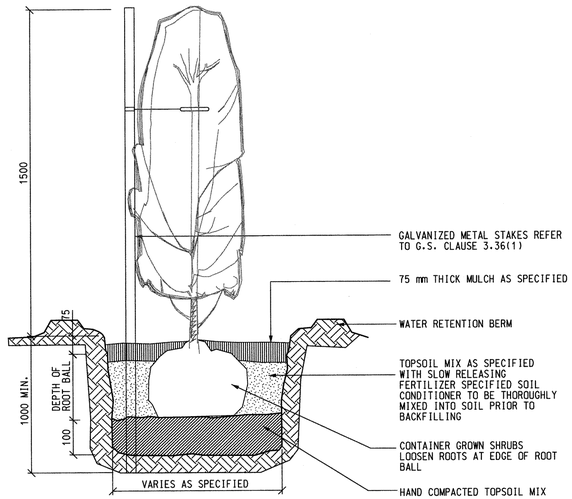


TYPICAL DETAIL OF TREE PROTECTION FOR TRANSPORTATION
N.T.S

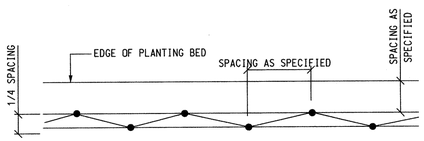
TYPICAL PLAN DETAIL OF TREE TIES
N.T.S



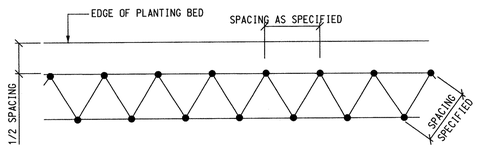
PLAN DETAIL OF TREE TIES FOR MATURE AND HEAVY STANDARD TREE
N.T.S



GUYING FOR HEDGE PLANTING
N.T.S

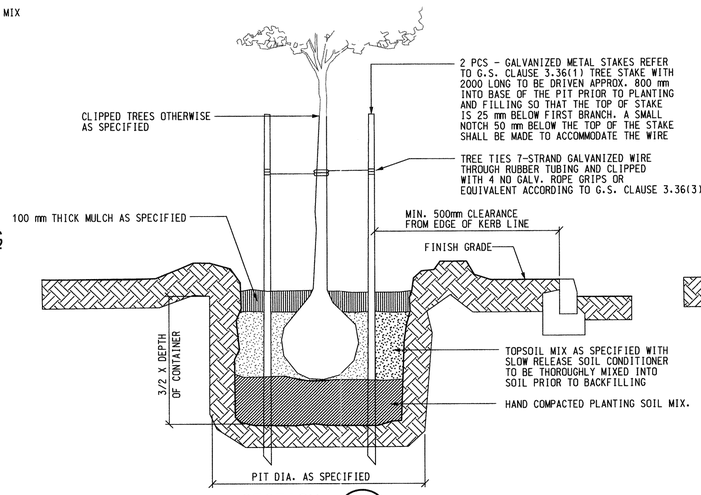


STAGGERED SPACING DIAGRAM - HEDGE PLANTING
N.T.S



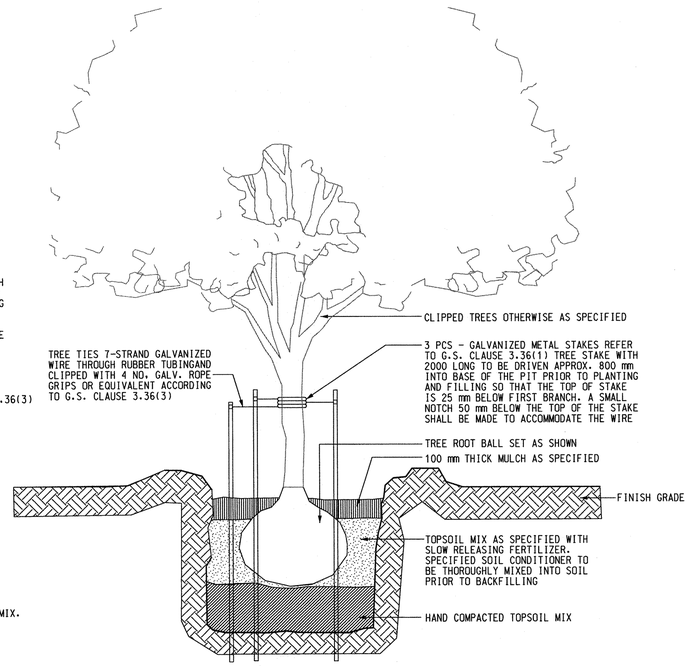
TRIANGULAR SPACING DIAGRAM - SHRUB & GROUND COVER MASSES
N.T.S

NOTES:
WHERE SHRUBS AND GROUND COVER ARE PLANTED IN BEDS, EXCAVATE ENTIRE BED AND FILL WITH BACKFILL MIXTURE



SECTION 1
SCALE N.T.S.

TYPICAL TREE PLANTING DOUBLE STAKING DETAIL



SECTION 2
SCALE N.T.S.

TYPICAL MATURE & HEAVY STANDARD TREE PLANTING DETAIL

Rev	Description	By	Date

Consultant
ARUP

Contract No. and Title:
Contract No. CV/2016/10
Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title
PLANTING DETAILS

Drawing no.			Rev.
231448/C1/LS/1041			-
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: N.T.S. @A1		Status: CONTRACT	

土木工程拓展署
Civil Engineering and Development Department

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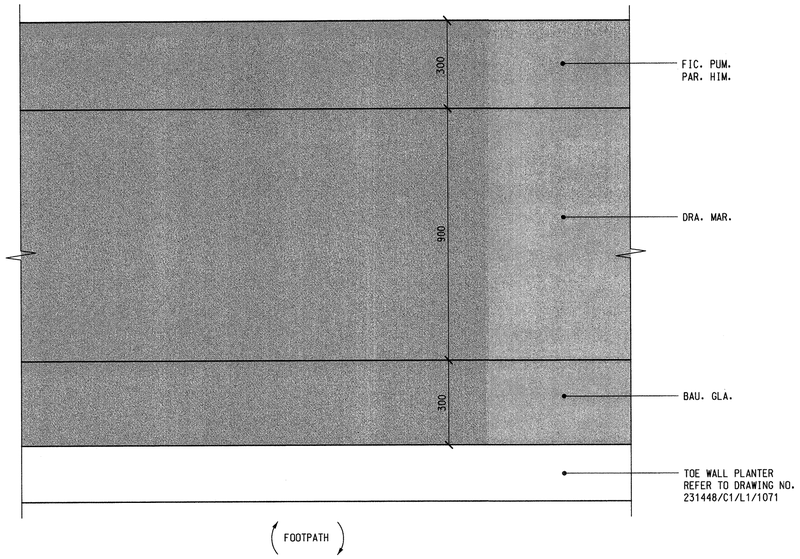
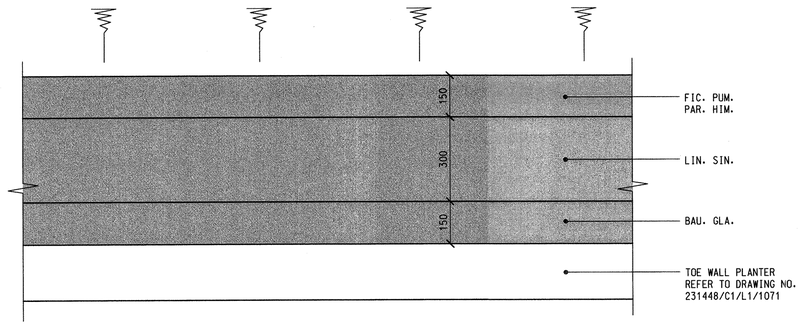
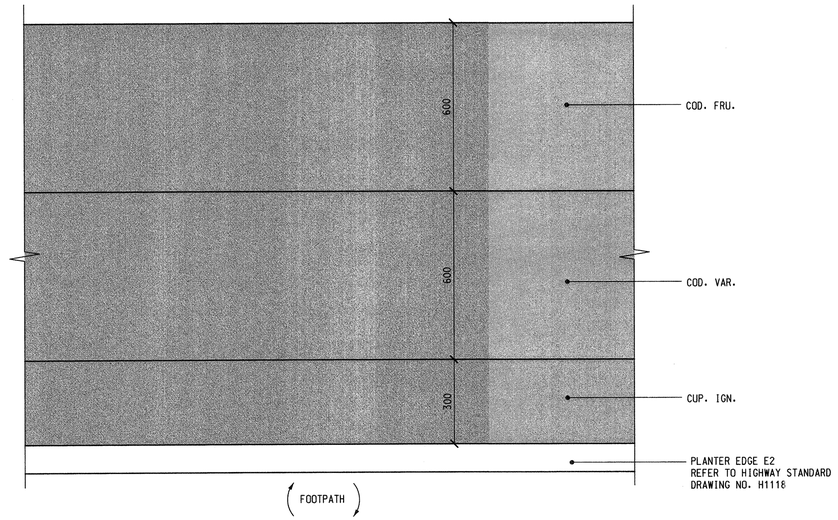


SHRUB PLANTING MODULE 1



SHRUB PLANTING MODULE 2A



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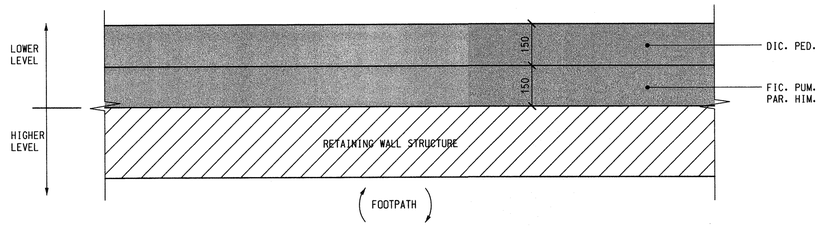

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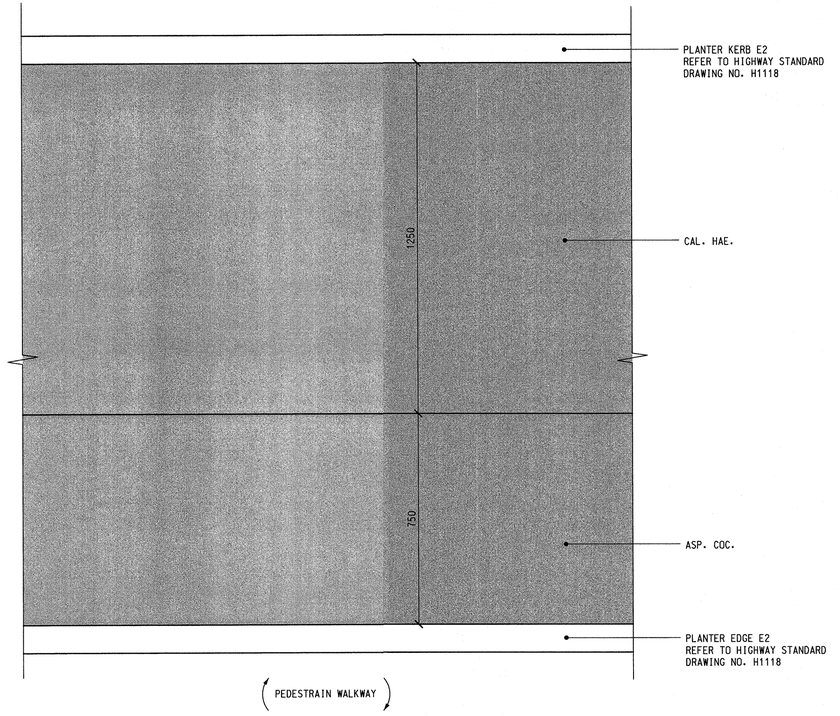

SHRUB PLANTING MODULE 4

NOTE:

1. THE APPLICATION LOCATION OF EACH MODULE SHALL REFER TO DRAWING NO. 231448/C1/LS/1051 TO 1053.

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title

SHRUB PLANTING MODULES DETAILS

Drawing no.			Rev.
231448/C1/LS/1062			-
Drawn	Date	Checked	Approved
WM	12/16	AW	DL
Scale		Status	
1:10 @A1		CONTRACT	

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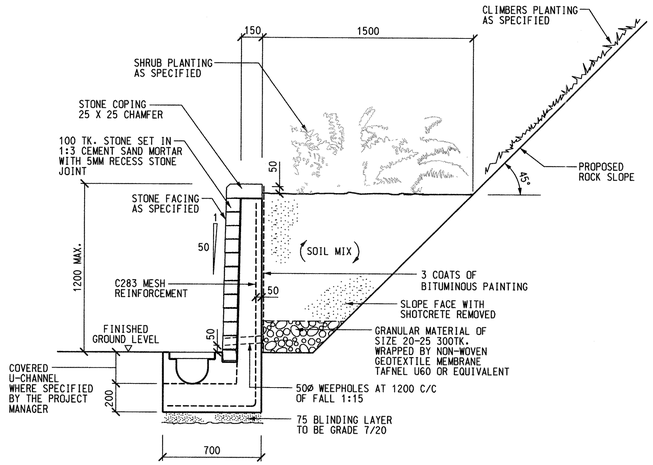
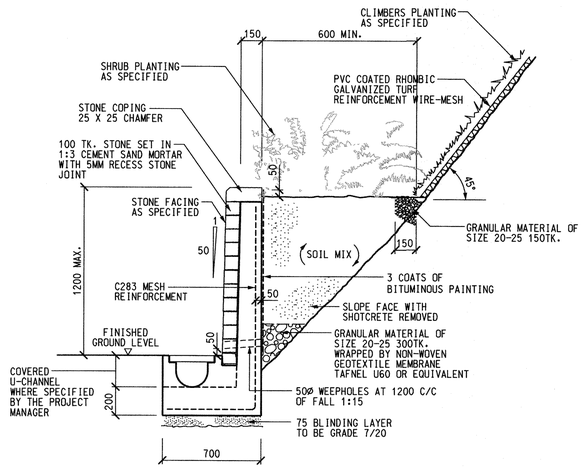


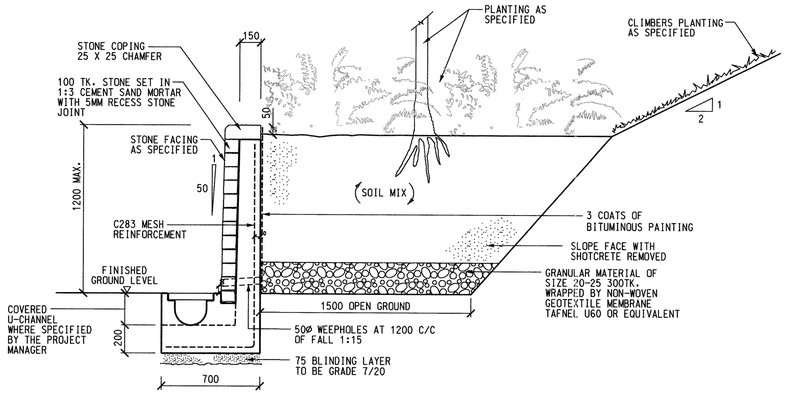
SECTION 1 (1053) SCALE 1:20

TYPICAL TOE WALL PLANTER (W1) ALONG ROCK SLOPE (WITH TREE PLANTING)



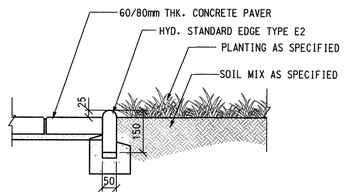
SECTION 2 (–) SCALE 1:20

TYPICAL TOE WALL PLANTER (W2) ALONG ROCK SLOPE (WITHOUT TREE PLANTING)



SECTION 3 (1053) SCALE 1:20

SLOPING PLANTER WALL (W3) FOR TREE PLANTING



TYPE E2 EDGE - PLANTER EDGE

SCALE 1:10

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title

LANDSCAPE PLANTER WALL DETAILS

Drawing no.			Rev.
231448/C1/LS/1071			–
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: AS SHOWN @A1		Status: CONTRACT	

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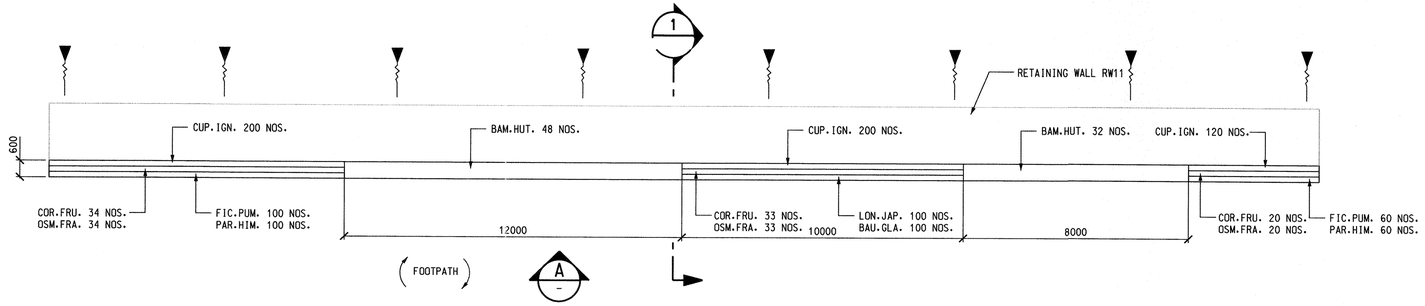
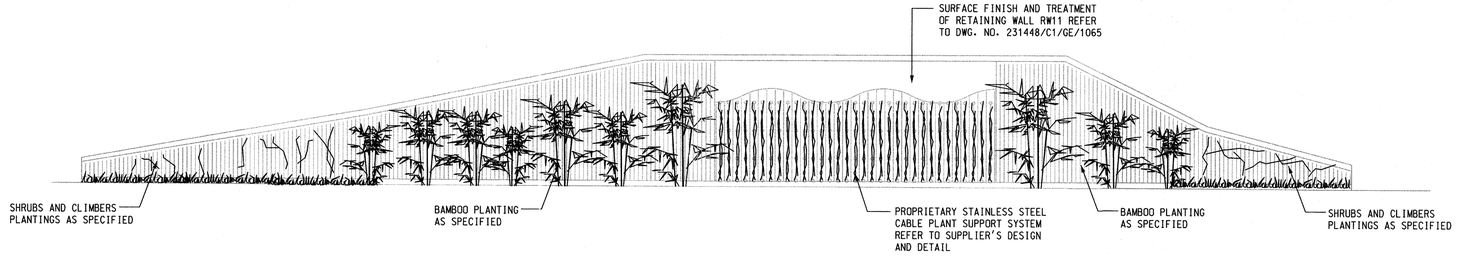


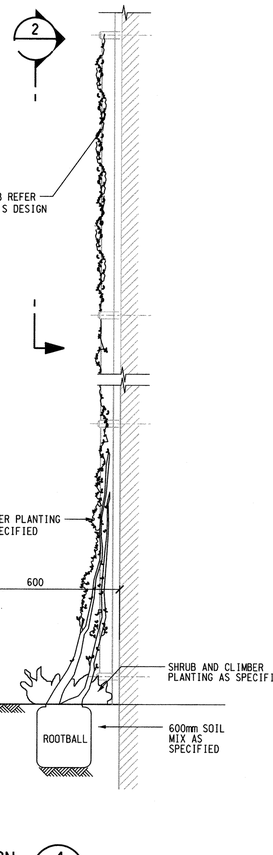
RETAINING WALL (RW11) WITH PLANTING STRIP PLAN

SCALE 1:100



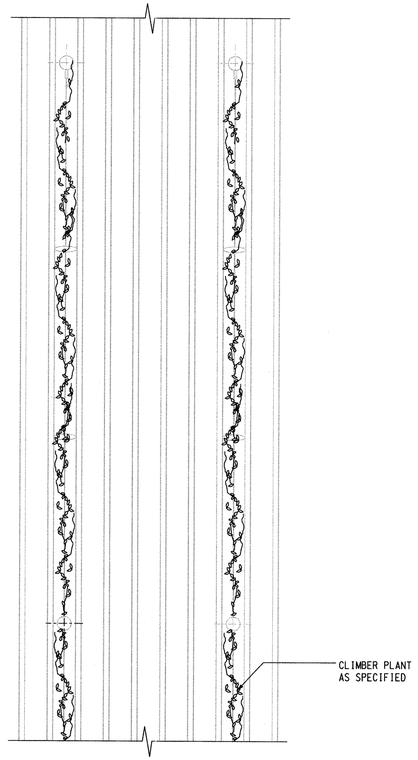
ELEVATION A

SCALE 1:100



SECTION 1

SCALE 1:10



SECTION 2

SCALE 1:5

NOTE:

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE SETTING OUT OF RETAINING WALL (RW11) AND ITS PLANTING PROPOSAL TO THE PROJECT MANAGER FOR APPROVAL PRIOR CONSTRUCTION.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE STAINLESS STEEL CABLE SYSTEM TO THE PROJECT MANAGER FOR APPROVAL PRIOR CONSTRUCTION.
3. FINISH AND TREATMENT ON THE FACADE SURFACE OF RETAINING WALL SHALL REFER TO DRAWING NO. 231448/C1/GE/1065.

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

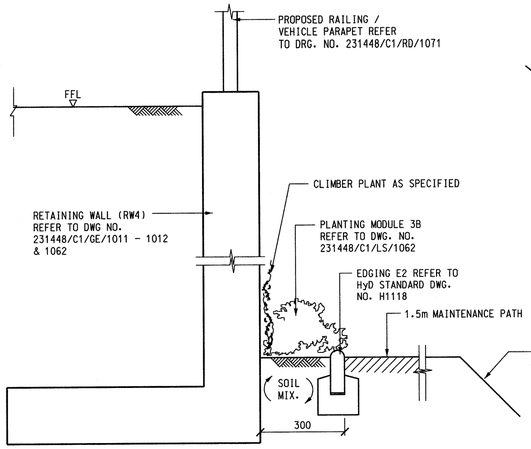
Drawing title

MISCELLANEOUS PLANTING DETAILS (SHEET 1 OF 2)

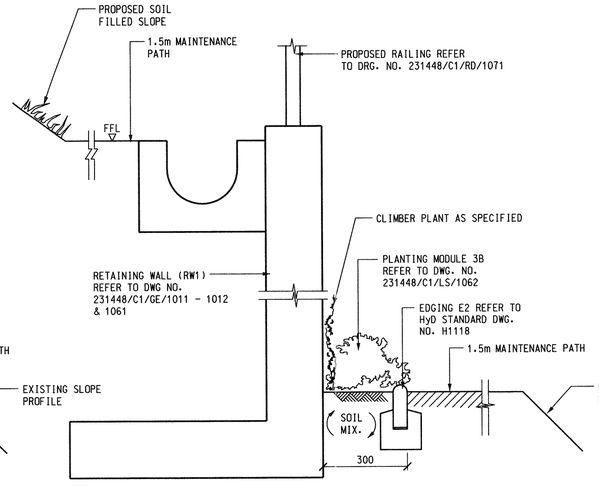
Drawing no.			Rev.
231448/C1/LS/1073			-
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: AS SHOWN		Status: CONTRACT	

土木工程拓展署
Civil Engineering and Development Department

Printed by : 12/5/2017
Filename : J:\231448\RECORD\CONTRACT\CONTRACT 1\LANDSCAPE\231448_C1_LS_1073.dgn



SECTION 1
SCALE 1:10 — 1051



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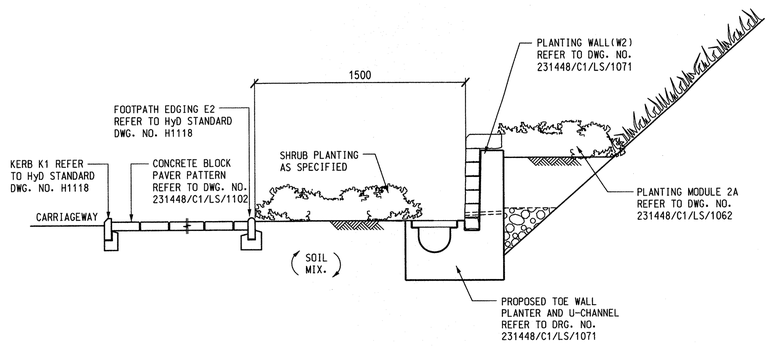
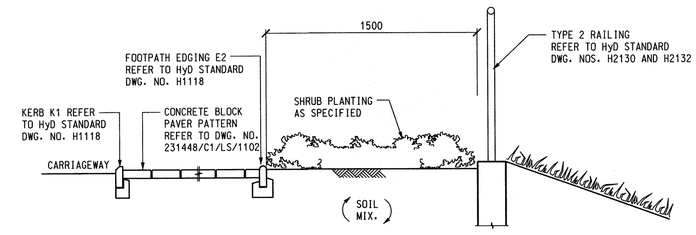
SCALE 1:10 — 1051

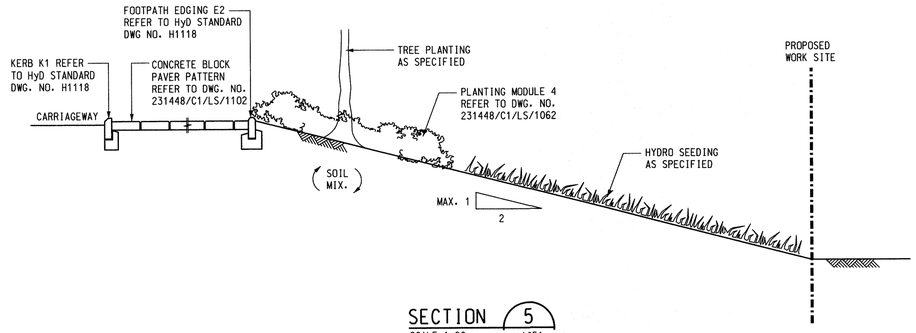


SECTION 3
SCALE 1:20 — 1051



SECTION 4
SCALE 1:20 — 1051

SECTION 2
SCALE 1:10 — 1051



SECTION 5
SCALE 1:20 — 1051

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title

MISCELLANEOUS PLANTING DETAILS (SHEET 2 OF 2)

Drawing no.			Rev.
231448/C1/LS/1074			-
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: N.T.S.		Status: CONTRACT	

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Printed by : 12/5/2017
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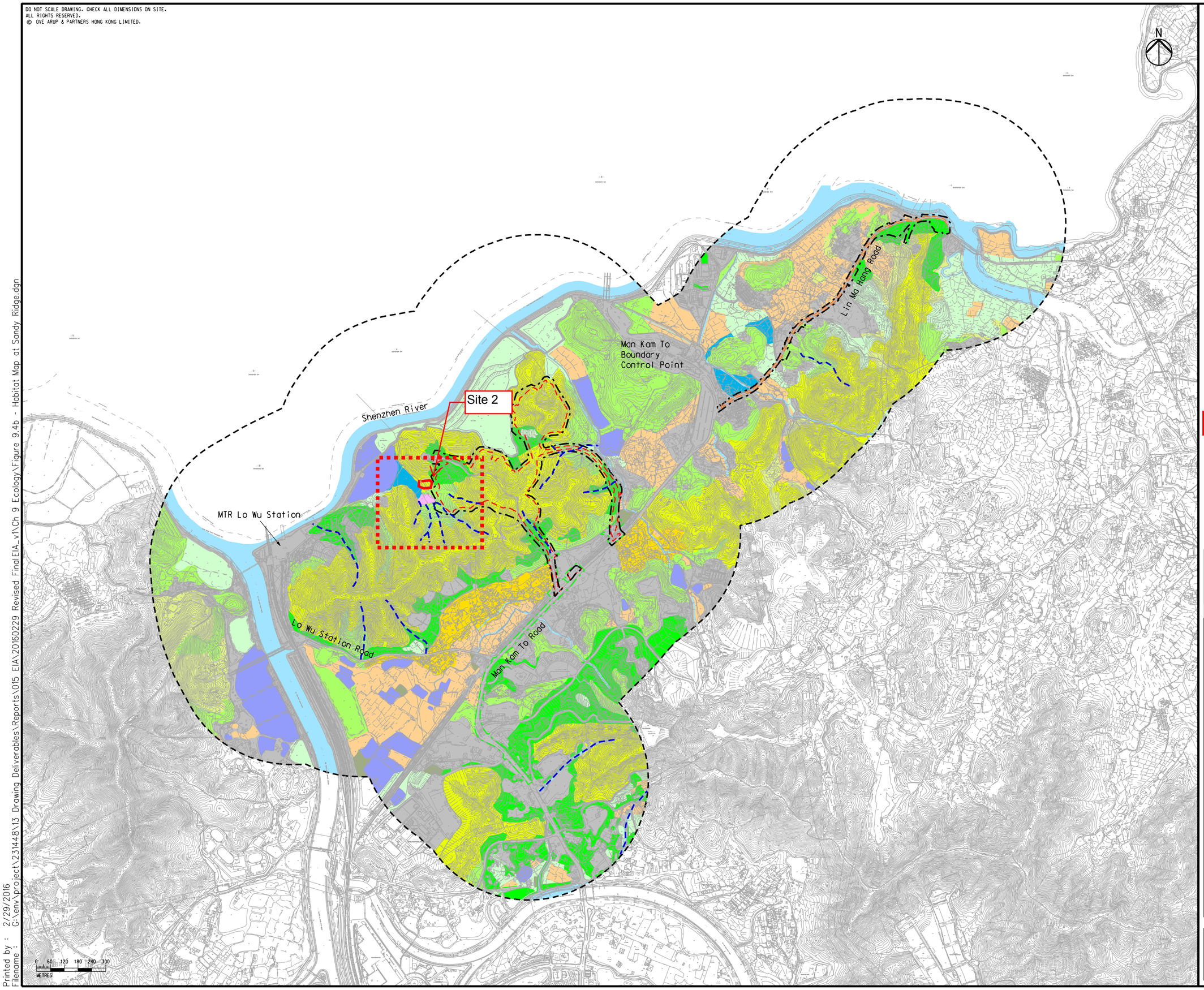


Legend

- Project Boundary
- Utilities Construction
- Sandy Ridge Works Area
- Lin Ma Hang Road Works Area
- 500m Assessment Area
- Watercourse
- Seasonal Watercourse
- Pond
- Developed Area
- Agricultural Land
- Marsh
- Wasteland
- Grassland
- Upland Grassland
- Shrubland
- Plantation
- Woodland
- Wet Woodland
- Village Area

Rev	Description	By	Date
G	SEVENTH ISSUE	GL	02/16
F	SIXTH ISSUE	GL	01/16
E	FIFTH ISSUE	GL	12/15
D	FOURTH ISSUE	GL	10/15

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 1/2013(CE)

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery - Design and Construction

Drawing title

Habitat Map at Sandy Ridge

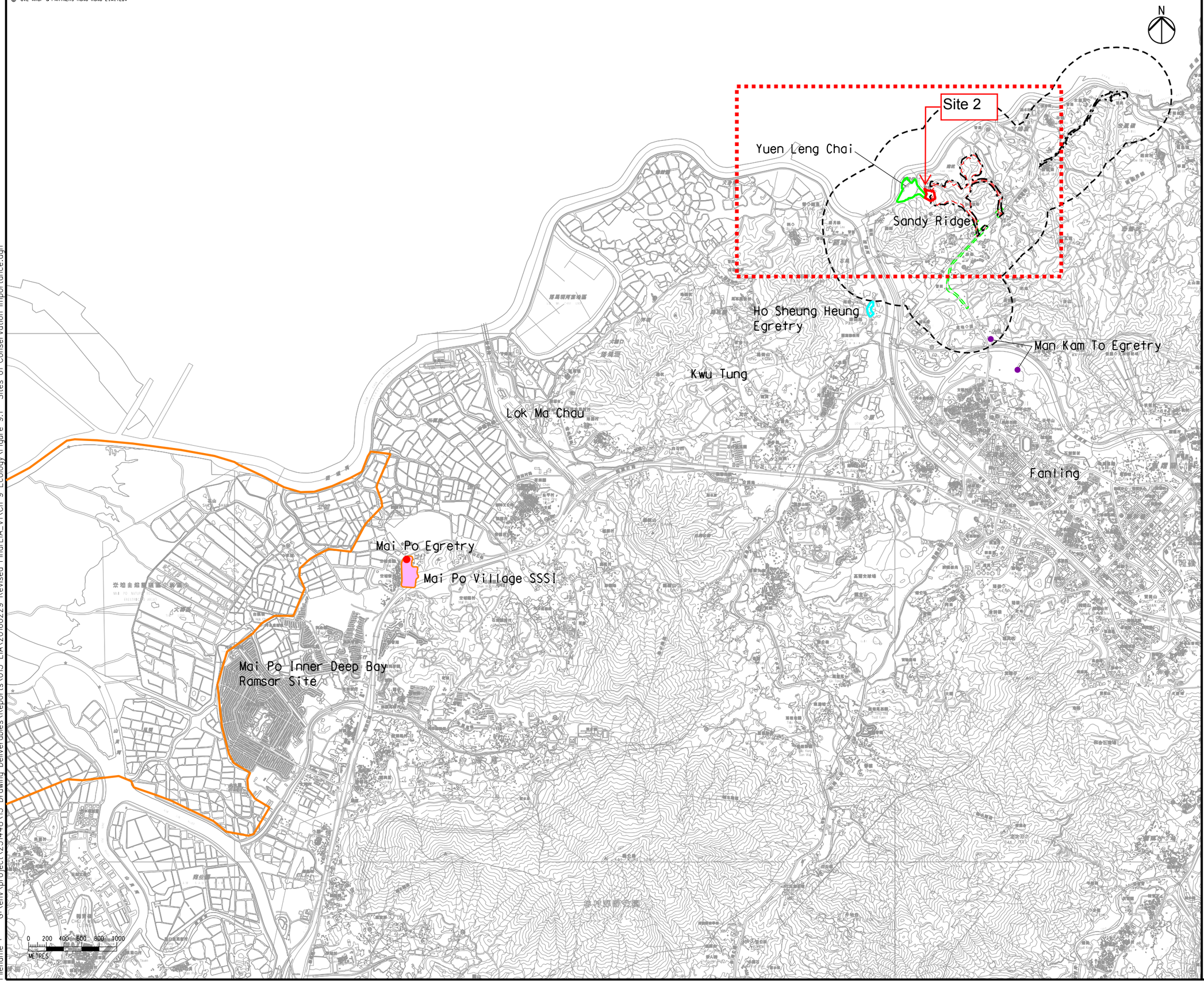
Drawing no.	Rev.
Figure 9.4b	G

Drawn	Date	Checked	Approved
GL	02/16	EL	ST

Scale	Status
AS SHOWN	PRELIMINARY

CEDD
土木工程拓展署
Civil Engineering and Development Department

Printed by : 2/29/2016
Filename : G:\env\project\231448\13 Drawing Deliverables\Reports\015 EIA\20160229 Revised Final\EIA_v1\Ch 9 Ecology\Figure 9.4b - Habitat Map at Sandy Ridge.dgn



Legend

- Project Boundary
- Utilities Construction
- Sandy Ridge Works Area
- Lin Ma Hang Road Works Area
- 500m Assessment Area
- Yuen Leng Chai (Conservation Area)
- Ho Sheung Heung Egretry
- Mai Po Inner Deep Bay Ramsar Site
- Mai Po Village SSSI
- Man Kam To Egretry
- Mai Po Egretry

Rev	Description	By	Date
G	SEVENTH ISSUE	GL	02/16
F	SIXTH ISSUE	GL	01/16
E	FIFTH ISSUE	GL	12/15
D	FOURTH ISSUE	GL	10/15

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 1/2013(CE)

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery - Design and Construction

Drawing title

Sites of Conservation Importance

Drawing no.	Rev.
Figure 9.1	G

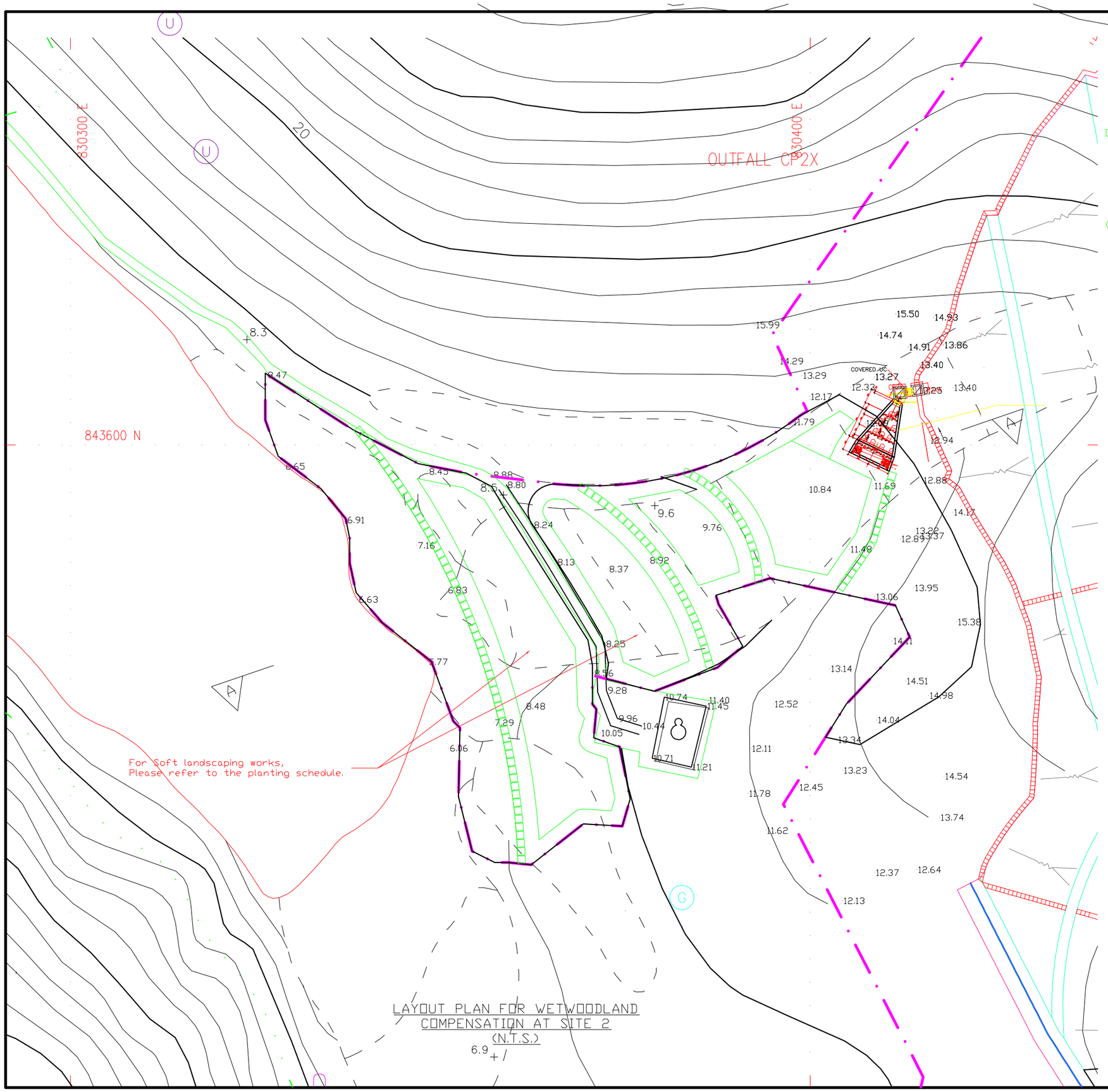
Drawn	Date	Checked	Approved
GL	02/16	EL	ST

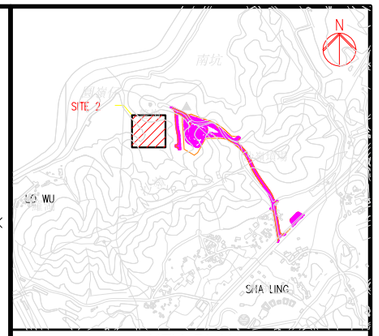
Scale: 1:40000 @A3

Status: PRELIMINARY

土木工程拓展署
Civil Engineering and Development Department

Printed by : 2/29/2016
Filename : G:\env\project\231448\13 Drawing Deliverables\Reports\015 EIA\20160229 Revised Final EIA_v1\Ch 9 Ecology\Figure 9.1 - Sites of Conservation Importance.dgn





KEY PLAN

NOTES:

Rev	Description	By	Date

Contractor

Hsin Chong Tsun Yip JV

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

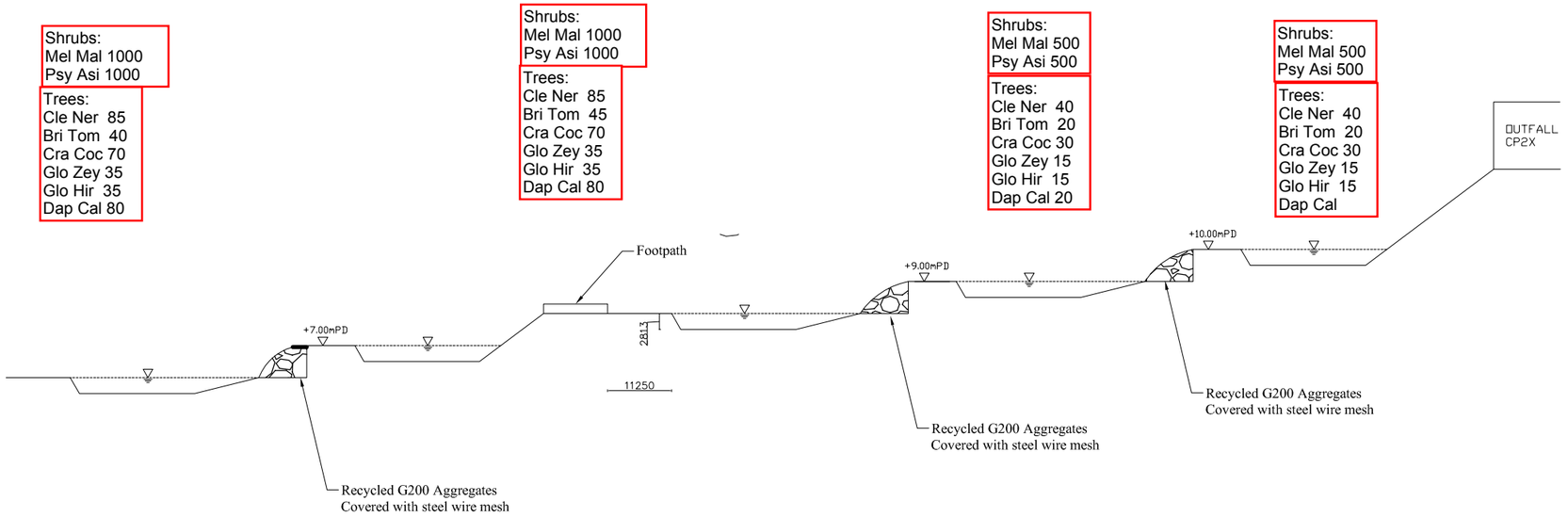
Drawing title

WETWOODLAND COMPENSATION AT SITE 2

sheet of 1/2

Drawing no.		Rev.
HCTYJV/SK/WET/001		–
Drawn	Date	Checked / Approved
–	07/19	– / –
Scale	–	Status

HCTY.png



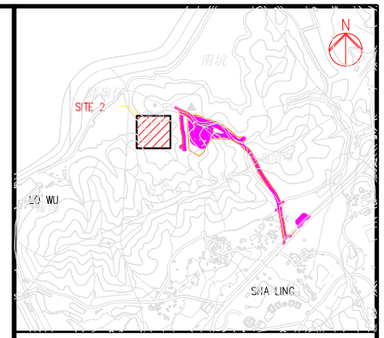
TYPICAL SECTION A-A
(N.T.S.)

Planting Schedule for Site 2 (Approved under Woodland Compensation Plan)

Tree						Ground cover/Shrubs					
Species		Standard	Spacing (mm)	Quantity	Total	Species		Standard	Spacing (mm)	Quantity	Total
Cleistocalyx nervosum	水翁	Whips	1500	250	975	*Melastoma malabathricum**	野牡丹	350 x 350	350	3000	6000
Bridelia tomentosa	土蜜樹	Whips	1500	125		*Psychotria asiatica**	九節	350 x 350	400	3000	
Cratoxylum cochinchinense	黃牛木	Whips	1500	200							
Glochidion zeylanicum	香港算盤子	Whips	1500	100							
Glochidion hirsutum	厚葉算盤子	Whips	1500	100							
Daphniphyllum calycinum	牛耳楓	Whips	1500	200							

* Proposed species in Planting Phase 1

WETWOODLAND ARRANGEMENT AT SITE 2 (PART D)



KEY PLAN

NOTES:

Rev	Description	By	Date

Contractor
Hsin Chong Tsun Yip JV

Contract No. and Title:
Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title
WETWOODLAND COMPENSATION AT SITE 2
sheet of 2/2

Drawing no.	Rev.
HCTYJV/SK/WET/001	-

Drawn	Date	Checked	Approved
-	07/19	-	-

Scale -
Status

HCTY.png

WORK METHODOLOGY

Sequence

1 Site Clearance- removal of grass by grass cutting machine

2 Trim off the ground level up to +10mPD by excavator. Continue trim down the level up to +9.0mPD and place the G200 aggregates with steel wire mesh.

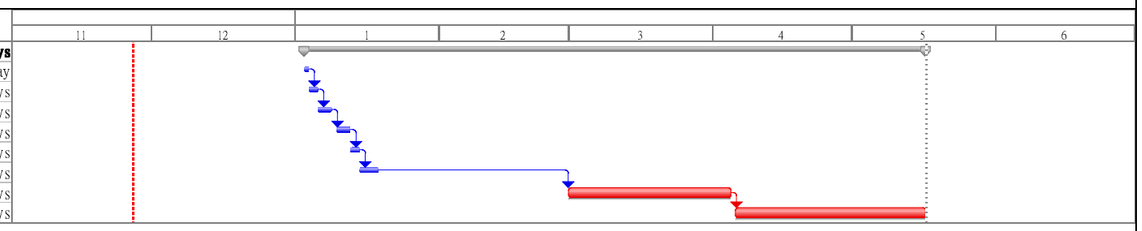
3 Repeat steps 1 and 2 until the level +6.0mPD is reached.

Contract No. CV/2016/10
Site Formation and Associated Infrastructural Works for
Development of Columbarium at Sandy Ridge Cemetery

Updated Programme (on 27/11/2021)

Hsin Chong Tsun Yip Joint Venture
Updated Date : Nov 2021

ID	Task Name	Duration	Start	Finish	% Complete	Remaining Duration
1	**Programme for the Works at Woodland Site 2**	**106 days**	**Mon 3/1/22**	**Mon 16/5/22**	**0%**	**106 days**
2	Site Clearance Works	1 day	Mon 3/1/22	Mon 3/1/22	0%	1 day
3	Land formation works at +10mPD	2 days	Tue 4/1/22	Wed 5/1/22	0%	2 days
4	Land formation works at +9mPD and G200 rockfill works	3 days	Thu 6/1/22	Sat 8/1/22	0%	3 days
5	Land formation works at +8mPD and G200 rockfill works	3 days	Mon 10/1/22	Wed 12/1/22	0%	3 days
6	Land formation works at +7mPD	2 days	Thu 13/1/22	Fri 14/1/22	0%	2 days
7	Land formation works at +6mPD and G200 rockfill works	3 days	Sat 15/1/22	Tue 18/1/22	0%	3 days
8	Shrub Planting Works	30 days	Tue 1/3/22	Mon 4/4/22	0%	30 days
9	Whips Planting Works	30 days	Wed 6/4/22	Mon 16/5/22	0%	30 days



Task Milestone Summary Critical Progress

APPENDIX F

Location of Fire Protection Zone

WCA Site 2

Indicative area of fire protection zone

WCA Site 3
(please refer to seperate drawing for updated boundary)

WCA Site 1
(Approx. 1.0078 ha)

ROAD D

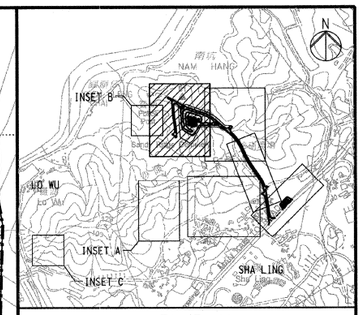
SHA LING ROAD

ELA.SYL.
12 NOS.

WP1

WP2

MATCH LINE
FOR CONTINUATION
SEE DRG 231448/C1/LS/1022



KEY PLAN

NOTES:

1. ALL DIMENSIONS ARE IN METERS, UNLESS NOTES OTHERWISE.
2. ALL LEVEL ARE IN METERS AND REFER TO PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH HK(1980) GRID CO-ORDINATE SYSTEM.
4. FOR ROAD SETTING OUT DETAILS REFER TO DRAWING NO. 231448/C1/RD/1021 - 1023.
5. FOR ROAD VERTICAL PROFILE REFER TO DRAWING NO. 231448/C1/RD/1031 - 1033.
6. FOR KERB AND PAVING LAYOUT REFER TO DRAWING NO. 231448/C1/RD/1051 - 1053.

LEGEND:

- PROPOSED WORK SITE
- PROPOSED CUT SLOPE
- PROPOSED FILLED SLOPE
- PROPOSED WOODLAND PLANTING WITH WHIPS AND SHRUBS
- PROPOSED HEAVY STANDARD TREE
- PROPOSED LIGHT STANDARD TREE
- PROPOSED IRRIGATION POINT
- PROPOSED NEW HyD SIMAR SLOPE
- RECEPTOR SITE FOR TRANSPLANTED TREES MAINTAINED BY FEHD

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium at Sandy Ridge Cemetery

Drawing title

TREE PLANTING AND IRRIGATION PLAN (SHEET 1 OF 5)

Drawing no.			Rev.
231448/C1/LS/1021			-
Drawn: WM	Date: 12/16	Checked: AW	Approved: DL
Scale: 1:500 @A1		Status: CONTRACT	

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 12/5/2017
Filename : J:\231448\RECORD\CONTRACT\CONTRACT 1\LANDSCAPE\231448_C1_LS_102.dgn

APPENDIX G

Monitoring Programme of Vegetation Establishment for Woodland Compensation Area

Woodland planting task/Monitoring		Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Planting work#	Phase 1				*	^																			
	Phase 2					*	* / ^																		
Baseline quantitative monitoring								*																	
Quantitative monitoring											*		*		*		*		*		*		*		*
Walk-through monitoring							Bi-monthlky basis since the completion of planting work			Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q

Note:

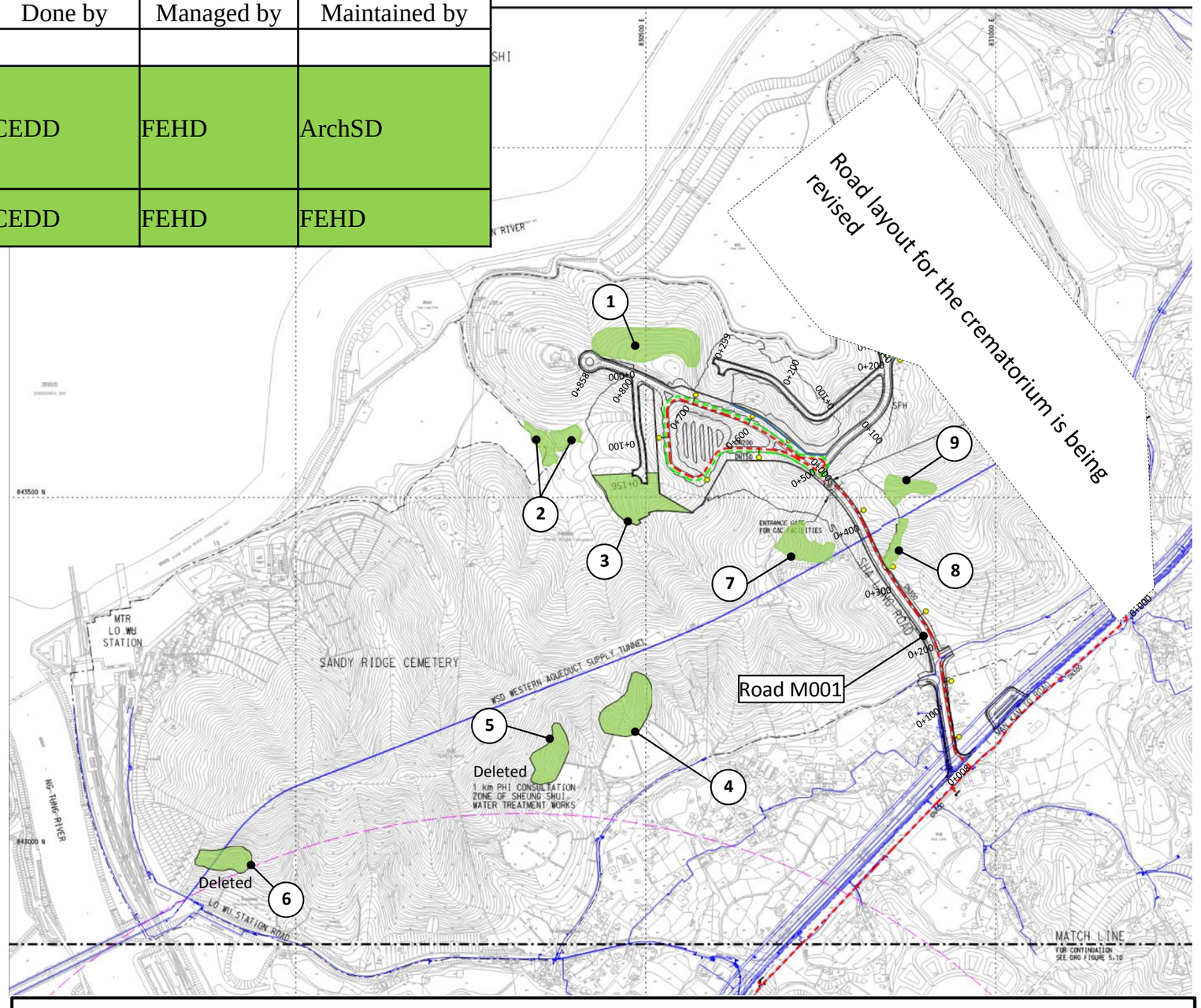
* - the planting work or monitoring will be conducted once in the selected quarter

^ - Planting works for WCA Site 2

APPENDIX H

Maintenance agents of Woodland Compensation Areas

Item		Works to be Done by	To be Managed by	To be Maintained by
Site	**Vegetation**			
3	Whip, shrubs, trees and Hydroseeding / Hydromulching on SIMAR slopes along Sha Ling Road, Road M001# (upper part - within Sandy Ridge Cemetery) and the internal roads within Sandy Ridge Cemetery	CEDD	FEHD	ArchSD
1,2,4,7, 8,9	Other new whips and trees within Sandy Ridge Cemetery	CEDD	FEHD	FEHD



Proposed Vegetation Layout inside/outside Sandy Ridge Cemetery — Diagram 10

APPENDIX I

Environmental Permit requirement

Contract No. CV/2016/10

Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery

Checklist for specific requirement under
Further Environment Permit (FEP) No. FEP-01/534/2017/A
Condition 2.17

Requirement in EP condition	Included in Woodland Compensatory Plan	Relevant Chapter/Appendix
Identify and quantify the area of loss of woodland with moderate or high ecological value	✓	Section 1.3, Appendix B
Provide at least 1:1 compensatory woodland planting	✓	Section 2.1
Details on plant species selection	✓	Section 2.2, Appendix D
Planting scheme and schedule	✓	Section 2.2, Section 2.4, Appendix E, Appendix G
Fire control	✓	Section 2.5, Appendix F
Post-planting monitoring and maintenance	✓	Section 3.1, Appendix G
Setting of action targets	✓	Section 3.2

APPENDIX J

Summary of Implementation Schedule

Woodland Compensation Area	Location	Coordinates	Size (hectare)	Planting				Remarks
				Phase 1		Phase 2		
				Commencement and completion	Species	Commencement and completion	Species	
Site 1	On the slope north of MacIntosh Fort and Sha Ling Road	843710 N 830468 E	1.01	Fourth Quarter of Year 1 (2022)	- *Schima superba* 木荷 - *Phyllanthus emblica* 油甘子	First Quarter of Year 2 (2023)	- *Cratoxylum cochinchinense* 黃牛木 - *Machilus pauhoi* 刨花潤楠 - Bridelia tomentosa 土蜜樹	All planting works should be planned, supervised by a qualified ecologist/arborist. Measures should be implemented according to the Woodland Compensation Plan to ensure successful planting and high survival rate. Key factors for successful planting: - Spacing requirements: Sufficient spacing between individual plants as set out in the Plan (Section 2.4) to allow proper health and structure development - Timing: Planting to be completed in early wet season - Water management: Adequate watering and proper drainage system - Removal/Thinning of exotic species: Clearance of invasive plants or aggressive grasses prior to planting works - Fire control: Keeping source of fire away from planting sites (meaures listed in Section 2.5 of the Plan) - Access control: Minimize human interference to the planting sites Measures to enhance hydrological linkage (For Site 2 only): - mechanical munipulation of topography - creation of pools and interconnecting ditches
Site 2	In the valley below MacIntosh Fort	843578 N 830369 E	0.27	First Quarter of Year 2 (2023)	- *Melastoma malabathricum* 野牡丹 - *Psychotria asiatica* 九節	Second Quarter of Year 2 (2023)	- *Cleistocalyx nervosum* 水翁 - *Cratoxylum cochinchinense* 黃牛木 - *Glochidion zeylanicum* 香港算盤子 - *Glochidion hirsutum* 厚葉算盤子 - *Daphniphyllum calycinum* 牛耳楓 - Bridelia tomentosa 土蜜樹	
Site 3	On the filled slope west of the proposed platform	843500 N 830500 E	0.33	Fourth Quarter of Year 1 (2022)	- *Rhaphiolepis indica* 石斑木 - *Melastoma malabathricum* 野牡丹 - *Ardisia crenata* 朱砂根	Second Quarter of Year 2 (2023)	- *Bridelia tomentosa* 土蜜樹 - *Cratoxylum cochinchinense* 黃牛木 - *Machilus pauhoi* 刨花潤楠	
Site 4	Within Sandy Ridge Cemetery, north of SIMAR slope 3NW-C/C433	843190 N 830481 E	0.39		- *Melastoma sanguineum* 毛蕊 - *Litsea rotundifolia* var. *oblongifolia* 豺皮樟 - *Ligustrum sinense* 山指甲		- *Celtis sinensis* 朴樹 - *Machilus chekiangensis* 浙江潤楠 - Machilus pauhoi 刨花潤楠 - *Daphniphyllum calycinum* 牛耳楓 - *Bischofia javanica* 秋楓 - Cratoxylum cochinchinense 黃牛木	
Site 7	On the top of proposed cut slope south of Sha Ling Road	843428 N 830728 E	0.26		- *Melastoma sanguineum* 毛蕊 - *Litsea rotundifolia* var. *oblongifolia* 豺皮樟 - *Phyllanthus emblica* 油甘子		- *Cratoxylum cochinchinense* 黃牛木 - *Daphniphyllum calycinum* 牛耳楓 - Bridelia tomentosa 土蜜樹	
Site 8	On the south of proposed cut slope east of Sha Ling Road	843439 N 830849 E	0.08		- *Melastoma malabathricum* 野牡丹		- *Bischofia javanica* 秋楓 - *Cinnamomum camphora* 樟 - *Machilus pauhoi* 刨花潤楠	
Site 9	On the top of proposed cut slope east of Sha Ling Road	843510 N 830891 E	0.22		- *Melastoma sanguineum* 毛蕊 - *Litsea rotundifolia var. oblongifolia* 豺皮樟		- *Bischofia javanica* 秋楓 - *Cinnamomum camphora* 樟 - *Liquidambar formosana* 楓香 - *Machilus pauhoi* 刨花潤楠	

Woodland Compensation Area	Location	Coordinates	Size (hectare)	Monitoring												Maintenance parties/agents
				Duration	Quantitaive monitoring	Walk-through survey		Parameter								
								General health condition of plants (based on parameters such as wilting, insect attack, sign of disease/fungal infection)				Survival rate (based on survival rate of individual plant species)				
					Interval	Interval	Conducted by	Action Level	Action Plan (Action Level)	Limit Level	Action Plan (Limit Level)	Action Level	Action Plan (Action Level)	Limit Level	Action Plan (Limit Level)	
Site 1	On the slope north of MacIntosh Fort and Sha Ling Road	843710 N 830468 E	1.01	5 years	Baseline quantitative monitoring: Third quarter of year of planting (preferbaby late August / September 2023) Regular monitoring: bi-annel (twice per year) from Years 3 to 6	Bi-monthly (once every two months) in the year of planting, while reduced to quarterly in following year.	Qualified ecologist/arborist	Percentage of individual plant species in poor health condition >20%	- ET notify Contractor and IEC - Identify the cause(s) of deterioration in plant health - advise Contractor the necessity of replanting	Percentage of individual plant species in poor health condition >30%	- ET notify Contractor and IEC - Identify the cause(s) of deterioration in plant health - advise remedial action and work out solution including but not limited to change of species in replanting; and seek acceptance from IEC - The Contractor should implement the remedial action once the remedial action has been accepted by IEC	Survival rate of individual plant species <80%	- ET notify Contractor and IEC - Identify the cause(s) of decrease in survival rate - advise Contractor the necessity of replanting	Survival rate of individual plant species <70%	- ET notify Contractor and IEC - Identify the cause(s) of deterioration in survival rate - advise remedial action and work out solution including but not limited to change of species in replanting; and seek acceptance from IEC - The Contractor should implement the remedial action once the remedial action has been accepted by IEC	FEHD
Site 2	In the valley below MacIntosh Fort	843578 N 830369 E	0.27													FEHD
Site 3	On the filled slope west of the proposed platform	843500 N 830500 E	0.33													ArchSD
Site 4	Within Sandy Ridge Cemetery, north of SIMAR slope 3NW-C/C433	843190 N 830481 E	0.39													FEHD
Site 7	On the top of proposed cut slope south of Sha Ling Road	843428 N 830728 E	0.26													FEHD
Site 8	On the south of proposed cut slope east of Sha Ling Road	843439 N 830849 E	0.08													FEHD
Site 9	On the top of proposed cut slope east of Sha Ling Road	843510 N 830891 E	0.22													FEHD