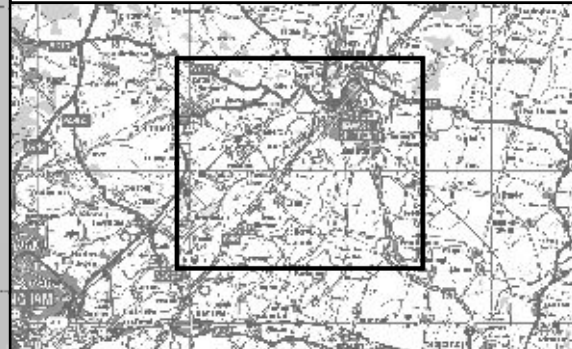


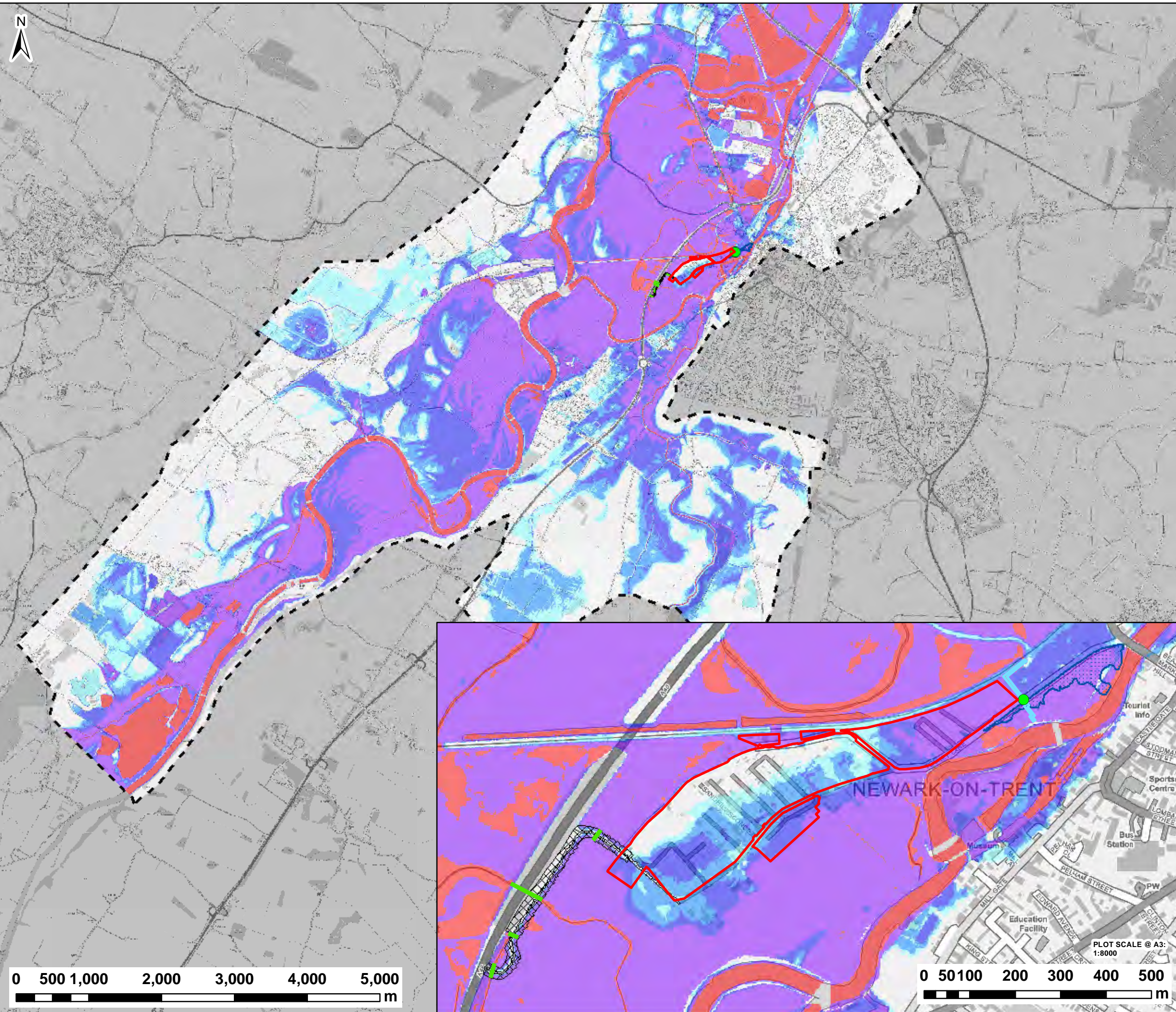
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Depth Variation**
- > +100mm
 - +50mm to +100mm
 - +20mm to +50mm
 - No Change (+/-20mm)
 - 20mm to -50mm
 - 50mm to -100mm
 - > -100mm



 www.waterco.co.uk			
SCHEME: TOLNEY LANE, NEWARK			
PLOT TITLE: DEPTH DIFFERENCE 1% AEP FLUVIAL EVENT OPT2-EXG NORMAL FLOW CONDITIONS			
PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
PLOT NAME: w3375-Q100_OPT2-EXG_NFC_D_DIFF			REV: -



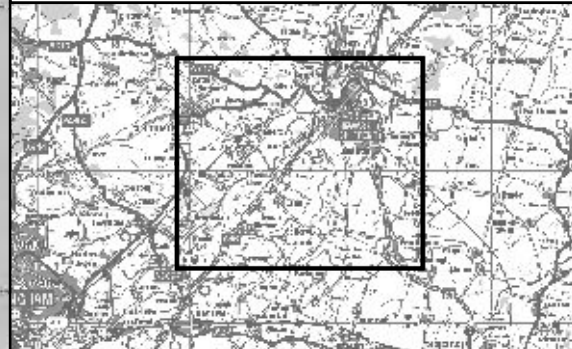
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

- 0 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4



CLIENT:




www.waterco.co.uk

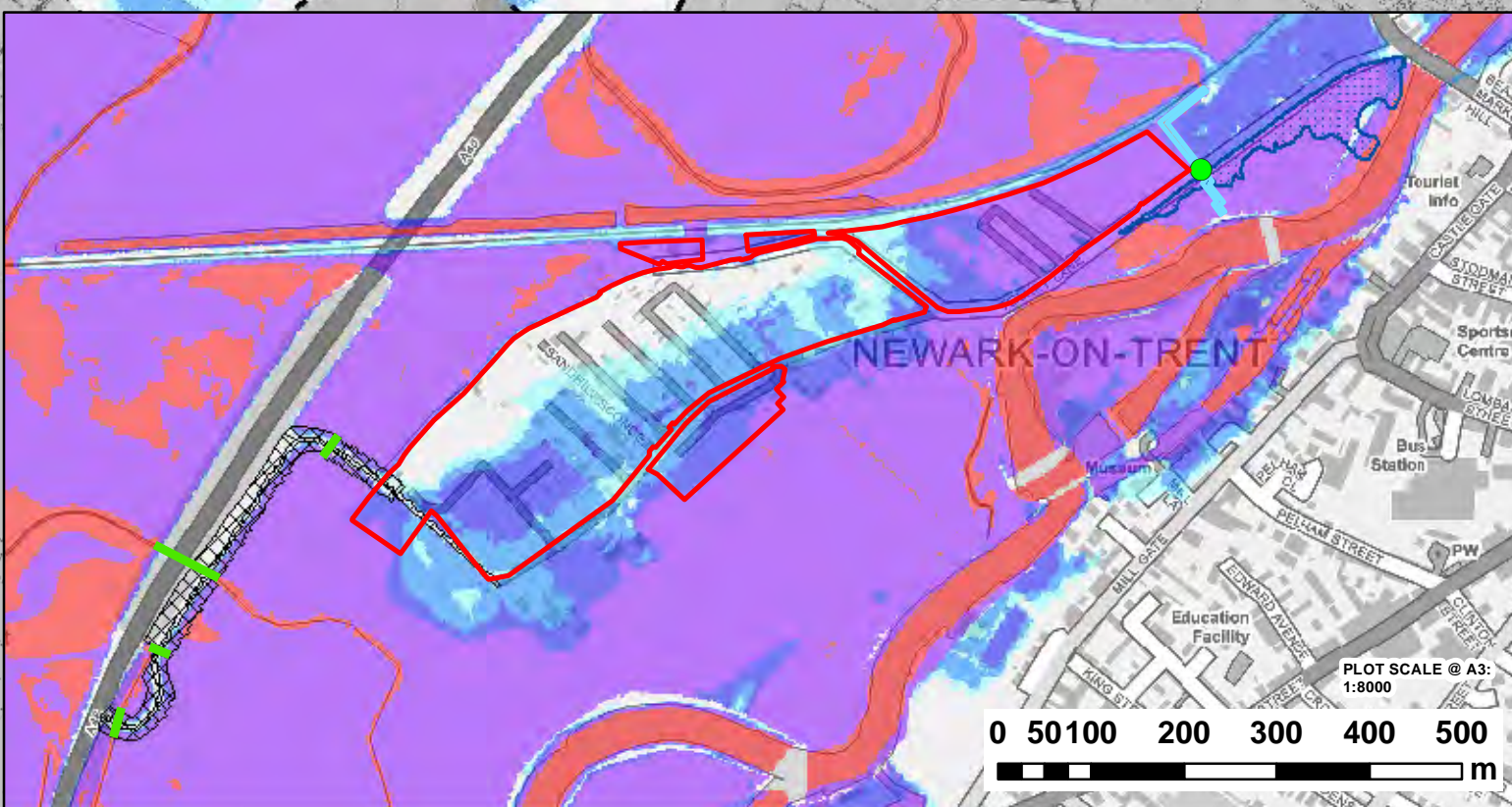
SCHEME:

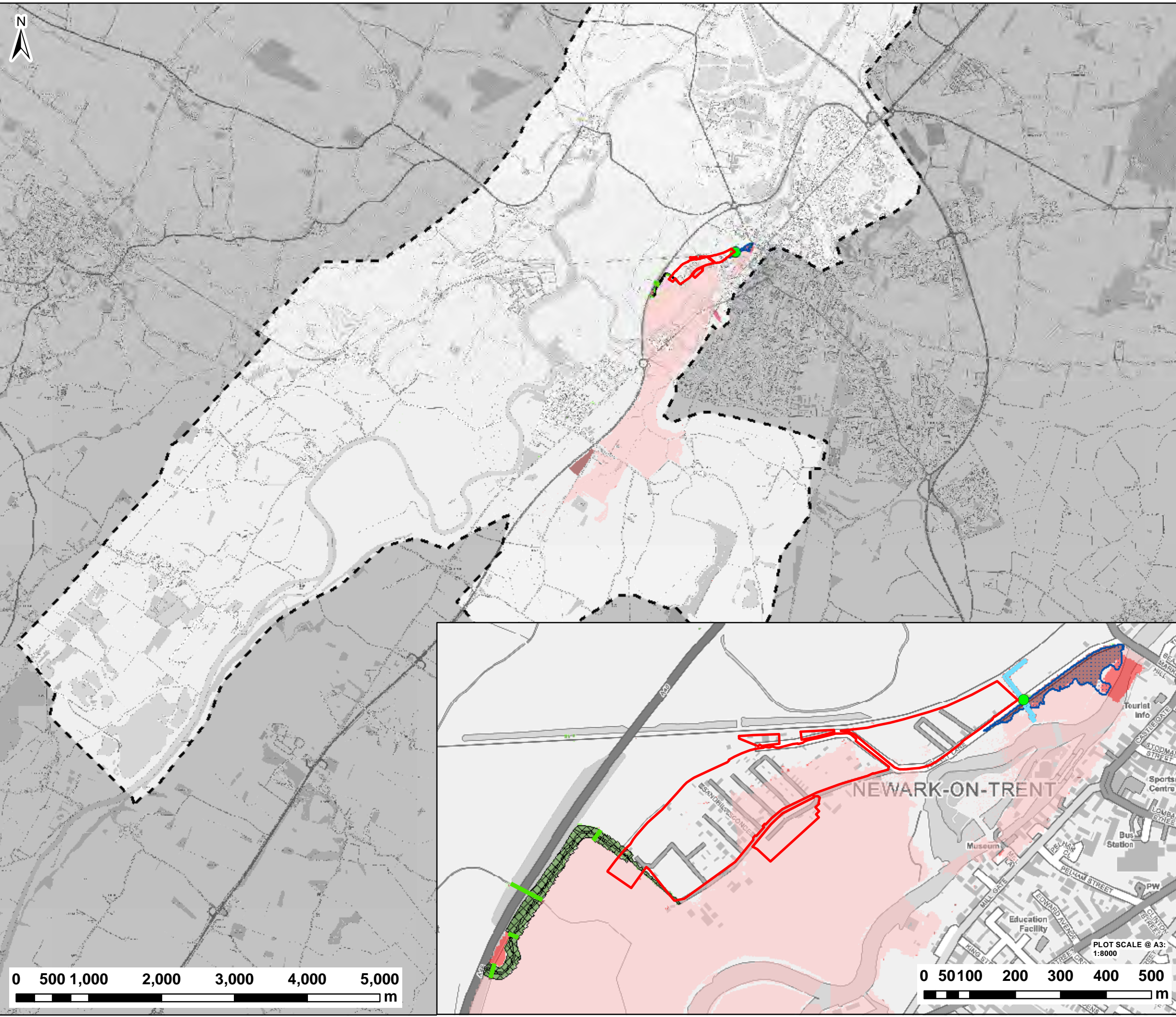
**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM FLOOD DEPTH
1% AEP (+30%CC) FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS:		DATE:	
FINAL		25/04/2019	
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	RC	LS	1:50,000 (UNLESS STATED OTHERWISE)
PLOT NAME:			REV:
w3375-Q100CC1_OPT2_NFC_D			-





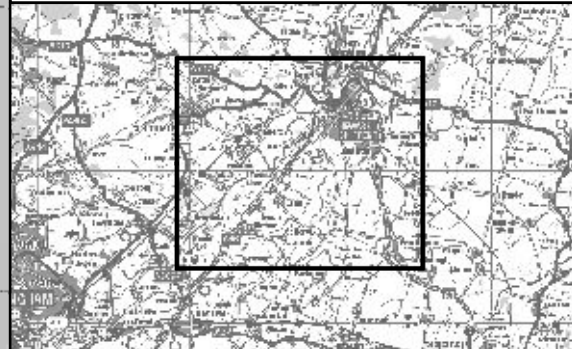
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE



LEGEND

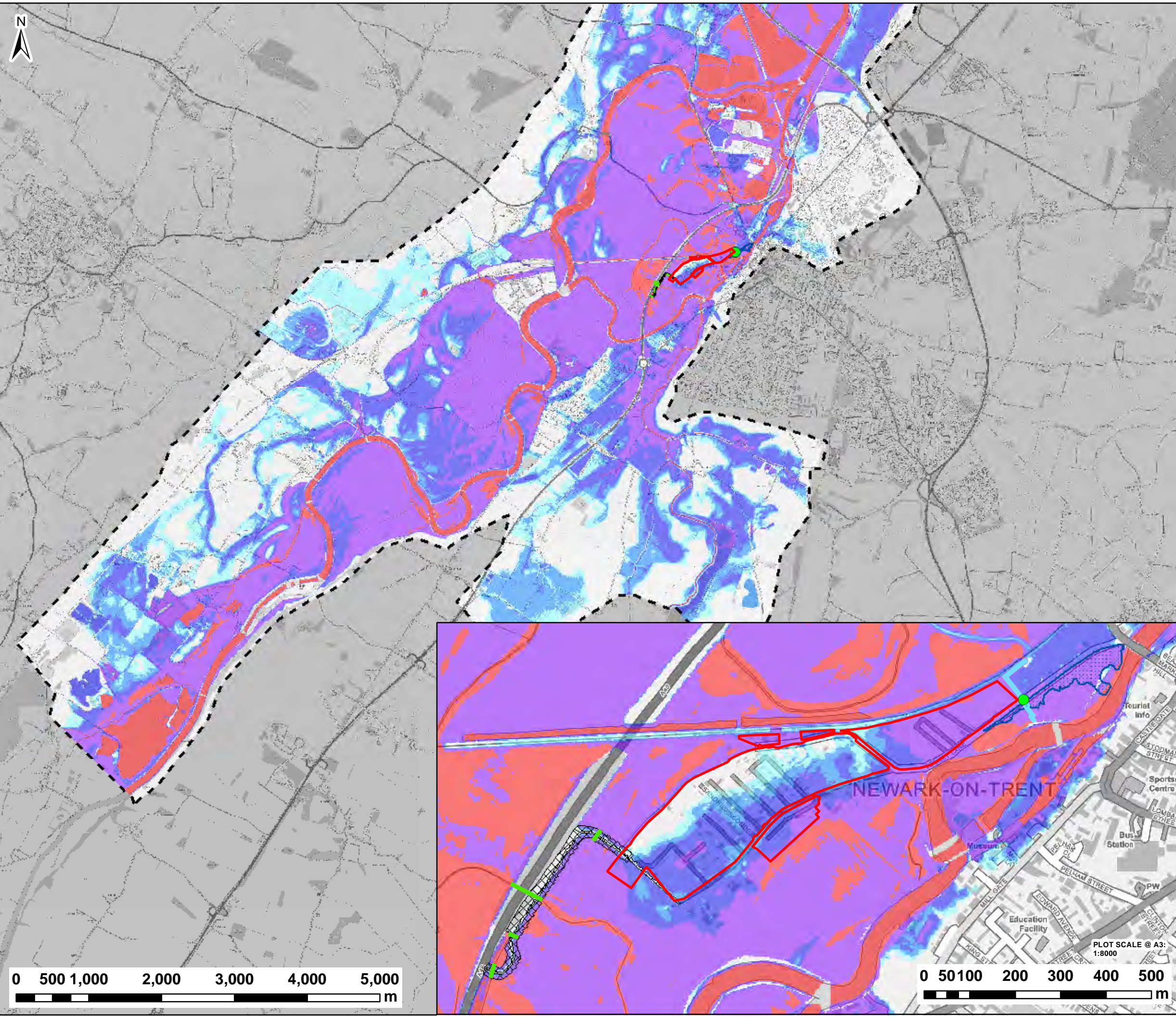
- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Depth Variation

- > +100mm
- +50mm to +100mm
- +20mm to +50mm
- No Change (+/-20mm)
- 20mm to -50mm
- 50mm to -100mm
- > -100mm



			
 www.waterco.co.uk			
CLIENT:			
SCHEME: TOLNEY LANE, NEWARK			
PLOT TITLE: DEPTH DIFFERENCE 1% AEP (+30%CC) FLUVIAL EVENT OPT2-EXG NORMAL FLOW CONDITIONS			
PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
PLOT NAME: w3375-Q100CC1_OPT2-EXG_NFC_D_DIFF			REV: -



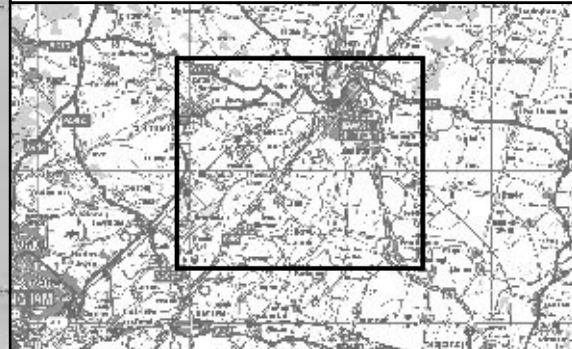
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

- 0 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4



CLIENT:



SCHEME:

**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM FLOOD DEPTH
1% AEP (+50%CC) FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS:

FINAL

DATE:

25/04/2019

DRAWN:

CHECKED:

APPROVED:

PLOT SCALE @ A3:

CM

RC

LS

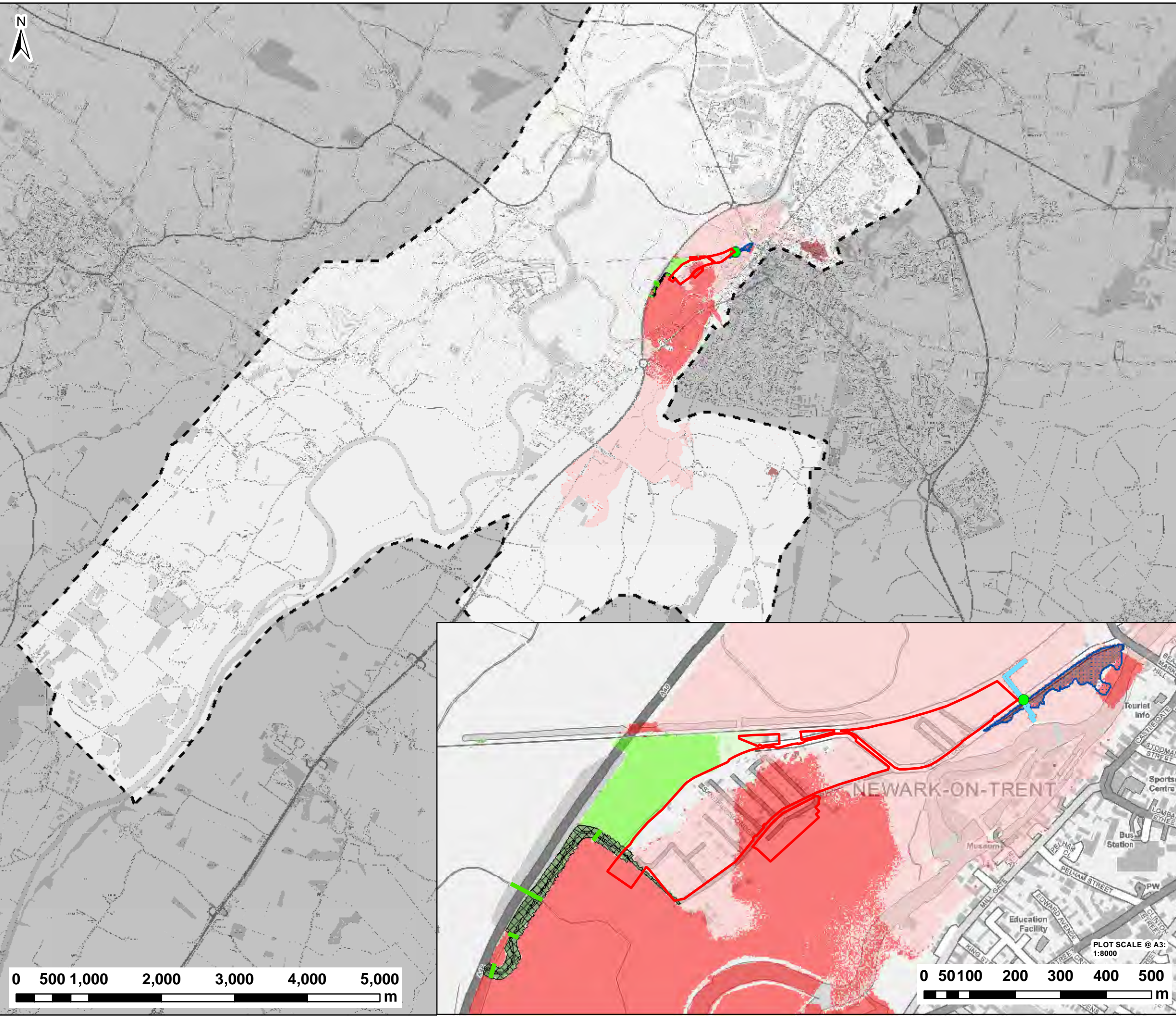
1:50,000
(UNLESS STATED OTHERWISE)

PLOT NAME:

w3375-Q100CC2_OPT2_NFC_D

REV:

-



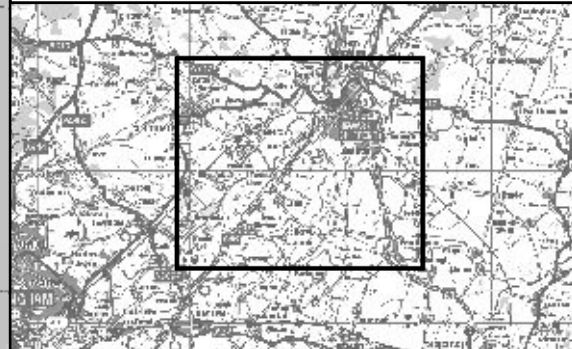
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Depth Variation

- > +100mm
- +50mm to +100mm
- +20mm to +50mm
- No Change (+/-20mm)
- 20mm to -50mm
- 50mm to -100mm
- > -100mm



CLIENT:




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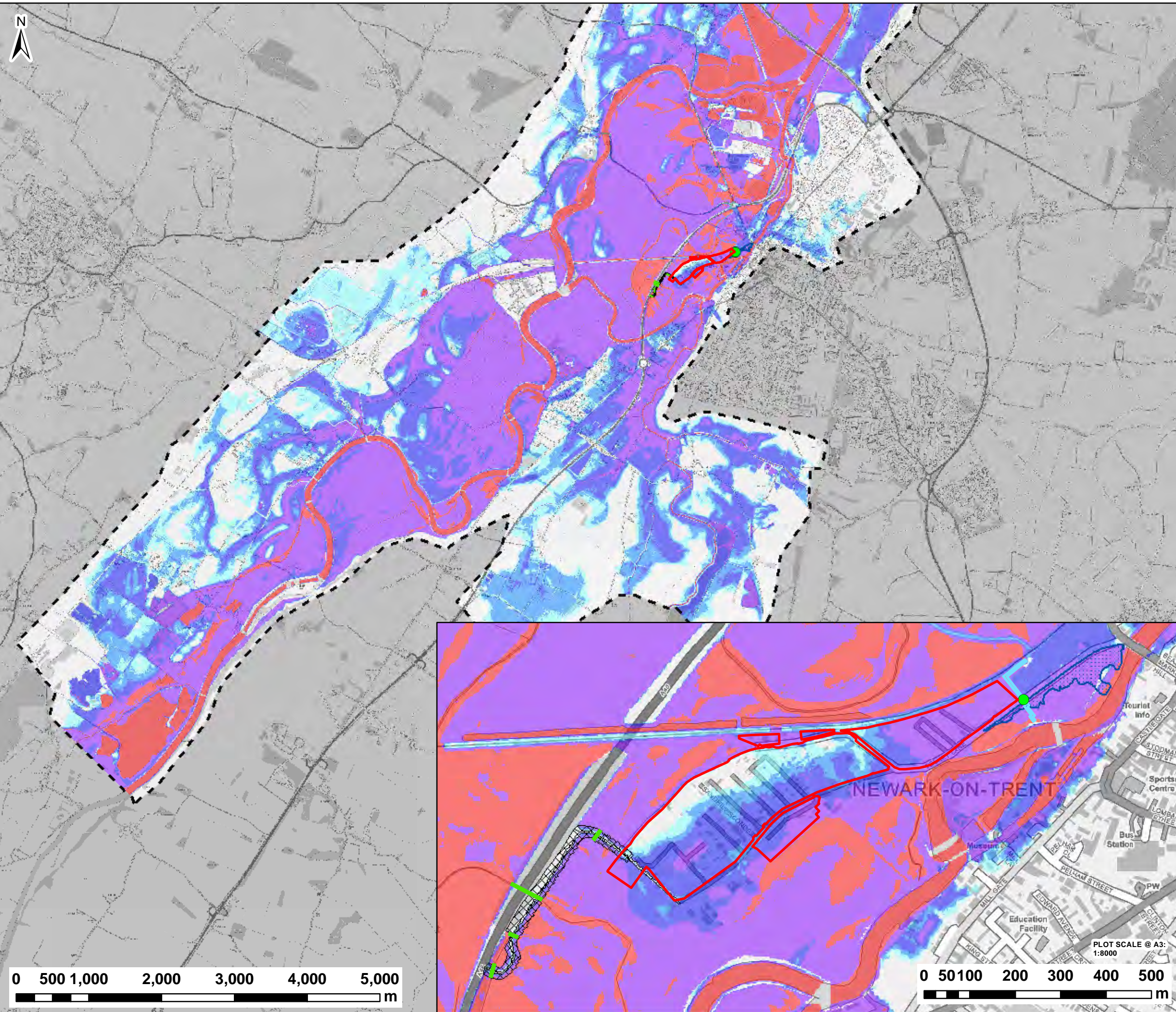
SCHEME:

**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**DEPTH DIFFERENCE
1% AEP (+50%CC) FLUVIAL EVENT
OPT2-EXG
NORMAL FLOW CONDITIONS**

PLOT STATUS:		FINAL		DATE:	25/04/2019
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:		
CM	RC	LS	1:50,000 (UNLESS STATED OTHERWISE)		
PLOT NAME:				REV:	
w3375-Q100CC2_OPT2-EXG_NFC_D_DIFF				-	



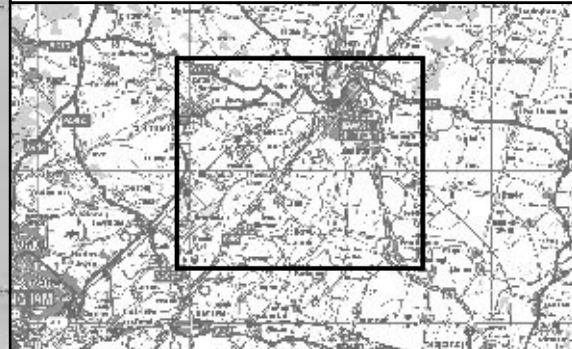
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

- 0 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4



CLIENT:

Waterco
www.waterco.co.uk

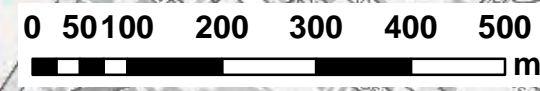
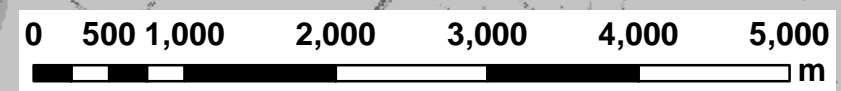
SCHEME: **TOLNEY LANE, NEWARK**

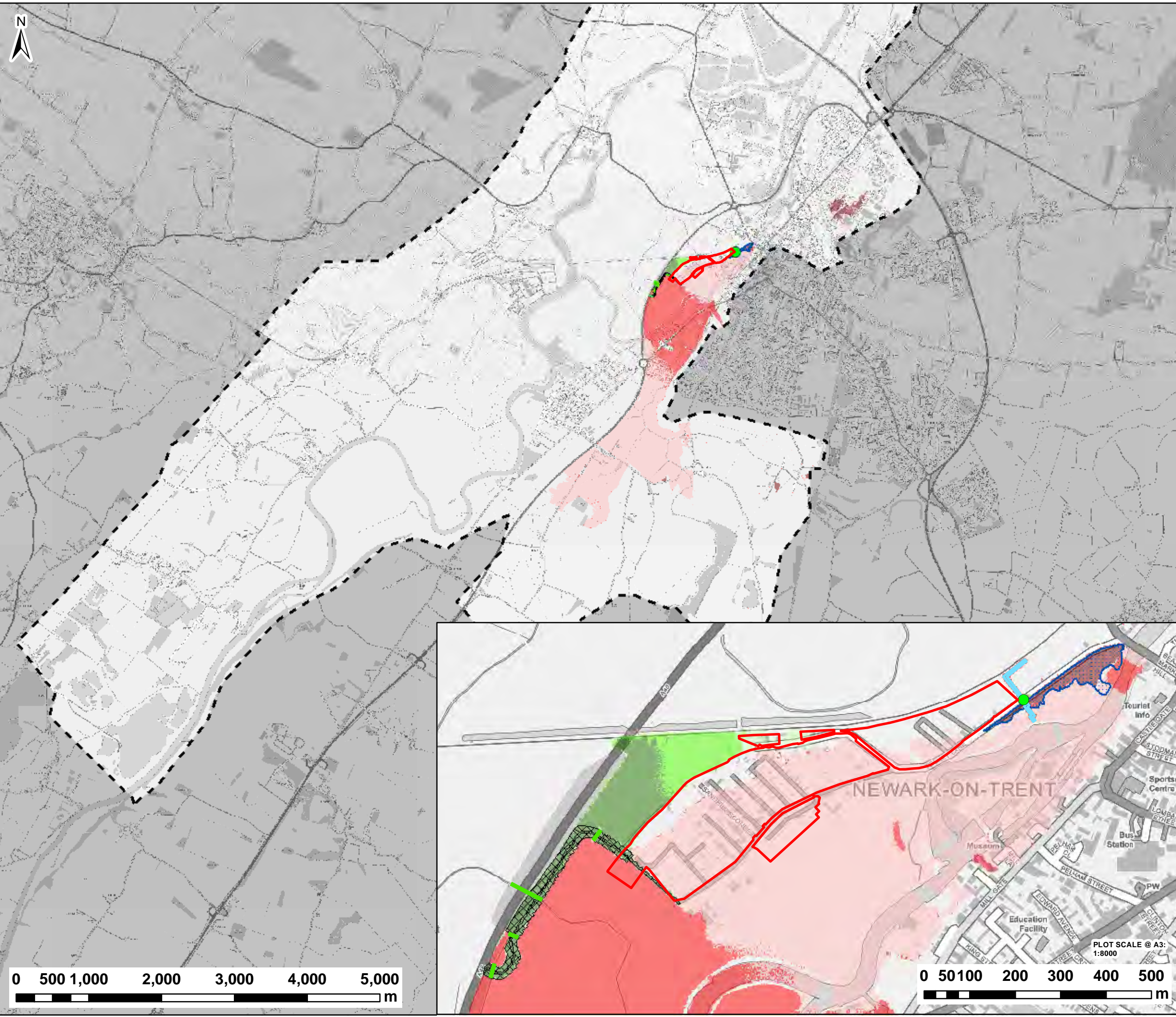
PLOT TITLE: **MAXIMUM FLOOD DEPTH
0.1% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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PLOT NAME: w3375-Q1000_OPT2_NFC_D REV: -

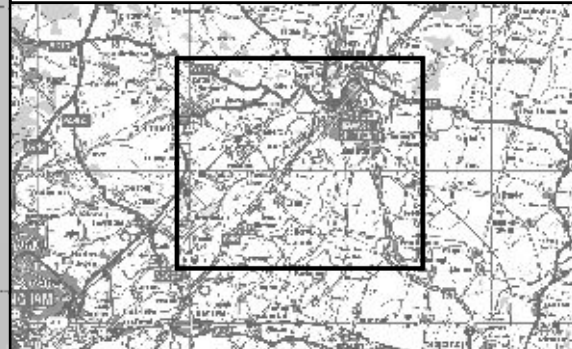




NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Depth Variation**
- > +100mm
 - +50mm to +100mm
 - +20mm to +50mm
 - No Change (+/-20mm)
 - 20mm to -50mm
 - 50mm to -100mm
 - > -100mm



CLIENT:




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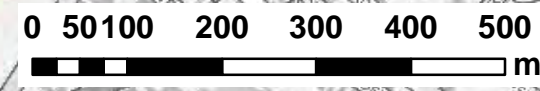
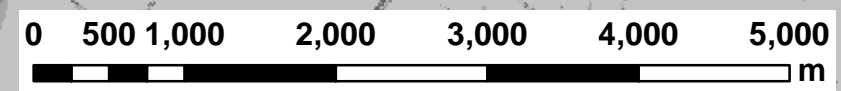
SCHEME:
TOLNEY LANE, NEWARK

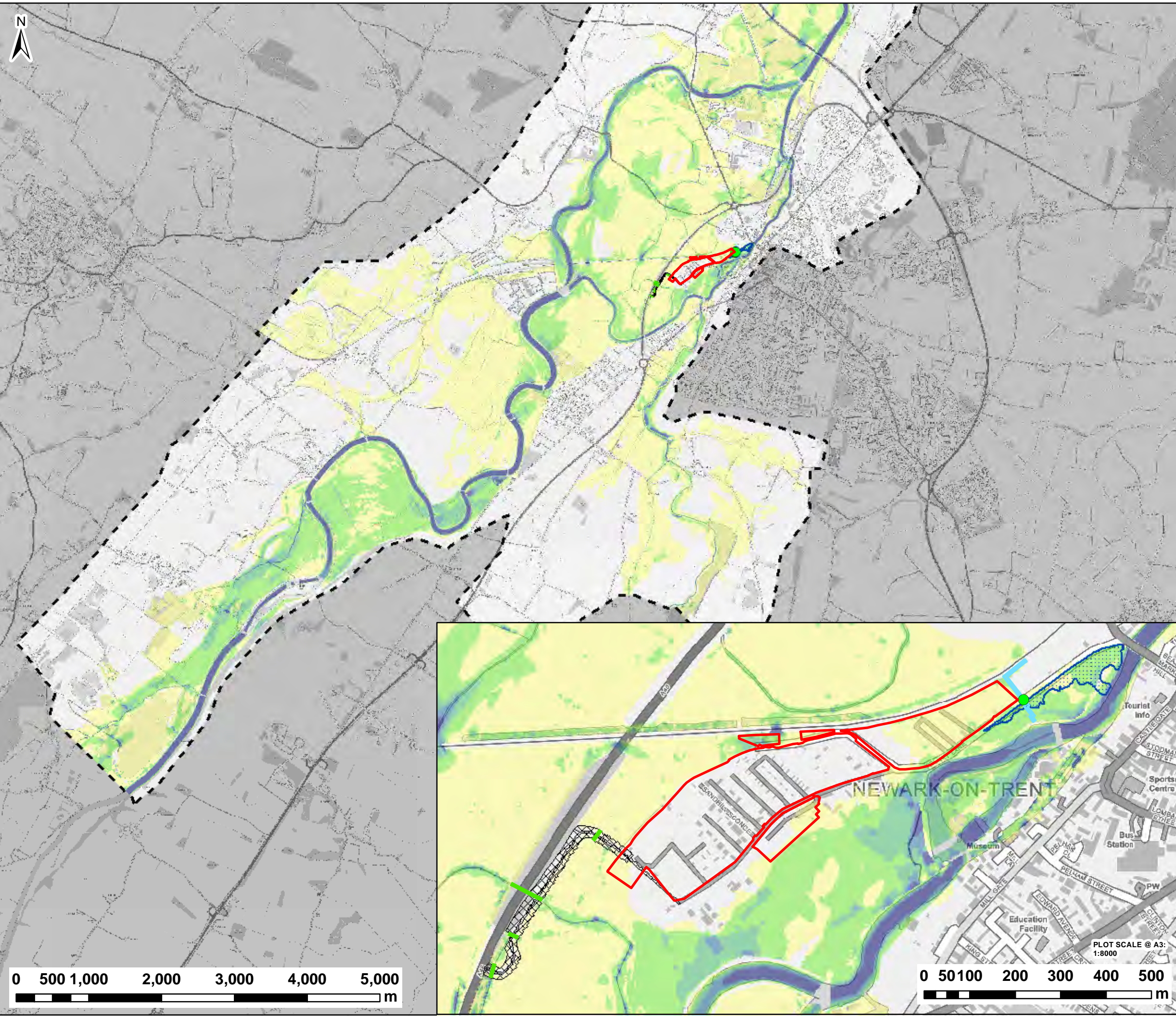
PLOT TITLE:
**DEPTH DIFFERENCE
0.1% AEP FLUVIAL EVENT
OPT2-EXG
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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PLOT NAME: w3375-Q1000_OPT2-EXG_NFC_D_DIFF REV: -





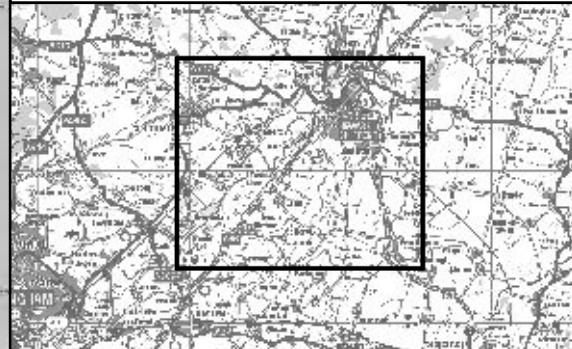
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND



- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

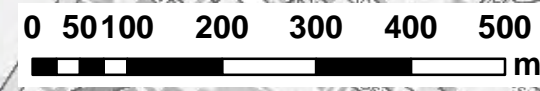
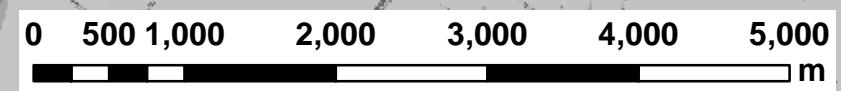



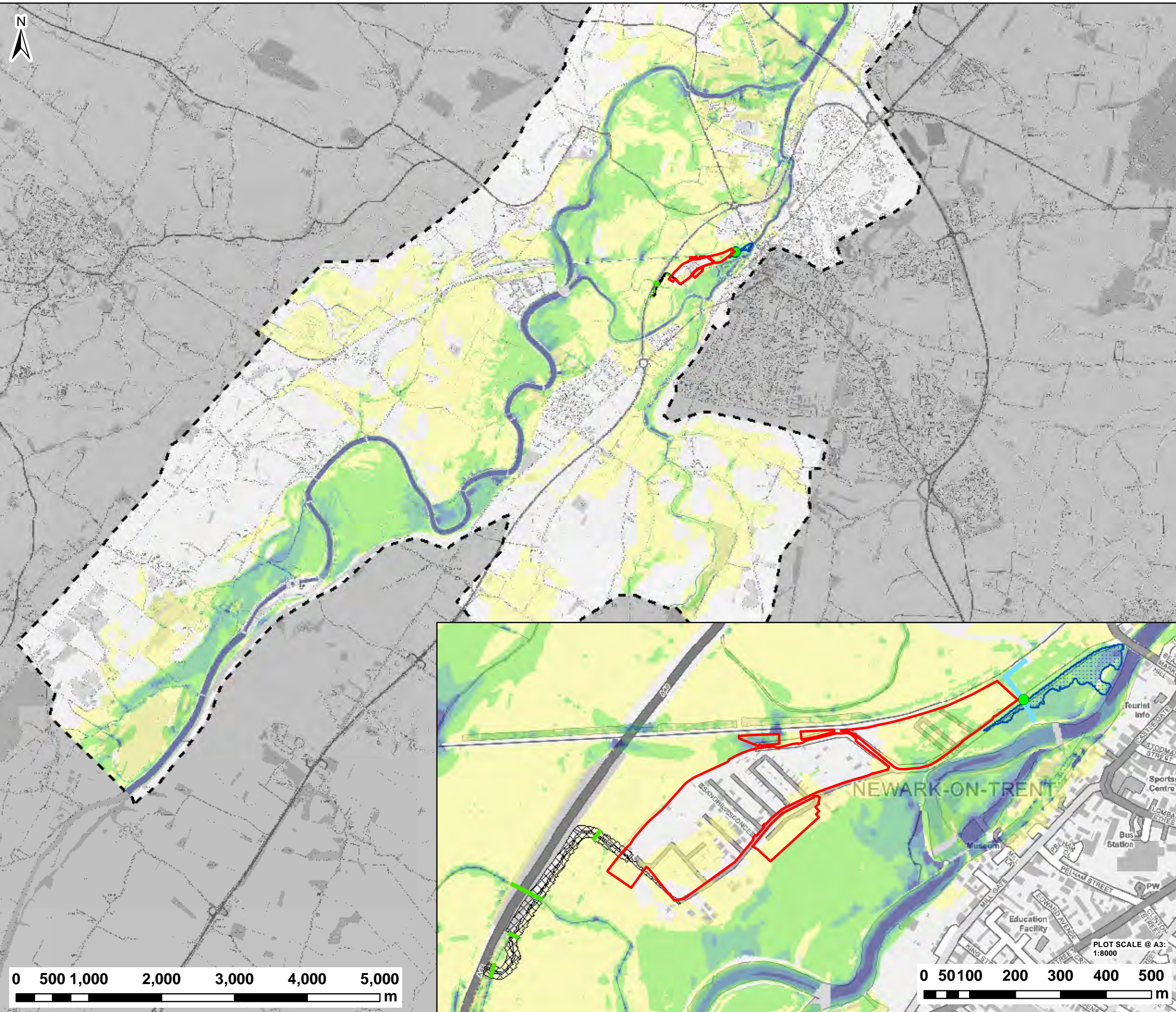
www.waterco.co.uk

SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**MAXIMUM VELOCITY
5% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: FINAL		DATE: 25/04/2019
DRAWN: CM	CHECKED: RC	APPROVED: LS
PLOT SCALE @ A3: 1:8000		PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
PLOT NAME: w3375-Q20_OPT2_NFC_V		REV: -





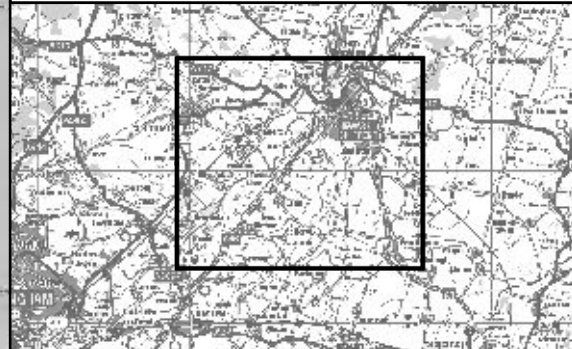
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



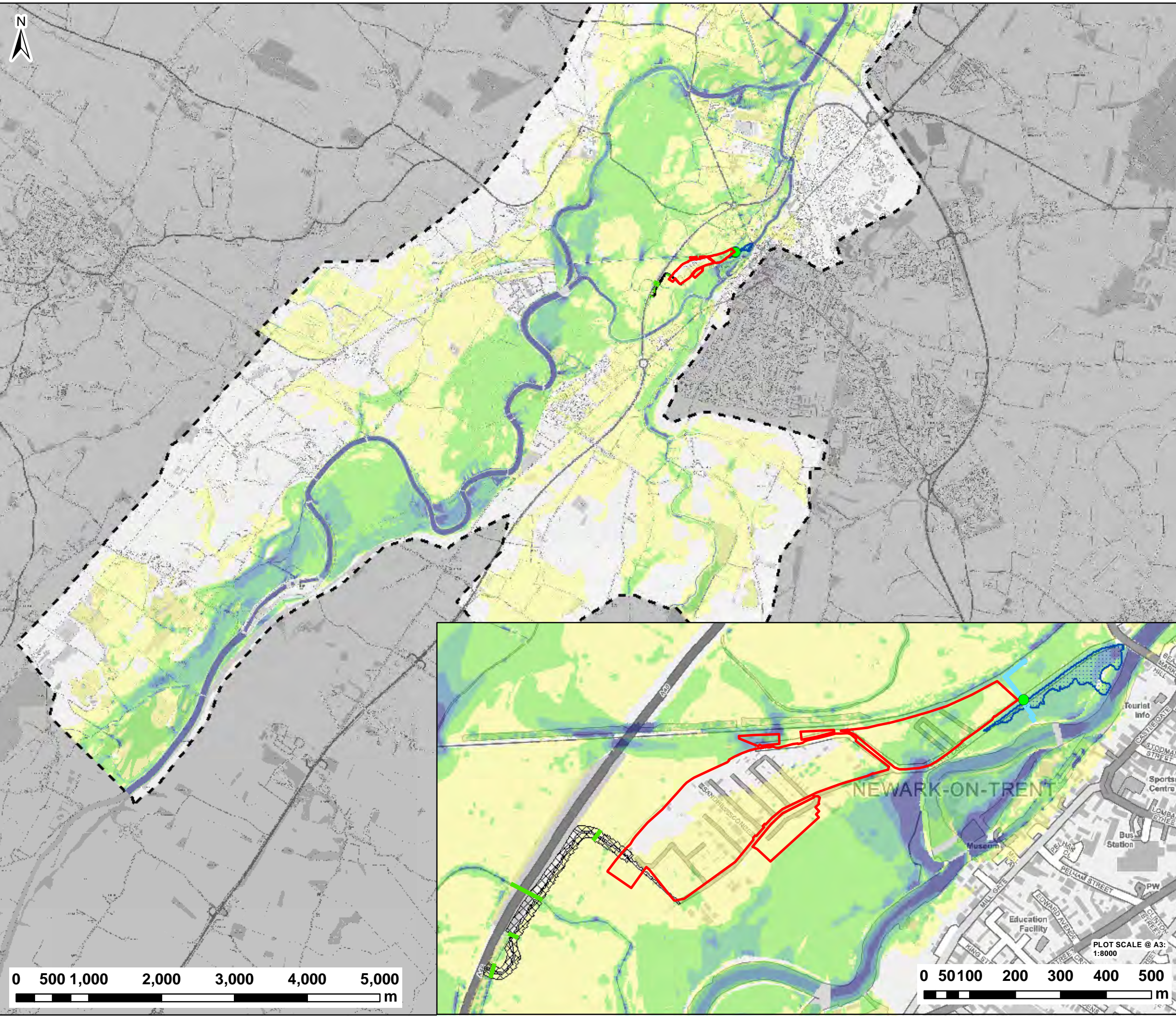
SCHEME:
**TOLNEY LANE,
NEWARK**

PLOT TITLE:
**MAXIMUM VELOCITY
1% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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PLOT NAME: w3375-Q100_OPT2_NFC_V REV: -



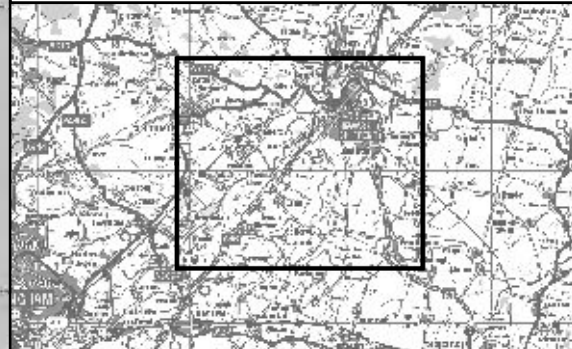
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:




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SCHEME:

**TOLNEY LANE,
NEWARK**

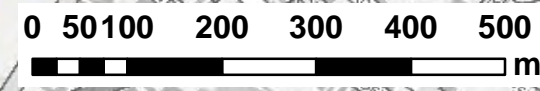
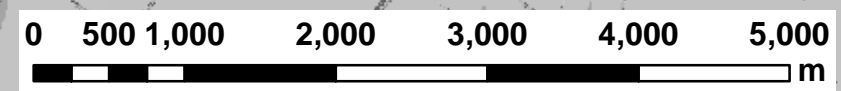
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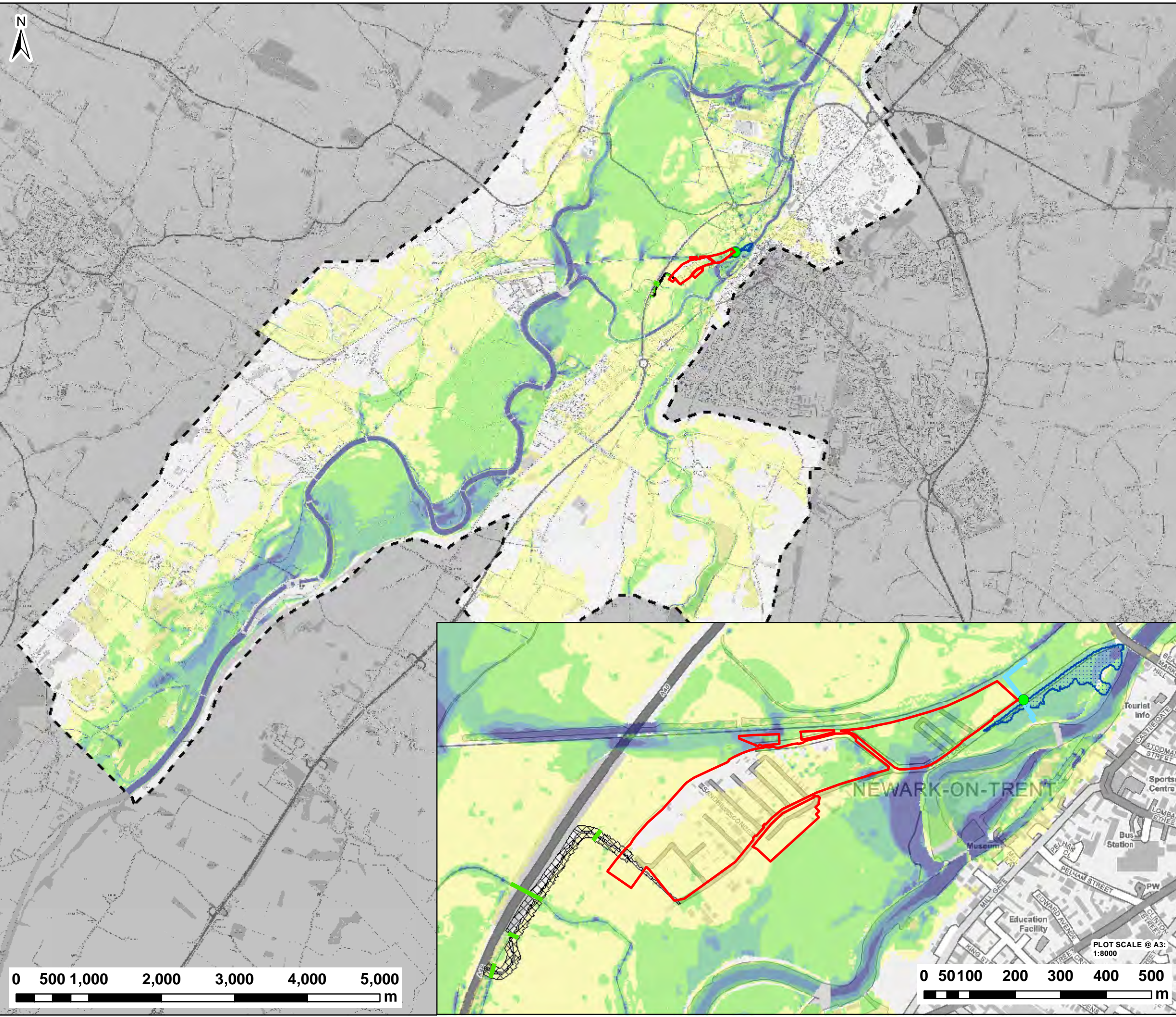
**MAXIMUM VELOCITY
1% AEP (+30%CC) FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q100CC1_OPT2_NFC_V REV: -





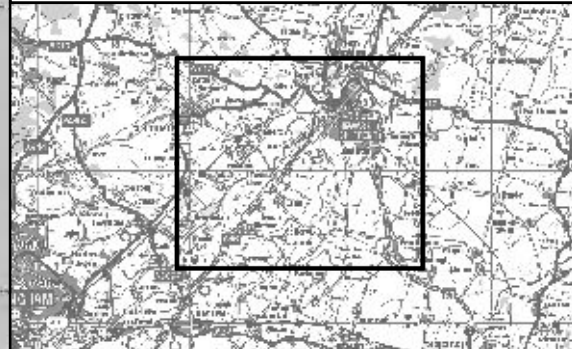
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND


- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising


Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:





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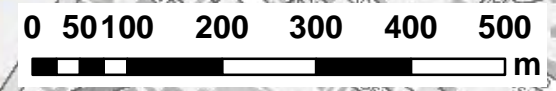
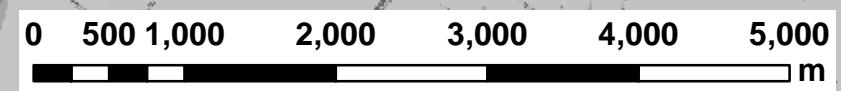
SCHEME:

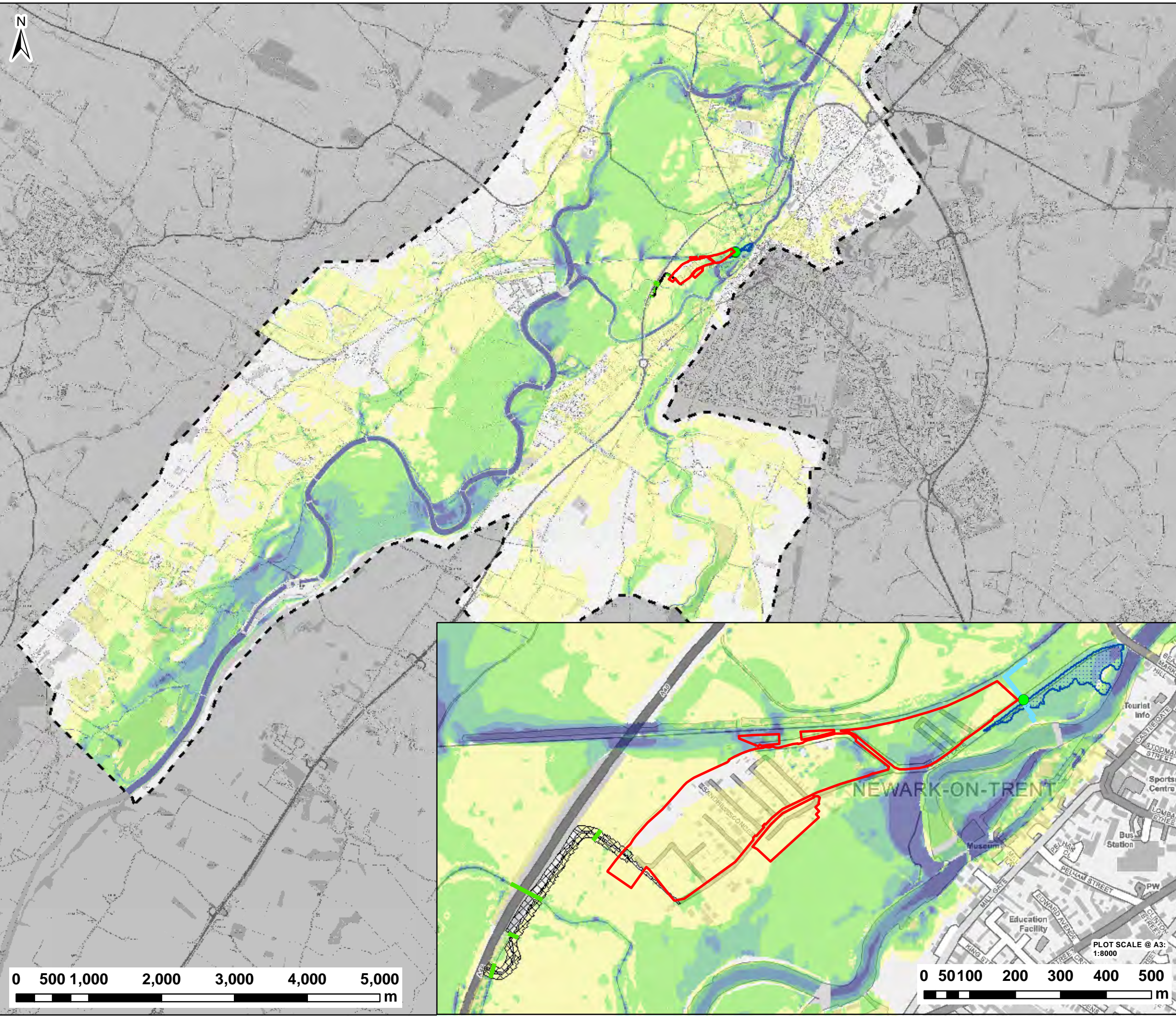
**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM VELOCITY
1% AEP (+50%CC) FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS:		DATE:	
FINAL		25/04/2019	
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	RC	LS	1:50,000 (UNLESS STATED OTHERWISE)
PLOT NAME:			REV:
w3375-Q100CC2_OPT2_NFC_V			-





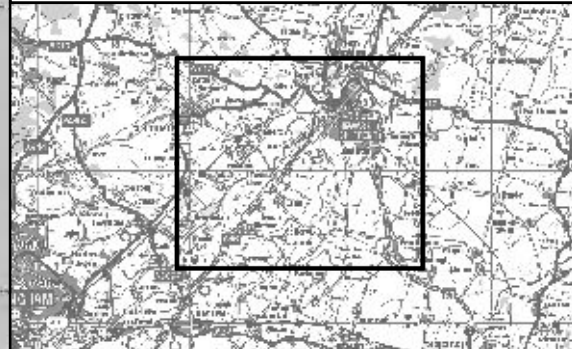
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:




www.waterco.co.uk

SCHEME:

**TOLNEY LANE,
NEWARK**

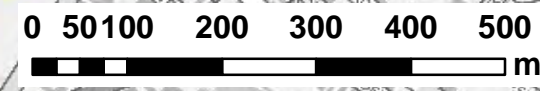
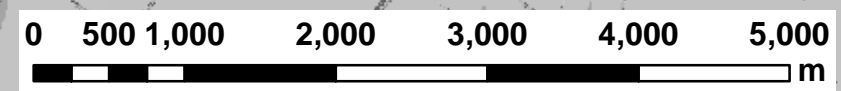
PLOT TITLE:

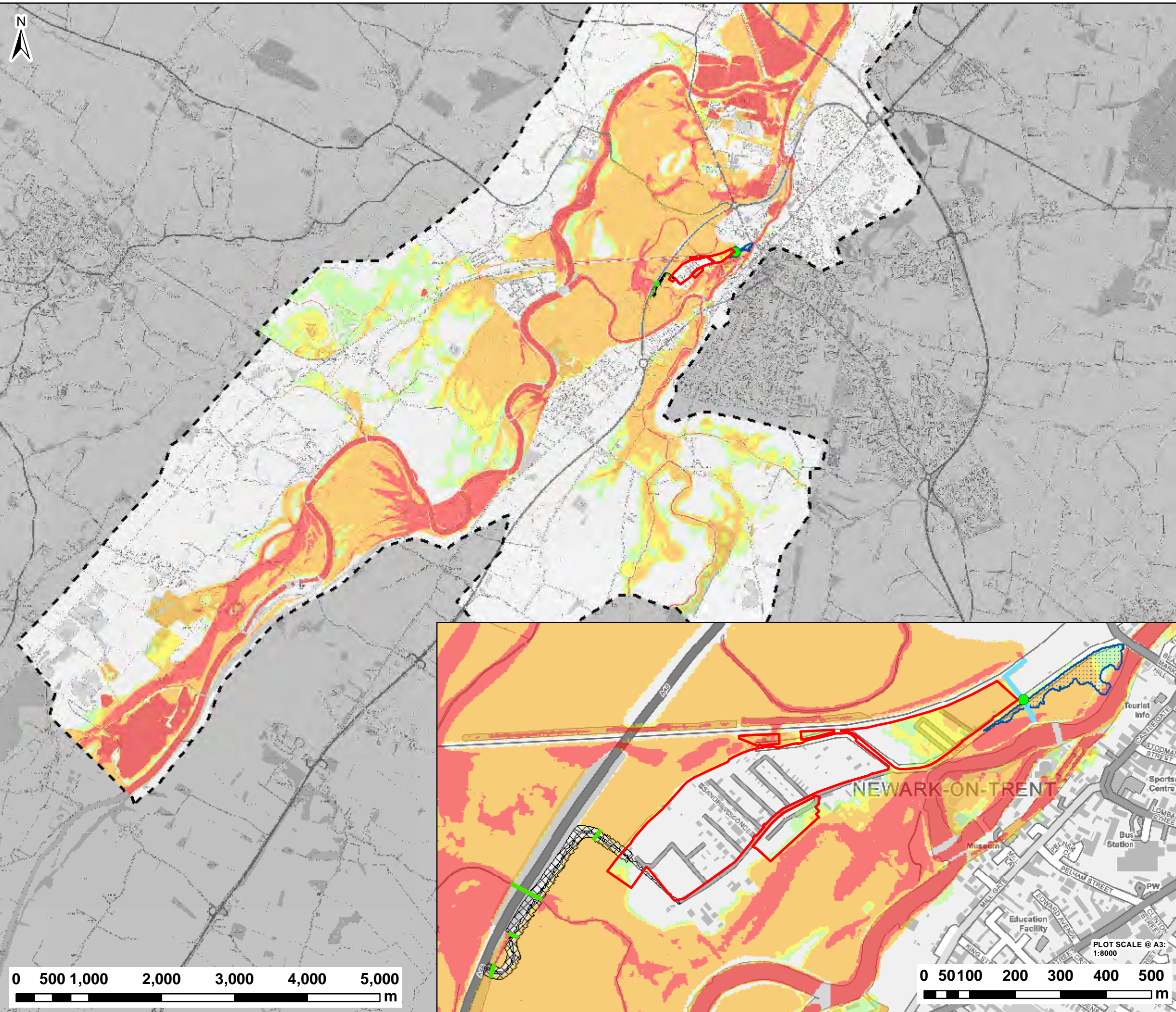
**MAXIMUM VELOCITY
0.1% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q1000_OPT2_NFC_V REV: -

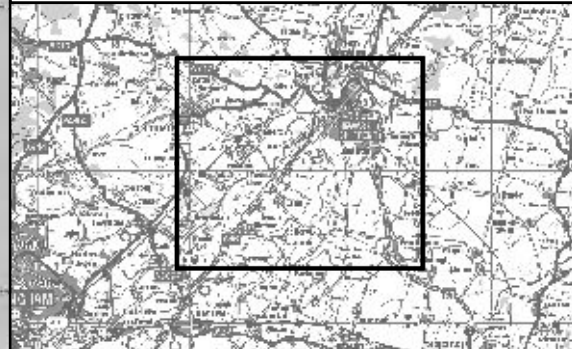




NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



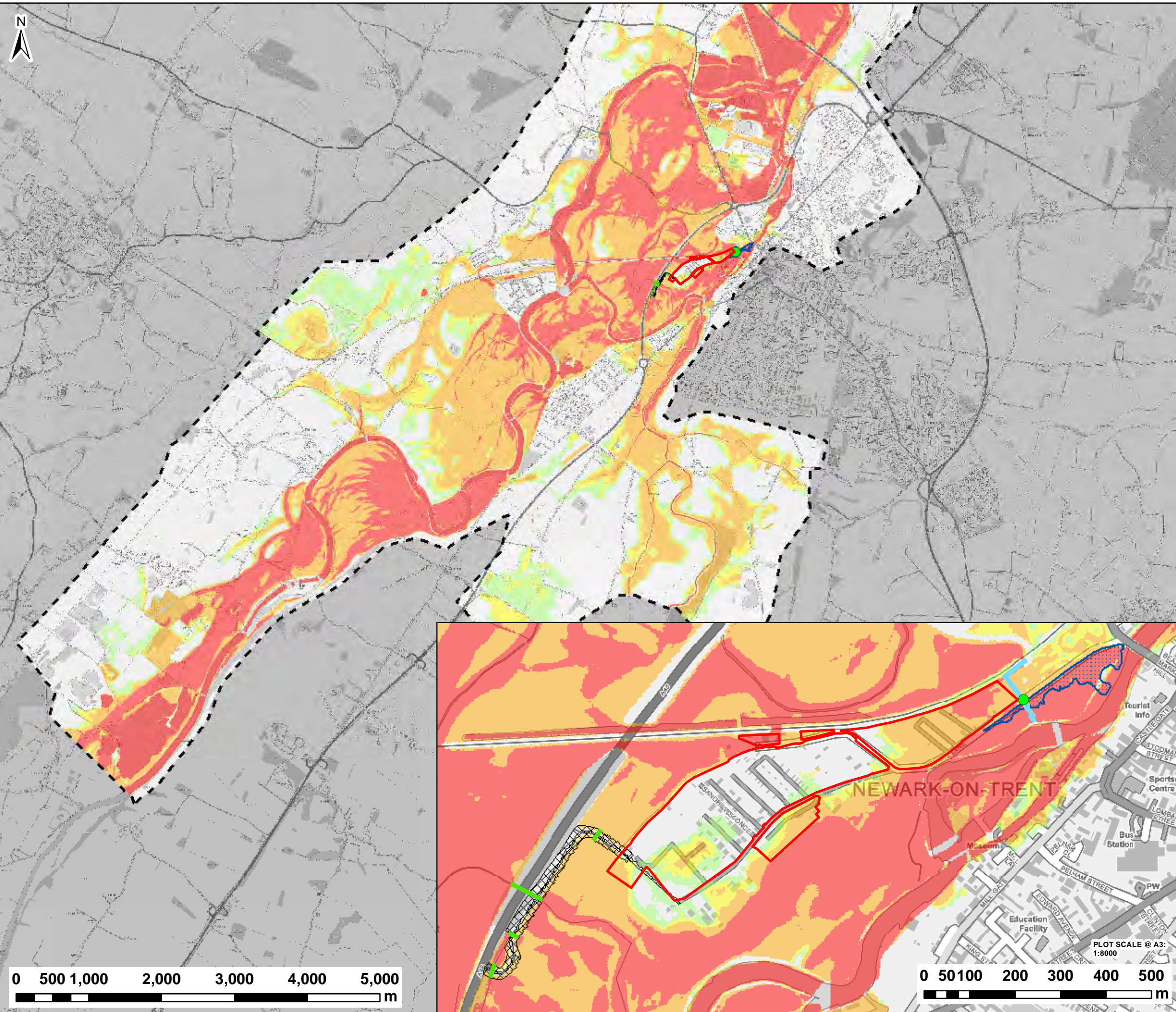
SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**FLOOD HAZARD RATING
5% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

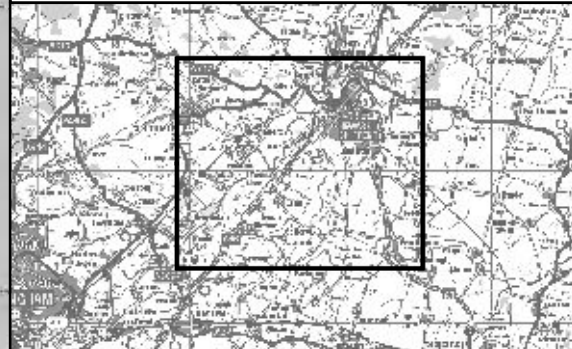
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q20_OPT2_NFC_HZ REV: -



NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

- LEGEND**
- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



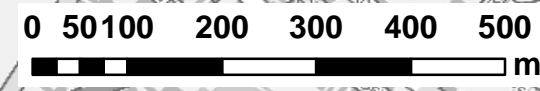
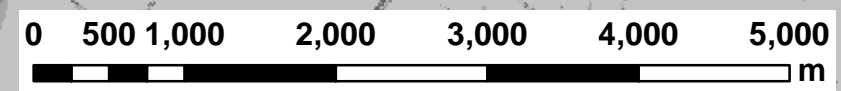
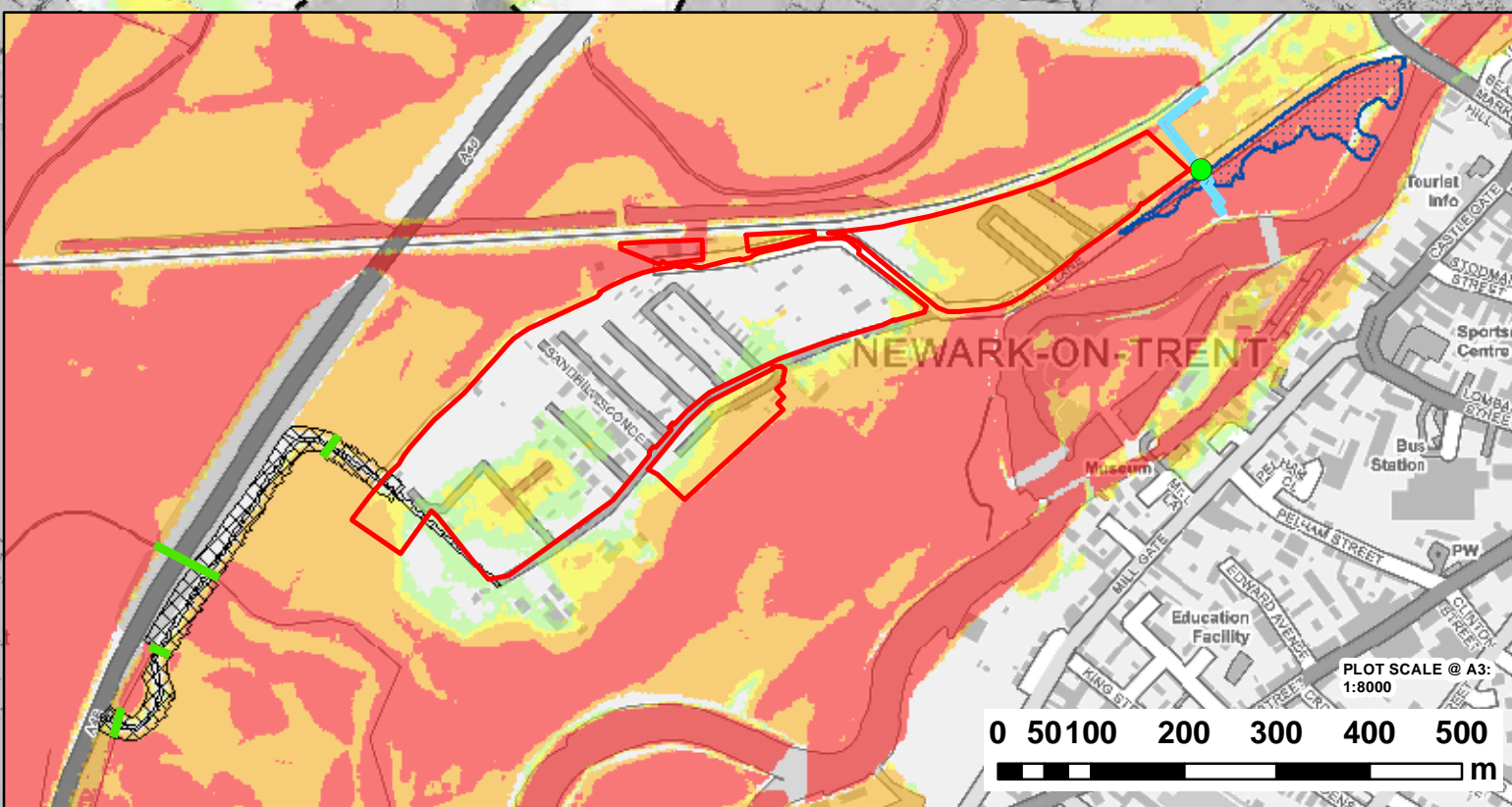
SCHEME:
TOLNEY LANE, NEWARK

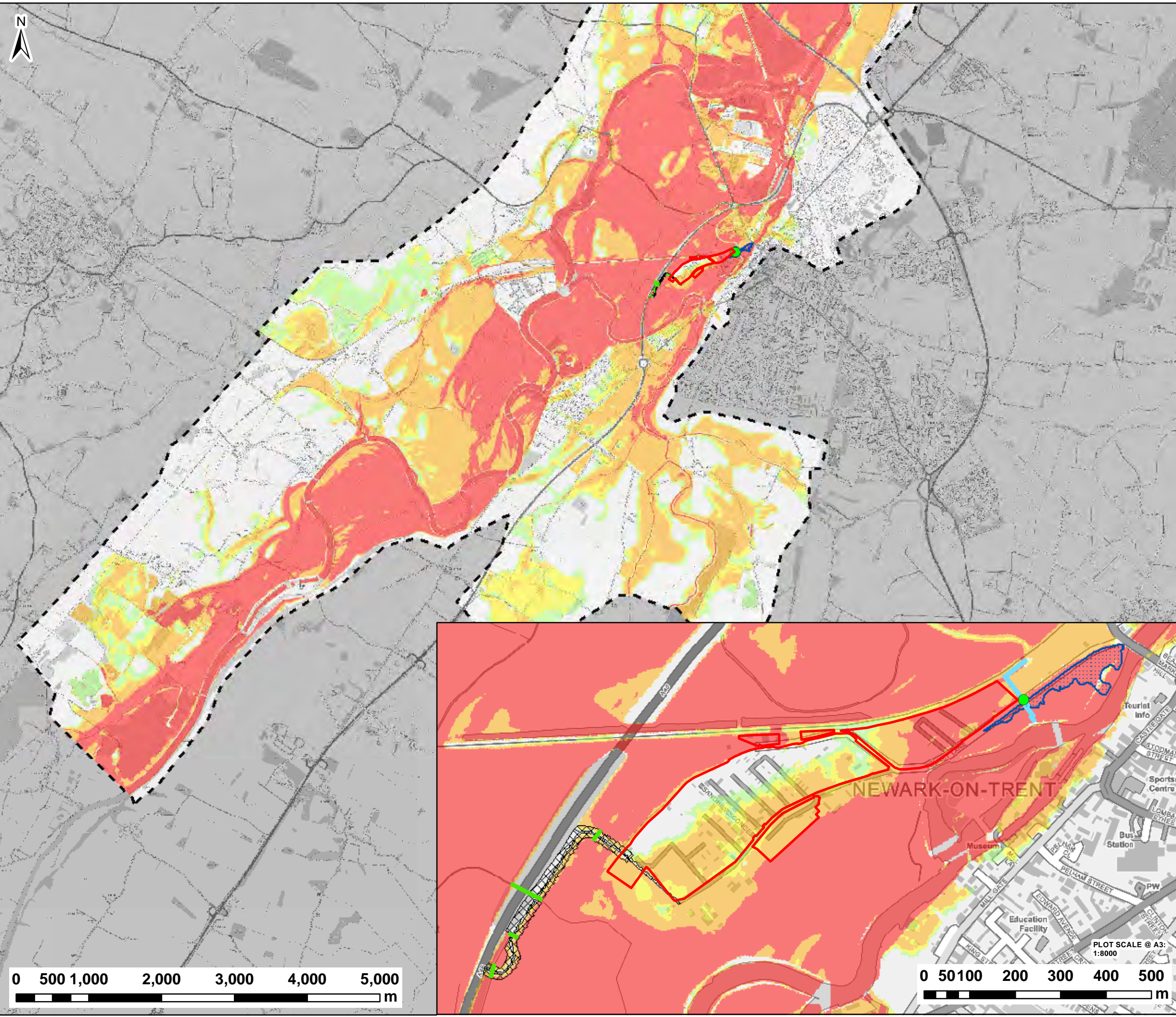
PLOT TITLE:
**FLOOD HAZARD RATING
1% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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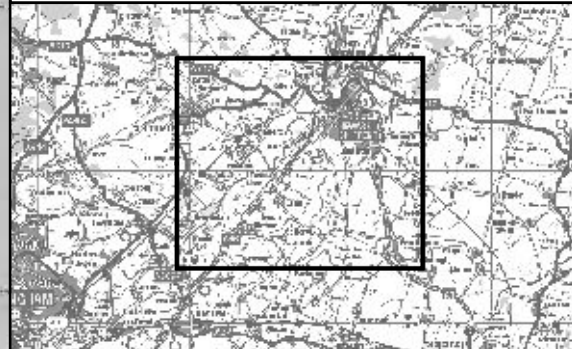
PLOT NAME: w3375-Q100_OPT2_NFC_HZ REV: -





NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

- LEGEND**
- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



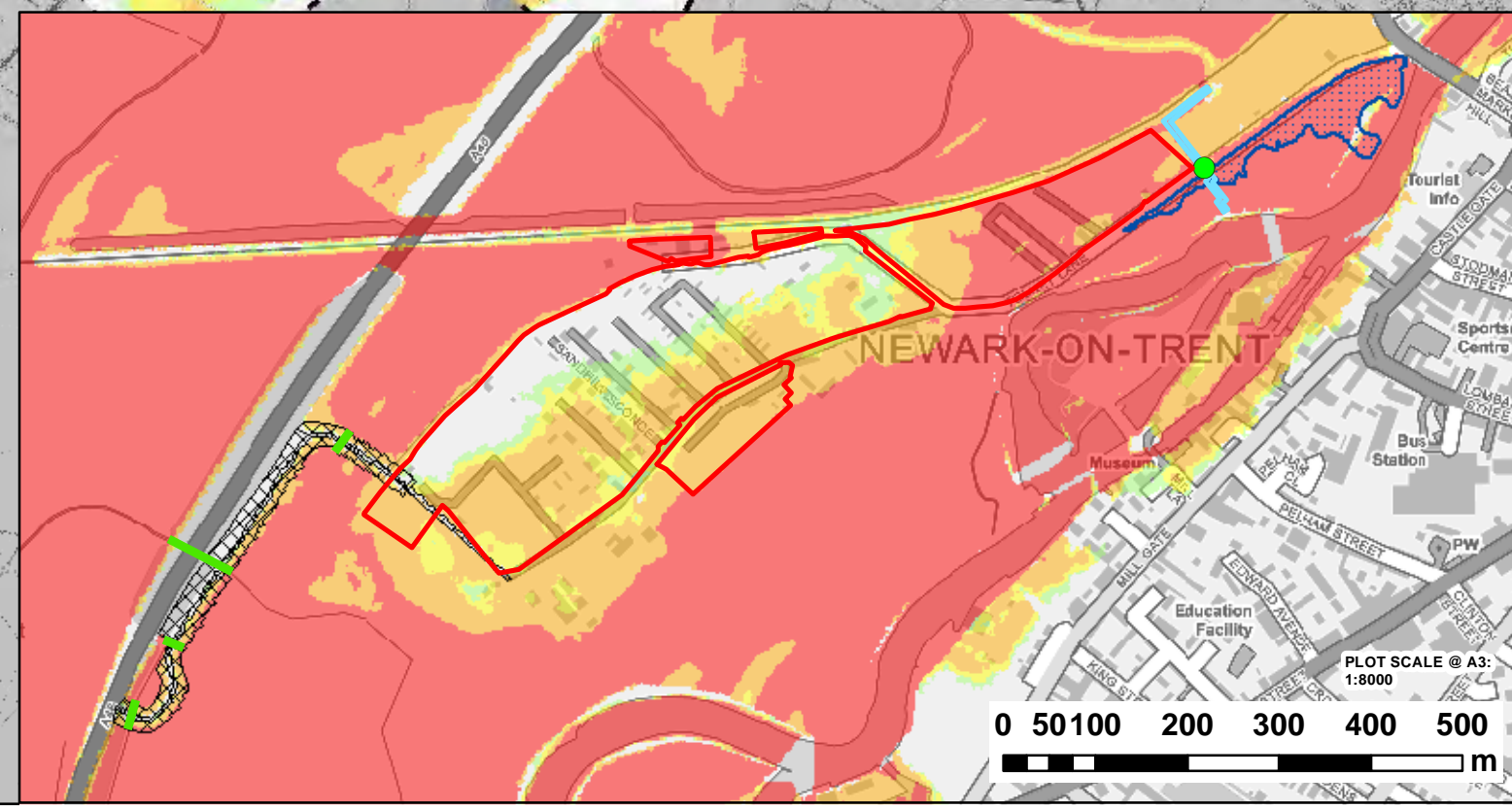
SCHEME:
TOLNEY LANE, NEWARK

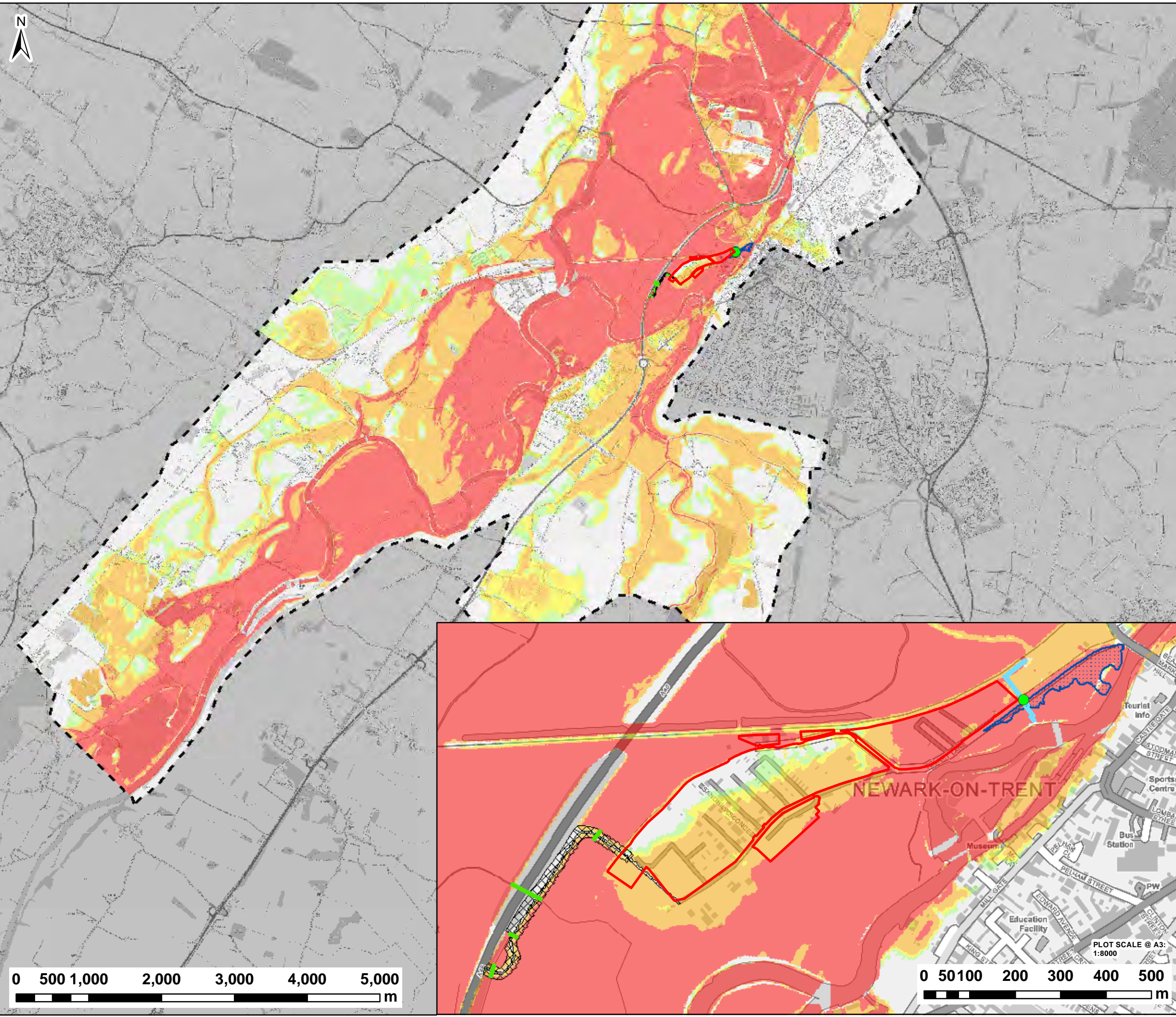
PLOT TITLE:
**FLOOD HAZARD RATING
1% AEP (+30%CC) FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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PLOT NAME: w3375-Q100CC1_OPT2_NFC_HZ REV: -

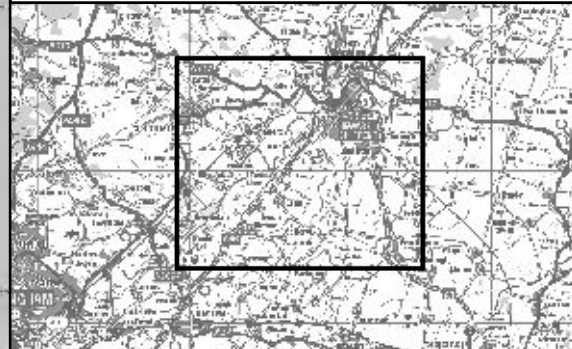




NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



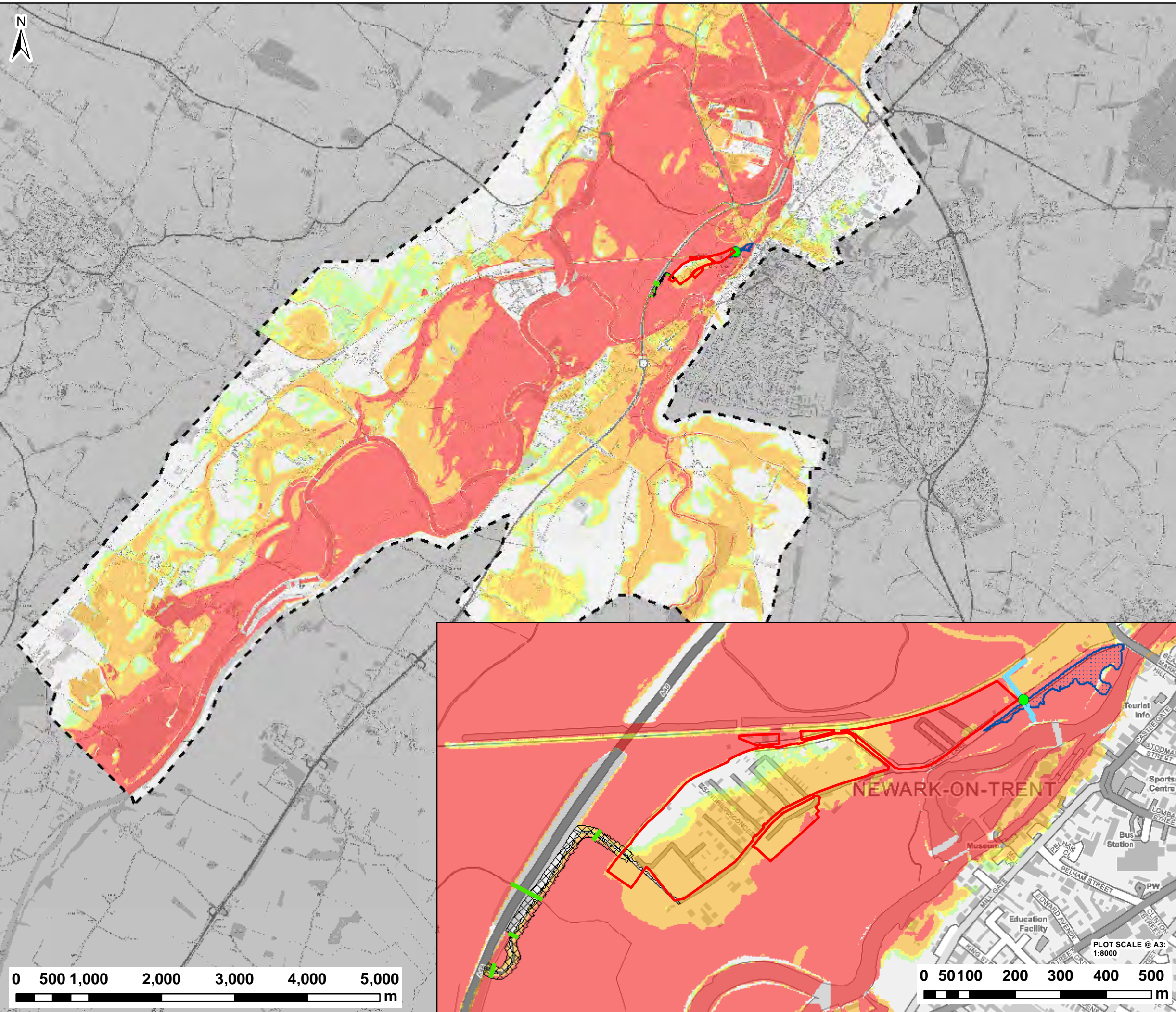
SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**FLOOD HAZARD RATING
1% AEP (+50%CC) FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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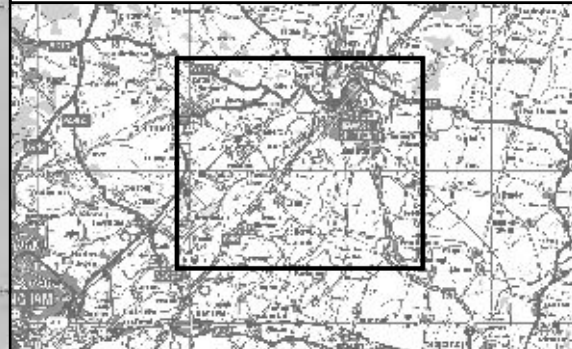
PLOT NAME: w3375-Q100CC2_OPT2_NFC_HZ REV: -



NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



CLIENT:



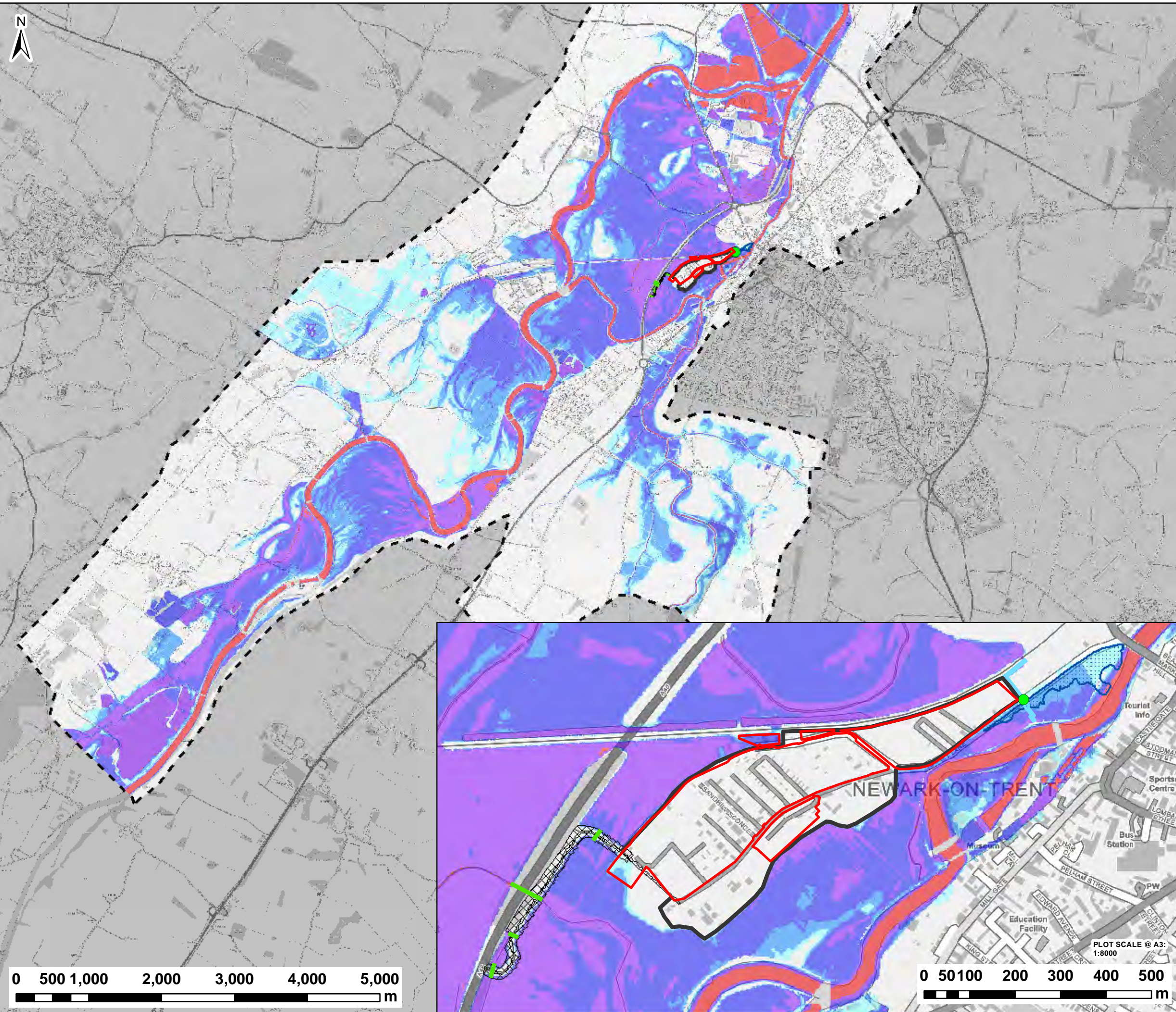

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SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**FLOOD HAZARD RATING
0.1% AEP FLUVIAL EVENT
OPTION 2
NORMAL FLOW CONDITIONS**

PLOT STATUS: FINAL			DATE: 25/04/2019
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
PLOT NAME: w3375-Q1000_OPT2_NFC_HZ			REV: -

FAS Option 3 (OPT3) Flood Mapping



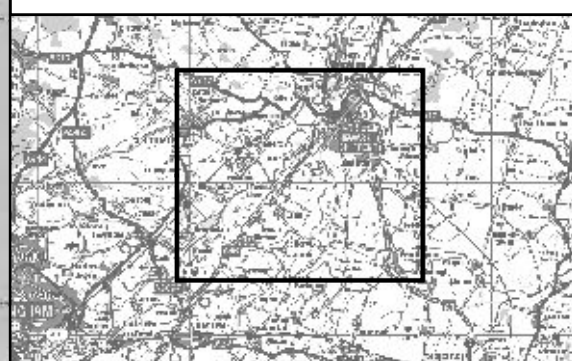
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

0 - 0.3
0.3 - 0.6
0.6 - 1.2
1.2 - 2.4
> 2.4



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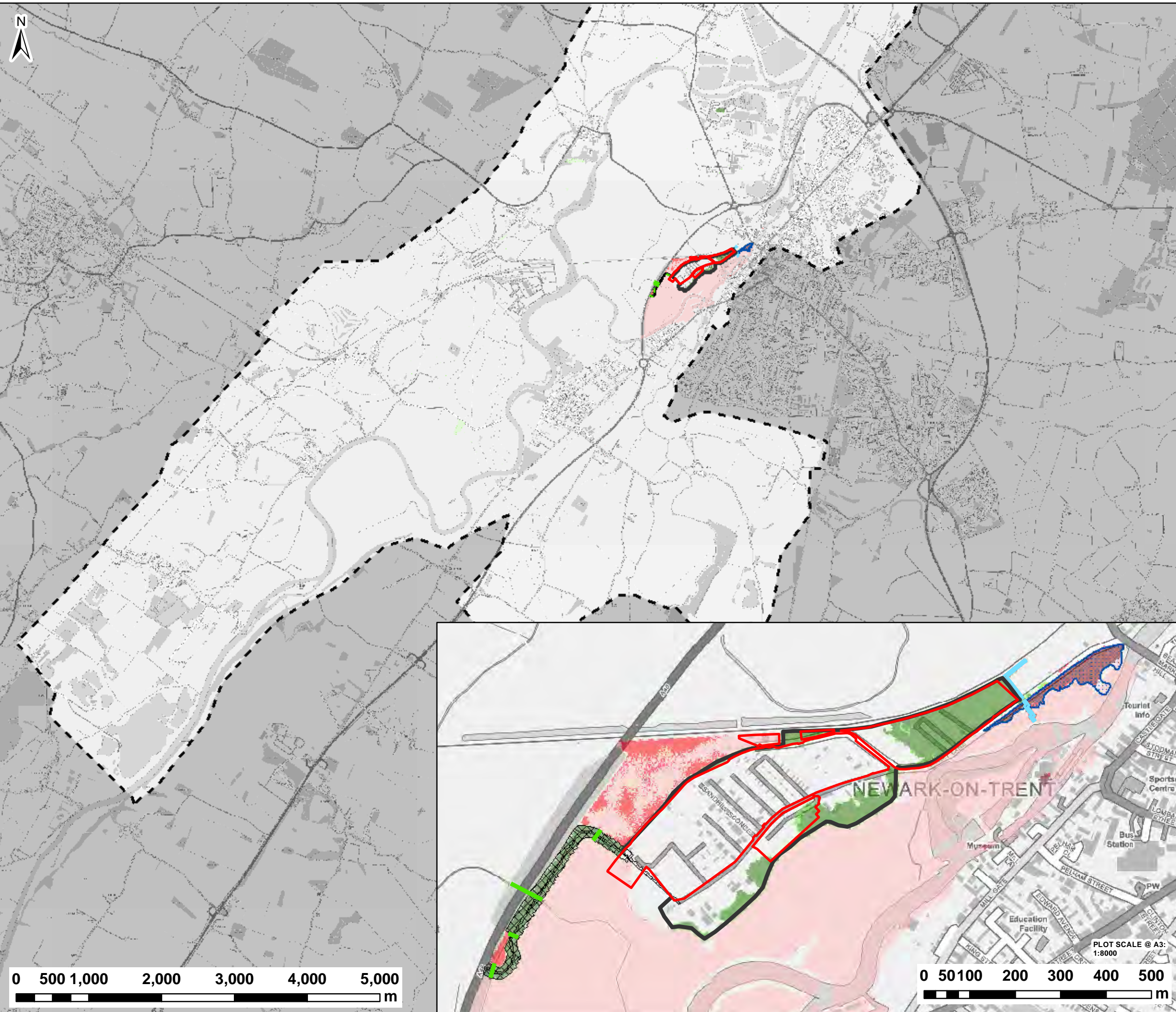
SCHEME: **TOLNEY LANE, NEWARK**

PLOT TITLE: **MAXIMUM FLOOD DEPTH
5% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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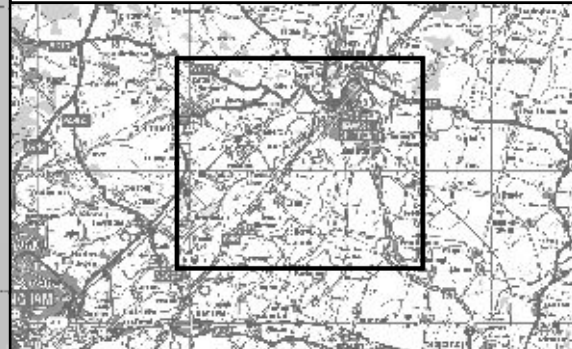
PLOT NAME: w3375-Q20_OPT3_NFC_D REV: -



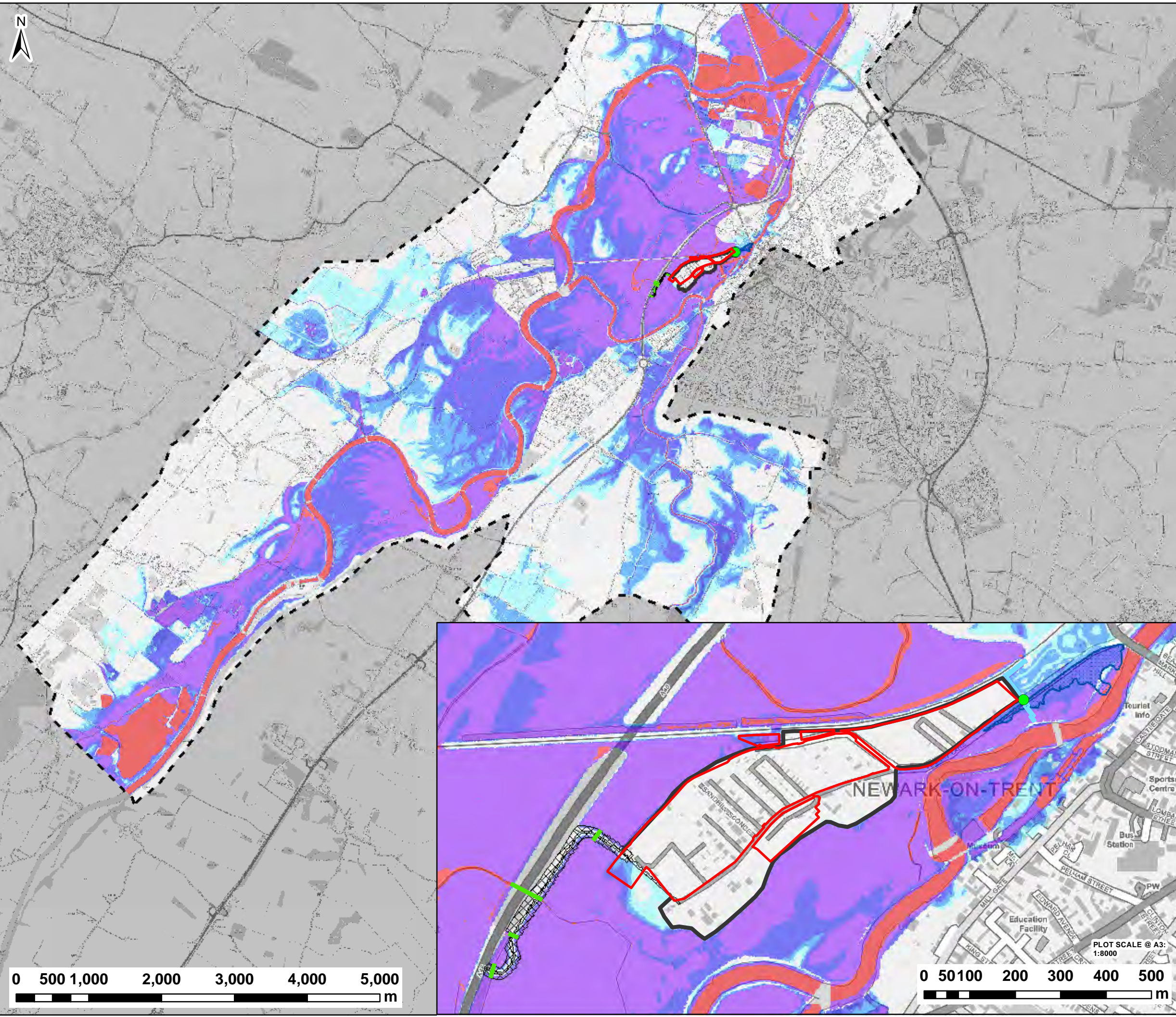
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Depth Variation**
- > +100mm
 - +50mm to +100mm
 - +20mm to +50mm
 - No Change (+/-20mm)
 - 20mm to -50mm
 - 50mm to -100mm
 - > -100mm



CLIENT:			
		www.waterco.co.uk	
SCHEME:		TOLNEY LANE, NEWARK	
PLOT TITLE:		DEPTH DIFFERENCE 5% AEP FLUVIAL EVENT OPT3-EXG NORMAL FLOW CONDITIONS	
PLOT STATUS:		FINAL	
		DATE:	25/04/2019
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	RC	LS	1:50,000 (UNLESS STATED OTHERWISE)
PLOT NAME:			REV:
w3375-Q20_OPT3-EXG_NFC_D_DIFF			-



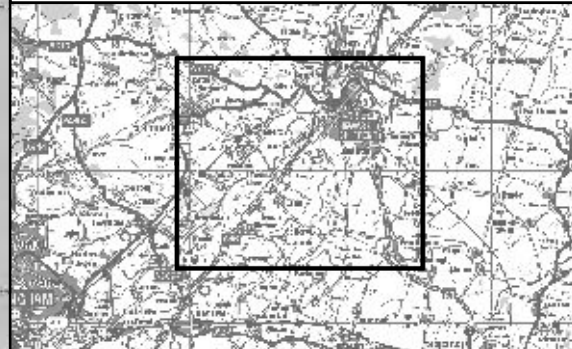
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

- 0 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4



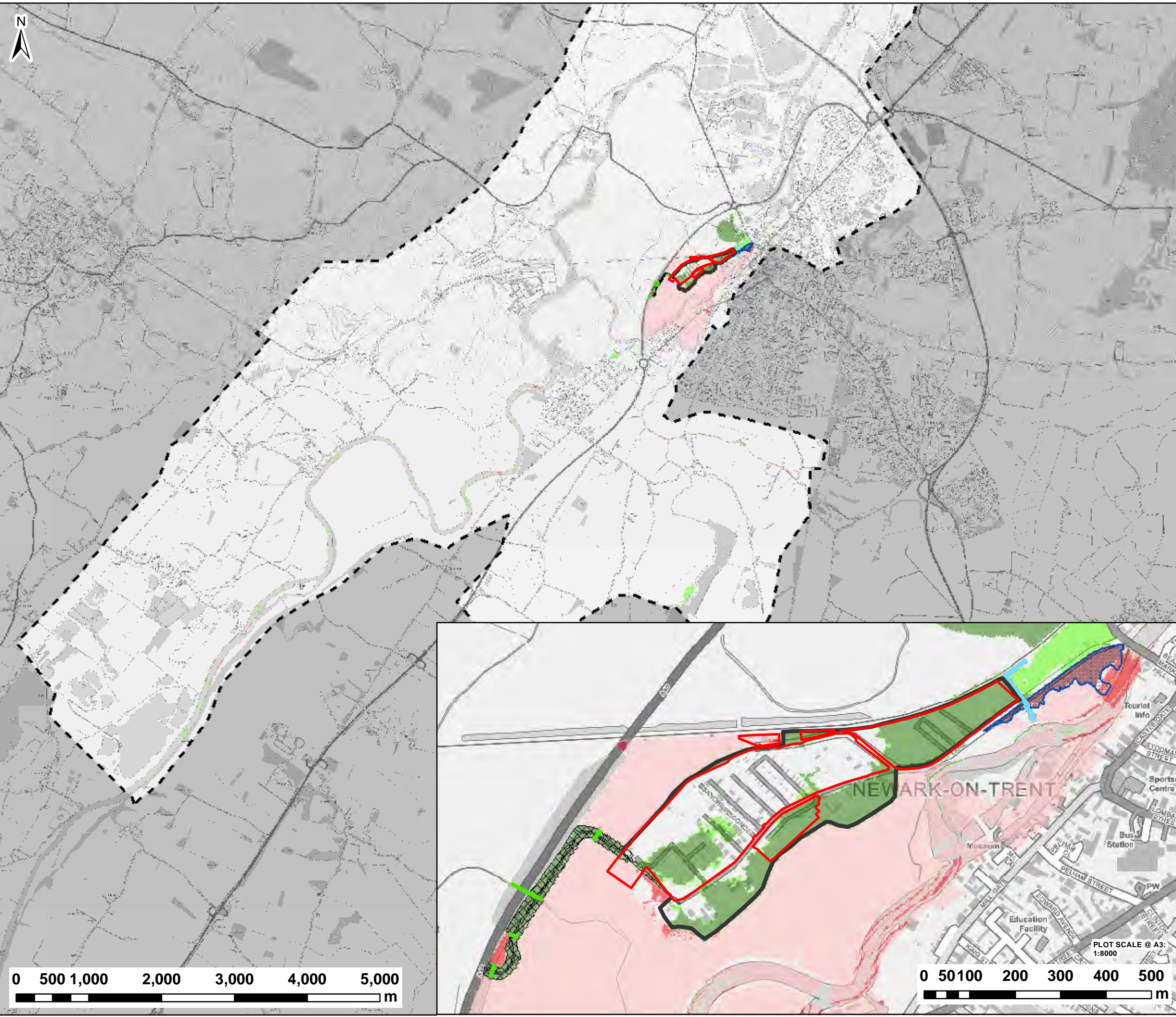
SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**MAXIMUM FLOOD DEPTH
1% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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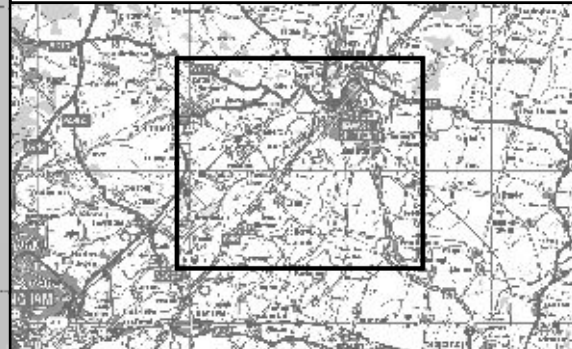
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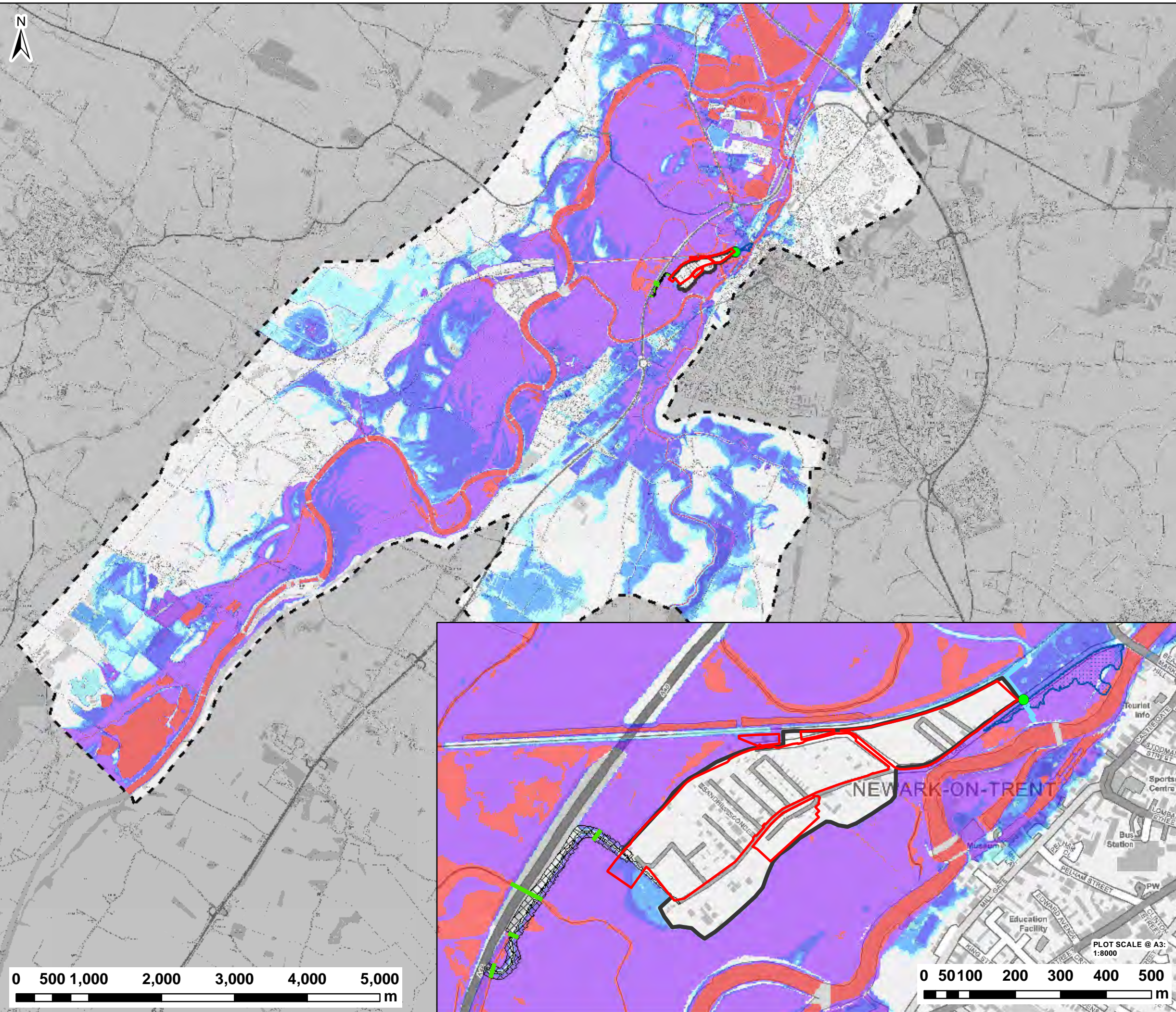
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Depth Variation**
- > +100mm
 - +50mm to +100mm
 - +20mm to +50mm
 - No Change (+/-20mm)
 - 20mm to -50mm
 - 50mm to -100mm
 - > -100mm



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SCHEME: TOLNEY LANE, NEWARK			
PLOT TITLE: DEPTH DIFFERENCE 1% AEP FLUVIAL EVENT OPT3-EXG NORMAL FLOW CONDITIONS			
PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
PLOT NAME: w3375-Q100_OPT3-EXG_NFC_D_DIFF			REV: -



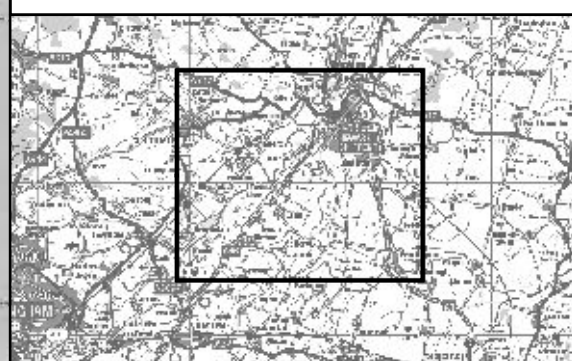
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

0 - 0.3
0.3 - 0.6
0.6 - 1.2
1.2 - 2.4
> 2.4



CLIENT:

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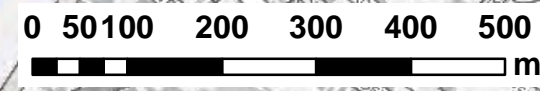
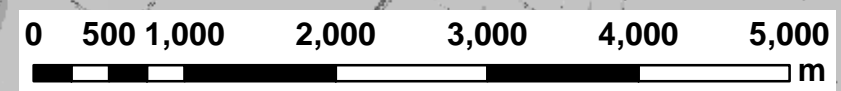
SCHEME:
TOLNEY LANE, NEWARK

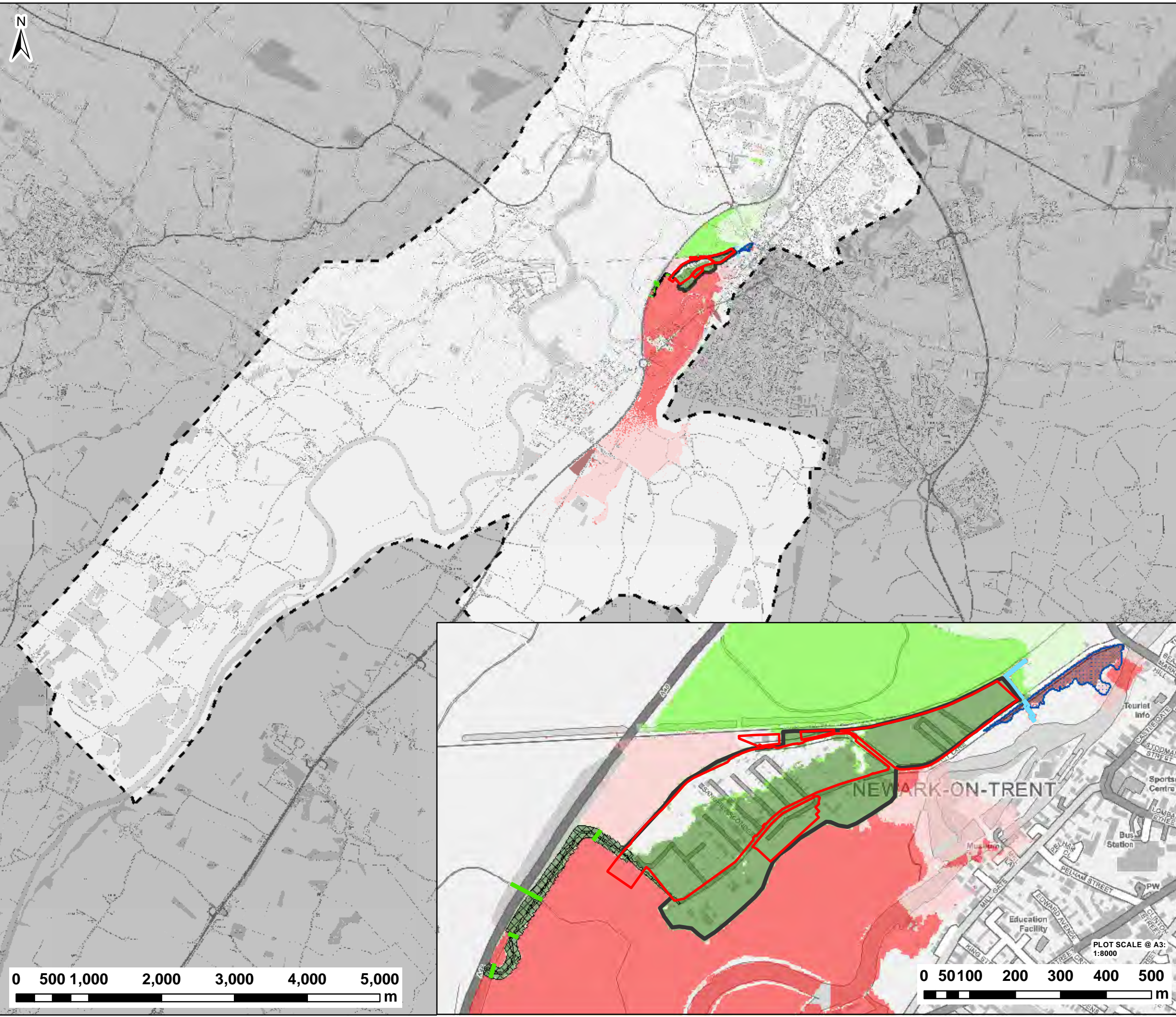
PLOT TITLE:
**MAXIMUM FLOOD DEPTH
1% AEP (+30%CC) FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: FINAL		DATE: 25/04/2019
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DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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PLOT NAME: w3375-Q100CC1_OPT3_NFC_D	REV: -
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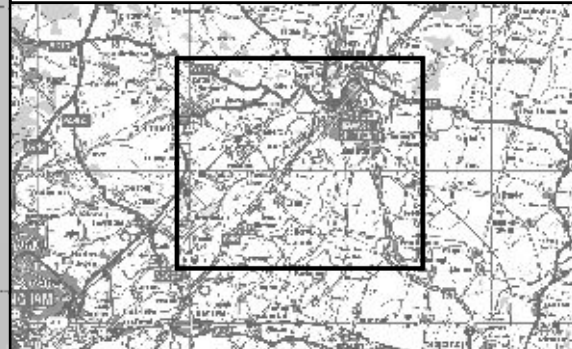






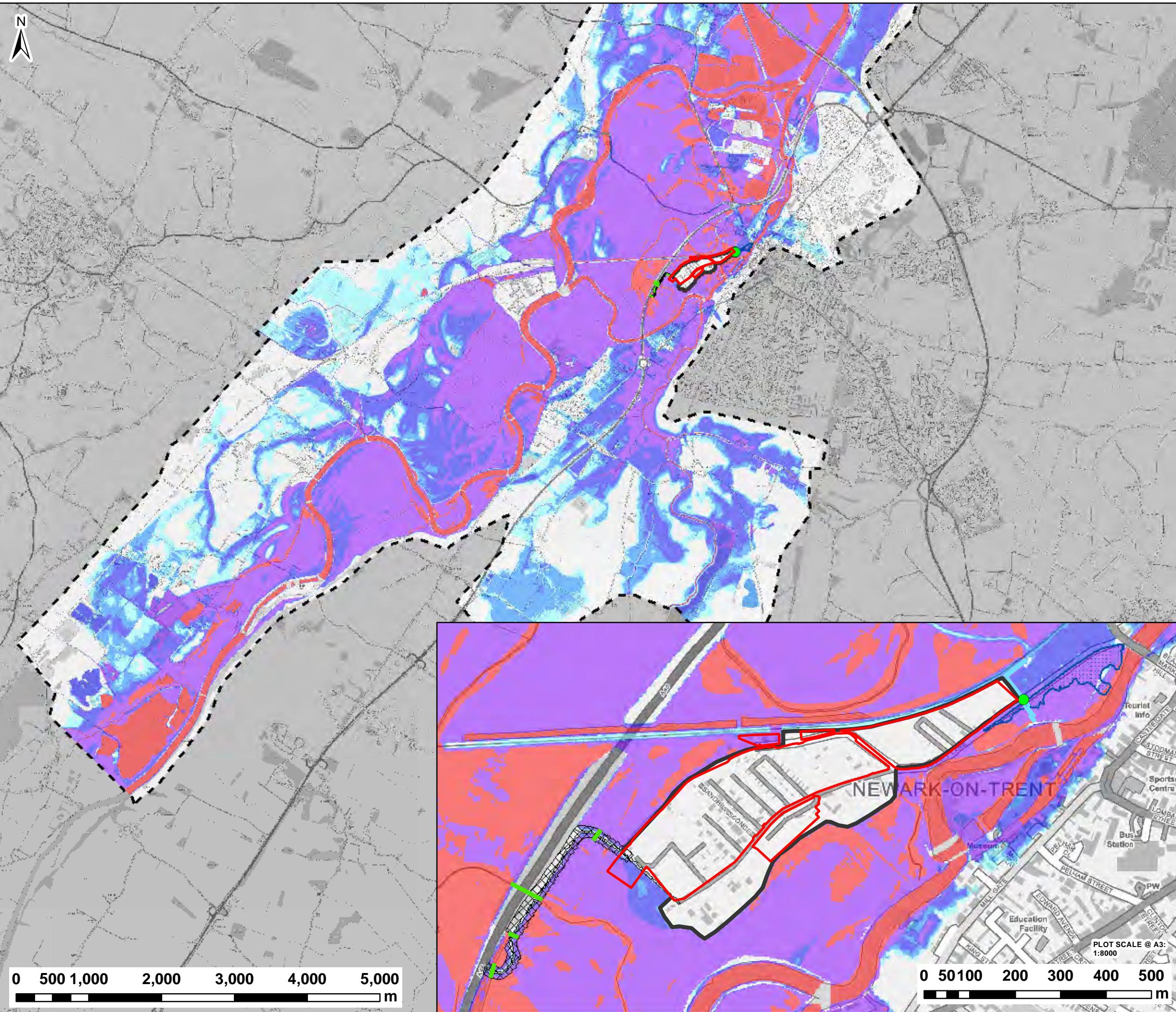
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Depth Variation**
- > +100mm
 - +50mm to +100mm
 - +20mm to +50mm
 - No Change (+/-20mm)
 - 20mm to -50mm
 - 50mm to -100mm
 - > -100mm



			
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SCHEME: TOLNEY LANE, NEWARK			
PLOT TITLE: DEPTH DIFFERENCE 1% AEP (+30%CC) FLUVIAL EVENT OPT3-EXG NORMAL FLOW CONDITIONS			
PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
PLOT NAME: w3375-Q100CC1_OPT3-EXG_NFC_D_DIFF			REV: -



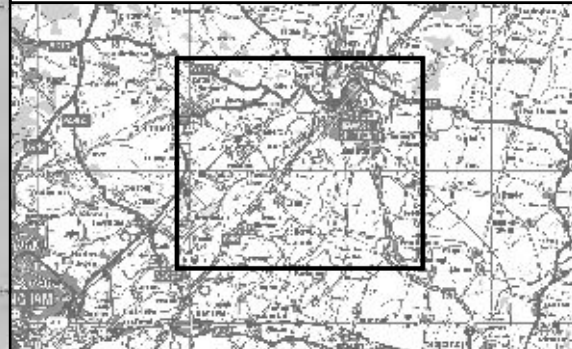
NOTES:
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LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

- 0 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4



CLIENT:




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SCHEME:

**TOLNEY LANE,
NEWARK**

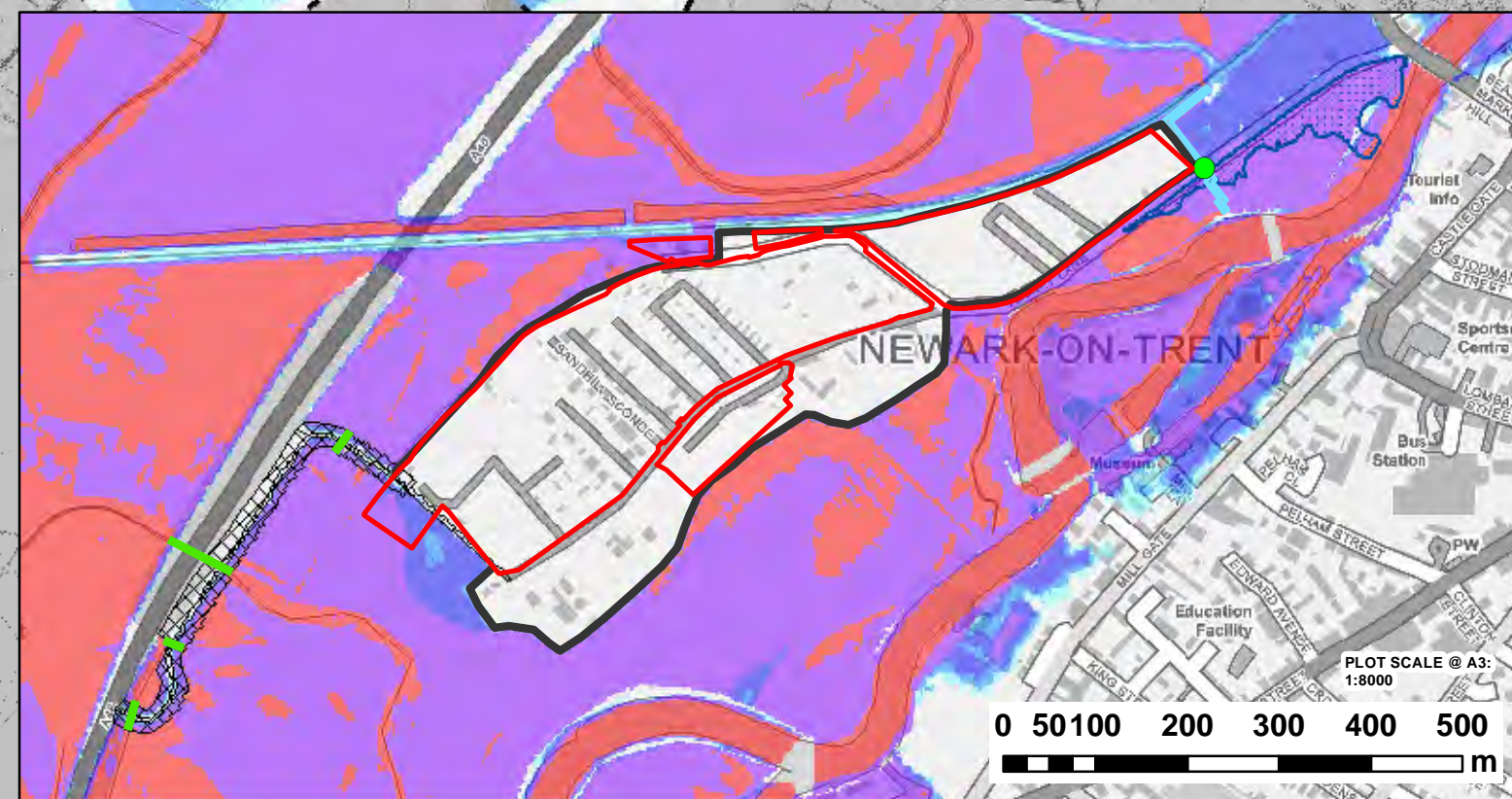
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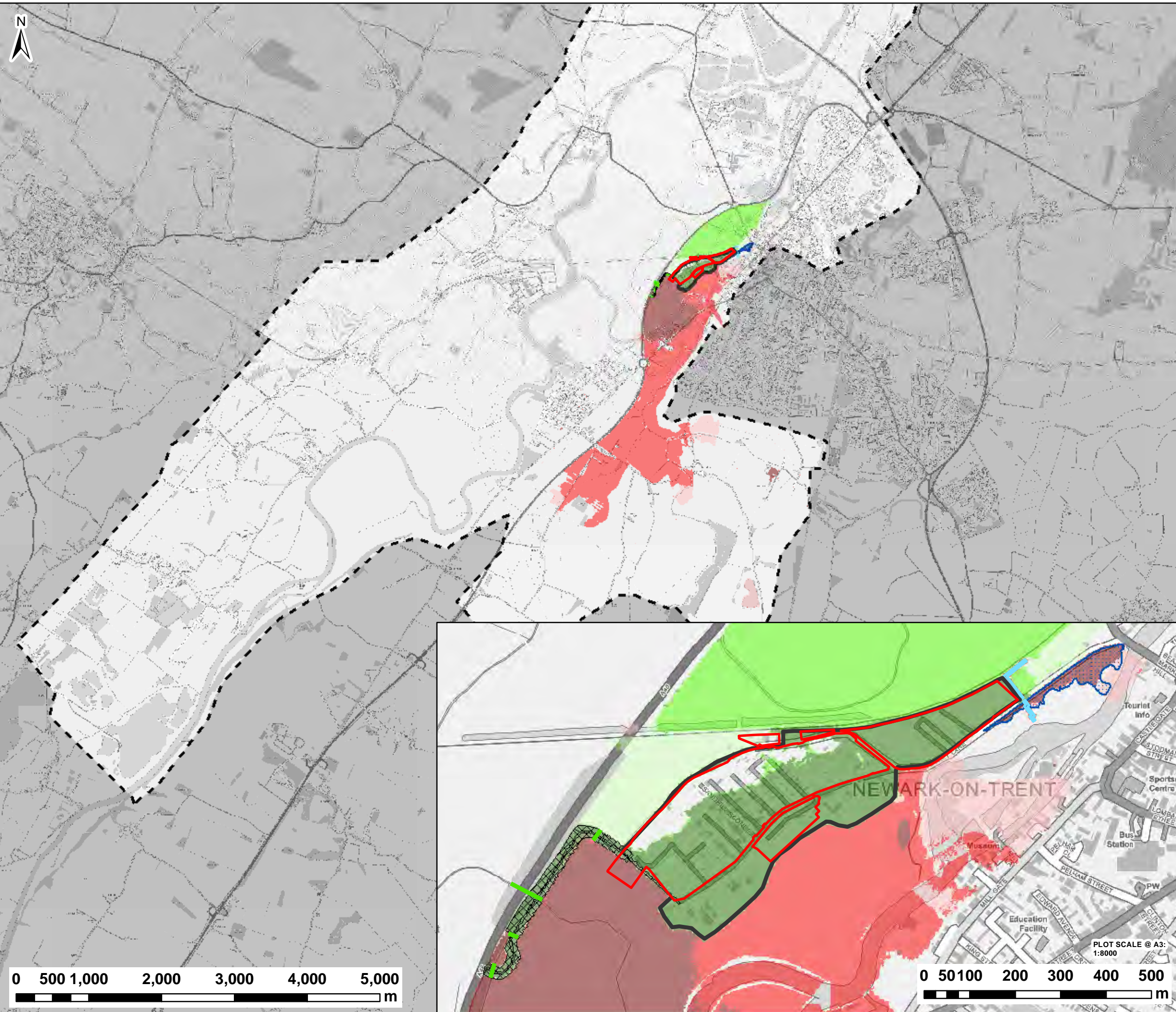
**MAXIMUM FLOOD DEPTH
1% AEP (+50%CC) FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q100CC2_OPT3_NFC_D REV: -

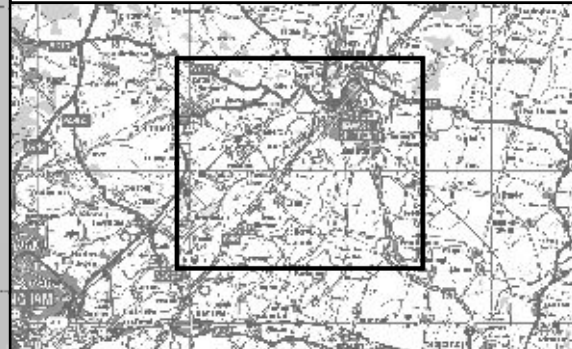






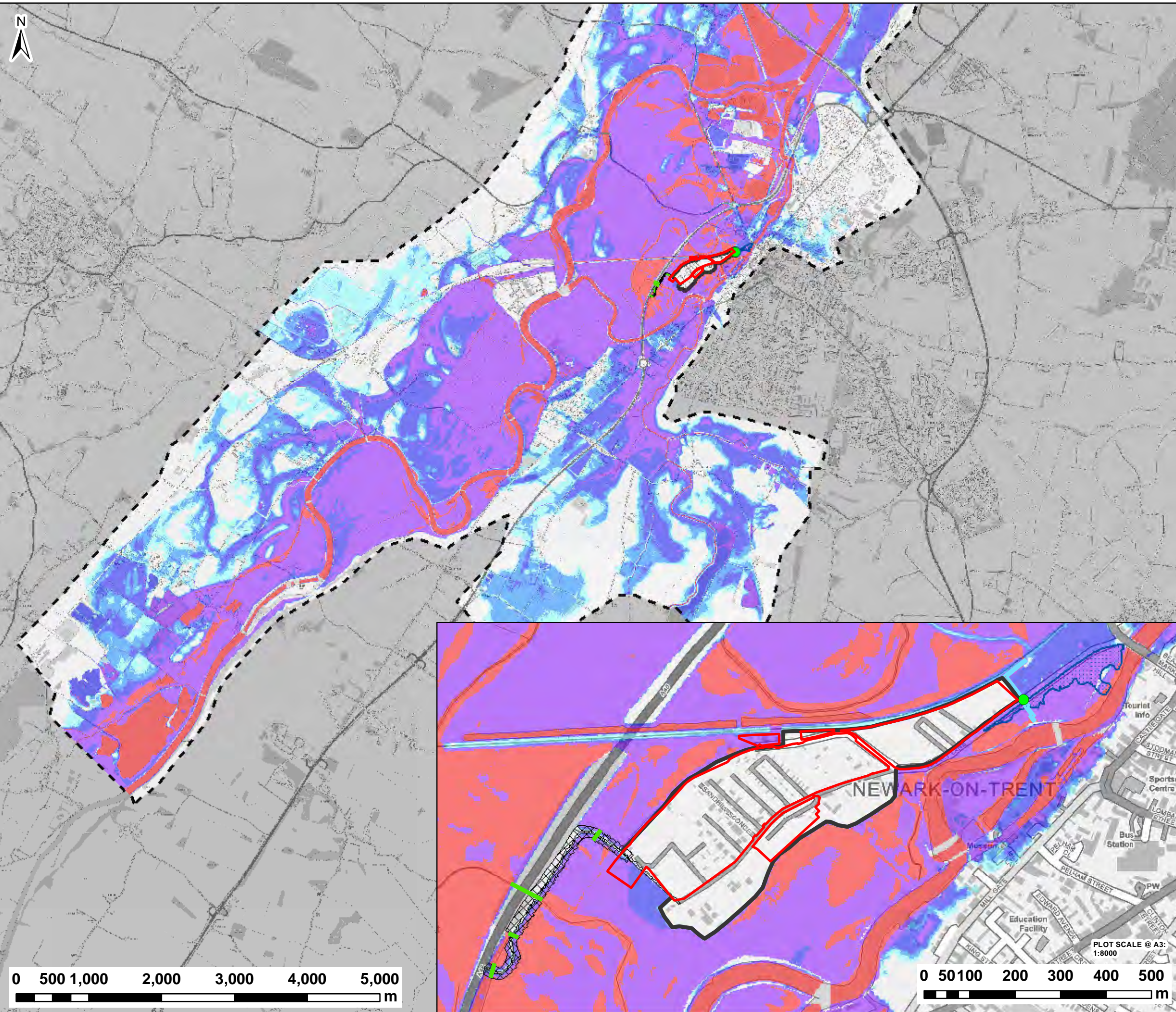
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Depth Variation**
- > +100mm
 - +50mm to +100mm
 - +20mm to +50mm
 - No Change (+/-20mm)
 - 20mm to -50mm
 - 50mm to -100mm
 - > -100mm



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CLIENT: TOLNEY LANE, NEWARK			
SCHEME: TOLNEY LANE, NEWARK			
PLOT TITLE: DEPTH DIFFERENCE 1% AEP (+50%CC) FLUVIAL EVENT OPT3-EXG NORMAL FLOW CONDITIONS			
PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
PLOT NAME: w3375-Q100CC2_OPT3-EXG_NFC_D_DIFF			REV: -



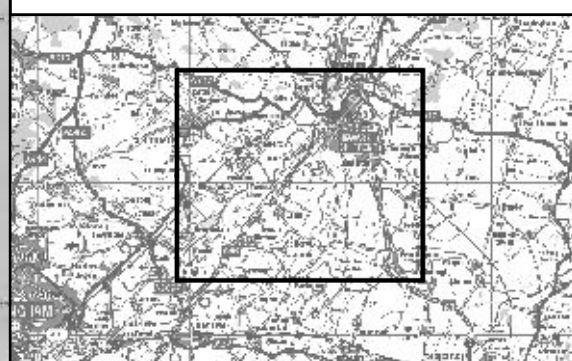
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Flood Depth (m)

- 0 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4



CLIENT:



SCHEME:

**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM FLOOD DEPTH
0.1% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS:

FINAL

DATE:

25/04/2019

DRAWN:

CM

CHECKED:

RC

APPROVED:

LS

PLOT SCALE @ A3:

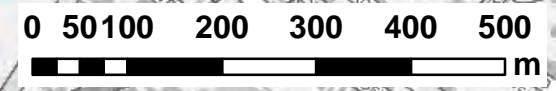
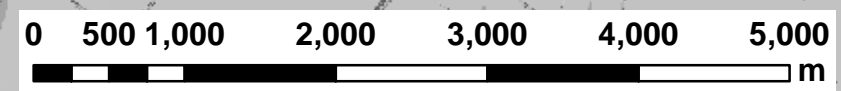
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(UNLESS STATED OTHERWISE)

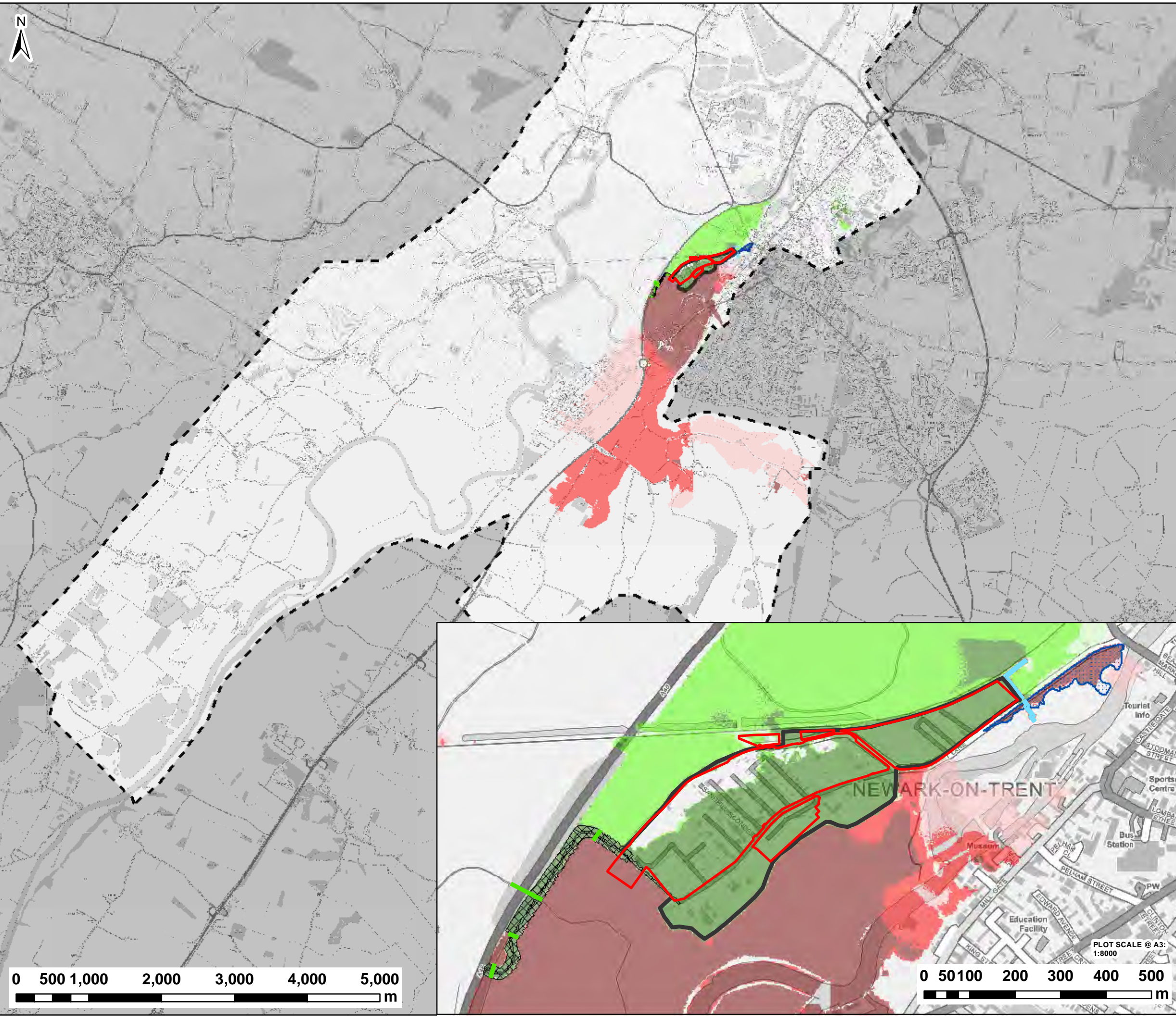
PLOT NAME:

w3375-Q1000_OPT3_NFC_D

REV:

-





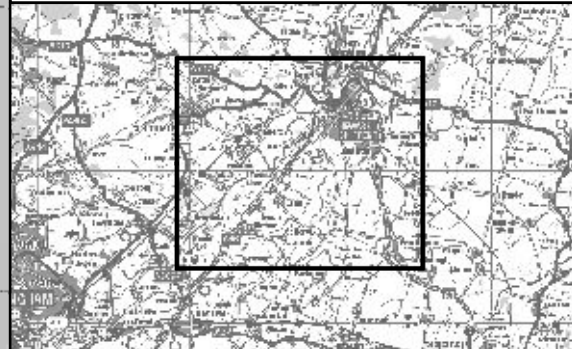
NOTES:
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LEGEND

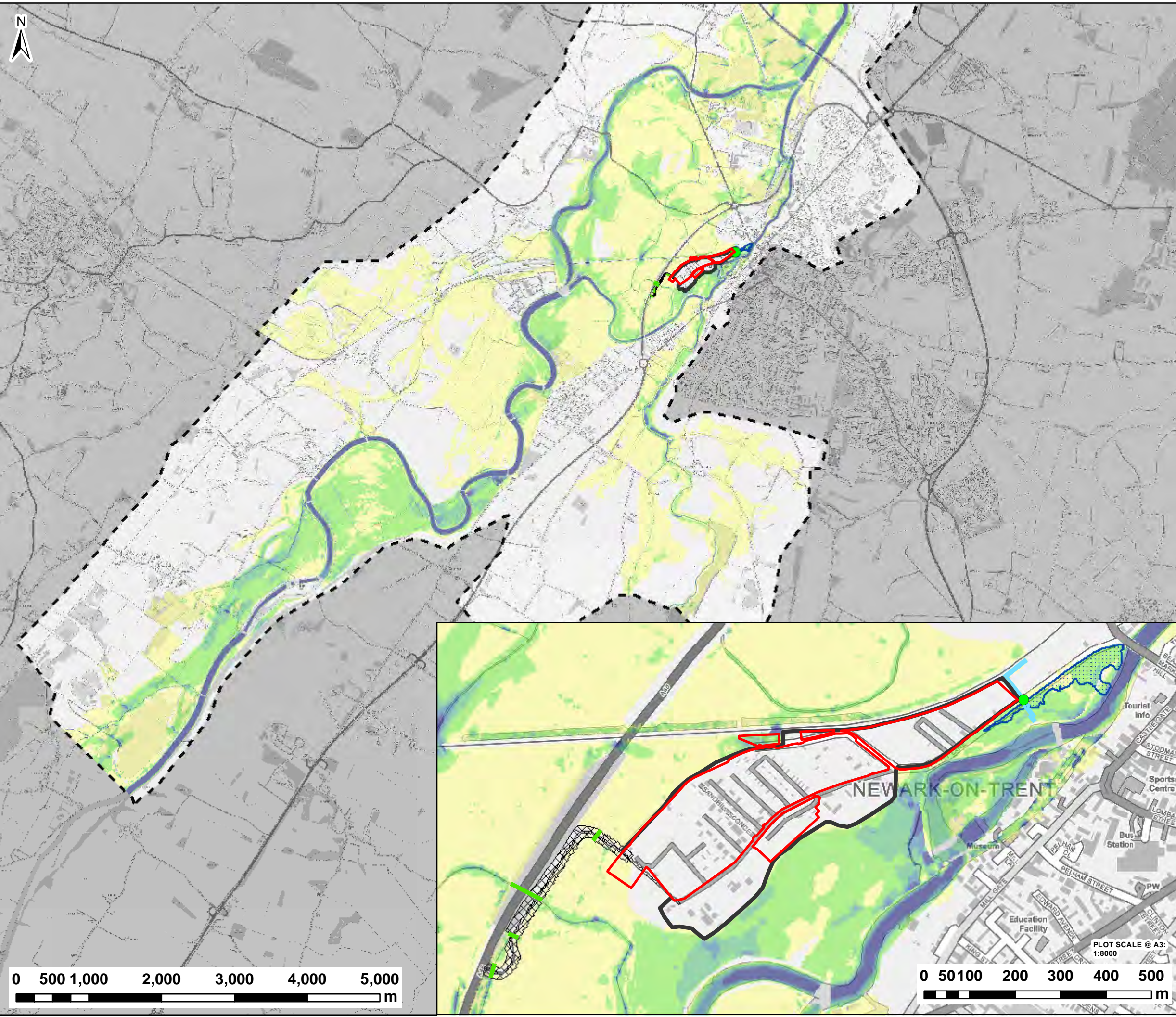
- Site Location
- 2D Model Extent
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Depth Variation

- > +100mm
- +50mm to +100mm
- +20mm to +50mm
- No Change (+/-20mm)
- 20mm to -50mm
- 50mm to -100mm
- > -100mm



			
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CLIENT: TOLNEY LANE, NEWARK			
SCHEME: TOLNEY LANE, NEWARK			
PLOT TITLE: DEPTH DIFFERENCE 0.1% AEP FLUVIAL EVENT OPT3-EXG NORMAL FLOW CONDITIONS			
PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
PLOT NAME: w3375-Q1000_OPT3-EXG_NFC_D_DIFF			REV: -



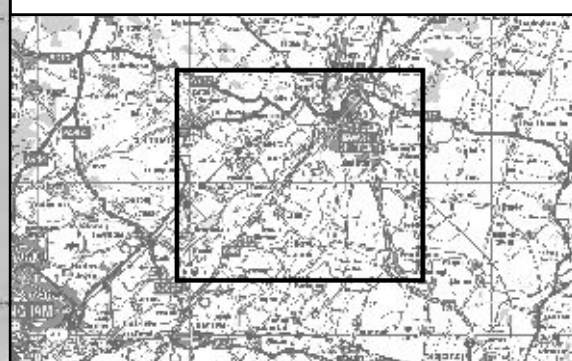
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



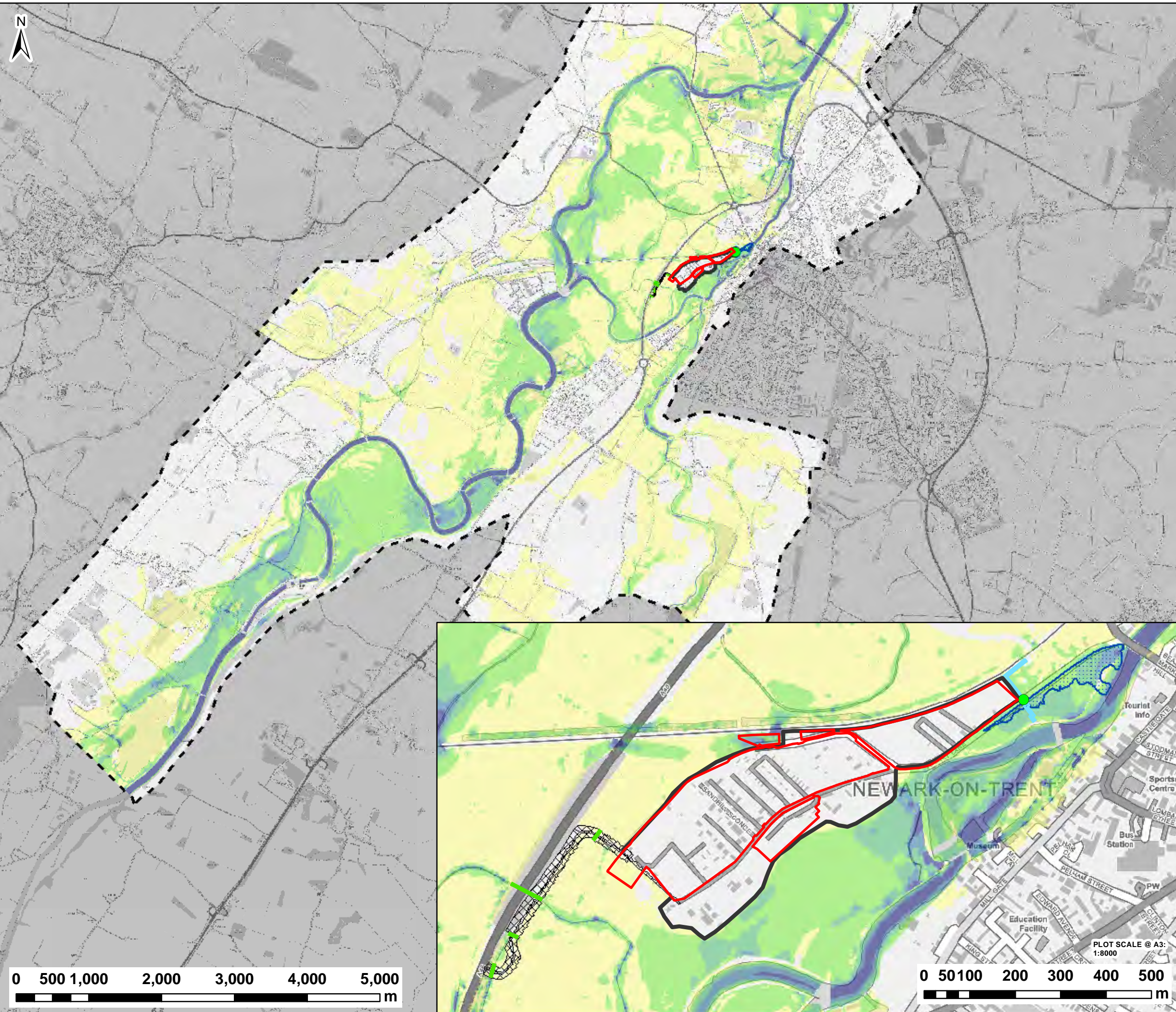
SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**MAXIMUM VELOCITY
5% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q20_OPT3_NFC_V REV: -



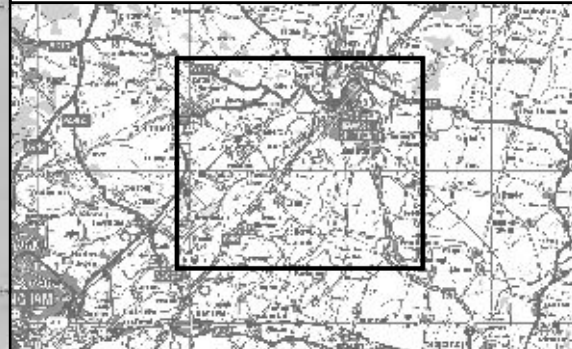
NOTES:
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LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:




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SCHEME:

**TOLNEY LANE,
NEWARK**

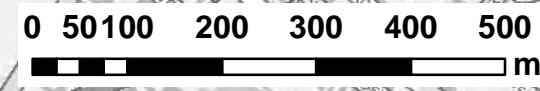
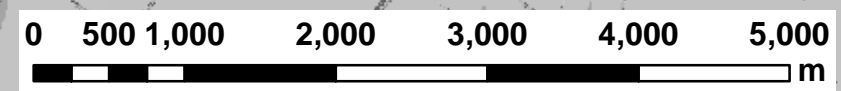
PLOT TITLE:

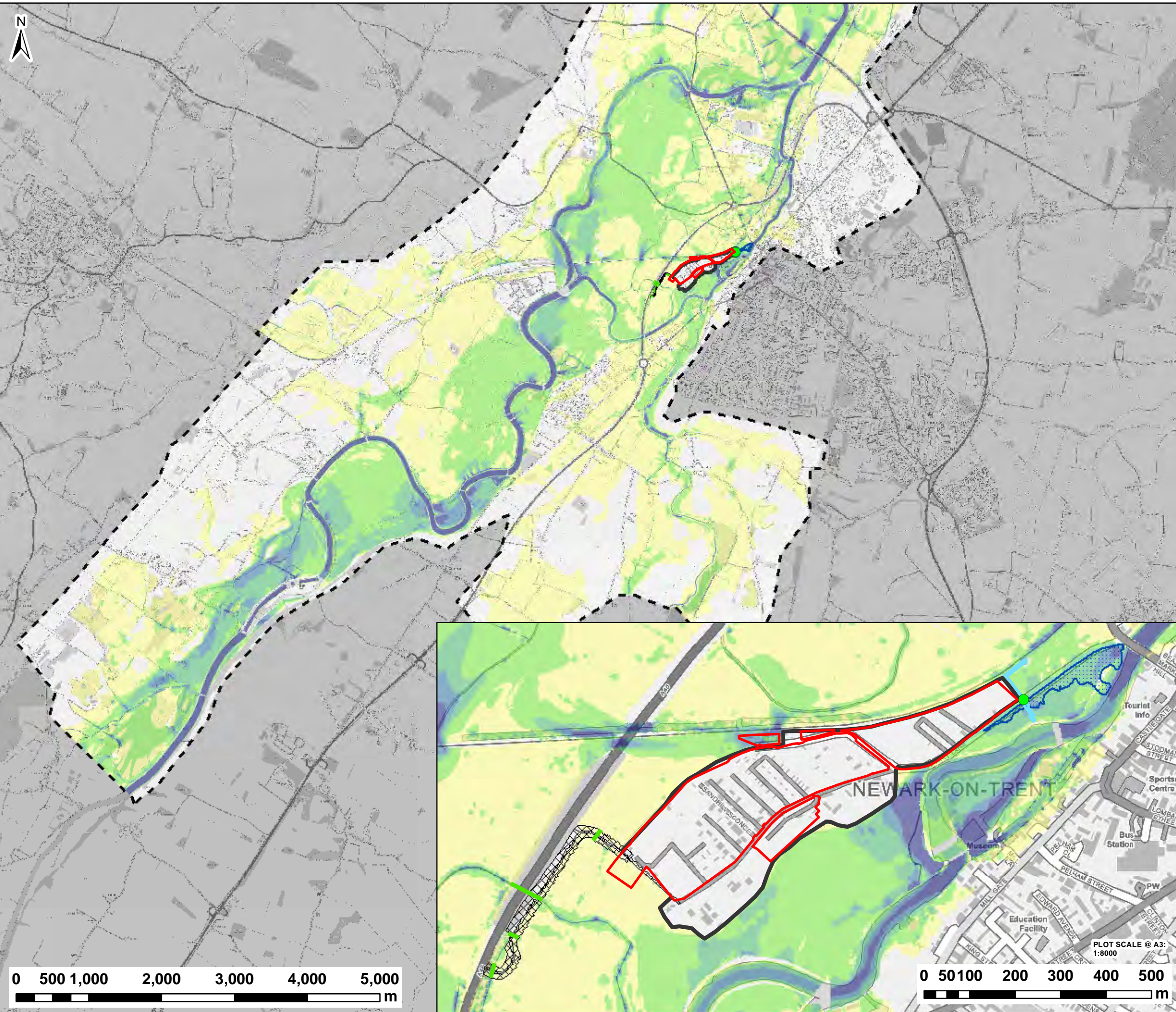
**MAXIMUM VELOCITY
1% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q100_OPT3_NFC_V REV: -





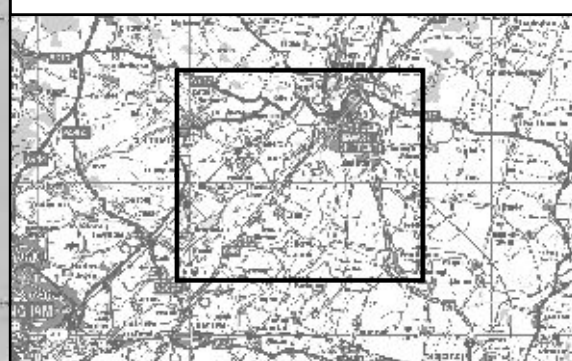
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:



SCHEME:

**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM VELOCITY
1% AEP (+30%CC) FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS:

FINAL

DATE:

25/04/2019

DRAWN:

CHECKED:

APPROVED:

PLOT SCALE @ A3:

CM

RC

LS

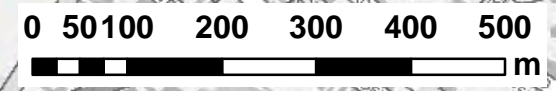
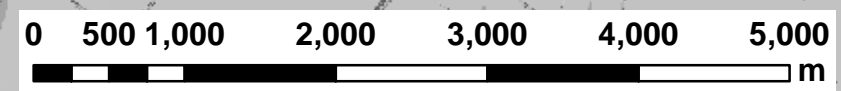
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(UNLESS STATED OTHERWISE)

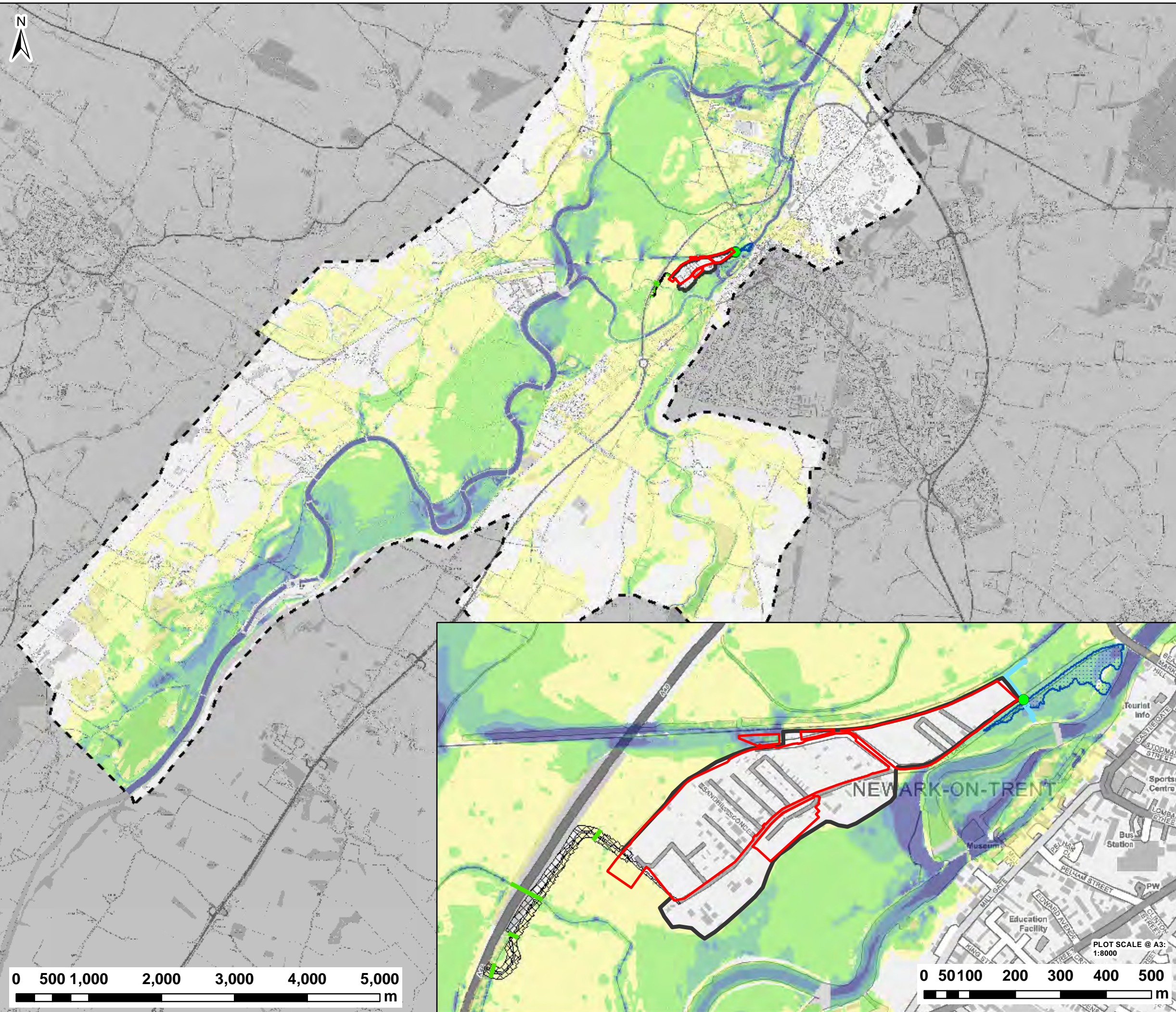
PLOT NAME:

w3375-Q100CC1_OPT3_NFC_V

REV:

-





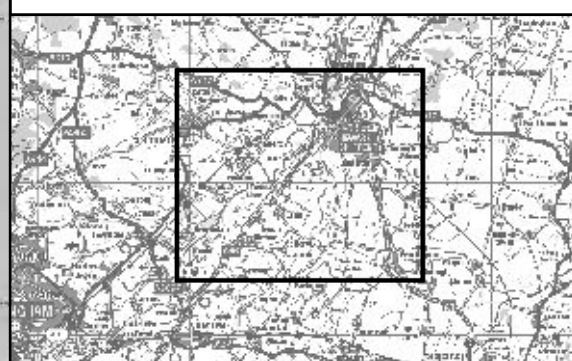
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:



SCHEME:

**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM VELOCITY
1% AEP (+50%CC) FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS:

FINAL

DATE:

25/04/2019

DRAWN:

CM

CHECKED:

RC

APPROVED:

LS

PLOT SCALE @ A3:

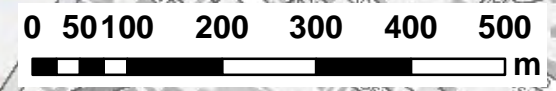
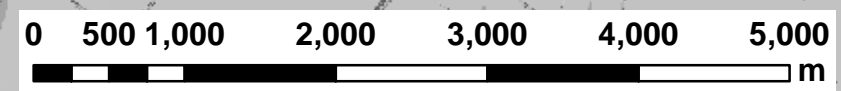
1:50,000
(UNLESS STATED OTHERWISE)

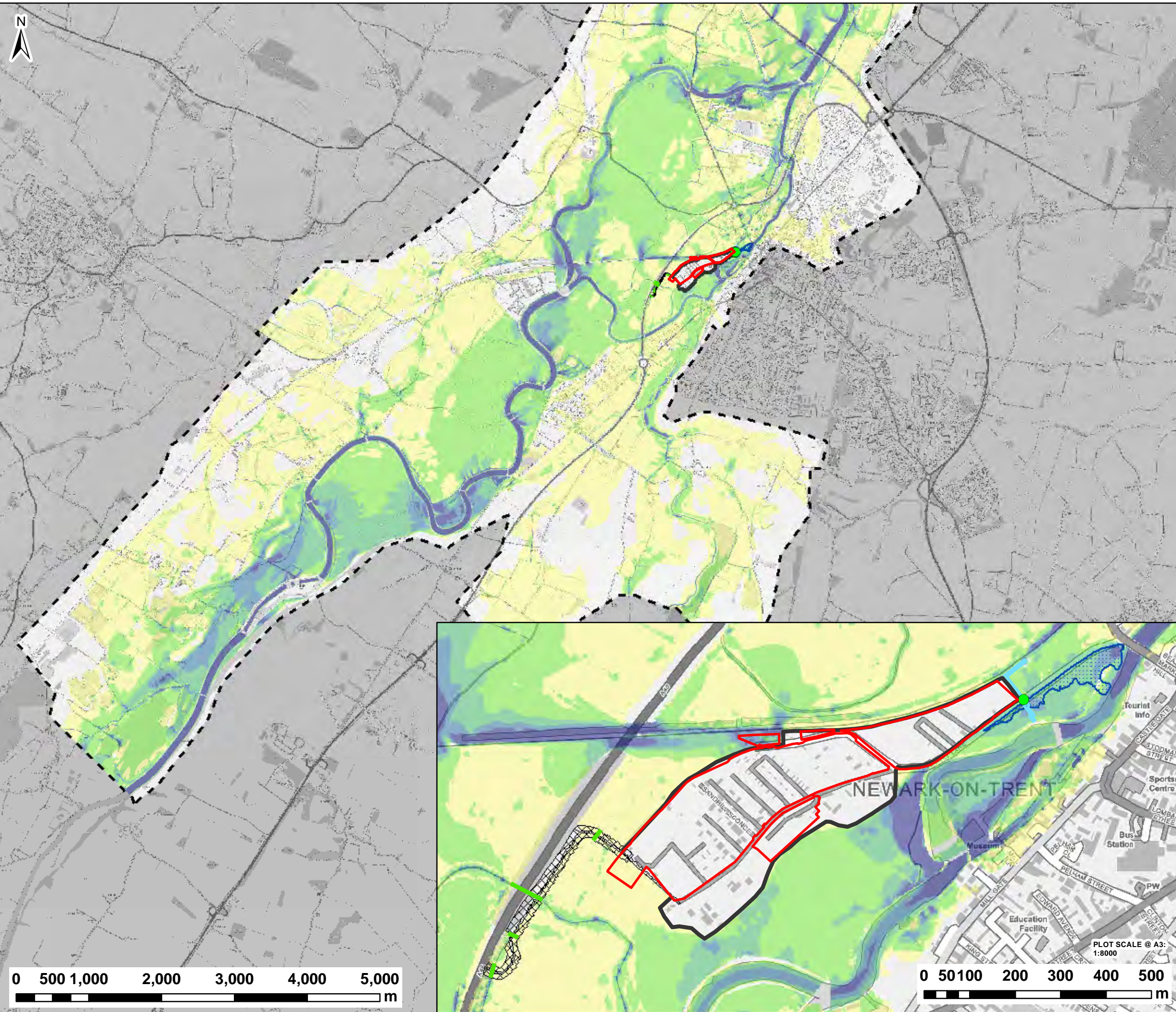
PLOT NAME:

w3375-Q100CC2_OPT3_NFC_V

REV:

-





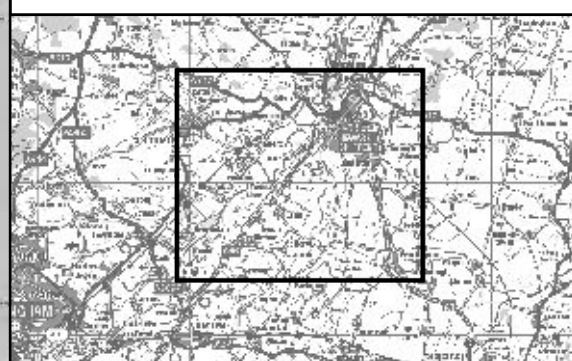
NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
- 2D Model Extent
- Proposed Flood Relief Culvert
- Proposed Culverts
- Proposed Flood Defence Wall
- Proposed Flood Relief Channel
- Proposed Flood Relief Area
- Proposed Highway Land Raising

Maximum Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:



SCHEME:

**TOLNEY LANE,
NEWARK**

PLOT TITLE:

**MAXIMUM VELOCITY
0.1% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS:

FINAL

DATE:

25/04/2019

DRAWN:

CM

CHECKED:

RC

APPROVED:

LS

PLOT SCALE @ A3:

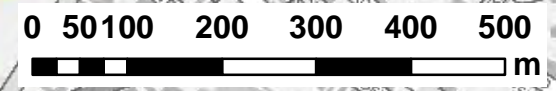
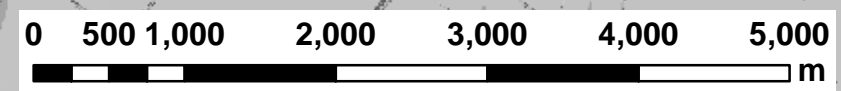
1:50,000
(UNLESS STATED OTHERWISE)

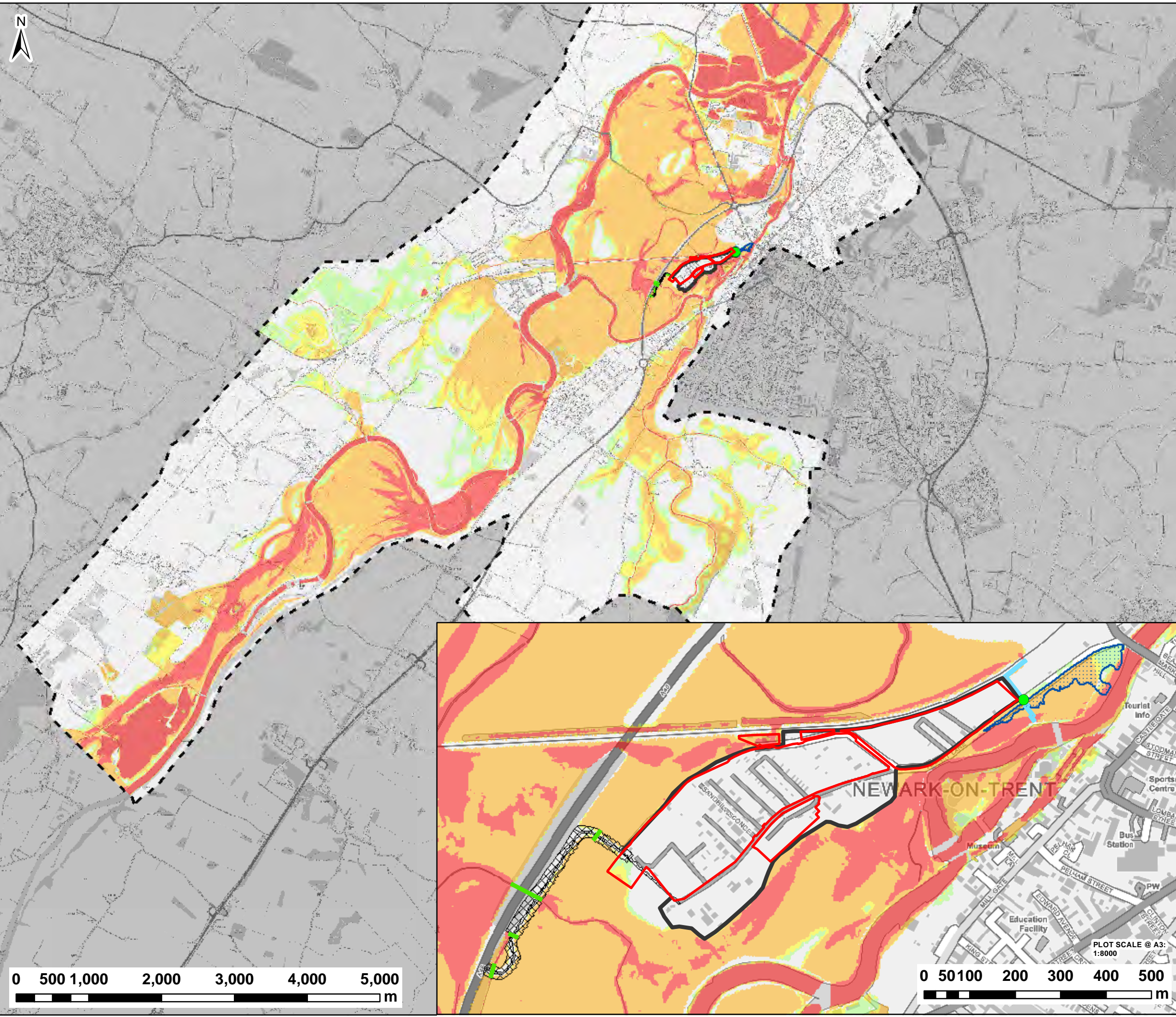
PLOT NAME:

w3375-Q1000_OPT3_NFC_V

REV:

-

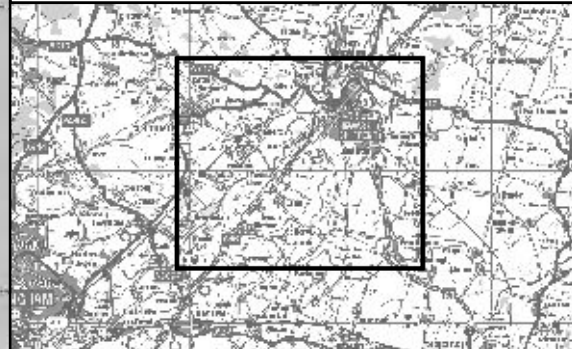




NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



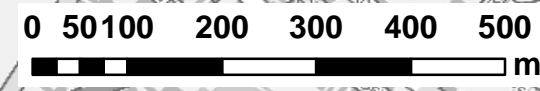
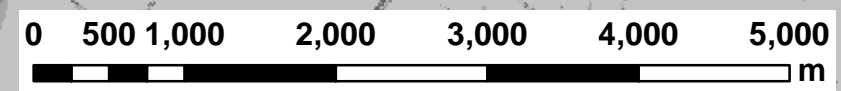
SCHEME:
**TOLNEY LANE,
NEWARK**

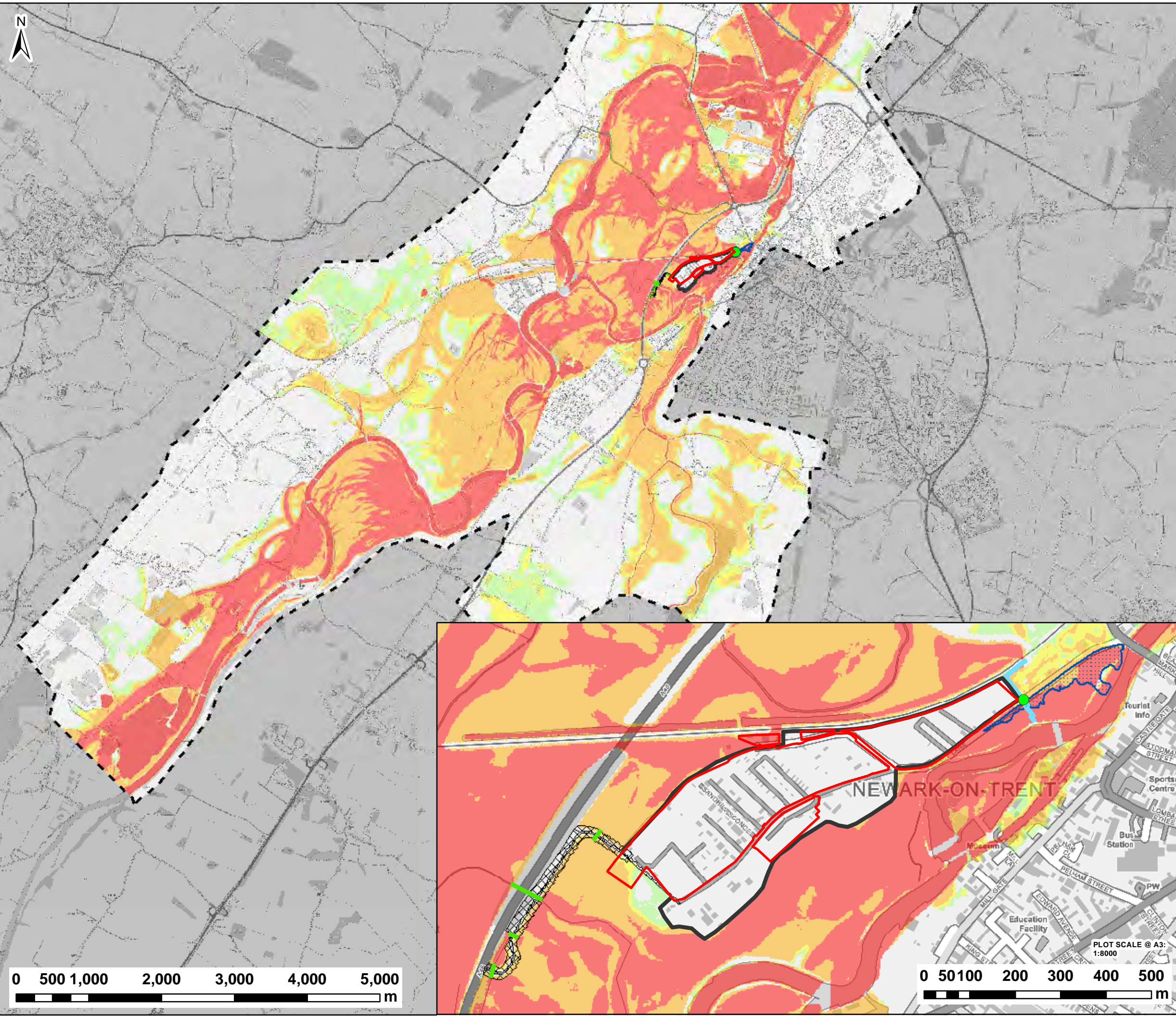
PLOT TITLE:
**FLOOD HAZARD RATING
5% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q20_OPT3_NFC_HZ REV: -

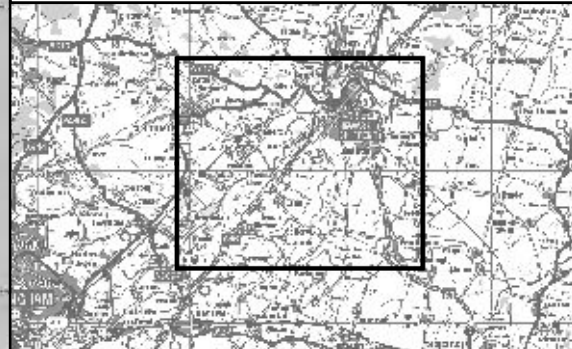




NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- <math>< 0.75</math> (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



CLIENT:




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SCHEME:

**TOLNEY LANE,
NEWARK**

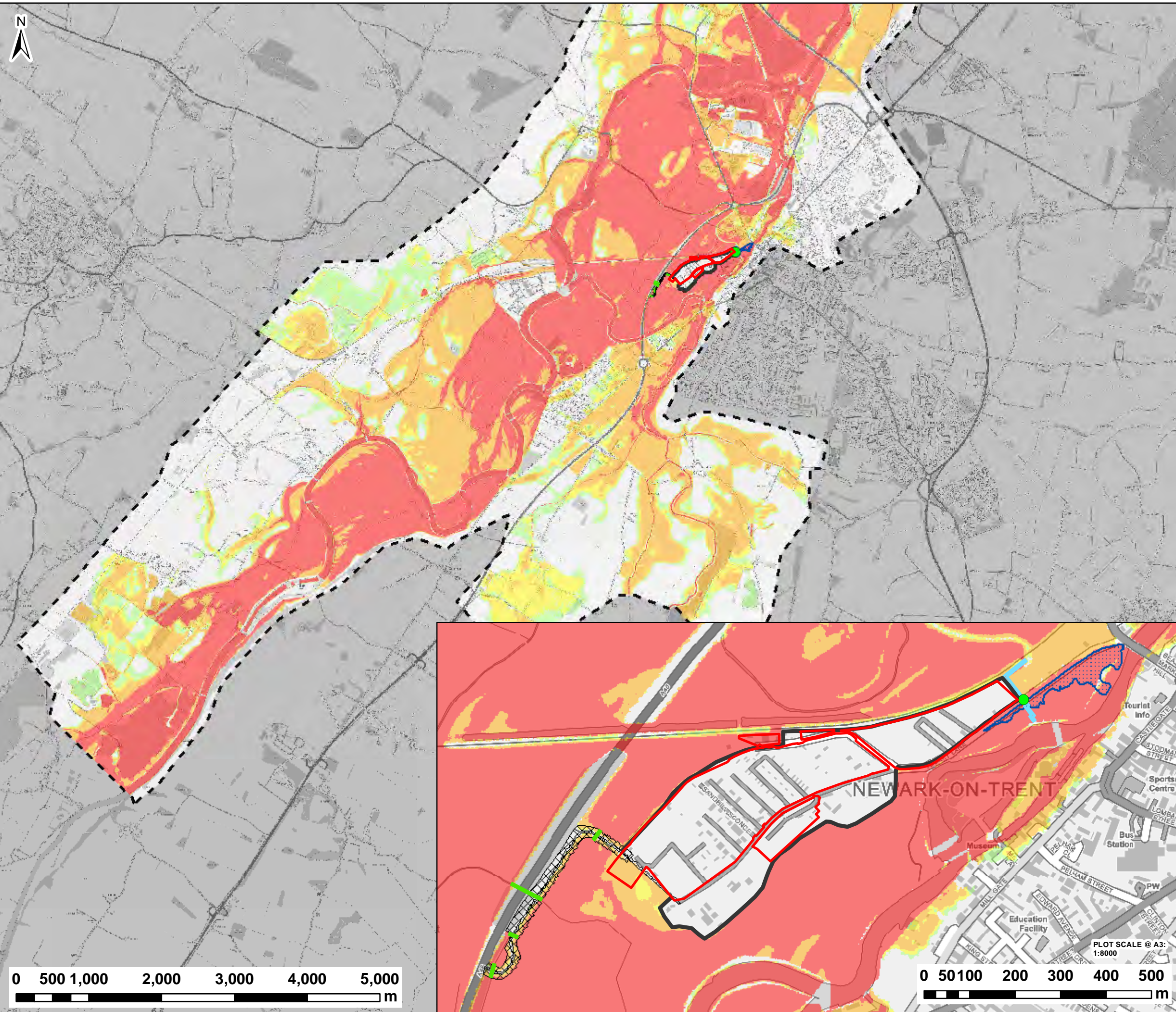
PLOT TITLE:

**FLOOD HAZARD RATING
1% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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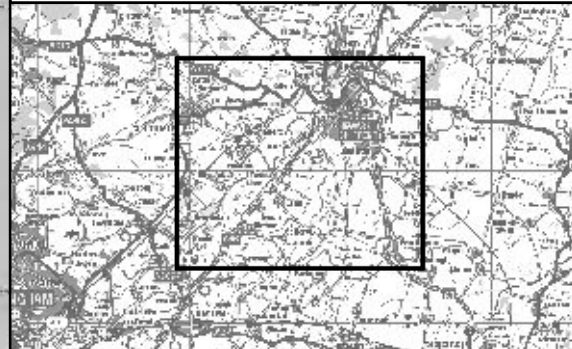
PLOT NAME: w3375-Q100_OPT3_NFC_HZ REV: -



NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



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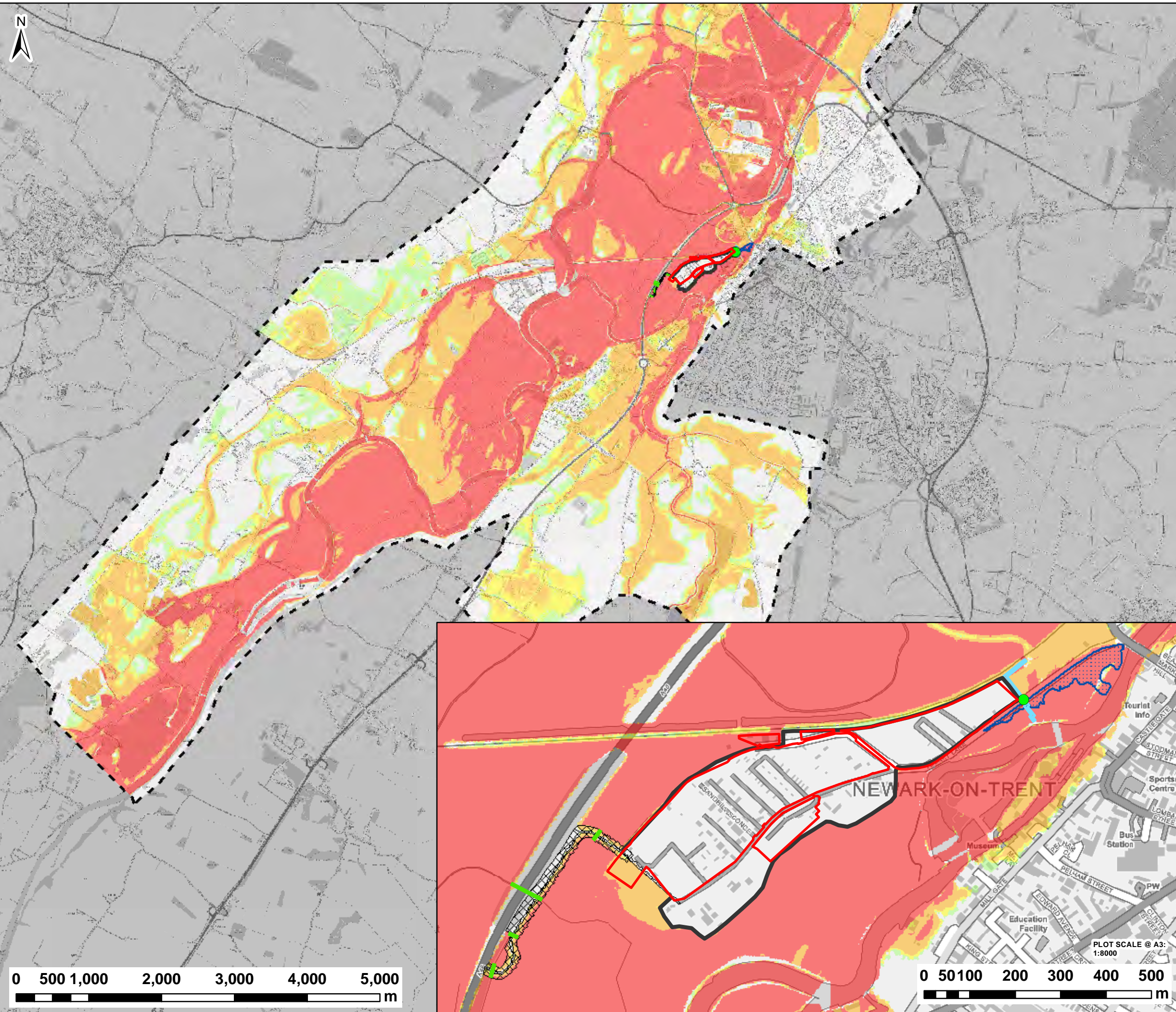
SCHEME:
TOLNEY LANE, NEWARK

PLOT TITLE:
**FLOOD HAZARD RATING
1% AEP (+30%CC) FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

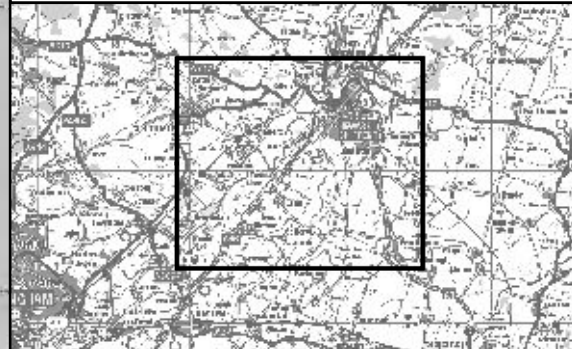
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 <small>(UNLESS STATED OTHERWISE)</small>
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PLOT NAME: w3375-Q100CC1_OPT3_NFC_HZ REV: -



NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

- LEGEND**
- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



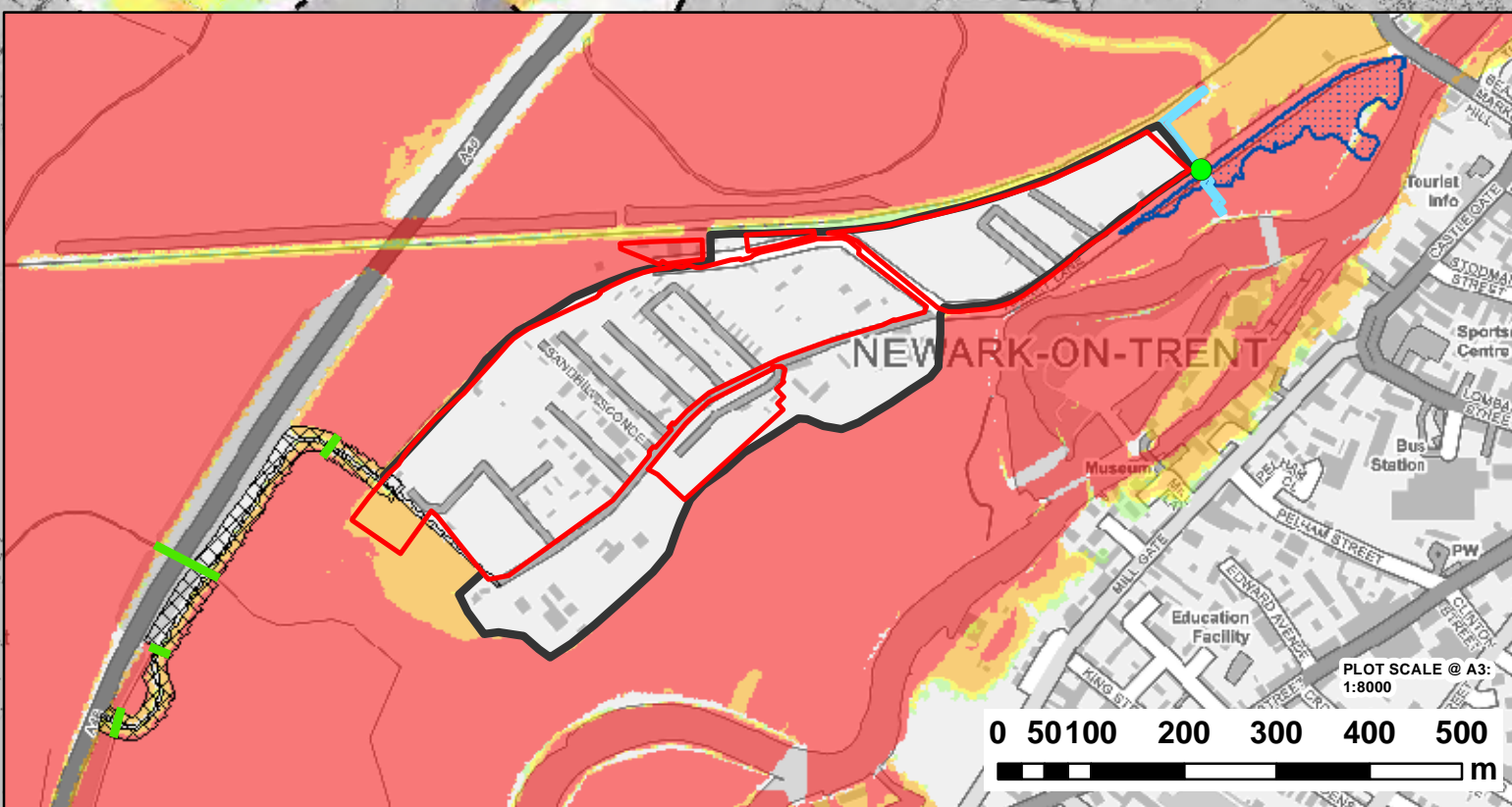
SCHEME:
TOLNEY LANE, NEWARK

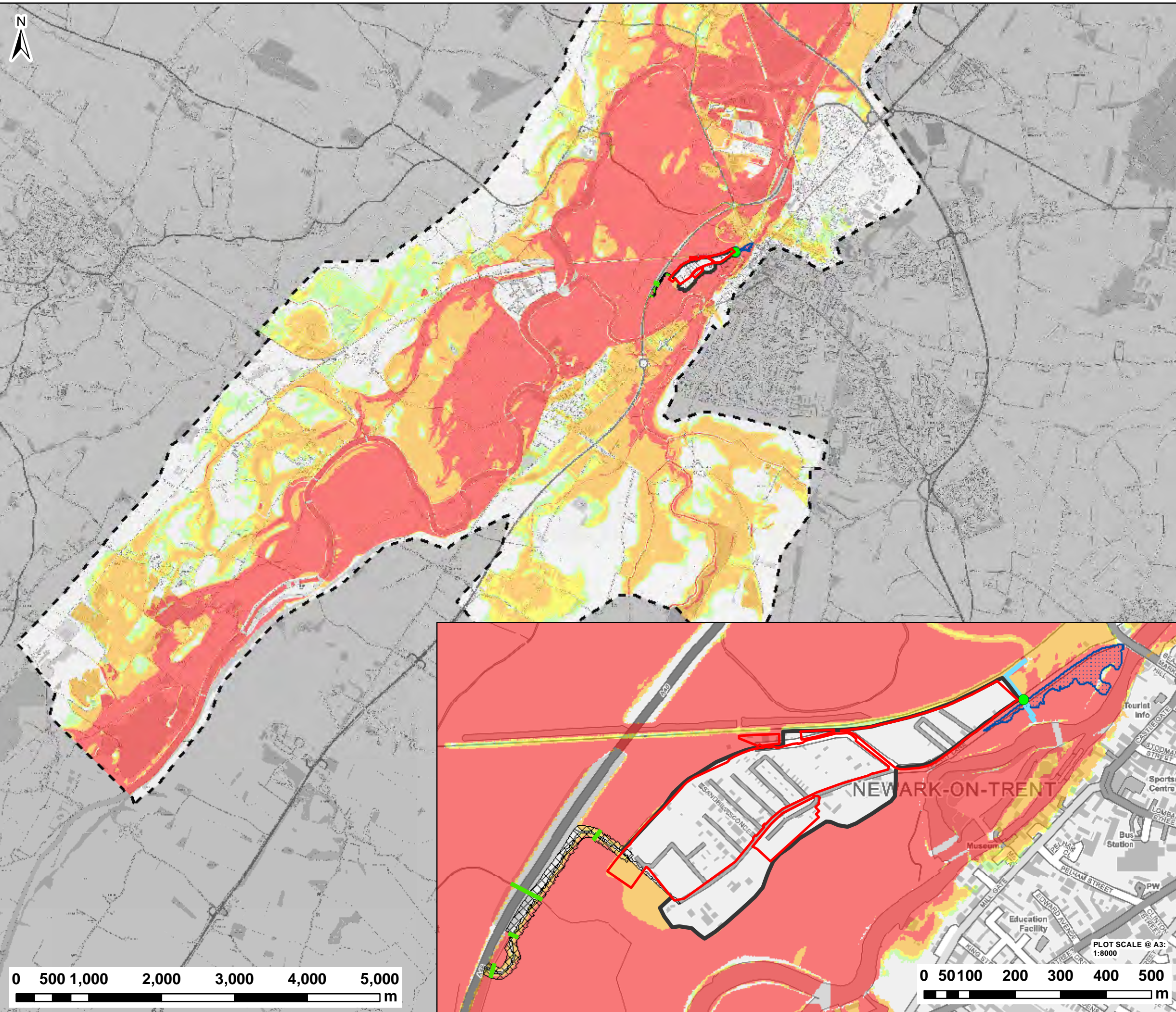
PLOT TITLE:
**FLOOD HAZARD RATING
1% AEP (+50%CC) FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS: **FINAL** DATE: 25/04/2019

DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:50,000 (UNLESS STATED OTHERWISE)
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PLOT NAME: w3375-Q100CC2_OPT3_NFC_HZ REV: -

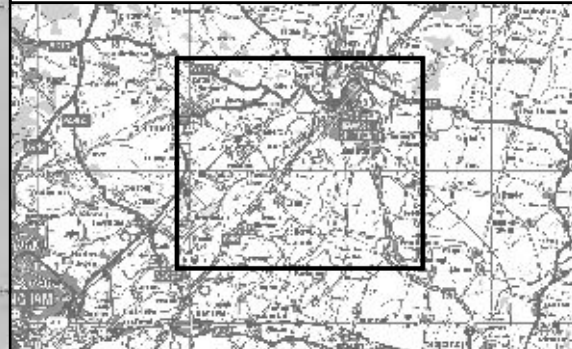




NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Location
 - 2D Model Extent
 - Proposed Flood Relief Culvert
 - Proposed Culverts
 - Proposed Flood Defence Wall
 - Proposed Flood Relief Channel
 - Proposed Flood Relief Area
 - Proposed Highway Land Raising
- Maximum Flood Hazard Rating (FD2320)**
- < 0.75 (Caution)
 - 0.75 - 1.25 (Danger for Some)
 - 1.25 - 2 (Danger for Most)
 - > 2.0 (Danger for All)



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SCHEME:

**TOLNEY LANE,
NEWARK**

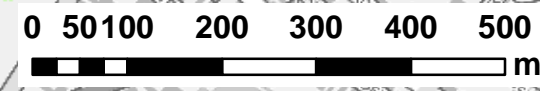
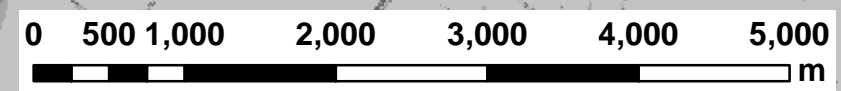
PLOT TITLE:

**FLOOD HAZARD RATING
0.1% AEP FLUVIAL EVENT
OPTION 3
NORMAL FLOW CONDITIONS**

PLOT STATUS:		DATE:	
FINAL		25/04/2019	

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	RC	LS	1:50,000 (UNLESS STATED OTHERWISE)

PLOT NAME:	REV:
w3375-Q1000_OPT3_NFC_HZ	-



Appendix G Tabulated 1D Model Results Data

Hydraulic Model Results - Tolney Lane, Newark

1D FMP Model Results - Maximum Water Levels (mAOD)

Normal Flow Condition Simulations

Date: 25-04-2019
 Model Type: FMP-TUFLOW
 FMP Build: 4.4
 TUFLOW Build: 2018-03-AC

Normal Flow Condition Simulations - NFC	Event	ETM
Q100 EXG	0% AEP (1 in 100)	
Q100C EXG	1% AEP + 20% Climate Change (CC)	Existing Site Layout (EXG)
Q100C2 EXG	1% AEP + 20% Climate Change (CC)	
Q100C3 EXG	1% AEP + 20% Climate Change (CC)	
Q100 EXG	0% AEP (1 in 100)	

Normal Flow Condition Simulations - NFC	Event	ETM
Q100 OPT1	0% AEP (1 in 100)	
Q100C OPT1	1% AEP + 20% Climate Change (CC)	Proposed FAS Option 1 (OPT1)
Q100C2 OPT1	1% AEP + 20% Climate Change (CC)	
Q100C3 OPT1	1% AEP + 20% Climate Change (CC)	
Q100 OPT1	0% AEP (1 in 100)	

Notes:
 1) Q100 model has 016, 021
 EXG = Existing site layout
 OPT1 = Proposed Option 1
 Nodes adjacent to site are highlighted in yellow

Node Label	Node Features	NORMAL FLOW CONDITIONS (NFC) - EXG SCENARIO				
		Q100 EXG (0% AEP)	Q100C EXG (1% AEP)	Q100C2 EXG (1% AEP)	Q100C3 EXG (1% AEP)	Q100 EXG (0% AEP)
40355620	River Trent inflow location	16.174	16.416	16.711	16.991	16.991
40355621		16.174	16.416	16.711	16.991	16.991
40355622		16.174	16.416	16.711	16.991	16.991
40355630		16.132	16.393	16.673	16.912	16.912
40355631		16.132	16.393	16.673	16.912	16.912
40355632		16.132	16.393	16.673	16.912	16.912
40355640		16.084	16.387	16.658	16.905	16.905
40355641		16.084	16.387	16.658	16.905	16.905
40355642		16.084	16.387	16.658	16.905	16.905
40355650		16.036	16.381	16.652	16.899	16.899
40355651		16.036	16.381	16.652	16.899	16.899
40355652		16.036	16.381	16.652	16.899	16.899
40355660		15.988	16.375	16.646	16.893	16.893
40355661		15.988	16.375	16.646	16.893	16.893
40355662		15.988	16.375	16.646	16.893	16.893
40355670		15.940	16.369	16.640	16.887	16.887
40355671		15.940	16.369	16.640	16.887	16.887
40355672		15.940	16.369	16.640	16.887	16.887
40355680		15.892	16.363	16.634	16.881	16.881
40355681		15.892	16.363	16.634	16.881	16.881
40355682		15.892	16.363	16.634	16.881	16.881
40355690		15.844	16.357	16.628	16.875	16.875
40355691		15.844	16.357	16.628	16.875	16.875
40355692		15.844	16.357	16.628	16.875	16.875
40355700		15.796	16.351	16.622	16.869	16.869
40355701		15.796	16.351	16.622	16.869	16.869
40355702		15.796	16.351	16.622	16.869	16.869
40355710		15.748	16.345	16.616	16.863	16.863
40355711		15.748	16.345	16.616	16.863	16.863
40355712		15.748	16.345	16.616	16.863	16.863
40355720		15.700	16.339	16.610	16.857	16.857
40355721		15.700	16.339	16.610	16.857	16.857
40355722		15.700	16.339	16.610	16.857	16.857
40355730		15.652	16.333	16.604	16.851	16.851
40355731		15.652	16.333	16.604	16.851	16.851
40355732		15.652	16.333	16.604	16.851	16.851
40355740		15.604	16.327	16.598	16.845	16.845
40355741		15.604	16.327	16.598	16.845	16.845
40355742		15.604	16.327	16.598	16.845	16.845
40355750		15.556	16.321	16.592	16.839	16.839
40355751		15.556	16.321	16.592	16.839	16.839
40355752		15.556	16.321	16.592	16.839	16.839
40355760		15.508	16.315	16.586	16.833	16.833
40355761		15.508	16.315	16.586	16.833	16.833
40355762		15.508	16.315	16.586	16.833	16.833
40355770		15.460	16.309	16.580	16.827	16.827
40355771		15.460	16.309	16.580	16.827	16.827
40355772		15.460	16.309	16.580	16.827	16.827
40355780		15.412	16.303	16.574	16.821	16.821
40355781		15.412	16.303	16.574	16.821	16.821
40355782		15.412	16.303	16.574	16.821	16.821
40355790		15.364	16.297	16.568	16.815	16.815
40355791		15.364	16.297	16.568	16.815	16.815
40355792		15.364	16.297	16.568	16.815	16.815
40355800		15.316	16.291	16.562	16.809	16.809
40355801		15.316	16.291	16.562	16.809	16.809
40355802		15.316	16.291	16.562	16.809	16.809
40355810		15.268	16.285	16.556	16.803	16.803
40355811		15.268	16.285	16.556	16.803	16.803
40355812		15.268	16.285	16.556	16.803	16.803
40355820		15.220	16.279	16.550	16.797	16.797
40355821		15.220	16.279	16.550	16.797	16.797
40355822		15.220	16.279	16.550	16.797	16.797
40355830		15.172	16.273	16.544	16.791	16.791
40355831		15.172	16.273	16.544	16.791	16.791
40355832		15.172	16.273	16.544	16.791	16.791
40355840		15.124	16.267	16.538	16.785	16.785
40355841		15.124	16.267	16.538	16.785	16.785
40355842		15.124	16.267	16.538	16.785	16.785
40355850		15.076	16.261	16.532	16.779	16.779
40355851		15.076	16.261	16.532	16.779	16.779
40355852		15.076	16.261	16.532	16.779	16.779
40355860		15.028	16.255	16.526	16.773	16.773
40355861		15.028	16.255	16.526	16.773	16.773
40355862		15.028	16.255	16.526	16.773	16.773
40355870		14.980	16.249	16.520	16.767	16.767
40355871		14.980	16.249	16.520	16.767	16.767
40355872		14.980	16.249	16.520	16.767	16.767
40355880		14.932	16.243	16.514	16.761	16.761
40355881		14.932	16.243	16.514	16.761	16.761
40355882		14.932	16.243	16.514	16.761	16.761
40355890		14.884	16.237	16.508	16.755	16.755
40355891		14.884	16.237	16.508	16.755	16.755
40355892		14.884	16.237	16.508	16.755	16.755
40355900		14.836	16.231	16.502	16.749	16.749
40355901		14.836	16.231	16.502	16.749	16.749
40355902		14.836	16.231	16.502	16.749	16.749
40355910		14.788	16.225	16.496	16.743	16.743
40355911		14.788	16.225	16.496	16.743	16.743
40355912		14.788	16.225	16.496	16.743	16.743
40355920		14.740	16.219	16.490	16.737	16.737
40355921		14.740	16.219	16.490	16.737	16.737
40355922		14.740	16.219	16.490	16.737	16.737
40355930		14.692	16.213	16.484	16.731	16.731
40355931		14.692	16.213	16.484	16.731	16.731
40355932		14.692	16.213	16.484	16.731	16.731
40355940		14.644	16.207	16.478	16.725	16.725
40355941		14.644	16.207	16.478	16.725	16.725
40355942		14.644	16.207	16.478	16.725	16.725
40355950		14.596	16.201	16.472	16.719	16.719
40355951		14.596	16.201	16.472	16.719	16.719
40355952		14.596	16.201	16.472	16.719	16.719
40355960		14.548	16.195	16.466	16.713	16.713
40355961		14.548	16.195	16.466	16.713	16.713
40355962		14.548	16.195	16.466	16.713	16.713
40355970		14.500	16.189	16.460	16.707	16.707
40355971		14.500	16.189	16.460	16.707	16.707
40355972		14.500	16.189	16.460	16.707	16.707
40355980		14.452	16.183	16.454	16.701	16.701
40355981		14.452	16.183	16.454	16.701	16.701
40355982		14.452	16.183	16.454	16.701	16.701
40355990		14.404	16.177	16.448	16.695	16.695
40355991		14.404	16.177	16.448	16.695	16.695
40355992		14.404	16.177	16.448	16.695	16.695
40356000		14.356	16.171	16.442	16.689	16.689
40356001		14.356	16.171	16.442	16.689	16.689
40356002		14.356	16.171	16.442	16.689	16.689
40356010		14.308	16.165	16.436	16.683	16.683
40356011		14.308	16.165	16.436	16.683	16.683
40356012		14.308	16.165	16.436	16.683	16.683
40356020		14.260	16.159	16.430	16.677	16.677
40356021		14.260	16.159	16.430	16.677	16.677
40356022		14.260	16.159	16.430	16.677	16.677
40356030		14.212	16.153	16.424	16.671	16.671
40356031		14.212	16.153	16.424	16.671	16.671
40356032		14.212	16.153	16.424	16.671	16.671
40356040		14.164	16.147	16.418	16.665	16.665
40356041		14.164	16.147	16.418	16.665	16.665
40356042		14.164	16.147	16.418	16.665	16.665
40356050		14.116	16.141	16.412	16.659	16.659
40356051		14.116	16.141	16.412	16.659	16.659
40356052		14.116	16.141	16.412	16.659	16.659
40356060		14.068	16.135	16.406	16.653	16.653
40356061		14.068	16.135	16.406	16.653	16.653
40356062		14.068	16.135	16.406	16.653	16.653
40356070		14.020	16.129	16.400	16.647	16.647
40356071		14.020	16.129	16.400	16.647	16.647
40356072		14.020	16.129	16.400	16.647	16.647
40356080		13.972	16.123	16.394	16.641	16.641
40356081		13.972	16.123	16.394	16.641	16.641
40356082		13.972	16.123	16.394	16.641	16.641
40356090		13.924	16.117	16.388	16.635	16.635
40356091		13.924	16.117	16.388	16.635	16.635
40356092		13.924	16.117	16.388	16.635	16.635
40356100		13.876	16.111	16.382	16.629	16.629
40356101		13.876	16.111	16.382	16.629	16.

Hydraulic Model Results - Tolney Lane, Newark



1D FMP Model Results - Maximum Water Levels (mAOD)

Normal Flow Condition Simulations

Date: 25-04-2019
 Model Type: FMP-TUFLOW
 FMP Build: 4.4
 TUFLOW Build: 2018-03-AC

Scenario	Event	DTM
Q100 EXG	0% AEP (1 in 20)	
Q100 EXG	1% AEP (1 in 100)	
Q100C1 EXG	1% AEP + 20% Climate Change (CC1)	Existing Site Layout (EXG)
Q100C2 EXG	1% AEP + 20% Climate Change (CC2)	
Q100C3 EXG	0% AEP (1 in 1000)	

Scenario	Event	DTM
Q100 OPT1	0% AEP (1 in 20)	
Q100 OPT1	1% AEP (1 in 100)	
Q100C1 OPT1	1% AEP + 20% Climate Change (CC1)	Proposed FAS Option 1 (OPT1)
Q100C2 OPT1	1% AEP + 20% Climate Change (CC2)	
Q100C3 OPT1	0% AEP (1 in 1000)	

Notes:
 [CC1] - 20% climate change
 [CC2] - 20% climate change
 [CC3] - 20% climate change
 [EXG] - Existing site layout
 [OPT1] - Proposed FAS Option 1
 Nodes adjacent to site are highlighted in yellow

Node Label	Node Features	NORMAL FLOW CONDITIONS (MFC) - EXG SCENARIO				
		Q100 (mAO)	Q100C1 (mAO)	Q100C2 (mAO)	Q100C3 (mAO)	Q100 OPT1 (mAO)
RD175		13.364	13.418	13.467	13.491	13.523
RD176		13.354	13.408	13.457	13.481	13.513
RD177		13.344	13.398	13.447	13.471	13.503
RD178		13.334	13.388	13.437	13.461	13.493
RD179		13.324	13.378	13.427	13.451	13.483
RD180		13.314	13.368	13.417	13.441	13.473
RD181		13.304	13.358	13.407	13.431	13.463
RD182		13.294	13.348	13.397	13.421	13.453
RD183		13.284	13.338	13.387	13.411	13.443
RD184		13.274	13.328	13.377	13.401	13.433
RD185		13.264	13.318	13.367	13.391	13.423
RD186		13.254	13.308	13.357	13.381	13.413
RD187		13.244	13.298	13.347	13.371	13.403
RD188		13.234	13.288	13.337	13.361	13.393
RD189		13.224	13.278	13.327	13.351	13.383
RD190		13.214	13.268	13.317	13.341	13.373
RD191		13.204	13.258	13.307	13.331	13.363
RD192		13.194	13.248	13.297	13.321	13.353
RD193		13.184	13.238	13.287	13.311	13.343
RD194		13.174	13.228	13.277	13.301	13.333
RD195		13.164	13.218	13.267	13.291	13.323
RD196		13.154	13.208	13.257	13.281	13.313
RD197		13.144	13.198	13.247	13.271	13.303
RD198		13.134	13.188	13.237	13.261	13.293
RD199		13.124	13.178	13.227	13.251	13.283
RD200		13.114	13.168	13.217	13.241	13.273
RD201		13.104	13.158	13.207	13.231	13.263
RD202		13.094	13.148	13.197	13.221	13.253
RD203		13.084	13.138	13.187	13.211	13.243
RD204		13.074	13.128	13.177	13.201	13.233
RD205		13.064	13.118	13.167	13.191	13.223
RD206		13.054	13.108	13.157	13.181	13.213
RD207		13.044	13.098	13.147	13.171	13.203
RD208		13.034	13.088	13.137	13.161	13.193
RD209		13.024	13.078	13.127	13.151	13.183
RD210		13.014	13.068	13.117	13.141	13.173
RD211		13.004	13.058	13.107	13.131	13.163
RD212		12.994	13.048	13.097	13.121	13.153
RD213		12.984	13.038	13.087	13.111	13.143
RD214		12.974	13.028	13.077	13.101	13.133
RD215		12.964	13.018	13.067	13.091	13.123
RD216		12.954	13.008	13.057	13.081	13.113
RD217		12.944	12.998	13.047	13.071	13.103
RD218		12.934	12.988	13.037	13.061	13.093
RD219		12.924	12.978	13.027	13.051	13.083
RD220		12.914	12.968	13.017	13.041	13.073
RD221		12.904	12.958	13.007	13.031	13.063
RD222		12.894	12.948	12.997	13.021	13.053
RD223		12.884	12.938	12.987	13.011	13.043
RD224		12.874	12.928	12.977	13.001	13.033
RD225		12.864	12.918	12.967	12.991	13.023
RD226		12.854	12.908	12.957	12.981	13.013
RD227		12.844	12.898	12.947	12.971	13.003
RD228		12.834	12.888	12.937	12.961	12.993
RD229		12.824	12.878	12.927	12.951	12.983
RD230		12.814	12.868	12.917	12.941	12.973
RD231		12.804	12.858	12.907	12.931	12.963
RD232		12.794	12.848	12.897	12.921	12.953
RD233		12.784	12.838	12.887	12.911	12.943
RD234		12.774	12.828	12.877	12.901	12.933
RD235		12.764	12.818	12.867	12.891	12.923
RD236		12.754	12.808	12.857	12.881	12.913
RD237		12.744	12.798	12.847	12.871	12.903
RD238		12.734	12.788	12.837	12.861	12.893
RD239		12.724	12.778	12.827	12.851	12.883
RD240		12.714	12.768	12.817	12.841	12.873
RD241		12.704	12.758	12.807	12.831	12.863
RD242		12.694	12.748	12.797	12.821	12.853
RD243		12.684	12.738	12.787	12.811	12.843
RD244		12.674	12.728	12.777	12.801	12.833
RD245		12.664	12.718	12.767	12.791	12.823
RD246		12.654	12.708	12.757	12.781	12.813
RD247		12.644	12.698	12.747	12.771	12.803
RD248		12.634	12.688	12.737	12.761	12.793
RD249		12.624	12.678	12.727	12.751	12.783
RD250		12.614	12.668	12.717	12.741	12.773
RD251		12.604	12.658	12.707	12.731	12.763
RD252		12.594	12.648	12.697	12.721	12.753
RD253		12.584	12.638	12.687	12.711	12.743
RD254		12.574	12.628	12.677	12.701	12.733
RD255		12.564	12.618	12.667	12.691	12.723
RD256		12.554	12.608	12.657	12.681	12.713
RD257		12.544	12.598	12.647	12.671	12.703
RD258		12.534	12.588	12.637	12.661	12.693
RD259		12.524	12.578	12.627	12.651	12.683
RD260		12.514	12.568	12.617	12.641	12.673
RD261		12.504	12.558	12.607	12.631	12.663
RD262		12.494	12.548	12.597	12.621	12.653
RD263		12.484	12.538	12.587	12.611	12.643
RD264		12.474	12.528	12.577	12.601	12.633
RD265		12.464	12.518	12.567	12.591	12.623
RD266		12.454	12.508	12.557	12.581	12.613
RD267		12.444	12.498	12.547	12.571	12.603
RD268		12.434	12.488	12.537	12.561	12.593
RD269		12.424	12.478	12.527	12.551	12.583
RD270		12.414	12.468	12.517	12.541	12.573
RD271		12.404	12.458	12.507	12.531	12.563
RD272		12.394	12.448	12.497	12.521	12.553
RD273		12.384	12.438	12.487	12.511	12.543
RD274		12.374	12.428	12.477	12.501	12.533
RD275		12.364	12.418	12.467	12.491	12.523
RD276		12.354	12.408	12.457	12.481	12.513
RD277		12.344	12.398	12.447	12.471	12.503
RD278		12.334	12.388	12.437	12.461	12.493
RD279		12.324	12.378	12.427	12.451	12.483
RD280		12.314	12.368	12.417	12.441	12.473
RD281		12.304	12.358	12.407	12.431	12.463
RD282		12.294	12.348	12.397	12.421	12.453
RD283		12.284	12.338	12.387	12.411	12.443
RD284		12.274	12.328	12.377	12.401	12.433
RD285		12.264	12.318	12.367	12.391	12.423
RD286		12.254	12.308	12.357	12.381	12.413
RD287		12.244	12.298	12.347	12.371	12.403
RD288		12.234	12.288	12.337	12.361	12.393
RD289		12.224	12.278	12.327	12.351	12.383
RD290		12.214	12.268	12.317	12.341	12.373
RD291		12.204	12.258	12.307	12.331	12.363
RD292		12.194	12.248	12.297	12.321	12.353
RD293		12.184	12.238	12.287	12.311	12.343
RD294		12.174	12.228	12.277	12.301	12.333
RD295		12.164	12.218	12.267	12.291	12.323
RD296		12.154	12.208	12.257	12.281	12.313
RD297		12.144	12.198	12.247	12.271	12.303
RD298		12.134	12.188	12.237	12.261	12.293
RD299		12.124	12.178	12.227	12.251	12.283
RD300		12.114	12.168	12.217	12.241	12.273
RD301		12.104	12.158	12.207	12.231	12.263
RD302		12.094	12.148	12.197	12.221	12.253
RD303		12.084	12.138	12.187	12.211	12.243
RD304		12.074	12.128	12.177	12.201	12.233
RD305		12.064	12.118	12.167	12.191	12.223
RD306		12.054	12.108	12.157	12.181	12.213
RD307		12.044	12.098	12.147	12.171	12.203
RD308		12.034	12.088	12.137	12.161	12.193
RD309		12.024	12.078	12.127	12.151	12.183
RD310		12.014	12.068	12.117	12.141	12.173
RD311		12.004	12.058	12.107	12.131	12.163
RD312		11.994	12.048	12.097	12.121	12.153
RD313		11.984	12.038	12.087	12.111	12.143
RD314		11.974	12.028	12.077	12.101	12.133
RD315		11.964	12.018	12.067	12.091	12.123
RD316		11.954	12.008	12.057	12.081	12.113
RD317		11.944	11.998	12.047	12.071	12.103
RD318		11.934	11.988	12.037	12.061	12.093
RD319		11.924	11.978	12.027	12.051	12.083
RD320		11.914	11.968	12.017	12.041	12.073
RD321		11.904	11.958	12.007	12.031	12.063
RD322		11.894	11.948	11.997	12.021	12.053
RD323		11.884	11.938	11.987	12.011	12.043
RD324		11.874	11.928	11.977	12.001	12.033
RD325		11.864	11.918	11.967	11.991	12.023
RD326		11.854	11.908	11.957	11.981	12.013
RD327		11.844	11.898	11.947	11.971	12.003
RD328		11.834	11.888			

Hydraulic Model Results - Tolney Lane, Newark

1D FMP Model Results - Maximum Water Levels (mAO)D

Normal Flow Condition Simulations

Date: 25-04-2019
 Model Type: FMP-TUFLOW
 FMP Build: 4.4
 TUFLOW Build: 2018-03-AC

Normal Flow Condition Simulations - NFC	Event	ETM
Q100 EXG	0% AEP (1 in 10)	
Q100 EXG	1% AEP (1 in 100)	
Q100CC1 EXG	1% AEP + 20% Climate Change (CC1)	Existing Site Layout (EXG)
Q100CC2 EXG	1% AEP + 20% Climate Change (CC2)	
Q100 EXG	0% AEP (1 in 1000)	

Normal Flow Condition Simulations - NFC	Event	ETM
Q100 OPT2	0% AEP (1 in 20)	
Q100CC1 OPT2	1% AEP (1 in 100)	
Q100CC2 OPT2	1% AEP + 20% Climate Change (CC1)	Proposed FAS Option 2 (OPT2)
Q100CC3 OPT2	1% AEP + 20% Climate Change (CC3)	
Q100 EXG	0% AEP (1 in 1000)	

Notes:
 1) Q100 model has 016, 021
 EXG = Existing site layout
 OPT2 = Proposed FAS Option 2
 Nodes adjacent to site are highlighted in yellow

Node Label	Node Features	NORMAL FLOW CONDITIONS (NFC) - EXG SCENARIO				
		Q100 EXG (0% AEP)	Q100 EXG (1% AEP)	Q100CC1 EXG (1% AEP + 20% CC)	Q100CC2 EXG (1% AEP + 20% CC)	Q100 EXG (0% AEP)
40355620	River Trent inflow location	16.174	16.416	16.711	16.991	16.991
40355621		16.243	16.485	16.780	17.060	17.060
40355622		16.185	16.427	16.722	17.002	17.002
40355623		16.130	16.372	16.667	16.947	16.947
40355624		16.075	16.317	16.612	16.892	16.892
40355625		16.020	16.262	16.557	16.837	16.837
40355626		15.965	16.207	16.502	16.782	16.782
40355627		15.910	16.152	16.447	16.727	16.727
40355628		15.855	16.097	16.392	16.672	16.672
40355629		15.800	16.042	16.337	16.617	16.617
40355630		15.745	15.987	16.282	16.562	16.562
40355631		15.690	15.932	16.227	16.507	16.507
40355632		15.635	15.877	16.172	16.452	16.452
40355633		15.580	15.822	16.117	16.397	16.397
40355634		15.525	15.767	16.062	16.342	16.342
40355635		15.470	15.712	16.007	16.287	16.287
40355636		15.415	15.657	15.952	16.232	16.232
40355637		15.360	15.602	15.897	16.177	16.177
40355638		15.305	15.547	15.842	16.122	16.122
40355639		15.250	15.492	15.787	16.067	16.067
40355640		15.195	15.437	15.732	16.012	16.012
40355641		15.140	15.382	15.677	15.957	15.957
40355642		15.085	15.327	15.622	15.902	15.902
40355643		15.030	15.272	15.567	15.847	15.847
40355644		14.975	15.217	15.512	15.792	15.792
40355645		14.920	15.162	15.457	15.737	15.737
40355646		14.865	15.107	15.402	15.682	15.682
40355647		14.810	15.052	15.347	15.627	15.627
40355648		14.755	14.997	15.292	15.572	15.572
40355649		14.700	14.942	15.237	15.517	15.517
40355650		14.645	14.887	15.182	15.462	15.462
40355651		14.590	14.832	15.127	15.407	15.407
40355652		14.535	14.777	15.072	15.352	15.352
40355653		14.480	14.722	15.017	15.297	15.297
40355654		14.425	14.667	14.962	15.242	15.242
40355655		14.370	14.612	14.907	15.187	15.187
40355656		14.315	14.557	14.852	15.132	15.132
40355657		14.260	14.502	14.797	15.077	15.077
40355658		14.205	14.447	14.742	15.022	15.022
40355659		14.150	14.392	14.687	14.967	14.967
40355660		14.095	14.337	14.632	14.912	14.912
40355661		14.040	14.282	14.577	14.857	14.857
40355662		13.985	14.227	14.522	14.802	14.802
40355663		13.930	14.172	14.467	14.747	14.747
40355664		13.875	14.117	14.412	14.692	14.692
40355665		13.820	14.062	14.357	14.637	14.637
40355666		13.765	14.007	14.302	14.582	14.582
40355667		13.710	13.952	14.247	14.527	14.527
40355668		13.655	13.897	14.192	14.472	14.472
40355669		13.600	13.842	14.137	14.417	14.417
40355670		13.545	13.787	14.082	14.362	14.362
40355671		13.490	13.732	14.027	14.307	14.307
40355672		13.435	13.677	13.972	14.252	14.252
40355673		13.380	13.622	13.917	14.197	14.197
40355674		13.325	13.567	13.862	14.142	14.142
40355675		13.270	13.512	13.807	14.087	14.087
40355676		13.215	13.457	13.752	14.032	14.032
40355677		13.160	13.402	13.697	13.977	13.977
40355678		13.105	13.347	13.642	13.922	13.922
40355679		13.050	13.292	13.587	13.867	13.867
40355680		12.995	13.237	13.532	13.812	13.812
40355681		12.940	13.182	13.477	13.757	13.757
40355682		12.885	13.127	13.422	13.702	13.702
40355683		12.830	13.072	13.367	13.647	13.647
40355684		12.775	13.017	13.312	13.592	13.592
40355685		12.720	12.962	13.257	13.537	13.537
40355686		12.665	12.907	13.202	13.482	13.482
40355687		12.610	12.852	13.147	13.427	13.427
40355688		12.555	12.797	13.092	13.372	13.372
40355689		12.500	12.742	13.037	13.317	13.317
40355690		12.445	12.687	12.982	13.262	13.262
40355691		12.390	12.632	12.927	13.207	13.207
40355692		12.335	12.577	12.872	13.152	13.152
40355693		12.280	12.522	12.817	13.097	13.097
40355694		12.225	12.467	12.762	13.042	13.042
40355695		12.170	12.412	12.707	12.987	12.987
40355696		12.115	12.357	12.652	12.932	12.932
40355697		12.060	12.302	12.597	12.877	12.877
40355698		12.005	12.247	12.542	12.822	12.822
40355699		11.950	12.192	12.487	12.767	12.767
40355700		11.895	12.137	12.432	12.712	12.712
40355701		11.840	12.082	12.377	12.657	12.657
40355702		11.785	12.027	12.322	12.602	12.602
40355703		11.730	11.972	12.267	12.547	12.547
40355704		11.675	11.917	12.212	12.492	12.492
40355705		11.620	11.862	12.157	12.437	12.437
40355706		11.565	11.807	12.102	12.382	12.382
40355707		11.510	11.752	12.047	12.327	12.327
40355708		11.455	11.697	11.992	12.272	12.272
40355709		11.400	11.642	11.937	12.217	12.217
40355710		11.345	11.587	11.882	12.162	12.162
40355711		11.290	11.532	11.827	12.107	12.107
40355712		11.235	11.477	11.772	12.052	12.052
40355713		11.180	11.422	11.717	11.997	11.997
40355714		11.125	11.367	11.662	11.942	11.942
40355715		11.070	11.312	11.607	11.887	11.887
40355716		11.015	11.257	11.552	11.832	11.832
40355717		10.960	11.202	11.497	11.777	11.777
40355718		10.905	11.147	11.442	11.722	11.722
40355719		10.850	11.092	11.387	11.667	11.667
40355720		10.795	11.037	11.332	11.612	11.612
40355721		10.740	10.982	11.277	11.557	11.557
40355722		10.685	10.927	11.222	11.502	11.502
40355723		10.630	10.872	11.167	11.447	11.447
40355724		10.575	10.817	11.112	11.392	11.392
40355725		10.520	10.762	11.057	11.337	11.337
40355726		10.465	10.707	11.002	11.282	11.282
40355727		10.410	10.652	10.947	11.227	11.227
40355728		10.355	10.597	10.892	11.172	11.172
40355729		10.300	10.542	10.837	11.117	11.117
40355730		10.245	10.487	10.782	11.062	11.062
40355731		10.190	10.432	10.727	11.007	11.007
40355732		10.135	10.377	10.672	10.952	10.952
40355733		10.080	10.322	10.617	10.897	10.897
40355734		10.025	10.267	10.562	10.842	10.842
40355735		9.970	10.212	10.507	10.787	10.787
40355736		9.915	10.157	10.452	10.732	10.732
40355737		9.860	10.102	10.397	10.677	10.677
40355738		9.805	10.047	10.342	10.622	10.622
40355739		9.750	9.992	10.287	10.567	10.567
40355740		9.695	9.937	10.232	10.512	10.512
40355741		9.640	9.882	10.177	10.457	10.457
40355742		9.585	9.827	10.122	10.402	10.402
40355743		9.530	9.772	10.067	10.347	10.347
40355744		9.475	9.717	10.012	10.292	10.292
40355745		9.420	9.662	9.957	10.237	10.237
40355746		9.365	9.607	9.902	10.182	10.182
40355747		9.310	9.552	9.847	10.127	10.127
40355748		9.255	9.497	9.792	10.072	10.072
40355749		9.200	9.442	9.737	10.017	10.017
40355750		9.145	9.387	9.682	9.962	9.962
40355751		9.090	9.332	9.627	9.907	9.907
40355752		9.035	9.277	9.572	9.852	9.852
40355753		8.980	9.222	9.517	9.797	9.797
40355754		8.925	9.167	9.462	9.742	9.742
40355755		8.870	9.112	9.407	9.687	9.687
40355756		8.815	9.057	9.352	9.632	9.632
40355757		8.760	9.002	9.297	9.577	9.577
40355758		8.705	8.947	9.242	9.522	9.522
40355759		8.650	8.892	9.187	9.467	9.467
40355760		8.595	8.837	9.132	9.412	9.412
40355761		8.540	8.782	9.077	9.357	9.357
40355762		8.485	8.727	9.022	9.302	9.302
40355763		8.430	8.672	8.967	9.247	9.247
40355764		8.375	8.617	8.912	9.192	9.192
40355765		8.320	8.562	8.857	9.137	9.137
40355766		8.265	8.507	8.802	9.082	9.082
40355767		8				

Hydraulic Model Results - Tolney Lane, Newark



1D FMP Model Results - Maximum Water Levels (mAO)D

Normal Flow Condition Simulations

Date: 25-04-2019
 Model Type: FMP-TUFLOW
 FMP Build: 4.4
 TUFLOW Build: 2018-03-AC

Scenario	Event	DTM
Q00 EXG	0% AEP (1 in 20)	
Q100 EXG	1% AEP (1 in 100)	
Q100C1 EXG	1% AEP + 20% Climate Change (CC1)	Existing Site Layout (EXG)
Q100C2 EXG	1% AEP + 20% Climate Change (CC2)	
Q100C3 EXG	1% AEP + 20% Climate Change (CC3)	
Q1000 EXG	0.1% AEP (1 in 1000)	

Scenario	Event	DTM
Q00 OPT2	0% AEP (1 in 20)	
Q100 OPT2	1% AEP (1 in 100)	
Q100C1 OPT2	1% AEP + 20% Climate Change (CC1)	Proposed FAS Option 2 (OPT2)
Q100C2 OPT2	1% AEP + 20% Climate Change (CC2)	
Q100C3 OPT2	1% AEP + 20% Climate Change (CC3)	
Q1000 OPT2	0.1% AEP (1 in 1000)	

Notes:
 [CC] - Climate Change
 [EXG] - Existing site layout
 [OPT2] - Proposed FAS Option 2
 Nodes adjacent to site are highlighted in yellow

Node Label	Node Features	NORMAL FLOW CONDITIONS (MFC) - EXG SCENARIO				
		Q00 (mAO)	Q100 (mAO)	Q100C1 (mAO)	Q100C2 (mAO)	Q1000 (mAO)
RD0078		13.304	13.358	13.411	13.438	13.471
RD0079		13.327	13.381	13.434	13.461	13.494
RD0080		13.350	13.404	13.457	13.484	13.517
RD0081		13.373	13.427	13.480	13.507	13.540
RD0082		13.396	13.450	13.503	13.530	13.563
RD0083		13.419	13.473	13.526	13.553	13.586
RD0084		13.442	13.496	13.549	13.576	13.609
RD0085		13.465	13.519	13.572	13.599	13.632
RD0086		13.488	13.542	13.595	13.622	13.655
RD0087		13.511	13.565	13.618	13.645	13.678
RD0088		13.534	13.588	13.641	13.668	13.701
RD0089		13.557	13.611	13.664	13.691	13.724
RD0090		13.580	13.634	13.687	13.714	13.747
RD0091		13.603	13.657	13.710	13.737	13.770
RD0092		13.626	13.680	13.733	13.760	13.793
RD0093		13.649	13.703	13.756	13.783	13.816
RD0094		13.672	13.726	13.779	13.806	13.839
RD0095		13.695	13.749	13.802	13.829	13.862
RD0096		13.718	13.772	13.825	13.852	13.885
RD0097		13.741	13.795	13.848	13.875	13.908
RD0098		13.764	13.818	13.871	13.898	13.931
RD0099		13.787	13.841	13.894	13.921	13.954
RD0100		13.810	13.864	13.917	13.944	13.977
RD0101		13.833	13.887	13.940	13.967	14.000
RD0102		13.856	13.910	13.963	13.990	14.023
RD0103		13.879	13.933	13.986	14.013	14.046
RD0104		13.902	13.956	14.009	14.036	14.069
RD0105		13.925	13.979	14.032	14.059	14.092
RD0106		13.948	14.002	14.055	14.082	14.115
RD0107		13.971	14.025	14.078	14.105	14.138
RD0108		13.994	14.048	14.101	14.128	14.161
RD0109		14.017	14.071	14.124	14.151	14.184
RD0110		14.040	14.094	14.147	14.174	14.207
RD0111		14.063	14.117	14.170	14.197	14.230
RD0112		14.086	14.140	14.193	14.220	14.253
RD0113		14.109	14.163	14.216	14.243	14.276
RD0114		14.132	14.186	14.239	14.266	14.299
RD0115		14.155	14.209	14.262	14.289	14.322
RD0116		14.178	14.232	14.285	14.312	14.345
RD0117		14.201	14.255	14.308	14.335	14.368
RD0118		14.224	14.278	14.331	14.358	14.391
RD0119		14.247	14.301	14.354	14.381	14.414
RD0120		14.270	14.324	14.377	14.404	14.437
RD0121		14.293	14.347	14.400	14.427	14.460
RD0122		14.316	14.370	14.423	14.450	14.483
RD0123		14.339	14.393	14.446	14.473	14.506
RD0124		14.362	14.416	14.469	14.496	14.529
RD0125		14.385	14.439	14.492	14.519	14.552
RD0126		14.408	14.462	14.515	14.542	14.575
RD0127		14.431	14.485	14.538	14.565	14.598
RD0128		14.454	14.508	14.561	14.588	14.621
RD0129		14.477	14.531	14.584	14.611	14.644
RD0130		14.500	14.554	14.607	14.634	14.667
RD0131		14.523	14.577	14.630	14.657	14.690
RD0132		14.546	14.600	14.653	14.680	14.713
RD0133		14.569	14.623	14.676	14.703	14.736
RD0134		14.592	14.646	14.699	14.726	14.759
RD0135		14.615	14.669	14.722	14.749	14.782
RD0136		14.638	14.692	14.745	14.772	14.805
RD0137		14.661	14.715	14.768	14.795	14.828
RD0138		14.684	14.738	14.791	14.818	14.851
RD0139		14.707	14.761	14.814	14.841	14.874
RD0140		14.730	14.784	14.837	14.864	14.897
RD0141		14.753	14.807	14.860	14.887	14.920
RD0142		14.776	14.830	14.883	14.910	14.943
RD0143		14.799	14.853	14.906	14.933	14.966
RD0144		14.822	14.876	14.929	14.956	14.989
RD0145		14.845	14.899	14.952	14.979	15.012
RD0146		14.868	14.922	14.975	15.002	15.035
RD0147		14.891	14.945	15.008	15.035	15.068
RD0148		14.914	14.968	15.031	15.058	15.091
RD0149		14.937	14.991	15.054	15.081	15.114
RD0150		14.960	15.014	15.077	15.104	15.137
RD0151		14.983	15.037	15.100	15.127	15.160
RD0152		15.006	15.060	15.123	15.150	15.183
RD0153		15.029	15.083	15.146	15.173	15.206
RD0154		15.052	15.106	15.169	15.196	15.229
RD0155		15.075	15.129	15.192	15.219	15.252
RD0156		15.098	15.152	15.215	15.242	15.275
RD0157		15.121	15.175	15.238	15.265	15.298
RD0158		15.144	15.198	15.261	15.288	15.321
RD0159		15.167	15.222	15.284	15.311	15.344
RD0160		15.190	15.245	15.307	15.334	15.367
RD0161		15.213	15.268	15.330	15.357	15.390
RD0162		15.236	15.291	15.353	15.380	15.413
RD0163		15.259	15.314	15.376	15.403	15.436
RD0164		15.282	15.337	15.399	15.426	15.459
RD0165		15.305	15.360	15.422	15.449	15.482
RD0166		15.328	15.383	15.445	15.472	15.505
RD0167		15.351	15.406	15.468	15.495	15.528
RD0168		15.374	15.429	15.491	15.518	15.551
RD0169		15.397	15.452	15.514	15.541	15.574
RD0170		15.420	15.475	15.537	15.564	15.597
RD0171		15.443	15.498	15.560	15.587	15.620
RD0172		15.466	15.521	15.583	15.610	15.643
RD0173		15.489	15.544	15.606	15.633	15.666
RD0174		15.512	15.567	15.629	15.656	15.689
RD0175		15.535	15.590	15.652	15.679	15.712
RD0176		15.558	15.613	15.675	15.702	15.735
RD0177		15.581	15.636	15.698	15.725	15.758
RD0178		15.604	15.659	15.721	15.748	15.781
RD0179		15.627	15.682	15.744	15.771	15.804
RD0180		15.650	15.705	15.767	15.794	15.827
RD0181		15.673	15.728	15.790	15.817	15.850
RD0182		15.696	15.751	15.813	15.840	15.873
RD0183		15.719	15.774	15.836	15.863	15.896
RD0184		15.742	15.797	15.859	15.886	15.919
RD0185		15.765	15.820	15.882	15.909	15.942
RD0186		15.788	15.843	15.905	15.932	15.965
RD0187		15.811	15.866	15.928	15.955	15.988
RD0188		15.834	15.889	15.951	15.978	16.011
RD0189		15.857	15.912	15.974	16.001	16.034
RD0190		15.880	15.935	15.997	16.024	16.057
RD0191		15.903	15.958	16.020	16.047	16.080
RD0192		15.926	15.981	16.043	16.070	16.103
RD0193		15.949	16.004	16.066	16.093	16.126
RD0194		15.972	16.027	16.089	16.116	16.149
RD0195		15.995	16.050	16.112	16.139	16.172
RD0196		16.018	16.073	16.135	16.162	16.195
RD0197		16.041	16.096	16.158	16.185	16.218
RD0198		16.064	16.119	16.181	16.208	16.241
RD0199		16.087	16.142	16.204	16.231	16.264
RD0200		16.110	16.165	16.227	16.254	16.287
RD0201		16.133	16.188	16.250	16.277	16.310
RD0202		16.156	16.211	16.273	16.300	16.333
RD0203		16.179	16.234	16.296	16.323	16.356
RD0204		16.202	16.257	16.319	16.346	16.379
RD0205		16.225	16.280	16.342	16.369	16.402
RD0206		16.248	16.303	16.365	16.392	16.425
RD0207		16.271	16.326	16.388	16.415	16.448
RD0208		16.294	16.349	16.411	16.438	16.471
RD0209		16.317	16.372	16.434	16.461	16.494
RD0210		16.340	16.395	16.457	16.484	16.517
RD0211		16.363	16.418	16.480	16.507	16.540
RD0212		16.386	16.441	16.503	16.530	16.563
RD0213		16.409	16.464	16.526	16.553	16.586
RD0214		16.432	16.487	16.549	16.576	16.609
RD0215		16.455	16.510	16.572	16.599	16.642
RD0216		16.478	16.533	16.595	16.622	16.675
RD0217		16.501	16.556	16.618	16.645	16.708
RD0218		16.524	16.579	16.641	16.668	16.731
RD0219		16.547	16.602	16.664	16.691	16.754
RD0220		16.570	16.625	16.687	16.714	16.777
RD0221		16.593	16.648	16.710	16.737	16.800
RD0222		16.616	16.671	16.733	16.760	16.823
RD0223		16.639	16.694	16.756	16.783	16.846
RD0224		16.662	16.717	16.779	16.806	16.869
RD0225		16.685	16.740	16.802	16.829	16.892
RD0226		16.708	16.763	16.825	16.852	16.915
RD0227		16.731	16.786	16.848	16.875	16.938
RD0228		16.754	16.809	16.871	1	

Hydraulic Model Results - Tolney Lane, Newark

1D FMP Model Results - Maximum Water Levels (mAOD)



Normal Flow Condition Simulations

Date: 25-04-2019
 Model Type: FMP-TUFLOW
 FMP Build: 4.4
 TUFLOW Build: 2018-03-03

Scenario	Event	DTM
Q100 EXG	0% AEP (1 in 20)	
Q100 EXG	1% AEP (1 in 100)	
Q100C1 EXG	1% AEP + 20% Climate Change (CC1)	Existing Site Layout (EXG)
Q100C2 EXG	1% AEP + 20% Climate Change (CC2)	
Q100C3 EXG	1% AEP + 20% Climate Change (CC3)	
Q100C4 EXG	0% AEP (1 in 1000)	

Scenario	Event	DTM
Q100 OPT3	0% AEP (1 in 20)	
Q100 OPT3	1% AEP (1 in 100)	
Q100C1 OPT3	1% AEP + 20% Climate Change (CC1)	Proposed FAS Option 3 (OPT3)
Q100C2 OPT3	1% AEP + 20% Climate Change (CC2)	
Q100C3 OPT3	1% AEP + 20% Climate Change (CC3)	
Q100C4 OPT3	0% AEP (1 in 1000)	

Notes:
 [C] - Critical Node
 [E] - Existing site layout
 [OPT3] - Proposed FAS Option 3
 Nodes adjacent to site are highlighted in yellow

Node Label	Node Features	NORMAL FLOW CONDITIONS (MFC) - EXG SCENARIO				
		Q100 (m) (1 in 20)	Q100C1 (m) (1 in 100)	Q100C2 (m) (1 in 100)	Q100C3 (m) (1 in 100)	Q100C4 (m) (1 in 1000)
RD427		13.023	13.060	13.099	13.016	13.048
RD576		13.074	13.071	13.072	13.091	13.068
RD578		13.044	13.060	13.063	13.067	13.069
RD575		13.042	13.069	13.073	13.075	13.067
RD573		13.041	13.067	13.071	13.073	13.065
RD572		13.040	13.066	13.070	13.072	13.064
RD571		13.039	13.065	13.069	13.071	13.063
RD570		13.038	13.064	13.068	13.070	13.062
RD569		13.037	13.063	13.067	13.069	13.061
RD568		13.036	13.062	13.066	13.068	13.060
RD567		13.035	13.061	13.065	13.067	13.059
RD566		13.034	13.060	13.064	13.066	13.058
RD565		13.033	13.059	13.063	13.065	13.057
RD564		13.032	13.058	13.062	13.064	13.056
RD563		13.031	13.057	13.061	13.063	13.055
RD562		13.030	13.056	13.060	13.062	13.054
RD561		13.029	13.055	13.059	13.061	13.053
RD560		13.028	13.054	13.058	13.060	13.052
RD559		13.027	13.053	13.057	13.059	13.051
RD558		13.026	13.052	13.056	13.058	13.050
RD557		13.025	13.051	13.055	13.057	13.049
RD556		13.024	13.050	13.054	13.056	13.048
RD555		13.023	13.049	13.053	13.055	13.047
RD554		13.022	13.048	13.052	13.054	13.046
RD553		13.021	13.047	13.051	13.053	13.045
RD552		13.020	13.046	13.050	13.052	13.044
RD551		13.019	13.045	13.049	13.051	13.043
RD550		13.018	13.044	13.048	13.050	13.042
RD549		13.017	13.043	13.047	13.049	13.041
RD548		13.016	13.042	13.046	13.048	13.040
RD547		13.015	13.041	13.045	13.047	13.039
RD546		13.014	13.040	13.044	13.046	13.038
RD545		13.013	13.039	13.043	13.045	13.037
RD544		13.012	13.038	13.042	13.044	13.036
RD543		13.011	13.037	13.041	13.043	13.035
RD542		13.010	13.036	13.040	13.042	13.034
RD541		13.009	13.035	13.039	13.041	13.033
RD540		13.008	13.034	13.038	13.040	13.032
RD539		13.007	13.033	13.037	13.039	13.031
RD538		13.006	13.032	13.036	13.038	13.030
RD537		13.005	13.031	13.035	13.037	13.029
RD536		13.004	13.030	13.034	13.036	13.028
RD535		13.003	13.029	13.033	13.035	13.027
RD534		13.002	13.028	13.032	13.034	13.026
RD533		13.001	13.027	13.031	13.033	13.025
RD532		13.000	13.026	13.030	13.032	13.024
RD531		12.999	13.025	13.029	13.031	13.023
RD530		12.998	13.024	13.028	13.030	13.022
RD529		12.997	13.023	13.027	13.029	13.021
RD528		12.996	13.022	13.026	13.028	13.020
RD527		12.995	13.021	13.025	13.027	13.019
RD526		12.994	13.020	13.024	13.026	13.018
RD525		12.993	13.019	13.023	13.025	13.017
RD524		12.992	13.018	13.022	13.024	13.016
RD523		12.991	13.017	13.021	13.023	13.015
RD522		12.990	13.016	13.020	13.022	13.014
RD521		12.989	13.015	13.019	13.021	13.013
RD520		12.988	13.014	13.018	13.020	13.012
RD519		12.987	13.013	13.017	13.019	13.011
RD518		12.986	13.012	13.016	13.018	13.010
RD517		12.985	13.011	13.015	13.017	13.009
RD516		12.984	13.010	13.014	13.016	13.008
RD515		12.983	13.009	13.013	13.015	13.007
RD514		12.982	13.008	13.012	13.014	13.006
RD513		12.981	13.007	13.011	13.013	13.005
RD512		12.980	13.006	13.010	13.012	13.004
RD511		12.979	13.005	13.009	13.011	13.003
RD510		12.978	13.004	13.008	13.010	13.002
RD509		12.977	13.003	13.007	13.009	13.001
RD508		12.976	13.002	13.006	13.008	13.000
RD507		12.975	13.001	13.005	13.007	12.999
RD506		12.974	13.000	13.004	13.006	12.998
RD505		12.973	12.999	13.003	13.005	12.997
RD504		12.972	12.998	13.002	13.004	12.996
RD503		12.971	12.997	13.001	13.003	12.995
RD502		12.970	12.996	13.000	13.002	12.994
RD501		12.969	12.995	12.999	13.001	12.993
RD500		12.968	12.994	12.998	13.000	12.992
RD499		12.967	12.993	12.997	12.999	12.991
RD498		12.966	12.992	12.996	12.998	12.990
RD497		12.965	12.991	12.995	12.997	12.989
RD496		12.964	12.990	12.994	12.996	12.988
RD495		12.963	12.989	12.993	12.995	12.987
RD494		12.962	12.988	12.992	12.994	12.986
RD493		12.961	12.987	12.991	12.993	12.985
RD492		12.960	12.986	12.990	12.992	12.984
RD491		12.959	12.985	12.989	12.991	12.983
RD490		12.958	12.984	12.988	12.990	12.982
RD489		12.957	12.983	12.987	12.989	12.981
RD488		12.956	12.982	12.986	12.988	12.980
RD487		12.955	12.981	12.985	12.987	12.979
RD486		12.954	12.980	12.984	12.986	12.978
RD485		12.953	12.979	12.983	12.985	12.977
RD484		12.952	12.978	12.982	12.984	12.976
RD483		12.951	12.977	12.981	12.983	12.975
RD482		12.950	12.976	12.980	12.982	12.974
RD481		12.949	12.975	12.979	12.981	12.973
RD480		12.948	12.974	12.978	12.980	12.972
RD479		12.947	12.973	12.977	12.979	12.971
RD478		12.946	12.972	12.976	12.978	12.970
RD477		12.945	12.971	12.975	12.977	12.969
RD476		12.944	12.970	12.974	12.976	12.968
RD475		12.943	12.969	12.973	12.975	12.967
RD474		12.942	12.968	12.972	12.974	12.966
RD473		12.941	12.967	12.971	12.973	12.965
RD472		12.940	12.966	12.970	12.972	12.964
RD471		12.939	12.965	12.969	12.971	12.963
RD470		12.938	12.964	12.968	12.970	12.962
RD469		12.937	12.963	12.967	12.969	12.961
RD468		12.936	12.962	12.966	12.968	12.960
RD467		12.935	12.961	12.965	12.967	12.959
RD466		12.934	12.960	12.964	12.966	12.958
RD465		12.933	12.959	12.963	12.965	12.957
RD464		12.932	12.958	12.962	12.964	12.956
RD463		12.931	12.957	12.961	12.963	12.955
RD462		12.930	12.956	12.960	12.962	12.954
RD461		12.929	12.955	12.959	12.961	12.953
RD460		12.928	12.954	12.958	12.960	12.952
RD459		12.927	12.953	12.957	12.959	12.951
RD458		12.926	12.952	12.956	12.958	12.950
RD457		12.925	12.951	12.955	12.957	12.949
RD456		12.924	12.950	12.954	12.956	12.948
RD455		12.923	12.949	12.953	12.955	12.947
RD454		12.922	12.948	12.952	12.954	12.946
RD453		12.921	12.947	12.951	12.953	12.945
RD452		12.920	12.946	12.950	12.952	12.944
RD451		12.919	12.945	12.949	12.951	12.943
RD450		12.918	12.944	12.948	12.950	12.942
RD449		12.917	12.943	12.947	12.949	12.941
RD448		12.916	12.942	12.946	12.948	12.940
RD447		12.915	12.941	12.945	12.947	12.939
RD446		12.914	12.940	12.944	12.946	12.938
RD445		12.913	12.939	12.943	12.945	12.937
RD444		12.912	12.938	12.942	12.944	12.936
RD443		12.911	12.937	12.941	12.943	12.935
RD442		12.910	12.936	12.940	12.942	12.934
RD441		12.909	12.935	12.939	12.941	12.933
RD440		12.908	12.934	12.938	12.940	12.932
RD439		12.907	12.933	12.937	12.939	12.931
RD438		12.906	12.932	12.936	12.938	12.930
RD437		12.905	12.931	12.935	12.937	12.929
RD436		12.904	12.930	12.934	12.936	12.928
RD435		12.903	12.929	12.933	12.935	12.927
RD434		12.902	12.928	12.932	12.934	12.926
RD433		12.901	12.927	12.931	12.933	12.925
RD432		12.900	12.926	12.930	12.932	12.924
RD431		12.899	12.925	12.929	12.931	12.923
RD430		12.898	12.924	12.928	12.930	12.922
RD429		12.897	12.923	12.927	12.929	12.921
RD428		12.896	12.922	12.926	12.928	12.920
RD427		12.895	12.921	12.925	12.927	12.919
RD426		12.894	12.920	12.924	12.926	12.918
RD425		12.				

Hydraulic Model Results - Toiny Lane, Newark

1D Flow Model Results - Maximum Water Levels (mASL)

Normal Flow Condition Specifications

Boundary Type	Location	Flow Direction	Flow Rate (m³/s)	Water Level (mASL)
Upstream	Station 1+000	Downstream	10.0	10.00
Downstream	Station 1+500	Upstream	0.0	10.00

Model Parameters

Model Type: 1D Flow

Model Scale: 1:100

Model Date: 2010-01-01

Model Author: [Name]

Model Version: [Version]

Model Status: [Status]

Model Description: [Description]

Model Units: [Units]

Model Accuracy: [Accuracy]

Model Validation: [Validation]

Model Calibration: [Calibration]

Model Sensitivity: [Sensitivity]

Model Uncertainty: [Uncertainty]

Model Reliability: [Reliability]

Model Robustness: [Robustness]

Model Flexibility: [Flexibility]

Model Scalability: [Scalability]

Model Portability: [Portability]

Model Interoperability: [Interoperability]

Model Compatibility: [Compatibility]

Model Integration: [Integration]

Model Collaboration: [Collaboration]

Model Communication: [Communication]

Model Coordination: [Coordination]

Model Cooperation: [Cooperation]

Model Consensus: [Consensus]

Model Consistency: [Consistency]

Model Continuity: [Continuity]

Model Coherence: [Coherence]

Model Comprehensiveness: [Comprehensiveness]

Model Completeness: [Completeness]

Model Correctness: [Correctness]

Model Credibility: [Credibility]

Model Reliability: [Reliability]

Model Validity: [Validity]

Model Soundness: [Soundness]

Model Logic: [Logic]

Model Reasoning: [Reasoning]

Model Analysis: [Analysis]

Model Synthesis: [Synthesis]

Model Evaluation: [Evaluation]

Model Assessment: [Assessment]

Model Review: [Review]

Model Audit: [Audit]

Model Inspection: [Inspection]

Model Verification: [Verification]

Model Validation: [Validation]

Model Certification: [Certification]

Model Accreditation: [Accreditation]

Model Recognition: [Recognition]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

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Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

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Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

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Model Understanding: [Understanding]

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Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

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Model Authorization: [Authorization]

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Model Consent: [Consent]

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Model Understanding: [Understanding]

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Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

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Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

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Model Authorization: [Authorization]

Model Permission: [Permission]

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Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

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Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

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Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

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Model Authorization: [Authorization]

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Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

Model Permission: [Permission]

Model Consent: [Consent]

Model Agreement: [Agreement]

Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

Model Authorization: [Authorization]

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Model Understanding: [Understanding]

Model Acceptance: [Acceptance]

Model Approval: [Approval]

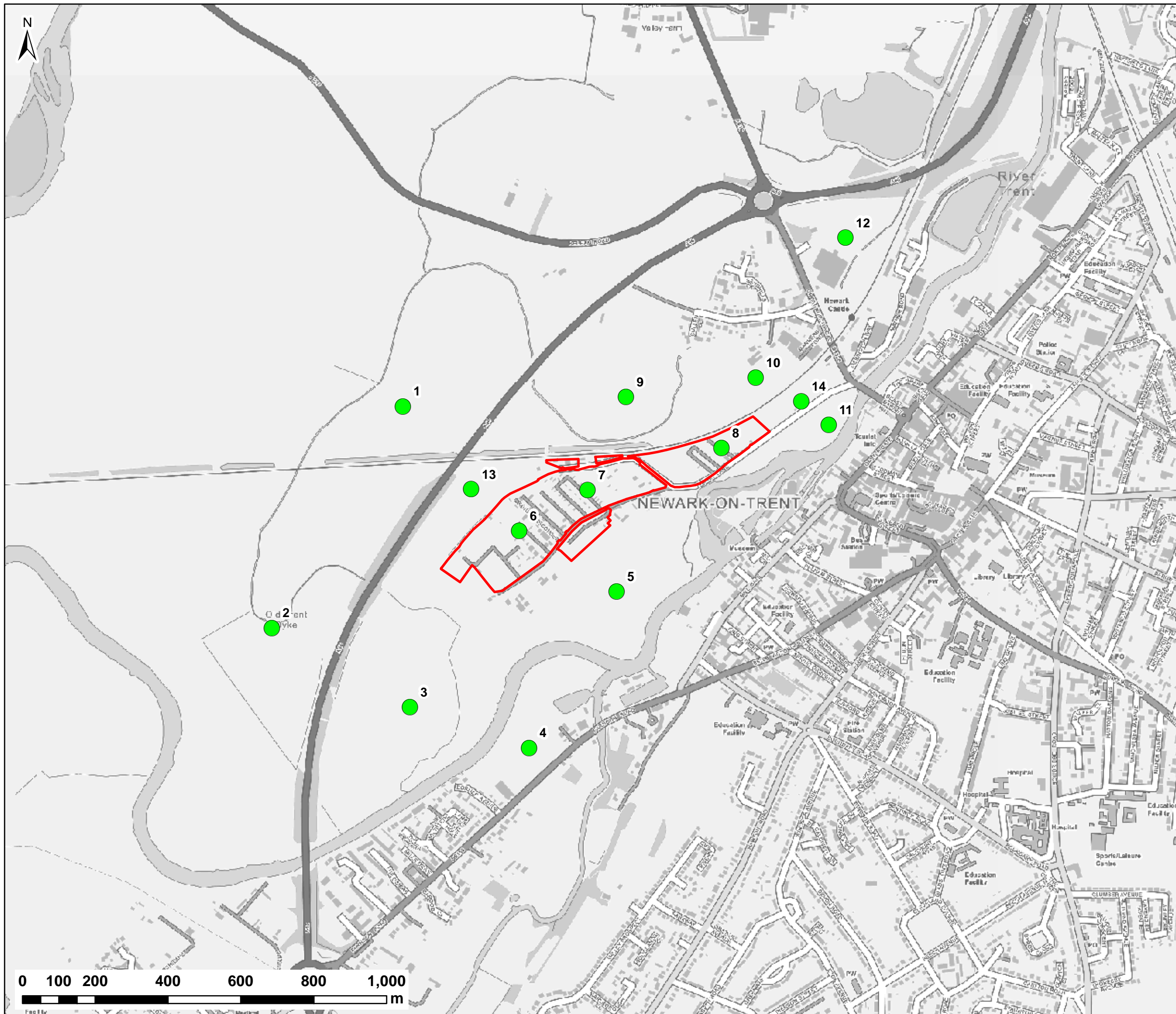
Model Authorization: [Authorization]



River Cross

Station	Water Level (mASL)	Flow Rate (m³/s)	Velocity (m/s)	Depth (m)	Width (m)	Area (m²)	Discharge (m³/s)	Energy (m)	Hydraulic Radius (m)	Friction Loss (m)	Velocity Head (m)	Total Head (m)
1+000	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+010	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+020	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+030	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+040	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+050	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+060	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+070	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+080	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+090	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+100	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+110	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+120	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+130	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+140	10.00	10.00	0.10	0.10	10.00	10.00	10.00	0.00	0.10	0.00	0.00	0.10
1+150	10.00	10.00	0.10									

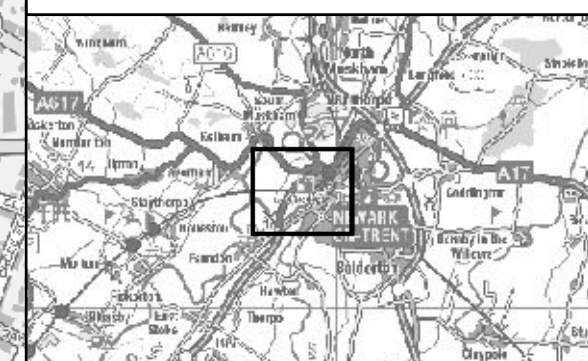
Appendix H Tabulated 2D Model Results Data



NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Boundary
- 2D Node Locations



CLIENT:




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SCHEME:
**TOLNEY LANE,
NEWARK**

PLOT TITLE:
2D NODE LOCATION PLAN

PLOT STATUS: FINAL		DATE: 25/04/2019	
DRAWN: CM	CHECKED: RC	APPROVED: LS	PLOT SCALE @ A3: 1:10,000 (UNLESS STATED OTHERWISE)
PLOT NAME: w3375-2D_Node_Plan			REV: -

Hydraulic Model Results
2D TUFLOW Model Results - Maximum Water Levels (mAOD) and Depths (m)



PRIMARY SIMULATIONS

Job Name: Tolney Lane, Newark
Job Number: w3375
Date: 25/04/2019
Model Type: FMP-TUFLOW
TUFLOW Build: 2018-03-AC

Existing (EXG) Site Layout Simulations:

Model Ref	Fluvial Event (AEP)	Development Scenario
Q20-EXG-NFC	5%	Existing site layout [EXG]
Q100-EXG-NFC	1%	
Q100CC1-EXG-NFC	1% + 30% CC	
Q100CC2-EXG-NFC	1% + 50% CC	
Q1000-EXG-NFC	0.1%	

Proposed FAS Option 1 Simulations:

Model Ref	Fluvial Event (AEP)	Development Scenario
Q20-OPT1-NFC	5%	Proposed FAS Option 1 (OPT1)
Q100-OPT1-NFC	1%	
Q100CC1-OPT1-NFC	1% + 30% CC	
Q100CC2-OPT1-NFC	1% + 50% CC	
Q1000-OPT1-NFC	0.1%	

Notes:

Waterco model version 016, 21
 NFC; Normal Flow Conditions
 OPT1- Proposed FAS Option 1
 - denotes no flooding

Node Reference	EXISTING SITE LAYOUT										Co-ordinates	
	Q20-EXG		Q100-EXG		Q100CC1-EXG		Q100CC2-EXG		Q1000-EXG		Easting	Northings
	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)		
1	11.24	0.96	11.62	1.34	12.01	1.72	12.18	1.90	12.25	1.97	478370	354090
2	12.17	1.43	12.54	1.80	12.94	2.20	13.13	2.39	13.20	2.46	478010	353482
3	11.91	0.99	12.27	1.35	12.70	1.78	12.89	1.97	12.97	2.05	478389	353264
4	11.75	0.77	12.26	1.28	12.70	1.72	12.89	1.91	12.97	1.99	478716	353152
5	11.68	0.99	12.16	1.48	12.65	1.96	12.85	2.17	12.94	2.26	478957	353581
6	-	-	12.23	0.04	12.67	0.48	12.87	0.67	12.95	0.76	478689	353748
7	-	-	-	-	12.65	0.21	12.85	0.41	12.94	0.50	478877	353860
8	11.42	0.40	12.01	0.99	12.37	1.34	12.52	1.50	12.59	1.57	479245	353975
9	11.27	1.28	11.78	1.78	12.33	2.24	12.50	2.50	12.57	2.58	478982	354115
10	-	-	11.26	1.00	12.30	2.04	12.48	2.22	12.56	2.30	479339	354168
11	11.30	0.74	11.88	1.32	12.28	1.73	12.46	1.90	12.53	1.98	479539	354039
12	-	-	-	-	12.29	2.08	12.46	2.25	12.52	2.31	479585	354553
13	11.91	1.30	12.27	1.65	12.70	2.08	12.88	2.27	12.96	2.34	478557	353863
14	-	-	11.97	0.25	12.31	0.59	12.48	0.77	12.56	0.84	479464	354103

Node Reference	Proposed FAS Option 1															Co-ordinates	
	Q20-OPT1			Q100-OPT1			Q100CC1-OPT1			Q100CC2-OPT1			Q1000-OPT1			Easting	Northings
	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)		
1	11.24	0.96	0.00	11.62	1.34	0.00	12.00	1.72	0.00	12.18	1.90	0.00	12.25	1.97	0.00	478370	354090
2	12.17	1.43	0.00	12.54	1.80	0.00	12.95	2.20	0.01	13.14	2.39	0.01	13.21	2.47	0.01	478010	353482
3	11.91	0.99	0.00	12.28	1.35	0.01	12.73	1.81	0.03	12.92	2.00	0.03	13.00	2.08	0.03	478389	353264
4	11.75	0.77	0.00	12.27	1.29	0.01	12.73	1.75	0.03	12.92	1.94	0.03	13.00	2.02	0.03	478716	353152
5	11.68	0.99	0.00	12.17	1.49	0.01	12.69	2.00	0.04	12.89	2.20	0.03	12.97	2.29	0.03	478957	353581
6	-	-	-	12.24	0.04	0.01	12.71	0.51	0.03	12.90	0.70	0.03	12.98	0.79	0.03	478689	353748
7	-	-	-	-	-	-	12.68	0.24	0.04	12.89	0.45	0.04	12.97	0.53	0.03	478877	353860
8	-	-	-0.40	-	-	-0.99	12.27	1.24	-0.10	12.45	1.43	-0.07	12.54	1.52	-0.05	479245	353975
9	11.28	1.29	0.01	11.78	1.78	0.00	12.26	2.27	-0.06	12.45	2.46	-0.05	12.54	2.54	-0.04	478982	354115
10	-	-	-	-	-	-1.00	12.25	1.99	-0.05	12.44	2.18	-0.04	12.53	2.27	-0.03	479339	354168
11	11.30	0.74	0.00	11.89	1.34	0.01	12.29	1.73	0.00	12.46	1.90	0.00	12.53	1.98	0.00	479539	354039
12	-	-	-	-	-	-	12.24	2.03	-0.05	12.42	2.21	-0.04	12.50	2.29	-0.03	479585	354553
13	11.91	1.30	0.00	12.27	1.66	0.01	12.73	2.11	0.03	12.91	2.29	0.02	12.98	2.36	0.02	478557	353863
14	-	-	-	11.84	0.13	-0.12	12.26	0.55	-0.04	12.45	0.73	-0.04	12.53	0.81	-0.03	479464	354103

Hydraulic Model Results
2D TUFLOW Model Results - Maximum Water Levels (mAOD) and Depths (m)



PRIMARY SIMULATIONS

Job Name: Tolney Lane, Newark
Job Number: w3375
Date: 25/04/2019
Model Type: FMP-TUFLOW
TUFLOW Build: 2018-03-AC

Existing (EXG) Site Layout Simulations:

Model Ref	Fluvial Event (AEP)	Development Scenario
Q20-EXG-NFC	5%	Existing site layout [EXG]
Q100-EXG-NFC	1%	
Q100CC1-EXG-NFC	1% + 30% CC	
Q100CC2-EXG-NFC	1% + 50% CC	
Q1000-EXG-NFC	0.1%	

Proposed FAS Option 2 Simulations:

Model Ref	Fluvial Event (AEP)	Development Scenario
Q20-OPT2-NFC	5%	Proposed FAS Option 2 (OPT2)
Q100-OPT2-NFC	1%	
Q100CC1-OPT2-NFC	1% + 30% CC	
Q100CC2-OPT2-NFC	1% + 50% CC	
Q1000-OPT2-NFC	0.1%	

Notes:

Waterco model version 016, 21
 NFC: Normal Flow Conditions
 OPT2- Proposed FAS Option 2
 - denotes no flooding

Node Reference	EXISTING SITE LAYOUT										Co-ordinates	
	Q20-EXG		Q100-EXG		Q100CC1-EXG		Q100CC2-EXG		Q1000-EXG		Eastings	Northings
	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)		
1	11.24	0.96	11.62	1.34	12.01	1.72	12.18	1.90	12.25	1.97	478370	354090
2	12.17	1.43	12.54	1.80	12.94	2.20	13.13	2.39	13.20	2.46	478010	353482
3	11.91	0.99	12.27	1.35	12.70	1.78	12.89	1.97	12.97	2.05	478389	353264
4	11.75	0.77	12.26	1.28	12.70	1.72	12.89	1.91	12.97	1.99	478716	353152
5	11.68	0.99	12.16	1.48	12.65	1.96	12.85	2.17	12.94	2.26	478957	353581
6	-	-	12.23	0.04	12.67	0.48	12.87	0.67	12.95	0.76	478689	353748
7	-	-	-	-	12.65	0.21	12.85	0.41	12.94	0.50	478877	353860
8	11.42	0.40	12.01	0.99	12.37	1.34	12.52	1.50	12.59	1.57	479245	353975
9	11.27	1.28	11.78	1.78	12.33	2.34	12.50	2.50	12.57	2.58	478982	354115
10	-	-	11.26	1.00	12.30	2.04	12.48	2.22	12.56	2.30	479339	354168
11	11.30	0.74	11.88	1.32	12.28	1.73	12.46	1.90	12.53	1.98	479539	354039
12	-	-	-	-	12.29	2.08	12.46	2.25	12.52	2.31	479585	354553
13	11.91	1.30	12.27	1.65	12.70	2.08	12.88	2.27	12.96	2.34	478557	353863
14	-	-	11.97	0.25	12.31	0.59	12.48	0.77	12.56	0.84	479464	354103

Node Reference	Proposed FAS Option 2															Co-ordinates	
	Q20-OPT2			Q100-OPT2			Q100CC1-OPT2			Q100CC2-OPT2			Q1000-OPT2			Eastings	Northings
	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)		
1	11.23	0.95	0.00	11.62	1.34	0.00	12.00	1.72	0.00	12.18	1.90	0.00	12.25	1.97	0.00	478370	354090
2	12.15	1.41	-0.02	12.53	1.78	-0.01	12.93	2.19	-0.01	13.13	2.38	0.00	13.20	2.46	0.00	478010	353482
3	11.94	1.02	0.03	12.30	1.38	0.03	12.74	1.81	0.03	12.95	2.03	0.06	13.03	2.11	0.06	478389	353264
4	11.76	0.79	0.02	12.29	1.32	0.03	12.73	1.75	0.03	12.95	1.97	0.06	13.03	2.05	0.06	478716	353152
5	11.70	1.01	0.02	12.19	1.50	0.03	12.68	1.99	0.03	12.90	2.22	0.05	12.99	2.30	0.05	478957	353581
6	-	-	-	12.21	0.02	-0.02	12.69	0.49	0.01	12.91	0.72	0.04	13.00	0.80	0.04	478689	353748
7	-	-	-	-	-	-	12.68	0.24	0.03	12.90	0.46	0.05	12.99	0.54	0.05	478877	353860
8	11.43	0.41	0.01	12.04	1.01	0.02	12.38	1.36	0.02	12.55	1.53	0.03	12.61	1.59	0.02	479245	353975
9	11.29	1.29	0.02	11.82	1.82	0.04	12.34	2.35	0.01	12.52	2.53	0.02	12.58	2.58	0.00	478982	354115
10	-	-	-	10.57	0.32	-0.68	12.31	2.05	0.01	12.51	2.25	0.02	12.56	2.31	0.01	479339	354168
11	11.32	0.76	0.02	11.92	1.37	0.05	12.32	1.76	0.03	12.50	1.95	0.04	12.56	2.01	0.03	479539	354039
12	-	-	-	-	-	-	12.30	2.09	0.01	12.48	2.27	0.02	12.53	2.32	0.00	479585	354553
13	11.94	1.33	0.03	12.30	1.68	0.03	12.70	2.09	0.00	12.82	2.20	-0.06	12.86	2.24	-0.10	478557	353863
14	-	-	-	11.92	0.21	-0.04	12.32	0.60	0.01	12.51	0.79	0.02	12.57	0.85	0.01	479464	354103

Hydraulic Model Results
2D TUFLOW Model Results - Maximum Water Levels (mAOD) and Depths (m)



PRIMARY SIMULATIONS

Job Name: Tolney Lane, Newark
Job Number: w3375
Date: 25/04/2019
Model Type: FMP-TUFLOW
TUFLOW Build: 2018-03-AC

Existing (EXG) Site Layout Simulations:

Model Ref	Fluvial Event (AEP)	Development Scenario
Q20-EXG-NFC	5%	Existing site layout [EXG]
Q100-EXG-NFC	1%	
Q100CC1-EXG-NFC	1% + 30% CC	
Q100CC2-EXG-NFC	1% + 50% CC	
Q1000-EXG-NFC	0.1%	

Proposed FAS Option 3 Simulations:

Model Ref	Fluvial Event (AEP)	Development Scenario
Q20-OPT1-NFC	5%	Proposed FAS Option 3 (OPT3)
Q100-OPT1-NFC	1%	
Q100CC1-OPT1-NFC	1% + 30% CC	
Q100CC2-OPT1-NFC	1% + 50% CC	
Q1000-OPT1-NFC	0.1%	

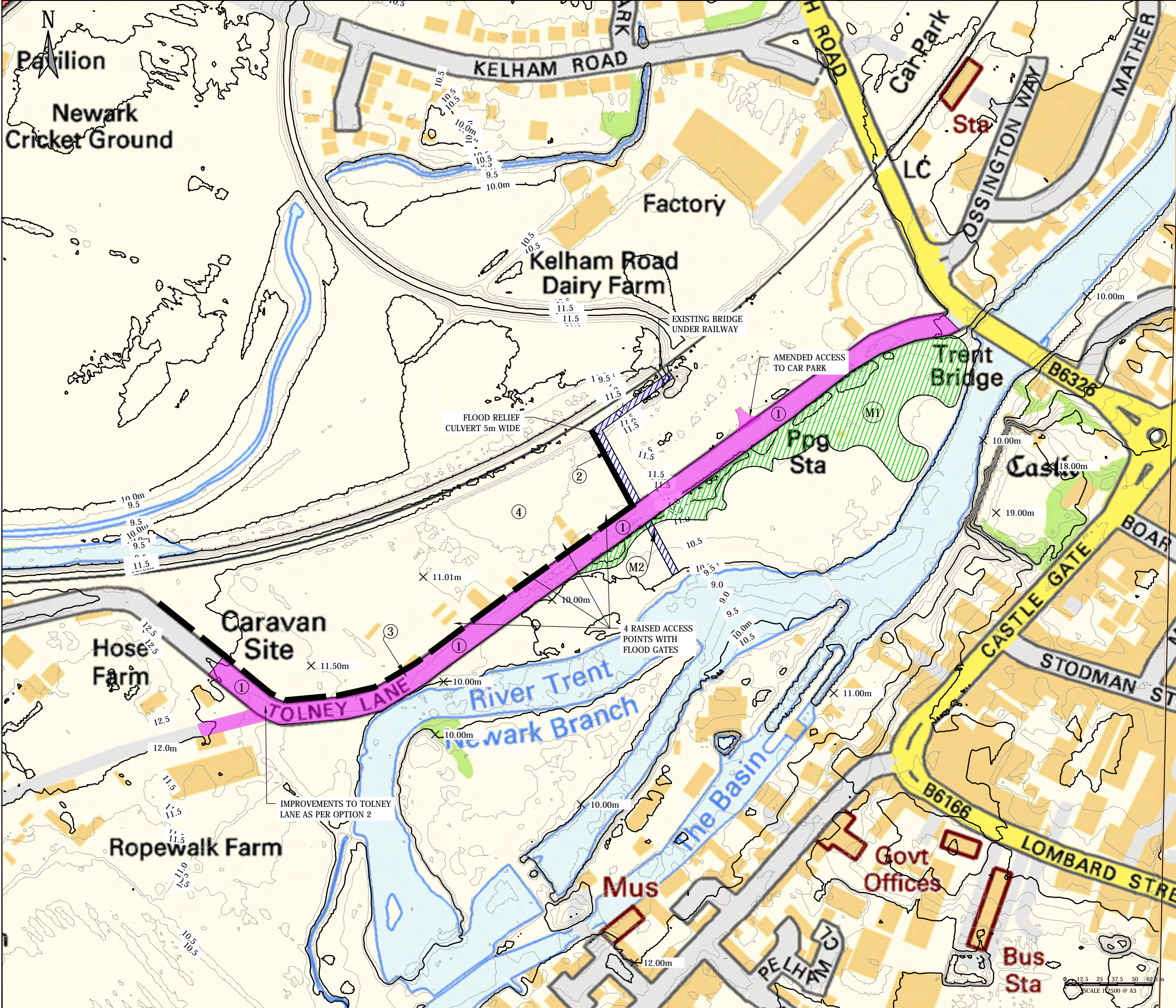
Notes:

Waterco model version 016, 21
 NFC; Normal Flow Conditions
 OPT3- Proposed FAS Option 3
 - denotes no flooding

Node Reference	EXISTING SITE LAYOUT										Co-ordinates	
	Q20-EXG		Q100-EXG		Q100CC1-EXG		Q100CC2-EXG		Q1000-EXG		Eastings	Northings
	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)	Max WL (mAOD)	Max Depth (m)		
1	11.24	0.96	11.62	1.34	12.01	1.72	12.18	1.90	12.25	1.97	478370	354090
2	12.17	1.43	12.54	1.80	12.94	2.20	13.13	2.39	13.20	2.46	478010	353482
3	11.91	0.99	12.27	1.35	12.70	1.78	12.89	1.97	12.97	2.05	478389	353264
4	11.75	0.77	12.26	1.28	12.70	1.72	12.89	1.91	12.97	1.99	478716	353152
5	11.68	0.99	12.16	1.48	12.65	1.96	12.85	2.17	12.94	2.26	478957	353581
6	-	-	12.23	0.04	12.67	0.48	12.87	0.67	12.95	0.76	478689	353748
7	-	-	-	-	12.65	0.21	12.85	0.41	12.94	0.50	478877	353860
8	11.42	0.40	12.01	0.99	12.37	1.34	12.52	1.50	12.59	1.57	479245	353975
9	11.27	1.28	11.78	1.78	12.33	2.34	12.50	2.50	12.57	2.58	478982	354115
10	-	-	11.26	1.00	12.30	2.04	12.48	2.22	12.56	2.30	479339	354168
11	11.30	0.74	11.88	1.32	12.28	1.73	12.46	1.90	12.53	1.98	479539	354039
12	-	-	-	-	12.29	2.08	12.46	2.25	12.52	2.31	479585	354553
13	11.91	1.30	12.27	1.65	12.70	2.08	12.88	2.27	12.96	2.34	478557	353863
14	-	-	11.97	0.25	12.31	0.59	12.48	0.77	12.56	0.84	479464	354103

Node Reference	Proposed FAS Option 3															Co-ordinates	
	Q20-OPT3			Q100-OPT3			Q100CC1-OPT3			Q100CC2-OPT3			Q1000-OPT3			Eastings	Northings
	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)	Max WL (mAOD)	Max Depth (m)	WL Diff vs EXG (m)		
1	11.23	0.95	-0.01	11.62	1.34	0.00	12.00	1.72	0.00	12.18	1.90	0.00	12.25	1.97	0.00	478370	354090
2	12.16	1.41	-0.01	12.53	1.79	-0.01	12.94	2.20	0.00	13.14	2.40	0.01	13.22	2.47	0.01	478010	353482
3	11.95	1.03	0.04	12.32	1.39	0.05	12.77	1.85	0.07	12.99	2.07	0.10	13.09	2.16	0.12	478389	353264
4	11.77	0.79	0.02	12.31	1.33	0.05	12.77	1.79	0.07	12.99	2.01	0.10	13.09	2.11	0.12	478716	353152
5	11.71	1.02	0.03	12.21	1.52	0.04	12.71	2.03	0.06	12.95	2.26	0.09	13.05	2.36	0.10	478957	353581
6	-	-	-	-	-	-0.04	-	-	-0.48	-	-	-0.67	-	-	-0.76	478689	353748
7	-	-	-	-	-	-	-	-	-0.21	-	-	-0.41	-	-	-0.50	478877	353860
8	-	-	-0.40	-	-	-0.99	-	-	-1.34	-	-	-1.50	-	-	-1.57	479245	353975
9	11.27	1.28	0.00	11.79	1.79	0.01	12.26	2.26	-0.07	12.42	2.43	-0.08	12.48	2.48	-0.10	478982	354115
10	-	-	-	10.33	0.07	-0.93	12.26	2.00	-0.04	12.42	2.16	-0.06	12.48	2.22	-0.08	479339	354168
11	11.32	0.77	0.02	11.91	1.36	0.04	12.30	1.74	0.02	12.47	1.91	0.01	12.53	1.98	0.00	479539	354039
12	-	-	-	-	-	-	12.25	2.04	-0.04	12.40	2.19	-0.06	12.45	2.24	-0.07	479585	354553
13	11.96	1.35	0.05	12.32	1.70	0.05	12.73	2.12	0.03	12.84	2.23	-0.04	12.88	2.26	-0.08	478557	353863
14	-	-	-	11.90	0.19	-0.06	12.28	0.56	-0.03	12.44	0.73	-0.04	12.50	0.79	-0.05	479464	354103

Appendix E: Stage 3 Option Plans



DO NOT SCALE. CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

- NOTES**
1. ALL LEVELS GIVEN IN METRES AOD
 2. LIDAR DATA OBTAINED UNDER OPEN GOVERNMENT LICENCE
- OPTION 1 FAS ELEMENTS**

- 1 RAISE ROAD TO Q100 LEVEL
 - 2 FLOOD WALL TO RUN FROM TOLNEY LANE TO RAILWAY EMBANKMENT CREST Q100 + 600 mm
 - 3 AMEND EXISTING WALLS & ACCESSES TO PROVIDE FLOOD PROTECTION TO Q100 AND 600m
 - 4 SURFACE WATER PS
- MITIGATIONS**
- M1 AREA LOWERED TO 11.0m AOD
 - M2 RELIEF CHANNEL SET AT 100m AOD WITH CULVERT UNDER TOLNEY LANE (5m WIDE x 1.5m HIGH)

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REV	DESCRIPTION	BY	CHK	APP	DATE
P1	REPORT ISSUE	JS	MSE	MSE	09.05.19

ARNDAL COURT
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Project:
TOLNEY LANE
NEWARK

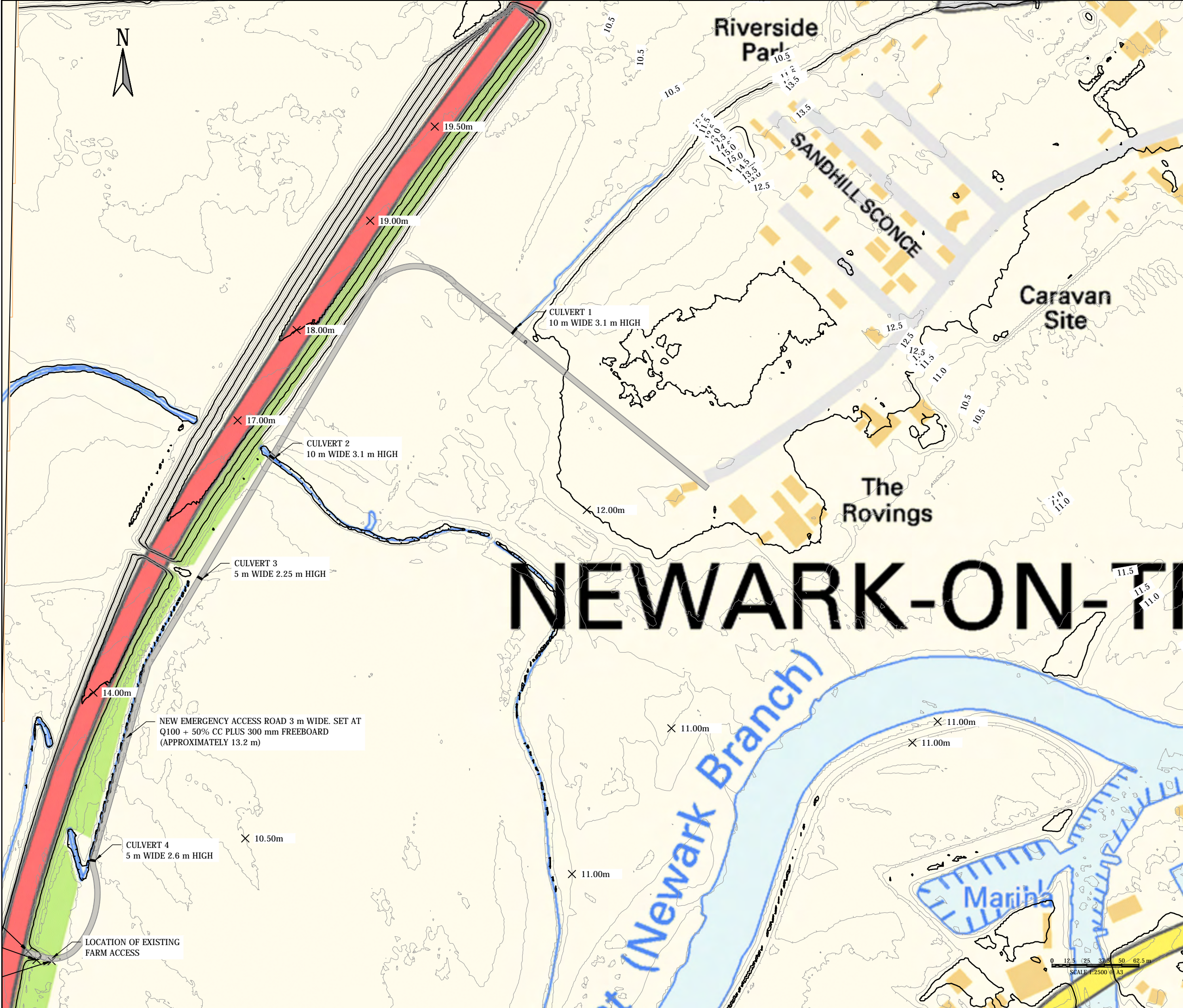
Drawing Title:
FAS
OPTION 1

Scale @	A3	Drawn	Date	Checked	Date	Approved	Date
1:2500		JS	MAY 19	MSE	MAY 19	MSE	MAY 19
Project No.	Office	Type	Drawing No.		Revision		
A111780	21	C	SK003		P1		

DO NOT SCALE. CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTES

1. ALL LEVELS GIVEN IN METRES AOD
2. MITIGATION IMPROVEMENTS TO BE PROVIDED AS PER OPTION 1
3. LIDAR DATA OBTAINED UNDER OPEN GOVERNMENT LICENCE



NEWARK-ON-TF

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P1	REPORT ISSUE	JS	MSE	MSE	09.05.19
REV	DESCRIPTION	BY	CHK	APP	DATE

ARNDAL COURT
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Project:
TOLNEY LANE
NEWARK

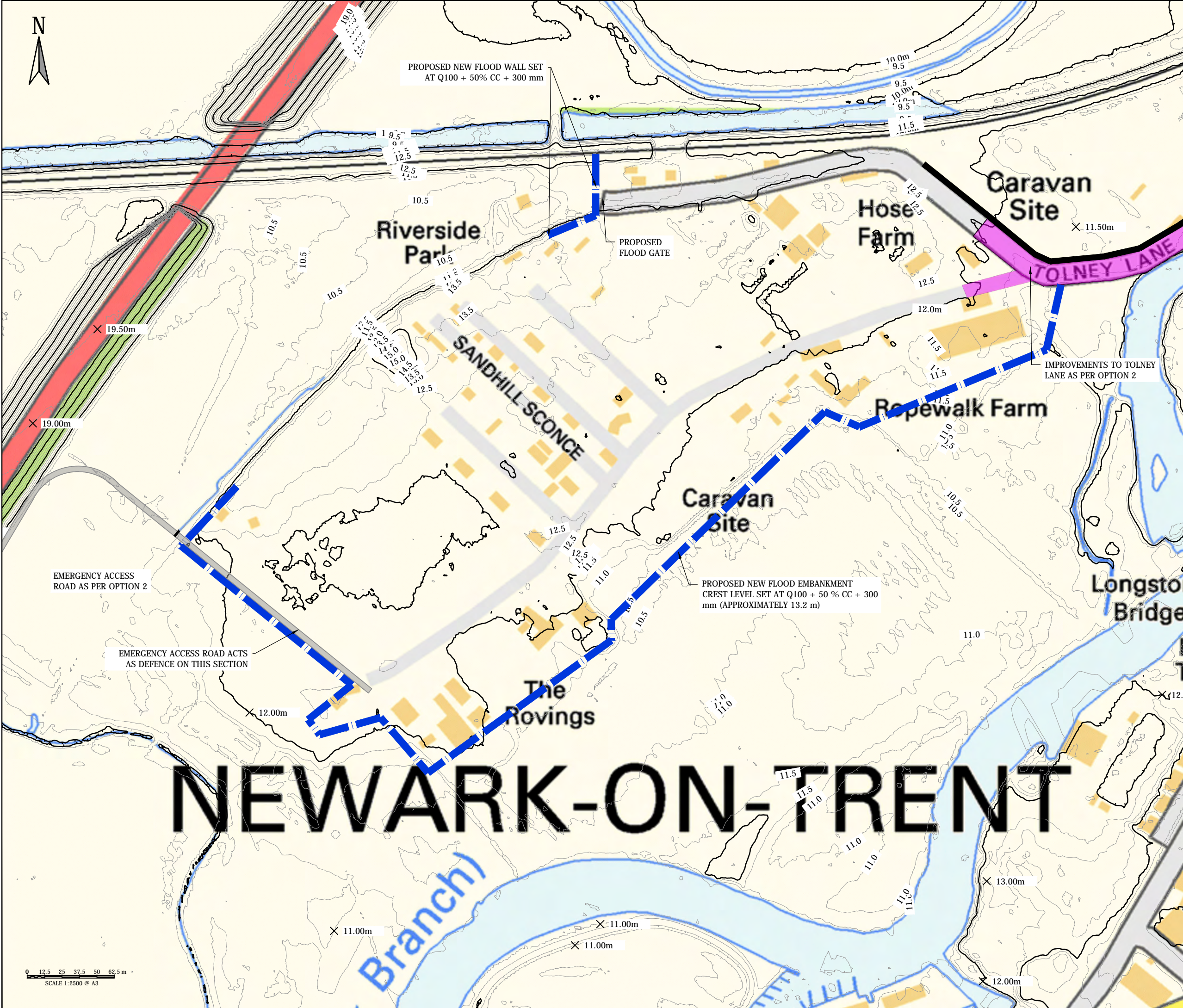
Drawing Title:
OPTION 2

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:2500	JS	MAY 19	MSE	MAY 19	MSE	MAY 19
Project No.	Office	Type	Drawing No.	Revision		
A111780	21	C	SK004	P1		



DO NOT SCALE. CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

- NOTES
1. ALL LEVELS GIVEN IN METRES AOD
 2. MITIGATION IMPROVEMENTS TO BE PROVIDED AS PER OPTION 1
 3. DEFENCES AS PER OPTION 1
 4. LIDAR DATA OBTAINED UNDER OPEN GOVERNMENT LICENCE



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P1	REPORT ISSUE	JS	MSE	MSE	09.05.19
REV	DESCRIPTION	BY	CHK	APP	DATE

ARNDAL COURT
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Project:
TOLNEY LANE
NEWARK

Drawing Title:
OPTION 3

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:2500	JS	MAY 19	MSE	MAY 19	MSE	MAY 19
Project No.	Office	Type	Drawing No.	Revision		
A111780	21	C	SK005	P1		

Appendix F: EA Meeting Minutes

From: matthew.elliott
Sent: 30 January 2019 11:24
To: Millbank, Rob; paul.goldsmith@environment-agency.gov.uk; matthew.tubb@newark-sherwooddc.gov.uk
Cc: tom.beavis; matthew.norton@newark-sherwooddc.gov.uk
Subject: FW: Tolney Lane meeting - Nottingham EA office - Tuesday 29th 14:00-16:00: Draft Meeting Notes

Hi Rob, Paul, Matthew (T)

Please see notes of yesterday's very helpful meeting below. If I have inadvertently missed something of importance, please let me know.

The meeting, to discuss the Tolney Lane Flood Alleviation Options Study took place at the EA Offices in West Bridgford at 2pm on January 29th 2019. The attendees were Rob Millbank (EA, Planning Specialist, N&SDC Key Contact), Paul Goldsmith (EA, Partnership and Strategic Overview), Matthew Tubb (N&SDC, Senior Planner) and Matthew Elliott (WYG, Leading to the Consultant team undertaking the study). The notes below seek to pick up the main points discussed, agreed and any specific action points. If I have inadvertently missed something of importance, please let me know.

1. Introductions: As above
2. Scheme Background (Matthew Tubb)
 - (i) MT explained that the Tolney Lane Gypsy and Traveller Community (G&TC) site, which became established before the 1960s has now grown into a large community and at the 2018 January count there were 301 dwellings, these ranging from mobile units through to permanent and substantial residential properties. The site is almost entirely in Flood Zones 2 and 3, with access being solely by Tolney Lane which is in Flood Zone 3. Climate change will only exacerbate the flood risk to the site.
 - (ii) There are ongoing enforcement issues, and a pattern of planning refusals followed by appeals with mixed outcomes.
 - (iii) It is expected that the updated N&SDC core strategy will be adopted in the near future; however, the forthcoming allocations review will include consideration of how many new G&TC New pitches are required across the district and this must include a consideration if any further expansion of the Toney Lane site is possible in the light of the flood risk issues.
 - (iv) In view of the above, following a tender process, WYG have been appointed to undertake a preliminary review of defence options for the Tolney Lane G&TC and options to approve emergency access/egress to the site in flood conditions (project stages 1 and 2), an appraisal of selected options including testing by river modelling and indications of capital costs of any defence infrastructure (not taking account of CPO, legal costs etc)(project stage 3)
 - (v) N&SDC anticipate that this study will be completed by the end of March 2019.
3. Options under Consideration
 - (i) WYG provided an early draft of the Stage 2 report ahead of the meeting which includes a plan showing the main option elements plus early outputs of the baseline river model (based on the EA Trent Model used in the N&SDC SFRA Update (2017)). Further printed output copies of the model runs showing depth, velocity and hazard mapping for the 5% AEP (Q20), 1% (Q100), 1% plus CC1 (Q100 plus 30% CC, 1% plus CC2 (Q100 plus 50%CC) and 0.1% (Q1000) were provided at the meeting. The modelling shows that much of the site is located on slightly higher land that is in effect an island of land surrounded by FZ 3
 - (ii) ME explained that although 5 options are set out in the draft stage 2 report, the options include a number of interventions that could be combined to maximise cost benefits.
The possible interventions are:
 - (a) Provide an emergency egress route to the A46 (subject to Highways England (HE) approval); the southerly egress route may facilitate the release of land to the north that could be defended by

- the egress road embankment; this could be considered with or without re-siting of the existing site that is most vulnerable to flooding (floods on Q20) at the north east end of the site;
- (b) Raise Tolney Lane above the Q100 flood level (with or without a low flood bund on its river facing edge) to improve access/egress; this measure would also defend the most vulnerable sections of the G&TC site if supplemented by a further defence on its north-eastern edge tied back to the railway embankment (subject to Network Rail agreement).
- (iii) Discussion:
- (a) ME confirmed that three options would be tested by modelling (after presentation to N&SDC of the Stage 2 findings) and acknowledged, as emphasized by PG, that any proposal that removes flood plain by introducing defences is likely to exacerbate existing flood risk which would generally be contrary to policy and will not be acceptable unless this could be mitigated. A possible mitigation would be to lower land levels in the flood plain to the south of the site (although land owner agreement is unlikely to be easily secured); the flood plain that lies between the A46, the railway and the slightly elevated 'island' is likely to be less significant for flood water conveyance than the present low lying areas of the G&TC but this needs testing by modelling.
 - (b) PG also emphasized that any defence proposals would also need to give full consideration of the remaining 'residual' flood risk arising from defence over-topping or failure.
4. Interfaces with other Infrastructure Projects (A46?): PG and RM said that they were aware of HE proposals for the A46 upgrade given recent information requests and discussions about a future service agreement. However, it was at an early stage.
5. Interfaces with EA projects: As far as PG and RM are aware, there are no flood alleviation projects, major model upgrade work ongoing that could impact of the N&SDC study; however, a check will be made by PG and contacts provided.
6. Funding Options
- (i) It was noted by PG that funding for flood defences from Flood Defence Grant in Aid (FDGiA) is dependent on the type of property to be defended and this is likely to be a key issue in respect of the G&TC at Tolney Lane. (PG confirmed that the guidance is publicly available on the .gov website). Park Home sites can be eligible if it can be shown that rates are paid on the property (e.g scheme that includes defence of properties at Torksey) and that the properties have been present since before 2012. FDGiA funding is based on cost benefit analysis that takes account of moving the property from one risk banding to another; a weighting bias is available to account for social deprivation. Identified schemes can be added to the FDGiA indicative 6 year programme.
 - (ii) PG indicated that local levy funding may be available for optioneering studies that identify schemes that may be eligible for entry onto the FDGiA 6 year programme; the contact for local levy funding of projects is fran.marriott@environment-agency.gov.uk
7. Any Other Business: None identified.

Best Regards

Matthew Elliott

Director

For more information about WYG Engineering, please have a look at our [brochure](#)

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