HONG KONG OFFSHORE LNG TERMINAL - WORKS ASSOCIATED WITH THE SUBSEA GAS PIPELINE FOR BLACK POINT POWER STATION (BPPS) AND THE ASSOCIATED GAS RECEIVING STATION (GRS) IN BPPS Silt Curtain Deployment Plan

#### **ANNEX D**

DETAILS OF MANUFACTURER/ SUPPLER'S SPECIFICATION AND PROJECT REFERENCES



# SG WOVEN GEOTEXTILES



we under cover the world



#### A TOTAL RANGE OF GEOTEXTILES

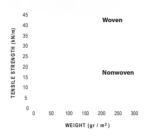
Headquarters:
BONAR TECHNICAL FABRICS NV/SA
Industriestraat 39
B-9240 Zele
BELGIUM
T.: +32 (0) 52 457 487
F.: + 32 (0) 52 457 495

For UK and Ireland:
BONAR YARNS & FABRICS Ltd
St. Salvador Street
Dundee Scotland
DD3 7EU
T.: +44 (0)1382 346102
E: +444 (0)1382 229238
E-MAIL: geotextiles@bonaryarns.com

website: www.bonartf.com









SEPARATION



REINFORCEMENT



Other geotextiles available within the Bontec range include Highflow, High strength Wovens and Thermally Bonded & Needlepunched Nonwovens

Visit us at our website: www.bonartf.com

For UK and Ireland: BONAR YARNS & FABRICS Ltd
St. Salvador Street | Dundee | Scotland | DD3 7EU
T.: +44 (0)1382 346102 | F.: +44 (0)1382 229238
E-MAIL: geotextiles@bonaryarns.com

SG Woven Geotextiles

PRODUCT PROFILE

"An exciting range of Standard Grade geotextiles that offer the perfect solution to your Separation requirements. With tensile strengths ranging from 10 to 300 kN/m you can be certain that an SG fabric will be available with the performance that you are looking for."

DAILY SEPARATION, SOIL STRENGTHENING OR GROUND REINFORCEMENT?

**Bontec SG woven geotextiles** are manufactured from polypropylene tapes & yarns, and exhibit an excellent chemical resistance to commonly encountered acids and alkalis at ambient temperatures. Available in a lightweight range with products from 80 to 200g/m2, and a heavyweight range from 200 to 800g/m2.

#### Bontec SG facts include:

Tensile strengths up to 300 kN per metre (kN/m) width CBR Puncture Strengths ranging from 1.800 N to 12.500 N

SG Mechanical Properties that offer maximum strength at minimal cost and ensure the products survivability both against installation damage and in the longer term.

Lightweight woven geotextiles typically offer greater mechanical strengths per unit weight than comparable nonwoven grades. This makes lightweight woven geotextiles the ideal choice for separation

Waterflows normal to the plane that are generally several times more than that required by design

A range of consistent opening sizes suited for use in soils ranging from clay to coarse granular fill.

SG hydraulic properties that are suited to the demands of everyday separators.

Available ex-stock in 4.5m and 5.25m wide rolls or other widths to order

#### Typical applications for SG woven geotextiles include:

As a general purpose separator for use under site access roads and areas of hardstanding.

As a separation and strengthening layer under new roadways, car parks, industrial units etc.

As an erosion control layer under heavy rock armour in coastal defence projects. For any separation application where there exists a need to prevent the intermixing of soft foundation soils with good clean granular fill.

SG Woven Geotextiles have been manufactured as a cost effective solution to your soil separation and stabilisation applications. They are manufactured from highly durable polypropylene polymer and have a long life expectancy when used in permanent structures.

For further product information, be it a technical data sheet or to discuss your project with one of our in-house geotextile experts please do not hesitate to contact one of our offices listed below.

Headquarters: BONAR TECHNICAL FABRICS NV/SA Industriestraat 39 | B-9240 Zele | BELGIUM T.: +32 (0) 52 457 487 | F.: +32 (0) 52 457 495 E-MAIL: geotextiles@bonartf.com



# **Bontec® SG 110/110**

Heavy weight Polypropylene Woven Geotextiles

#### Technical data sheet

#### **Product description**

Polymer	Density	Melting Point	Construction
100% Polypropylene	0,91 kg/dm³	165 °C	Tapes

#### **Properties**

Mechanical Properties	Standard	Performance	Tolerance
Tensile strength - MD	EN ISO 10319	110 kN/m	-9,9 kN/m
Tensile strength - CMD	EN ISO 10319	110 kN/m	-9,9 kN/m
Elongation at maximum load - MD	EN ISO 10319	10 %	+/-2,3 %
Elongation at maximum load - CMD	EN ISO 10319	8 %	+/-1,8 %
Static puncture resistance (CBR)	EN ISO 12236	12,5 kN	-2,5 kN
Dynamic perforation resistance (cone drop)	EN ISO 13433	10 mm	+2,0 mm
Tensile strength at 2% elongation - MD	EN ISO 10319	15 kN/m	
Tensile strength at 2% elongation - CMD	EN ISO 10319	25 kN/m	
Tensile strength at 5% elongation - MD	EN ISO 10319	45 kN/m	
Tensile strength at 5% elongation - CMD	EN ISO 10319	60 kN/m	

Hydraulic Properties	Standard	Performance	Tolerance
Water permeability normal to the plane (VIh50)	EN ISO 11058	25 l/m²s	-8 I/m²s
Characteristic Opening Size (O90)	EN ISO 12956	230 µm	+/-69,0 µm

Physical Properties	Standard	Performance	Tolerance	2014
Weight	EN ISO 9864	464 g/m²	+/-46,4 g/m <sup>2</sup>	1/11/
Length (+/- 1%) x width (+/- 1%)		100 x 5,25 m		n date:
Truck Load Volume (+/- 10%)		30450 m <sup>2</sup>		Versio
Roll diameter (+/- 10%)		45 cm		

Durability	Standard	Performance	
Predicted minimal durability in years in natural soils with 4 < pH < 9 and soil temperatures < 25°C	EN ISO 13438 - A2	25	Version n°
Maximum allowed time between installation and covering of the geosynthetic	EN 12224	2 weeks	

The Quality Management System of Bonar has been approved to the ISO 9001 Quality Management System Standard. Certificates are available on request.



The information set forth in this data sheet reflects the best knowledge at the time of publication. The document is subject to change pursuant to new developments and findings. The same reservation applies to the properties of the products described. No liability is undertaken for results obtained by usage of the products and information.



# G & E ENGINEERING Since 1984

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

14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com







Date September 2016

Project Contract No. NE/2015/02

Tseung Kwan O - Lam Tin Tunnel Road

P2 and Associated Works

Client Civil Engineering and Development

Department

**Consultant** AECOM Asia Company Limited

Main Contractor CRBC-Build King Joint Venture

Hong Kong River Engineering

Works Silt Curtain

Material Woven Geotextile Bontec SG110/110

**Quantity** 11,025 sqm



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website: www.g-and-e.com



Date Jan 2016

**Project** Proposed revitalization of Avenue of Star

and east TST Promenade Waterfront

Client New World Development

Main Contractor Kaden Construction Ltd

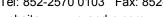
Works Silt Protector

Material Woven Geotextile Bontec SG110/110

**Quantity** 1,050 sqm



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website: www.g-and-e.com





Date January 2015

Project Contract No. SCL1121

Shatin to Central Link - NSL Cross

**Habour Tunnel** 

**Client** MTR Corporatin

Consultant AECOM Asia Co. Ltd

Main Contractor Penta Ocean - China State JV

Works Silt Curtain

Material Woven Geotextile Bontec SG110/110

**Quantity** 22,575 sqm



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website: www.g-and-e.com



Date May 2014

Project HY/2012/07

Tuen Mun - Chek Lap Kok Link-

**Sothern Connection Viaduct Section** 

**Client** Highway Department

Consultant AECOM Asia Co. Ltd

Main Contractor Gammon Construction Ltd

Material Woven geotextile Bontec SG110/110

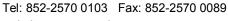
Works Silt Protector

**Quantity** 8,925 sqm

# G & E ENGINEERING Since 1984

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website: www.g-and-e.com





Date Nov 2014

**Project** Contract No. HY/2010/08

Central-Wanchai Bypass - Tunnel

(Slip Road 8 Section)

**Client** Highway Department

Consultant AECOM Asia Co Ltd

Main Contractor China State Construction Engineering

(HK) Ltd

Works Silt Curtain

Material Woven Geotextile Bontec SG110/110

**Quantity** 1,575 sqm



14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date May 2013

Project Contract No. HK/2012/08

Wan Chai Development Phase II -

Central Wan Chai Bypass at Wan Chai

West

Client Civil Engineering and Development

Department

**Consultant** AECOM Asia Co. Ltd

Main Contractor China State Construction Engineering

Co. Ltd

Hong Kong River Engineering Co Ltd

Works Silt Curtain

Material Woven Geotextile SG110/110

**Quantity** 42,525 sqm



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Date June 2013

Project Contract No: HY/2011/03

HK-Zhuhai Macau Bridge Hong Kong Link Road - Scenic Hill and Hong Kong

**Boundary Crossing Facilities** 

**Client** Highway Department

**Consultant** Ove Arup & Partners HK Ltd

Main Contractor China State Construction Engineering

Works Tailor-made Silt Protector

Material Woven Geotextile Bontec SG110/110



14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date Jan 2014

Project Contract No. CV/2013/02

Maintenance contract for seawalls and

navigation channels

**Client** CEDD

**Consultant** CEDD

Main Contractor China Harbour Engineering Co Ltd

Works Silt Protector

Material Woven Geotextile Bontec SG110/110



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Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date Feb 2014

Project Contract No. DC/2011/04

Reconstruction, improvement and rehabilitation of Kai Tak River from Wong Tai Sin Police Station to Tung

Tau II Estate

Client Drainage Service Department

Consultant Scott Wilson Limited

Main Contractor Leader - Sunnic JV

Works Silt Curtain to Kai Tak Nullah

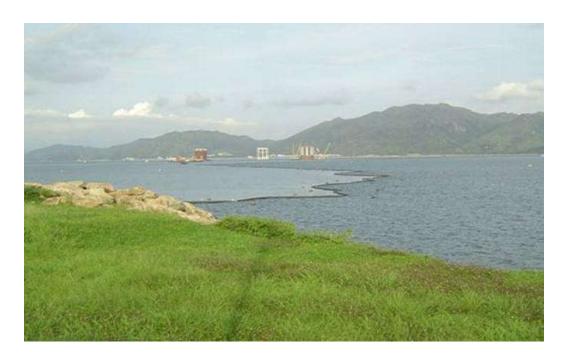
Material Woven Geotextile Bontec SG110/110

**Quantity** 525 sqm



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Date Dec 2011

**Project** Contract No. HY/2010/02

HK-Zhuhai-Macau Bridge - HK Boundary Crossing Facilities

**Client** Highway Department

Consultant Ove Arup & Partners HK Ltd

Main Contractor China Harbour Engineering Co Ltd

Works Silt Curtain Fabrication

Material Woven Geotextile Bontec SG110/110



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website: www.g-and-e.com



Date November 2005

Project Contract No. HY/2002/26

Stonecutters Bridge

**Client** Highway Department

**Consultant** Ove Arup and Partners HK Ltd

Main Contractor Hong Kong River Engineering Co Ltd

Maeda - Hitachi - Yokogawa - Hsing Chong Joint Venture

Material Woven geotextile Bontec SG110/110

Works Tailor-made Silt Curtain

**Size** 1,050 sqm



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Tel: 852-2570 0103 Fax: 852-2570 0089

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Date May 2011

**Project** Contract No. DC/2009/22

Drainage Improvement Works in

Shuen Wan, Tai Po

**Client** Drainage Service Department

Consultant AECOM (Asia) Ltd

Main Contractor Kwan Lee - Kuly Joint Venture

Works Separation

Material Woven geotextile SG110/110

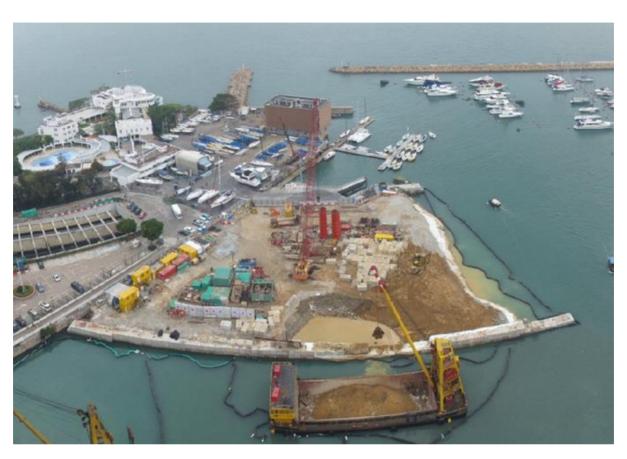
**Quantity** 2,625 sqm



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Date June 2013

Project Contract No. HY/2009/15

Central-Wanchai Bypass-Tunnel

(Causeway Bay Typhoon Shelter Section)

**Client** Highway Department

Consultant AECOM Asia Co. Ltd

Main Contractor China State Construction Engineering (HK)

Limited

Works Tailor-made Silt Curtain

Material Woven Geotextile Bontec SG110/110



14th Floor, Kiu Yin Commercial Building 361-363 Lockhart Road Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date March 2014

Project Contract No. HK/2009/02

Wan Chai Development Phase II

Central - Wan Chai Bypass Wan Chai East

**Client** Civil Engineering and Development

Department

Consultant AECOM (Asia) Ltd

Main Contractor Chun Wo Construction & Engineering Co.Ltd

**Application** Silt Protector

Material Woven Geotextile SG110/110

**Quantity** 6,825 sqm



14th Floor, Kiu Yin Commercial Building 361-363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date March 2010

Project Contract No. HK/2009/01

Wan Chai Development Phase II -Central - Wanchai Bypass at Hong Kong Convention

and Exhibition Centre

Client Civil Engineering and Development

Department

Consultant AECOM Asia Co. Ltd

Main Contractor Chun Wo - Leader Joint Venture

Works Intake Silt Curtain

Materials Woven Geotextile SG110/110

**Size** 34,125 sqm



14th Floor, Kiu Yin Commercial Building 361-363 Lockhart Road Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date March 2010

Project KL/2009/01

Site formation for Kai Tak Cruise

**Terminal Development** 

Client CEDD

Consultant Scott Wilson Ltd

Main Contractor Penta-Ocean Construction Co. Ltd

Materials SG110/110

**Size** 1,050 sqm



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Tel: 852-2570 0103 Fax: 852-2570 0089

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Date May 2014

Project HY/2012/07

Tuen Mun - Chek Lap Kok Link-

**Sothern Connection Viaduct Section** 

**Client** Highway Department

Consultant AECOM Asia Co. Ltd

Main Contractor Gammon Construction Ltd

Works Silt Curtain

Material Woven geotextile Bontec SG110/110



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Date March 2010

Project Contract No. DC/2007/01

Drainage Improvement Works in Ki Lun Tsuen, Kwu Tung, Ma Tso Lung

and Sha Ling

**Client** Drainage Services Department

Consultant Mott MacDonald

Main Contractor Shanghai Urban Construction (Group)

Corporation

Works Soil filter

Material Woven Geotextile Bontec SG110/110

Woven Geotextile Bontec SG40/40

**Quantity** SG110/110 - 7,875 sqm

SG40/40 - 71,925 sqm



14th Floor, Kiu Yin Commercial Building 361-363 Lockhart Road Wanchai, Hong Kong

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website: www.g-and-e.com



Date April 2011

Project Contract No. HY/2009/11

Central - Wanchai Bypass - North

Point Reclamation

**Client** Highways Department

**Consultant** AECOM Asia Ltd

Main Contractor China Habour Engineering Company

Works Tailor-made Silt Curtain

Materials Woven Geotextile SG110/110

**Quantity** 22,066 sqm



14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date May 2004

**Project** Contract No. CV/2001/12

Reconstruction of Cheung Chau and Wu

Kai Sha Public Piers

**Client** Civil Engineering and Development

Department

**Engineer** Civil Engineering and Development

Department

Main Contractor Hong Kong and Macau Scent On

Engineering & Construction Ltd

Works Tailor-made Silt Curtain

Material Woven Geotextile Bontec SG110/110



14th Floor, Kiu Yin Commercial Building 361-363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date October 2006

Project Lamma Island Cable Landing

Client Hong Kong Electric Co Ltd

Consultant Hong Kong Electric Co Ltd

Main Contractor United Marine Co Ltd

Works Tailor-made Silt Curtain

Material Woven Geotextile SG110/110

**Quantity** 2,100 sqm



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website: www.g-and-e.com



Date March 2006

Project Contract No. HY/2005/06

Castle Peak Road Improvement West

of Tsing Lung Tau

**Client** Highway Department

**Consultant** Mouchel Halcrow JV

Main Contractor Chun Wo Construction & Engineering

Co., Ltd.

Material Woven Geotextile Bontec SG110/110

Works Tailor-made Silt Curtain

**Quantity** 1,050 sqm



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Tel: 852-2570 0103 Fax: 852-2570 0089

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Date February 2005

Project Contract No. CV/2003/06

Stanley Waterfront Improvement Project - Construction Pier &

**Client** Civil Engineering and Development

Department

**Consultant** Civil Engineering and Development

Department

Main Contractor Sun Fook Kong (Civil) Ltd

Works Silt Curtain - SG110/110

**Quantity** 2,080 sqm



14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date May 2011

**Project** Contract No. DC/2009/13

Construction of Sewage Treatment Works at Yung Shue Wan and Sok

Kwu Wan

**Client** Drainage Service Department

**Consultant** Scott Wilson CDM Joint Venture

Main Contractor Leader Civil Engineering Corp Ltd

Material Bontec SG110/110 woven geotextile

Works Silt Curtain

**Quantity** 1,575 sqm



14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong

Tel: 852-2570 0103 Fax: 852-2570 0089

website: www.g-and-e.com



Date Jan 2005

**Project** Contract No. HK/12/02

Central Reclamation Phase III

**Engineering Works** 

**Client** Civil Engineering and Development

Department

**Consultant** Atkins China Ltd

Main Contractor Leighton - China State - Van Oord JV

Material Woven Geotextile Bontec SG110/110

Works Silt Curtain

**Quantity** 3,655 sqm



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website: www.g-and-e.com



Date January 2010

Project KL/2008/07

Kai Tak Development-Infrastructure works at Southern part of former

runway, Stage 1

**Client** CEDD

**Consultant** AECOM

Main Contractor Friendly Benefit Engineering Ltd

Works Fabrication of Silt Curtain

Materials SG110/110



14/F Kiu Yin Commercial Building 361 - 363 Lockhart Road, Wanchai, Hong Kong

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website: www.g-and-e.com



Date March 2013

**Project** Contract No. 1017EM10

Seawall Modification Work at Outfall

Area at Kai Tak Development

Client Civil Engineering and Development

Department

**Consultant** AECOM

Main Contractor Crown Asia Engineering Ltd

Works Silt Curtain

Material Woven geotextile Bontec SG110/110

**Quantity** 1,050 sqm