

#### 中國建築工程(香港)有阻公司

CHINA STATE CONSTRUCTION ENGINEERING (HONG KONG) LIMITED

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**By Hand** 

Your ref: -Our ref: CCW/GU18/L/MRN/TS3/006922 Date: 26 November 2019

**Environmental Protection Department Environmental Impact Assessment Office** 27/F., Southorn Centre 130 Hennessy Road, Wan Chai, Hong Kong

Dear Sirs,

#### Contract No. HY/2009/15

# Central – Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) <u>Submission of Silt Curtain Deployment Plan (Revision 04) under condition 2.8 of</u> <u>FEP-04/356/2009</u>

Pursuant to the condition 2.9 of FEP-04/356/2009, we are pleased to submit the Silt Screen Deployment Plan (Revision 04) for EPD deposition.

Enclosed please find the following documents for your kind perusal

Certification letter of ET Leader,

Verification letter of IEC and

Silt Screen Deployment Plan (4 hard copies & 1 electronic copy, with pdf format respectively

Thank you for your kind attention and please do not be hesitate to contact our Environmental Officer – Gabriel Wong at 6114 9590 should you have any further queries

Yours faithfully, For and on behalf of **China State Construction Engineering (Hong Kong) Ltd.** 

Mr. Chris Leung

Project Director

Encl.

CL/GW/ysk

# CONTRACT HY/2009/15

# CENTRAL – WAN CHAI BYPASS TUNNEL (CAUSEWAY BAY TYPHOON SHELTER SECTION)

# Silt Screen Deployment Plan

# Submission Status: For Approval

| Revision | <b>Description</b> Date    |                  |  |  |
|----------|----------------------------|------------------|--|--|
| 0        | 1 <sup>st</sup> Submission | 19 October 2010  |  |  |
| 1        | 2 <sup>nd</sup> Submission | 5 January 2011   |  |  |
| 2        | 3 <sup>rd</sup> Submission | 17 February 2011 |  |  |
| 3        | 4 <sup>th</sup> Submission | 13 June 2011     |  |  |
| 4        | 5 <sup>th</sup> Submission | 20 November 2019 |  |  |

| Prepared by:          | Gabriel Wong | Date: 20 November 2019 |
|-----------------------|--------------|------------------------|
| Environmental Officer | Gabrier wong | Date. 20 November 2019 |

CHINA STATE CONSTRUCTION ENGRG. (HONG KONG) LTD

# Contract No. HY/2009/15

Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

# LIST OF CONTENT

- 1.0 Introduction
- 2.0 List of Reference Document
- 3.0 General Layout of Silt Screen
- 4.0 Deployment Schedule
- 5.0 Maintenance
- 6.0 Technical Details and Materials of Silt Screen
- 7.0 Appendices

# 中國建築工程(春港) 有限公司 CHINA STATE CONSTRUCTION ENGRG. (HONG KONG) LTD

# Contract No. HY/2009/15

Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

| EPD's observation / commentvia email dated 31Oct2011(ref:.RaymondLYLA/EPD/HKSARH/E[MA]31  | Responses  |
|---|--|
| Wan Chai Development Phase II – Central-Wan Chai<br>Bypass Tunnel (Causeway Bay Typhoon Shelter<br>Section)<br><u>Silt Screen Deployment Plan (Rev.3)</u> |  |
| a. Section 3: Please clarify whether the "top" of the frame will also be covered by silt screen   | Clarified, the top will also be covered by silt screen |

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## Contract No. HY/2009/15 Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

# **1.0 Introduction**

The purpose of this plan is to illustrate the design, installation and subsequent maintenance procedures of the silt screens to be deployed during the construction of the Central - Wan Chai Bypass Tunnel in accordance with the contract requirement and the condition stipulated in the EP-356/2009 and Environmental Permit No. Further Environmental Permit No. FEP-04/356/2009. Under the EP and FEP condition 2.9, silt screens shall be provided as protection for the existing cooling seawater intakes, including Intake No.8 for the Excelsior Hotel & World Trade Centre/No.27-63 Paterson Street, and Intake No.9 for the Winsor House during the concurrent dredging activities take place at reclamation shoreline zones namely HKCEC and TCBR (Scenario 2C). During concurrent dredging activities at Sewage Pipelines Zone and reclamation shoreline zone TCBR (Scenario 2B), the above two intakes shall be protected similarly, with additional silt screen to be provided as protection for Intake No. C31 for the Queensway Government Offices.

The silt screens for Intakes No. 8 and 9, which were also referred as C6 & C7 in EM&A Manual, was designed and constructed by CHEC-CRBC JV, the Main Contractor for the Contract No. HY/2009/11. China State Construction Engineer (Hong Kong) Limited (CSHK), the Main Contractor for the Contract No. HY/2009/15, was responsible for the design, construction, operation, maintenance and removal of the silt screens for Intake No. C31.

A meeting was held on 20 May 2011 between representatives from The Excelsior, Kai Shing Management Services Ltd (Property management group for Excelsior Hotel and World Trade Centre), CHEC-CRBCJV, CSHK with Engineer's Representative and Environmental Team. Excelsior Hotel's representative advised that the seawater Intake No. 8 was no longer in use and the valves inside the pumping station had been closed. As a result to the abandonment of seawater intake, the removal of silt screen for Intake No. 8 was taken place on 21 May 2011 and intake water quality impact monitoring was terminated from 26 May 2011. Notes of the meeting have been attached in Appendix D.

On 23 May 2011, the silt screen for Intake No. 9 was handed over to CSHK for subsequent operation, maintenance and removal. Instruction of silt screen take over has been attached in Appendix E.

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## Contract No. HY/2009/15

Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

# 2.0 List of Reference Document

2.1 Particular Specification, relevant conditions in the EP and our remarks for the marine ground investigations is listed as follows for ease of references.

| PS Clause No. and EP | Remarks   |
|----------------------|---|
| Condition            |   |
| PS Appendix 25.4     | The permit holder shall liaise with the owners and the operators    |
| EP No. EP-356-2009   | of the seawater intakes as shown in Table 1 of this Permit on       |
| Condition 2.9        | details of silt screen installation, maintenance and removal at the |
| FEP-04/356/2009      | seawater intakes. The indicative locations of the intakes are       |
| Condition 2.9        | shown in Figure 4 and Figure 5 of this Permit for reference.        |
| PS Appendix 25.4     | At least two weeks prior to the commencement of the marine          |
| EP No. EP-356-2009   | works, the permit holder shall deposit with the Director four       |
| Condition 2.9        | hard copies and one electronic copy of a silt screen deployment     |
| FEP-04/356/2009      | plan to provide details of the design, operation and maintenance    |
| Condition 2.9        | requirement.  |
| PS Appendix 25.4     | The silt screen deployment plan shall be certified by the ET        |
| EP No. EP-356-2009   | Leader and verified by the IEC as conforming to the relevant        |
| Condition 2.9        | information and recommendation contained in the approved EIA        |
| FEP-04/356/2009      | report (Reg. No. AEIAR -125/2008) and Liaison results with the      |
| Condition 2.9        | owners and the operators of the seawater intakes.                   |
| PS Appendix 25.4 and | Silt screens shall be installed at seawater intakes prior to the    |
| EP No. EP-356-2009   | commencement of the corresponding marine works.                     |
| Condition 2.9        |   |
| PS Appendix 25.4 and | To avoid refuse entrapment and to ensure representative impact      |
| EP No. EP-356-2009   | monitoring results, silt screens shall be maintained and refuse     |
| Condition 2.9        | around them shall be collected at regular intervals on a daily      |
|                      | basis so that water behind the silt screens is kept free from       |
|                      | floating debris during the impact monitoring period.                |

# 3.0 General Layout of Silt Screen

For Intakes No.8 and No.9, the geotextile will be installed at a wall-mounted steel frame. The geotextile can be removed for regular cleaning or maintenance.

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## Contract No. HY/2009/15

Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

For Intake No. C31, there is a pump house at the seaside accommodating the seawater intakes for QGO. As agreed with the operator (EMSD), a single layer of geotextile will be attached onto the existing frame inside the pump house to protect the water quality. The top, the surface and the bottom of the frame will be covered by the silt screen. The specification of geotextile is the same as Intakes No.8 and No.9.

The location of silt screen for Intakes No.8, No.9 and C31 are appended in Appendix A.

# 4.0 Maintenance Schedule

The maintenance schedule of the silt screens refers to the table below. It is prepared based on the latest Initial Works Programme and it may subject to changes to reflect the site situation / progress.

| Maintenance Period (Intake No. 8) |          |           |  |  |  |  |
|-----------------------------------|----------|-----------|--|--|--|--|
| From To Duration (months)         |          |           |  |  |  |  |
| (a)                               | (b)      | (b) – (a) |  |  |  |  |
| Nov 2010                          | May 2011 | 6         |  |  |  |  |

| Maintenance Period (Intake No. 9) |          |           |  |  |  |  |
|-----------------------------------|----------|-----------|--|--|--|--|
| From To Duration (months)         |          |           |  |  |  |  |
| (a)                               | (b)      | (b) – (a) |  |  |  |  |
| May 2011                          | Nov 2013 | 30        |  |  |  |  |

| Maintenance Period (Intake No. C31) |                   |           |  |  |  |  |  |
|-------------------------------------|-------------------|-----------|--|--|--|--|--|
| From                                | Duration (months) |           |  |  |  |  |  |
| (a)                                 | (b)               | (b) – (a) |  |  |  |  |  |
| Jan 2011                            | June 2011         | 5         |  |  |  |  |  |

# **5.0 Maintenance**

5.1 For Intakes No. 8 & 9, site foreman and supervisors will be assigned to check the condition of the silt screens at daily intervals during the course of the marine works. While floating refuse around the silt screens will be collected to avoid blockage of sea water flow by floating debris. Checklist for Intake No.9 has been designed to standardize the inspection and the format of the inspection checklist is enclosed in Appendix B.

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## Contract No. HY/2009/15

Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

- 5.2 Unlike Intakes No. 8 & 9, Intake No. C31 was located about 5 m below ground level, which is fully submerged at sea during tidal. As such, rubbish entrapment due to floating debris behind the silt screen therefore is not existed. As agreed with the operator, the maintenance of silt screen shall be carried out on a weekly basis. Checklist for Intake No. C31 has been designed to standardize the inspection and the format of the inspection checklist is enclosed in Appendix B.
- 5.3 All completed checklists shall be kept for record.
- 5.4 If any of the silt screens is found damaged and repairing works are identified as necessary, all marine works within the region 50m from the corresponding intake would be temporarily ceased. The silt screens would be lifted up from the sea by using chain block pulley system and with the aid of crane barge if necessary so that the damaged parts (e.g. geotextile filter, steel mesh, etc.) of the silt screens can be repaired/replaced.
- 5.5 The ceased marine works as mentioned will only be resumed after the damaged silt screen is satisfactorily repaired.
- 5.6 Spare geotextile materials and other associated components will be stored on site for readily repairing/replacement in case of damages.

# 6.0 Technical Details and Materials of Silt Screen

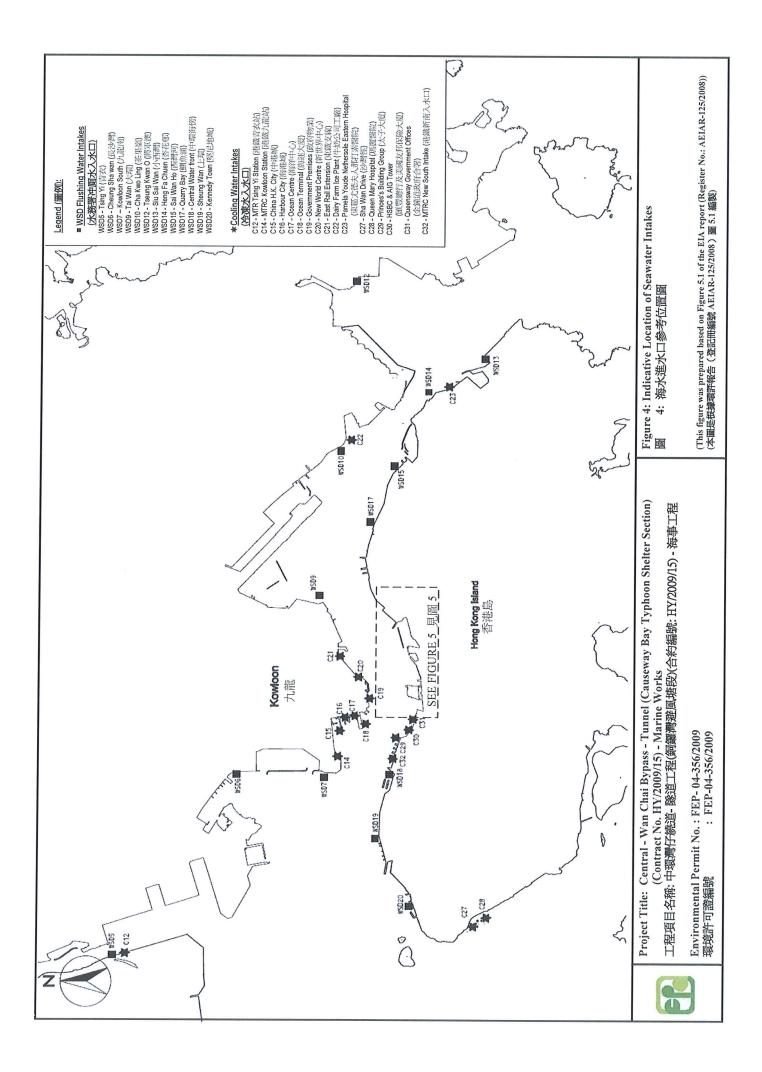
The details of silt screen design and materials are attached in Appendix C.

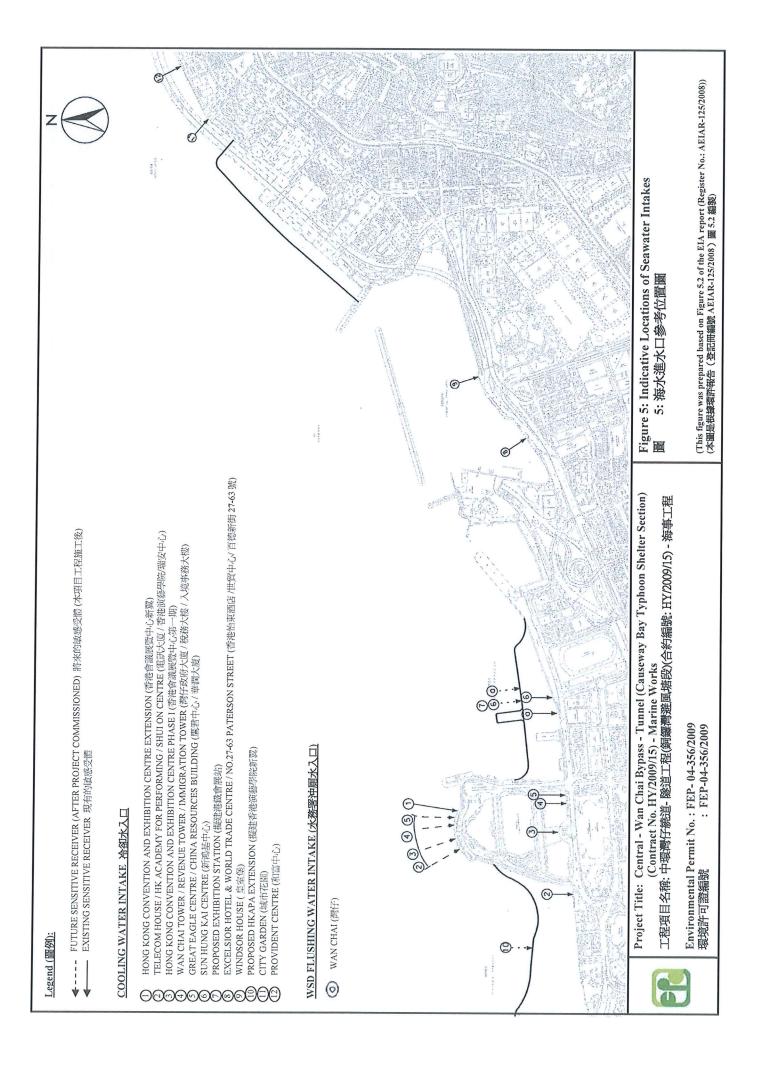
## 7.0 Appendices

- 7.1 Appendix A Silt Screen Location Plan
- 7.2 Appendix B Daily Inspection Checklist
- 7.3 Appendix C Technical Details and Materials for Silt Screen
- 7.4 Appendix D Notes of Liaison Meeting for Silt Screen Removal after the Decommissioning of Seawater Intake No. 8
- 7.5 Appendix E Instruction of Take Over Silt Screen at Windsor House Seawater Intake



# **Appendix A – Silt Screen Location Plan**







# **Appendix B – Daily Inspection Checklist**

# Silt Screen每日檢查表

位置: For Intakes No. 8 and No. 9 ONLY 編号 :\_\_\_\_\_ 日期:\_\_\_\_\_ 檢查員 :\_\_\_\_\_

|               | 星<br>期<br>一 | 星期二 | 星期三 | 星<br>期<br>四 | 星<br>期<br>五 | 星期六 |
|---------------|-------------|-----|-----|-------------|-------------|-----|
| 1. 整潔         |             |     |     |             |             |     |
| 1.1 沒有垃圾在浮架內  |             |     |     |             |             |     |
| 1.2 已清理架内垃圾   |             |     |     |             |             |     |
| 1.3 其它 (請註明): |             |     |     |             |             |     |
|               |             |     |     |             |             |     |
| 2. 鐵架狀況       |             |     |     |             |             |     |
| 2.1 鐵架沒有損壞    |             |     |     |             |             |     |
| 2.2 鐵架接口沒有損壞  |             |     |     |             |             |     |
| 2.3 螺絲沒有鬆脫    |             |     |     |             |             |     |
| 2.4 其它 (請註明): |             |     |     |             |             |     |
|               |             |     |     |             |             |     |
| 3. 隔泥布狀況      |             |     |     |             |             |     |
| 3.1 隔泥布沒有損壞   |             |     |     |             |             |     |
| 3.2 隔泥布沒有鬆脫   |             |     |     |             |             |     |
| 3.3 其它 (請註明): |             |     |     |             |             |     |
| 簽署:           |             |     |     |             |             |     |
|               |             |     |     |             |             |     |
|               |             |     |     |             |             |     |
|               | <br>= 不適    |     |     |             |             |     |

# 每週檢查表

| 位置: For Intake C31, Queensway Gov. Offices ONLY | 编号  | • |
|---|-----|---|
| 日期 :  | 檢查員 | : |

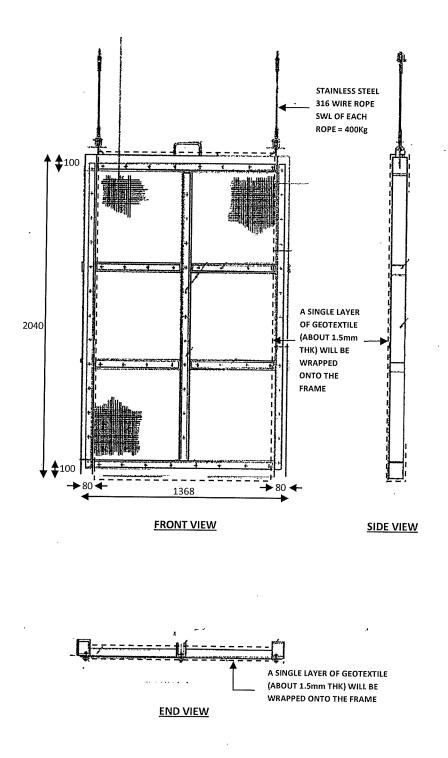
|                               | 月份       | ;             |         |             |
|-------------------------------|----------|---------------|---------|-------------|
|                               | 第1<br>週  | 第2<br>週       | 第3<br>週 | <br>第4<br>週 |
| 1. 整潔                         |          |               |         |             |
| 1.1 沒有垃圾在浮架內                  | N/A      | N/A           | N/A     | N/A         |
| 1.2 已清理架内垃圾                   | N/A      | N/A           | N/A     | N/A         |
| 1.3 其它 (請註明):                 |          |               |         |             |
| 2. 鐵架狀況                       |          |               | -       |             |
| 2.1 鐵架沒有損壞                    | N/A      | N/A           | N/A     | N/A         |
| 2.2 鐵架接口沒有損壞                  | N/A      | N/A           | N/A     | N/A         |
| 2.3 螺絲沒有鬆脫                    | N/A      | N/A           | N/A     | N/A         |
| 2.4 其它 (請註明):                 |          |               |         |             |
| 3. 隔泥布狀況                      |          |               |         |             |
| 3.1 隔泥布沒有損壞                   |          |               |         |             |
| 3.2 隔泥布沒有鬆脫                   |          |               |         |             |
| 3.3 其它 (請註明):                 |          |               |         |             |
| 资署                            | :        |               |         |             |
|                               |          |               |         |             |
| 說明: <b>√</b> = 滿意 x = 不滿意須改善- | <br>=不適月 | <u> </u><br>月 |         |             |

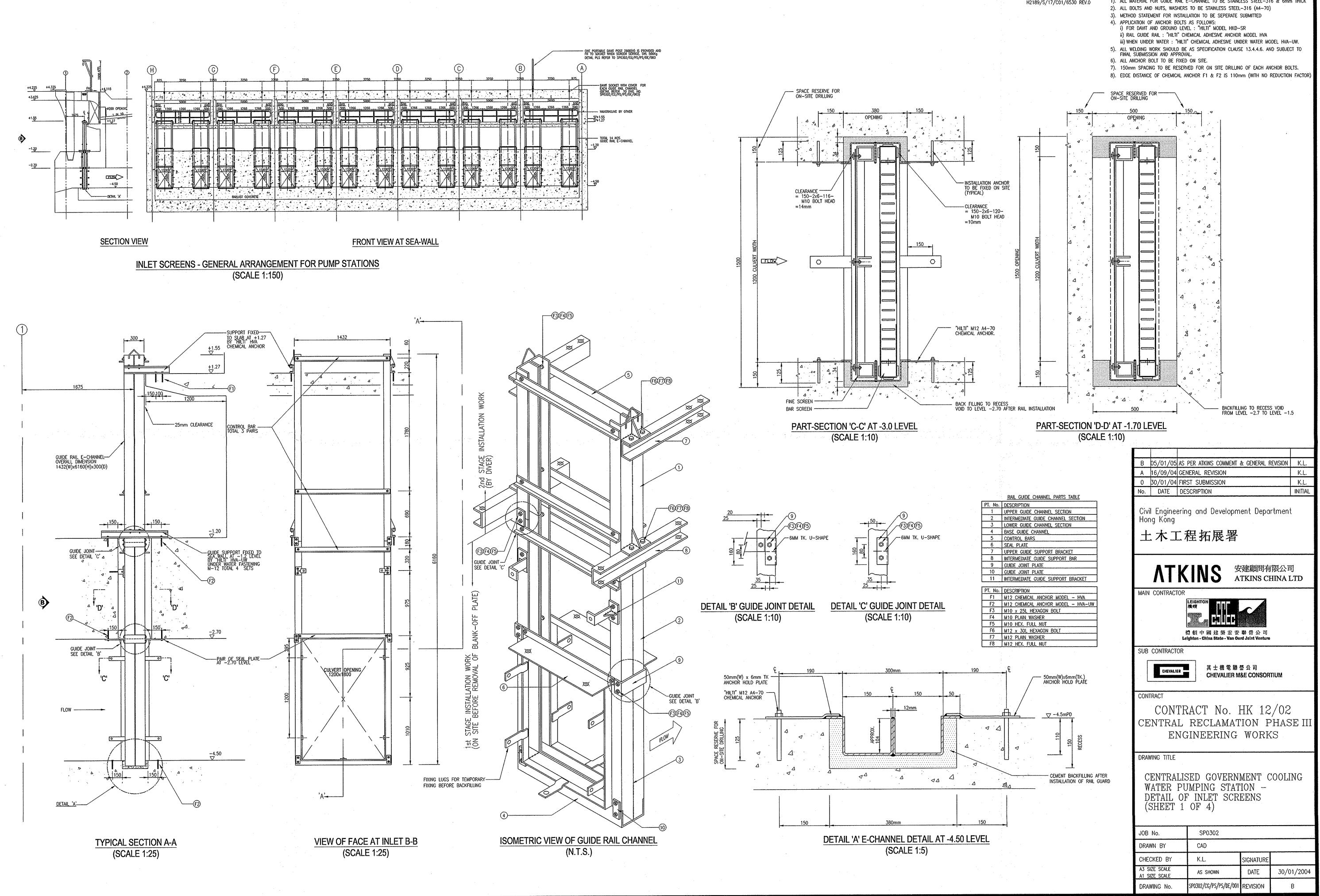
Contract No. HY/2009/15 Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

# Appendix C

# **Technical Details and Materials for Silt Screen**

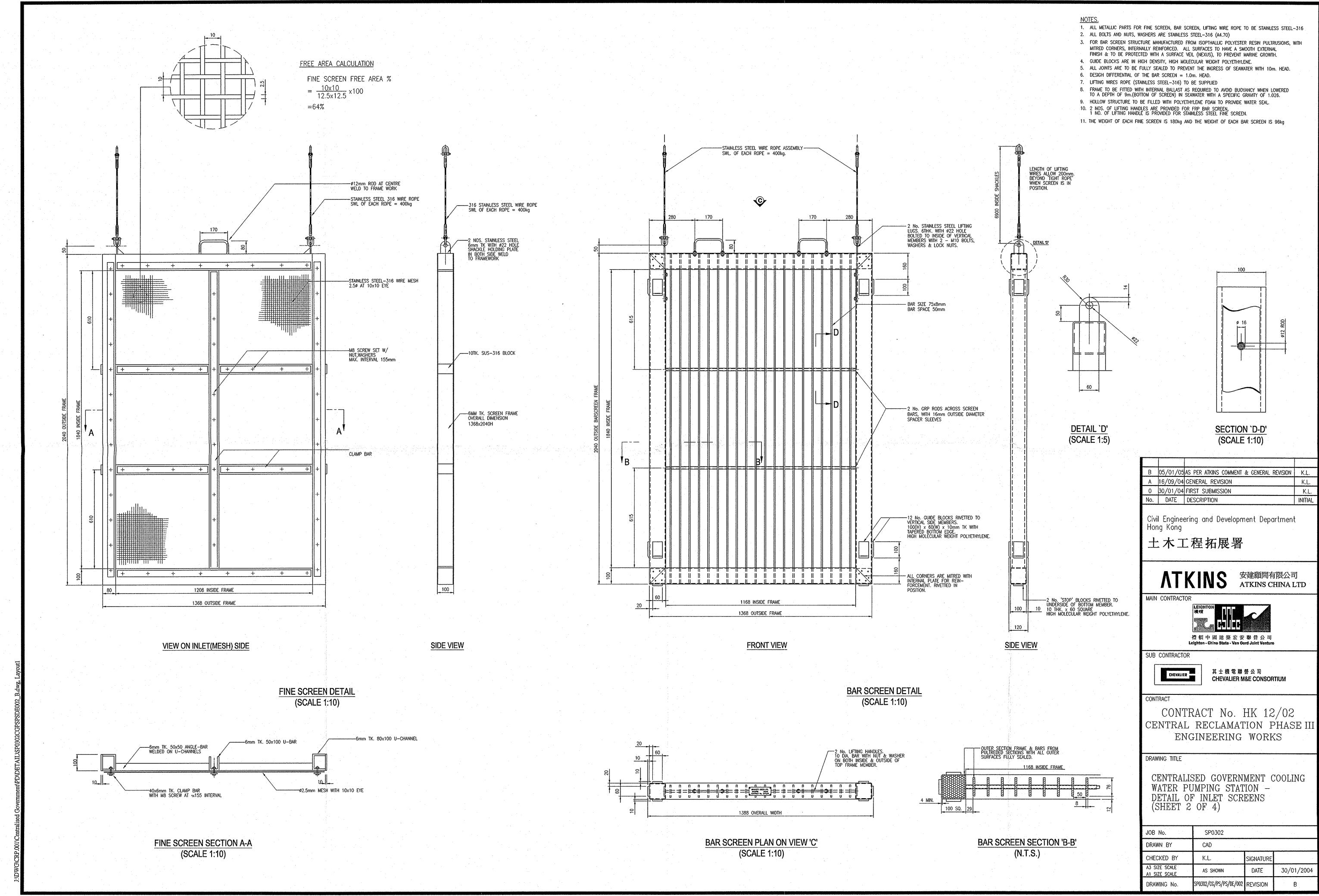
Silt Screen for Intake C31, Queensway Government Offices





DRAWING REF: HANDRAILING DETAIL H2189/S/17/C01/6530 REV.0

- REMARKS: 1). ALL MATERIAL FOR GUIDE RAIL E-CHANNEL TO BE STAINLESS STEEL-316 & 6mm THICK







# CHEC-CRBC JV



 Date
 :
 8<sup>th</sup> October 2010

 Our Ref.
 :
 CHEC-CRBC JV/C-257/01.22/001669

AECOM 8/F., Grand Central Plaza Tower2, 138 Shatin Rural Committee Road Shatin, Hong Kong

## Attn.: Mr. David Kwan

Dear Sir,

# Contract No. HY/2009/11 Central-Wan Chai Bypass – North Point Reclamation Construction of silt screen at seawater intake for the Windsor House

Further to the joint meeting with the representatives of Highways Department, AECOM/RSS, the Windsor House and our colleagues on 5<sup>th</sup> October 2010, we will carry out the construction works of silt screen at seawater intake for the Windsor House and please find the following documents provided herewith for your information and onward processing:

- 1) Sketches of silt screen at seawater intake for the Windsor House;
- 2) A copy of details of anchor bolt and
- 3) A copy of details of material for silt screen.

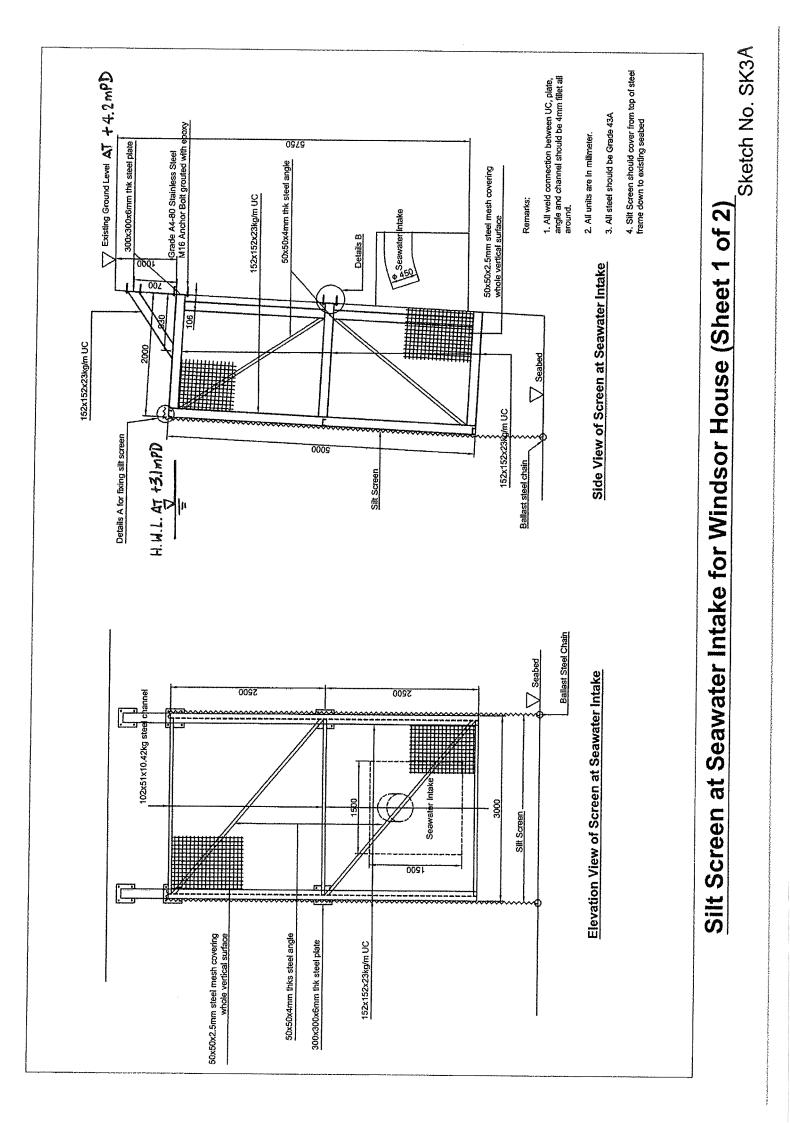
Thank you for your kind attention.

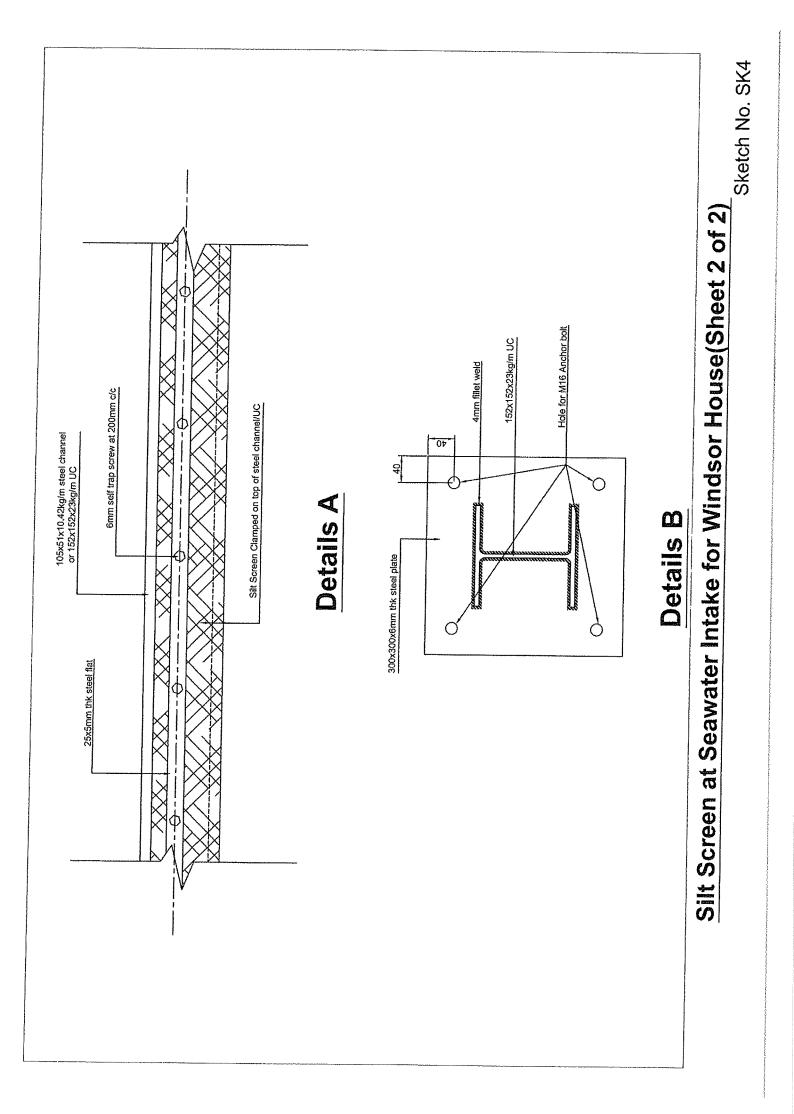
Yours faithfully, For and on behalf of China Harbour Engineering Company Limited – China Road and Bridge Corporation Joint Venture

Daniel Cheung Site Agent

Encl.

DC/JC/WCM/sy ming c.c. AECOM - Mr. Kelvin Cheng







CHEC-CRBC JV



Date : 8<sup>th</sup> October 2010 Our Ref. : CHEC-CRBC JV/C-257/01.22/001668

AECOM 8/F., Grand Central Plaza Tower2, 138 Shatin Rural Committee Road Shatin, Hong Kong

Attn.: Mr. David Kwan

Dear Sir,

# Contract No. HY/2009/11 Central-Wan Chai Bypass – North Point Reclamation Construction of silt screen at seawater intake for the Excelsior

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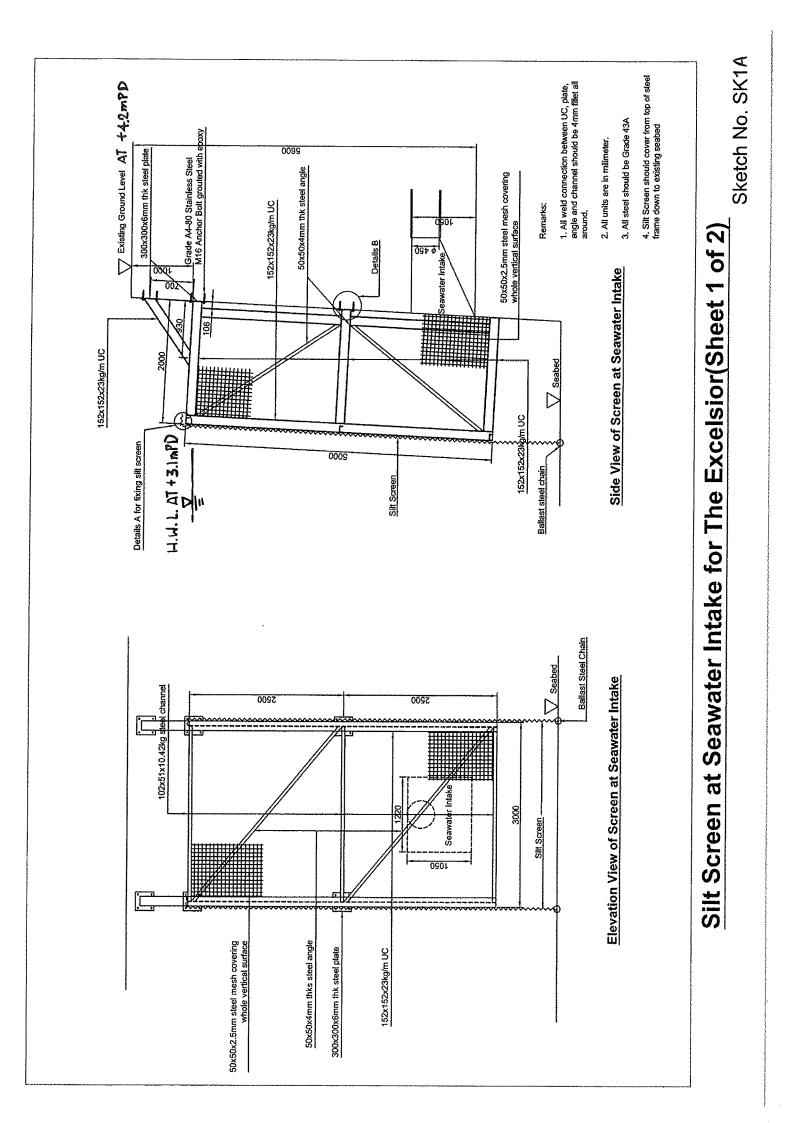
Yours faithfully, For and on behalf of China Harbour Engineering Company Limited – China Road and Bridge Corporation Joint Venture

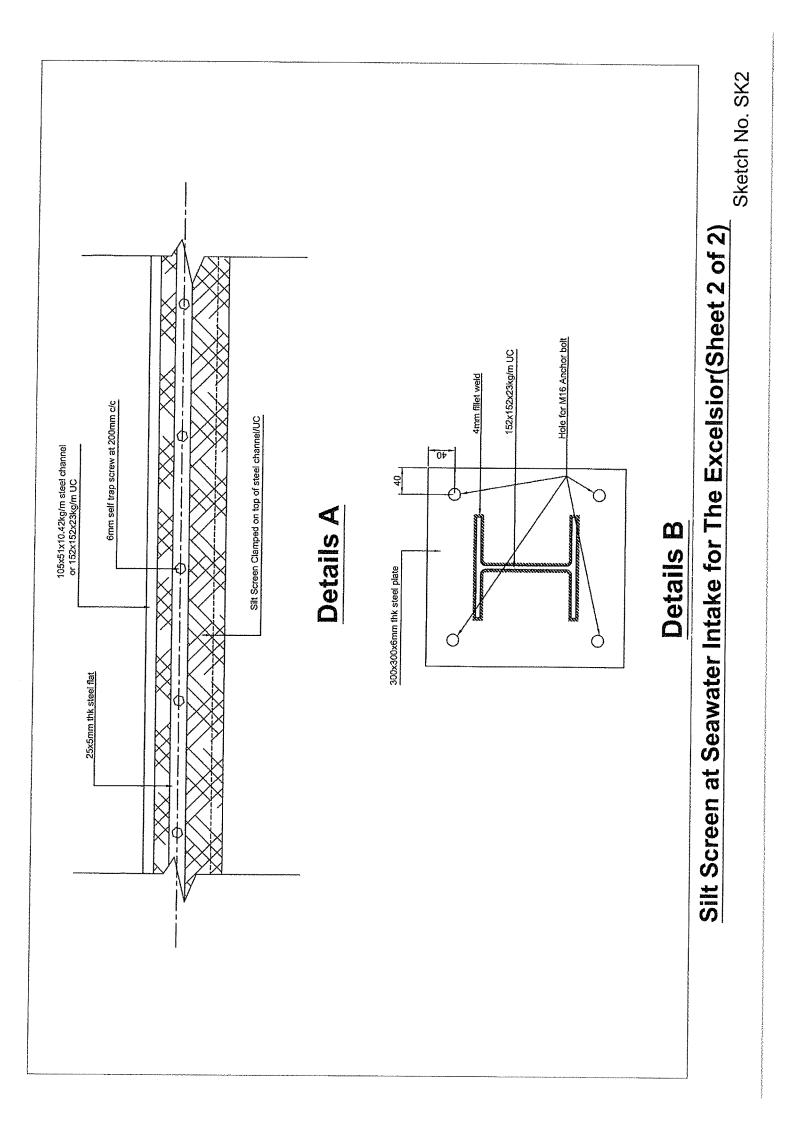
Daniel Cheung Site Agent

Encl.

DC/JC/WCM/sy

c.c. AECOM – Mr. Kelvin Cheng





# **HIT-RE 500** injection adhesive

#### **Base material**

Concrete

- Hard natural stone
- Solid blockwork

#### Use

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- E Suitable to achieve high loads in concrete and stone
- For fixing the base of tower crane
- For fixing the fender in terminals For fixing post-installed rebar up to Y40 and anchor rod up M39
- For underwater application

#### Material

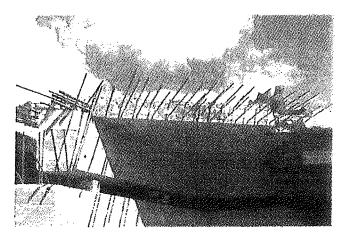
e 2-component ready mix epoxy resin (styrene-free)

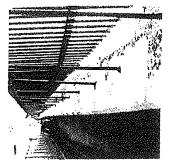
#### **Curing Time**

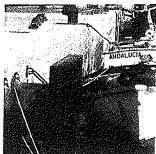
| Temperature<br>of the base material | Working time    | Curing time     |  |  |  |  |
|-------------------------------------|-----------------|-----------------|--|--|--|--|
| 40°C                                | 12 min.         | 4 hours         |  |  |  |  |
| 30°C                                | 20 min.         | 8 hours         |  |  |  |  |
| 20°C                                | 30 min.         | 12 hour         |  |  |  |  |
| 10°C                                | 2 hours         | 24 hours        |  |  |  |  |
| 0°C                                 | 3 hours         | 50 hours        |  |  |  |  |
| -5°C                                | 4 hours         | 72 hours        |  |  |  |  |
| less than -5°C                      | Contact Hilti a | dvisory service |  |  |  |  |

#### Approvals: (Rebar)





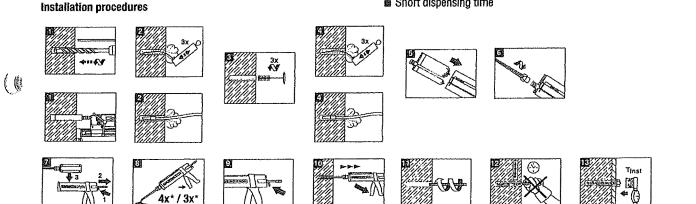




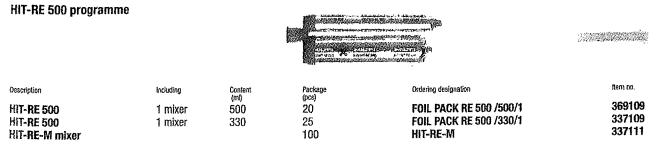
Anchoring Systems

#### **Benefits**

- Extremely high performance without expansion pressure User-friendly, odourless (styrene free)
- Lower sensitivity to oversized, dusty, wet holes and diamond coring holes
- Red colour adhesive for easy on site inspection
- Foil pack design reduces disposal cost
- With NSF and WRAS approvals for use in contact with drinking water
- Short dispensing time



\* Throw away first three trigger pulls for 330 ml cartridge, four trigger pulls for 500 ml cartridge.



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# 

# HIT-RE 500 with HAS-E anchor rod

#### Material

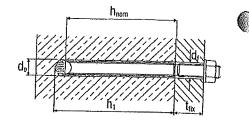
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- Steel strength grade 5.8 and 8.8 for M8 to M24 and M27 to M39 respectively, galvanized at least 5µm
- Steel strength grade 5.8 and 8.8 for M8 to M24 and M27 to M39 respectively, hot dip galv. to 45µm
- A4-70 and A4-50 stainless steel for M8 to M24 and M27 to M39 respectively. High corrosion resistance (HCR) (M8-M24)

■ A5-80 stainless steel (on request)

#### **Technical data**

# Recommended load, $F_{30}$ (kN), non-cracked concrete at 30N/mm<sup>2</sup>, safety factor( $\gamma$ )=3



| Model                     | Size              | M8  | M10  | M12  | M16  | M20  | M24  | M27  | M3D  | M33   | M36   | 1 1100       |
|---------------------------|-------------------|-----|------|------|------|------|------|------|------|-------|-------|--------------|
| HIT-RE 500 + HAS-E / -EF  | Tensile Load, Nne | 5.7 | 9.1  | 13.3 | 25.3 | 39.4 | 56.7 | 69.9 | 91.7 | 107.7 | 128.1 | M39<br>146,8 |
|                           | Shear Load, Vre:  | 3.6 | 5.8  | 8.4  | 15.8 | 24.8 | 35.7 | 75.2 | 91.3 | 113.9 | 133.6 | 140.8        |
| HIT-RE 500 + HAS-ER / HCR | Tensile Load, Nix | 8.1 | 12.5 | 17.9 | 26.0 | 47.1 | 67.9 | 66.8 | 81.1 | 101.1 | 118.7 | 142.7        |
|                           | Shear Load, Vnc   | 5.0 | 8.1  | 11.7 | 22.2 | 34.7 | 49.9 | 47.0 | 57.1 | 71.2  | 83.5  | 100.5        |

Remarks: 1) All the data applies to no edge distance, spacing and other influences 2) For detail design method please refer to Fastering Technology Manual 3) HAS-HGR anchor rod are only up to M24 only



#### **HAS-E** Programme

|                | 109.0.0           |                  |                          |                    |                 |                  |                 |                |                  |  | Frence   |
|----------------|-------------------|------------------|--------------------------|--------------------|-----------------|------------------|-----------------|----------------|------------------|--|----------|
| Thread<br>dia. | Drill bit<br>nom. | Mín. hole        | Anchor-<br>age<br>depth, | Tighten.<br>torque | Max.<br>fasten. | Clear-<br>ance   | Width<br>across | Filling        |                  |  |          |
| (mm)           | dia., do<br>(mm)  | depth,hi<br>(mm) | hnon<br>(rrvn)           | Tirat<br>(Nm)      | thk. tx<br>(mm) | hole, dı<br>(mm) | fiats, Sw       | Volume<br>(mi) | Package<br>(pcs) | Order designation                      | ltern no |
| HAS-E g        | alvanize          | d version        | (min. 5                  | μm)                |                 |                  |                 |                |                  |  |          |
| MB             | 10                | 85               | 80                       | 15                 | 14              | 9                | 13              | 4              | 20               | HAS-E M8x80/14                         | 000040   |
| M8             | 10                | 85               | 80                       | 15                 | 54              | 9                | 13              | 4              | 10               | HAS-E M8x80/54                         | 332219   |
| M10            | 12                | 95               | 90                       | 30                 | 21              | 12               | 17              | 6              | 20               | HAS-E M10x90/21                        | 333099 * |
| M10            | 12                | 95               | 90                       | 30                 | 61              | 12               | 17              | 6              | 10               | HAS-E M10x90/21                        | 332220   |
| M10            | 12                | 95               | 90                       | 30                 | 81              | 12               | 17              | 6              | 10               | HAS-E M10x90/81                        | 333100 * |
| M12            | 14                | 115              | 110                      | 50                 | 28              | 14               | 19              | 10             | 20               | HAS-E M10x50/81                        | 333101 * |
| M12            | 14                | 115              | 110                      | 50                 | 88              | 14               | 19              | 10             | 10               | HAS-E M12x110/28                       | 332221   |
| M12            | 14                | 115              | 110                      | 50                 | 128             | 14               | 19              | 10             | 10               | HAS-E M12x110/88                       | 333102 * |
| M12            | 14                | 115              | 110                      | 50                 | 168             | 14               | 19              | 10             | 10               | HAS-E M12x110/128                      | 333103 * |
| M16            | 18                | 130              | 125                      | 100                | 20              | 18               | 24              | 15             | 10               | HAS-E M12X110/168                      | 333104 * |
| M16            | 18                | 130              | 125                      | 100                | 38              | 18               | 24              | 15             | 20               |  | 333105 * |
| M16            | 18                | 130              | 125                      | 100                | 108             | 18               | 24              | 15             | 10               | HAS-E M16x125/38                       | 332222   |
| M16            | 18                | 130              | 125                      | 100                | 148             | 18               | 24              | 15             | 10               | HAS-E M16x125/108                      | 333106 * |
| M16            | 18                | 130              | 125                      | 100                | 198             | 18               | 24              | 15             | 10               | HAS-E M16x125/148<br>HAS-E M16x125/198 | 333107 * |
| M16            | 18                | 130              | 125                      | 100                | 348             | 18               | 24              | 15             | 10               |  | 333108 * |
| M20            | 24                | 175              | 170                      | 160                | 48              | 22               | 30              | 43             | 10               | HAS-E M16x125/348                      | 333109 * |
| M20            | 24                | 175              | 170                      | 160                | 68              | 22               | 30              | 43             | 10               | HAS-E M20x170/48                       | 332223   |
| M20            | 24                | 175              | 170                      | 160                | 108             | 22               | 30              | 43             | 10               | HAS-E M20x170/68                       | 333110 * |
| M20            | 24                | 175              | 170                      | 160                | 158             | 22               | 30              | 43             | 10               | HAS-E M20x170/108                      | 333111 ★ |
| M20            | 24                | 175              | 170                      | 160                | 208             | 22               | 30              | 43             | 10               | HAS-E M20x170/158                      | 333112 * |
| M24            | 28                | 215              | 210                      | 240                | 54              | 26               | 36              | 65             | 10               | HAS-E M20x170/208                      | 333113 🖈 |
| M27            | 30                | 250              | 240                      | 270                | 60              | 30               | 41              | 71             | 4                | HAS-E M24x210/54                       | 332224   |
| M30            | 35                | 280              | 270                      | 300                | 70              | 33               | 46              | 124            |                  | HAS-E M27x240/60                       | 333114 🛧 |
| M33            | 37                | 310              | 300                      | 1200               | 80              | 36               | 40<br>50        | 140            | 4<br>4           | HAS-E M30x270/70                       | 333115 * |
| M36            | 40                | 340              | 330                      | 1500               | 90              | 39               | 55              | 140            |                  | HAS-E M33x300/80                       | 333116 🖈 |
| M39            | 42                | 370              | 360                      | 1800               | 100             | 42               | 59              | 160            | 2<br>2           | HAS-E M36x330/90                       | 333117 * |
|                | . —               |                  |                          |                    |                 | 76               | 00              | 100            | ۷.               | HAS-E M39x360/100                      | 333118 🛧 |

|   | Thread<br>dia.<br>(mm)  | Drill bil<br>nom,<br>dia., de<br>(rrm)   | Min. hole<br>depth,hn<br>(mm)  | Anchor-<br>age<br>depth,<br>haza<br>(mm)   | Tighten.<br>torque<br>Tiess<br>(Nm)  | Max.<br>fasten.<br>thk. tvx<br>(mm)  | Clear-<br>ance<br>hole, di<br>(mm)   | Width<br>across<br>flats, Sx   | Filling<br>Volume<br>(ml)                                       | Package<br>(pcs)  | Order designation  | item no  |                |
|---|---|--|--|--|--|--|--|--|---|---|--|--|----------------|
|   | HAS-EF  | hot dip g  | jalvanize  | d versio   | n (min. 45   | iµm)   |  |  |   |   |  |  |                |
|   | M8<br>M8<br>M10<br>M10<br>M12<br>M12<br>M12<br>M12<br>M12<br>M16<br>M16<br>M16<br>M16<br>M16<br>M16<br>M16        | 10<br>10<br>12<br>12<br>14<br>14<br>14<br>14<br>14<br>18<br>18<br>18<br>18<br>18<br>18<br>18<br>18 | 85<br>95<br>95<br>115<br>115<br>115<br>115<br>115<br>130<br>130<br>130<br>130<br>130 | 80<br>90<br>90<br>110<br>110<br>110<br>125<br>125<br>125<br>125<br>125<br>125<br>125 | 15     15     30     30     30     50     50     50     100      100     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10 | 14<br>54<br>21<br>61<br>81<br>28<br>88<br>128<br>168<br>20<br>38<br>108<br>148<br>198<br>348                     | 9<br>9<br>12<br>12<br>14<br>14<br>14<br>14<br>18<br>18<br>18<br>18<br>18<br>18       | 13<br>13<br>17<br>17<br>19<br>19<br>19<br>24<br>24<br>24<br>24<br>24<br>24<br>24                               | 4<br>6<br>6<br>10<br>10<br>10<br>15<br>15<br>15<br>15<br>15     | 20<br>10<br>20<br>10<br>10<br>20<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10  | HAS-EF M8x80/14<br>HAS-EF M8x80/54<br>HAS-EF M10x90/21<br>HAS-EF M10x90/61<br>HAS-EF M10x90/61<br>HAS-EF M12x110/28<br>HAS-EF M12x110/128<br>HAS-EF M12x110/128<br>HAS-EF M12x110/168<br>HAS-EF M16x125/20<br>HAS-EF M16x125/38<br>HAS-EF M16x125/148<br>HAS-EF M16x125/198<br>HAS-EF M16x125/348                  | 333143*<br>333144*<br>333145*<br>333146*<br>333147*<br>333148*<br>333149*<br>333150*<br>333150*<br>333152*<br>333152*<br>333155*<br>333155*<br>333156*           |                |
|   | HAS-EF  | hot dip g  | alvanized  | d versior  | ı (min. 45   | μm)  |  |  |   |   |  |  |                |
|   | M20<br>M20<br>M20<br>M20<br>M24<br>M27<br>M30<br>M33<br>M36<br>M39  | 24<br>24<br>24<br>24<br>28<br>30<br>35<br>37<br>40<br>42   | 175<br>175<br>175<br>175<br>215<br>250<br>280<br>310<br>340<br>370                   | 170<br>170<br>170<br>170<br>210<br>240<br>270<br>300<br>330<br>360                   | 160<br>160<br>160<br>160<br>240<br>270<br>300<br>1200<br>1500<br>1800  | 48<br>68<br>108<br>158<br>208<br>54<br>60<br>70<br>80<br>90<br>100   | 22<br>22<br>22<br>22<br>22<br>26<br>30<br>33<br>36<br>39<br>42                       | 30<br>30<br>30<br>30<br>30<br>36<br>41<br>46<br>50<br>55<br>59   | 43<br>43<br>43<br>43<br>65<br>71<br>124<br>140<br>160<br>160    | 10<br>10<br>10<br>10<br>10<br>10<br>4<br>4<br>4<br>2<br>2   | HAS-EF M20x170/48<br>HAS-EF M20x170/68<br>HAS-EF M20x170/108<br>HAS-EF M20x170/108<br>HAS-EF M20x170/208<br>HAS-EF M24x210/54<br>HAS-EF M27x240/60<br>HAS-EF M30x270/70<br>HAS-EF M33x300/80<br>HAS-EF M36x330/90<br>HAS-EF M39x360/100  | 333158*<br>333159*<br>333160*<br>333161*<br>333162*<br>333163*<br>333164*<br>333165*<br>333165*<br>333167*<br>333168*  |                |
|   | HAS-ER  | A4 stainl  | ess steel  | version  |  |  |  |  |   |   |  |  |                |
| : | M8<br>M8<br>M10<br>M10<br>M10<br>M10<br>M10<br>M12<br>M12<br>M12<br>M12<br>M12<br>M12<br>M16<br>M16<br>M16<br>M16 | 10<br>10<br>12<br>12<br>12<br>12<br>14<br>14<br>14<br>14<br>14<br>14<br>18<br>18<br>18<br>18       | 85<br>85<br>95<br>95<br>95<br>115<br>115<br>115<br>115<br>130<br>130<br>130          | 80<br>80<br>90<br>90<br>90<br>110<br>110<br>110<br>110<br>110<br>125<br>125<br>125   | 15<br>15<br>30<br>30<br>30<br>50<br>50<br>50<br>50<br>50<br>100<br>100<br>100  | 14<br>54<br>114<br>21<br>61<br>81<br>111<br>28<br>88<br>128<br>128<br>168<br>20<br>38<br>38<br>108<br>148<br>198 | 9<br>9<br>12<br>12<br>12<br>12<br>14<br>14<br>14<br>14<br>18<br>18<br>18<br>18<br>18 | 13<br>13<br>13<br>17<br>17<br>17<br>17<br>19<br>19<br>19<br>19<br>24<br>24<br>24<br>24<br>24<br>24<br>24<br>24 | 4<br>4<br>6<br>6<br>6<br>10<br>10<br>10<br>15<br>15<br>15<br>15 | 20<br>10<br>10<br>20<br>10<br>10<br>10<br>10<br>10<br>10<br>20<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>1 | HAS-ER M8x80/14<br>HAS-ER M8x80/54<br>HAS-ER M8x80/54<br>HAS-ER M10x90/21<br>HAS-ER M10x90/61<br>HAS-ER M10x90/61<br>HAS-ER M10x90/61<br>HAS-ER M12x110/28<br>HAS-ER M12x110/28<br>HAS-ER M12x110/128<br>HAS-ER M12x110/168<br>HAS-ER M16x125/20<br>HAS-ER M16x125/148<br>HAS-ER M16x125/148<br>HAS-ER M16x125/198 | 333119<br>333120 *<br>333121 *<br>333122<br>333123 *<br>333124 *<br>333125 *<br>333126 *<br>333127 *<br>333128 *<br>333128 *<br>333130 *<br>333130 *<br>333130 * | anchor<br>boit |
|   | M16<br>M20<br>M24<br>M27<br>M30<br>M33<br>M36<br>M39  | 18<br>24<br>28<br>30<br>35<br>37<br>40<br>42   | 130<br>175<br>215<br>250<br>280<br>310<br>340<br>370                                 | 125<br>170<br>210<br>240<br>270<br>300<br>330<br>360                                 | 100<br>160<br>240<br>270<br>300<br>1200<br>1500<br>1800  | 48<br>108<br>54<br>60<br>70<br>80<br>90<br>100   | 22<br>22<br>26<br>30<br>33<br>36<br>39<br>42   | 24<br>30<br>36<br>41<br>46<br>50<br>55<br>59   | 43<br>43<br>65<br>71<br>124<br>140<br>160<br>160                | 10<br>10<br>10<br>4<br>4<br>4<br>2<br>2   | HAS-ER M20x170/48<br>HAS-ER M20x170/108<br>HAS-ER M24x210/54<br>HAS-ER M27x240/60<br>HAS-ER M30x270/70<br>HAS-ER M30x300/80<br>HAS-ER M36x330/90<br>HAS-ER M39x360/100   | 333135<br>333136 *<br>333137<br>333138 *<br>333139 *<br>333140 *<br>333141 *<br>333142 *   |                |
|   | HAS-HCR   |  |  |  |  |  | C  | 10   | 4   | 00  | UAC 100 160-00/44  | 229504 *   |                |
| - | M8<br>M10<br>M12<br>M16<br>M20<br>M24   | 10<br>12<br>14<br>18<br>24<br>28   | 85<br>95<br>115<br>130<br>175<br>215   | 80<br>90<br>110<br>125<br>170<br>210   | 15<br>30<br>50<br>100<br>160<br>240  | 14<br>21<br>28<br>38<br>48<br>54   | 9<br>12<br>14<br>18<br>22<br>26  | 13<br>17<br>19<br>24<br>30<br>36   | 4<br>6<br>10<br>15<br>43<br>65                                  | 20<br>10<br>10<br>5<br>5<br>5   | HAS-HCR M8x80/14<br>HAS-HCR M10x90/21<br>HAS-HCR M12x110/28<br>HAS-HCR M16x125/38<br>HAS-HCR M20x170/48<br>HAS-HCR M24x210/54  | 229504 *<br>229505 *<br>229506 *<br>229507 *<br>229508 *<br>229509 *   |                |



# Silt Curtain Bontec SG100/100

April 2007



# Table of Contents

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## 1) Manufacturer Company Profile

- Bonar Technical Fabrics company profile

#### 2) Product Specification

- Bontec SG100/100 technical data sheet

#### 3) <u>Certification</u>

- ISO 9001:2000 by BQA Bonar Technical Fabrics
- ISO 14001:2004 by BQA Bonar Technical Fabrics
- Certification of conformance
- Bonar TF acquisition of UCO Technical Fabrics
- 4) Installation Guideline
  - Recommendation on installation

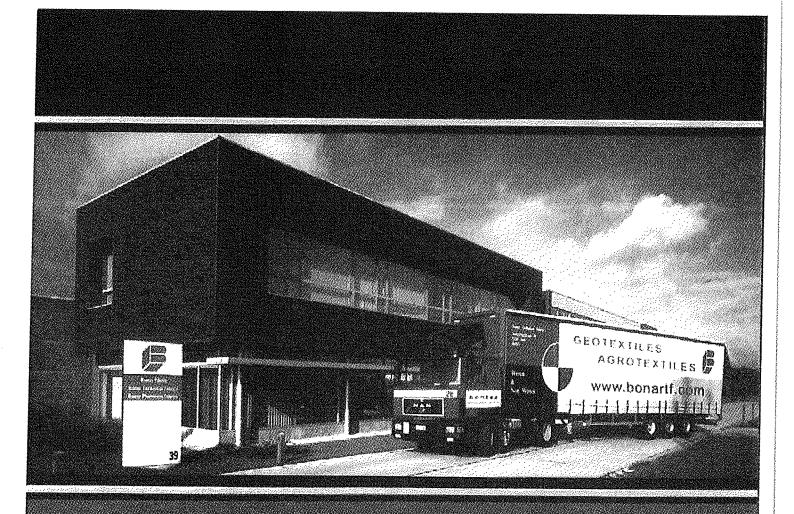
## 5) List of Project Reference

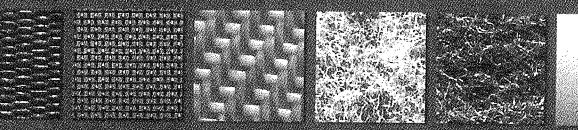
- Name and detail of projects

## 6) Approval Letters

- Bonar's product recognition
- 7) Photo References
  - Photo References

Manufacturer Company Profile





WE UNDER COVER THE WORLD



A TOTAL RANGE OF GEOTEXTILES

# WHY CHOOSE BONTEC<sup>®</sup> GEOTEXTILES ?





Fibre Extrusion



Non waven geotextiles



Woven geolextiles



State of the art laboratory



First class customer service

Bonar Technical Fabrics is Europe's premier manufacturer of woven and nonwoven geotextile products. Through our continuous commitment to quality, product development and production improvement, we have earned our position as a major player in our markets. Today, with over 30 years experience in the geosynthetics industry, and the full backing of our parent company, we are confident that we will continue to grow our business and remain at the forefront of our markets for many years ahead.

Manufactured under the brand name Bontec®, using state of the art geotextile production technology, our woven and nonwoven geotextile ranges offer product solutions for the functions of Separation, Filtration, Drainage, Erosion Control, Reinforcement and Protection.

#### In-house Fibre Production

Fibre production involves the extrusion of continuous filaments that are then cut into short staple fibres. Through the careful identification of fibre formulation, filament density and staple fibre length, we can ensure that the mechanical and hydraulic properties are maximised for each of our nonwoven product ranges.

#### Nonwoven Geotextile Production

Using ultra modern needle punching looms and a unique thermal bonding process, our nonwoven geotextile production involves the processing of a uniform web of staple fibres that are orientated and bonded to form a finished sheet product.

#### Woven Geotextile Production

Polypropylene lapes are manufactured in our slit film extrusion department prior to being woven on Sulzer looms. The warp lapes (machine direction) are beamed into the loom and the weft tapes (cross-machine direction) are threaded over and under alternate elements. The woven product that emerges offers very high mechanical strengths per unit weight

#### Quality and the Environment

All plants operate in accordance with an ISO 9001:2000 Quality Assurance System and ISO 14001 Environmental Management System Products are tested internally in our fully equipped geosynthetics laboratory in accordance with the latest European and International standards.

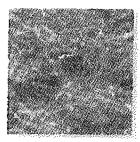
#### First Class Customer Service

At Bonar we believe the customer should be able to purchase the most appropriate product for his task. As such our staff are readily available to offer a full service package from the initial product selection phase, through to final delivery and the provision of after sales support.



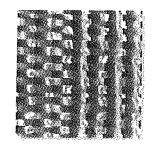
# BONTEC<sup>®</sup>: A TOTAL RANGE OF GEOTEXTILES

## **NON-WOVEN GEOTEXTILES**



# NW: Thermally Bonded Non Woven Geotextiles

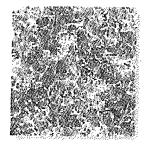
Produced using mechanical and thermal bonding processes, the NW range is primarily used for lightweight separation and filtration. Their exceltent hydraulic properties result in their preferred use in filtration applications. Typical uses include as a filter to encapsulate a trench drain or a granular drainage blanket.



#### **WOVEN GEOTEXTILES**

#### SG: Standard Grade Light weight Woven Geotextiles

Increasing from 70 to 200g/m2 SG lightweights are used primarily for separation to prevent good quality granular fill intermixing with this poorer soil below. Typical uses include in new highways, car parks, airport runways, under stone foundalion layers for new buildings etc.



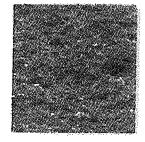
#### SNW: Superior Needlepunched Nonwoven Geotextiles

Made from white high tenacity fibres, the SNW range offers maximum performance per unit weight and is ideal for use in applications where both strength and elongation are key parameters of the geotextiles' performance



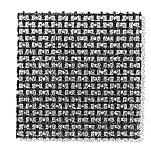
#### SG: Standard Grade Heavy weight Woven Geotextiles

With possible tensile strengths in excess of 200kNmin, SG heavyweight geotextifes are used in applications where the loadings are severe. Uses include short term basal reinforcement, coastal erosion schemes or areas requiring general soil stabilisation.



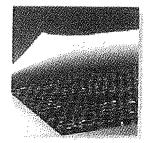
# VNW: Coloured Needlepunched Nonwoven Geotextiles

Produced using multi-coloured staple virgin fibres, products range from 200 to 1800g/m2. VNW grades offer a felt like appearance and are used in the functions of protection, drainage and erosion control. Areas of application include membrane protection in fandliff and reservoirs, or for erosion control on riverbanks and coastlines.



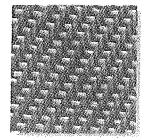
#### HF: High Flow Woven Geotextiles

Used where there exists a requirement for the quick escape of excess water. HF fabrics are used primarity in erosion control applications e.g under concrete reveliment blocks or botween dissimilar layers of quick draining granular fill e.g. a coarse sand and rounded gravel.



#### LG: Geocomposites

Produced via a combination of woven and nonwoven technology, the LG range offers the best of both product types in a single tayer. The resulting products are ideally suited to uses where a high demand is placed on the geotextiles' strength, protection efficiency and physical robustness.

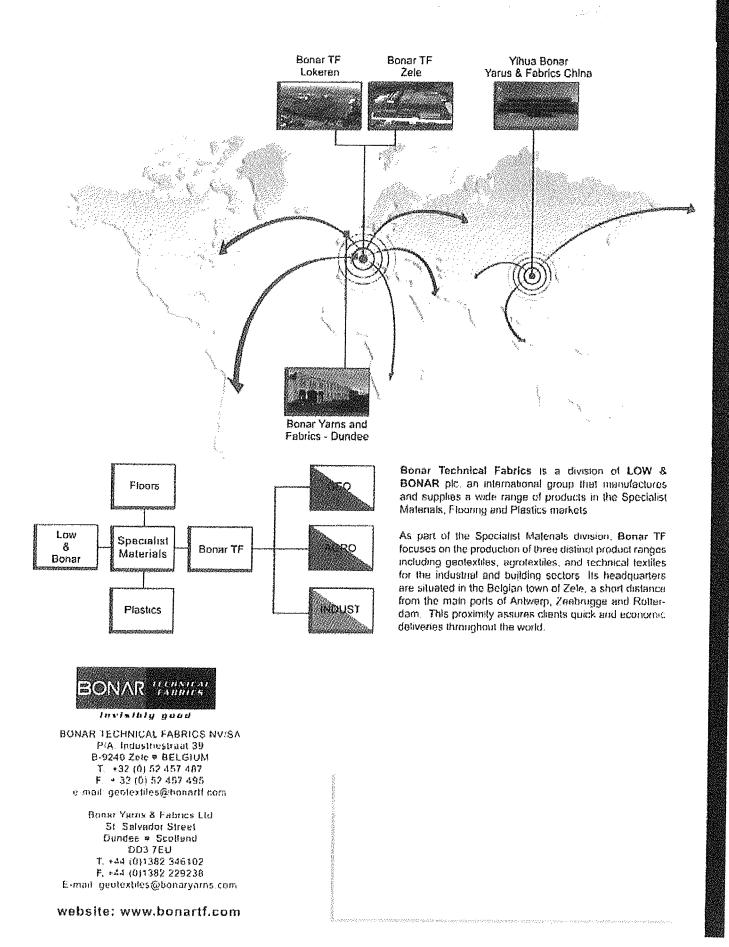


#### HS: High Strength Woven Geotextlles

Produced from high tenacity polyaster yams, the HS products offer tensile strengths up to 600kN/m combined with low extension and excellent creep charactenstics. Applications include the reinforcement of vertical walls, steep slopes and embankments over soft soil with long term design lives.



#### **GROUP STRUCTURE**



Product Specification



technical febrics product

# SG 100/100

Technical data sheet according to internal specifications Bonar TF: version 03 dd. 17/02/03 Accompanying documents CE marking: version 01 dd. 01/10/02

# CE 1137 1137-CPD-601 03

| separation | filtration | reinforcement | protection                | drainage | ł |
|------------|------------|---------------|---------------------------|----------|---|
|            |            |               | . pri privi pri privi pri |          |   |

|  | test method                          | value                     | tolerance                    |  |  |
|--|--------------------------------------|---------------------------|------------------------------|--|--|
| Mechanical properties                      |                                      | 1                         |                              |  |  |
| Tensile strength MD                        | EN ISO 10319                         | 110 kN/m                  | - 9,9 kN/m                   |  |  |
| Tensile strength CD                        | EN ISO 10319                         | 110 kN/m                  | - 9,9 kN/m                   |  |  |
| Elongation MD                              | EN ISO 10319                         | 20 %                      | +/- 4.6 %                    |  |  |
| Elongation CD                              | EN ISO 10319                         | 11 %                      | +/- 2.53 %                   |  |  |
| Static puncture resistance – CBR           | EN ISO 12236                         | 12,5 kN                   | - 2,5 kN                     |  |  |
| Dynamic perforation resistance - cone drop | EN 918                               | 10 mm                     | + 2 mm                       |  |  |
| Hydraulic properties                       | ,                                    |                           | J                            |  |  |
| Water permeability normal to the plane     | EN ISO 11058                         | 23 x 10 <sup>-3</sup> m/s | - 6,9 x 10 <sup>-3</sup> m/s |  |  |
| Water flow normal to the plane (*)         | EN ISO 11058                         | 23 l/m².s                 | - 6.9 l/m².s                 |  |  |
| Characteristic opening size                | EN ISO 12956                         | 190 µm                    | +/- 57 µm                    |  |  |
| Physical properties                        |                                      |                           |                              |  |  |
| Thickness under 2 kPa (*)                  | EN 964/1                             | 1,53 mm                   | +/- 0,31 mm                  |  |  |
| Weight (*)                                 | EN 965                               | 475 g/m <sup>2</sup>      | +/- 47,5 g/m <sup>2</sup>    |  |  |
| Composition                                | 100 % polypropylene woven geotextile |                           |                              |  |  |

| Durability | <ul> <li>geotextile has to be covered within 2 weeks after installation</li> </ul> |
|------------|--|
|            | geotextile has to be covered within 2 weeks after installation                     |
|            | <ul> <li>predicted to be durable for a minimum of 25 years in natural</li> </ul>   |
|            | soil with $4 < n \leq 0$ and soil terms of the                                     |

soil with 4 < pH < 9 and soil temperatures < 25 °C.

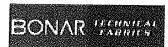
| <u> </u>          |               |                                       |                  |                            |
|-------------------|---------------|---------------------------------------|------------------|----------------------------|
| roads             | railways      | foundations &<br>retaining walls      | drainage systems | erosion control<br>systems |
| EN 13249:2000     | EN 13250:2000 | EN 13251:2000                         | EN 13252:2000    | EN 13253:2000              |
|                   | N-            |                                       |                  | **                         |
| reservoirs & dams | canals        | tunnels & under-<br>ground structures | solid waste      | liquid waste               |
| EN 13254:2000     | EN 13255:2000 | EN 13256:2000                         | EN 13257:2000    | EN 13265:2000              |

1.

2. 3.

This geotextile is intended for use in both functions & applications highlighted with a bold border. Roll dimensions are 5,25 m x 100/200 m. Other dimensions on demand. Bonar Technical Fabrics reserves the right to alter product specifications without prior notice. It is the responsibility of all users to satisfy themselves that 4.

Although not guaranteed, these results do to the best of our knowledge offer a true and accurate record of the product's performance. Bonar Technical Fabrics cannot accept responsibility for the performance of these products as the conditions of use are beyond our control. Not mandated characteristics for CE marking. 5. (\*)



Invisibly good

HUNAR Terrent Fabrics under

hannerrar 16 · 1 1940 Ide • Relean 101 +12 0002 451 471 + 101 + 37 10257 457 455 ant gont subes Chain't rest

HONAR Yaras & Fabrus Lee

in Subadan Street, i Douder 1971 - 1101 - 1101 - 14 Kompton 14 +44 (01382 146167 + fm -44 1011762 202378 1 may rutild Shator yan com

Updated: 25/08/2006

Specification Comparison Particular Specification vs Bonar SG 100/100

| Properties                                  | Particular Specification<br>Test Method <u>Technic</u> | pecification<br><u>Technical Data</u> | Bonar SG 100/100<br>Test Method Tech | 100/100<br>Technical Data |
|---|--|---------------------------------------|--------------------------------------|---------------------------|
| Tensile strength MD<br>Tensile strength CMD | (mean value)<br>(mean value)                           | 55 kN/m<br>55 kN/m                    | EN ISO 10319<br>EN ISO 10319         | 110 kN/m<br>110 kN/m      |
| Elongation CMD                              | ) (  | 1 1                                   | EN ISO 10319<br>EN ISO 10319         | 20%                       |
| Mass per unit area                          | (mean value)   | $330 \text{ g/m}^2$                   | EN 965                               | $475 \text{ g/m}^2$       |
| Luickness at ZKN/m                          | J  | ł                                     | EN 964-1                             | 1.53 mm                   |
| Printing period resistance                  | T  | ı                                     | EN 918                               | $10 \mathrm{mm}$          |
| Avoistanty to static pullicitie             | ,<br>t   | ł                                     | EN ISO 12236                         | 12.5 kN                   |
| Opening size 030<br>Water nervesshilter     | (maximum value)  | 190 um                                | EN ISO 12956                         | 190 um                    |
| water permeaninty<br>Material               | 8  | 1                                     | EN ISO 11058                         | 23 mm/s                   |
| Roll width                                  | ł  | PP woven                              | ·                                    | PP woven                  |
| Roll length                                 | ı  | ł                                     | •                                    | 5.25 m                    |
|   | 1  | ı                                     | ,                                    | 100                       |

Ref://.../comp.xls

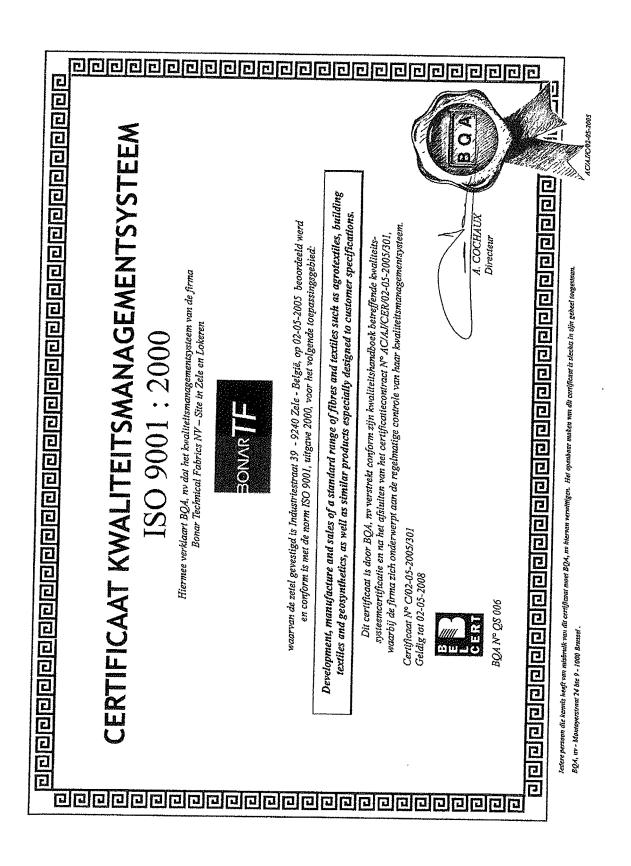
Page 1 of 1

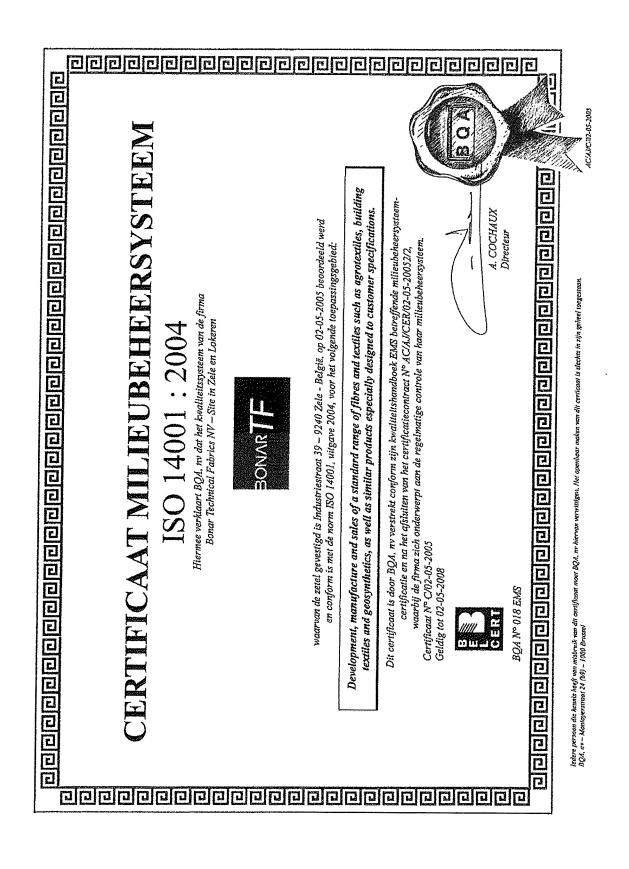
100 m

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Certification

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+ 32 (0) 52 45 74 11 + 32 (0) 52 45 74 87 + 32 (0) 52 45 74 01 Exchange Geo. Agro. Carpet & Fibres + 32 (0) 52 45 74 83 + 32 (0) 52 45 74 53 + 32 (0) 52 45 74 10 + 32 (0) 52 45 74 13 + 32 (0) 52 45 74 54 + 32 (0) 52 45 74 95 Accountancy: Purchase. Fax General Fax Geo/Carpet. Fax Agio - 32 (0) 52 44 56 04 Fax purchase + 32 (0) 52 45 74 19 www.bonartf.com

Zele, 14.07.06

### **CERTIFICATION OF CONFORMANCE**

The undersigned supplier BONAR TECHNICAL FABRICS, hereby states under his responsibility that the following product complies with the indicated technical properties :

L/C nºICBC04M606896

 Type SG 100/100 :
 13125,0 m²

 Type VNW 200-PP-K
 9773,2 m²

Manufacturer : Bonar Technical Fabrics N.V

BONAR TECHNICAL FABRICS N.V.

au BOHNICAL PABRICS N.U

BONAR THOMNICAL FABRICS N.U Dia Industriestreat 39 B-9240 Zele

#### BONAR TECHNICAL FABRICS nv/sa

Industriestraat 39 Zone Z2 + B-9240 Zele + BELGIUM + HR Dendermonde 57 031 + BTW/TVA BE 421 053 442 + Ondernemingsnummer: 0421 053 442



BONAR TF CEO

Apr. 28 2005 12:00PM P1

12/08 2004 16:43 FAX 32 52 457495

@001/001

# bontec

A bonar technical fabrice product.

### Fax

| Date: 11-Aug-04                     |                            |                        |
|-------------------------------------|----------------------------|------------------------|
| To: G and E - Hong Kong             | From: Isabelle Ruyffelad   | ere 0032 52 457 487    |
| Mr. Gary NG                         | Philippe Grimmel           | prez - 0032 52 457 486 |
| Fax:                                | Pages: 1+                  |                        |
| Your reference: Bonar TF acquisitio | n of Uco Technical Fabrics |                        |
| ·                                   | Our reference:             | G&E11082004.fax        |

#### To Whom it may concern

We hereby confirm that Bonar acquired the company <u>UCO Technical Fabrics</u> in October 1996 and all activities of the manufacturing and sales of Woven and Non woven geotextiles.

The Company changed name to BONAR TECHNICAL FABRICS.

Its headquaters are moved to Industriestraat 39, 9240 Zele, Belgium. At the same location is a new manufacturing plant of non woven geotextiles based.

The plant where woven geotextiles are produced is based on the old UCO location: weverslaan 15, Lokeren, Belgium.

Should you require any further information, please do not hesitate to contact us.

Best regards 1 per

Philippe Grimmelprez Sales & Marketing Manager geotextiles.



BONAR Technical Fabrics tw/sa Industrieures 33: 8:0240 Zete - Belgium Tel +322 (0)52:457 411 + Fex, 432 (0)52 467 495 F-mini geotarbies@bonard.com

BONAR Yarns & Fabrics (11). S. Sahasor Stree - Dindoo D113-783 - United Kingdom Tw. 444 (girsne 946102 - Kai 444 (girshe 2002) F. msi guidd Polinaryaniscom



a bonar technical fabrics product

# Date: 14-Jun-05 To: G and E – Hong Kong Mr. Gary NG / Mr Stanley From: Isabelle Ruyffelaere – 0032 52 457 487 Philippe Grimmelprez – 0032 52 457 486 Fax: Pages: 1 + Your reference: SG 100/100 Our reference: G&E06142005.fax

Dear Gary,

• With reference to your inquiry of we hereby would like to confirm that:

Bontec SG 100/100 geotextile is woven in our vertical integrated plant in Belgium according the strict Iso 9001 : 2000 quality and ISO 14001 environmental system.

a/ The material is resistant to all naturally accurring soil acids and alkalis.

b/ The material is resistant to biological attack

c/ when used correctly (cfr installation guidelines), resistant to detoriation vaused by the effects of exposure to weather and burial. The polymers contain special stabilizers to resist to normal UV and oxidation.

d/ this is stable over temeperatures of 0 - 60 °C.

e/ The material is resistant to normal forces imposed during installation. Special forces that might occur during construction / installation must be given to Bonar so that special studies can be done.

Should you require any further information, please do not hesitate to contact us.

Best regards

Philippe Gripmelprez

Sales & Marketing Manager



BONAR Technical Fabrics nv/sa Industriestraat 39 • B-9240 Zele • Belgium Tel +32 (0)52 457 411 • Fax +32 (0)52 457 495 E-mail georextiles@bonanti.com BONAR Yarns & Fabrics Ltd

St. Salvador Street • Dundee DD3 7EU • United Kingdam Tel +44 (0)1382 346102 • Fax +44 (0)1382 202378 E-mail rguild@bonaryains.com Installation Guideline

BONTEC: Woven and Non Woven Geotextiles manufactured by Bonar Technical Fabrics - Belgium.

BONARTF

#### **RECOMMENDATION FOR THE INSTALLATION OF GEOTEXTILES**

- The **BONTEC** geotextiles shall be kept in its original packaging in order to protect it from damaging UV-rays and high temperatures.
- The BONTEC geotextiles shall be stored protected from wind, rain, excess moisture or sunlight.
- The **BONTEC** geotextiles shall only be unpacked just before use. The material shall be covered within 1 week
- The BONTEC geotextiles shall be labelled and show the following data :
  - roll number
  - quality
  - name of the manufacturer
  - roll length & width
  - roll weight

- The BONTEC geotextiles shall be laid with the longitudenal ascis down slopes

- A minimum overlap of 500 mm between the different sheets shall be respected. Sewing of the different fabrics shall be done with a double prayer stitching technique with non deteriorating thread.
- Wherever visibility or installation of the BONTEC geotextile is poor an extra safety overlap of +/- 1 m shall be respected
- The surfaces to be covered with **BONTEC** geotextiles shall be smooth and free of sticks, roots, sharp objects, and all debris that may damage the fabric. The surface to be covered shall be firm and unyielding, with no sudden changes or brakes in grade.
- The compacted sub-base shall be maintained in a smooth, uniform and compacted condition during installation of the fabric.
- In area's where wind is prevalent, fabric installation shall be started at the upwind side of the project and proceed downwind. The leading edgeof the fabric shall be secured at all times with sandbags or other means sufficient to hold it down during high winds. Sandbags or rubber tires may be used as required to hold the fabric in position during installation. Tires shall not have exposedsteel cords or other sharp edges which may snag or cut the fabric. Materials, equipment or other items shall not be dragged across the fabric or be allowed to slide down slopes on the fabric.

- Should the fabric be damaged during any step of the installation, the damaged section shall be repaired by covering it with a piece of fabric which extends at least 0,6 meter in all directions beyond the damaged area. The fabric shall be secured as directed by the engineer.

- Smoking shall not be permitted by personnel working on the fabric.

P.geodiversen/installationgeot.doc

List of Project Reference

### Bonar

| Date   | Project  | Client   | Consultant   | Style                  |
|--------|--|--|--|------------------------|
| Feb-05 | CV/2003/06<br>Stanley Waterfront<br>Improvement Project -<br>Construction Pier and<br>Boardwalk        | * Sun Fook Kong (Civil)<br>Ltd                                 | Civil Engineering<br>and Development<br>Department | SG100/100<br>NW10      |
| Feb-05 | 99/9028<br>Lamma Power Station   | Wai Kee (Zens)<br>Construction &<br>Transportation Co Ltd      | Maunsell<br>Geotechnical<br>Services Ltd           | SG100/100              |
| Feb-05 | CV/2004/02<br>Reconst. of Wong Shek & Ko<br>Lau Wan Public Piers                                       | <ul> <li>Kin Shing Construction<br/>Co Ltd</li> </ul>          | Civil Engineering<br>and Development<br>Department | SG100/100              |
| Apr-05 | CV/2002/04<br>Penny's Bay Reclamation<br>Stage 2   | Gammon Skanska Ltd<br>Shun Tat Construction<br>Engineering Ltd | Scott Wilson Ltd                                   | SG100/100<br>SG100/100 |
| Apr-05 | HK/12/02   | Best Leader Engineering  | Atkins China Ltd                                   | SG100/100              |
|        | CED, Central Reclamation<br>Phase III, Engineering<br>Works  | Ltd<br>Leighton - China State -<br>Van Oord Joint Venture      |  | SG100/100              |
| May-05 | 03/8013<br>Lamma Island to Cyberport   | Leader Marine Contractors                                      | Maunsell<br>Geotechnical                           | SG100/100              |
|        | canina island to cyberport   | Honwin Engineering Ltd   | Services Ltd                                       | SG100/100              |
| Jul-05 | Shenzhen to Tai Po Twin<br>Submarine Gas Pipeline<br>Project   | Honwin Engineering Limited                                     |  | SG100/100              |
| Sep-05 | TP37/03<br>Remaining Engineering<br>Infrastructure Works for Pak<br>Shek Kok Development<br>Package 2A | Leader - Wai Kee (C&T)<br>Joint Venture                        | Hyder Consulting<br>Ltd                            | SG100/100              |
| Nov-05 | HY/2002/26<br>Stone Cutter's Bridge  | r Hong Kong River<br>Engineering Co Ltd                        | Ove Arup   | SG100/100              |
| Feb-06 | CV/2005/12<br>Fill Reception Facilities at<br>Tseung Kwan O Area 137<br>Quarry Bay and Mui Wo          | Penta-Ocean Construction<br>Co Ltd                             | Civil Engineering<br>Department                    | SG100/100              |
| Mar-06 | Maintenance Dredging at<br>Castle Peak Power Station<br>(CPPS) Jetty                                   | New Concepts Engineering<br>Development Ltd                    | Civil Engineering<br>Department                    | SG100/100              |
| Mar-06 | CV/2004/04   | China Harbour Engineering                                      | Civil Engineering                                  | SG100/100              |
|        |  | Bonar Woven Geotextile   |  |                        |

|        |   | Co (Group)   | Department   |                   |
|--------|---|--|--|-------------------|
| Mar-06 | HY/2005/06<br>Castle Peak Road Improvement<br>West of Tsing Lung Tau                                | Shun Tat Construction<br>Engineering Limited           | Mouchel Halcrow<br>JV                              | SG100/100         |
| May-06 | 212<br>Main Works for the Proposed<br>Third Golf Course<br>Development at Kau Sai<br>Chau, Sai Kung | China Harbour Engineering<br>Co (Group)                | Ove Arup and<br>Partner                            | SG100/100<br>NW15 |
| Jun-06 | Hong Kong Convention<br>and Exhibition Centre   | Wai Kee (Zens) Construction<br>& Transportation Co Ltd |  | SG100/100         |
|        |   | Kaden - Wai Kee (C&T)<br>Joint Venture                 |  | SG100/100         |
| Aug-06 | EP/SP/52/06<br>Development of EcoPark<br>in Tuen Mun Area 38  | Kaden Construction Limited                             | Scott Wilson Ltd                                   | SG100/100         |
| Oct-06 | Lamma Island Cable Landing  | United Marine Co Ltd                                   | Hong Kong<br>Electric Co Ltd                       | SG100/100         |
| Nov-06 | CV/2004/01<br>Maintenance and Repairs<br>to Seawalls, Piers and<br>Other Port Works                 | Kin Shing Construction<br>Co Ltd                       | Civil Engineering<br>and Development<br>Department | SG100/100         |
| Dec-06 |   | Friendly Benefit Engineering<br>Ltd                    |  | SG100/100         |
| Feb-07 | Prebored Socketted H-Piles<br>at Hong Kong Convention<br>& Exhibition Centre                        | Yee Hop Engineering Co Ltd                             |  | SG100/100         |

March 12, 2007

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Approval Letters

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| <u> 住民日日</u><br>全国   | • •  |
|--|--|
| CEDD Civil Engineering and   | 土木工程處  |
| Development Department   | Civil Engineering Office                             |
| a and a second sec   |  |
| Wob stre 網站 : http://www.ccdd.gov.bk<br>E-mail 载于野伴 : : : : : : : : : : : : : : : : : : :  | 香港九融公主道101號  |
| Telephone 2015 : (852) 2760 5737   | 土木工程拓展署大餐四楼  |
| 「ACCULUTE 博具 :(852) 2714 2054  | 4/F, Civil Engineering and                           |
| Our reference 本著指號 :() in PW WC/CV0402/R20/340 Ft.1<br>Your reference 來函檔號 :K\$330/2005  | Development Building,<br>101 Princess Margaret Road, |
|  | Kowloon, Hong Kong                                   |
| Kin Shing Construction Company Limited   | 24 January 2005                                      |
| · 1/P <sub>2</sub>   | BY MAIL & FAX No. 2780 2085                          |
| 27 Yin Chong Street,<br>Mong Kok   | 12010. 1100.2085                                     |
| Kowleen  |  |
| (Attn.: Mr. Patrick P K Chau ~ Site Agent)   | 1  |
| Dear Sirs,   |  |
| Contract No. CV/2004/0   | 12   |
| Reconstruction of Wong Shek and Ko Lau   | Wan Public Piers                                     |
| Material Submission - Geotextile for   |  |
|  |  |
| l refer to your letter of 14.1.2005 enclosing the particular silt curtain.   | us of the geotextile for fabrication of              |
|  |  |
| In accordance with PS Clause 26.08(2), the proposed<br>manufactured by Bonar Technical Fabrics is upproved to be used  | 3 110 0 1000   |
| manufactured by Bonar Technical Fabrics is approved to be used   | d "SG 100/100" woven geotextile                      |
| Purchant to BC Olivin oc open  | a antier the capitolied Contract.                    |
| Pursuant to PS Clause 26.08(1), you are required to subm<br>before their deployment.   | hit details of the silt curtains 3 weeks             |
|  |  |
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| You You  | us faithfully,                                       |
| Saba bou   |  |
| Ext(1) 65  |  |
|  | · · · · · · · · · · · · · · · · · · ·                |
| OT Street  | WHLEE)   |
| . Formus   |  |
| Reconst With the second | 's Representative                                    |
| Formu<br>0.3 V 7/2 (V<br>Sakay V<br>Hauria V<br>Sama Port W  | 's Representative                                    |
| Rectaur<br>Q.3 V 74 (V<br>Subry V<br>Haaring V<br>Subry Port W   | 's Representative                                    |
| Rectaur<br>Q.3 V 74 (V<br>Subry V<br>Haaring V<br>Subry Port W   | 's Representative                                    |
| G.C.   | 's Representative                                    |
| C.c.<br>SIOW/P2B – Site Copy   | 's Representative                                    |
| C.c.<br>SIOW/P2B – Site Copy   | 's Representative                                    |
| C.c.<br>SIOW/P2B – Site Copy   | 's Representative                                    |
| C.c.<br>SIOW/P2B – Site Copy   | 's Representative                                    |
| C.c.<br>SIOW/P2B – Site Copy   | 's Representative                                    |
| C.c.<br>SIOW/P2B – Site Copy   | 's Representative                                    |

Apr. 28 2005 12:02PM P7

P.01/01

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24-FEB-2005 18:57 FROM SFK

### 全体工程拓展署 CEDD Civil Engineering and Development Department

 Web site
 純祉
 : http://www.scedd.gov.hk

 E-mail
 電子郵件:

 Telaphone:
 電話
 : (552) 2762 5035

 Factsimile
 停首
 : (352) 2714 2054

 Our reference:
 本著檔案: (15) in PW WC/CV0206/R20/340 Pt.01

 Your reference:
 來著檔案: (15) in PW WC/CV0206/R20/340 Pt.01

 Your reference:
 來習檔案: CIV:002091/1.2/RW/SY/CC/mc/S0087).

 CIV:002091/1.2/RW/SY/CC/mc/S0014)
 CIV:002091/1.2/RW/SY/CC/mc/S0014)

Sun Fook Kong (Civil) Limited Rms. 3207-10; Great Eagle Centre, 23 Harbour Road, Wan Chai, Hong Kong (Attn: Mr. Howard KONG - Fax No.2827 6275)

.

土木江程成 Civil Engineering Office

### 著海九戰公主張 101 號 止木工程后原發大樓 4 佳

10 25700089

4/F, Civil Engineering and Development Building, 101 Princess Margaret Road, Kowtoon, Hong Kong

18 February 2005

Dear Sirs,

Contract No. CV/2003/06 <u>Stanley Waterfront Improvement Project -</u> <u>Construction of Pier and Boardwalk</u>

#### Fabric for Silt Curtain

I refer to your above letters dated 21.1.2005 and 15.2.2005 proposing the SG100/100 fabric supplied by "Bonar Technical Fabrics" for silt curtain.

I have no objection to your proposed material for silt curtain.

÷

Yours faithfully,

(Paul YKMA)

Engineer's Representative Port Works Division Civil Engineering and Development Department

c.c. Site Office (Attn: SIOW/PIA) CEG/PIA

#### File PW WC/CV0306/M10/300

YKMMini

| 7671                   | 100024/2/05 0 00 P | J-      |
|------------------------|--------------------|---------|
| Post-Ho Fax Note 76/1  | From CHAING STE    |         |
| TO MP. STANCE T. WOILV | to St.             |         |
| Carbon Crie E          | Phone 6084170      | 2       |
| Phone 2 200 00-0       | Fext               | أمشمشين |
| Fail 2570000           |                    |         |
| 1.12 August 1.12       |                    |         |

TOTAL P.DI

Apr. 28 2005 12:01PM P5

30 June 1992

### Mott MacDonald Hong Kong Limited

Consulting Engineers

Chief Resident Engineer's Office North Lantau Development - Tung Chung for Territories Development Department

Our Ref : S287/NL1/25.7/283/JY

China Harbour Engineering Company 19/F, China Harbour Building 370-374 King's Road North Point Hong Kong.

Attn : Mr. S. Y. Yu

Dear Sirs,

North Lantau Development Contract No. NL1/91 Tung Chung Development Phase I - Site Formation Materials for Subsoil Drains

| T.D.D. CONTRA<br>C. E. Dept. | çt no.     | NI. 1/91 | 1 |
|------------------------------|------------|----------|---|
| DATE                         | ACTION     | MEDRY    | 1 |
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|                              |            | [        |   |
| FILE                         | ur         |          | • |

I refer to your letter ref. NL1/C/0097/008/MM/145 of 10/6/92 submitting materials for subsoil drains for our approval.

I have the following comments :

- The proposed subsoil drain material i.e. 300mm diameter ADS corrugated polyethylene subsoil drain pipes from Benpak Waterwise company is acceptable.
- 2) The proposed Geotextile SG17/15 from UCO (2 layers) as protection for subsoil drainage is acceptable in principal. Please submit further technical specification such as lapping and site storage requirements recommended by the manufacturer.
  - The proposed Greenfix Eromat Special type 5 from CCL is still under review. You will be notified of the outcome if a decision is made.

Yours faithfully for MOTT MACDONALD HONG KONG LIMITED

3)

Luke Chi Engineer's Representative

LC/JY/ak

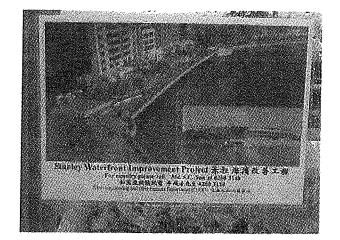
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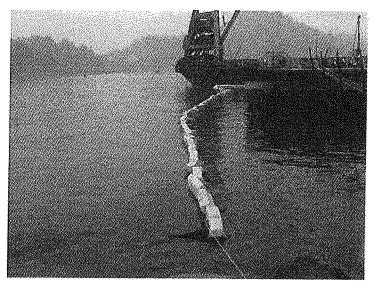
Photos References



### **G AND E COMPANY LIMITED**

Rm. B, 13/F Cheung Lee Ind. Bldg. 9 Cheung Lee Street Chai Wan, Hong Kong Tel: 2508 0028 / 2570 0103 Fax: 2570 0089







Contract No. HY/2009/15 Central -Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

## **Appendix D**

### Notes of Liaison Meeting for

## Silt Screen Removal after the Decommissioning of

### Seawater Intake No. 8



Your Ref. :

21 May 2011

AECOM 8/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, Hong Kong 香港新界沙田鄉事會路 138 號 新城市中央廣場第 2 座 8 樓 www.aecom.com

Engineer's Representative's Office 25 Hung Hing Road, Causeway Bay, Hong Kong 香港銅鑼灣演算道 25 號 +852 3912 3000 tel +852 3912 3010 fax



15B001371

24 MAY 2011 M301910

Dear Sir/ Madam,

See Distribution List

### Contract No. HY/2009/15 Central-Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

### Water Quality Monitoring Station C6 - Seawater Intakes for the Excelsior (and World Trade Centre)

I refer to the liaison meeting amongst Excelsior / Kai Shing / AECOM / ET / CSHK / CHEC CRBC JV held in 33/F Conference Room of the Excelsior on 17 May 2011.

The notes of the meeting is hereby attached for your reference.

Our Ref. : CWB/(HY/2009/15)/M30/910/15B001371

Yours faithfully, For and on behalf of AECOM Asia Co. Ltd.

Noon

Peter Poon Principal Resident Engineer

Encl.

c.c AECOM M45/150 - Attn. : Mr. Conrad Ng

(/gw

### Distribution List

|    | Company / Address   | Contact Person  |
|----|---|---|
| 1. | The Excelsior Hotel<br>281 Gloucester Road<br>Causeway Bay<br>Hong Kong   | Attn: Mr. Raymond Ho                                      |
| 2. | Kai Shing Management Services Ltd<br>Room 1404, 14/F., World Trade Centre<br>280 Gloucester Road<br>Causeway Bay<br>Hong Kong | Attn: Ms. Margaret Lau/<br>Mr. Kelvin Tsang/<br>Mr. Cheng |
| 3. | Lam Environmental Services Ltd.<br>11/F, Centre Point<br>181-185 Gloucester Road<br>Wan Chai,<br>Hong Kong                    | Attn: Mr. Raymond Dai                                     |
| 4. | CHEC-CRBC Joint Venture<br>19th Floor, China Harbour Building<br>370-374 King's Road<br>North Point,<br>Hong Kong             | Attn: Mr. Daniel CHEUNG/<br>Mr. C M Wong                  |
| 5. | China State Construction Engineering (Hong Kong) Ltd.<br>29/F, China Overseas Building<br>139 Hennessy Road<br>Wan Chai, H.K. | Attn: Mr. Simon Tang                                      |

#### **Notes of Meeting** Meeting Date/Time: 17 May 2011, 11:00 a.m. Conference Room, 33/F, The Excelsior Venue: Project: (Contract no. HY/2009/15) Central–Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) Liaison meeting for silt screen removal after the Decommissioning of the Seawater Subject: Intakes for the Excelsion Excelsior, Kai Shing, ETL, CSHK, CHEC CRBC JV & AECOM **Distribution**: The Excelsior, Hong Kong (Excelsior) PRESENT: Mr. Raymond Ho } Ms. Margaret Lau Kai Shing Management Services Ltd (Kai Shing) Mr. Kelvin Tsang 3 Mr. Cheung } Mr. Eric Wong Mr. Y K Poon AECOM Asia Co. Ltd (AECOM) } Mr. Ernest Wong } Lam Environmental Services Ltd, Ms. Cherry Mak } Environmental Team (ET) China State Construction Engineering Ltd, Mr. Samuel Tsui } The Contractor of HyD Contract No. HY/2009/15 (CSHK)

Mr. Daniel Cheung Mr. C M Wong Fr. C M Wong Mr. C M Wong Hereita and Bridge Corporation Joint Venture The Contractor of HyD Contract No. HY/2009/11 (CHEC CRBC JV)

| <u>NO.</u> | ITEM   | ACTION       |
|------------|--|--------------|
| 1.         | Mr. Eric Wong (AECOM) briefly described the background of silt screen installation<br>for seawater intakes (C6) for The Excelsior, which is a part of the environmental<br>permit's requirements. CHEC CRBC JV was the party responsible for installation<br>and maintenance of the silt screen at the seawater intakes for The Excelsior. | Noted        |
| 2.         | Mr. Raymond Ho (Excelsior) advised that the seawater intake was no longer in use since 11 January 2011 as they had connected permanent water supply from WSD pipelines, and that the seawater intake had been abandoned with the valves inside the pumping station closed.   | Noted        |
| 3.         | Mr. Daniel Cheung (CHEC CRBC JV) suggested that the silt screen provision for C6 would be removed from 20 May 2011 (Friday) and expected that the removal works would need a few days to complete.   | CHEC CRBC JV |
| 4.         | Ms. Margaret Lau (Kai Shing) suggested and CHEC CRBC JV agreed that the removal works would not be scheduled for Saturday or Sunday.   | Note         |
| 5.         | Mr. Eric Wong stated that a submission would be prepared by CSHK notifying EPD of the removal works.   | CSHK         |
| 6.         | Ms. Cherry Mak (ET) said that they would entirely disconnect and remove all power sockets inside the pump house accordingly. Advance notice would be sent to Ms. Margaret Lau.   | ET           |
| 7.         | Ms. Cherry Mak advised that the routine impact water quality monitoring for intake would be terminated subjected to the formal notification to EPD. The enhanced dissolved oxygen monitoring would be maintained.  | Noted        |
| 8.         | Ms. Margaret Lau stated that advance notice, as well as the working schedule and details of supervisor for silt screen removal, would be required from CHEC CRBC JV for information. CHEC CRBC JV agreed.  | CHEC CRBC JV |
| 9.         | Mr. Daniel Cheung said that after removal of the silt screen, CHEC would take photos and share to all parties for record.  | CHEC CRBC JV |

EW/QMY/gw

# Appendix E

### **Instruction of Take Over Silt Screen**

### at Windsor House Seawater Intake



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Your Ref. : Our Ref. : CWB/(HY/2009/15)/C20/800/15B001478

2 June 2011

China State Construction Engineering (Hong Kong) Limited 29/F China Overseas Building, 139 Hennessy Road, Hong Kong

Attn.: Mr. Simon Tang

Dear Sir,

Contract No. HY/2009/15 Central-Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)

### Silt Screen at Windsor House Seawater Intake

Pursuant to P.S. Clause 25.05 (2) (i), you are instructed to take over the captioned silt screen effective on 23 May 2011, and carry out regular inspection and maintenance of the silt screen until such time that an instruction is made to you to cease the operation.

Yours faithfully, For and on behalf of AECOM Asia Co. Ltd.

Win Noa

Peter Poon Engineer's Representative

·. . .

c.c. AECOM - Attn.: Mr. Conrad Ng

PP/EW/EHW/kgw



