


Ocean Park Master Redevelopment Project

Environmental Permit No. EP-249/2006/B – Condition 2.16

Shrubland Compensatory Proposal

Certified by  on 23-May-12
Lindsay Pickles (ETL)

Verified by Independent Environmental Checker on 25-May-12

IEC Certificate attached in the submission? Yes

Ocean Park Master Redevelopment Project

Environmental Permit No. EP-249/2006/B - Condition 2.16

Shrubland Compensatory Proposal

Submitted by Ocean Park Corporation on 23-05-2012

This is to verify that

Shrubland Compensatory Proposal

Submitted by Ocean Park Corporation

On 23-05-2012

Has been verified by the undersigned.

Signed



Dr Anne F Kerr
Independent Environmental Checker (IEC)
Retained by Ocean Park Corporation
pursuant to Environmental Permit No. EP-249/2006/B

Date

25 May 2012

Environmental Impact Assessment (EIA) Ordinance, Cap . 499
 Project Title: Repositioning and Long Term Operation Plan of Ocean Park

Submission under Environmental Permit No.: EP-249/2006/B Condition 2.6
Shrubland Compensatory Proposal

Responses to Comments

| <u>No.</u> | <u>Comments</u> | <u>Responses</u> |
|------------|--|--|
| 1. | <p>AFCD memo ref. (37) in AF EA 034/06 dated 20 March 2012.</p> <p><i>General comments</i></p> <p>(i) Despite some areas in the location of compensatory planting (about 6 ha) are now covered by dense shrubs or exposed with rock outcrops, the proposed planting of tall shrubs in only 0.63ha seems for below the par. As noted from aerial photo and our site visit, more areas of similar habitat type / condition seem to be available in the vicinity of the proposed Sub-areas. The Permit Holder should carefully examine whether the areas for planting tall shrubs could be further increased and maximize the planting opportunities notwithstanding site constraints that can be overcome by ground surface modification. For areas considered really unsuitable for the planting, a more detailed account, preferably with graphic and/or photo illustrations in appropriate scale, should be given to substantiate the claim.</p> <p><i>Specific comments</i></p> <p>(i) Section 2.4 – Please clarify whether “<i>Cratoxylum ligustrinum</i>” and “<i>Listsea rotundifolia</i>” should read “<i>Cratoxylum cochinchinense</i>” and “<i>Litsea rotundifolia</i>”, respectively.</p> <p>(ii) Section 2.7(a) – Please clarify the long-term maintenance responsibility of compensatory planting after the establishment period, especially for areas on unleased Government land.</p> <p>(iii) Section 2.7(b) – Please add “and healthy growth” after “..... ensure survival” (line 1).</p> <p>(iv) Drawing and Photos – With the aid of aerial photo, it seems that the Sub-areas shown in the drawing and photos do not tally with each other. Please clarify the discrepancy and ensure consistency.</p> | <p>The area for planting tall shrubs is now increased to 1.93ha, about one third of the 6ha area, by also planting tall shrubs between the existing shrubs wherever the spacing of the existing shrubs permitting and without affecting the existing shrubs within the Sub-area C, where the existing shrubs are found less dense than other locations and can permit tall shrubs to be planted between the existing shrubs. The other locations are either covered with dense shrubs or with rock outcrops, and are not suitable for inserting new tall shrubs. These locations are illustrated by photos in the drawing 873c.</p> <p>“<i>Cratoxylum ligustrinum</i>” and “<i>Listsea rotundifolia</i>” should read “<i>Cratoxylum cochinchinense</i>” and “<i>Litsea rotundifolia</i>”, respectively. Section 2.4 is revised.</p> <p>The long-term maintenance responsibility of compensatory planting will rest with Ocean Park. Section 2.7(a) is revised to cover this.</p> <p>“and healthy growth” is added after “..... ensure survival” (line 1) in Section 2.7(b).</p> <p>The photos previously included are no longer included in the re-submission. Please refer to the drawing 873c and the photos shown in the drawing.</p> |

Environmental Permit No. EP-249/2006/B
Reprovisioning and Long Term Operation Plan of Ocean Park
Shrubland Compensatory Proposal under Condition 2.16

1. Introduction

- 1.1 Condition 2.16 of the Environmental Permit No. EP-249/2006/B for the Designated Project "Reprovisioning and Long Term Operation Plan of Ocean Park" stipulates that "to compensate for the loss of 4.8ha of tall shrubland habitat during construction of the Project, the Permit Holder shall enhance the ecological value of 6ha of existing low shrubland area by providing tall native shrubs at the location as shown in Figure 4 (of the Environmental Permit No. EP-249/2006/B). The Permit Holder shall, at least one month before commencement of the landscape works of the Project, deposit with the Director (of Environmental Protection) four hard copies and one electronic copy of the compensatory proposal. The compensatory proposal shall include:
- (a) the location, size, number and species of plantings;
 - (b) design details;
 - (c) implementation programme;
 - (d) maintenance and management schedules; and
 - (e) drawings in the scale of 1:1000 or other appropriate scale showing the locations of these compensatory plants."
- 1.2 This compensatory proposal is prepared to comply with the requirements in the above Condition 2.16 of the Environmental Permit No. EP-249/2006/B.
- 1.3 The objective of the shrubland compensatory proposal is to compensate for the loss of 4.8 ha of tall shrubland during construction of the works by enhancing the ecological value of 6 ha of the existing low shrubland area, by increasing species diversity, and providing alternative habitats for the fauna affected by the works in long term.

2. Compensatory Proposal

- 2.1 The area as shown in Figure 4 of the Environmental Permit No. EP-249/2006/B for shrubland compensatory is illustrated in the attached drawing 91806/100/873c (A1 in 1:1000 scale). The current condition of the area is illustrated in the photos in the drawing, which were taken recently in April 2012 to show the updated conditions of the area.
- 2.2 The photos show that the area stipulated for shrubland compensatory is already mostly covered by dense shrubs, which probably have been established since the EIA report for Reprovisioning and Long Term Operation Plan of Ocean Park was approved in 2006. On site inspection has confirmed that those areas covered with dense shrubs practically do not have extra space to allow more shrubs to be planted.
- 2.3 The area comprises mostly steep natural slopes, and some locations are rocky with exposed rock outcrops and are not able to support plantings. Hence only in certain portions of the 6ha area where the existing shrubs are less dense can allow the planting of additional native tall shrubs to enhance the ecological value of the existing shrubland area. These portions, namely Sub-areas A, B, C, D and E available for planting of additional native tall shrubs are illustrated in the drawing 91806/100/873c. The soil depths at these Sub-areas have been verified, by inserting a 300mm long steel rod into the ground, to be at least 300mm, which is considered able to support the growth of newly planted shrubs.
- 2.4 Based on the above, the size, number and species of plantings are proposed as follows:

Sub-area A:

| Species | Chinese | Size | Spacing (mm) | Number* |
|----------------------------------|---------|---|--|---------|
| <i>Gordonia axillaris</i> | 大頭茶 | 300 – 600 mm in height above soil level | The spacing is to be determined on site, and 1000mm minimum.** | 15 |
| <i>Ilex asprella</i> | 梅葉冬青 | | | 15 |
| <i>Cratoxylum cochinchinense</i> | 黃牛木 | | | 15 |
| <i>Melastoma sanguineum</i> | 毛蕊 | | | 15 |
| <i>Litsea rotundifolia</i> | 豺皮樟 | | | 15 |
| <i>Rhodomyrtus tomentosa</i> | 崗稔 | | | 15 |
| <i>Rhaphiolepis indica</i> | 石斑木 | | | 15 |

Total = 105Sub-area B:

| Species | Chinese | Size | Spacing (mm) | Number* |
|----------------------------------|---------|---|--|---------|
| <i>Gordonia axillaris</i> | 大頭茶 | 300 – 600 mm in height above soil level | The spacing is to be determined on site, and 1000mm minimum.** | 55 |
| <i>Ilex asprella</i> | 梅葉冬青 | | | 55 |
| <i>Cratoxylum cochinchinense</i> | 黃牛木 | | | 55 |
| <i>Melastoma sanguineum</i> | 毛蕊 | | | 55 |
| <i>Litsea rotundifolia</i> | 豺皮樟 | | | 55 |
| <i>Rhodomyrtus tomentosa</i> | 崗稔 | | | 55 |
| <i>Rhaphiolepis indica</i> | 石斑木 | | | 55 |

Total = 385Sub-area C:

| Species | Chinese | Size | Spacing (mm) | Number* |
|----------------------------------|---------|---|--|---------|
| <i>Gordonia axillaris</i> | 大頭茶 | 300 – 600 mm in height above soil level | The spacing is to be determined on site, and 1000mm minimum.** | 300 |
| <i>Ilex asprella</i> | 梅葉冬青 | | | 300 |
| <i>Cratoxylum cochinchinense</i> | 黃牛木 | | | 300 |
| <i>Melastoma sanguineum</i> | 毛蕊 | | | 300 |
| <i>Litsea rotundifolia</i> | 豺皮樟 | | | 300 |
| <i>Rhodomyrtus tomentosa</i> | 崗稔 | | | 300 |
| <i>Rhaphiolepis indica</i> | 石斑木 | | | 300 |

Total = 2,100Sub-area D:

| Species | Chinese | Size | Spacing (mm) | Number* |
|----------------------------------|---------|---|--|---------|
| <i>Gordonia axillaris</i> | 大頭茶 | 300 – 600 mm in height above soil level | The spacing is to be determined on site, and 1000mm minimum.** | 75 |
| <i>Ilex asprella</i> | 梅葉冬青 | | | 75 |
| <i>Cratoxylum cochinchinense</i> | 黃牛木 | | | 75 |
| <i>Melastoma sanguineum</i> | 毛蕊 | | | 75 |
| <i>Litsea rotundifolia</i> | 豺皮樟 | | | 75 |
| <i>Rhodomyrtus tomentosa</i> | 崗稔 | | | 75 |
| <i>Rhaphiolepis indica</i> | 石斑木 | | | 75 |

Total = 525

Sub-area E:

| Species | Chinese | Size | Spacing (mm) | Number* |
|----------------------------------|---------|---|--|---------|
| <i>Gordonia axillaris</i> | 大頭茶 | 300 – 600 mm in height above soil level | The spacing is to be determined on site, and 1000mm minimum.** | 20 |
| <i>Ilex asprella</i> | 梅葉冬青 | | | 20 |
| <i>Cratoxylum cochinchinense</i> | 黃牛木 | | | 20 |
| <i>Melastoma sanguineum</i> | 毛柃 | | | 20 |
| <i>Litsea rotundifolia</i> | 豺皮樟 | | | 20 |
| <i>Rhodomyrtus tomentosa</i> | 崗柃 | | | 20 |
| <i>Rhaphiolepis indica</i> | 石斑木 | | | 20 |

Total = 140

* The numbers of the plantings specified above are estimates only. If site condition permitting, more shrubs should be planted wherever possible.

** Wherever spacing permitting and without affecting the existing plants, the new shrubs are to be planted between the existing plants.



Cratoxylum cochinchinense
黃牛木



Gordonia axillaris 大頭茶



Ilex asprella 梅葉冬青



Litsea rotundifolia 豺皮樟



Melastoma sanguineum
毛柃



Rhaphiolepis indica
石斑木



Rhodomyrtus tomentosa
崗柃

The above photos show the proposed shrub species. They are common tall native species, which are also found in the existing shrubland habitat within and in the vicinity of Ocean Park, and can enhance the ecological value of the existing low shrubland area and provide alternative habitats for the fauna affected by the works in long term.

In total, about 3,255 native shrubs are to be planted.

2.5 Design Details

- (a) The plantings proposed above are native shrubs, with height above soil level being 300-600mm. The plantings will be grown and supplied in containers not less than 125mm in diameter and 200mm deep.
- (b) The shrubs will be planted at minimum 1,000mm spacings. The actual spacing is to be determined on site.

2.6 Implementation Programme

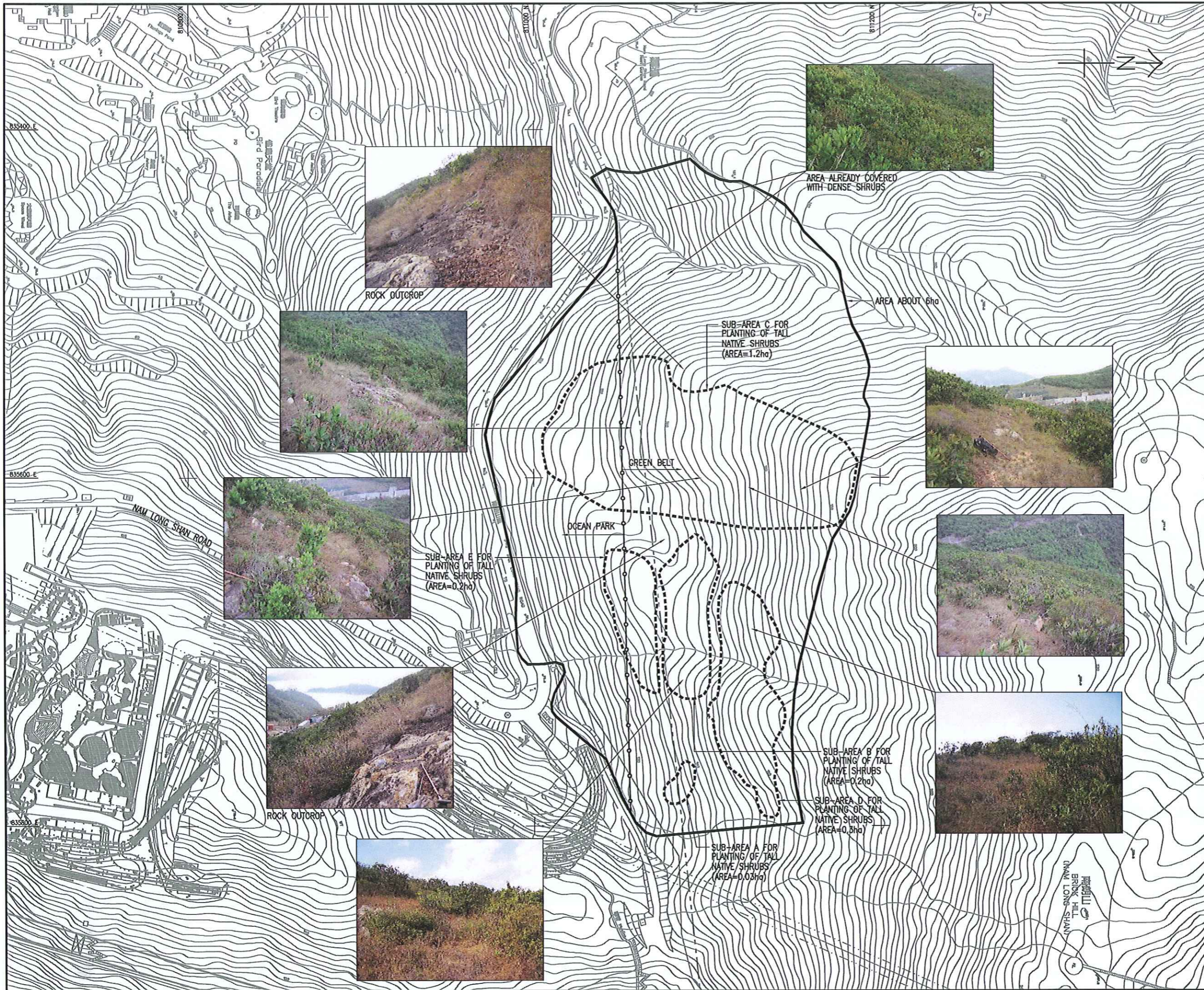
- (a) The plantings are scheduled to be carried out in July, August and September 2012, in one single stage.
- (b) One year establishment period, after the completion of the plantings, is to be provided

2.7 Maintenance and Management Schedule

- (a) Ocean Park (the Permit Holder) will carry out the maintenance and management of the above proposed plantings, including the long term maintenance after the establishment period.
- (b) Ocean Park shall implement the following measures to ensure survival and healthy growth of the newly planted shrubs as well as the effectiveness of the compensation plan:
 - Regular weeding
 - Regular monitoring of the newly planted shrubs
 - Replacement of dead planted
 - Regular improvement to soil.

Attachment

- Drawing 91806/100/873c (A1 in 1:1000 scale)





B.D. REF.

NOTE:

1. EXACT EXTENTS OF SUB-AREAS TO BE DETERMINED ON SITE.

LEGEND:

-  LOCATION OF COMPENSATORY TALL NATIVE SHRUBS
-  BOUNDARY BETWEEN GREEN BELT & OCEAN PARK

| REV. | DESCRIPTION | P.E. | DATE |
|---|-------------|------|------|
| The drawing is the Property and Copyright of Ocean Park Hong Kong and must not be re-issued, copied or reproduced without written consent | | | |



OCEAN PARK REDEVELOPMENT

ENVIRONMENTAL PERMIT NO. EP-249/2006/B LOCATION OF COMPENSATORY PLANTING

| | |
|----------------------|--------------------|
| SCALE A1 1 : 1000 | DATE 10-05-2012 |
|----------------------|--------------------|

| | |
|-----------------|--------------------|
| DRAWN BY WSY | CHECKED BY JLN. |
|-----------------|--------------------|

PREPARED BY **AECOM**

CONSULTANT **AECOM**

In association with:
AEDAS EDWARDS LEVETT & BAILEY

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|---------------------------|--------|
| DRG. NO. 91806/100/873 | REV. C |
|---------------------------|--------|