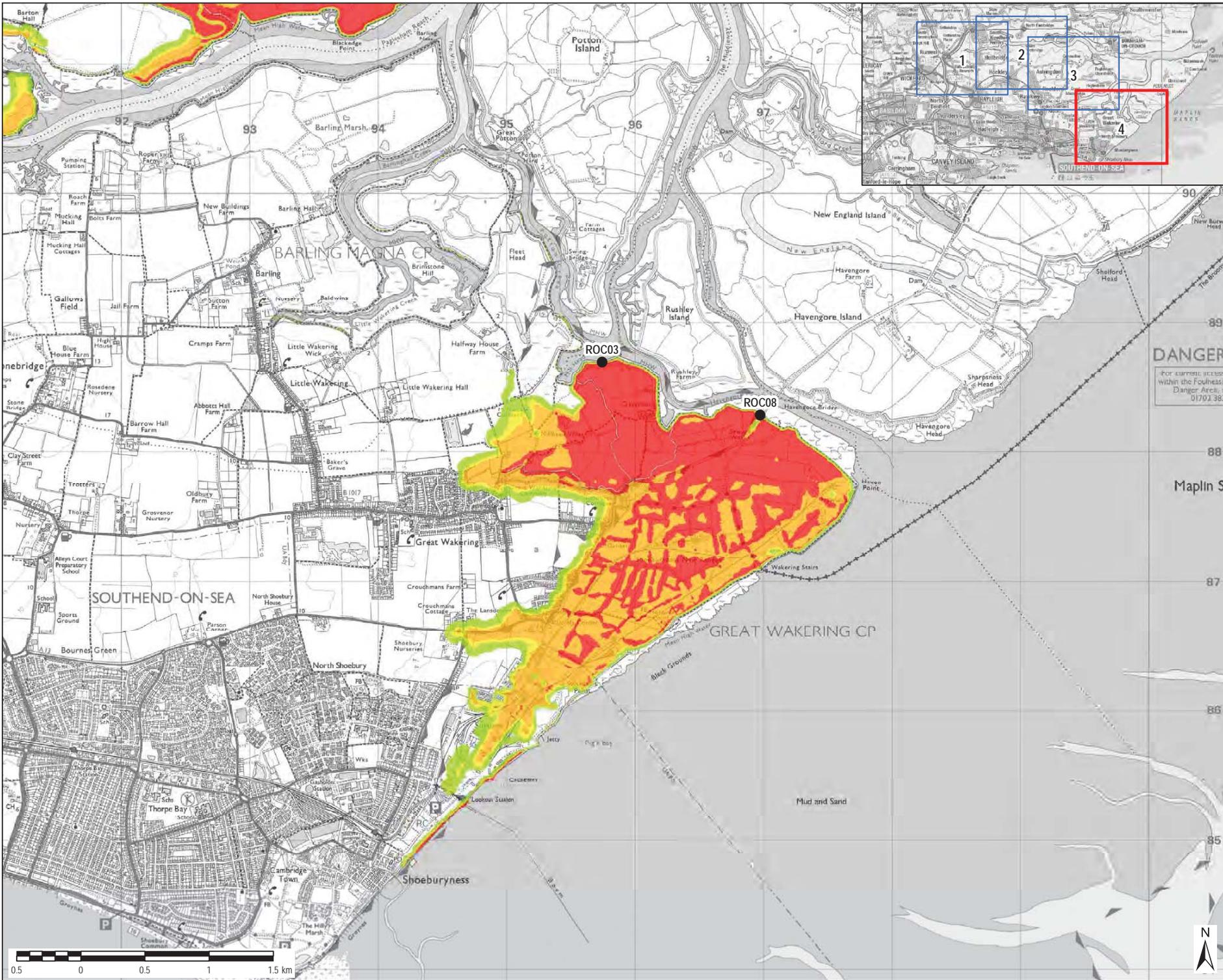


File Name: K15004 - Information Systems\6532482 - South Essex SFRA\02_Maps\Figures\EB Rochford Breach Maximum Flood Hazard - 2116 with climate change 0.5 AEP - DDD.mxd



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- LEGEND**
- Breach Location
 - Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.5% AEP**

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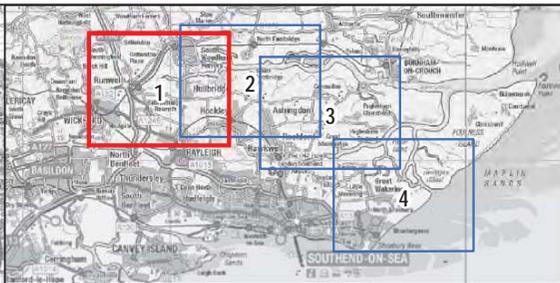
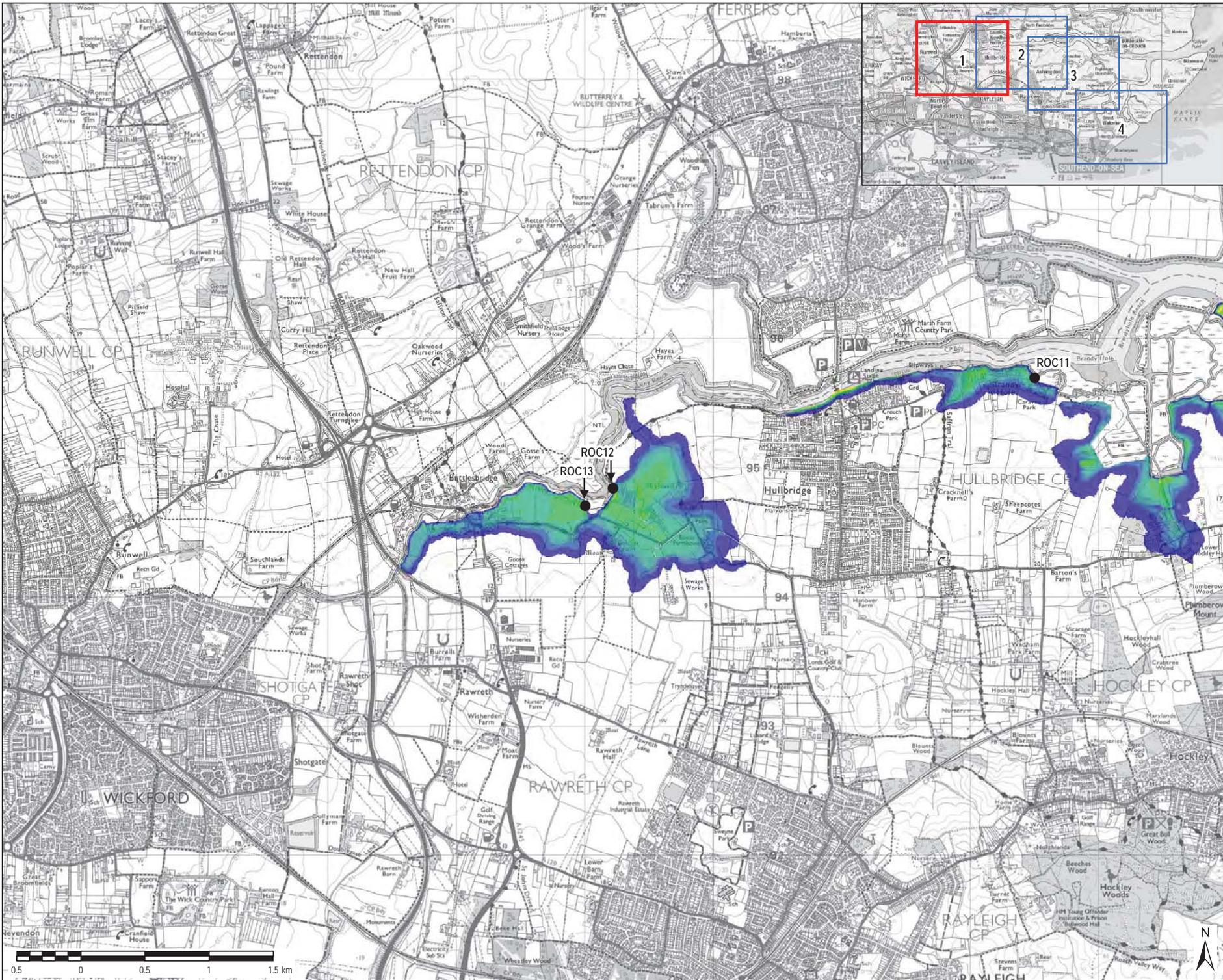
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Drawing Number **FIGURE E38d** Rev **1**





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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

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AECOM Internal Project No. 60532482		Scale @ A3 1:27,000	

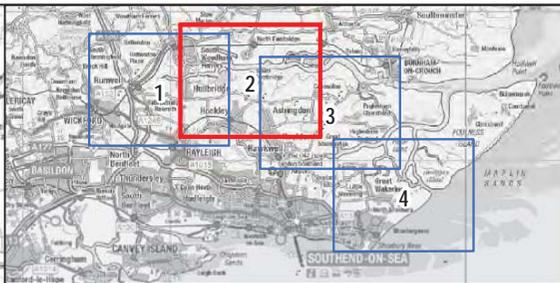
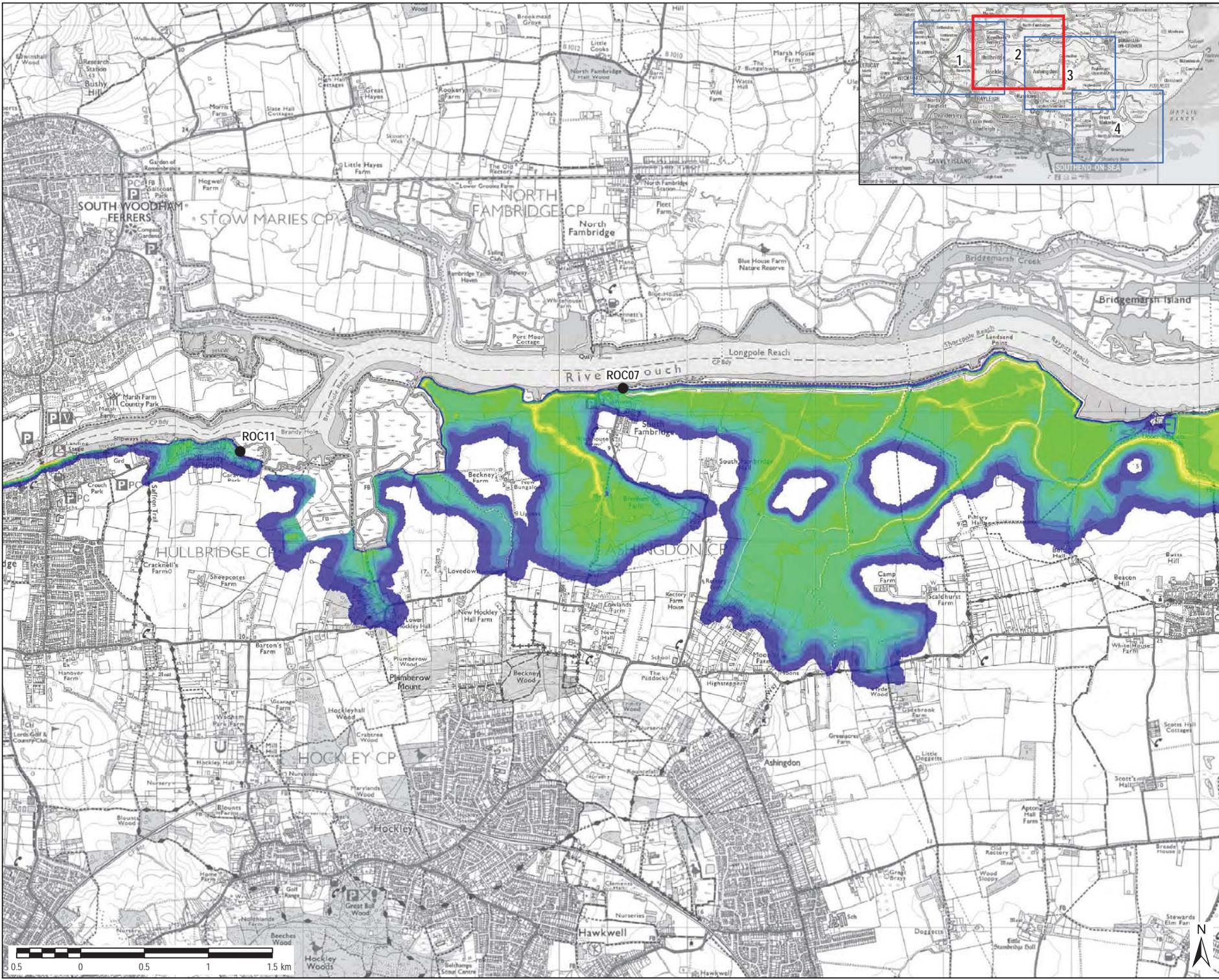
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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

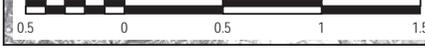
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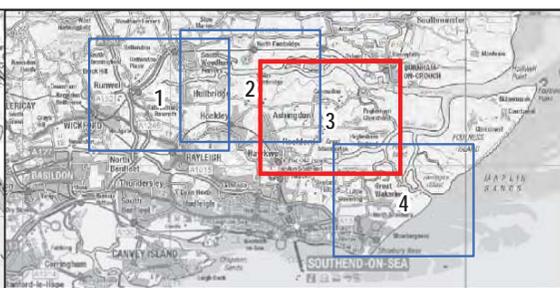
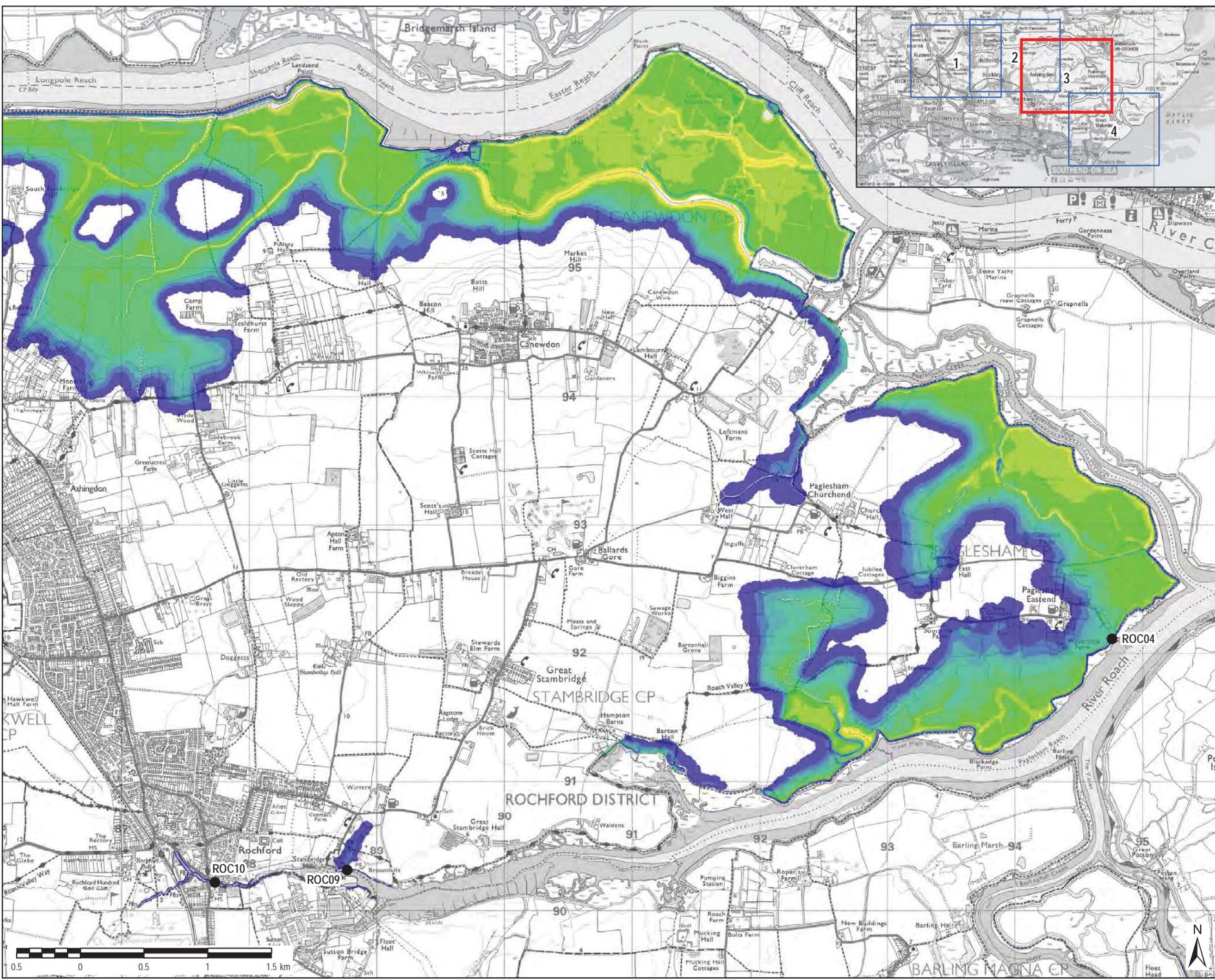
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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

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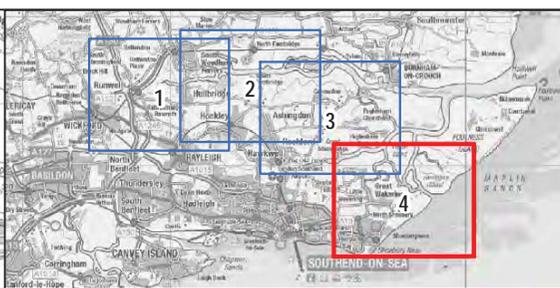
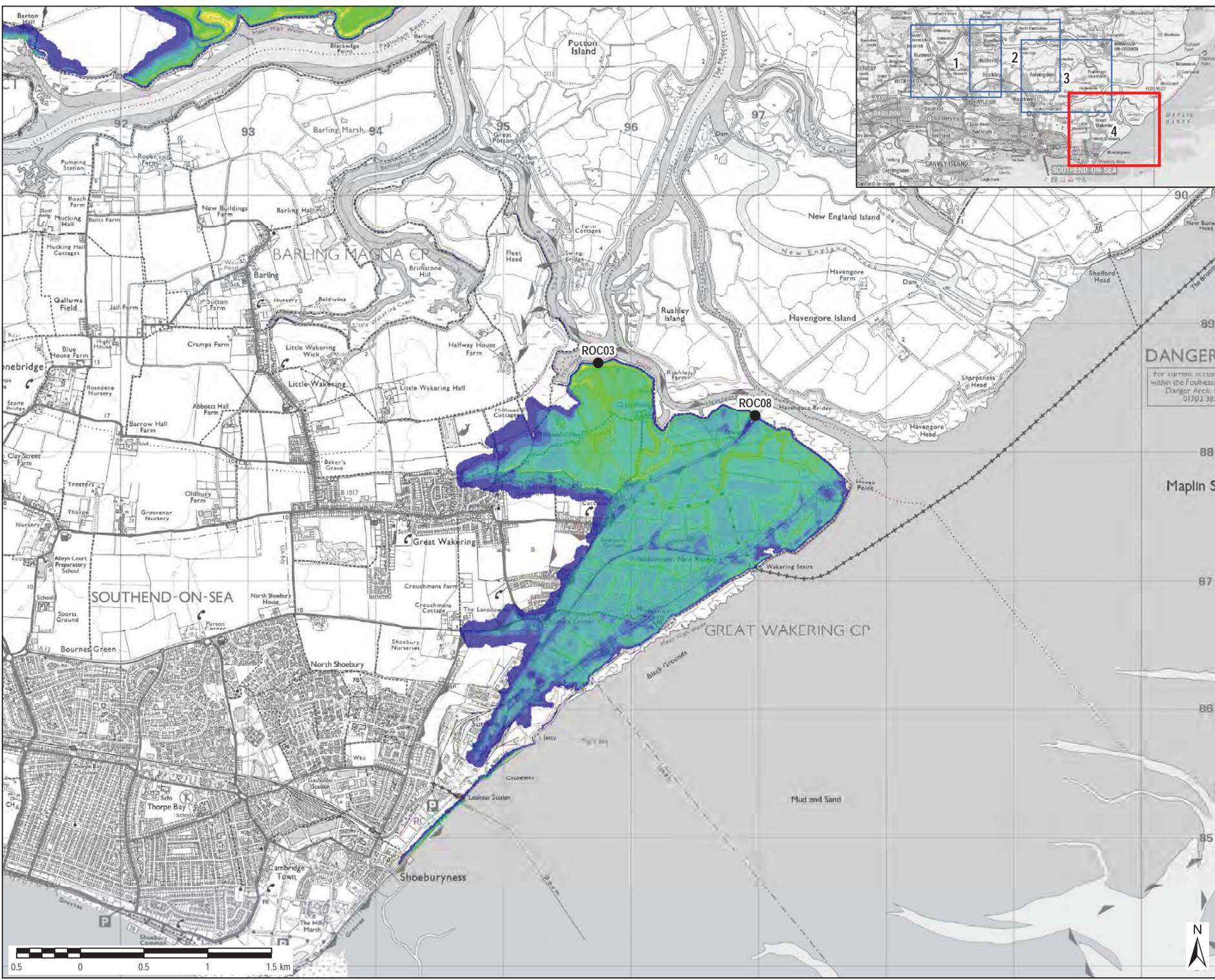
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Drawing Number **FIGURE 39c** Rev **1**

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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

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AECOM Internal Project No. 60532482		Scale @ A3 1:27,000	

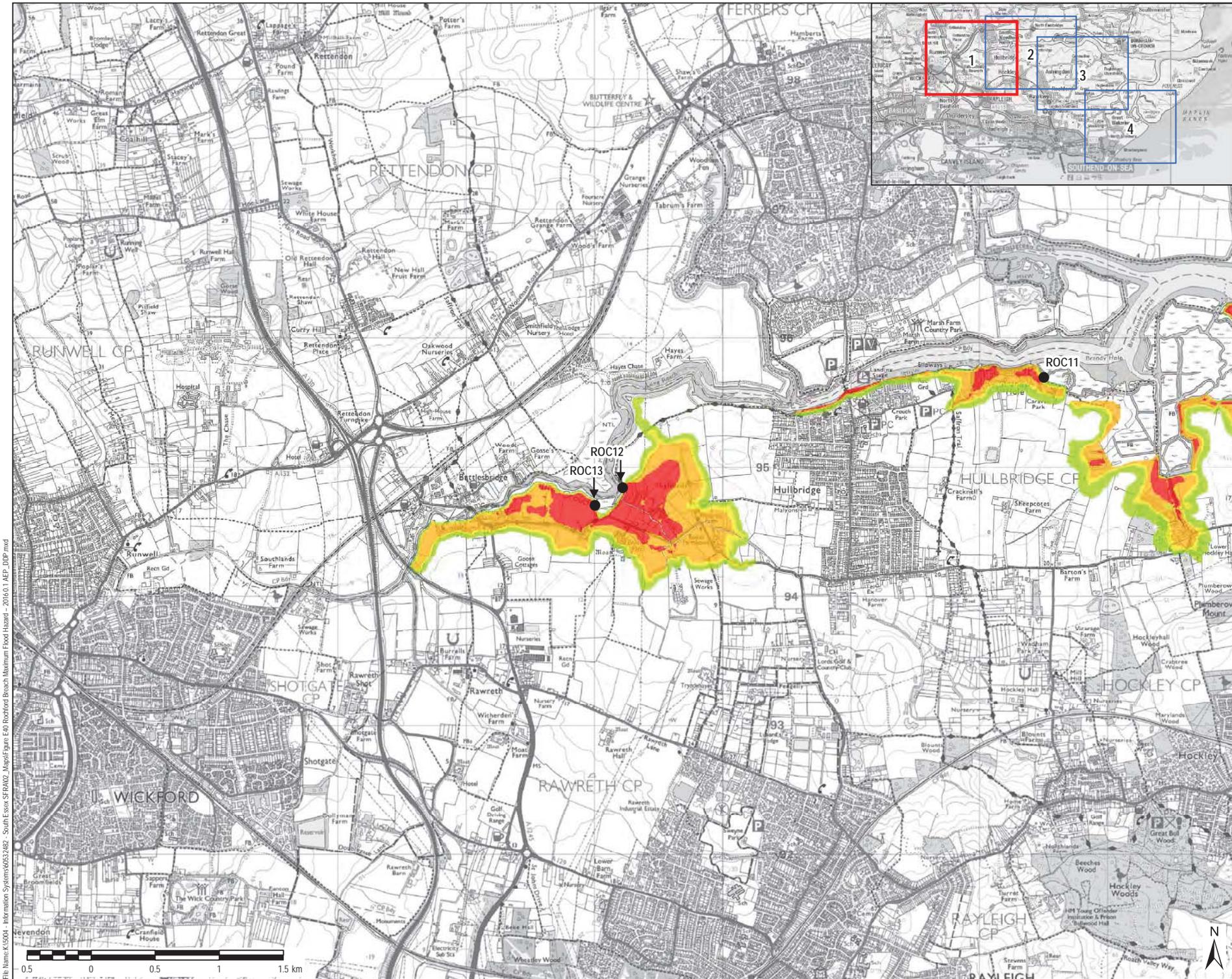
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Drawing Number **FIGURE 39d** Rev **1**

File Name: K15304 - Information Systems\6532482 - South Essex SFRA\02_Map\Fig\39d_Rochford Breach Maximum Flood Depth_2016_01_AEP_DDP.mxd





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- LEGEND**
- Breach Location
 - Maximum Flood Hazard
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People F02320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**



Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

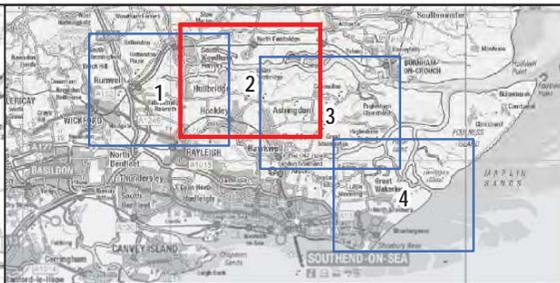
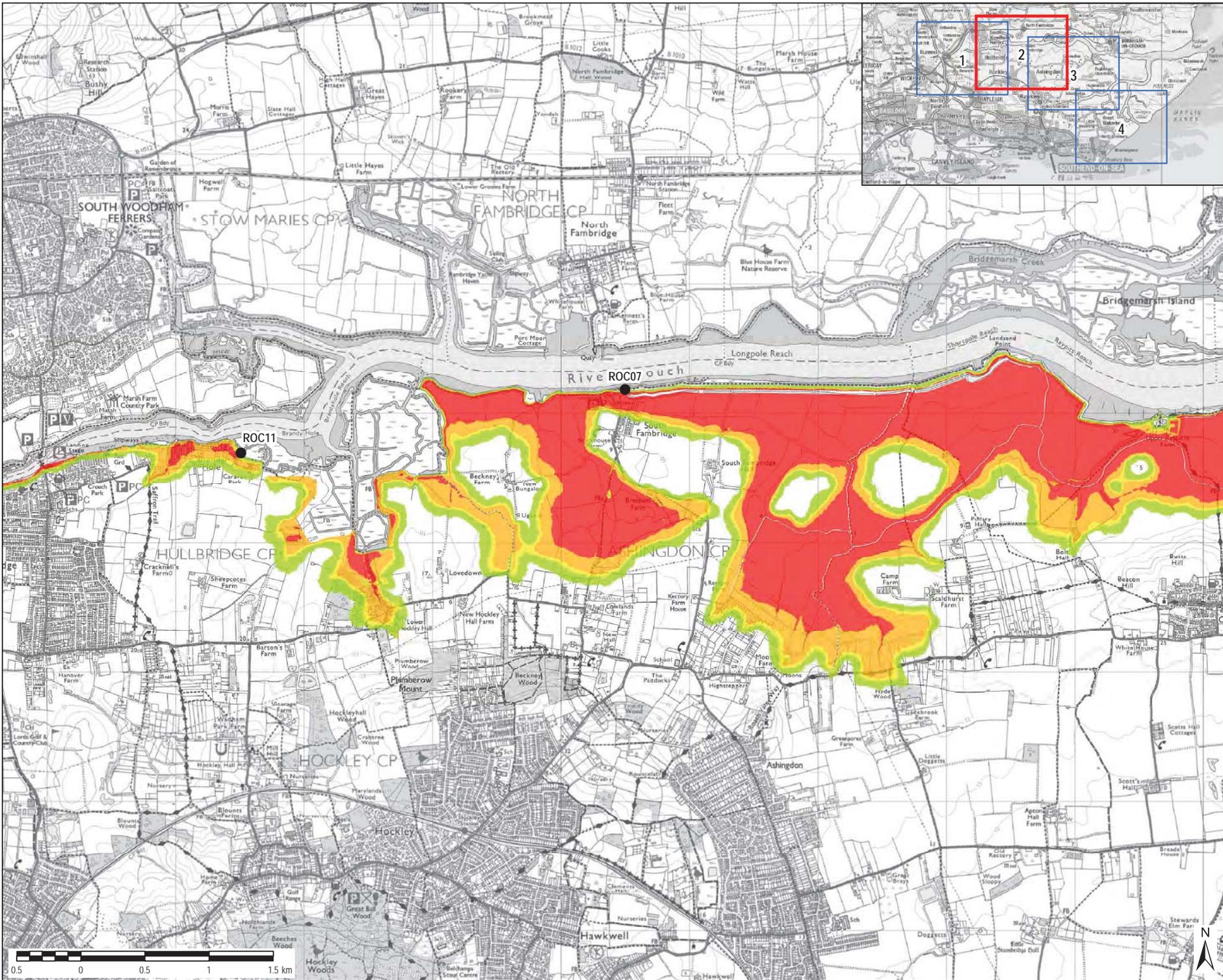
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Drawing Number **FIGURE E40a** Rev **1**

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- LEGEND**
- Breach Location
 - Maximum Flood Hazard
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People F02320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**



Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

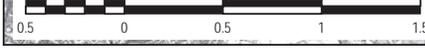
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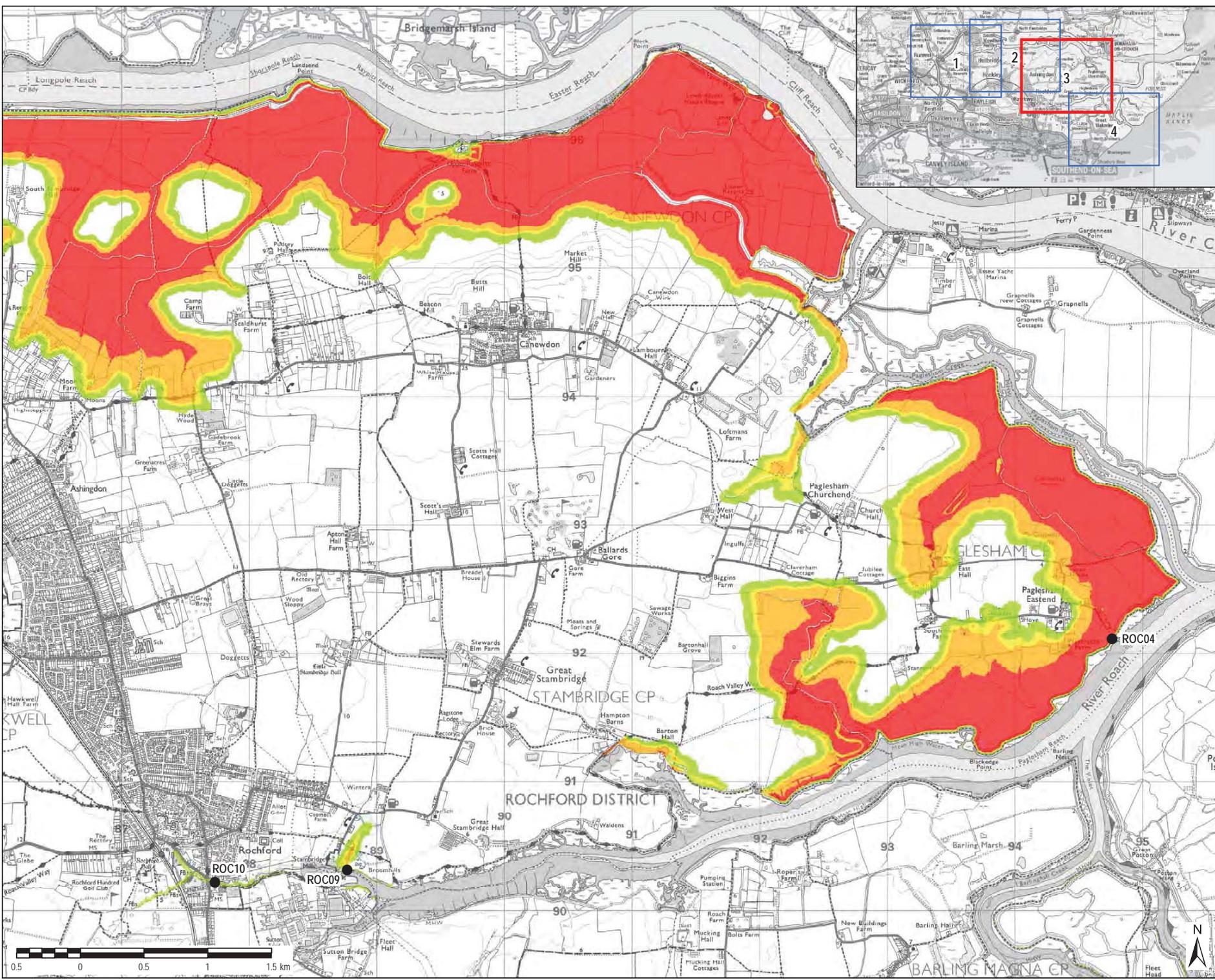
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Drawing Number **FIGURE E40b** Rev **1**

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LEGEND

- Breach Location
- Maximum Flood Hazard
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver.2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People: FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

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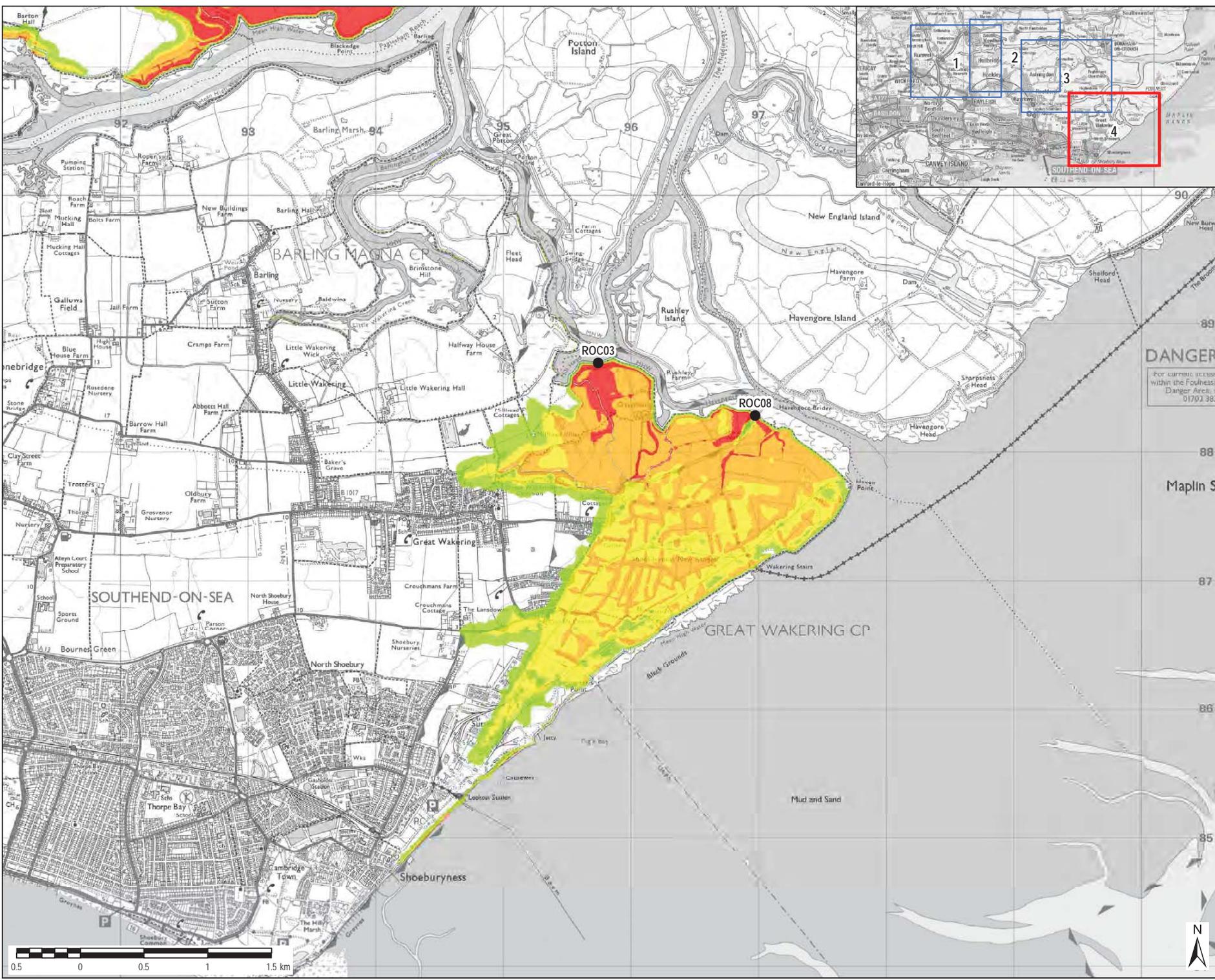
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Drawing Number **FIGURE E40c** Rev **1**

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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

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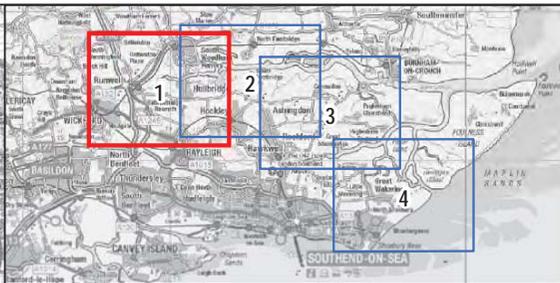
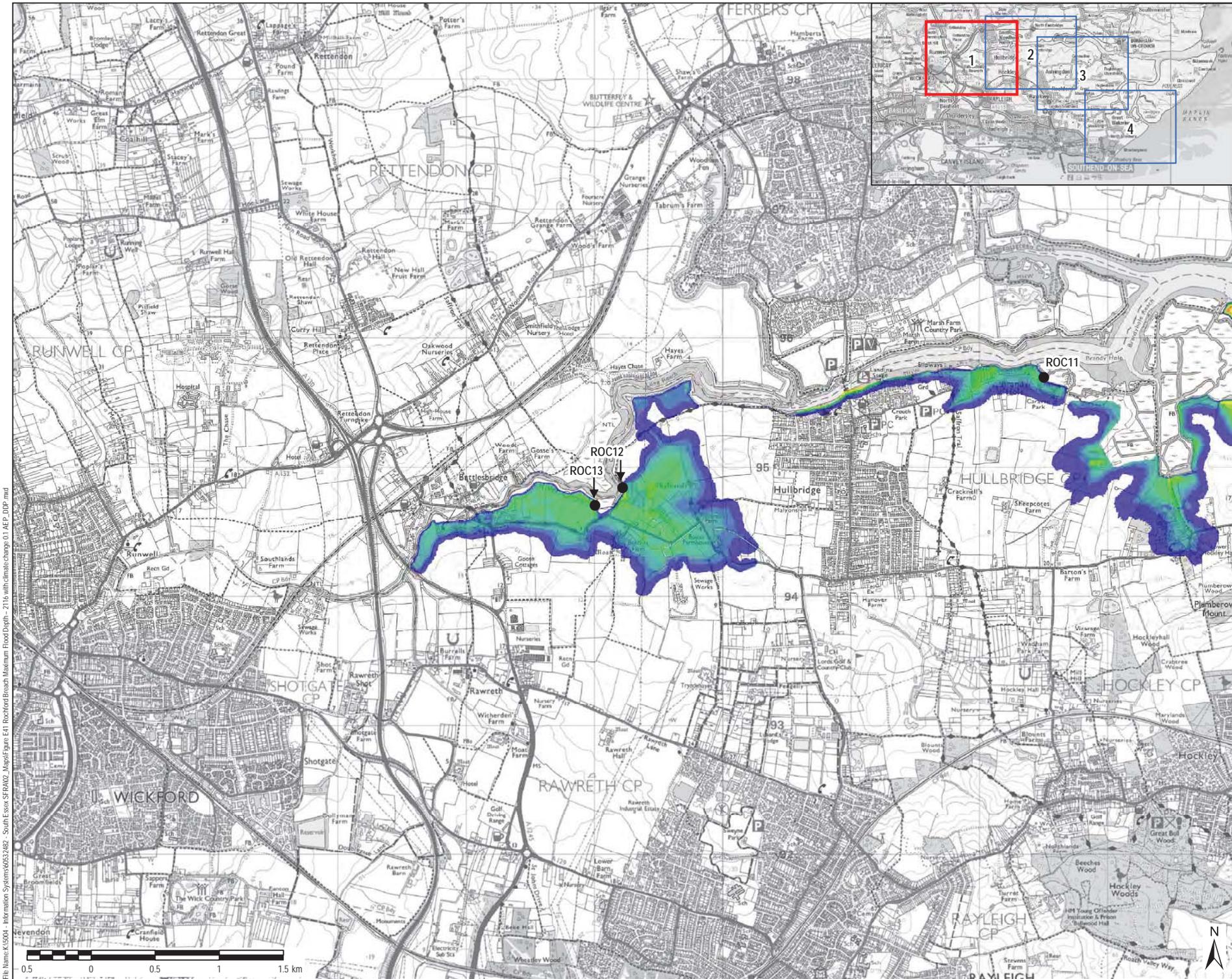
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Drawing Number **FIGURE E40d** Rev **1**

File Name: K15004 - Information Systems\6532482 - South Essex SFRA\02_Map\Figures\E40 Rochford Breach Maximum Flood Hazard - 2016\01_AEP_DDP.mxd





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LEGEND

- Breach Location
- Maximum Flood Depth (m)
 - > 0 to 0.5m
 - > 0.5 to 1m
 - > 1 to 1.5m
 - > 1.5 to 2m
 - > 2 to 2.5m
 - > 2.5 to 3m
 - > 3 to 3.5m
 - > 3.5 to 4m
 - > 4 to 4.5m
 - > 4.5 to 5m
 - > 5 to 5.5m
 - > 5.5 to 6m
 - > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater. The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation. When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

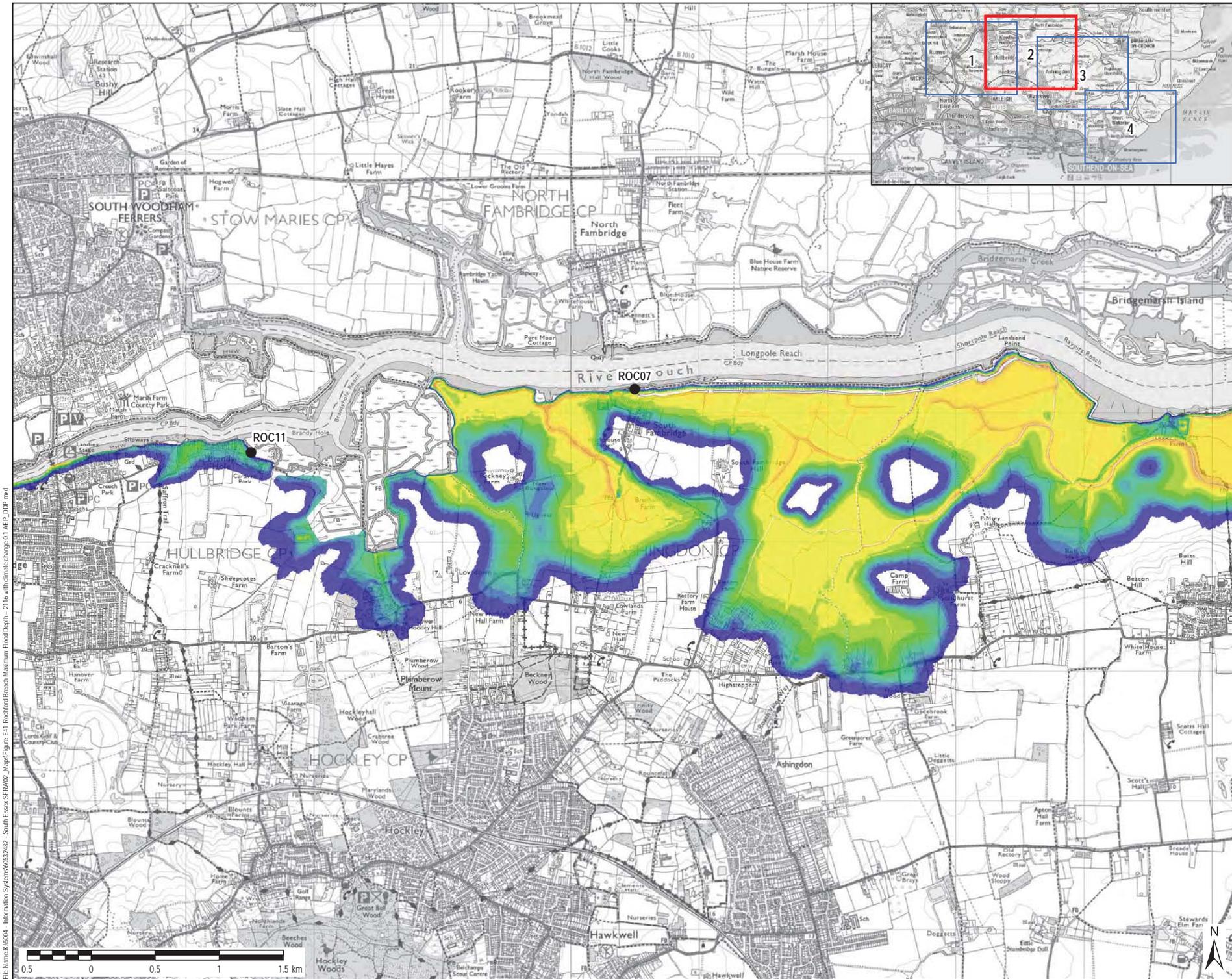
Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation.

When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location.

It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

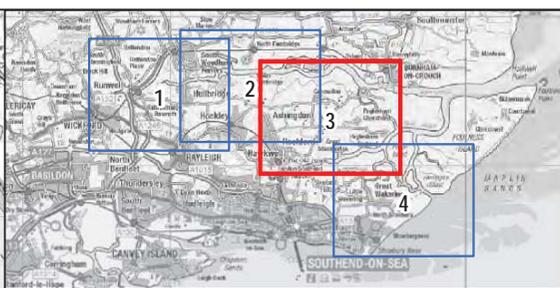
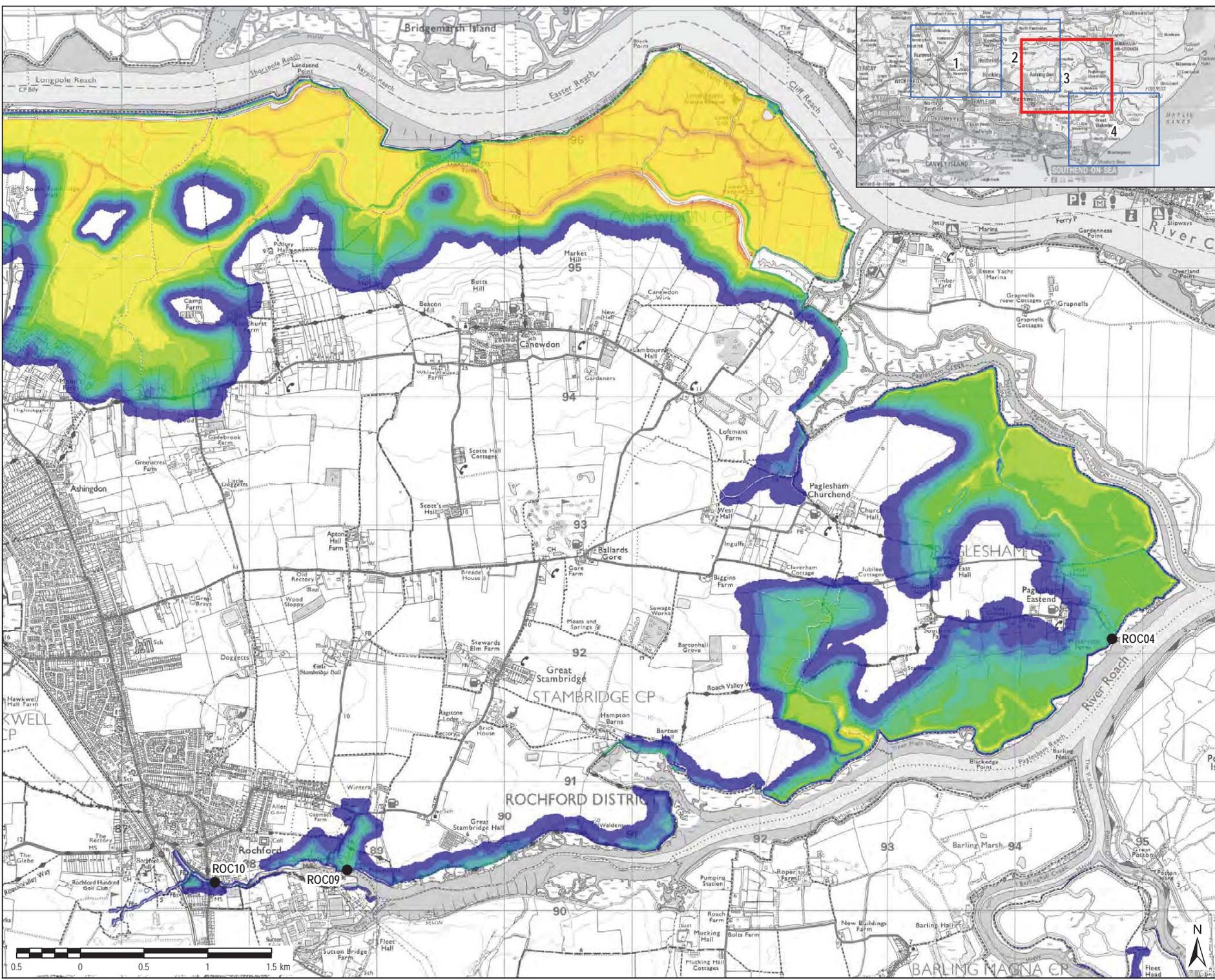
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Drawing Number **FIGURE E41b** Rev **1**



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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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Purpose of Issue **FINAL**

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

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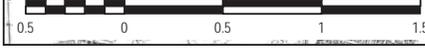
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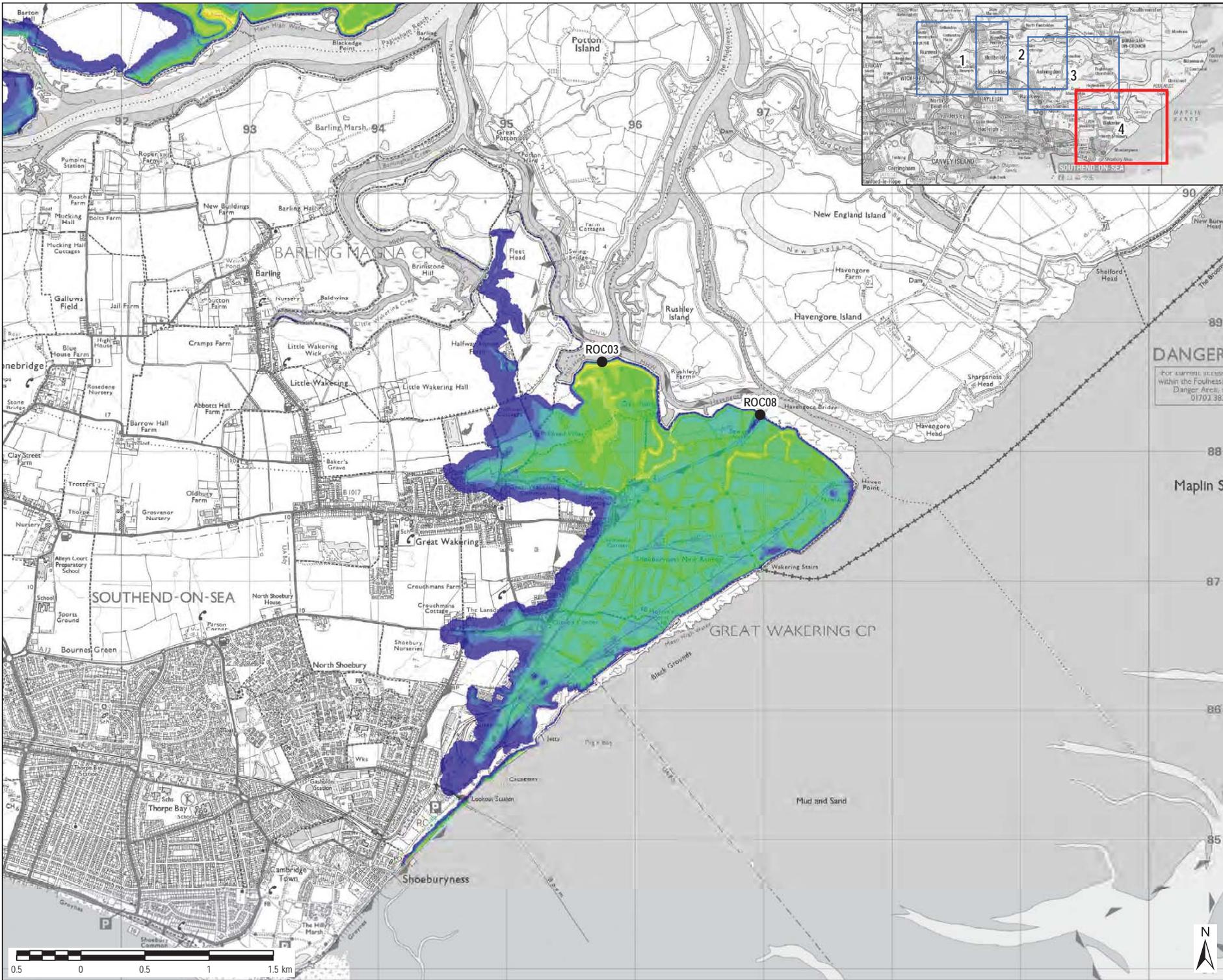
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Drawing Number **FIGURE E41c** Rev **1**

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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

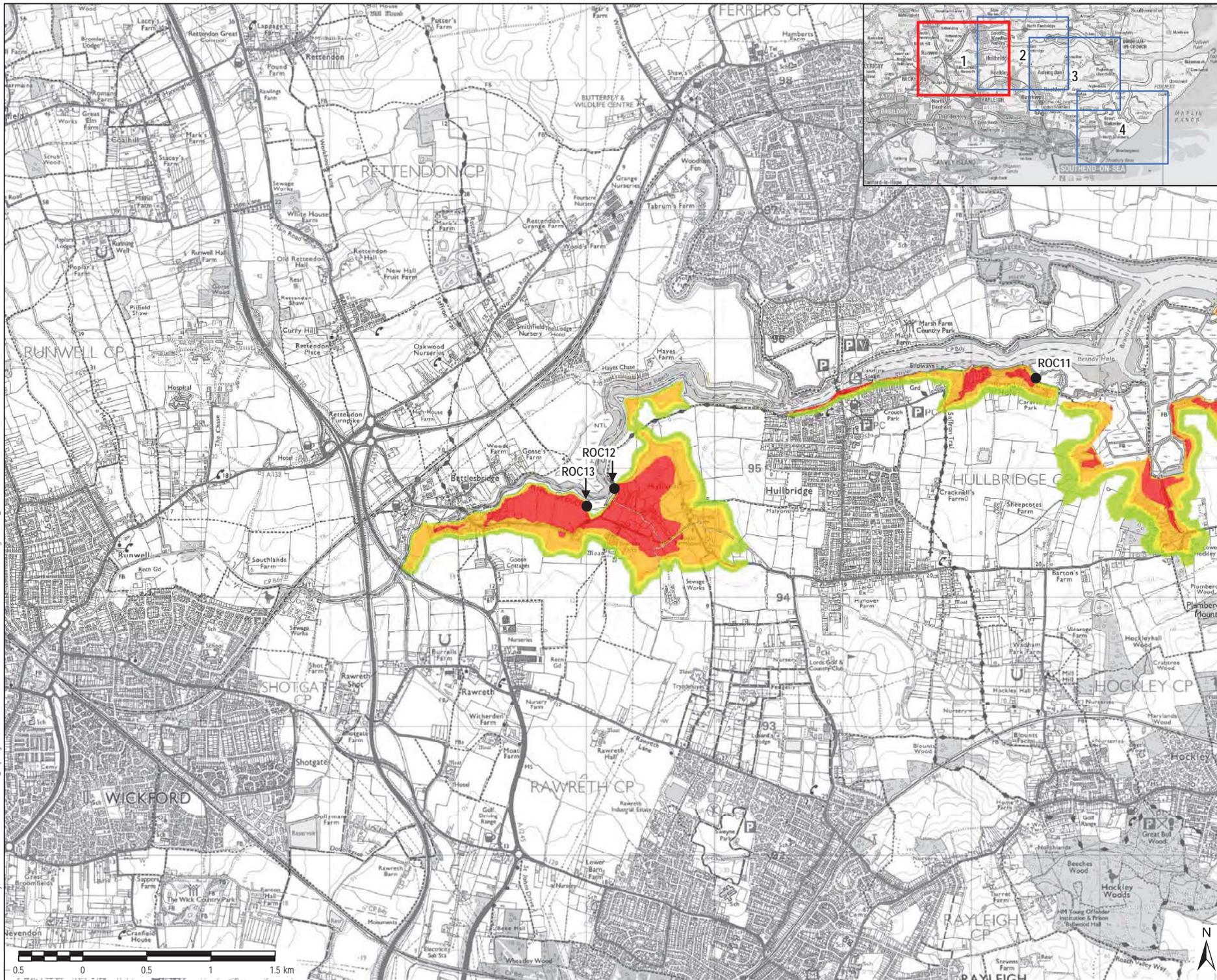
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LEGEND

- Breach Location
- Maximum Flood Hazard
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People F02320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFR Main Report.

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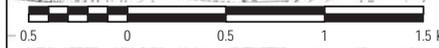
Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

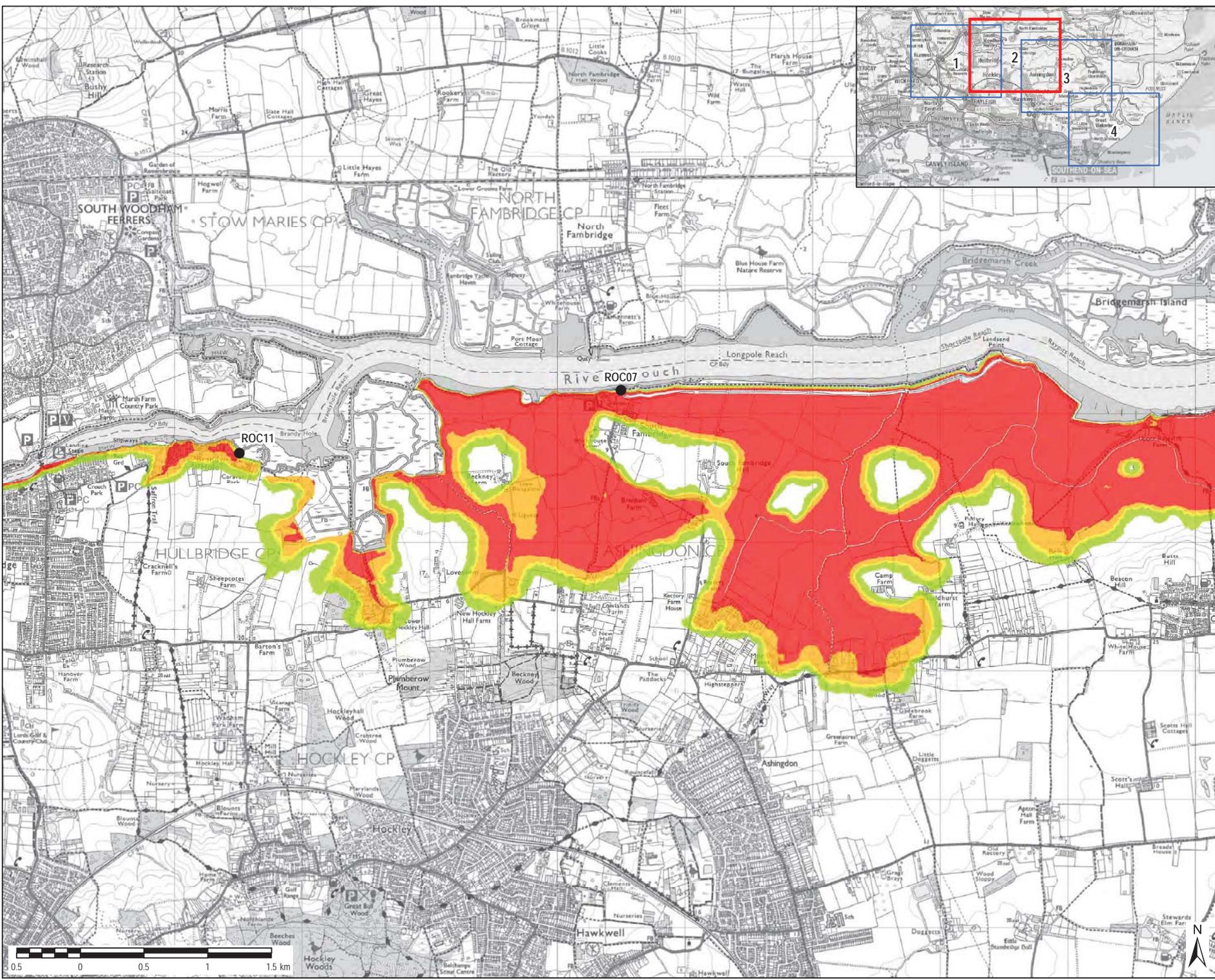
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Drawing Number **FIGURE E42a** Rev **1**





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LEGEND

- Breach Location
- Maximum Flood Hazard
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People F02320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

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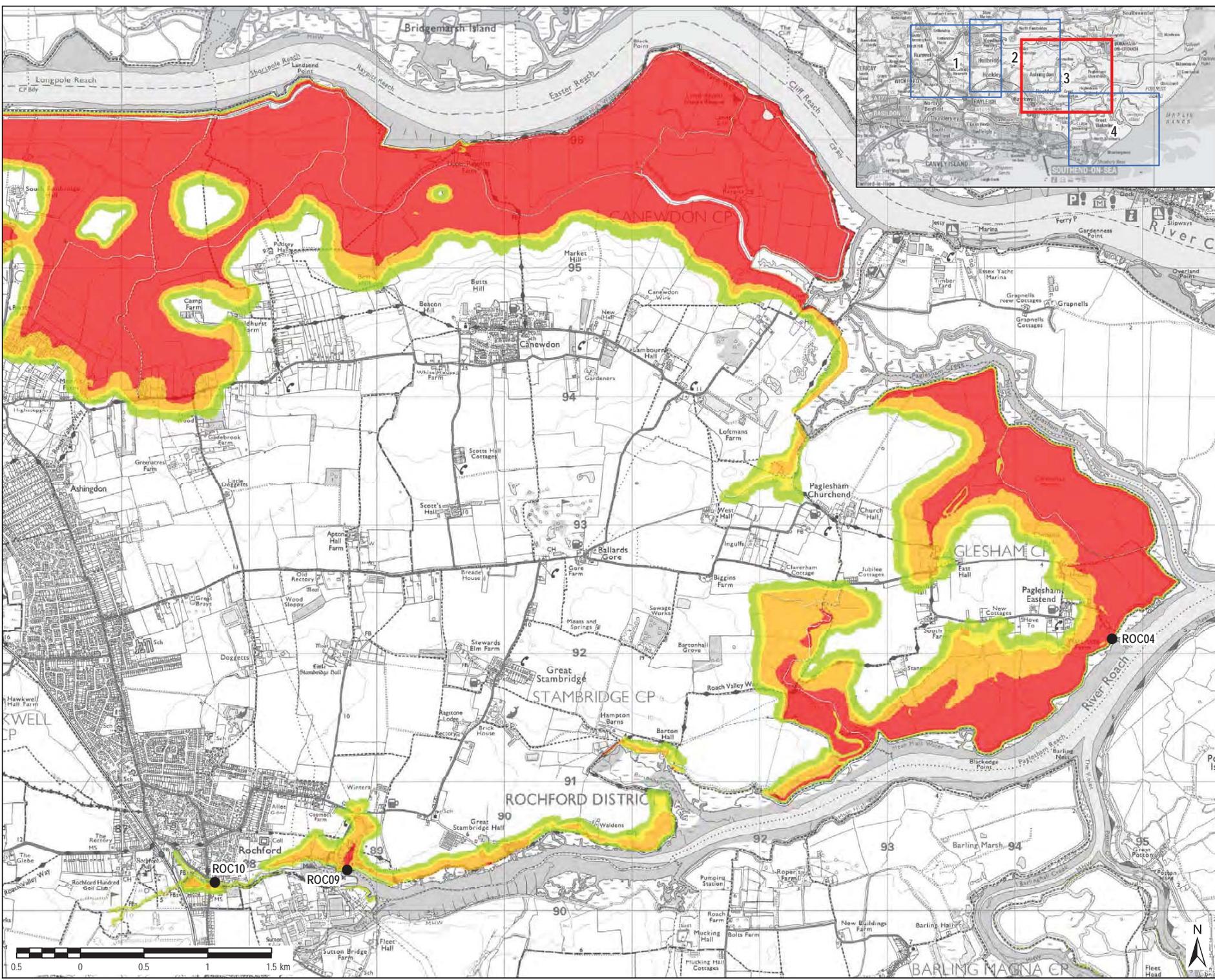
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Drawing Number **FIGURE E42b** Rev **1**

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LEGEND

- Breach Location
- Maximum Flood Hazard
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver. 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People F2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

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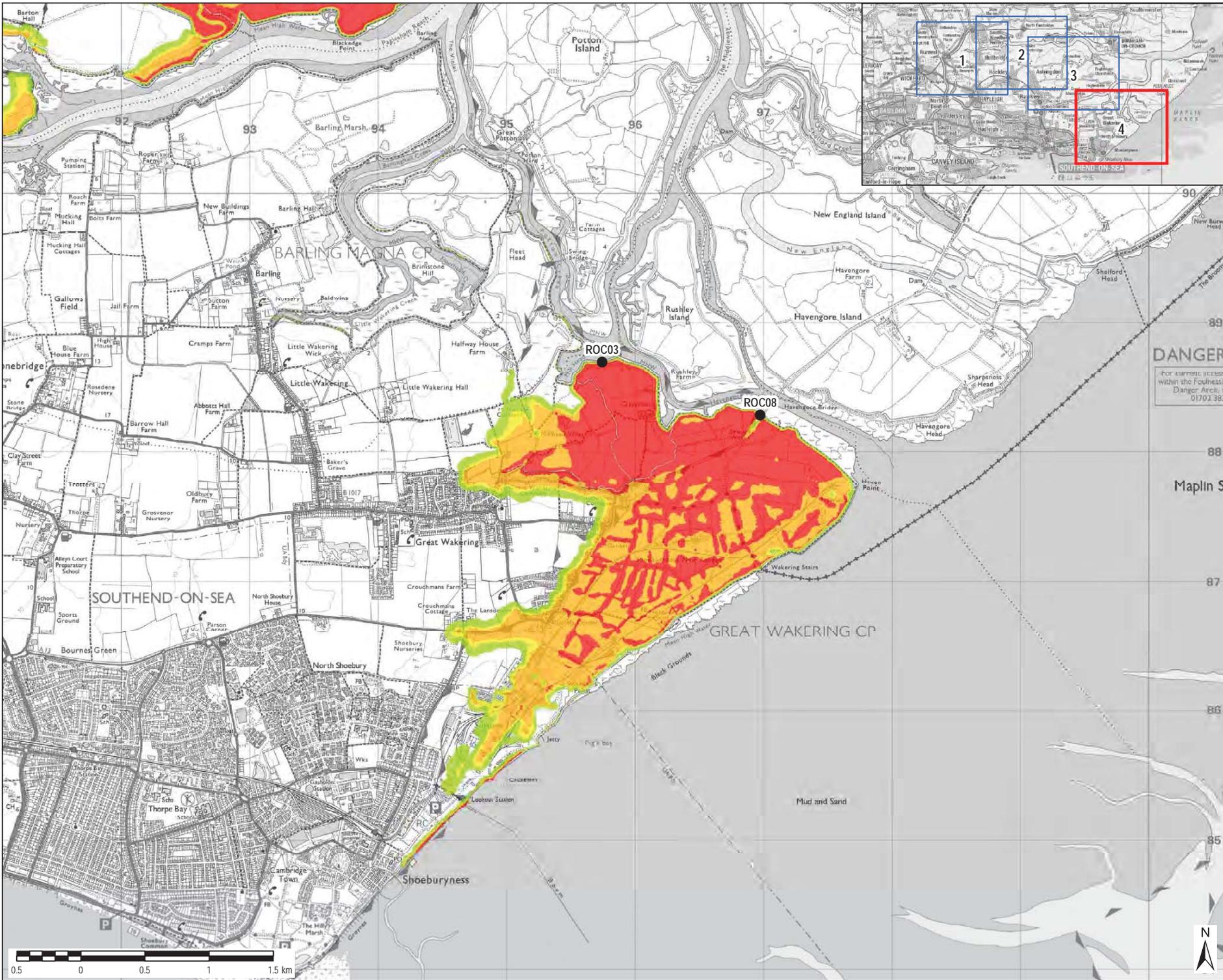
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Drawing Number: **FIGURE E42c** Rev: **1**

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- LEGEND**
- Breach Location
 - Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **ROCHFORD BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

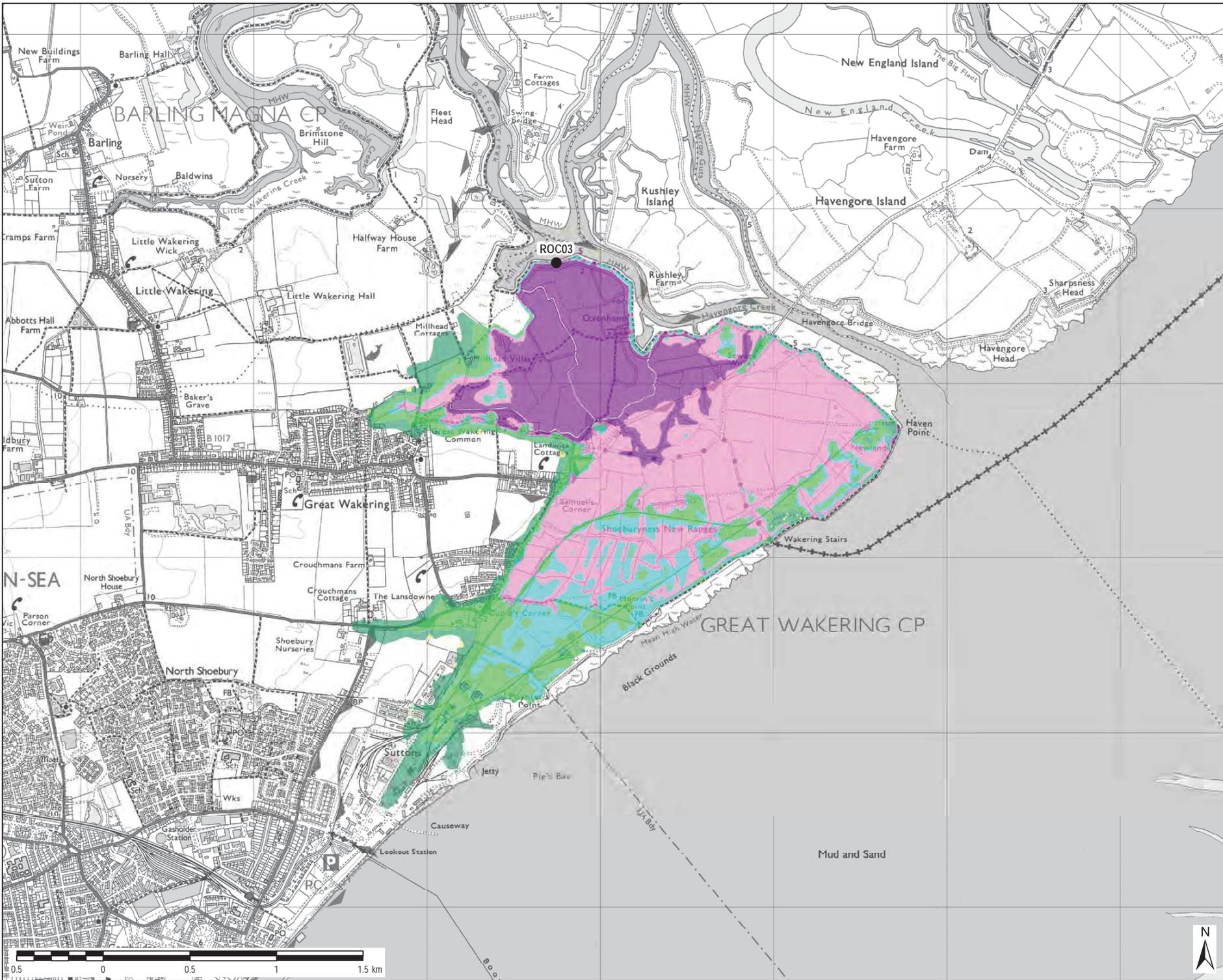
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Drawing Number **FIGURE E42d** Rev **1**





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LEGEND

- Breach Location
- Time to Inundation (Hours)**
- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the <1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

Mapping has been provided for the 1 in 1000 year + CC event as it represents the most conservative scenario and should be used for emergency planning purposes when considering safe access/egress routes from any potential development site.

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castlepoint
Rochford District Council
southend on sea

Project Title
SOUTH ESSEX LEVEL 1 SFRA

Drawing Title
**BREACH ROC03
 TIME TO INUNDATION
 2116 WITH CLIMATE CHANGE
 0.1% AEP**

Drawn JW	Checked BB	Approved CP	Date 09/04/2018
AECOM Internal Project No. 60532482		Scale @ A3 1:20,000	

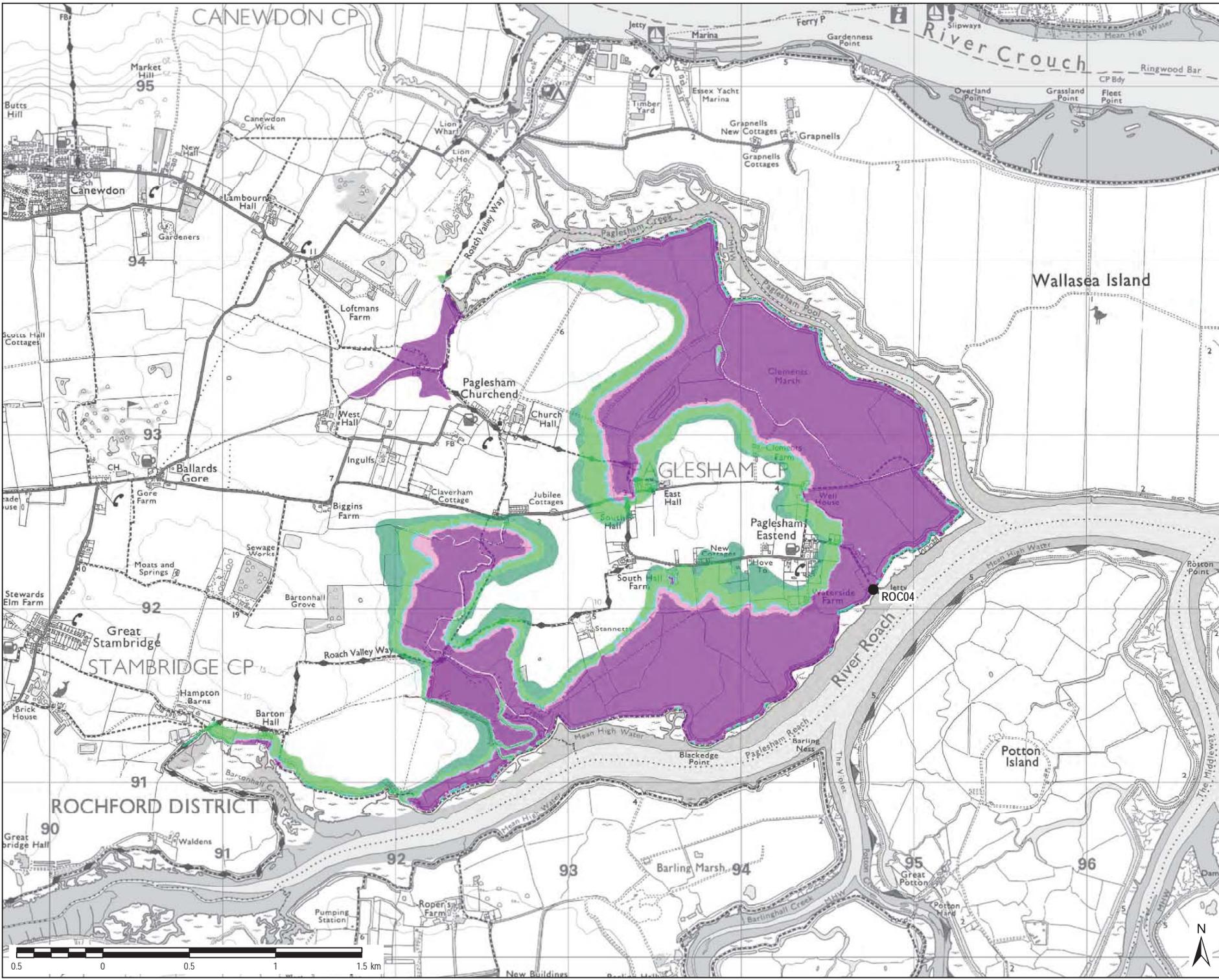
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Drawing Number
FIGURE E43a

Rev
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File Name: K15004 - Information Systems\0632482 - South Essex SFRA\02 Maps\Inundation Maps\Figure E43a Breach ROC03 Time to Inundation - 2116 with climate change 0.1 AEP.mxd



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- LEGEND**
- Breach Location
 - Time to Inundation (Hours)**
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Client:

Basildon Council
BASILDON · BLYTHNEY · WICKHORE

castlepoint

Rochford District Council **southend on sea**

Project Title:

SOUTH ESSEX LEVEL 1 SFRA

Drawing Title:

BREACH ROC04 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP

Drawn JW	Checked BB	Approved CP	Date 09/04/2018
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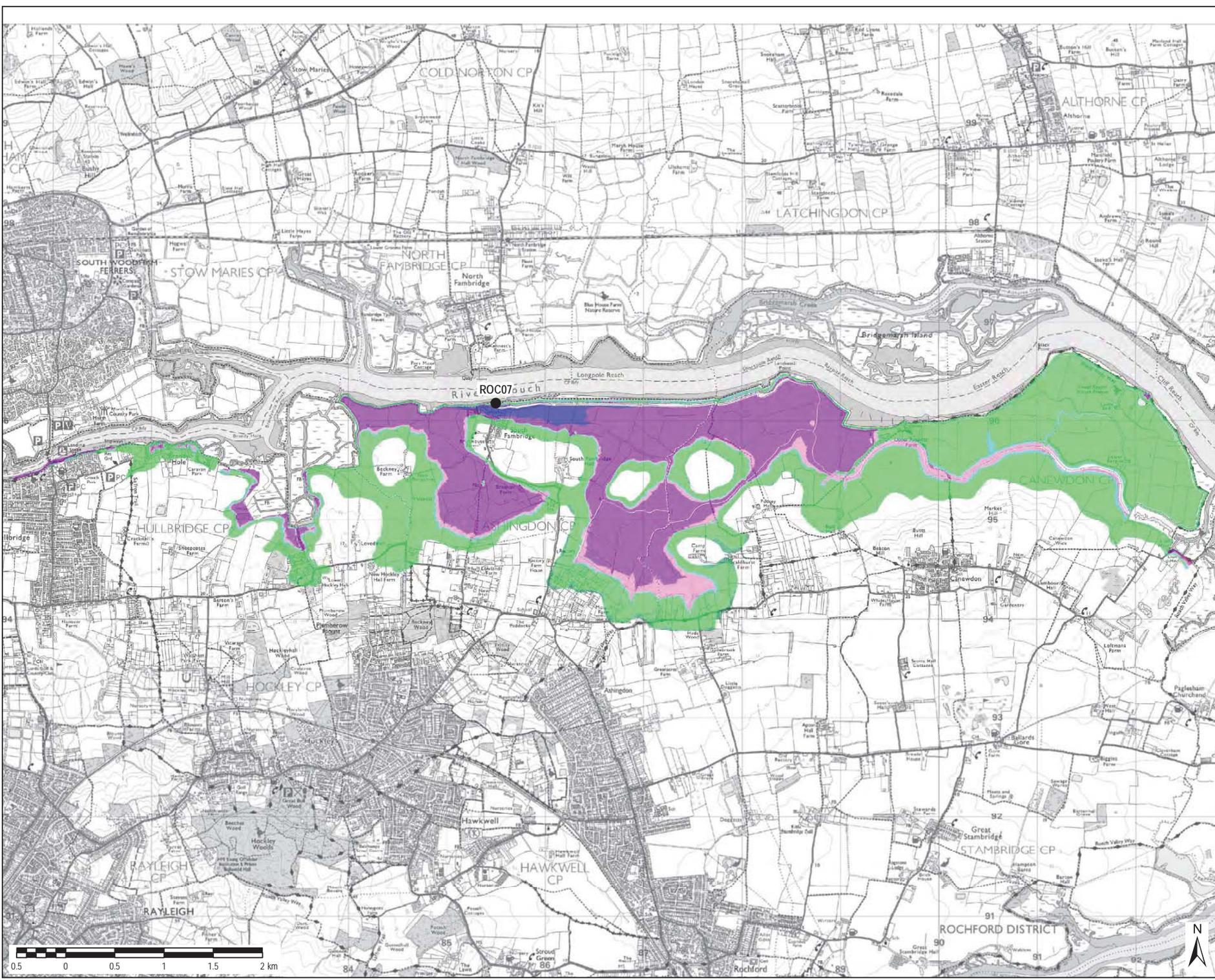
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Drawing Number: **FIGURE E43b**

Rev: **1**

File Name: K15004 - Information Systems\06532482 - South Essex SFRA\02_Maps\Inundation Maps\Figure E43b\Breath ROC04\Time to Inundation_2116 with climate change_0.1_AEP.mxd



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LEGEND

- Breach Location
- Time to Inundation (Hours)
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the <1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

Mapping has been provided for the 1 in 1000 year + CC event as it represents the most conservative scenario and should be used for emergency planning purposes when considering safe access/egress routes from any potential development site.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH ROC07 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

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AECOM Internal Project No. 60532482		Scale @ A3 1:35,000	

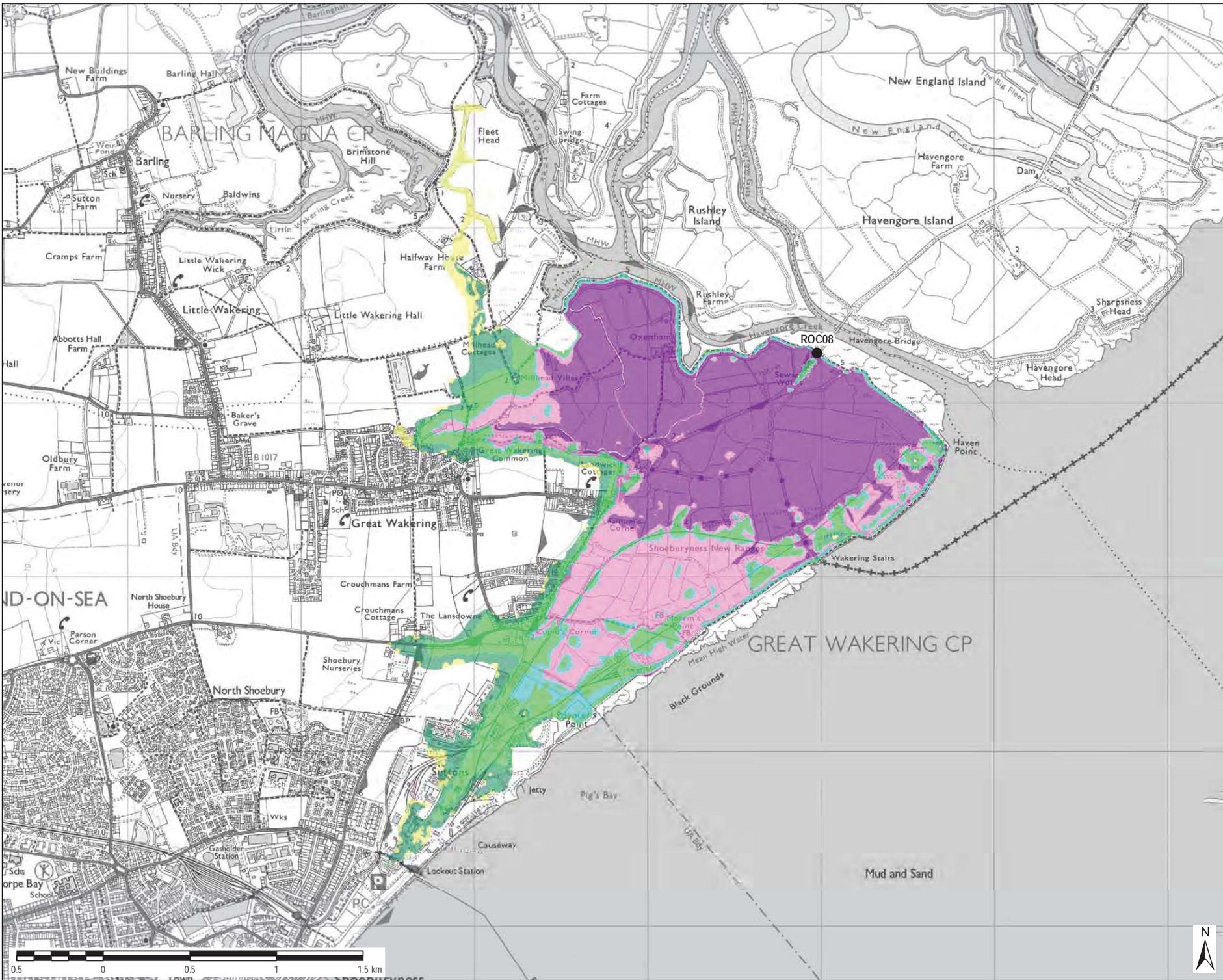
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Drawing Number: **FIGURE E43c** Rev: **1**

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LEGEND

- Breach Location
- Time to Inundation (Hours)**
- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the <1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

Mapping has been provided for the 1 in 1000 year + CC event as it represents the most conservative scenario and should be used for emergency planning purposes when considering safe access/egress routes from any potential development site.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

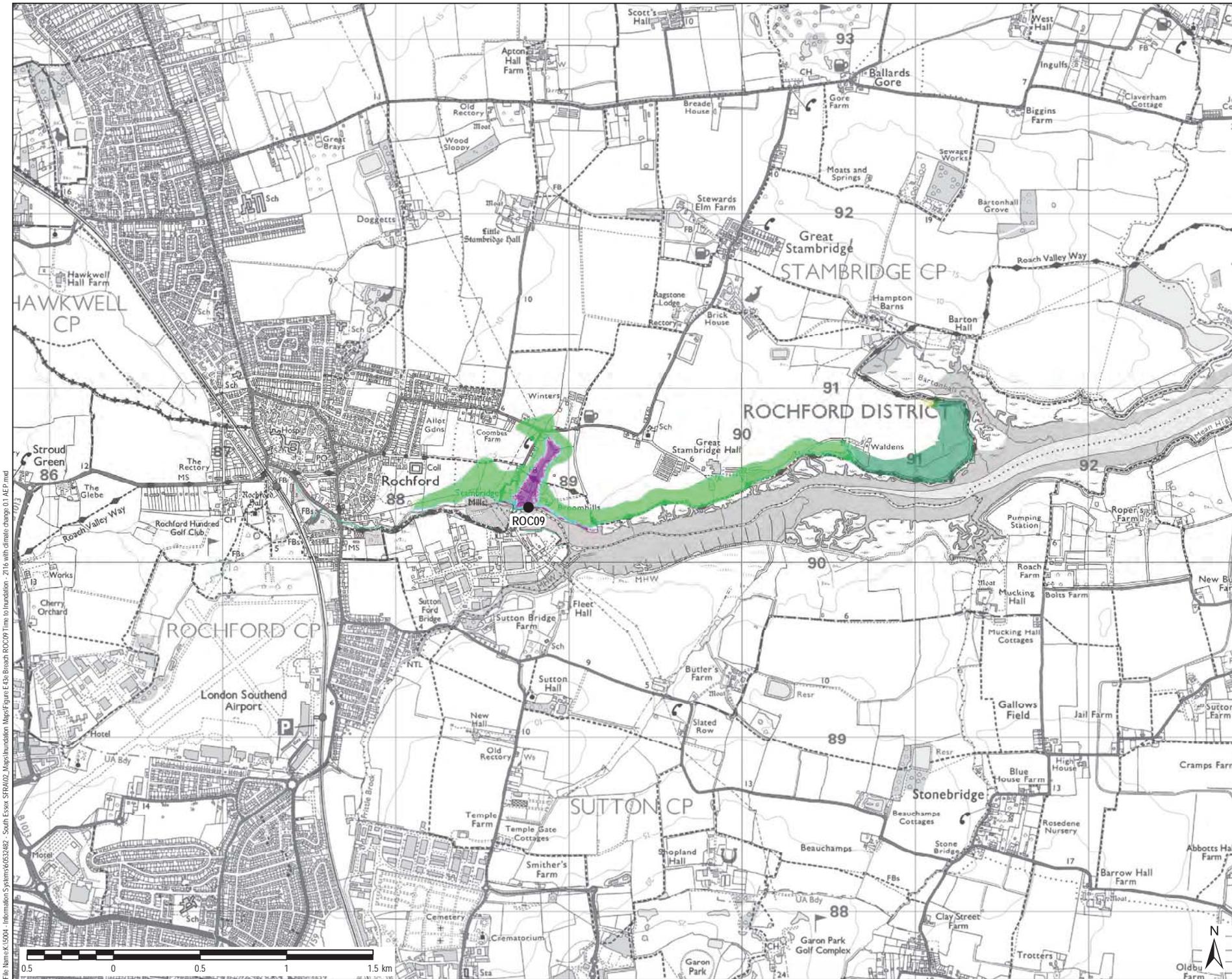
Drawing Title: **BREACH ROC08 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

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LEGEND

- Breach Location
- Time to Inundation (Hours)
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the <1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH ROC09 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

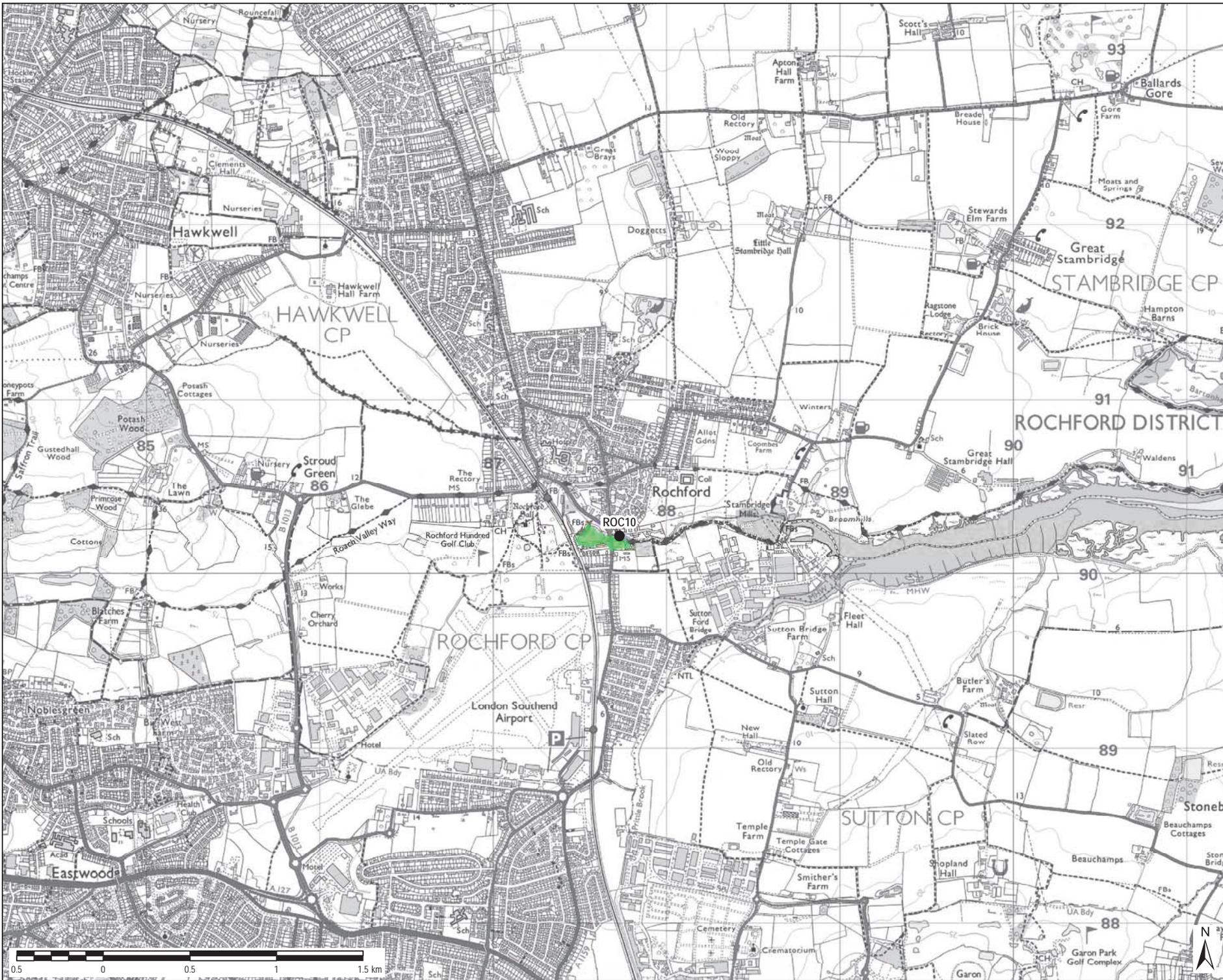
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Drawing Number: **FIGURE E43e** | Rev: **1**

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LEGEND

- Breach Location
- Time to Inundation (Hours)**
- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Drawing Title: **BREACH ROC10 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

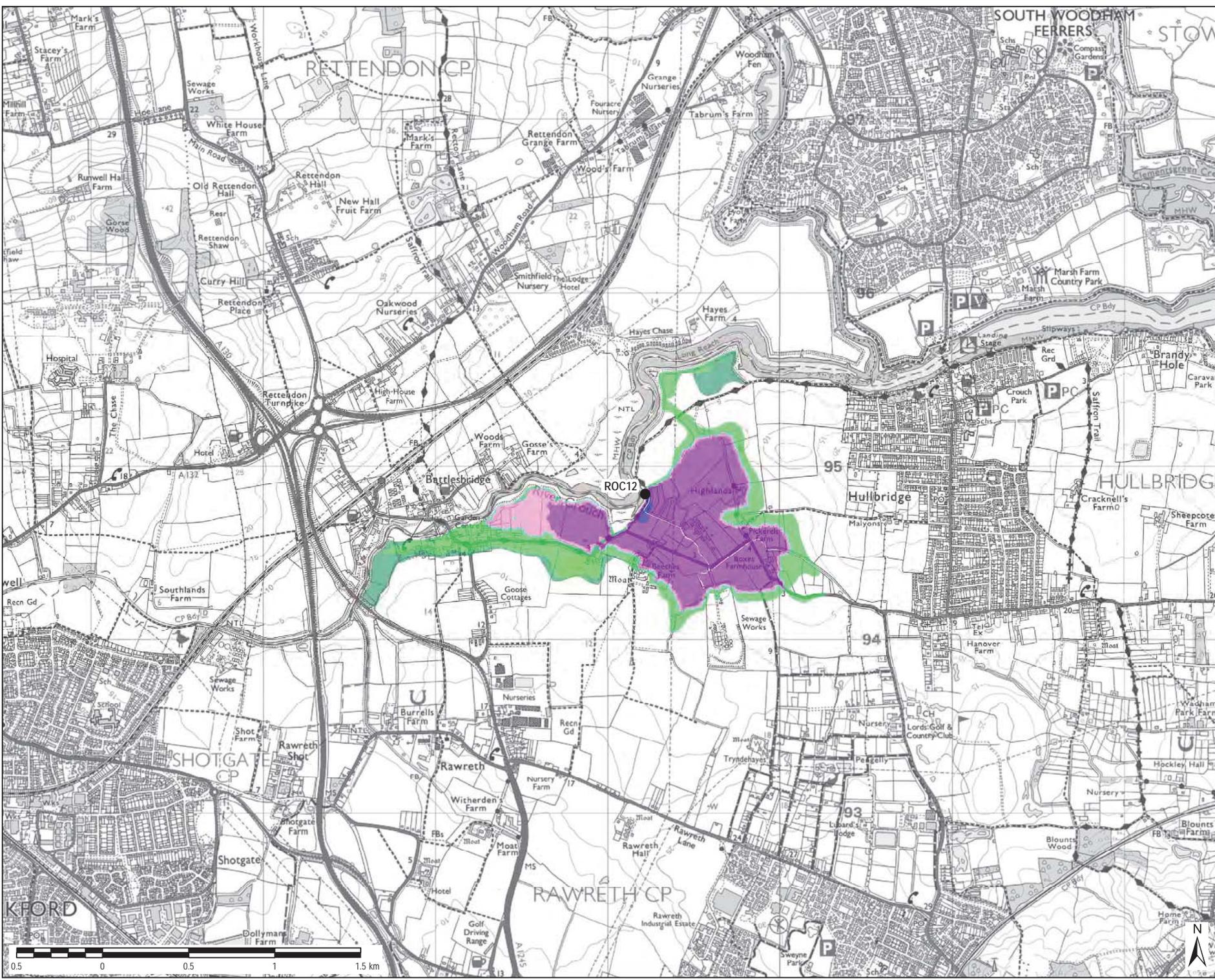
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Drawing Number: **FIGURE E43.f** Rev: **1**

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- LEGEND**
- Breach Location
 - Time to Inundation (Hours)
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the < 1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

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Purpose of Issue: **FINAL**



Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH ROC12 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

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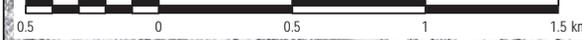
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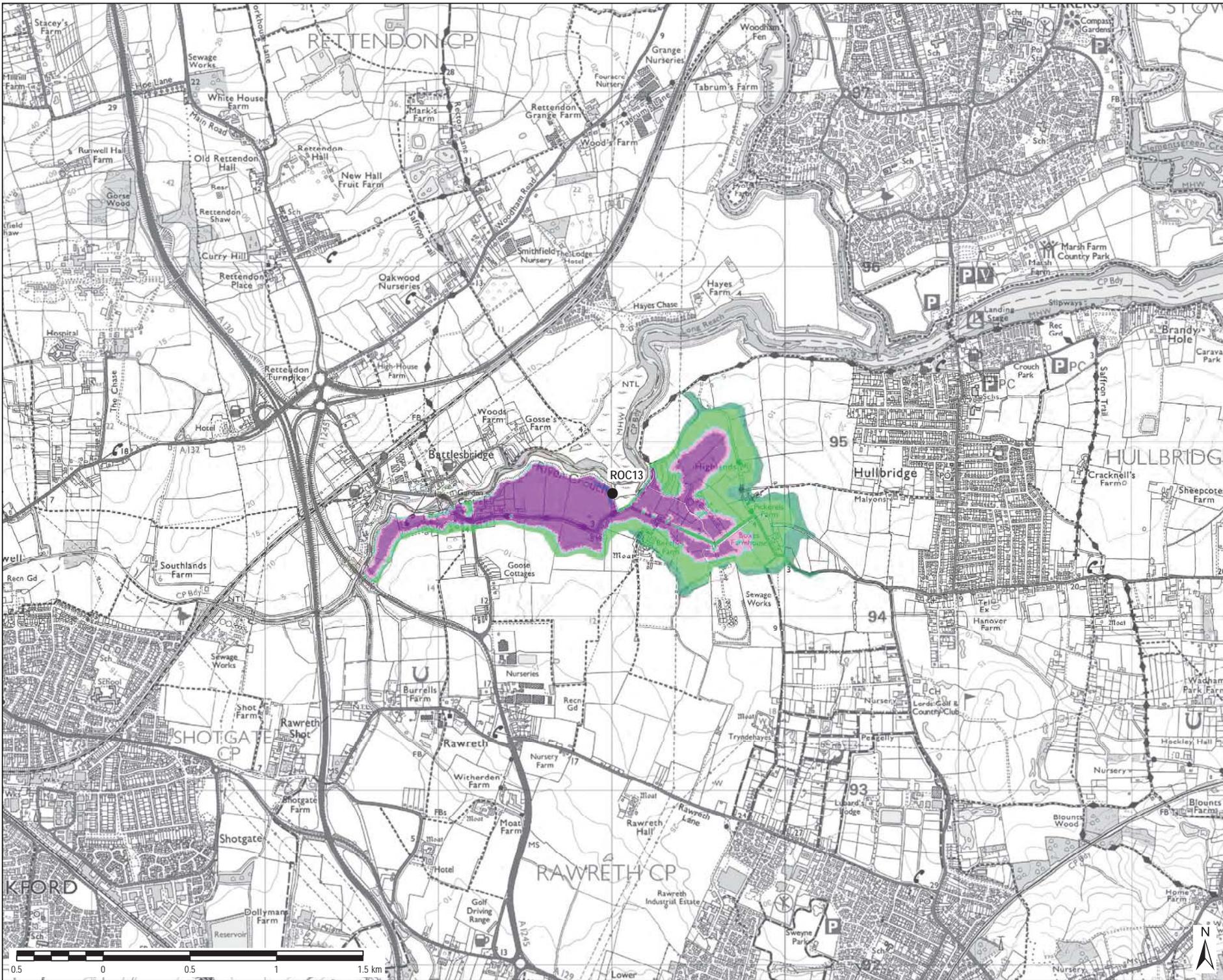
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Drawing Number: **FIGURE E43g** Rev: **1**

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LEGEND

- Breach Location
- Time to Inundation (Hours)**
- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the < 1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

Mapping has been provided for the 1 in 1000 year + CC event as it represents the most conservative scenario and should be used for emergency planning purposes when considering safe access/egress routes from any potential development site.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

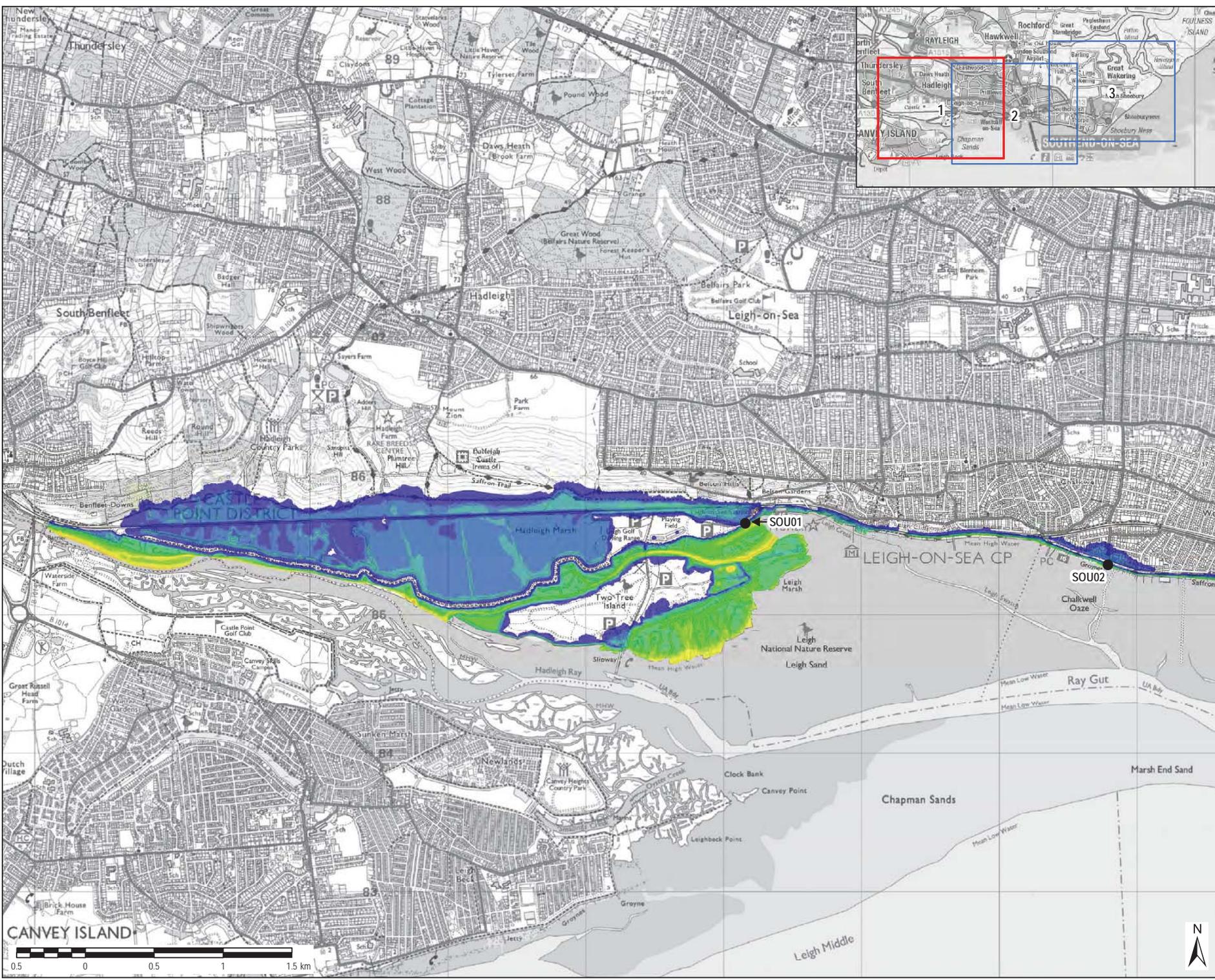
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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater. The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation. When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2016, 0.5% AEP**

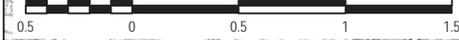
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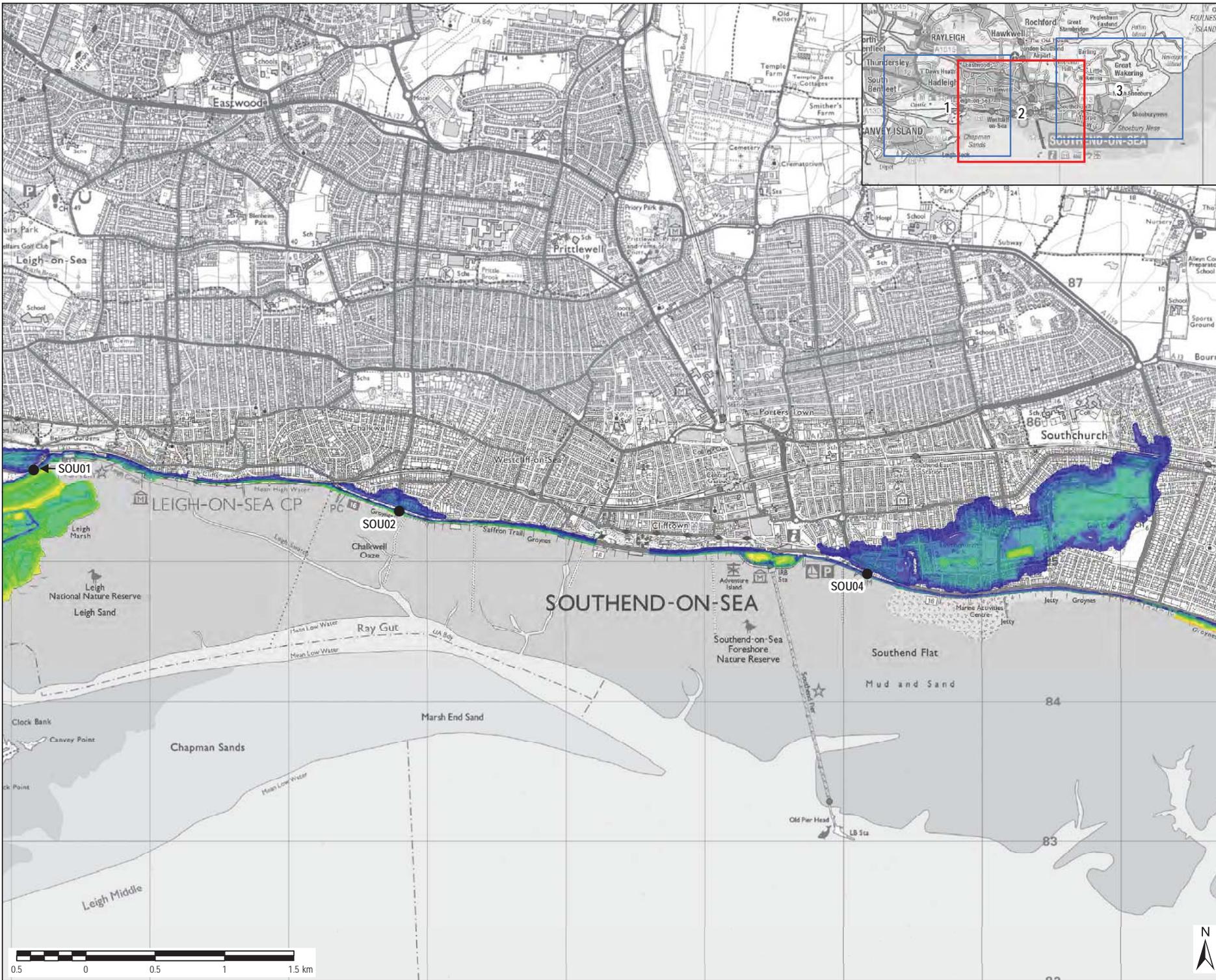
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Drawing Number: **FIGURE E44a** Rev: **1**

File Name: K:\S004 - Information Systems\60532482 - South Essex SFRA\02_Maps\Figure E44 Southend Breach Maximum Flood Depth - 2016.0.5% AEP_D18P.mxd



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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater. The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation. When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue

FINAL

Client

Basildon Council
castlepoint
Rochford District Council
southend on sea

Project Title

SOUTH ESSEX LEVEL 1 SFRA

Drawing Title

SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2016, 0.5% AEP

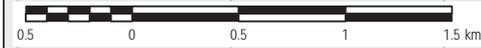
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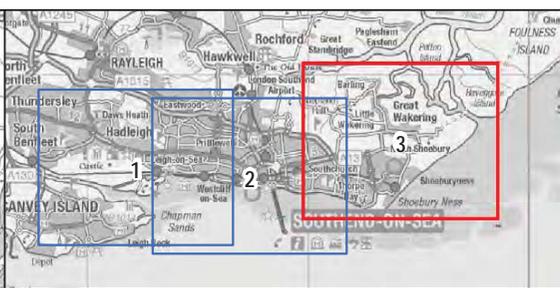
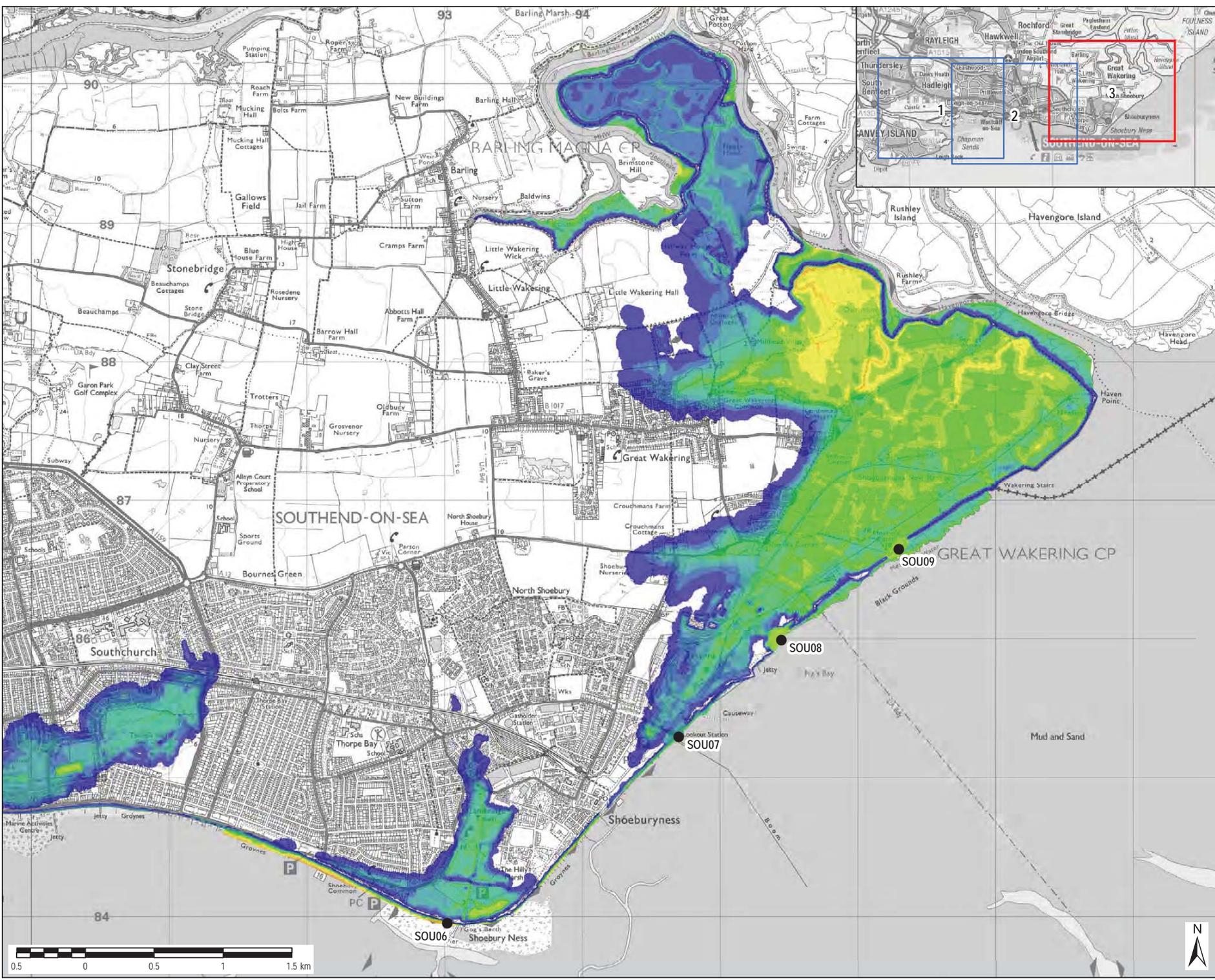
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Drawing Number
FIGURE E44b

Rev
1



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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overtopping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation.

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It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

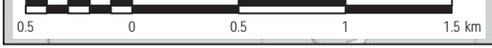
Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2016, 0.5% AEP**

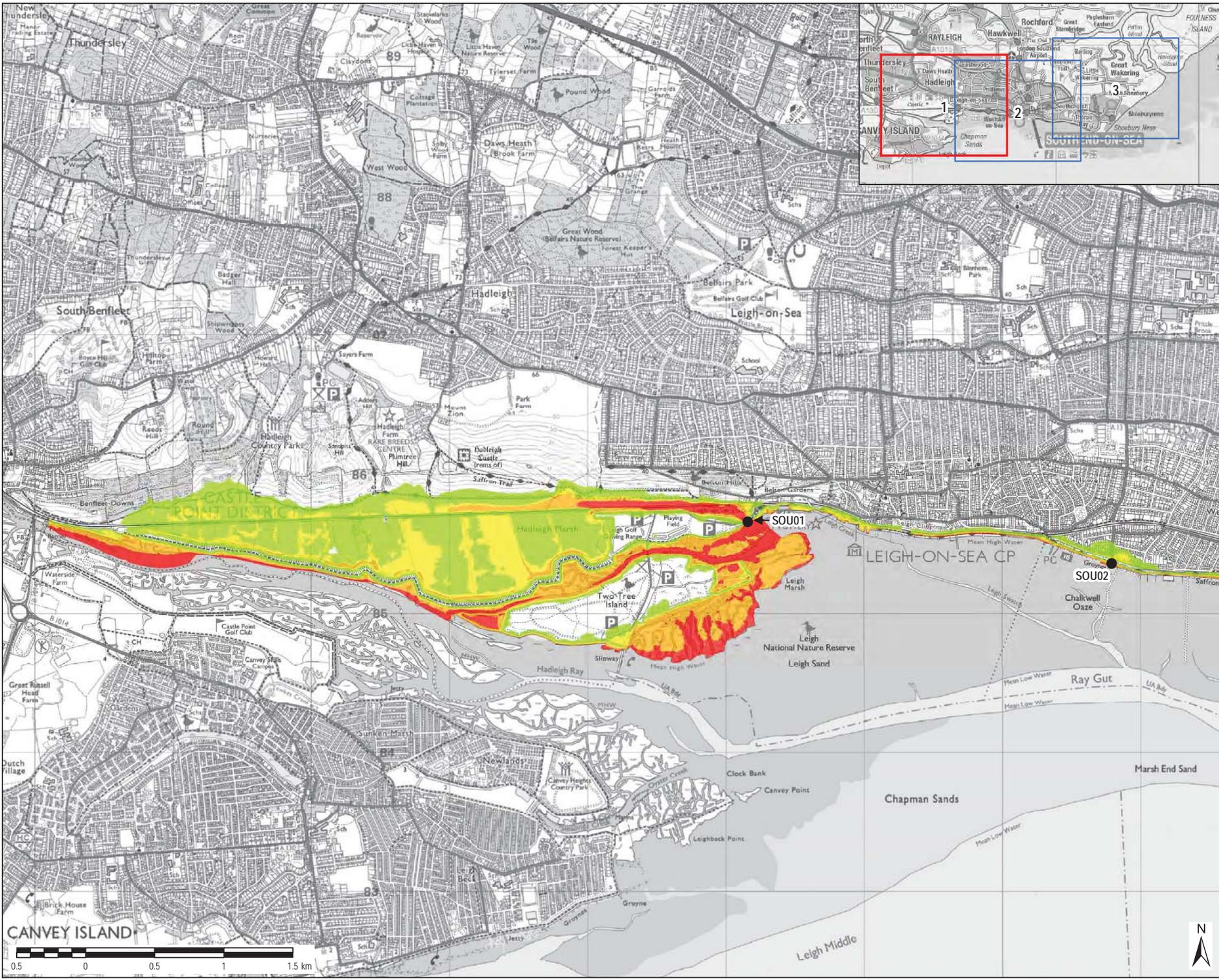
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Drawing Number: **FIGURE E44c** Rev: **1**





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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

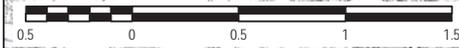
Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2016, 0.5% AEP**

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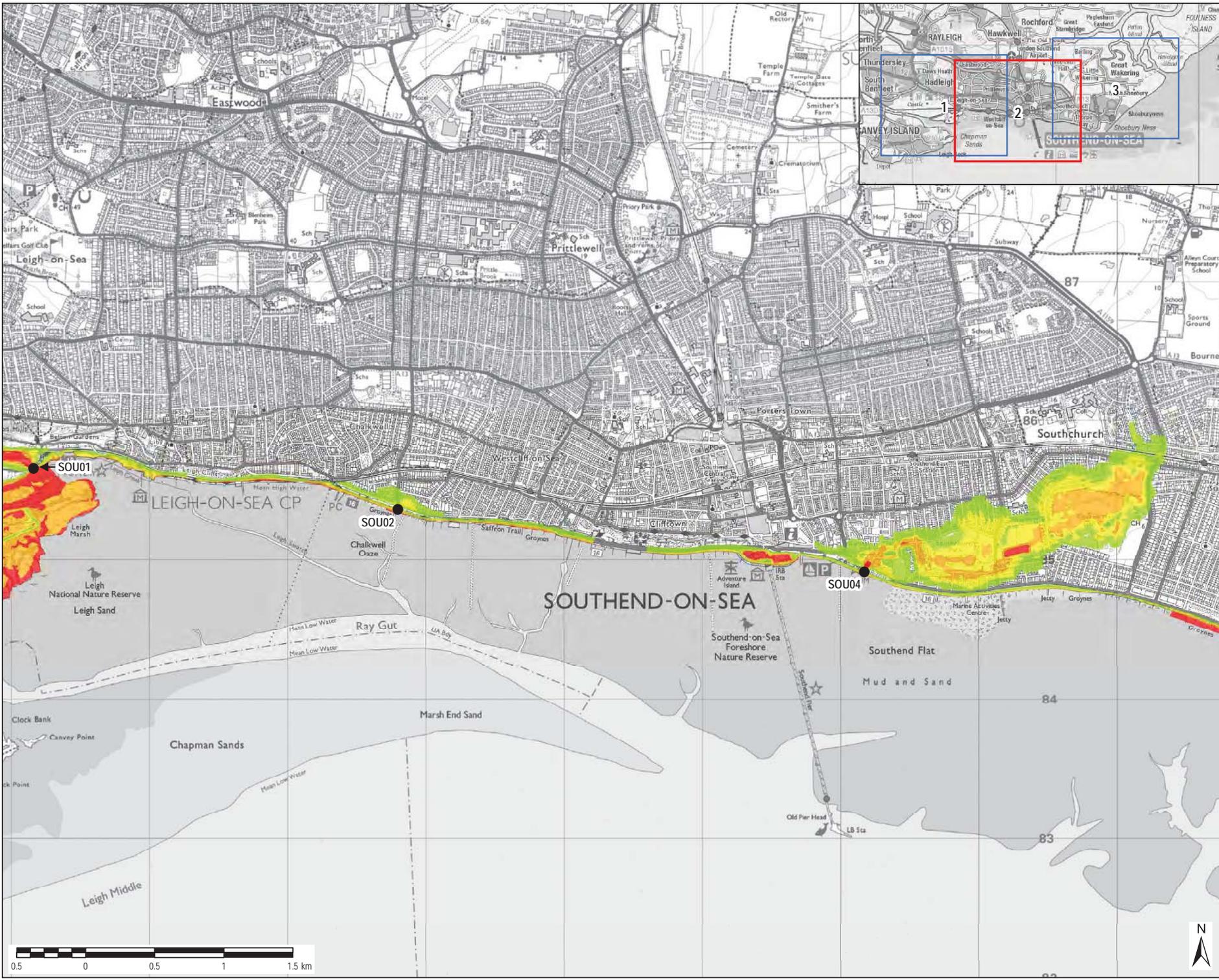
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File Name: K:\S004 - Information Systems\60532482 - South Essex SFRA\02_Maps\Figure E45 Southend Breach Maximum Flood Hazard - 2016.0.5.AEP - BDP.mxd



File Name: K15004 - Information Systems\60532482 - South Essex SFRM\02_Maps\Figure E45 Southend Breach Maximum Flood Hazard - 2016.05.AEP - BDDP.mxd



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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRM Main Report.

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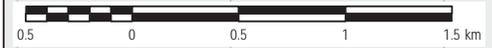
Drawing Title **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2016, 0.5% AEP**

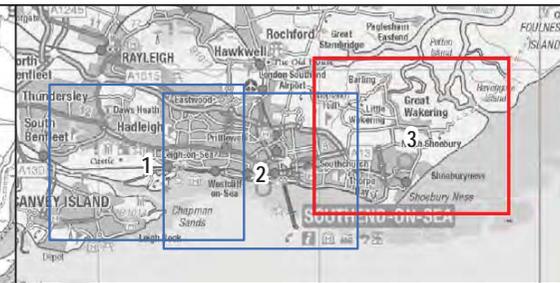
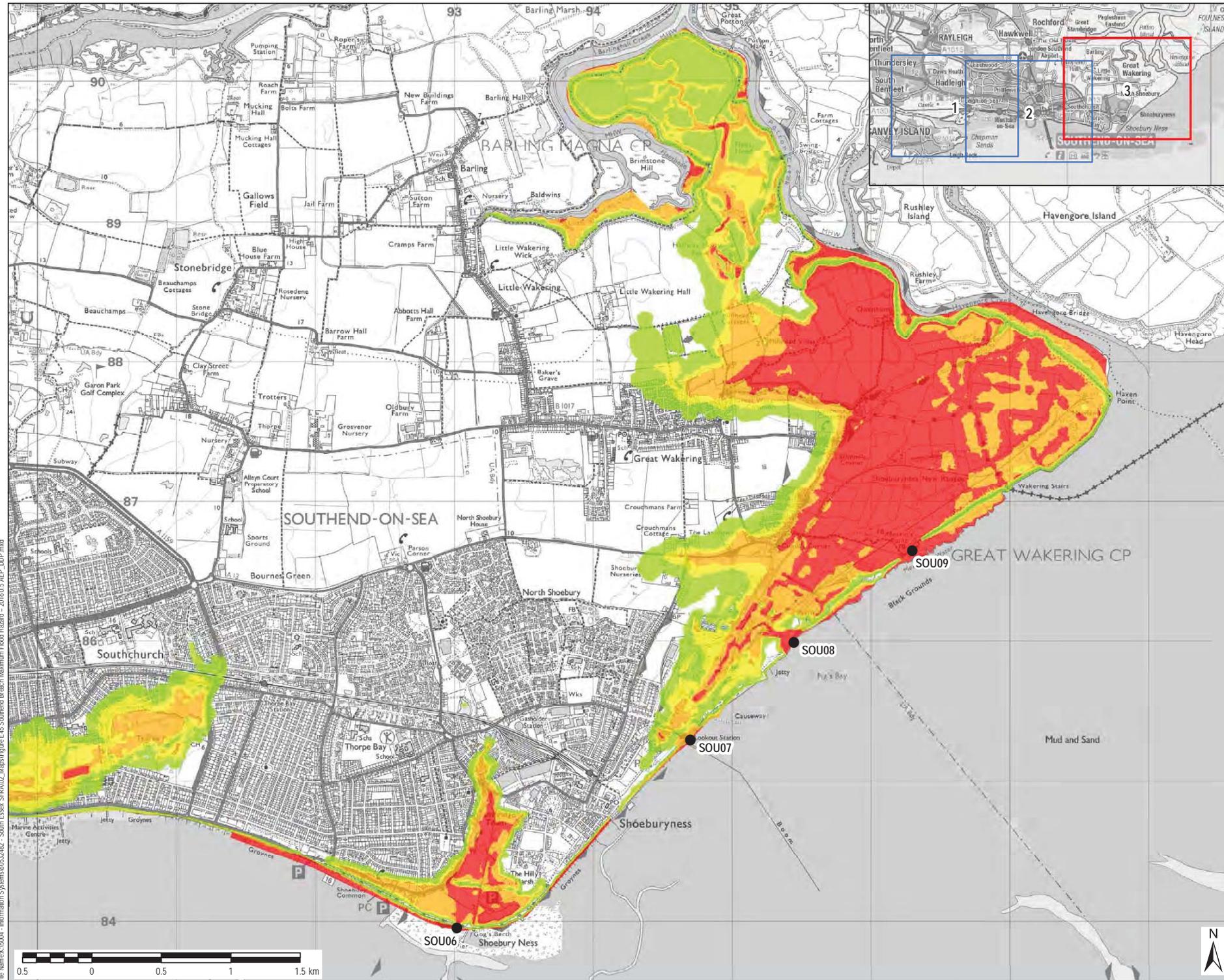
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Drawing Number **FIGURE E45b** Rev **1**





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- LEGEND**
- Breach Location
 - Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2016, 0.5% AEP**

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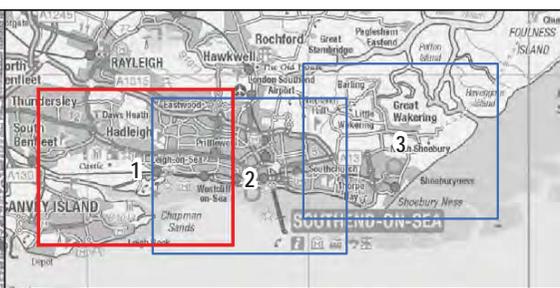
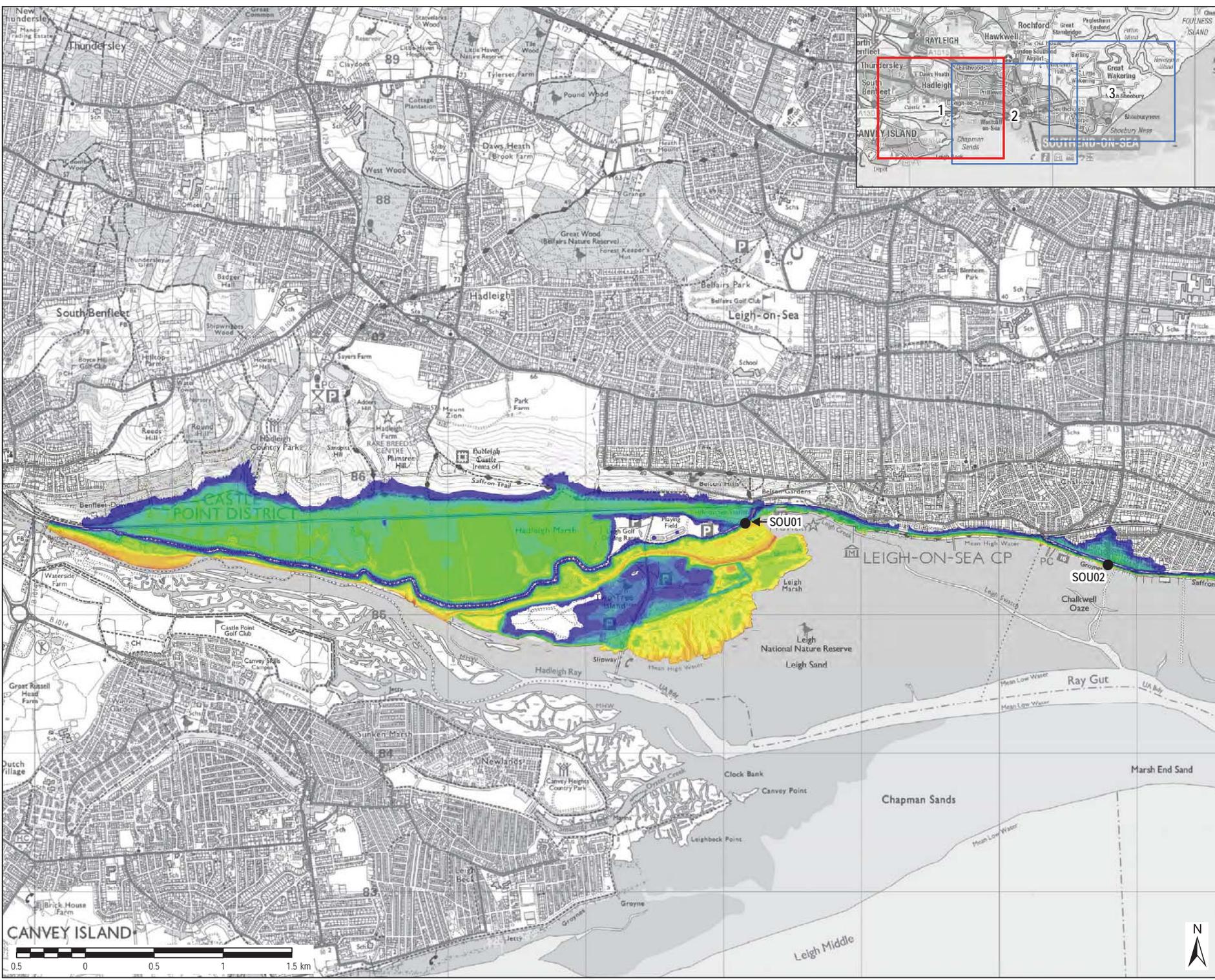
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Drawing Number: **FIGURE E45c** Rev: **1**

File Name: K15004 - Information Systems\60532482 - South Essex SFRA\02 Maps\Figure E45 Southend Breach Maximum Flood Hazard - 2016.0.5.AEP - BDP.mxd





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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater. The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation. When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.5% AEP**

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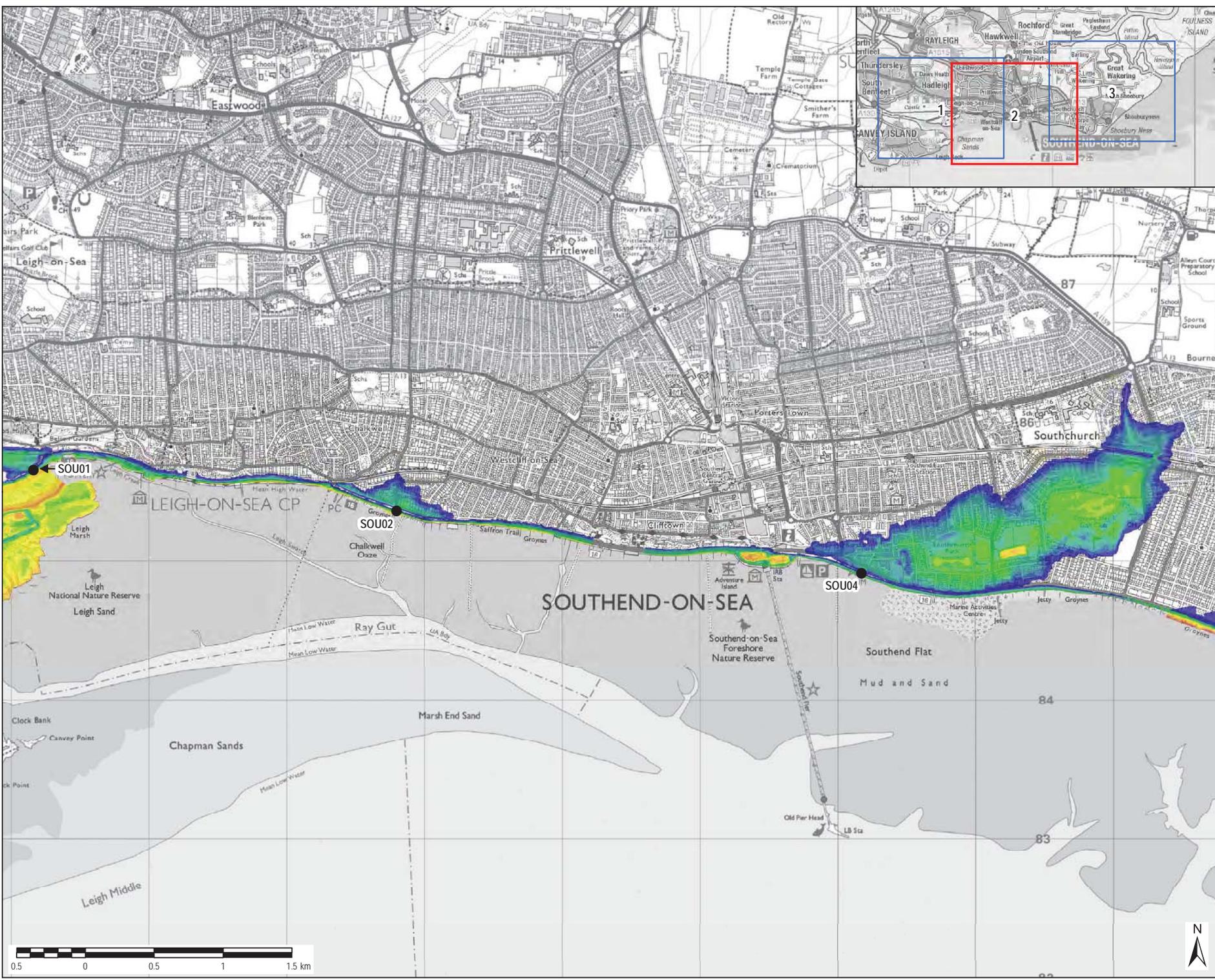
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Drawing Number: **FIGURE 46a**

Rev: **1**

File Name: K15004 - Information Systems\60532482 - South Essex SFRA\02_Maps\Figure E16_Southend Breach Maximum Flood Depth - 2116 with climate change 0.5% AEP.mxd

File Name: K15004 - Information Systems\6532482 - South Essex SFRA\02_Maps\Figure E16_Southend Breach Maximum Flood Depth - 2116 with climate change - 0.5 AEP.mxd



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LEGEND

● Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation.

When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location.

It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

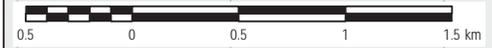
Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.5% AEP**

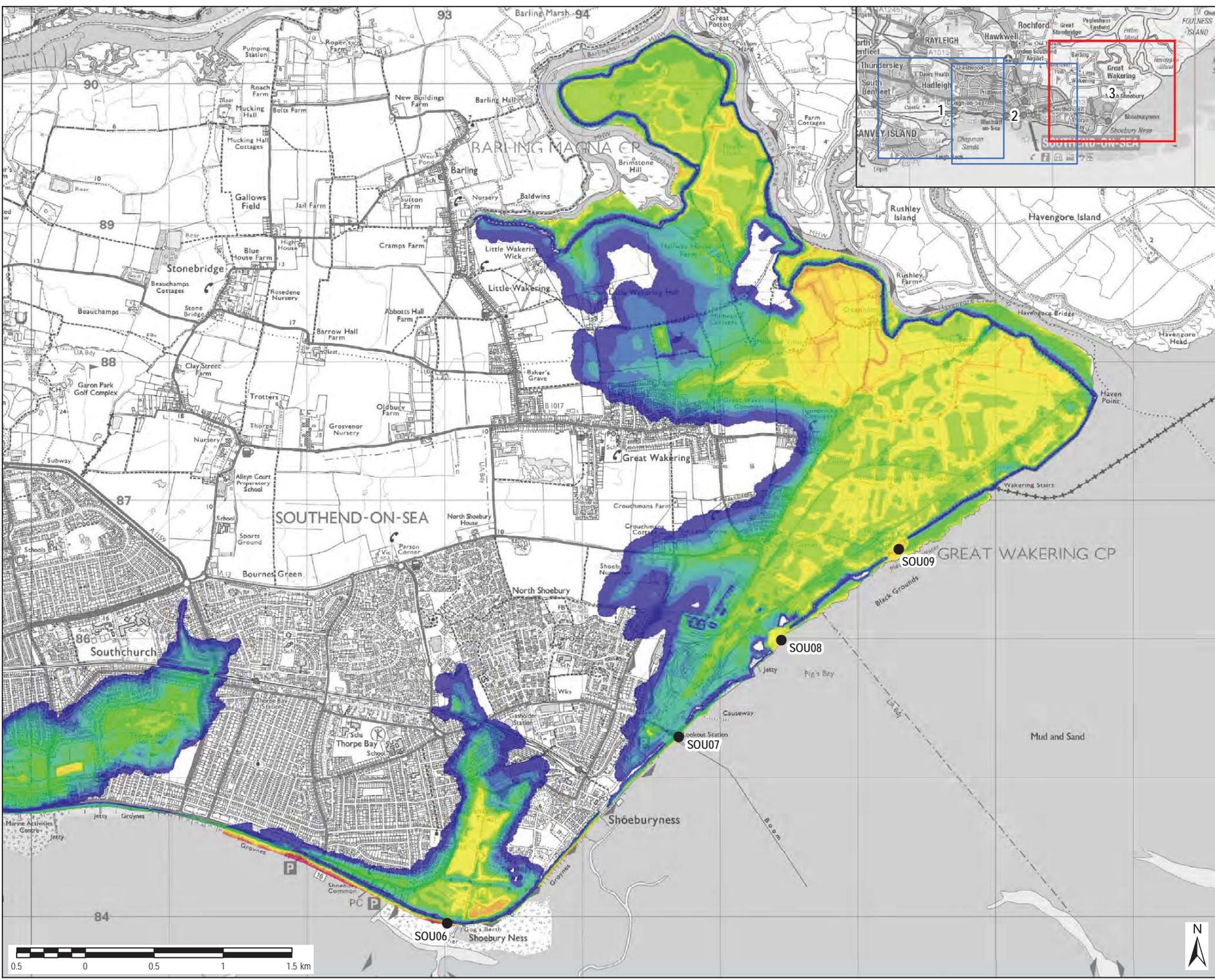
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Drawing Number: **FIGURE 46b** Rev: **1**





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LEGEND

● Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

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CASTLEPOINT CONSULTING

Rochford District Council

southend on sea
SOUTHEND-ON-SEA DISTRICT COUNCIL

Project Title

SOUTH ESSEX LEVEL 1 SFRA

Drawing Title

SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.5% AEP

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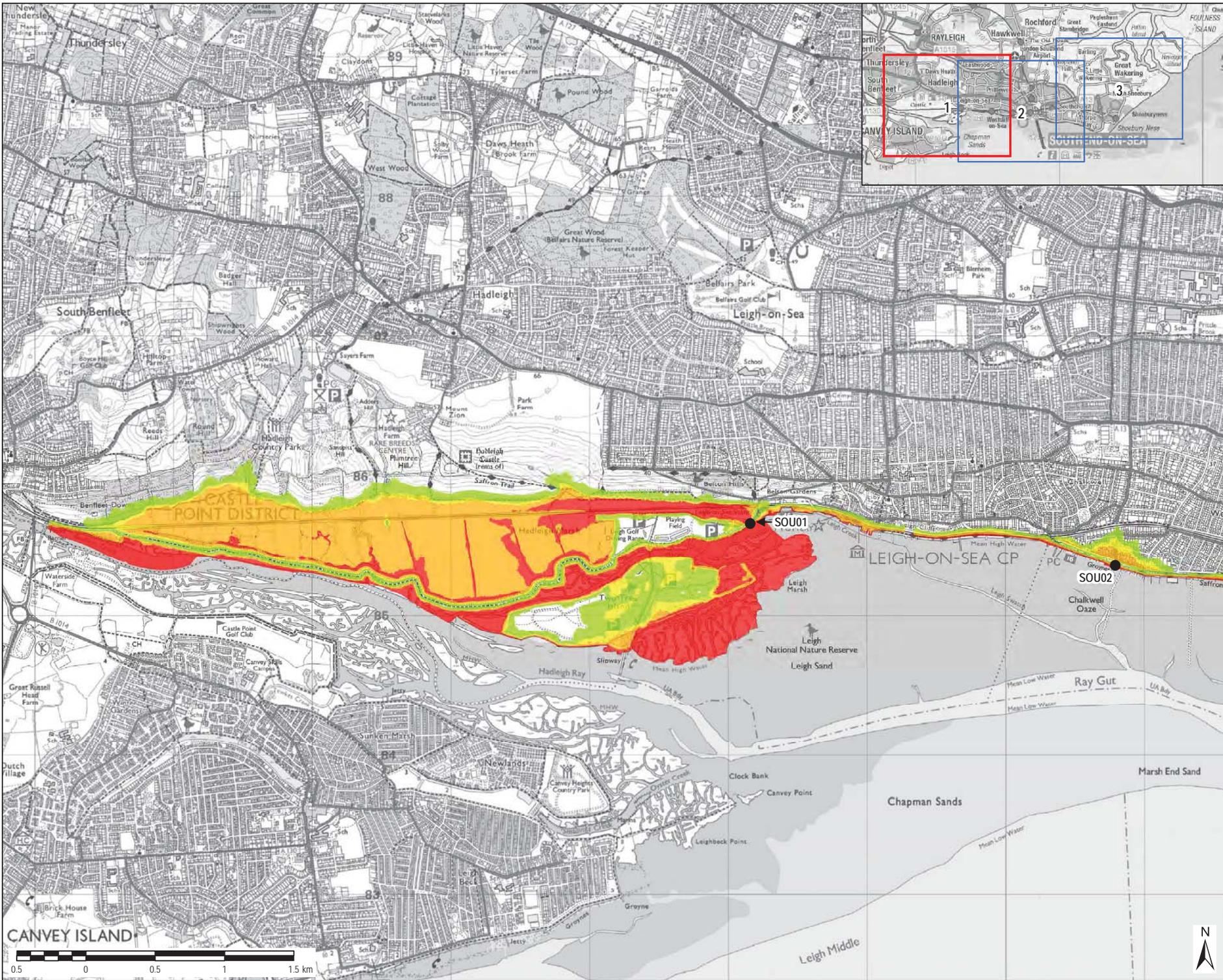
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Drawing Number **FIGURE 46c** Rev **1**

File Name: K15004 - Information Systems\60532482 - South Essex SFRA\02_Maps\Figure 46c_Southend Breach Maximum Flood Depth - 2116 with climate change_0.5 AEP.mxd





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- LEGEND**
- Breach Location
 - Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.5% AEP**

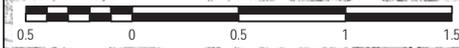
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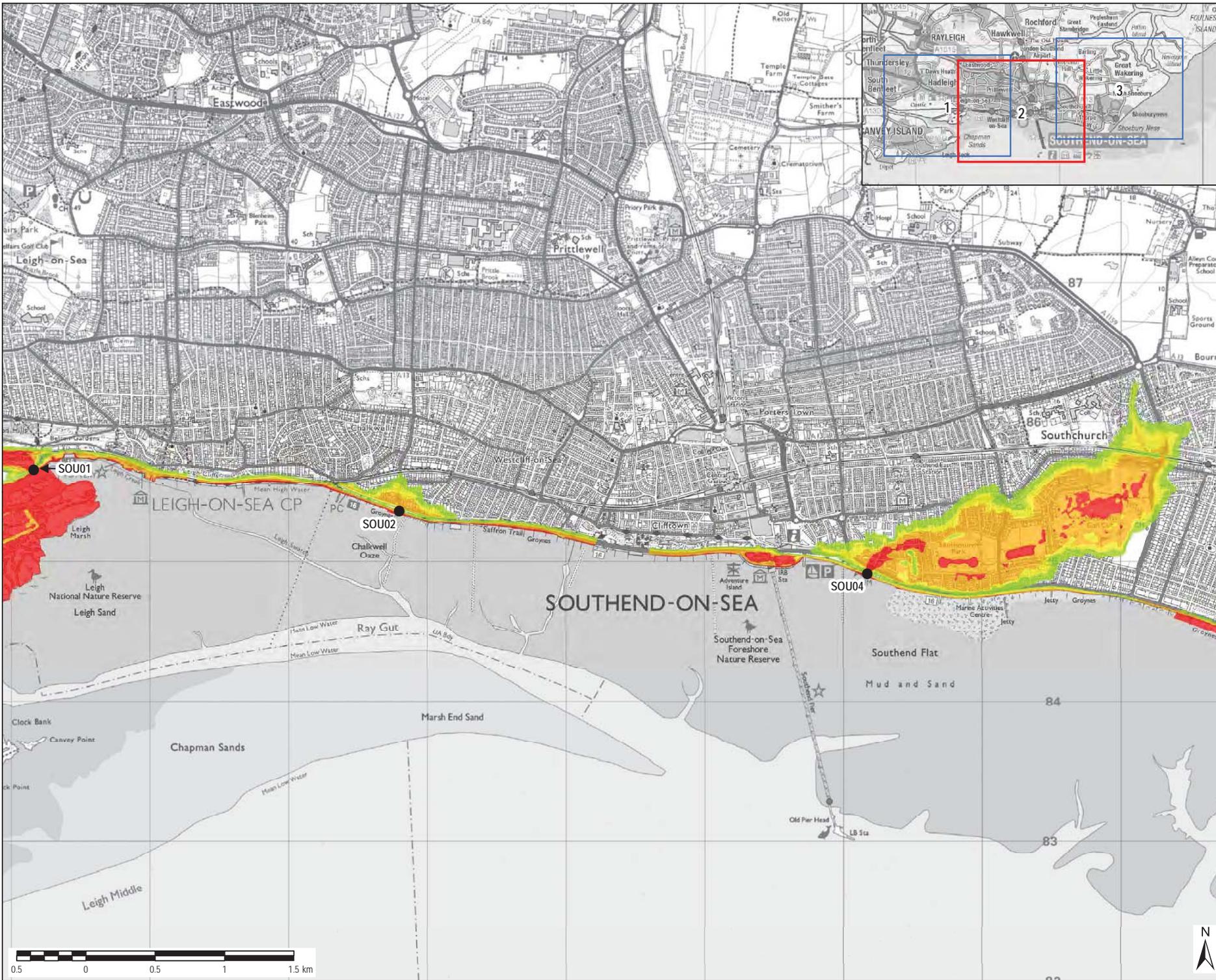
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Drawing Number: **FIGURE E47a** | Rev: **1**

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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

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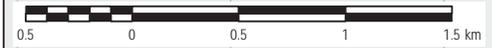
Drawing Title **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.5% AEP**

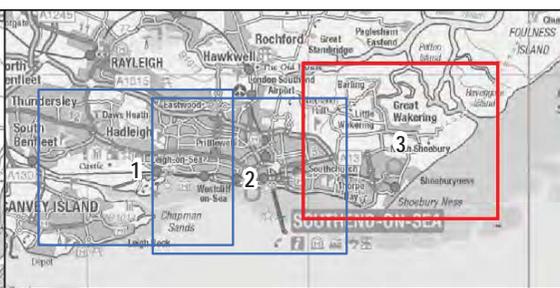
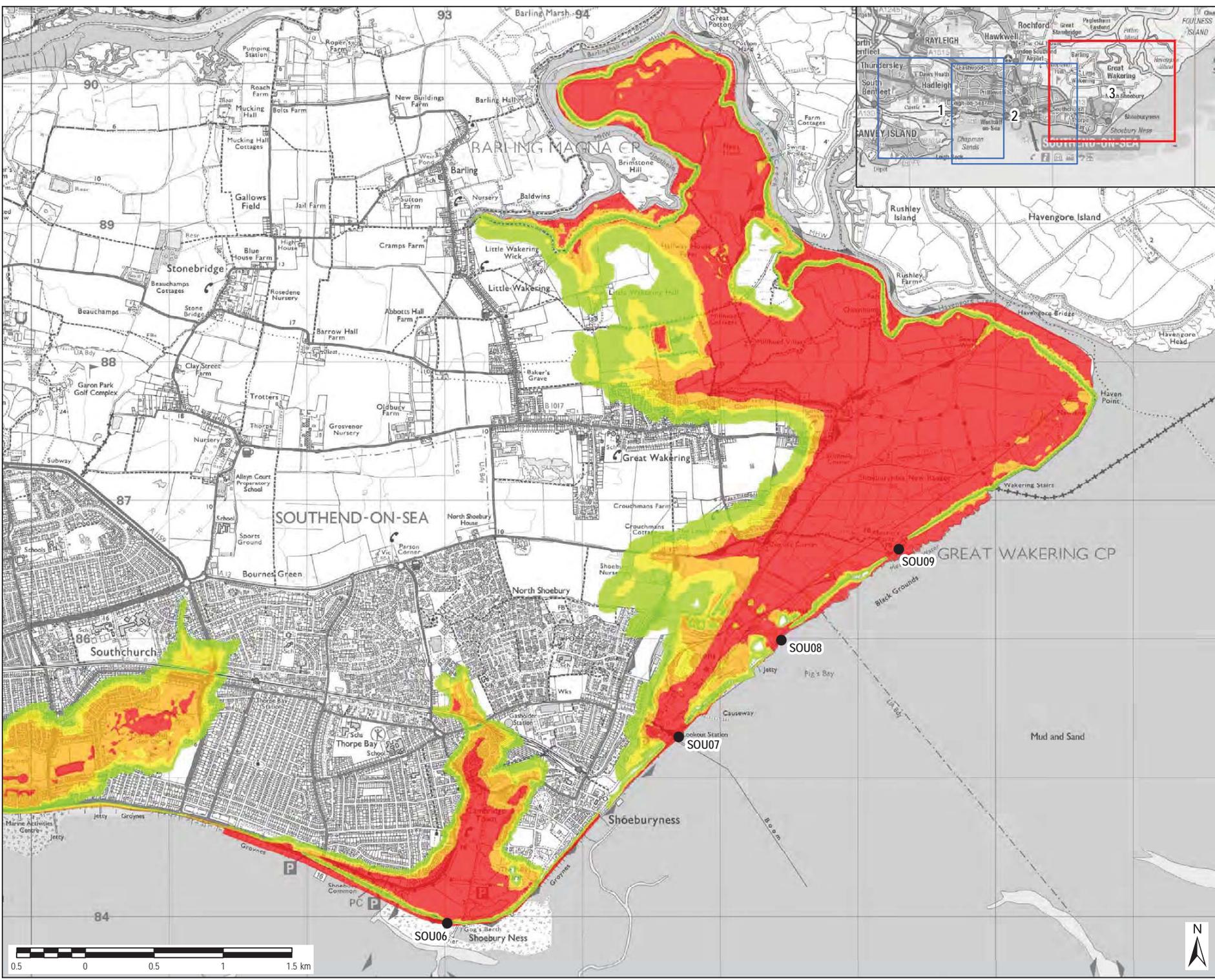
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Drawing Number **FIGURE E47b** Rev **1**





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- LEGEND**
- Breach Location
 - Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.5% AEP**

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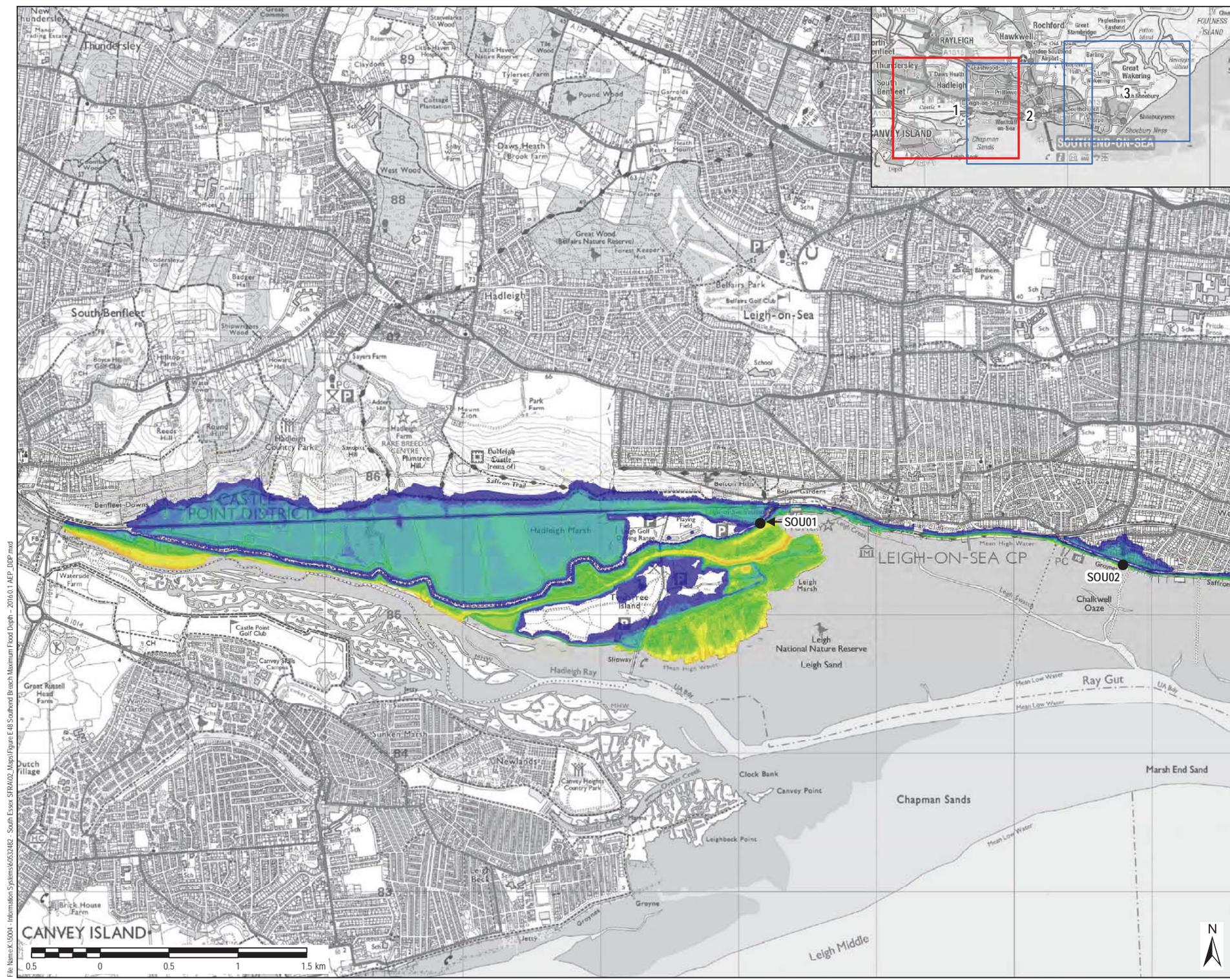
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Drawing Number **FIGURE E47c** Rev **1**

File Name: K:\5004 - Information Systems\6532482 - South Essex SFRA\02 Maps\Figure E47 Southend Breach Maximum Flood Hazard - 2116 with climate change 0.5% AEP - DDP.mxd





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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater. The maximum flood depth is calculated by subtracting the LIDAR topographic data from the peak water level achieved at each element in the model throughout the simulation. When using flood depth maps, it should be noted that they represent the flood depth arising from one or more specified breach locations, and that the depth will almost certainly vary spatially if the breach locations are in different local areas. Changes in inundation extent or maximum depth are non-linear to changes in breach location. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

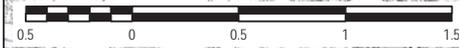
Drawn JW	Checked BB	Approved CP	Date 09/04/2018
AECOM Internal Project No. 60532482		Scale @ A3 1:25,000	

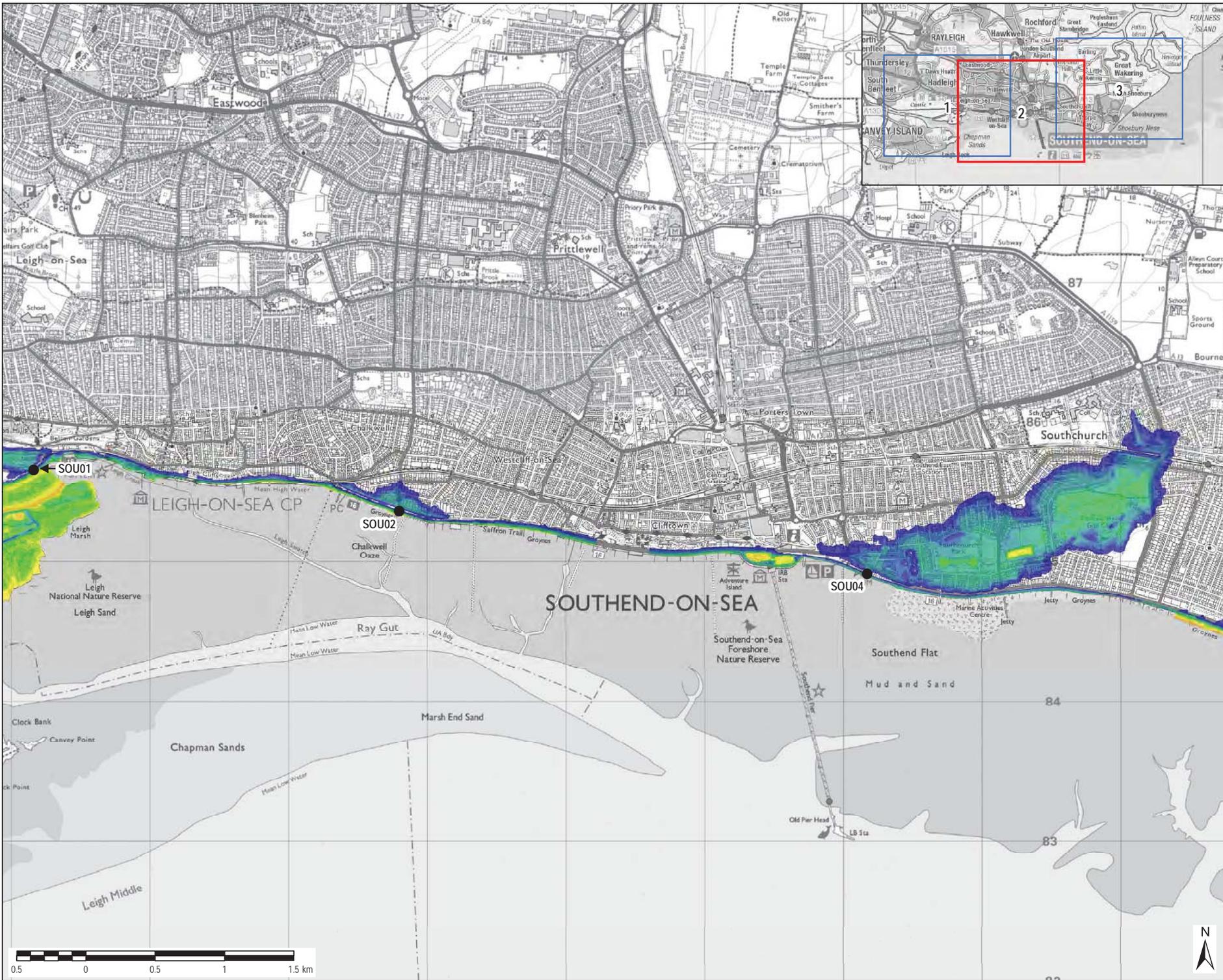
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Drawing Number: **FIGURE E48a** Rev: **1**

File Name: K:\S004 - Information Systems\6532482 - South Essex SFRA\02_Maps\Figure E48 Southend Breach Maximum Flood Depth - 2016.01_AEP_DDP.mxd





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LEGEND

● Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location.

A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

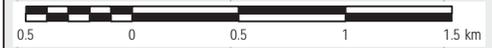
Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

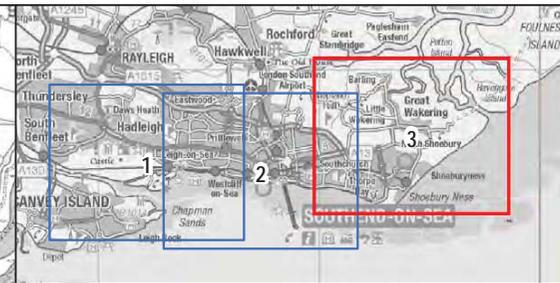
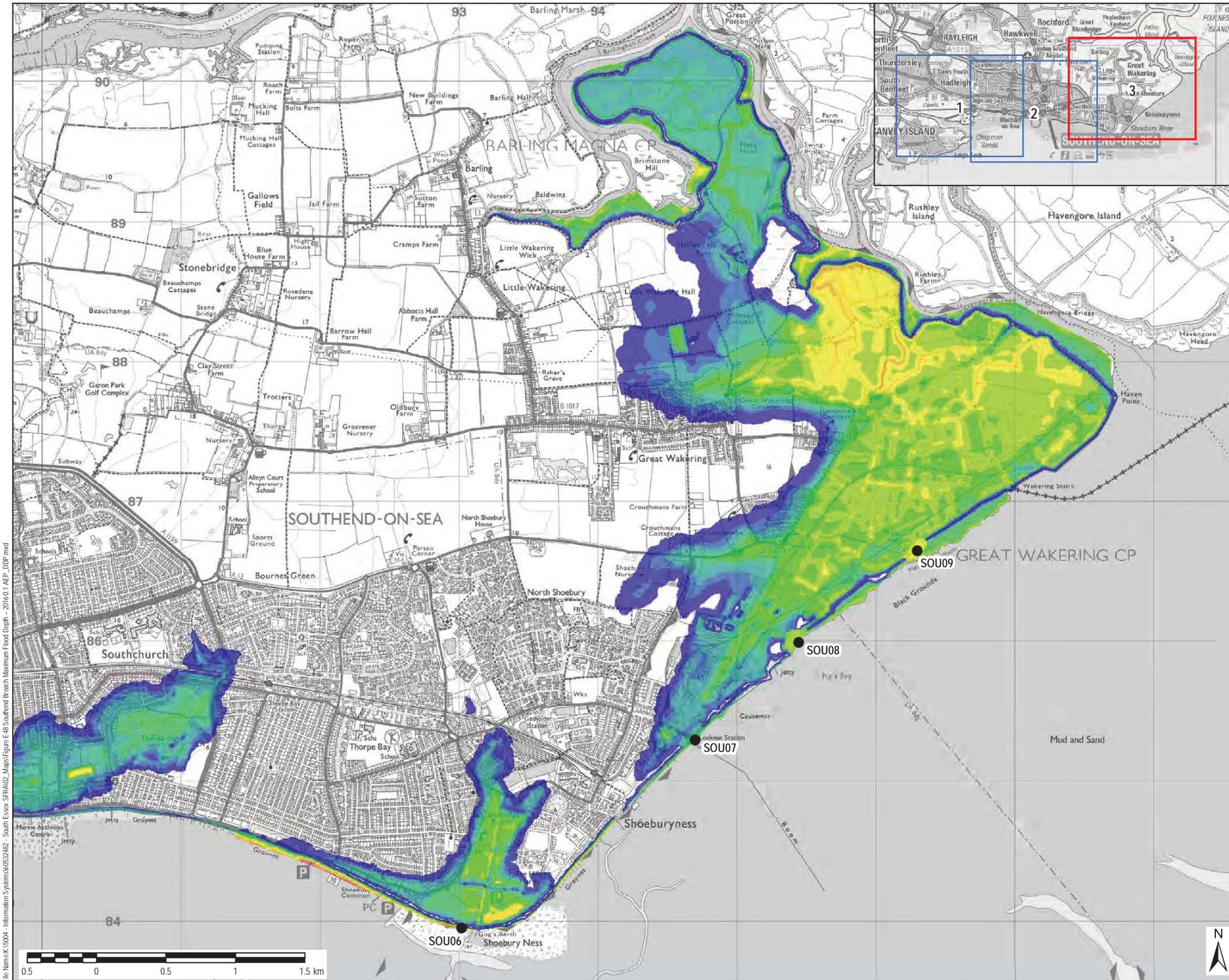
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Drawing Number: **FIGURE E48b** Rev: **1**





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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

Hydraulic modelling has been undertaken using 2D hydraulic modelling software MIKE21-HDFM (ver. 2009), to assess the effect of breaches at specified points and/or overlapping of defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur immediately before the peak tidal level to assess the potential impact of rapid inundation of floodwater.

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Purpose of Issue: **FINAL**

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2016, 0.1% AEP**

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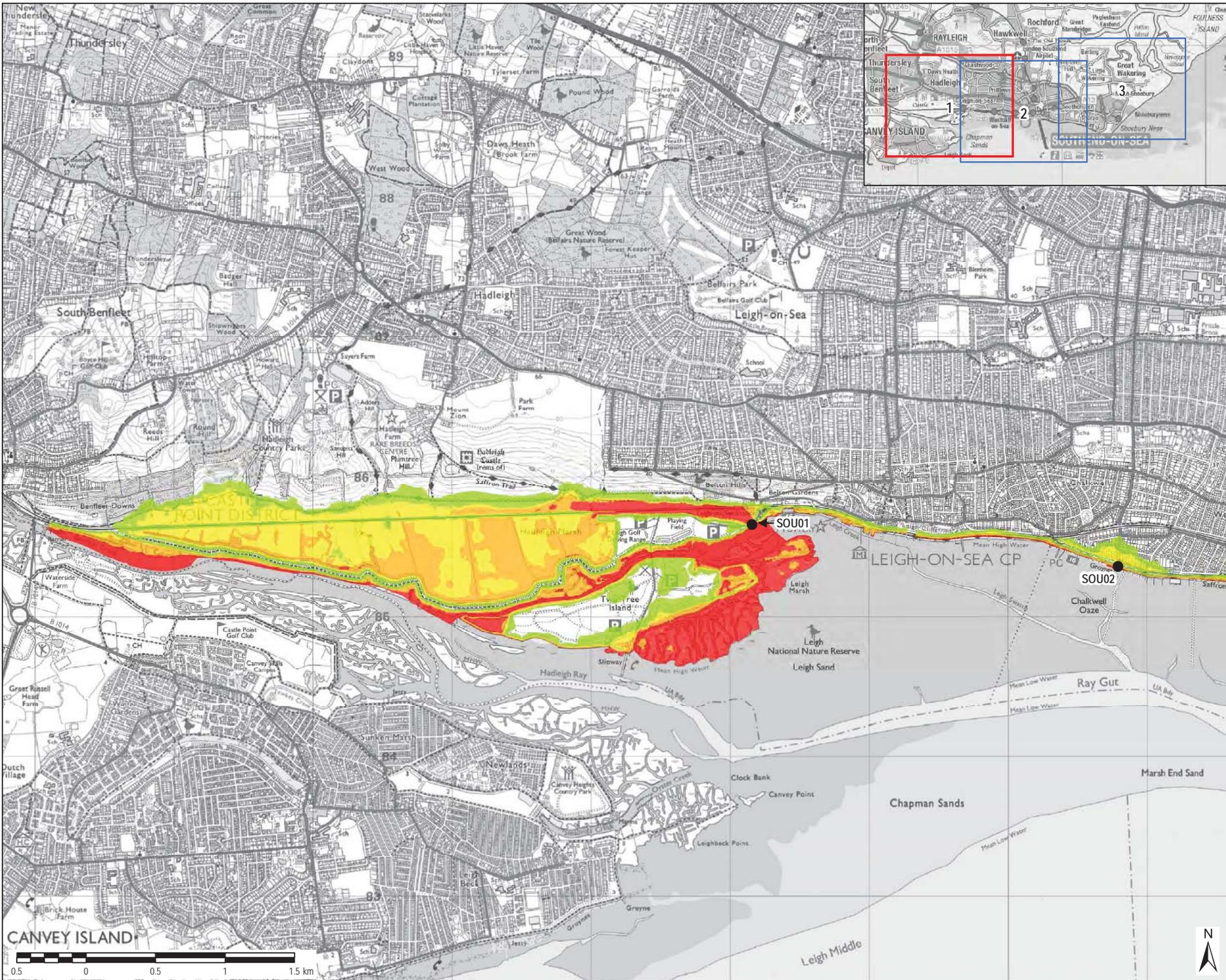
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Drawing Number: **FIGURE E48c** Rev: **1**

File Name: K:\S004 - Information Systems\60532482 - South Essex SFRA\02 Maps\Figure E48 Southend Breach Maximum Flood Depth - 2016\01 MEP_DDP.mxd





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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

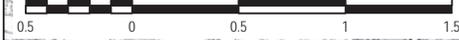
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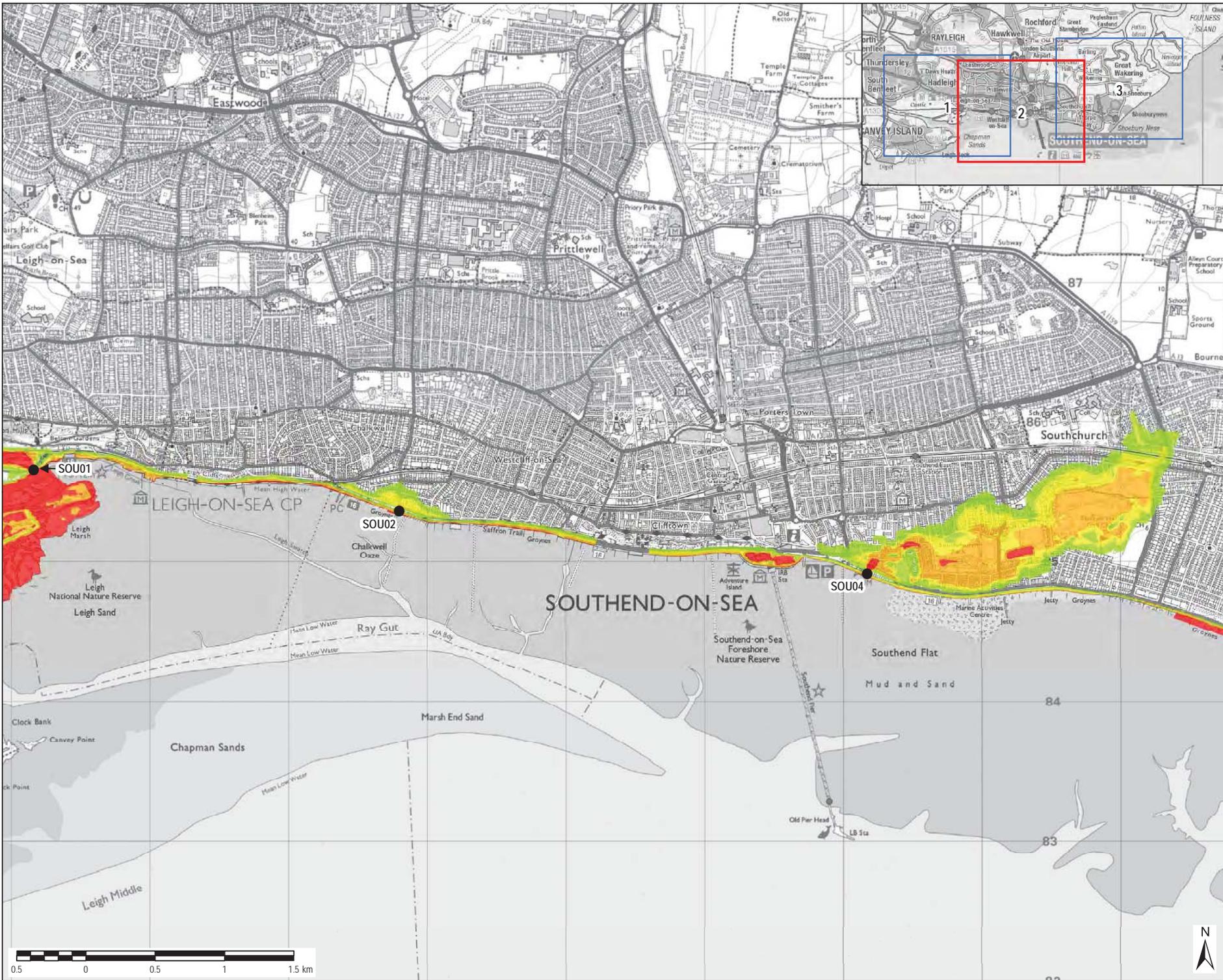
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Drawing Number: **FIGURE E49a** | Rev: **1**

File Name: K:\S004 - Information Systems\60532482 - South Essex SFRA\02_Maps\Figure E49 Southend Breach Maximum Flood Hazard - 2016.01.AEP_BDP.mxd



File Name: K15004 - Information Systems\6532482 - South Essex SFRA\02_Maps\Figure E49 Southend Breach Maximum Flood Hazard - 2016.01.AEP_DDP.mxd



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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue **FINAL**

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Project Title **SOUTH ESSEX LEVEL 1 SFRA**

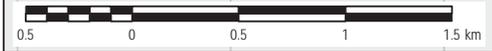
Drawing Title **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

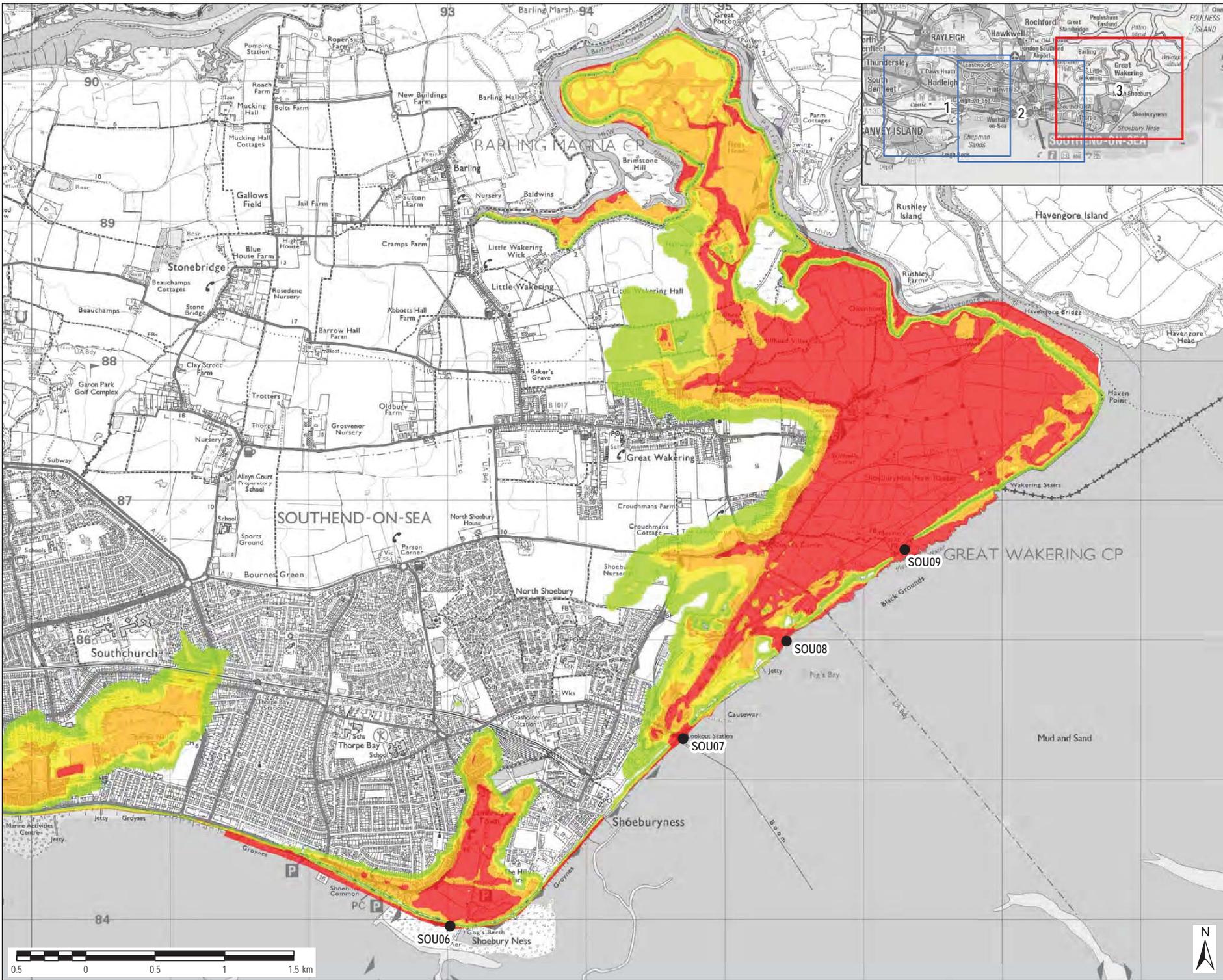
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Drawing Number **FIGURE E49b** Rev **1**





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LEGEND

- Breach Location
- Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTH ESSEX BREACH MAXIMUM FLOOD HAZARD 2016, 0.1% AEP**

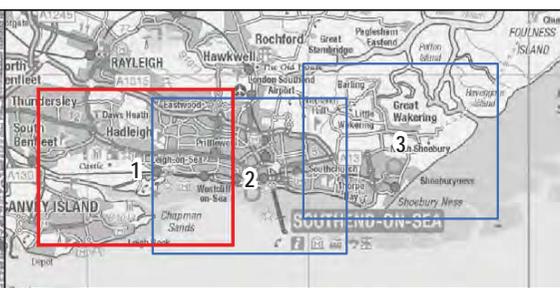
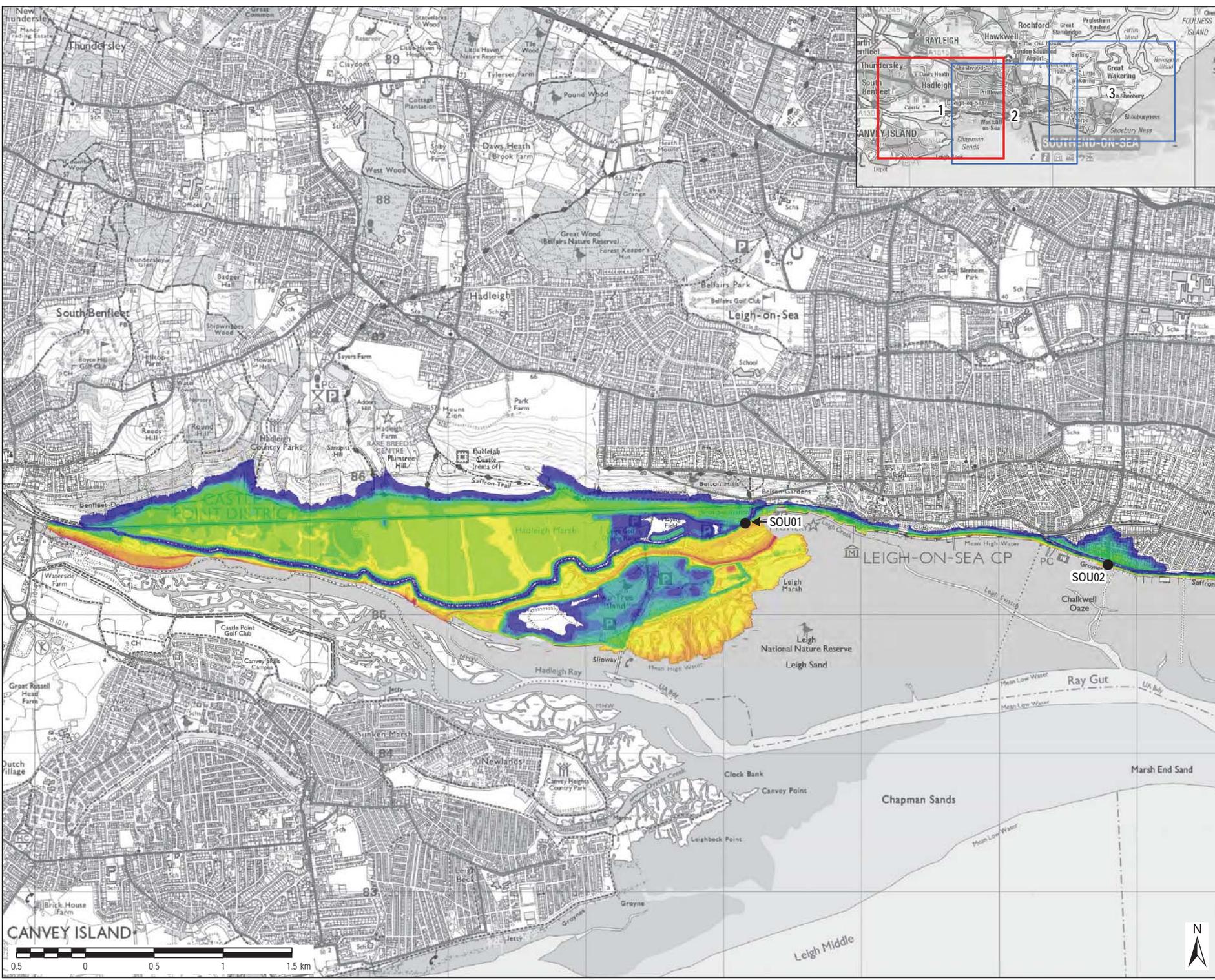
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Drawing Number: **FIGURE E49c** Rev: **1**

File Name: K:\S004 - Information Systems\60532482 - South Essex SFRA\02 Maps\Figure E49 South Essex Breach Maximum Flood Hazard - 2016.01.AEP_BDP.mxd



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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

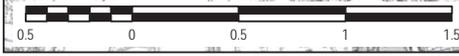
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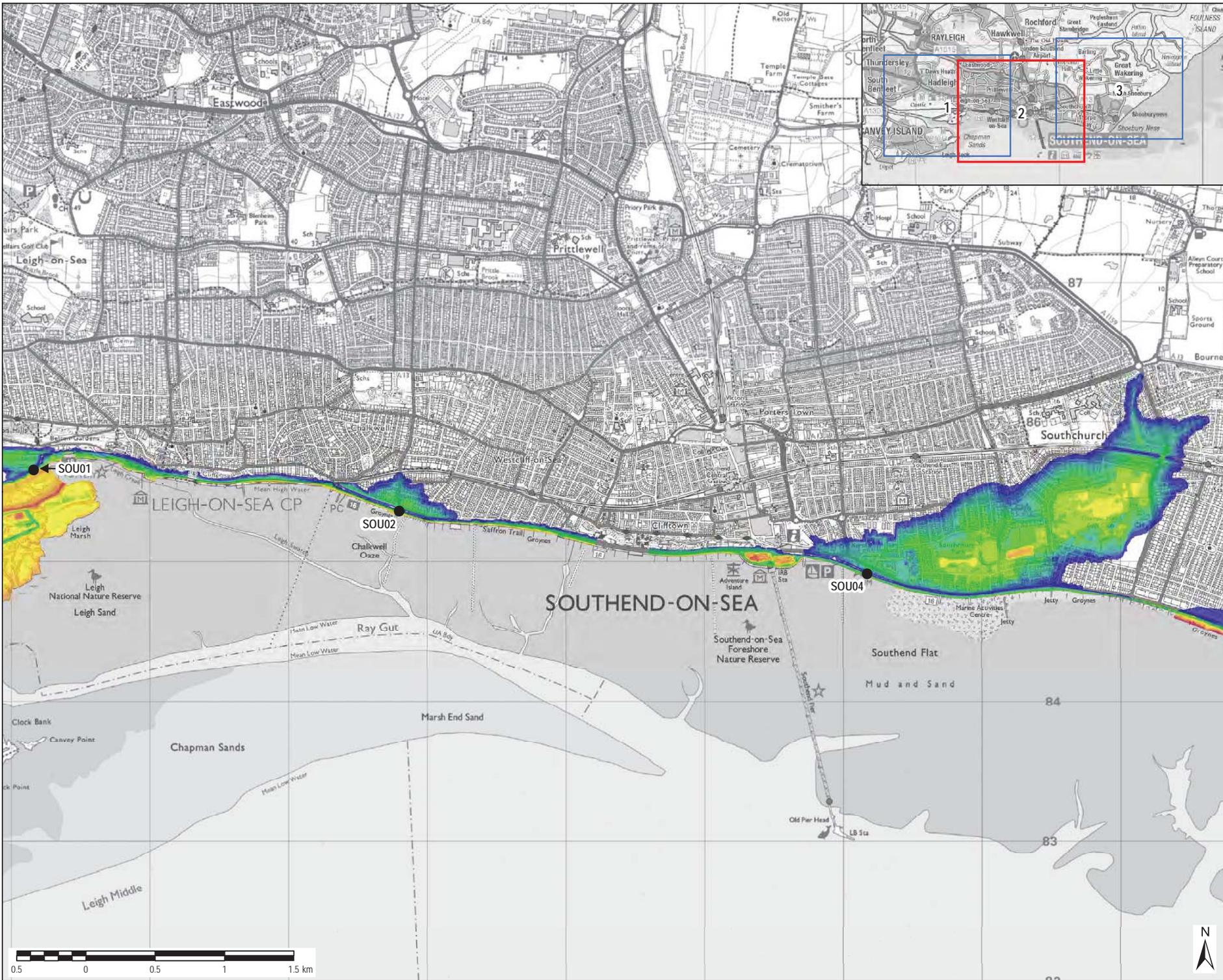
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Drawing Number: **FIGURE E50a** Rev: **1**

File Name: K:\5004 - Information Systems\6532482 - South Essex SFRA\02_Maps\Figure E50 Southend Breach Maximum Flood Depth - 2116 with climate change 0.1 AEP_DDP.mxd





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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

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Purpose of Issue: **FINAL**

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

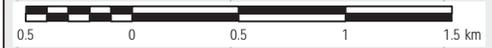
Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

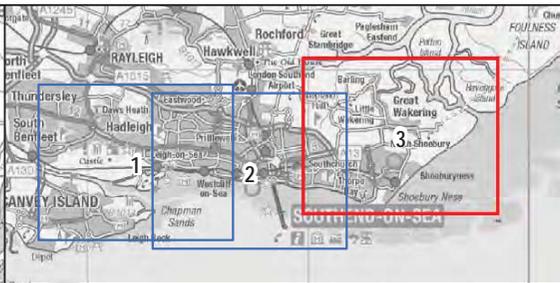
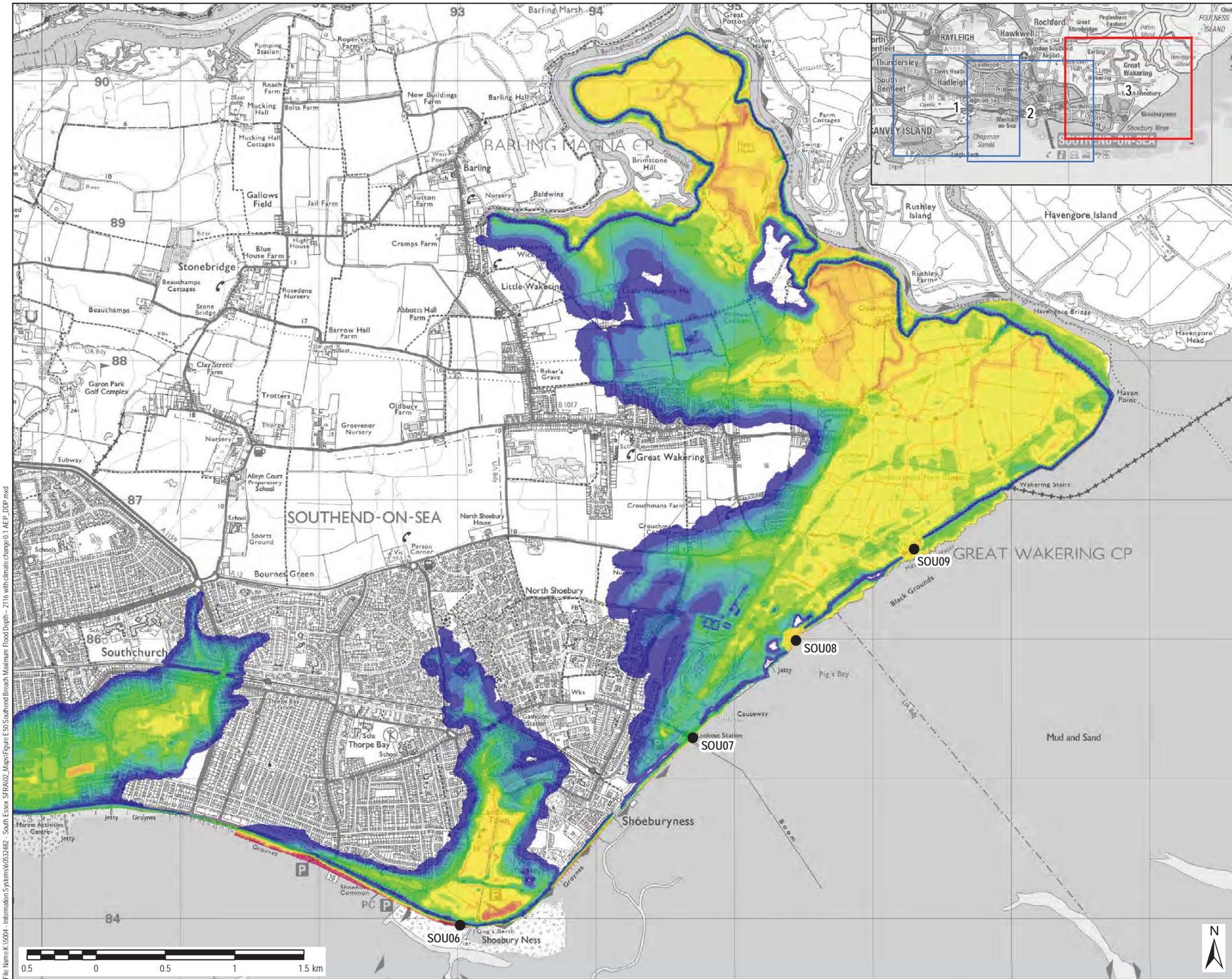
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Drawing Number: **FIGURE E50b** Rev: **1**





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LEGEND

- Breach Location

Maximum Flood Depth (m)

- > 0 to 0.5m
- > 0.5 to 1m
- > 1 to 1.5m
- > 1.5 to 2m
- > 2 to 2.5m
- > 2.5 to 3m
- > 3 to 3.5m
- > 3.5 to 4m
- > 4 to 4.5m
- > 4.5 to 5m
- > 5 to 5.5m
- > 5.5 to 6m
- > 6m

NOTES

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **SOUTHEND BREACH MAXIMUM FLOOD DEPTH 2116 WITH CLIMATE CHANGE 0.1% AEP**

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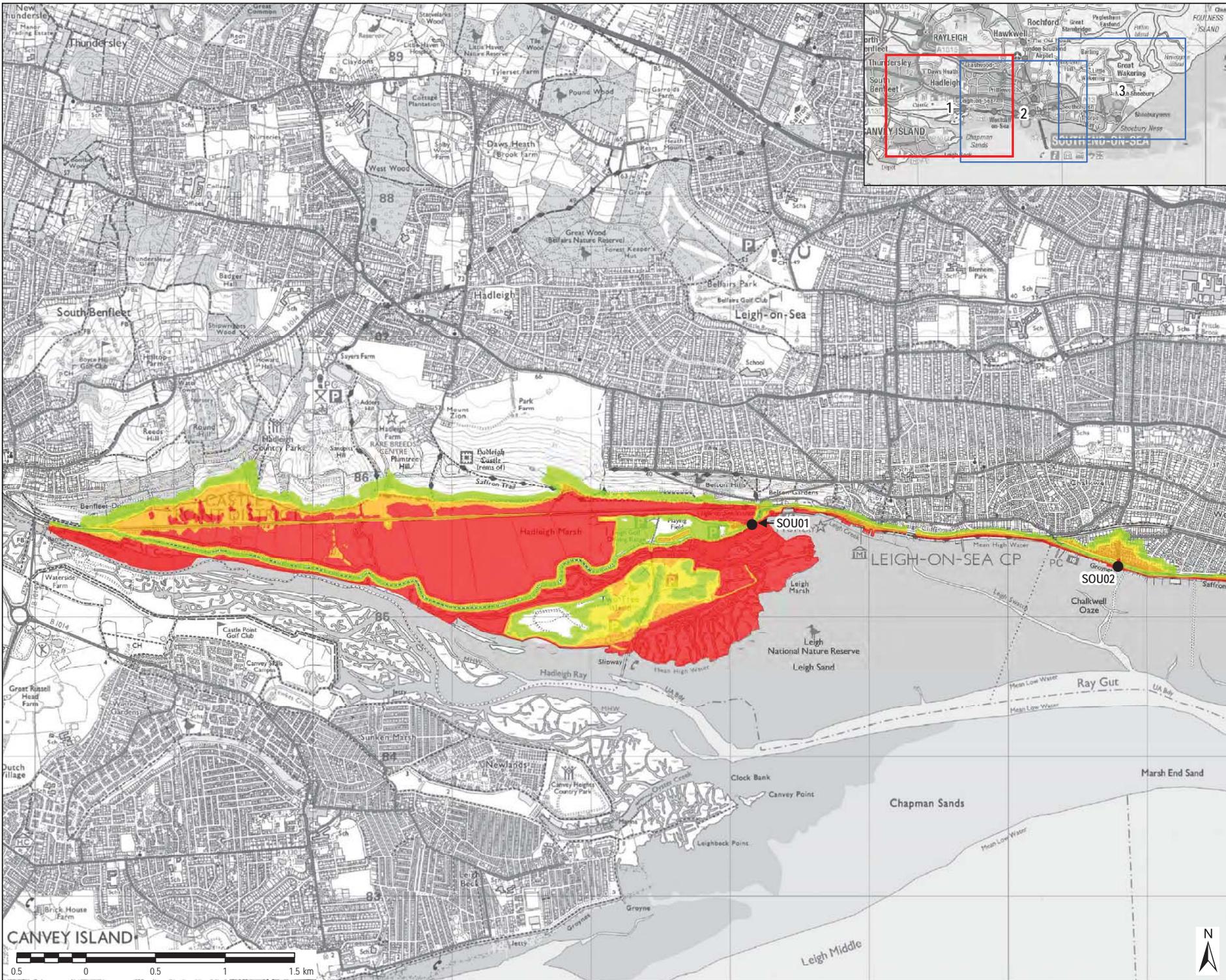
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Drawing Number **FIGURE E50c** Rev **1**

File Name: K:\004 - Information Systems\60532482 - South Essex SFRA\02 Maps\Figure E50 Southend Breach Maximum Flood Depth - 2116 with climate change 0.1 AEP_DDP.mxd





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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

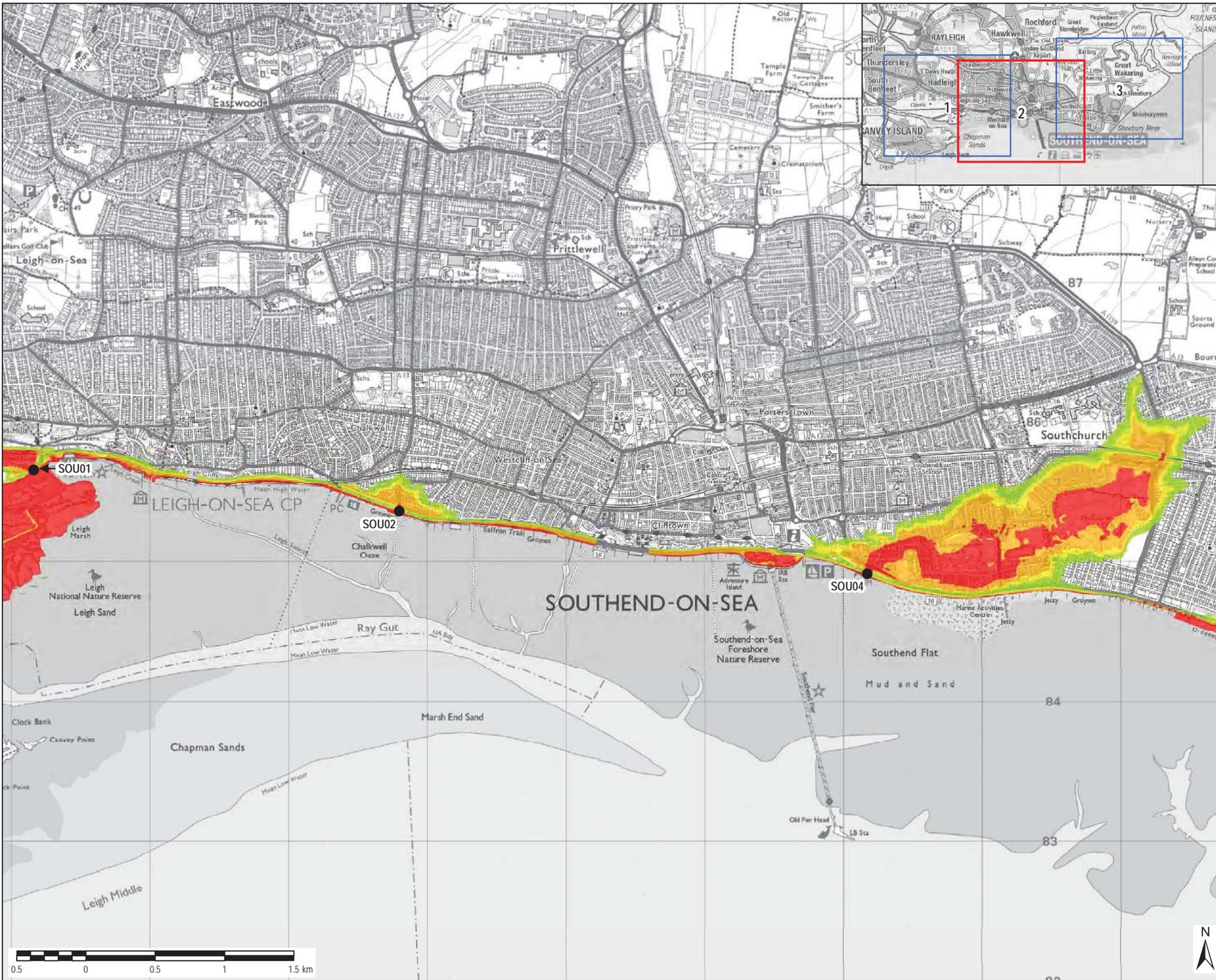
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File Name: K15004 - Information Systems\6532482 - South Essex SFRA\02_Maps\Figure E51 Southend Breach Maximum Flood Hazard - 2116 with climate change 0.1 AEP_DDP.mxd

File Name: K15004 - Information Systems\6532482 - South Essex SFRM\02_Maps\Figure E51 Southend Breach Maximum Flood Hazard - 2116 with climate change 01 AEP_DDP.mxd



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LEGEND

- Breach Location
- Maximum Flood Hazard**
- Low Hazard
- Moderate Hazard (Danger to Some)
- Significant Hazard (Danger to Most)
- Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRM Main Report.

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

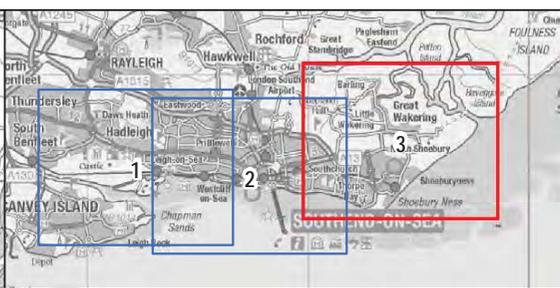
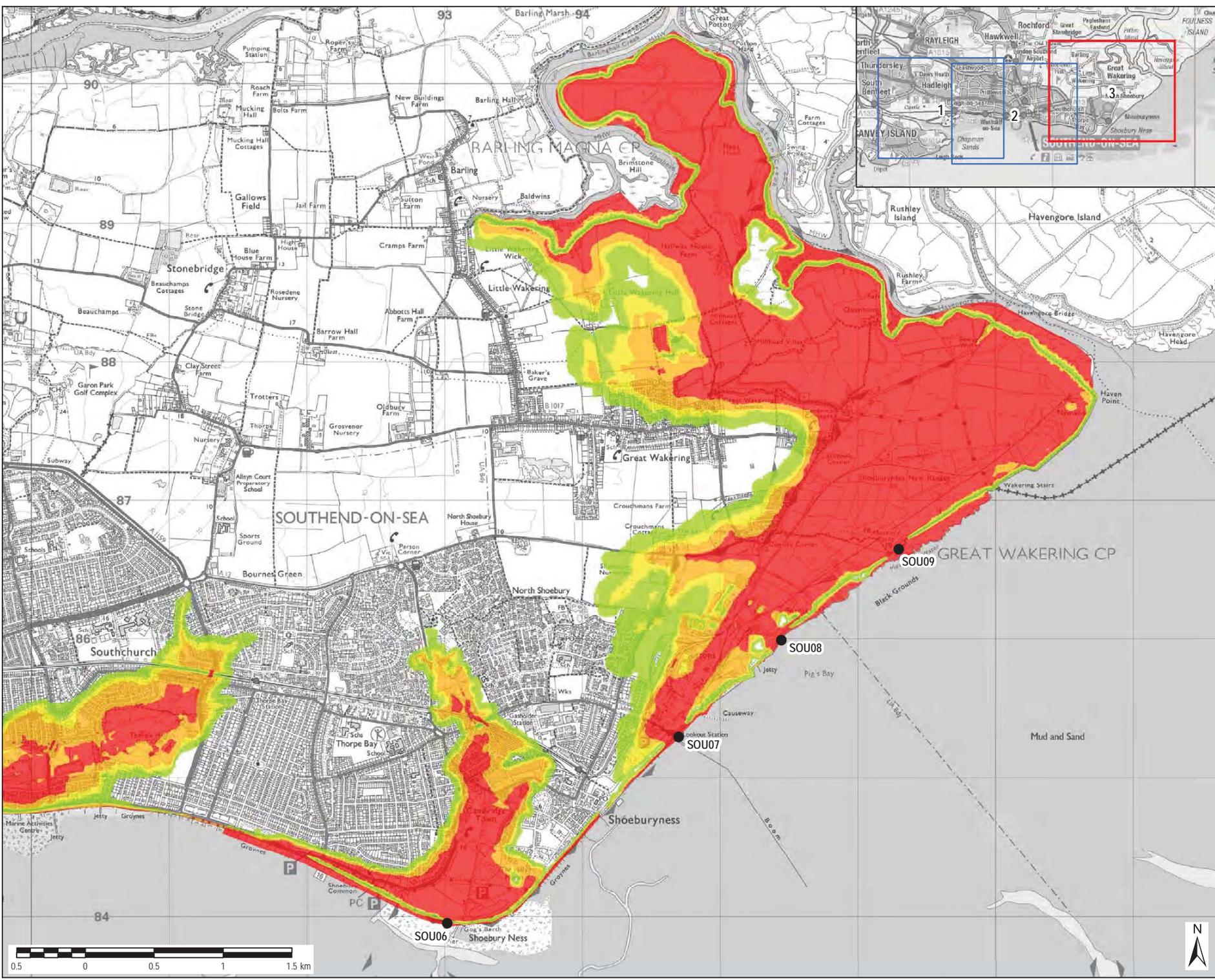
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Drawing Number **FIGURE E51b** Rev **1**





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LEGEND

- Breach Location
- Maximum Flood Hazard**
 - Low Hazard
 - Moderate Hazard (Danger to Some)
 - Significant Hazard (Danger to Most)
 - Extreme Hazard (Danger to All)

NOTES

Hydraulic modelling has been undertaken using 2-D hydraulic modelling software MIKE 21-HDFM (ver 2011), to assess the effect of a breach at a specific point in the defences. The model simulates 3 tidal cycles with the peak level occurring on the second peak and two slightly smaller peaks either side. Breaches in the defence walls are modelled to occur in advance of the peak tide level to assess the maximum potential volume of inflow into the flood cell. Flood hazard is calculated as a function of flood depth and flow velocity at a particular point in the floodplain, along with a suitable debris factor and is based on the methodology from Flood Risk to People FD2320 (Defra & EA, 2005). These hazard classifications do not indicate a change in the flood probability. When using flood hazard maps it should be noted that they represent the hazard arising from one or more specified breach locations, and that the rating will almost certainly vary spatially if the breach locations are in different local areas. It should be noted that the breach width and depth, though based on EA guidance, are arbitrary and do not necessarily represent the actual dimensions of a potential breach at a given location. A thorough description of methodology and assumptions is included within the SFRA Main Report.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **SOUTHEND BREACH MAXIMUM FLOOD HAZARD 2116 WITH CLIMATE CHANGE 0.1% AEP**

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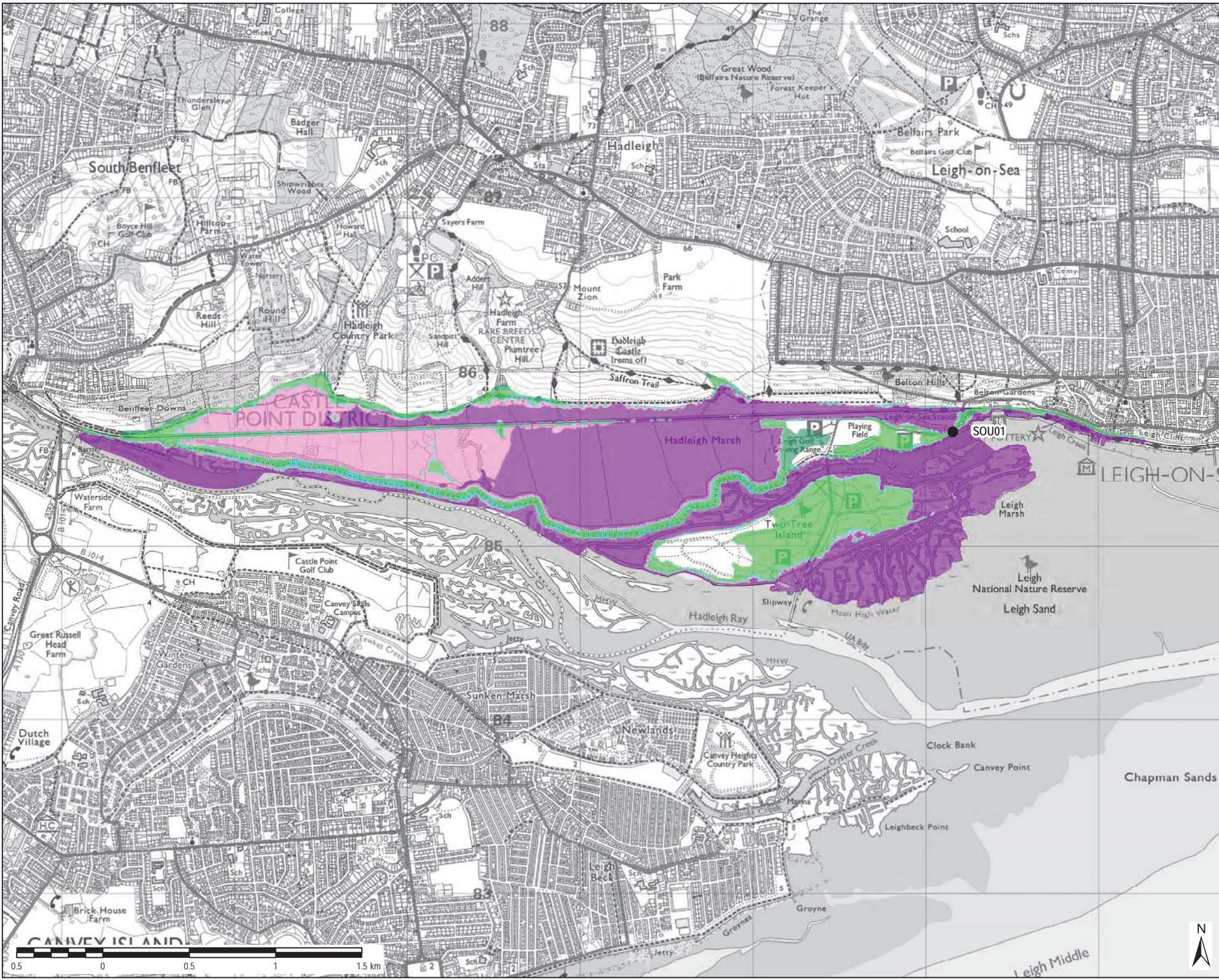
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Drawing Number: **FIGURE E51c** | Rev: **1**

File Name: K:\S004 - Information Systems\60532482 - South Essex SFRA\02 Maps\Figure E51 Southend Breach Maximum Flood Hazard - 2116 with climate change 0.1 AEP - DDP.mxd





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LEGEND

- Breach Location
- Time to Inundation (Hours)**
- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

Time zero is set to the time when tidal water enters the specific breach. This means that the <1 hour band encompasses all areas that are inundated (wet) within the first hour of water travelling through the specific breach and into the flood cell. Further bands have been produced to show wet cells at: 1-4 hours, 4-8 hours, 8-12 hours, 12 to 16 and 16-20 hours. Time to inundation is specific to each breach location.

Mapping has been provided for the 1 in 1000 year + CC event as it represents the most conservative scenario and should be used for emergency planning purposes when considering safe access/egress routes from any potential development site.

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Purpose of Issue: **FINAL**

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH SOU01 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

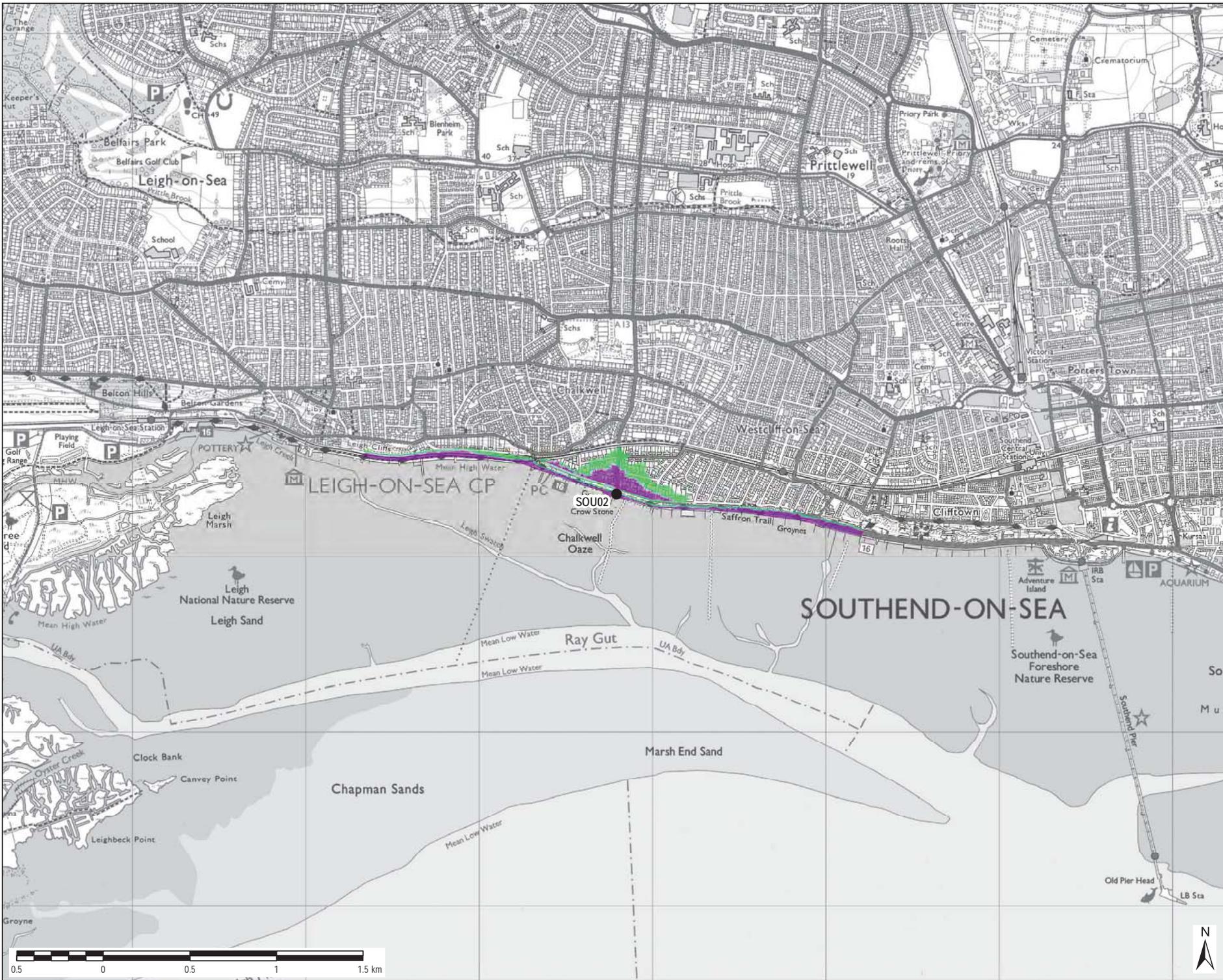
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Drawing Number: **FIGURE E52a** Rev: **1**

File Name: K:\SOU01 - Information Systems\60532482 - South Essex SFRA\02 Maps\Inundation Maps\Figure E52a\Breach_SOU01_Time to Inundation_2116_with climate change_0.1_AEP.mxd



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- LEGEND**
- Breach Location
 - Time to Inundation (Hours)**
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Purpose of Issue: **FINAL**

Client:

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH SQU02 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

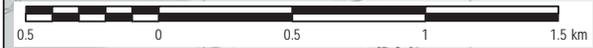
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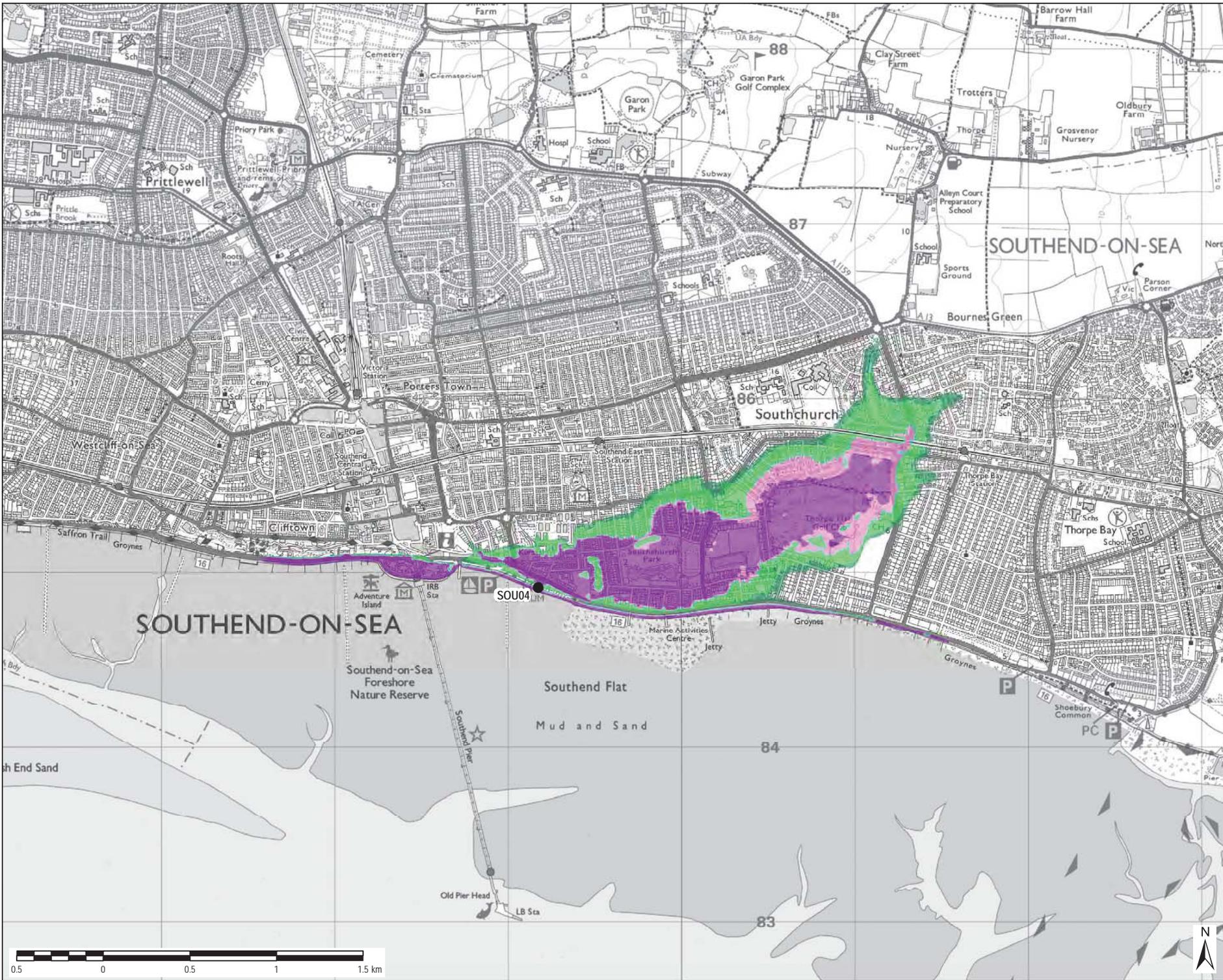
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Drawing Number: **FIGURE E52b** Rev: **1**

File Name: K:\5004 - Information Systems\6532482 - South Essex SFRA\02 Maps\Inundation Maps\Figure E52b\Breach_SQU02 Time to Inundation_2116 with climate change_0.1 AEP.mxd



File Name: K15004 - Information Systems\6532482 - South Essex SFRAN02 Maps\Inundation Maps\Figure E52c Breach S0U04 Time to Inundation - 2116 with climate change 0.1 ACP.mxd



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LEGEND

- Breach Location
- Time to Inundation (Hours)
- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Mapping has been provided for the 1 in 1000 year + CC event as it represents the most conservative scenario and should be used for emergency planning purposes when considering safe access/egress routes from any potential development site.

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Purpose of Issue: **FINAL**

Client: **Basildon Council**, **castlepoint**, **Rochford District Council**, **southend on sea**

Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH S0U04 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

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Drawing Number: **FIGURE E52c** Rev: **1**



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- LEGEND**
- Breach Location
 - Time to Inundation (Hours)**
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Project Title: **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title: **BREACH SOU06 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

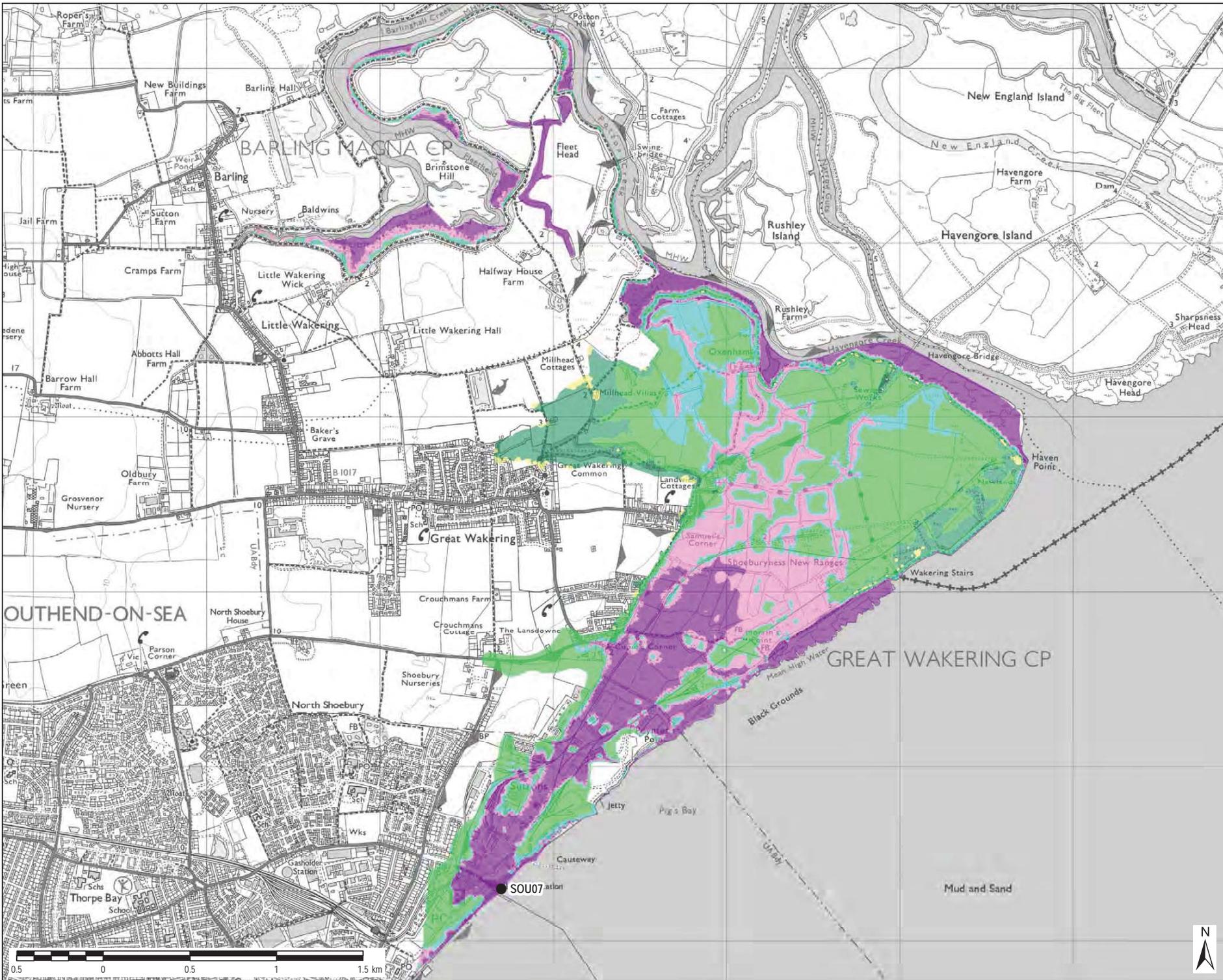
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Drawing Number: **FIGURE E52d** Rev: **1**

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LEGEND

- Breach Location

Time to Inundation (Hours)

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Project Title
**SOUTH ESSEX
 LEVEL 1 SFRA**

Drawing Title
**BREACH S0U07
 TIME TO INUNDATION
 2116 WITH CLIMATE CHANGE
 0.1% AEP**

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Drawing Number **FIGURE E52e** Rev **1**

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LEGEND

- Breach Location

Time to Inundation (Hours)

- < 1 Hour
- 1 - 4 Hours
- 4 - 8 Hours
- 8 - 12 Hours
- 12 - 16 Hours
- 16 to 20 Hours
- > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Purpose of Issue **FINAL**

Client

Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **BREACH S0U08 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

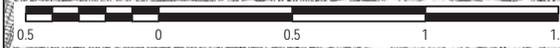
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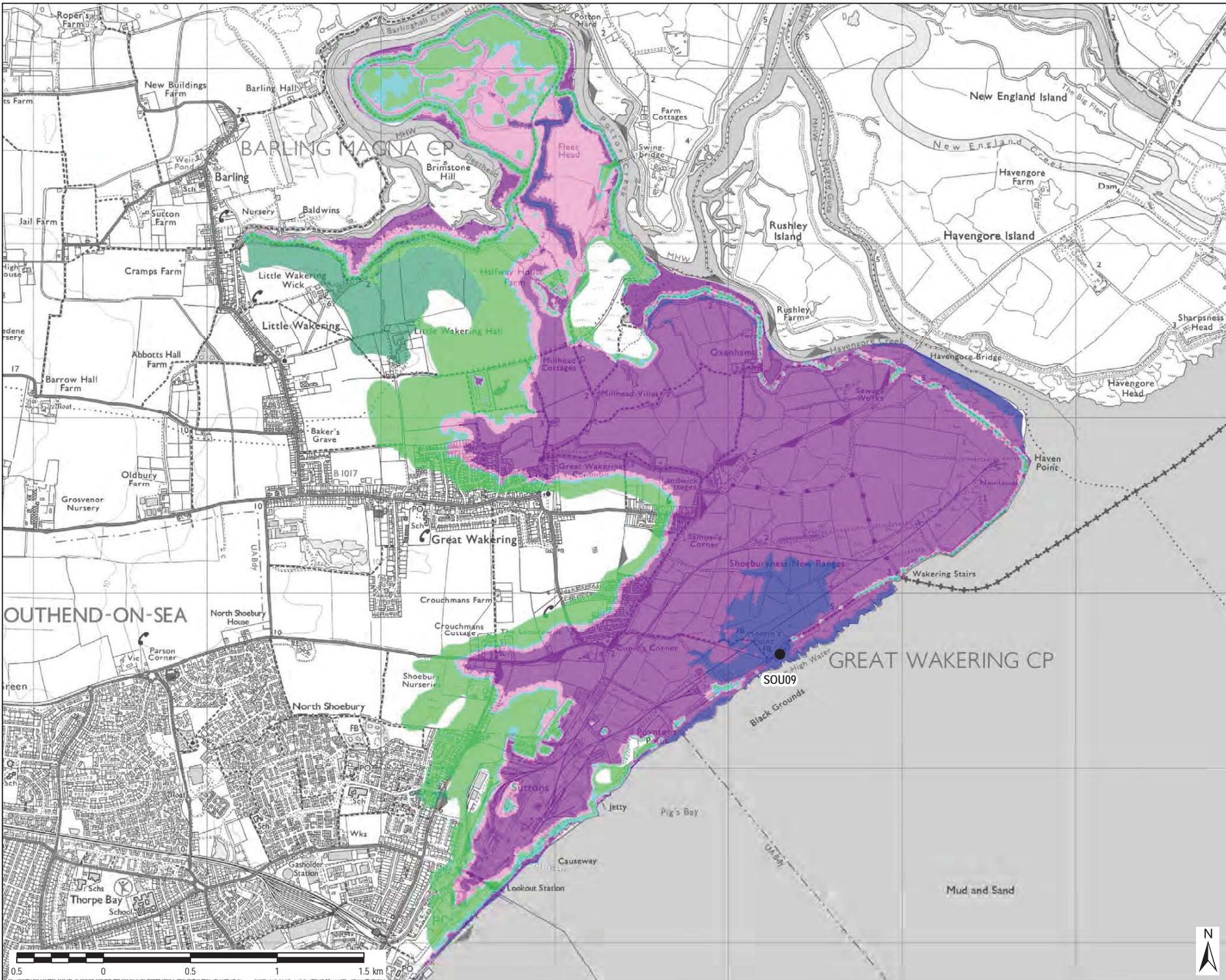
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Drawing Number **FIGURE E52f** Rev **1**

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- LEGEND**
- Breach Location
 - Time to Inundation (Hours)**
 - < 1 Hour
 - 1 - 4 Hours
 - 4 - 8 Hours
 - 8 - 12 Hours
 - 12 - 16 Hours
 - 16 to 20 Hours
 - > 20 Hours

NOTES

Time to inundation mapping illustrates the length of time from a breach before floodwaters reach a particular site. This information is particularly useful for emergency planning as it provides details of the time available for evacuation to a place of safety.

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Purpose of Issue **FINAL**



Project Title **SOUTH ESSEX LEVEL 1 SFRA**

Drawing Title **BREACH S0U09 TIME TO INUNDATION 2116 WITH CLIMATE CHANGE 0.1% AEP**

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Drawing Number **FIGURE E52g** Rev **1**

File Name: K:\S004 - Information Systems\GIS\2116 - South Essex SFRA\02 - Maps\Inundation Maps\Figure E52g\Breach S0U09 Time to Inundation - 2116 with climate change 0.1 AEP.mxd



