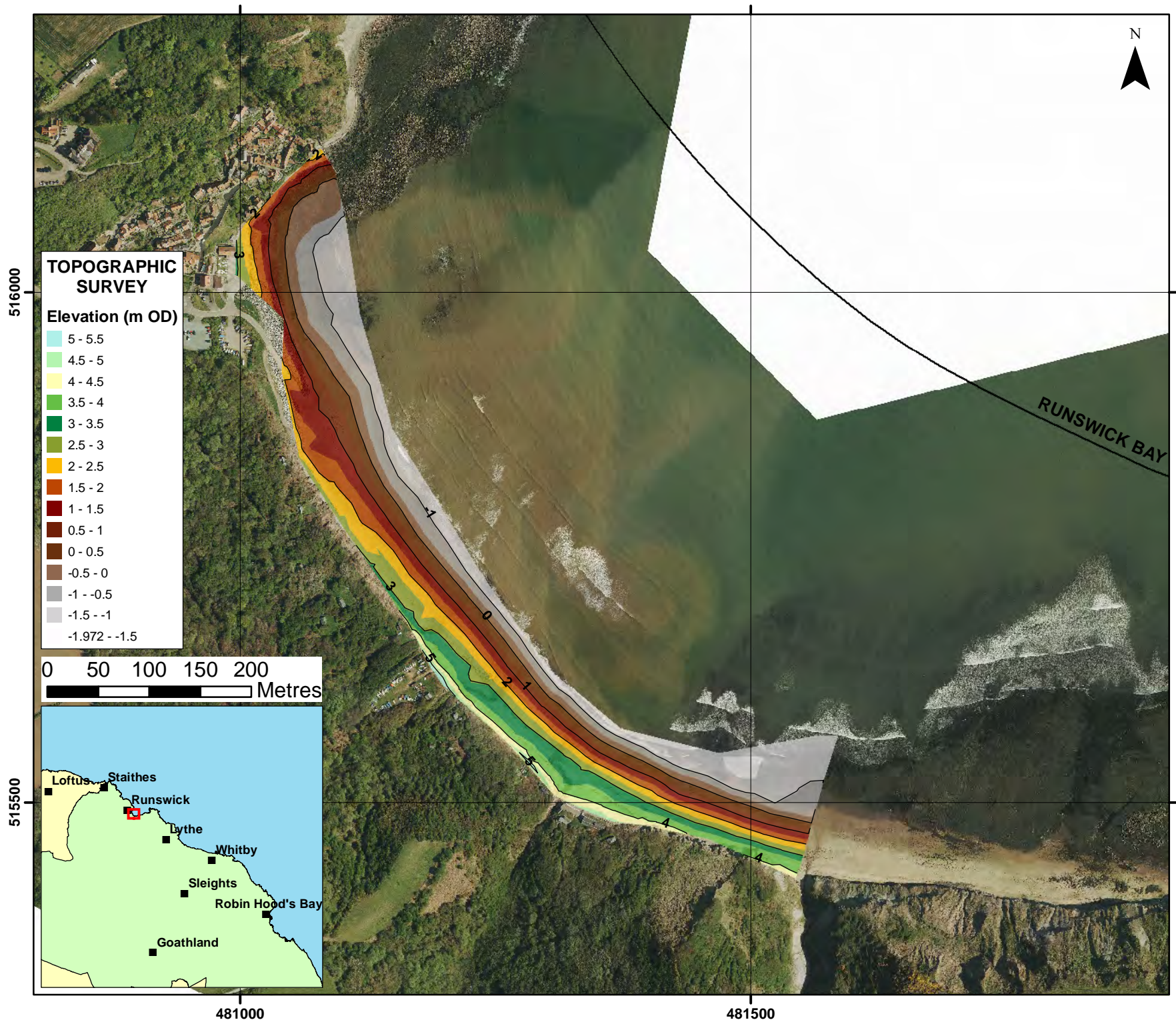


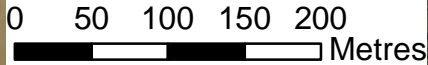
Appendix B
Topographic Survey



TOPOGRAPHIC SURVEY

Elevation (m OD)

5 - 5.5
4.5 - 5
4 - 4.5
3.5 - 4
3 - 3.5
2.5 - 3
2 - 2.5
1.5 - 2
1 - 1.5
0.5 - 1
0 - 0.5
-0.5 - 0
-1 - -0.5
-1.5 - -1
-1.972 - -1.5



— Topographic Contours at 1 metre interval

Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 1
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

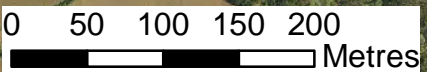
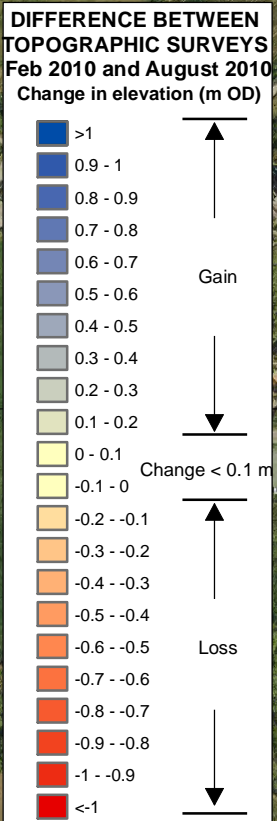
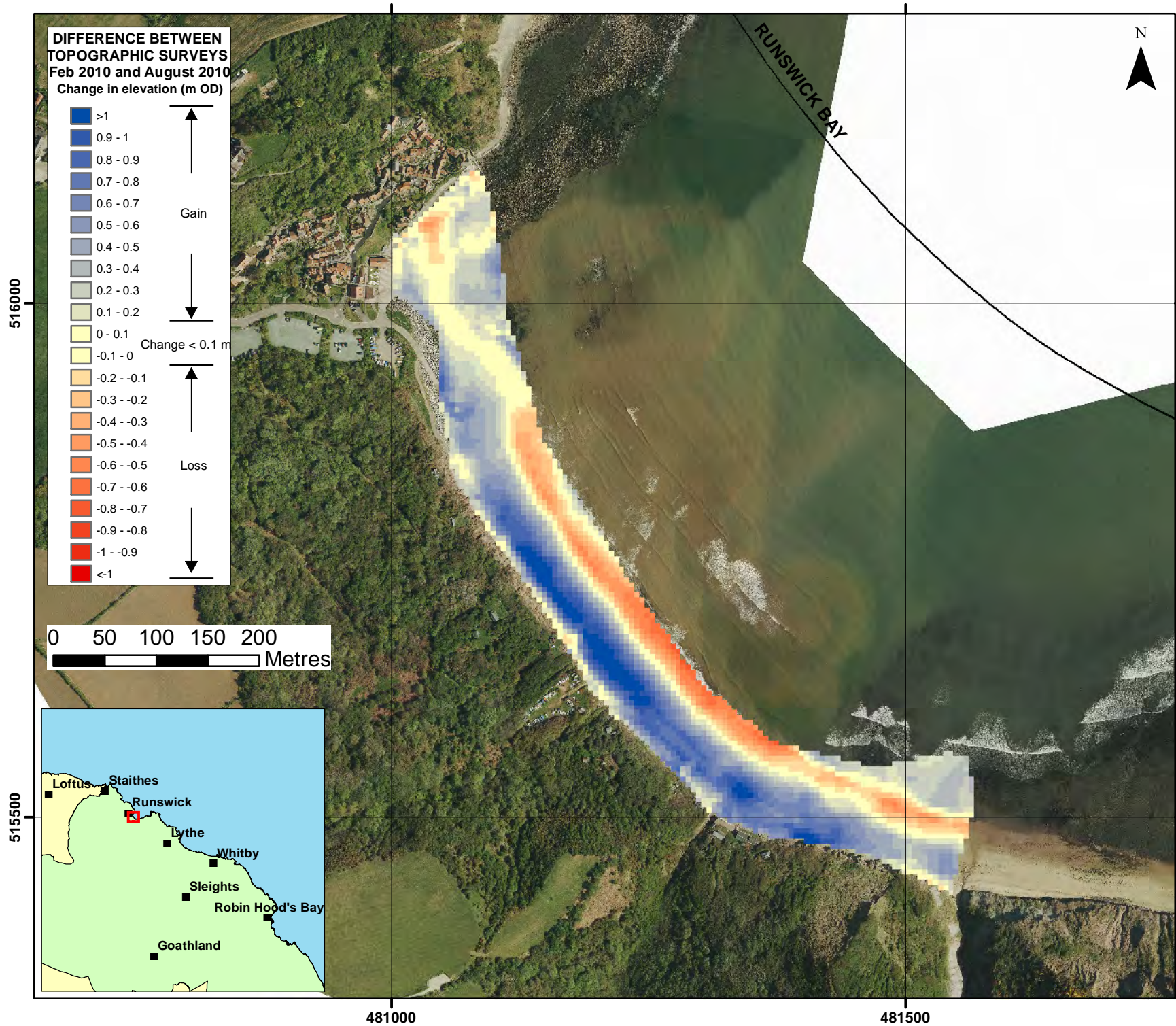
Drawing Scale 1:5,000 at A4

Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

 Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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Tel: +44 (0)191 211 1300	Tel: +44 (0)121 456 2345
Fax: +44 (0)191 211 1313	Fax: +44(0)121 456 1569
www.royalhaskoning.com	www.halcrow.com

Photography courtesy of North East Coastal Observatory
 www.northeastcoastalobservatory.org.uk



Client: North East Coastal Group
Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 2
Scarborough
Borough Council Frontage

Analytical Report 3
'Full Measures' Survey 2010

Drawing Scale 1:5,000 at A4

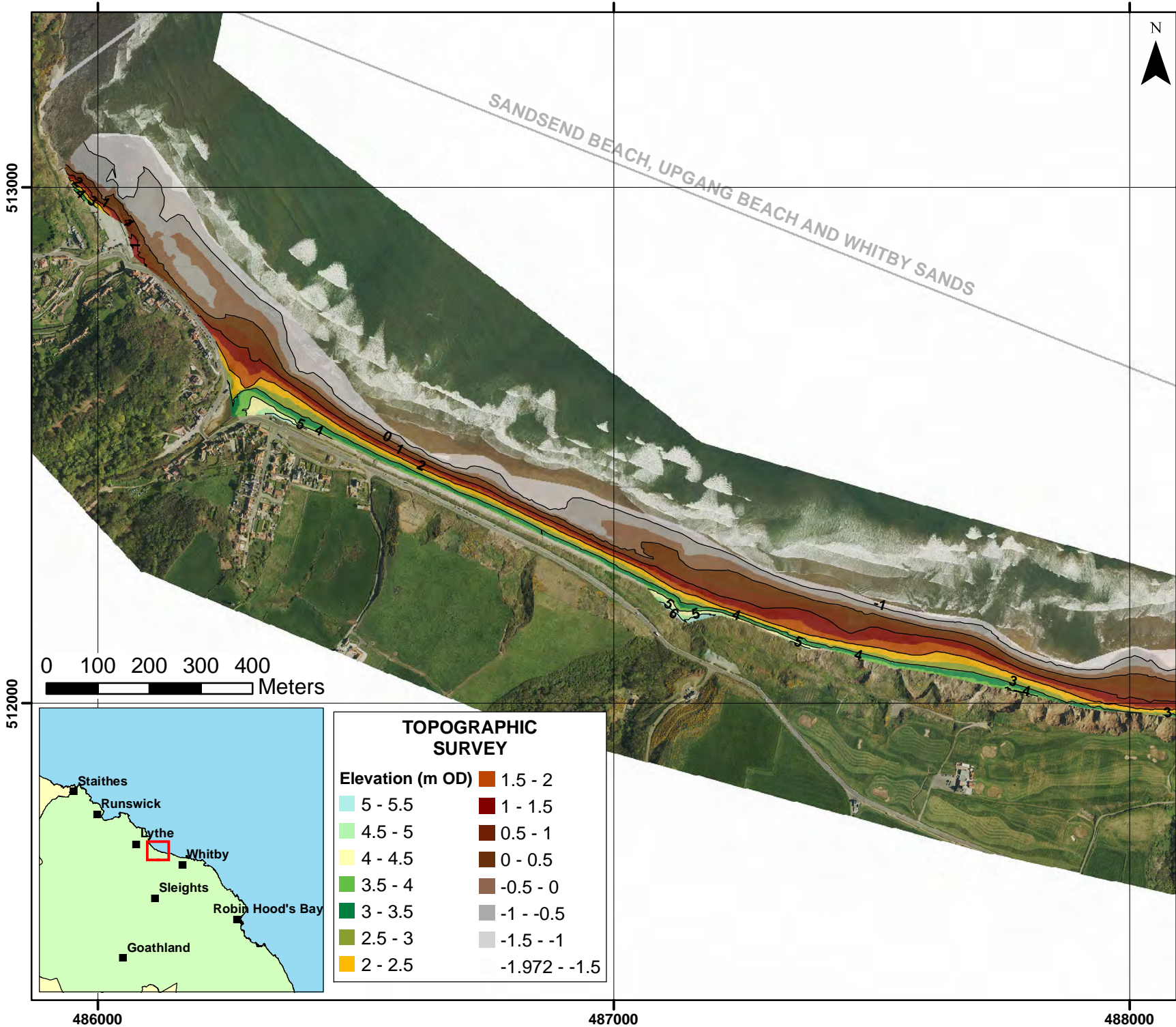
Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

ROYAL HASKONING
Royal Haskoning
Marlborough House
Marlborough Crescent
Newcastle upon Tyne
NE1 4EE

Halcrow
Halcrow Group Ltd
Lyndon House
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Birmingham
B16 8PE

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Fax: +44 (0)191 211 1313	Fax: +44(0)121 456 1569
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SANDESEND BEACH, UPGANG BEACH AND WHITBY SANDS

Topographic Contours
at 1 metre interval

Client: North East Coastal Group
Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 3a
Scarborough
Borough Council Frontage**

Analytical Report 3
'Full Measures' Survey 2010

Drawing Scale 1:10,000 at A4

Drawn by: AW Date: 30/11/2010
Checked by: RJ Date: 30/11/2010
Approved by: RJ Date: 30/11/2010

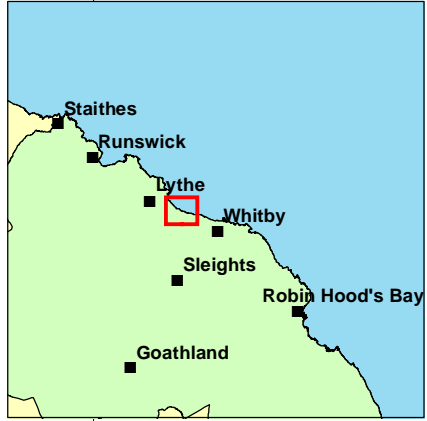
 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
Tel: +44 (0)191 211 1300 Fax: +44 (0)191 211 1313 www.royalhaskoning.com	Tel: +44 (0)121 456 2345 Fax: +44(0)121 456 1569 www.halcrow.com

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TOPOGRAPHIC SURVEY

Elevation (m OD) 5 - 5.5 4.5 - 5 4 - 4.5 3.5 - 4 3 - 3.5 2.5 - 3 2 - 2.5	1.5 - 2 1 - 1.5 0.5 - 1 0 - 0.5 -0.5 - 0 -1 - -0.5 -1.5 - -1 -1.972 - -1.5
--	---

0 100 200 300 400 Meters



486000

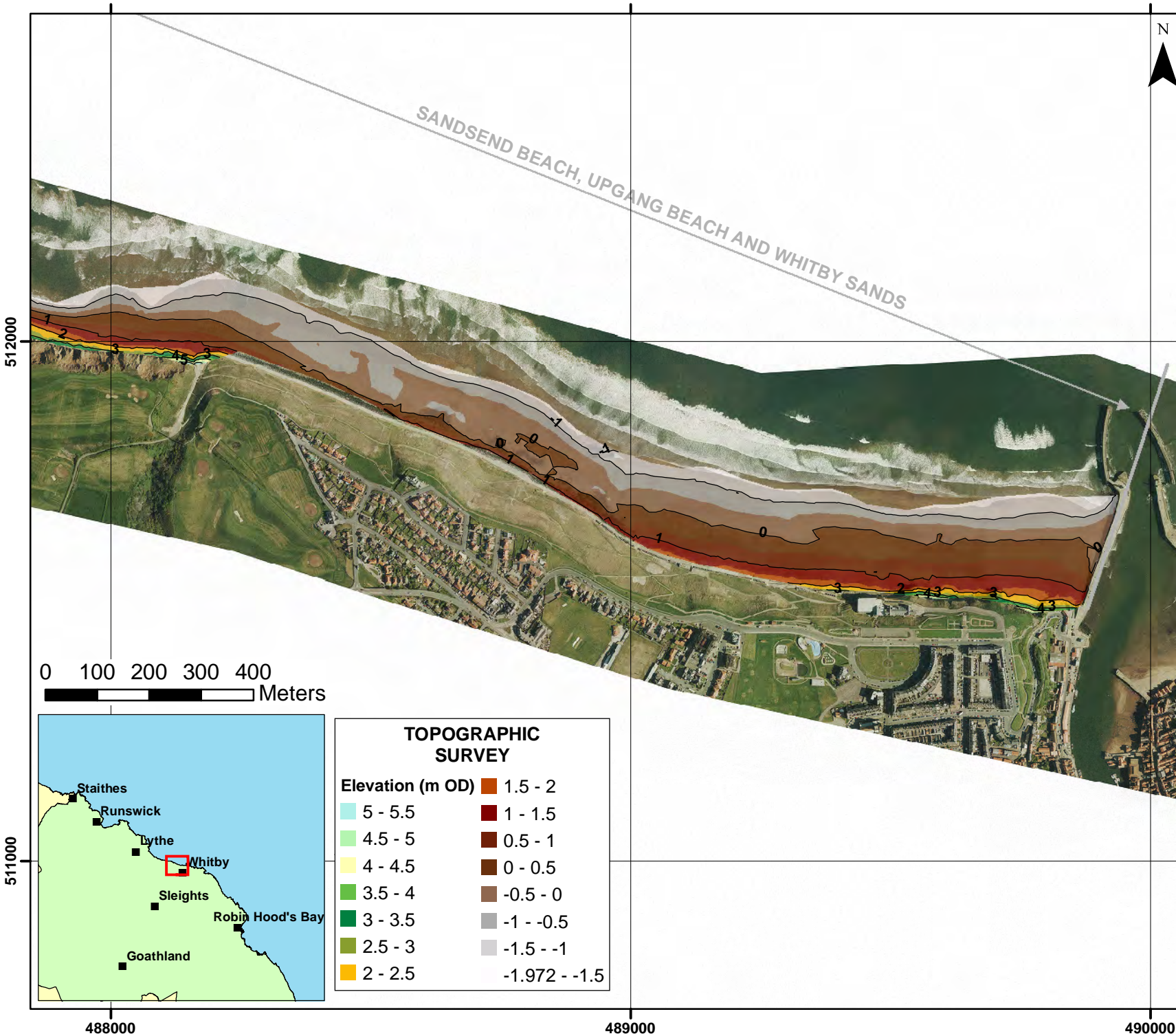
487000

488000

513000

512000





Topographic Contours at 1 metre interval

Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 3b
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:10,000 at A4

Drawn by: AW Date: 30/11/2010
 Checked by: RJ Date: 30/11/2010
 Approved by: RJ Date: 30/11/2010

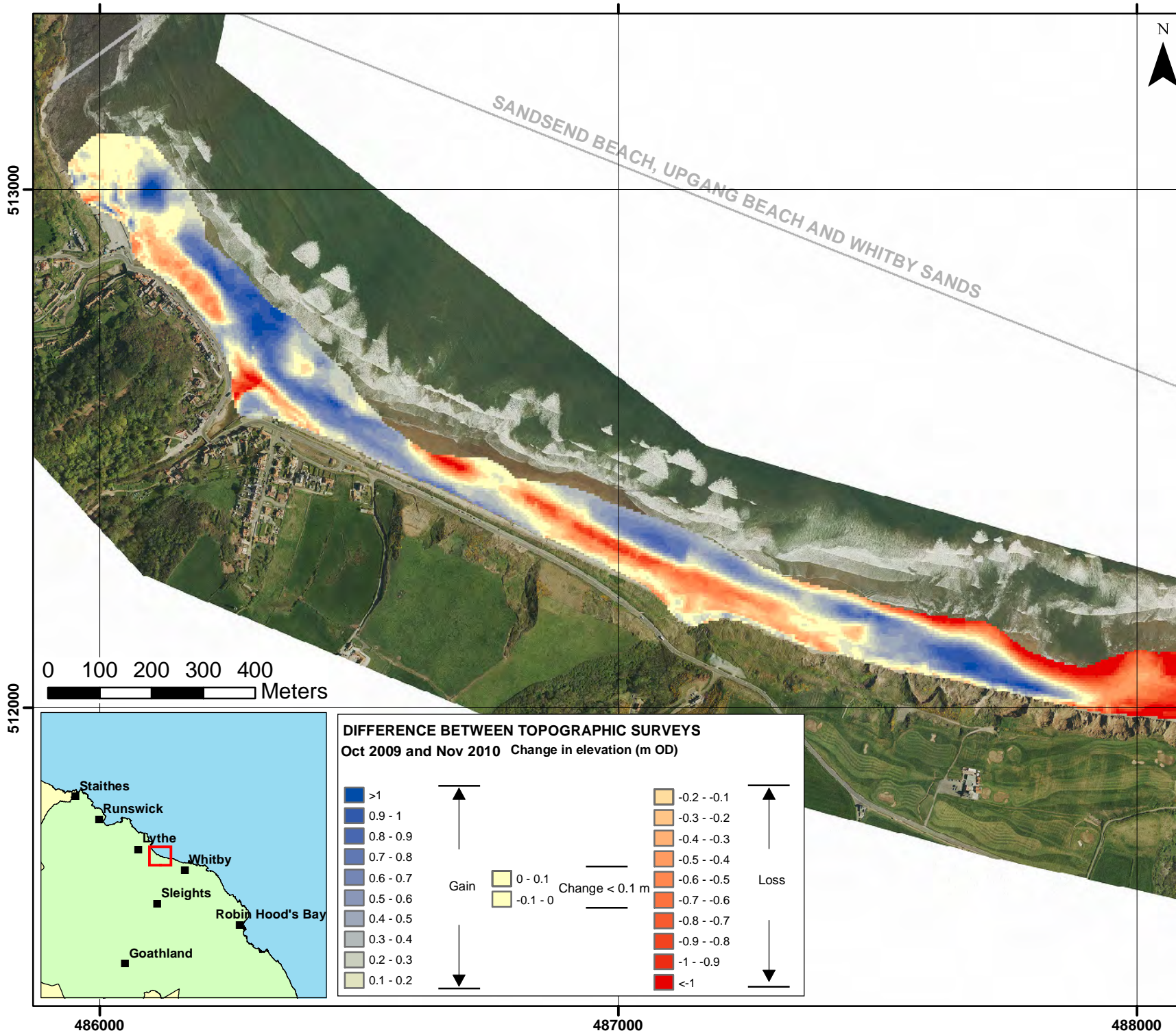
 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
---	--

Tel: +44 (0)191 211 1300 Tel: +44 (0)121 456 2345
 Fax: +44 (0)191 211 1313 Fax: +44(0)121 456 1569
www.royalhaskoning.com www.halcrow.com

Photography courtesy of North East Coastal Observatory
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TOPOGRAPHIC SURVEY

<p>Elevation (m OD)</p> <ul style="list-style-type: none"> 5 - 5.5 4.5 - 5 4 - 4.5 3.5 - 4 3 - 3.5 2.5 - 3 2 - 2.5 	<ul style="list-style-type: none"> 1.5 - 2 1 - 1.5 0.5 - 1 0 - 0.5 -0.5 - 0 -1 - -0.5 -1.5 - -1 -1.972 - -1.5
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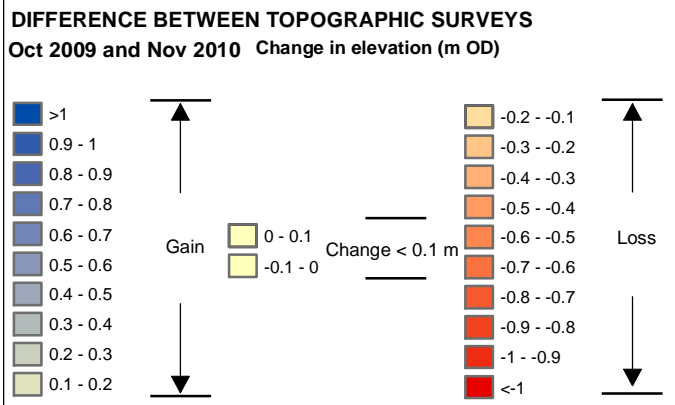
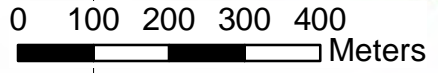


SANDESEND BEACH, UPGANG BEACH AND WHITBY SANDS



513000

512000



486000

487000

488000

Client: North East Coastal Group
Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 4a
Scarborough
Borough Council Frontage

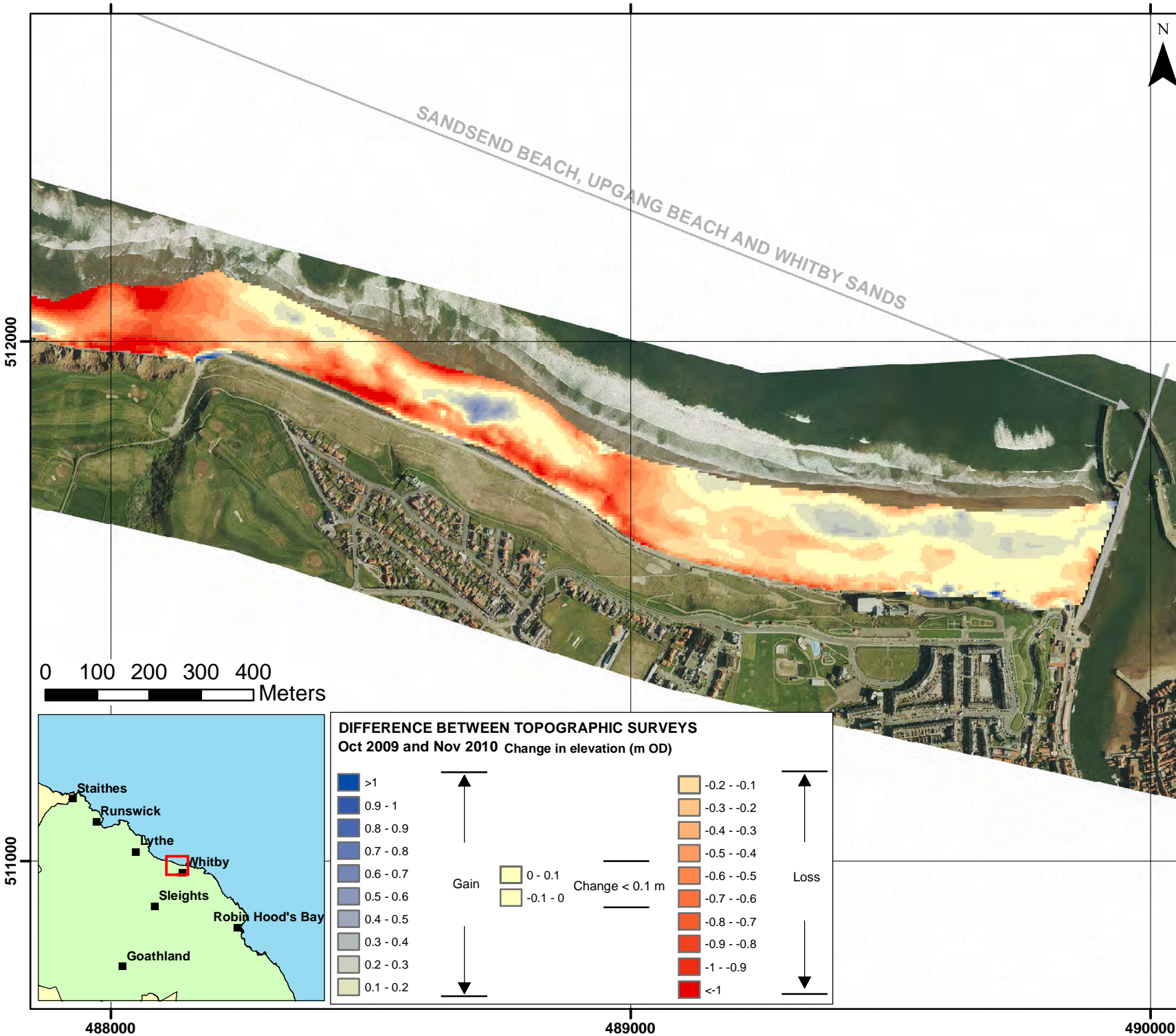
Analytical Report 3
'Full Measures' Survey 2010

Drawing Scale 1:10,000 at A4

Drawn by: AW Date: 30/11/2010
Checked by: RJ Date: 30/11/2010
Approved by: RJ Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 4b Scarborough Borough Council Frontage

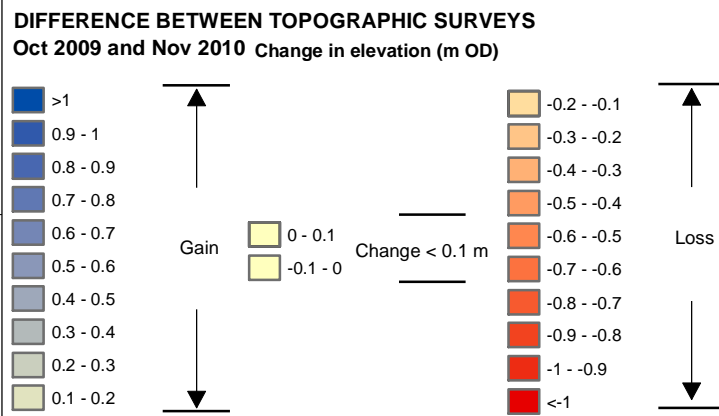
Analytical Report 3
 'Full Measures' Survey 2010

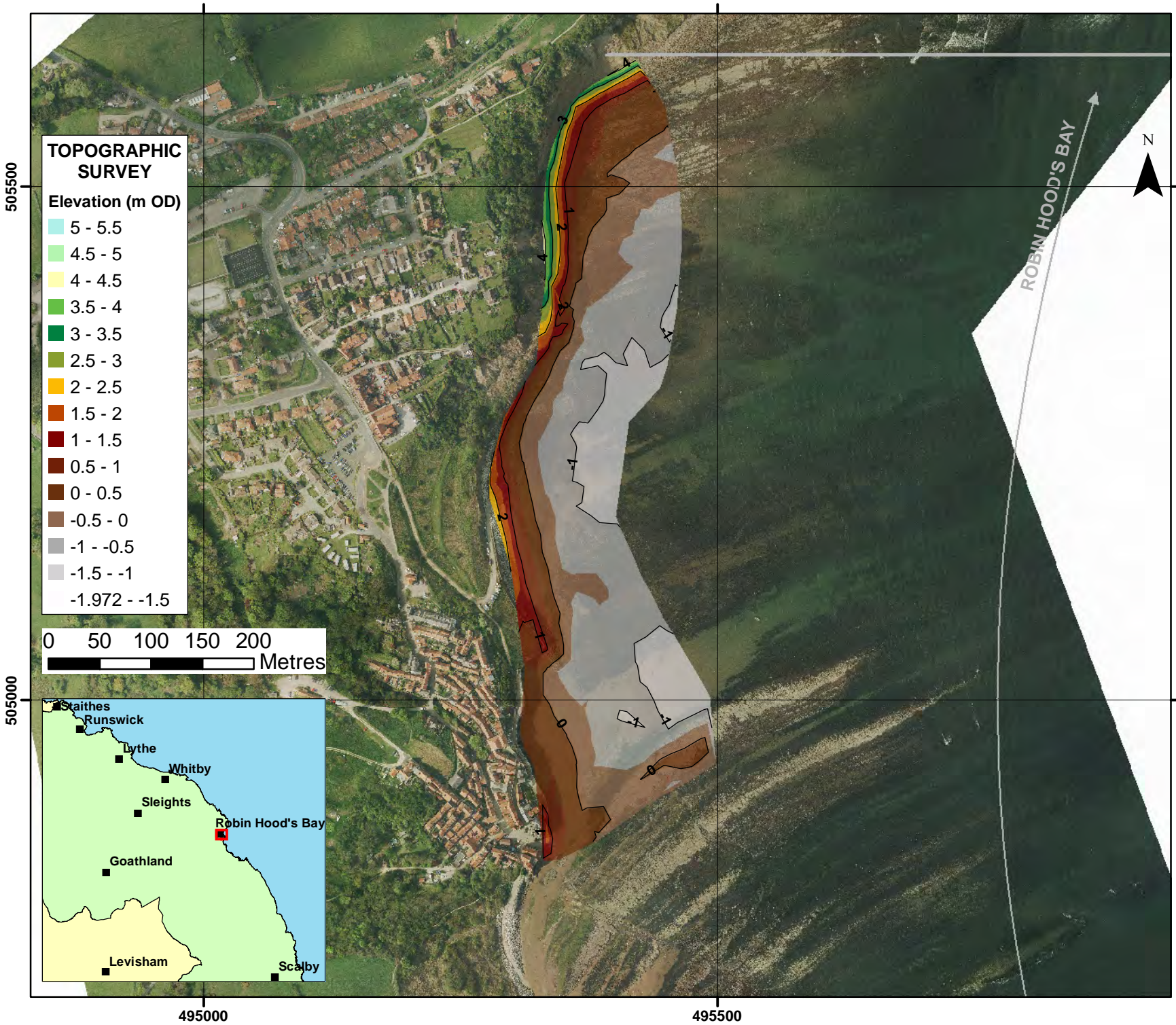
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Drawn by: AW Date: 30/11/2010
 Checked by: RJ Date: 30/11/2010
 Approved by: RJ Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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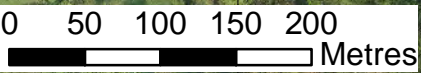




TOPOGRAPHIC SURVEY

Elevation (m OD)

- 5 - 5.5
- 4.5 - 5
- 4 - 4.5
- 3.5 - 4
- 3 - 3.5
- 2.5 - 3
- 2 - 2.5
- 1.5 - 2
- 1 - 1.5
- 0.5 - 1
- 0 - 0.5
- 0.5 - 0
- 1 - -0.5
- 1.5 - -1
- 1.972 - -1.5



— Topographic Contours at 1 metre interval



Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 5
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:5,000 at A4

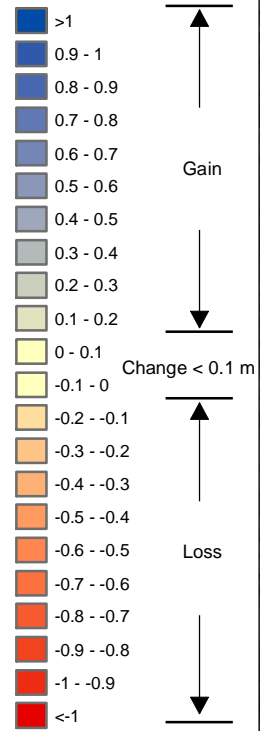
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 Approved by: RJ Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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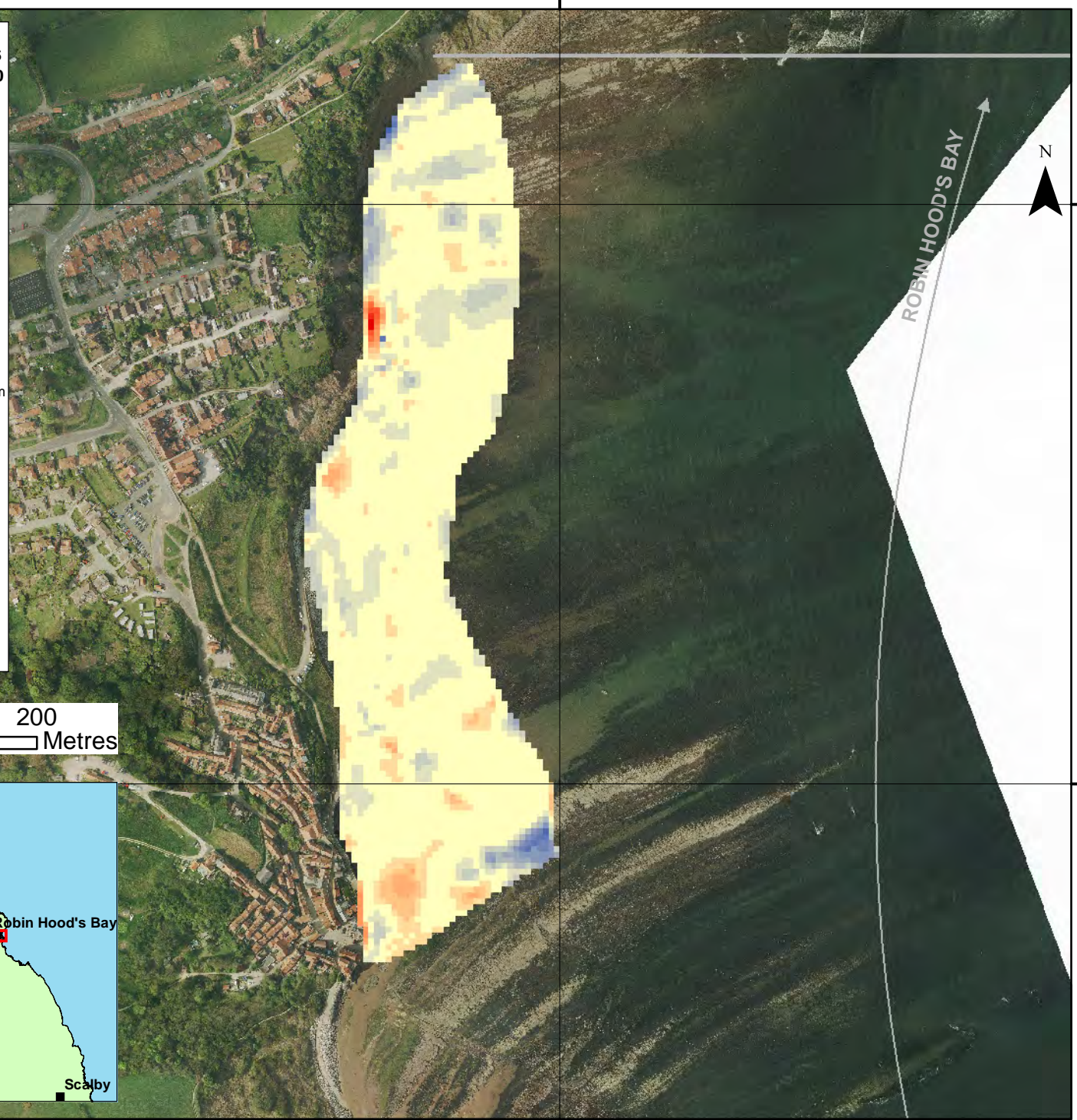
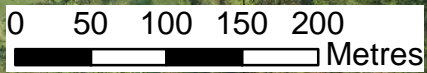
Tel: +44 (0)191 211 1300 Tel: +44 (0)121 456 2345
 Fax: +44 (0)191 211 1313 Fax: +44(0)121 456 1569
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DIFFERENCE BETWEEN TOPOGRAPHIC SURVEYS
March 2010 and Sept 2010
Change in elevation (m OD)



Change < 0.1 m



Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 6
Scarborough
Borough Council Frontage

Analytical Report 3
 'Full Measures' Survey 2010

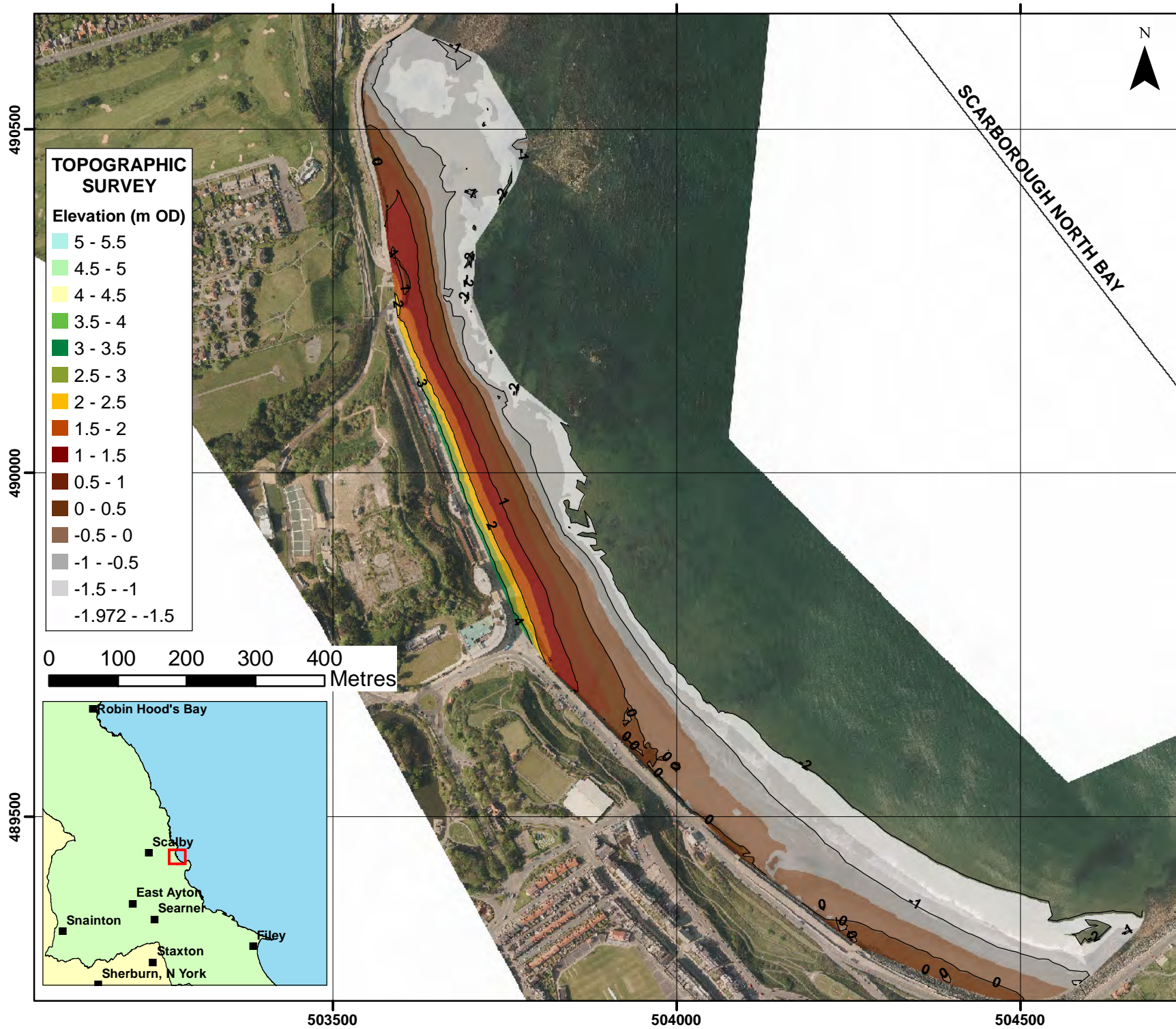
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Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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Fax: +44 (0)191 211 1313	Fax: +44(0)121 456 1569
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— Topographic Contours at 1 metre interval

Client: North East Coastal Group
Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 7
Scarborough
Borough Council Frontage**

Analytical Report 3
'Full Measures' Survey 2010

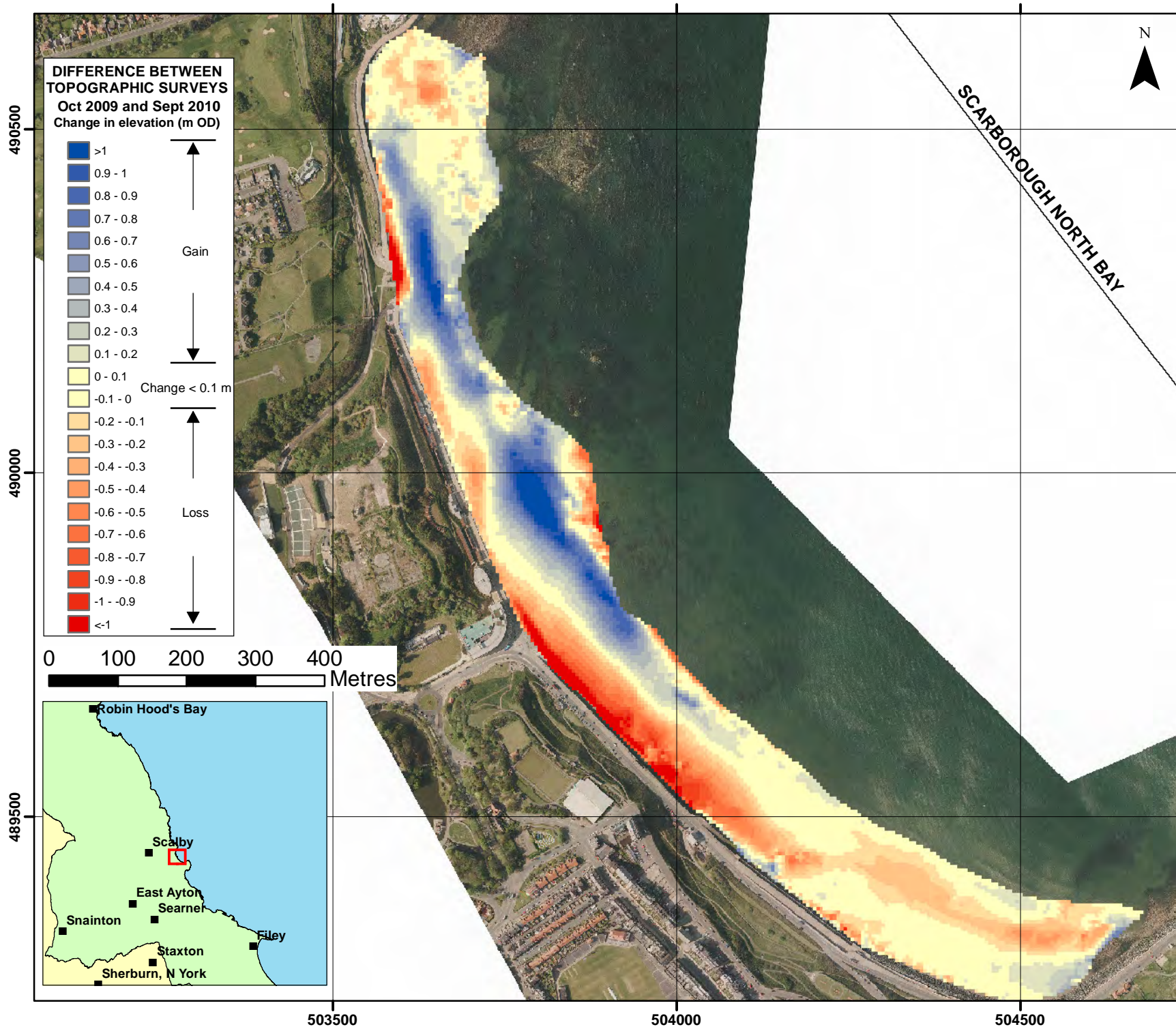
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Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

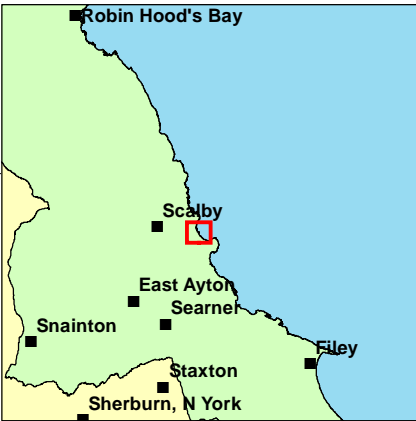
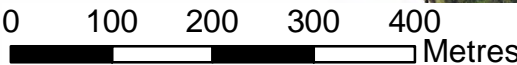
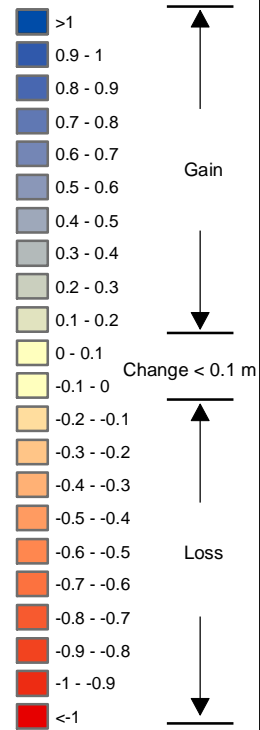
 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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Fax: +44 (0)191 211 1313	Fax: +44(0)121 456 1569
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DIFFERENCE BETWEEN TOPOGRAPHIC SURVEYS
Oct 2009 and Sept 2010
 Change in elevation (m OD)



Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 8
Scarborough
Borough Council Frontage

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:7,500 at A4

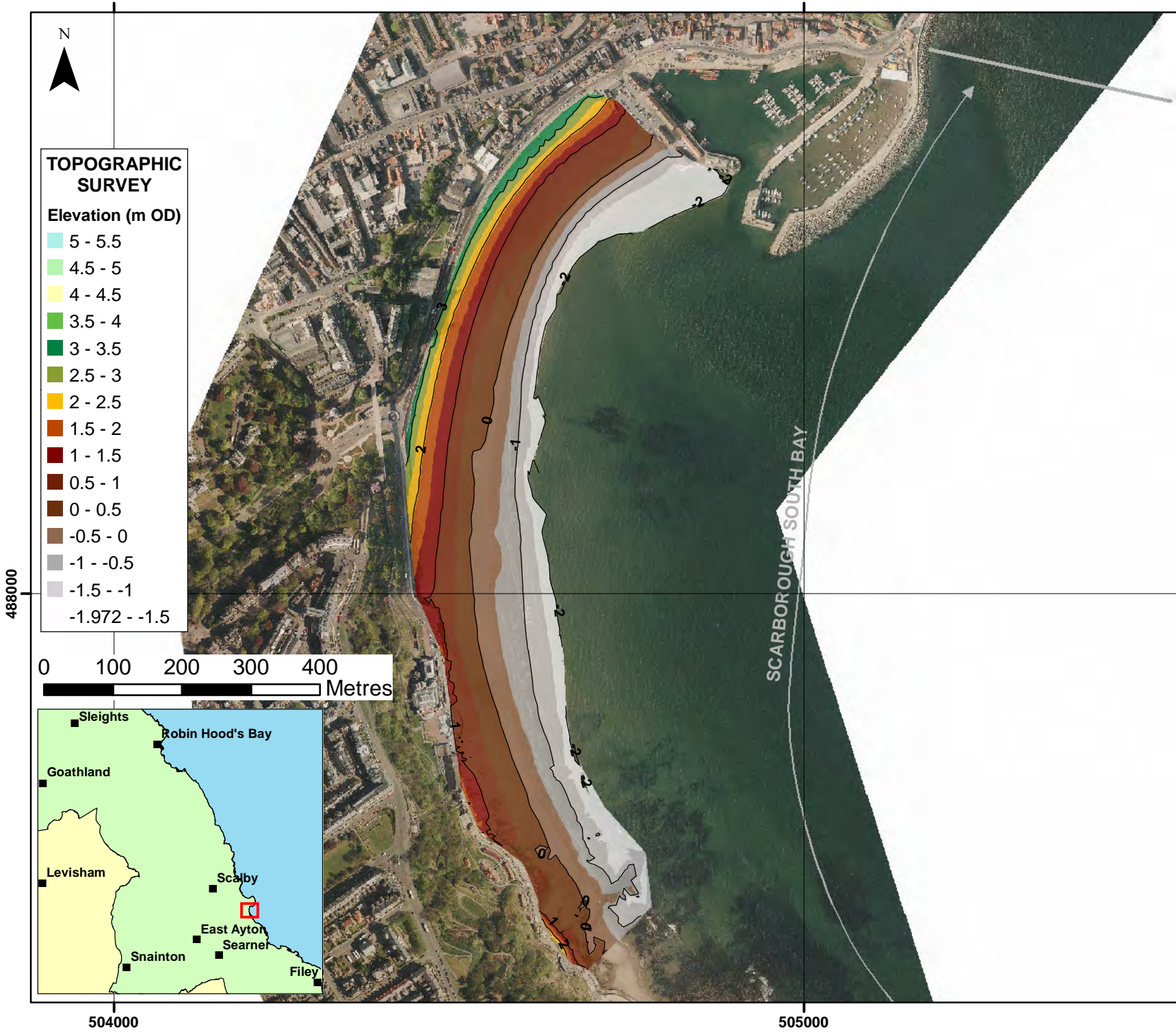
Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

ROYAL HASKONING
 Royal Haskoning
 Marlborough House
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Fax: +44 (0)191 211 1313	Fax: +44(0)121 456 1569
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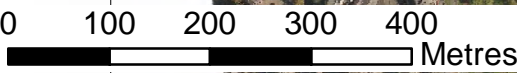
Photography courtesy of North East Coastal Observatory
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TOPOGRAPHIC SURVEY

Elevation (m OD)

5 - 5.5
4.5 - 5
4 - 4.5
3.5 - 4
3 - 3.5
2.5 - 3
2 - 2.5
1.5 - 2
1 - 1.5
0.5 - 1
0 - 0.5
-0.5 - 0
-1 - -0.5
-1.5 - -1
-1.972 - -1.5



— Topographic Contours at 1 metre interval

Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 9
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:7,500 at A4

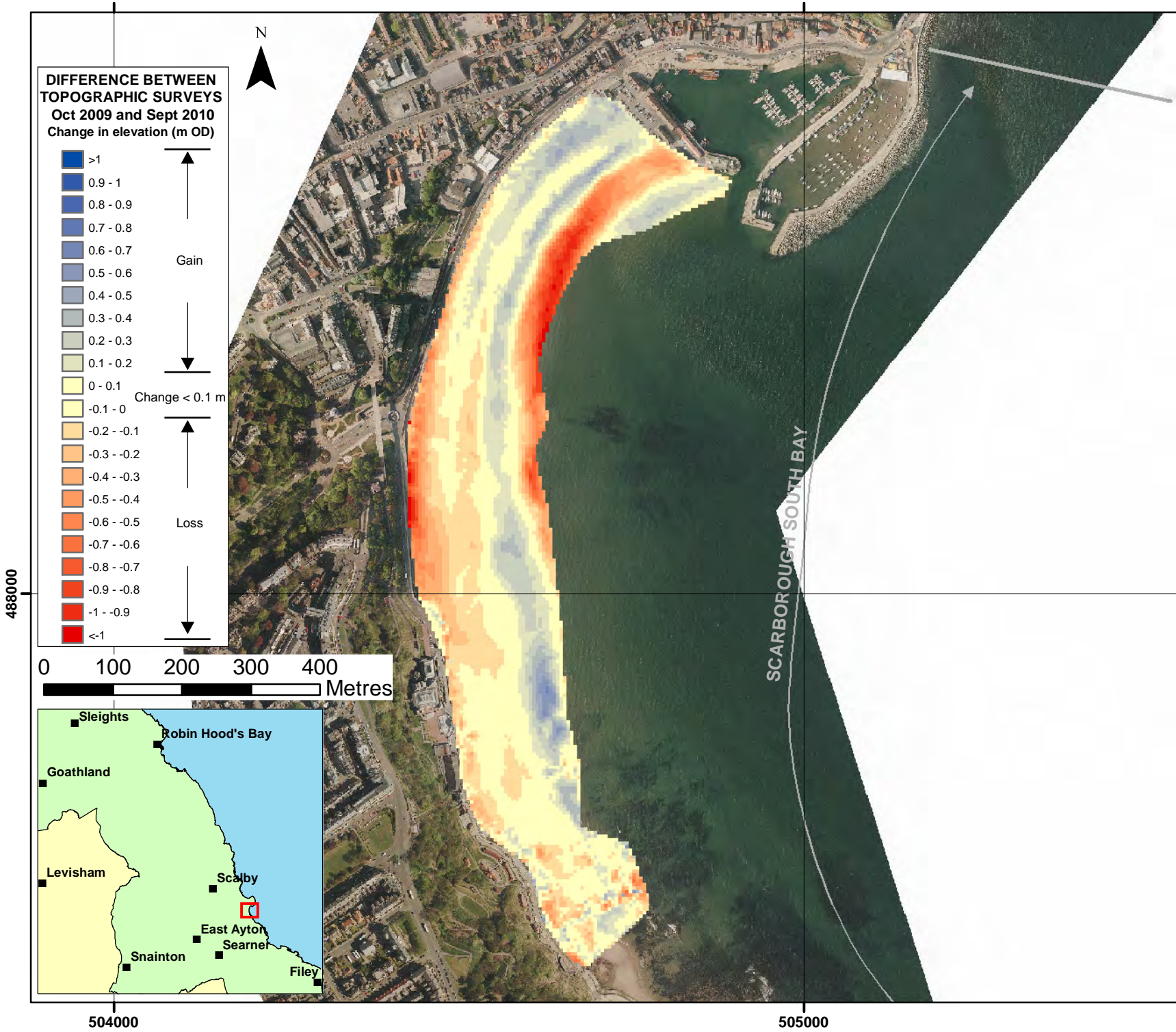
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Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
Tel: +44 (0)191 211 1300 Fax: +44 (0)191 211 1313 www.royalhaskoning.com	Tel: +44 (0)121 456 2345 Fax: +44(0)121 456 1569 www.halcrow.com

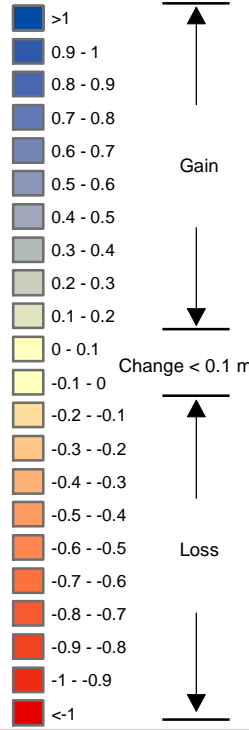
Photography courtesy of North East Coastal Observatory
www.northeastcoastalobservatory.org.uk

504000

505000

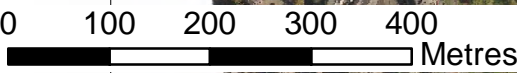


DIFFERENCE BETWEEN TOPOGRAPHIC SURVEYS
Oct 2009 and Sept 2010
Change in elevation (m OD)



Gain

Loss



Client: North East Coastal Group

Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 10
Scarborough
Borough Council Frontage

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:7,500 at A4

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Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

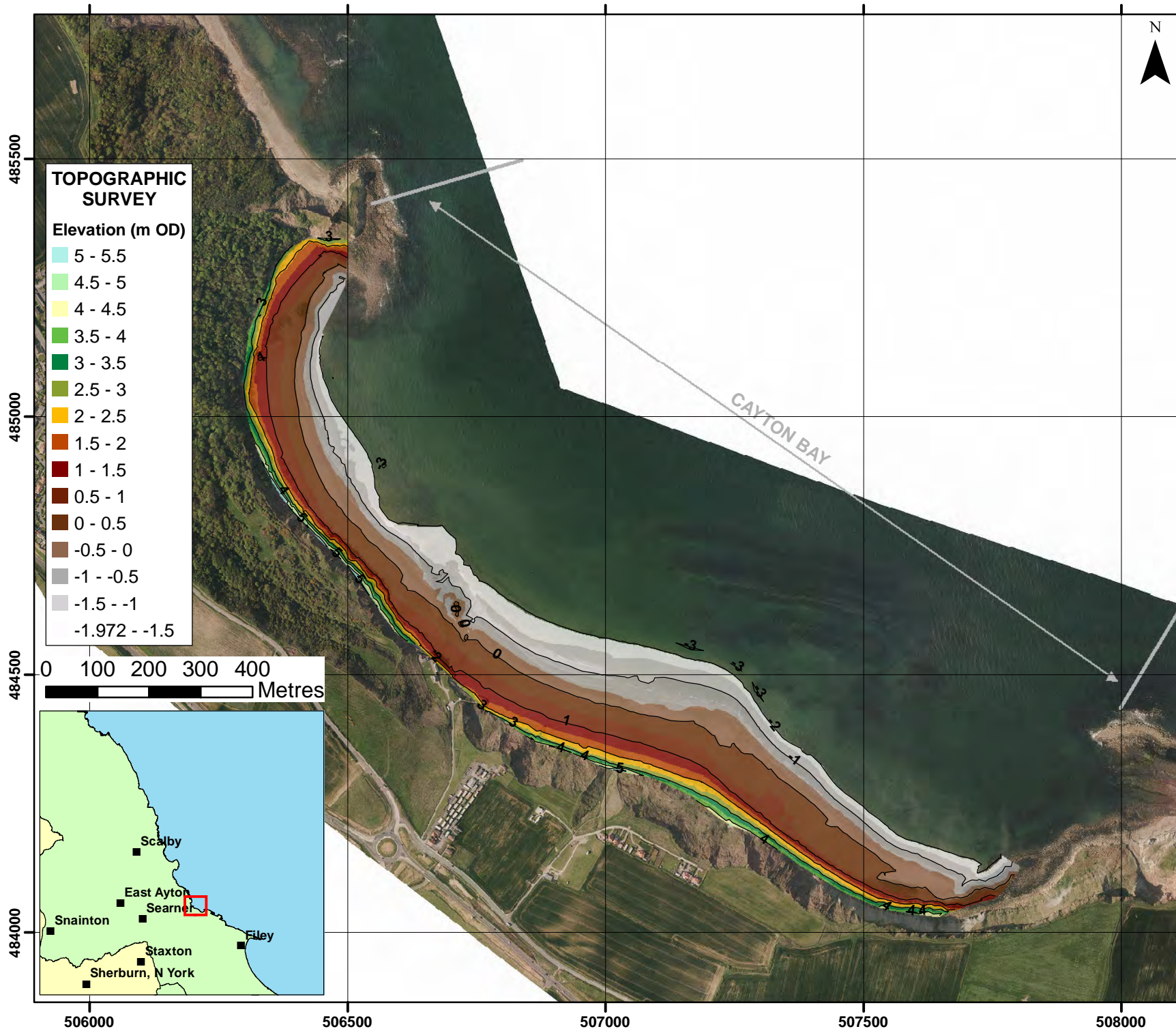
ROYAL HASKONING
 Royal Haskoning
 Marlborough House
 Marlborough Crescent
 Newcastle upon Tyne
 NE1 4EE

Tel: +44 (0)191 211 1300
 Fax: +44 (0)191 211 1313
 www.royalhaskoning.com

Halcrow
 Halcrow Group Ltd
 Lyndon House
 62 Hagley Road
 Edgbaston
 Birmingham
 B16 8PE

Tel: +44 (0)121 456 2345
 Fax: +44(0)121 456 1569
 www.halcrow.com

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— Topographic Contours at 1 metre interval

Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 11
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

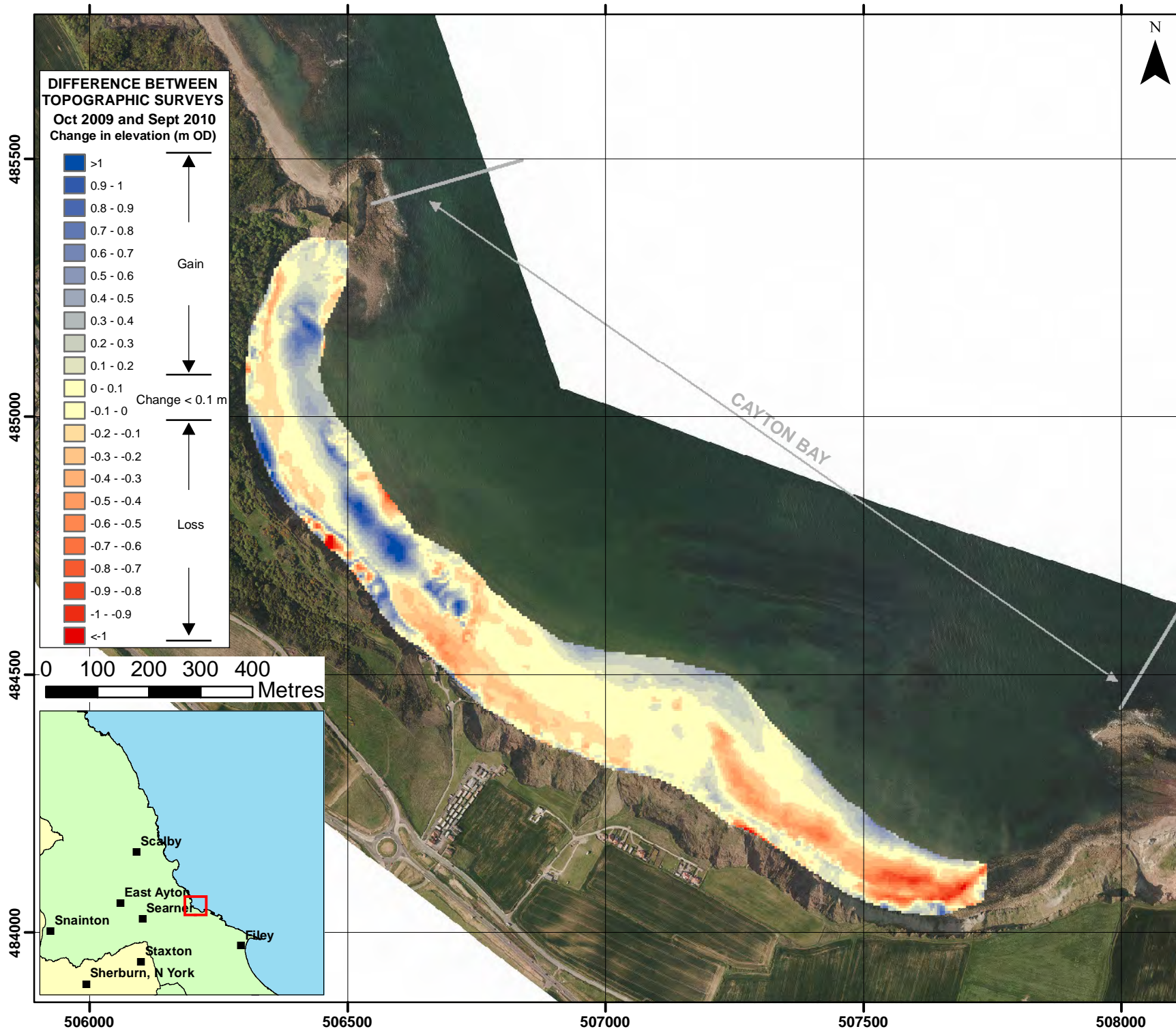
Drawing Scale 1:10,000 at A4

Drawn by: AW Date: 30/11/2010
 Checked by: RJ Date: 30/11/2010
 Approved by: RJ Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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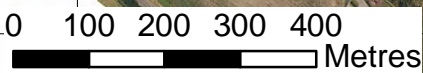
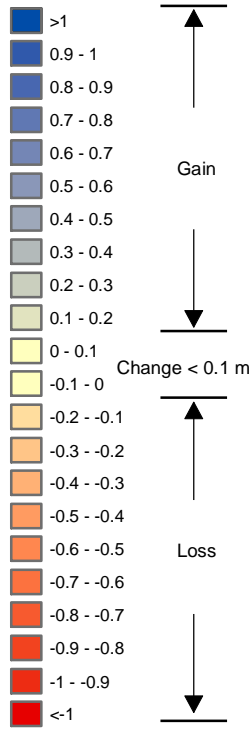
Tel: +44 (0)191 211 1300 Tel: +44 (0)121 456 2345
 Fax: +44 (0)191 211 1313 Fax: +44(0)121 456 1569
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DIFFERENCE BETWEEN TOPOGRAPHIC SURVEYS

Oct 2009 and Sept 2010
Change in elevation (m OD)



Client: North East Coastal Group

Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 12
Scarborough
Borough Council Frontage

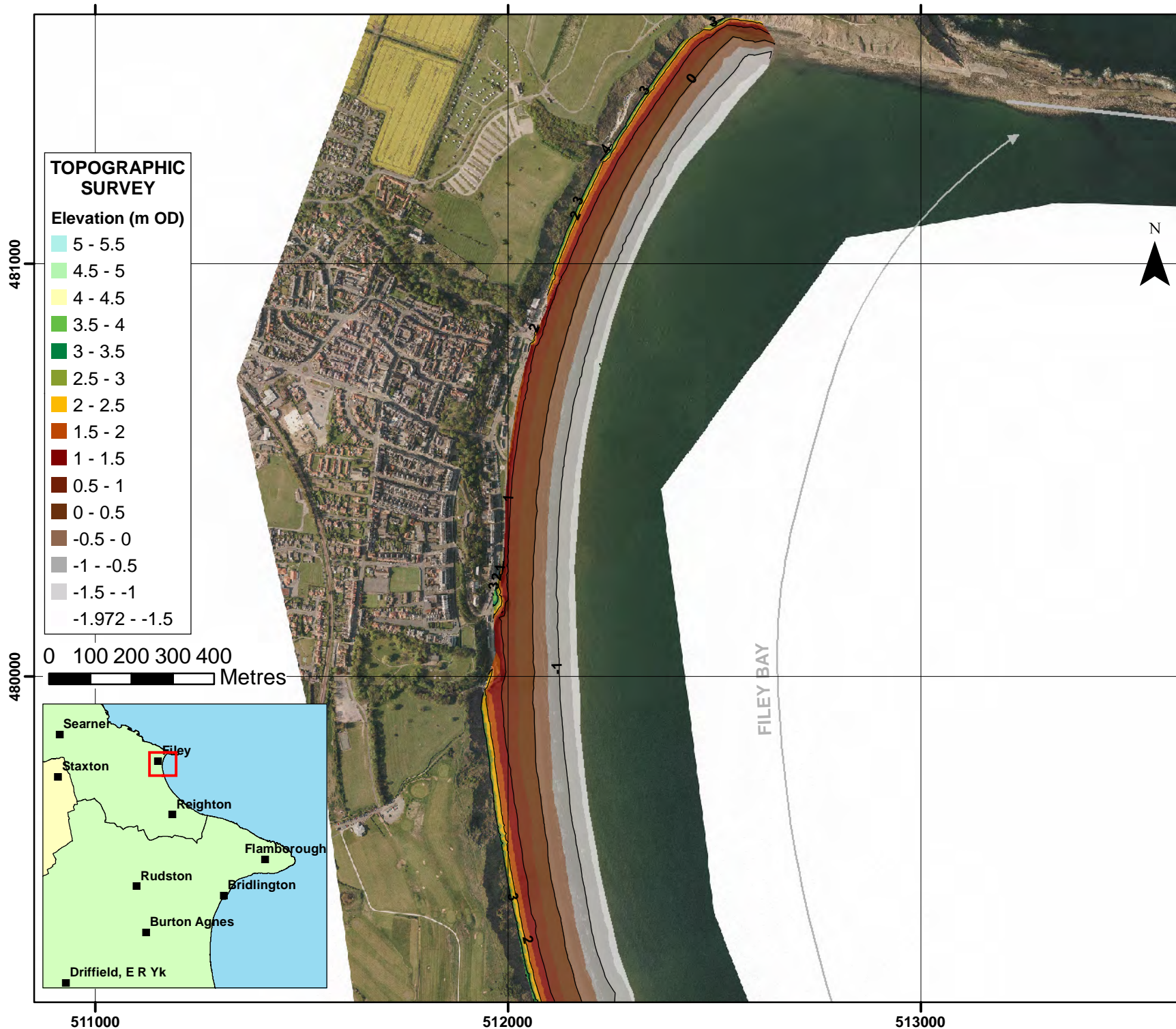
Analytical Report 3
'Full Measures' Survey 2010

Drawing Scale 1:10,000 at A4

Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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TOPOGRAPHIC SURVEY

Elevation (m OD)

5 - 5.5
4.5 - 5
4 - 4.5
3.5 - 4
3 - 3.5
2.5 - 3
2 - 2.5
1.5 - 2
1 - 1.5
0.5 - 1
0 - 0.5
-0.5 - 0
-1 - -0.5
-1.5 - -1
-1.972 - -1.5

— Topographic Contours at 1 metre interval



Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 13a
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

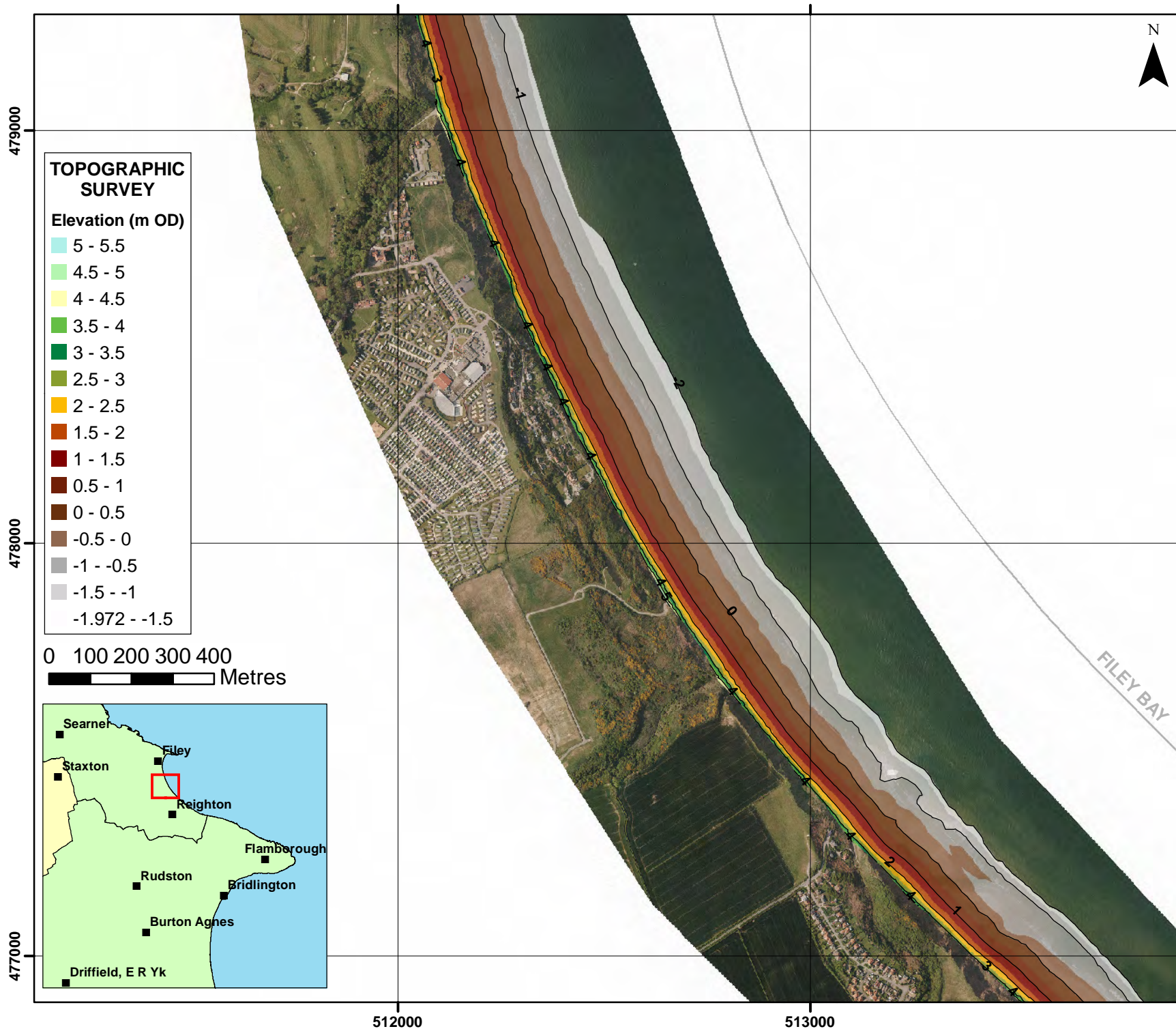
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Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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Tel: +44 (0)191 211 1300	Tel: +44 (0)121 456 2345
Fax: +44 (0)191 211 1313	Fax: +44(0)121 456 1569
www.royalhaskoning.com	www.halcrow.com

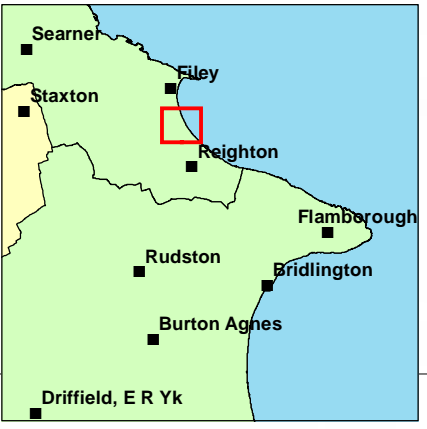
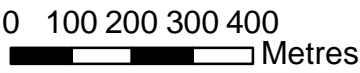
Photography courtesy of North East Coastal Observatory
www.northeastcoastalobservatory.org.uk



TOPOGRAPHIC SURVEY

Elevation (m OD)

5 - 5.5
4.5 - 5
4 - 4.5
3.5 - 4
3 - 3.5
2.5 - 3
2 - 2.5
1.5 - 2
1 - 1.5
0.5 - 1
0 - 0.5
-0.5 - 0
-1 - -0.5
-1.5 - -1
-1.972 - -1.5



— Topographic Contours at 1 metre interval

Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 13b
 Scarborough
 Borough Council Frontage**

Analytical Report 3
 'Full Measures' Survey 2010

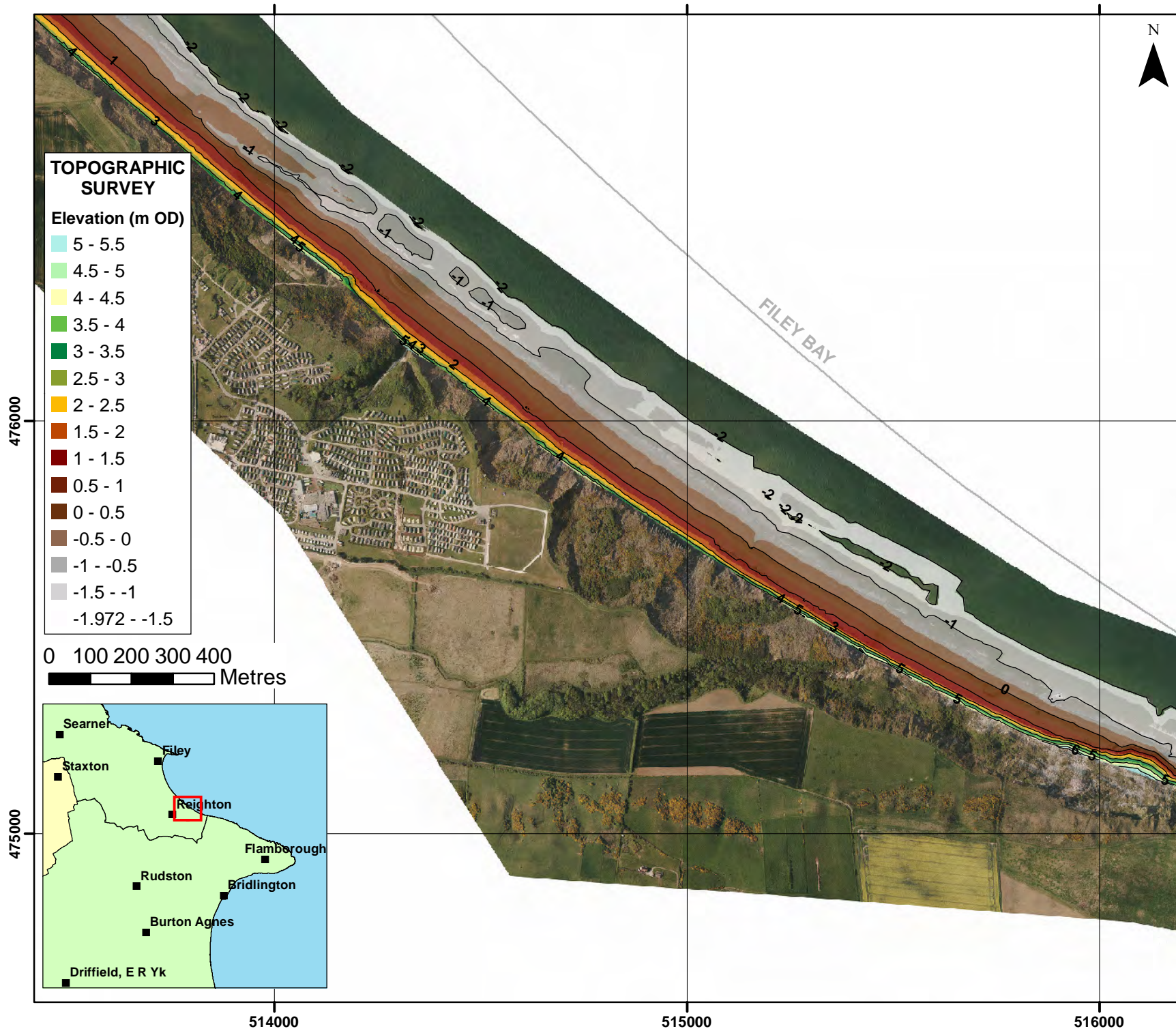
Drawing Scale 1:12,500 at A4

Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

 ROYAL HASKONING Royal Haskoning Marlborough House Marlborough Crescent Newcastle upon Tyne NE1 4EE	 Halcrow Halcrow Group Ltd Lyndon House 62 Hagley Road Edgbaston Birmingham B16 8PE
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Photography courtesy of North East Coastal Observatory
www.northeastcoastalobservatory.org.uk



— Topographic Contours at 1 metre interval

Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

**Appendix B - Map 13c
 Scarborough
 Borough Council Frontage**

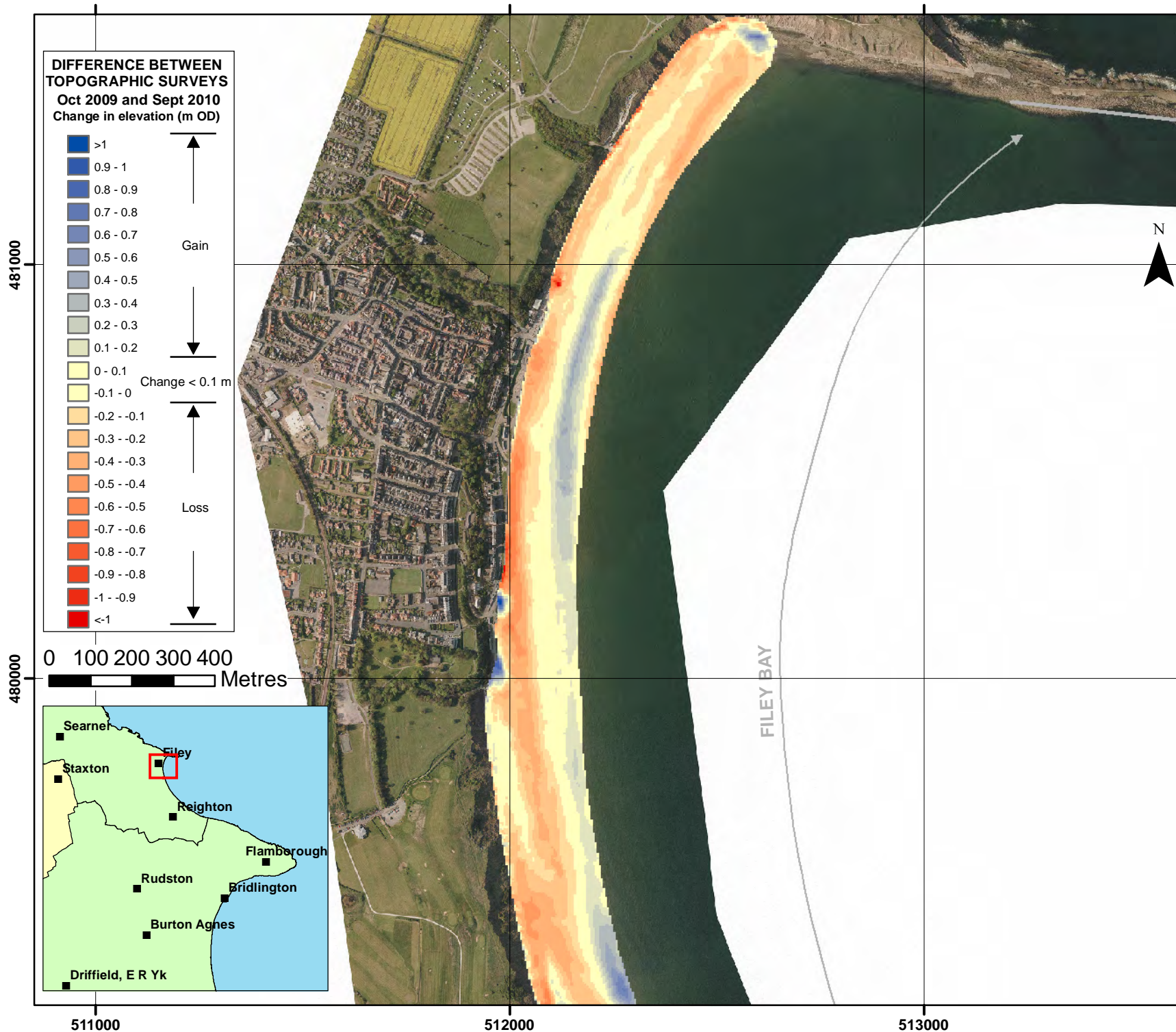
Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:12,500 at A4

Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

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Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 14a
Scarborough
Borough Council Frontage

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:12,500 at A4

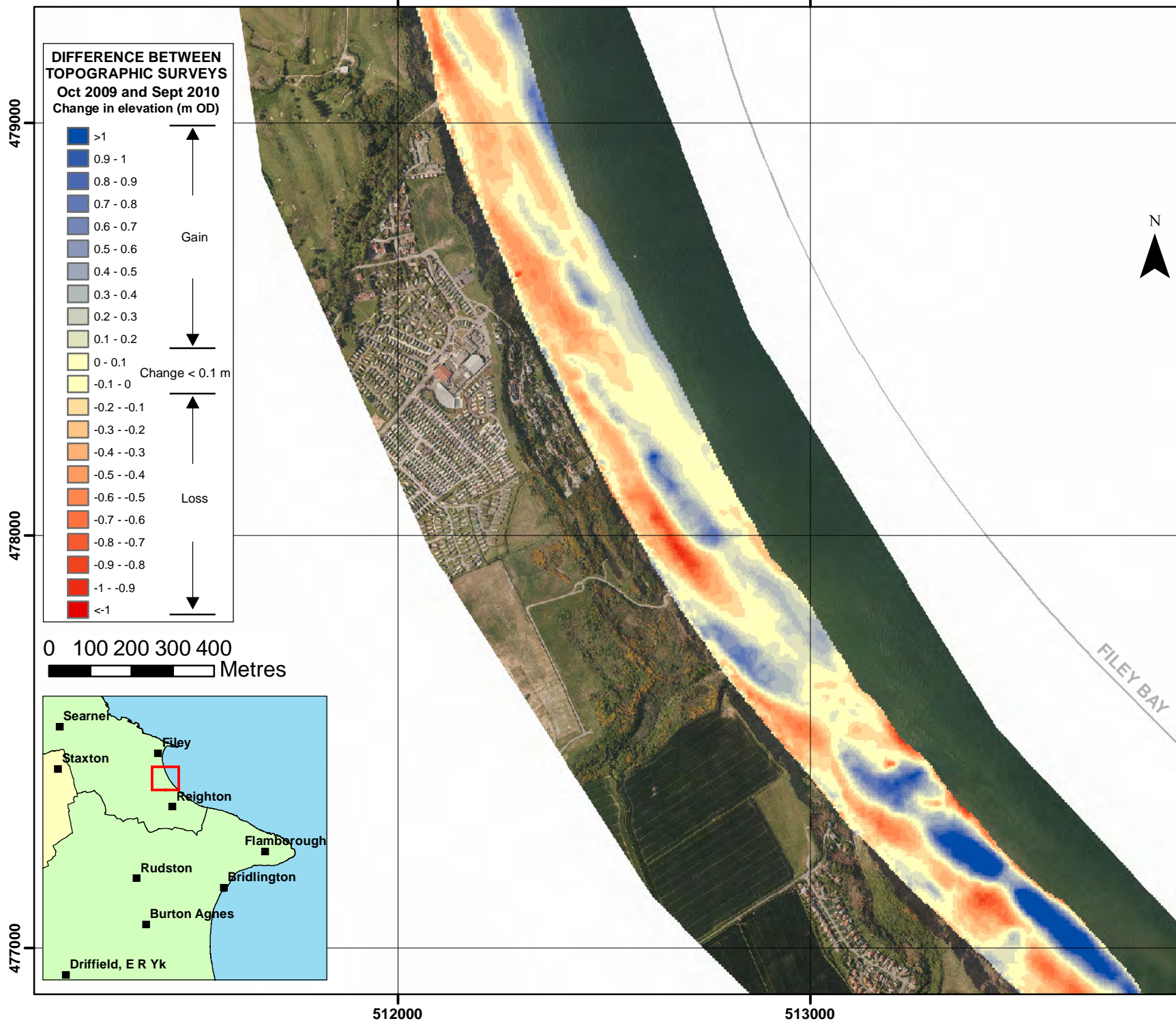
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 Checked by: RJ Date: 30/11/2010
 Approved by: RJ Date: 30/11/2010

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Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 14b
Scarborough
Borough Council Frontage

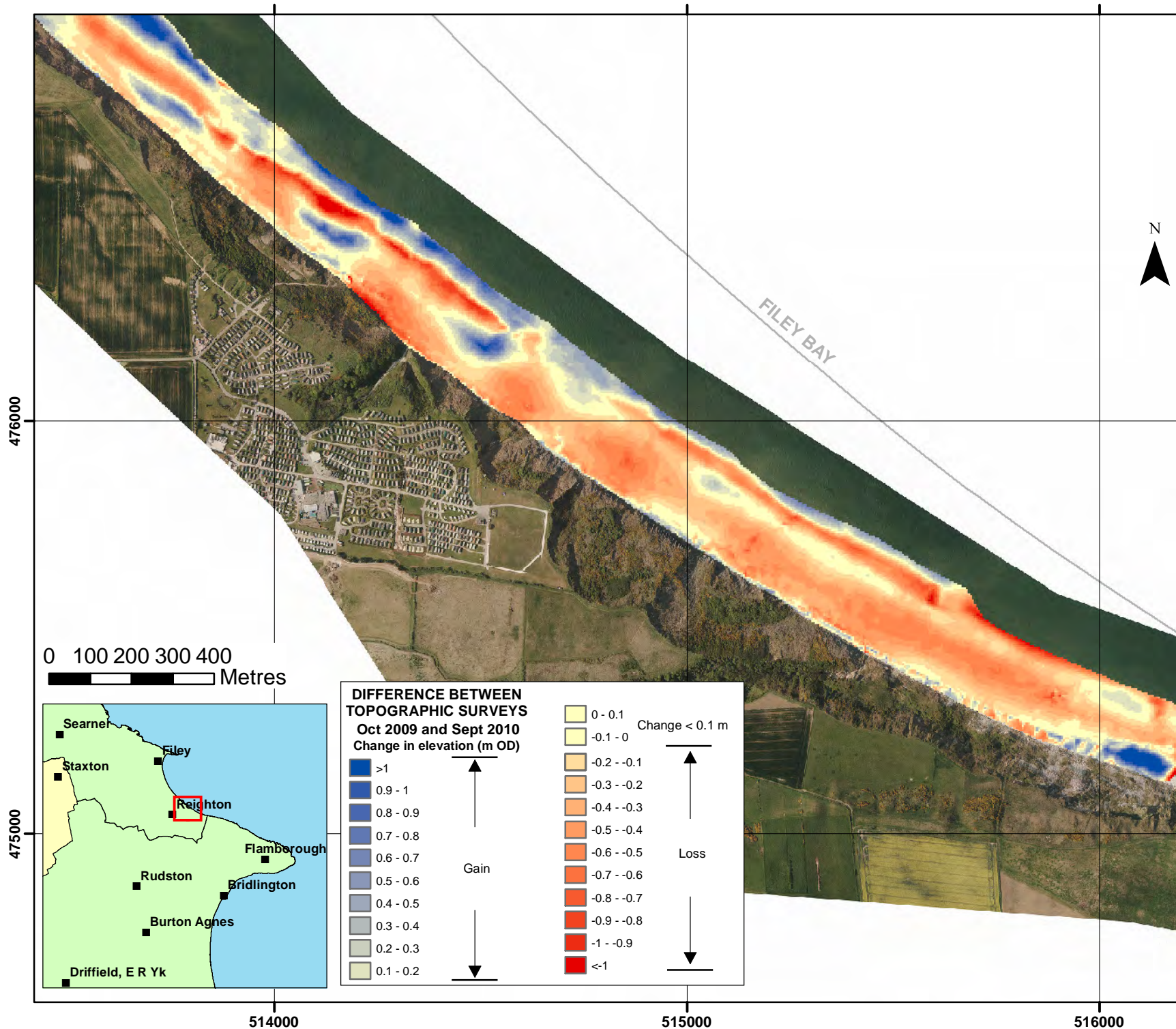
Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:12,500 at A4

Drawn by: AW	Date: 30/11/2010
Checked by: RJ	Date: 30/11/2010
Approved by: RJ	Date: 30/11/2010

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Client: North East Coastal Group
 Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 14c
Scarborough
Borough Council Frontage

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:12,500 at A4

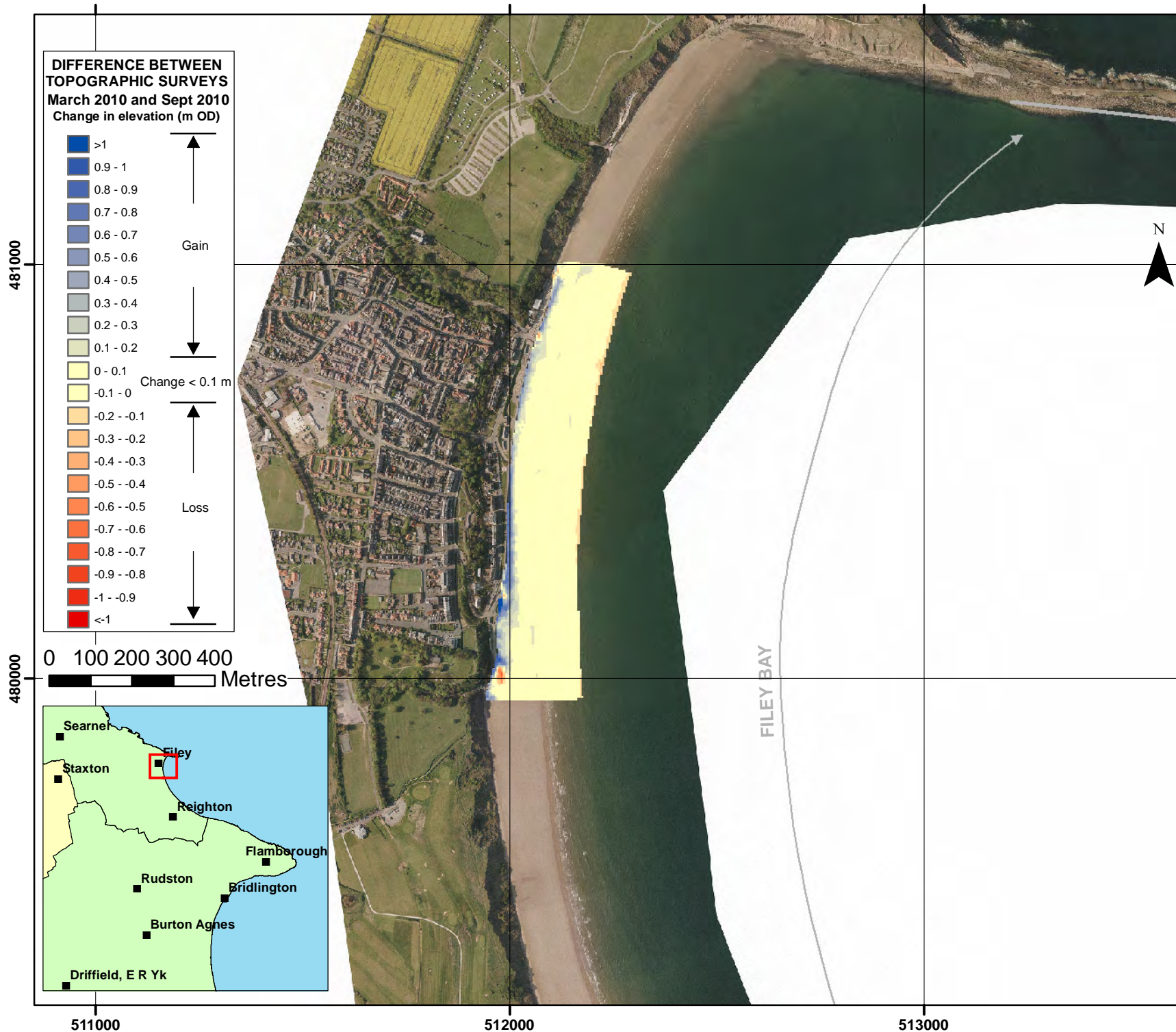
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 Checked by: RJ Date: 30/11/2010
 Approved by: RJ Date: 30/11/2010

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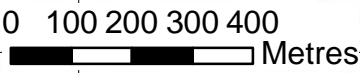
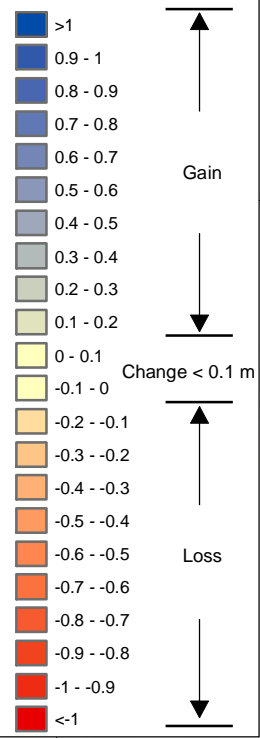
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DIFFERENCE BETWEEN TOPOGRAPHIC SURVEYS
March 2010 and Sept 2010
 Change in elevation (m OD)



Client: North East Coastal Group

Project: Cell 1 Regional Coastal Monitoring Programme

Appendix B - Map 14d
Scarborough
Borough Council Frontage

Analytical Report 3
 'Full Measures' Survey 2010

Drawing Scale 1:12,500 at A4

Drawn by: AW Date: 30/11/2010

Checked by: RJ Date: 30/11/2010

Approved by: RJ Date: 30/11/2010

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