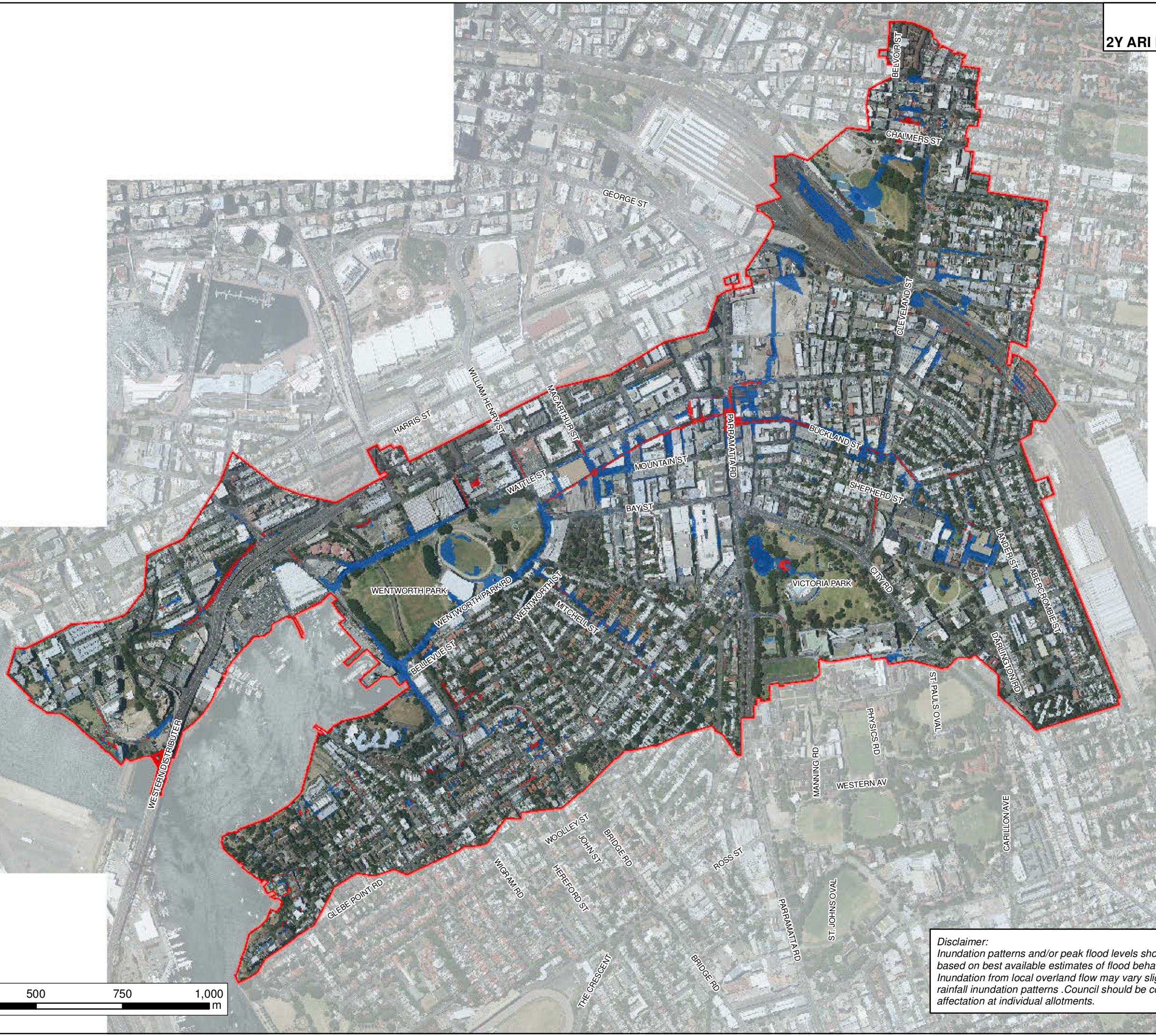




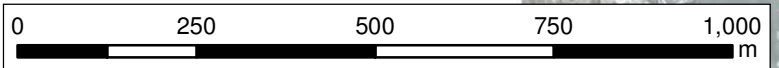


FIGURE 14
HAZARD CATEGORIES
2Y ARI DESIGN FLOOD EVENT



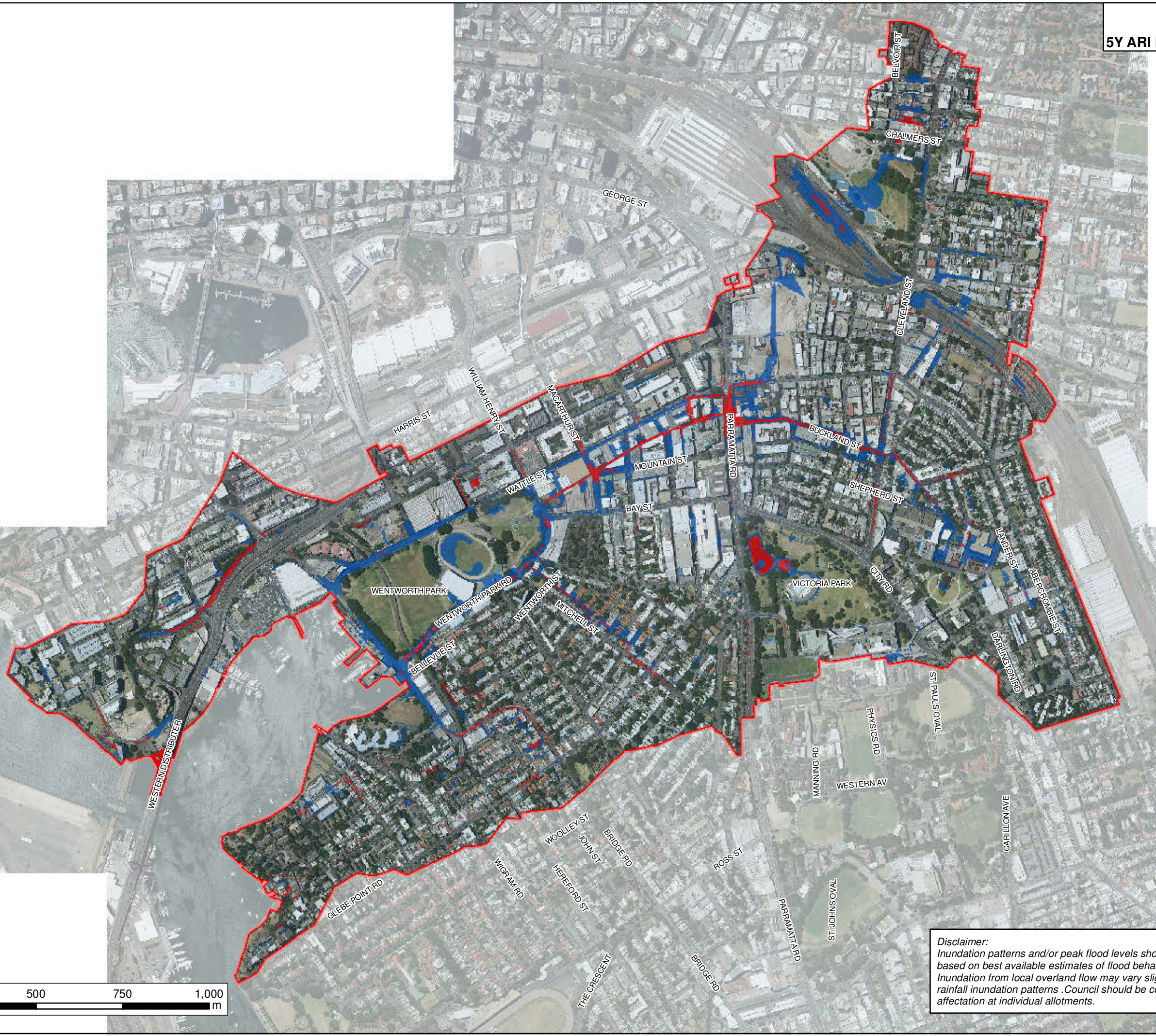
J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure27_Hazard_Categories_002y.mxd






 Study Area
Hydraulic Hazard
 Low Hazard
 High Hazard

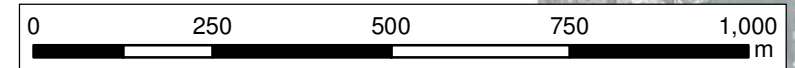


Disclaimer:
Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 15
HAZARD CATEGORIES
5Y ARI DESIGN FLOOD EVENT

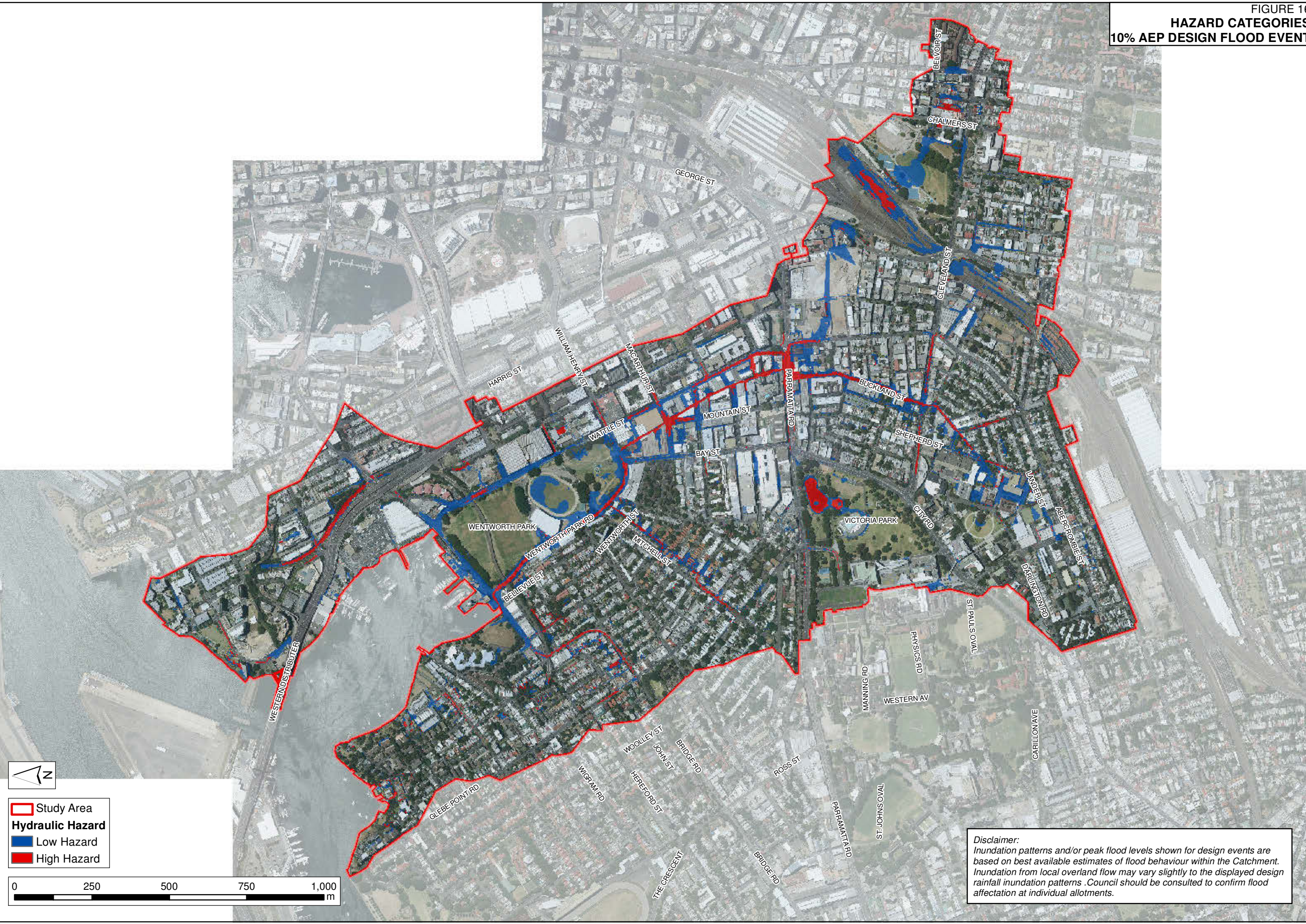



 Study Area
Hydraulic Hazard
 Low Hazard
 High Hazard







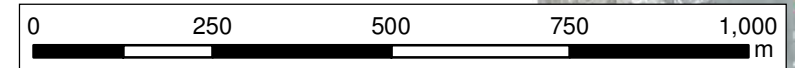
Disclaimer:
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FIGURE 16
HAZARD CATEGORIES
10% AEP DESIGN FLOOD EVENT



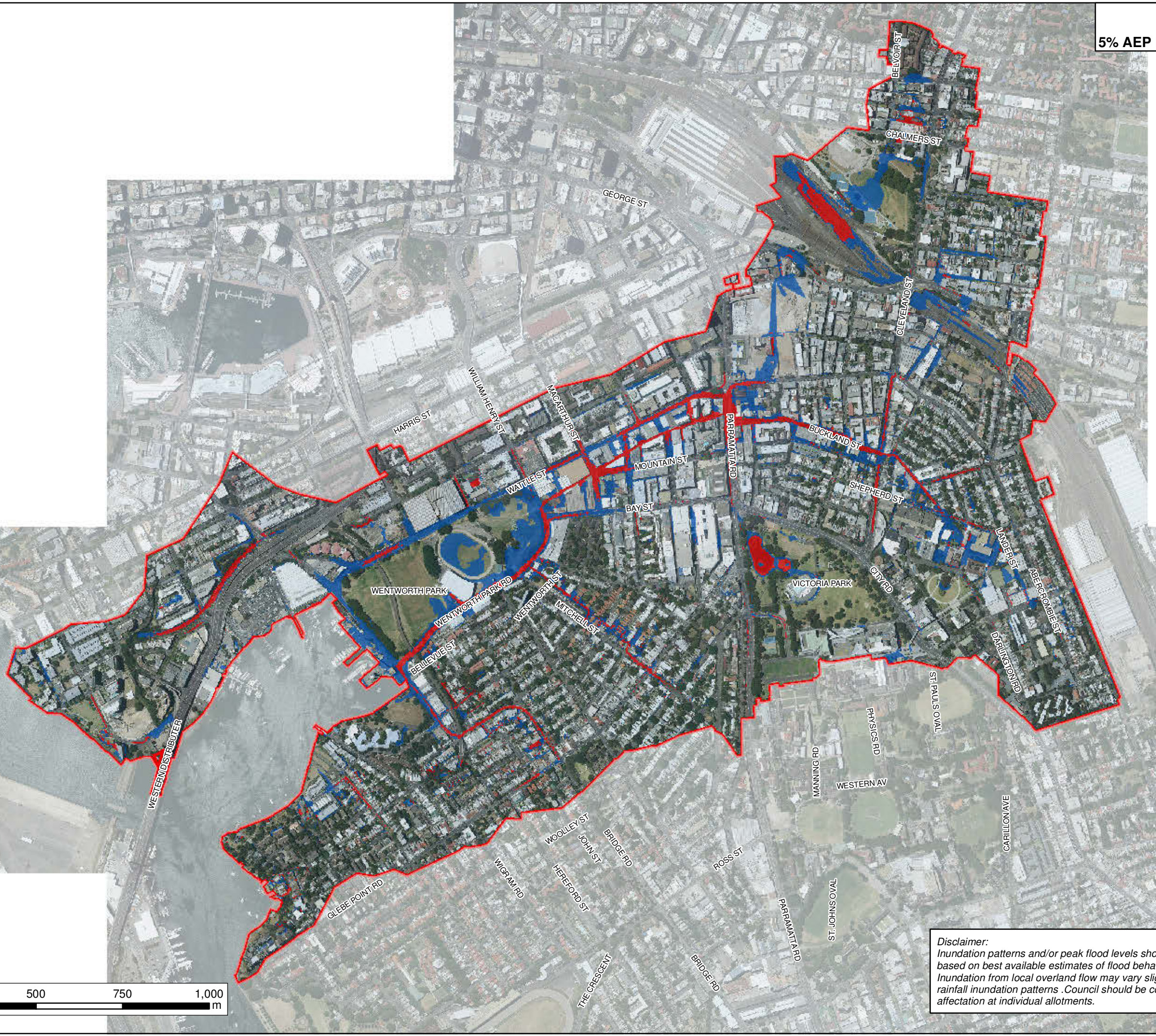
J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure27_Hazard_Categories_002y.mxd


 Study Area
Hydraulic Hazard
 Low Hazard
 High Hazard







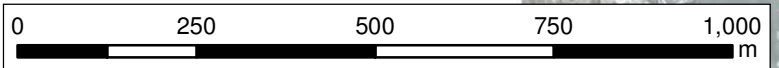
Disclaimer:
Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 17
HAZARD CATEGORIES
5% AEP DESIGN FLOOD EVENT



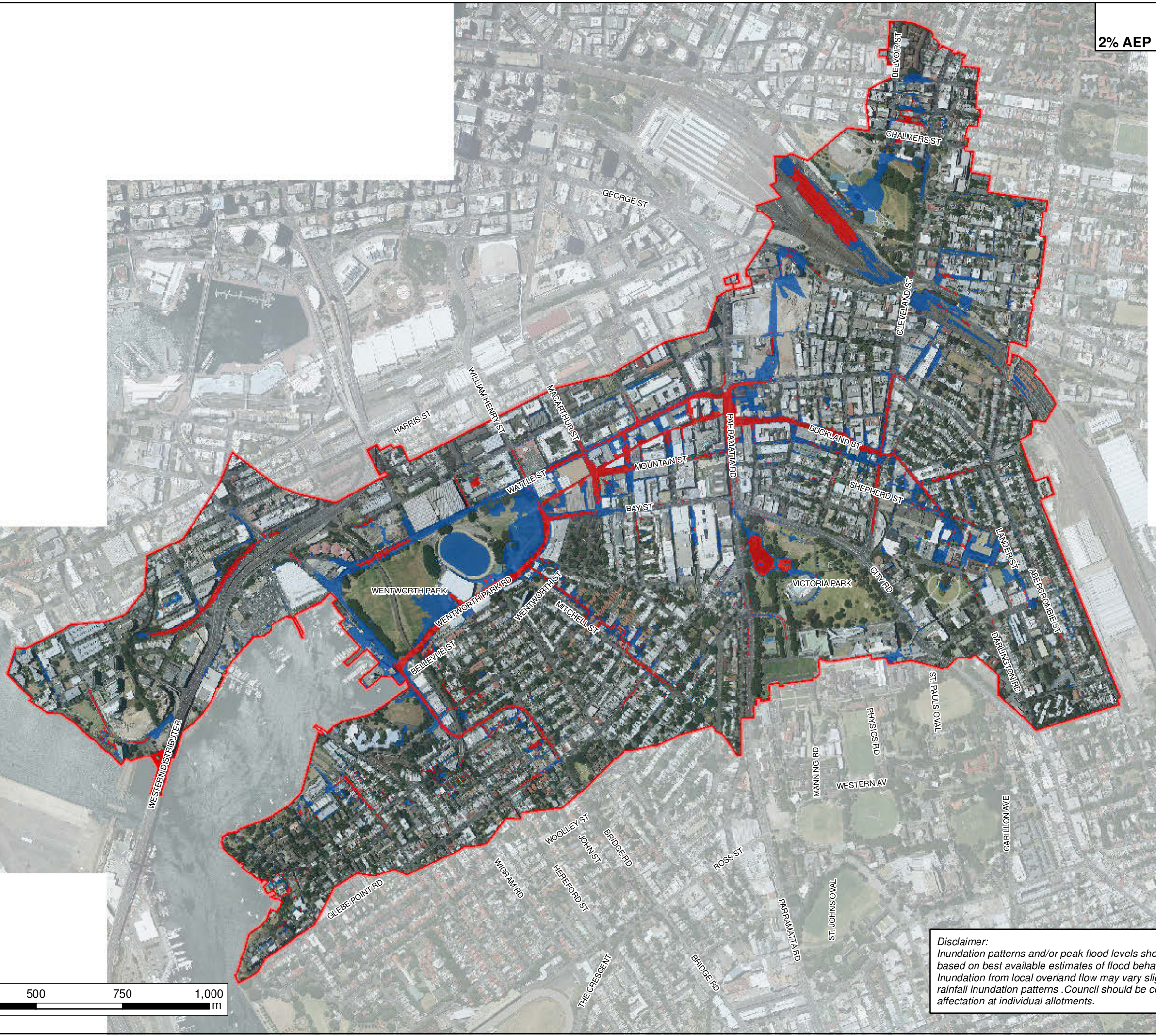
J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure27_Hazard_Categories_002y.mxd


 Study Area
Hydraulic Hazard
 Low Hazard
 High Hazard







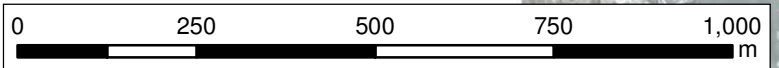
Disclaimer:
Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 18
HAZARD CATEGORIES
2% AEP DESIGN FLOOD EVENT



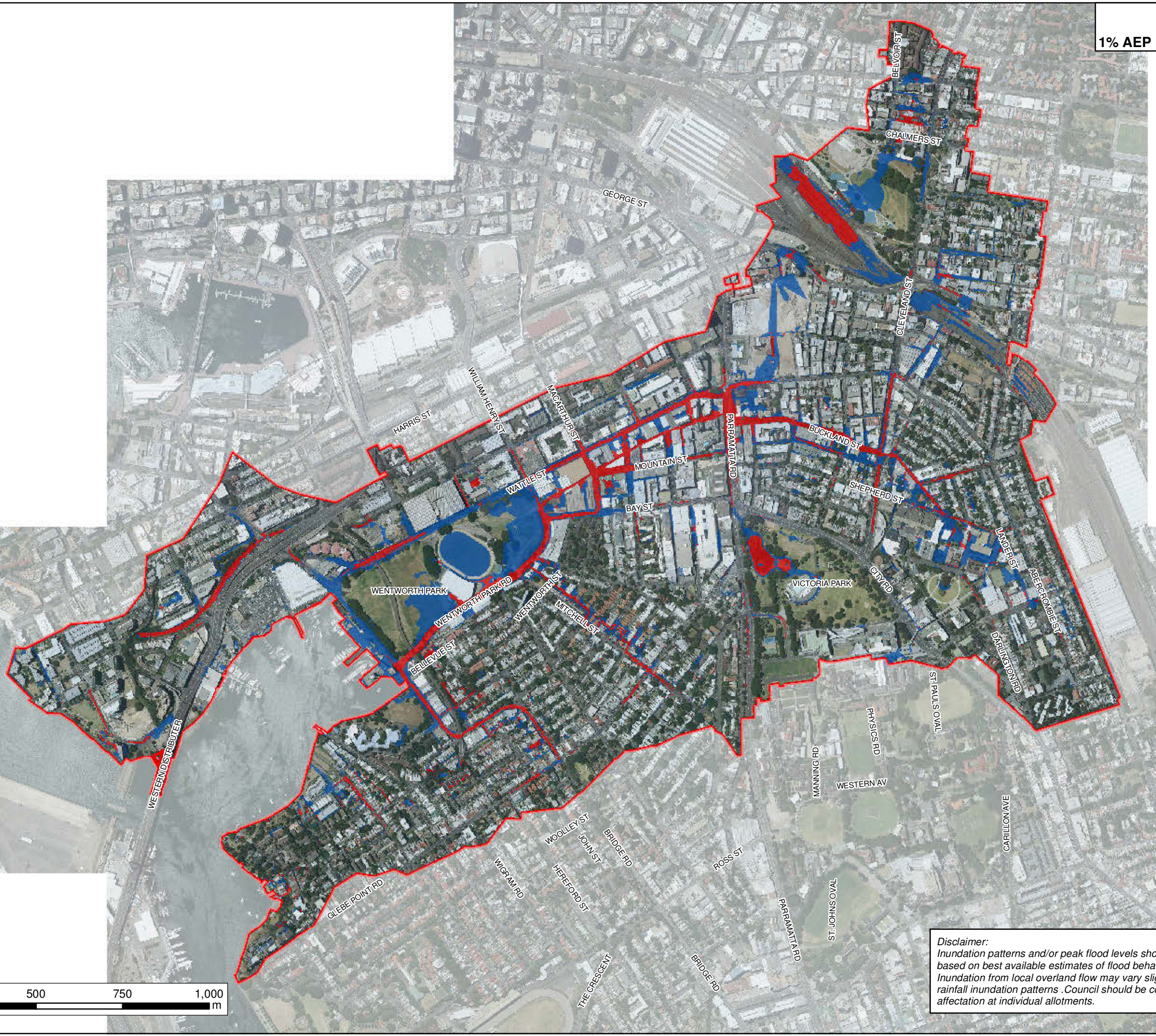
J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure27_Hazard_Categories_002y.mxd






 Study Area
Hydraulic Hazard
 Low Hazard
 High Hazard

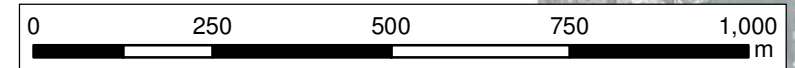


Disclaimer:
Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 19
HAZARD CATEGORIES
1% AEP DESIGN FLOOD EVENT

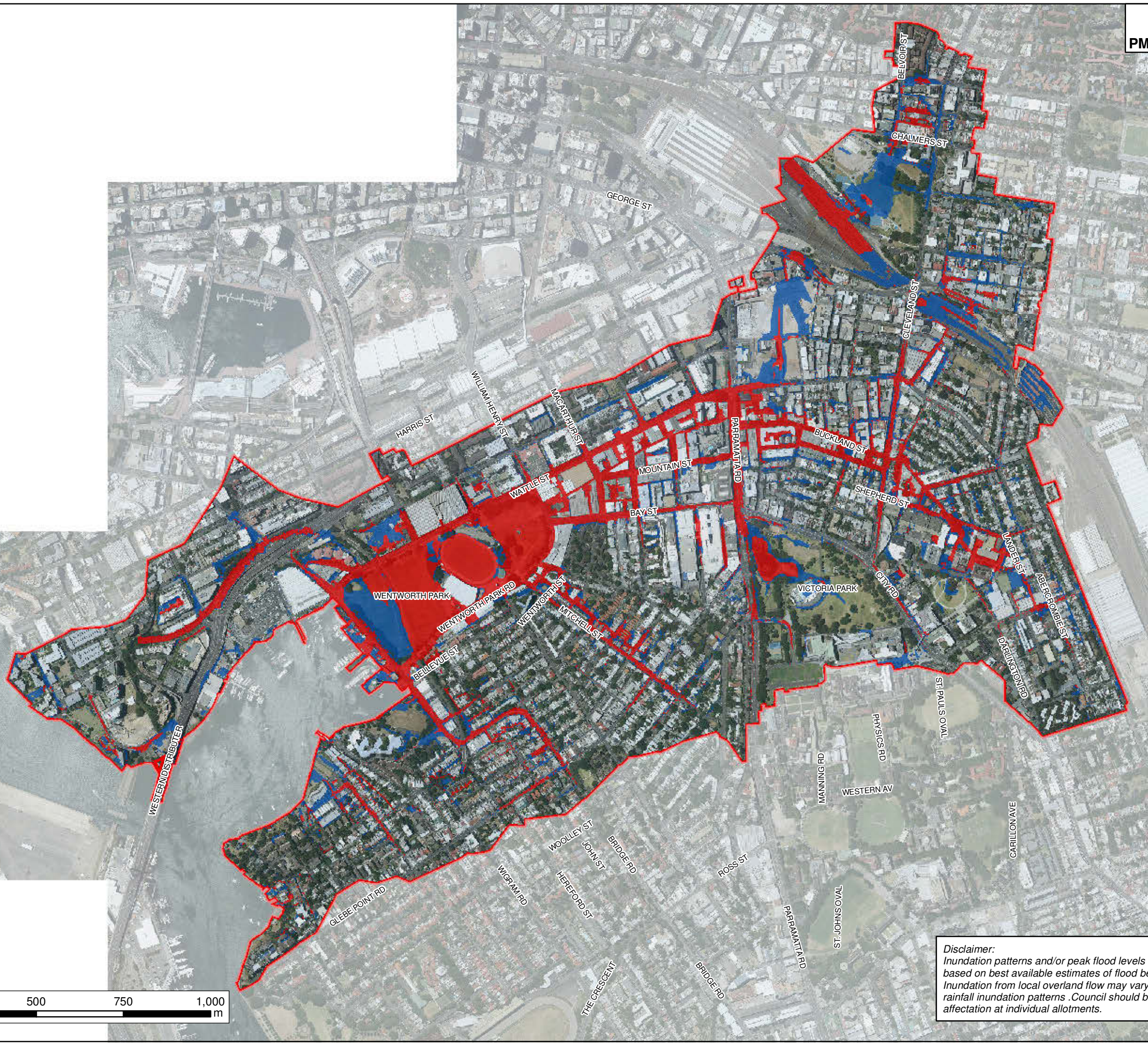



 Study Area
Hydraulic Hazard
 Low Hazard
 High Hazard

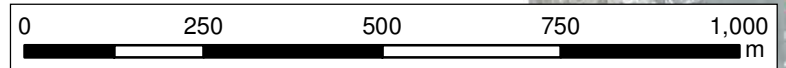


Disclaimer:
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FIGURE 20
HAZARD CATEGORIES
PMF DESIGN FLOOD EVENT



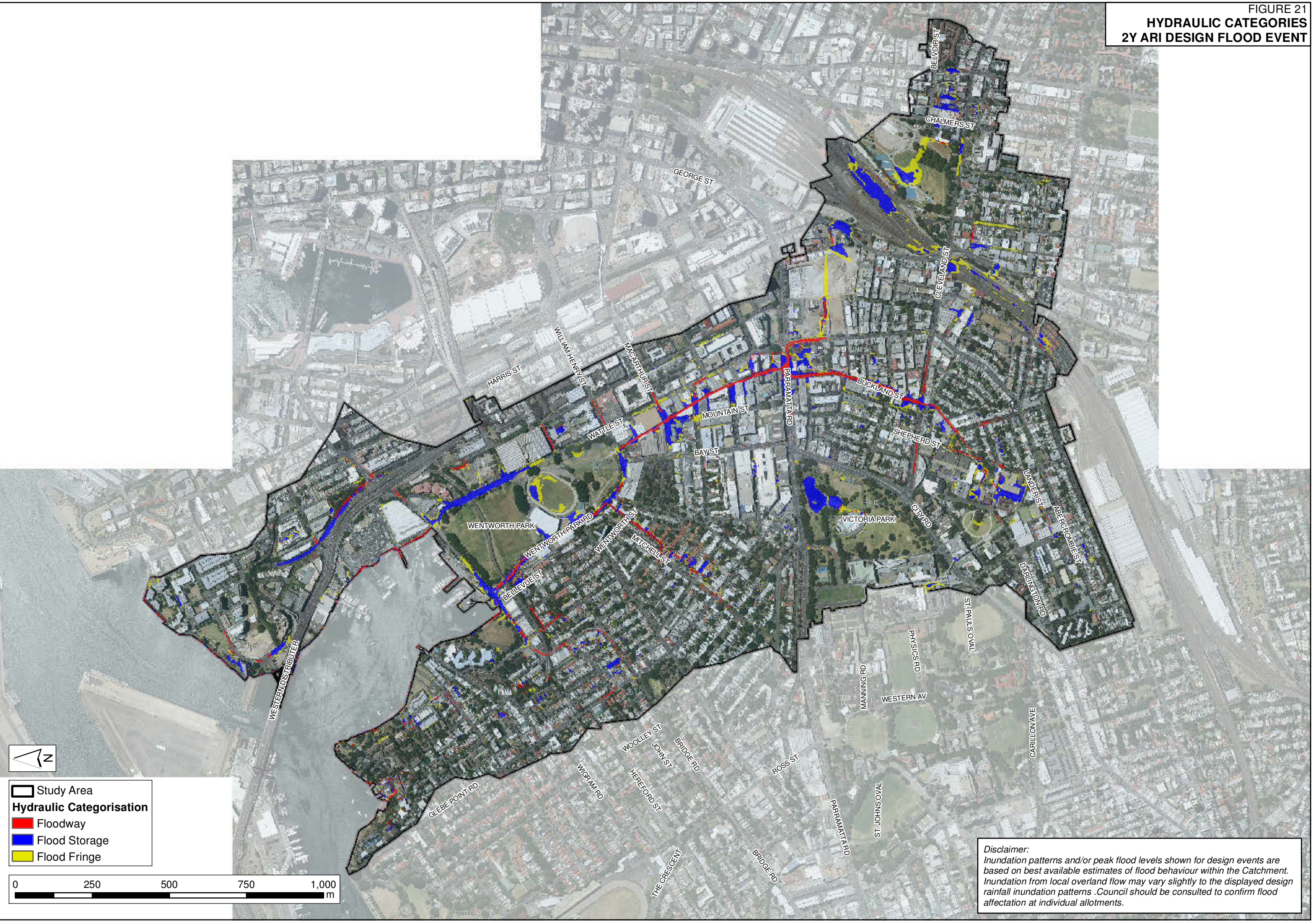
- Study Area
- Hydraulic Hazard**
- Low Hazard
- High Hazard








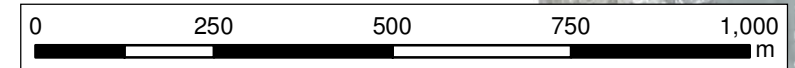
Disclaimer:
Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 21
HYDRAULIC CATEGORIES
2Y ARI DESIGN FLOOD EVENT

J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure34_Hydraulic_Categories_002.mxd



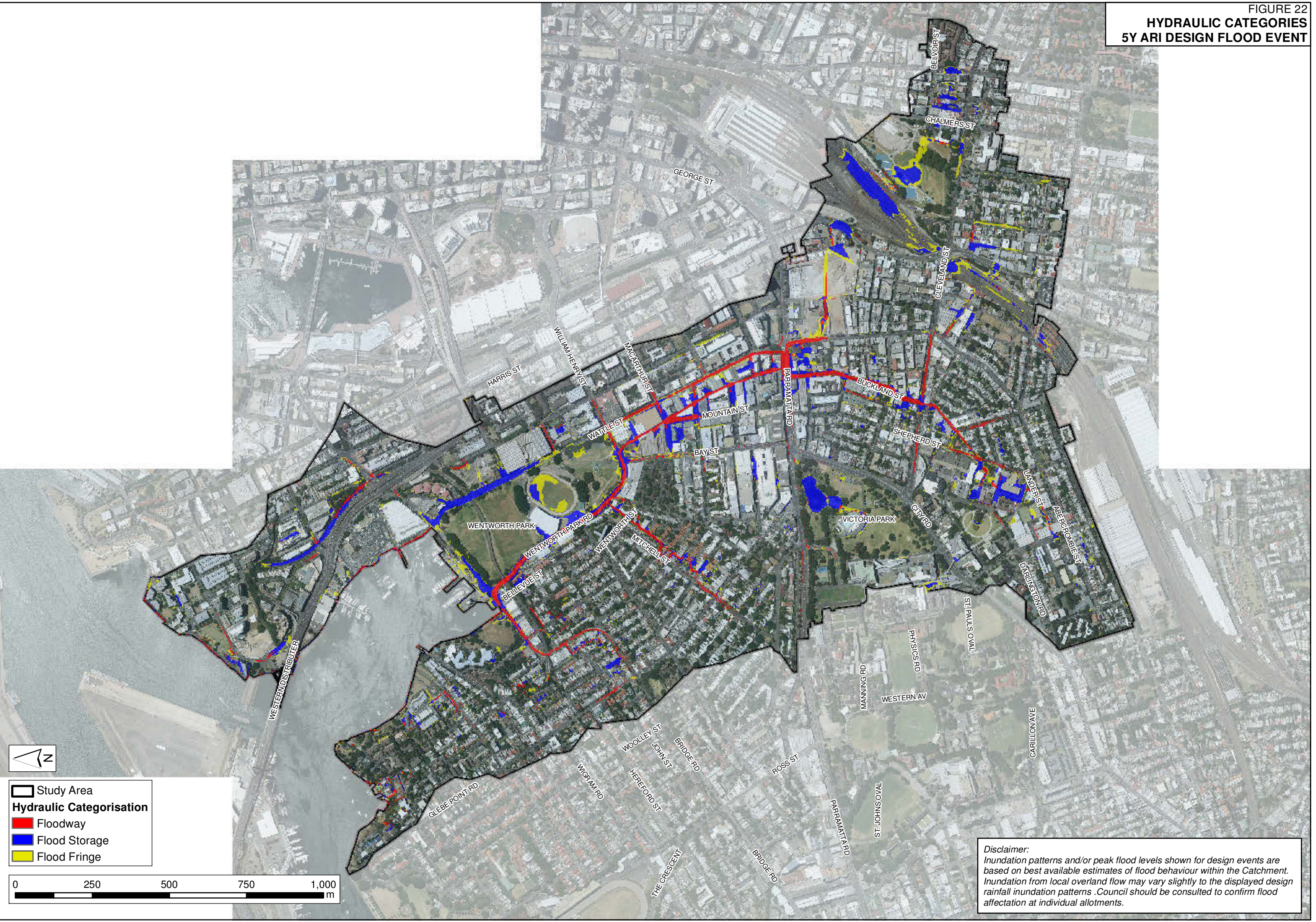

 Study Area
Hydraulic Categorisation
 Floodway
 Flood Storage
 Flood Fringe





Disclaimer:
 Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 22
HYDRAULIC CATEGORIES
5Y ARI DESIGN FLOOD EVENT


J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure34_Hydraulic_Categories_002.mxd







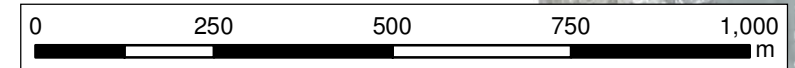
 Study Area

Hydraulic Categorisation

 Floodway

 Flood Storage

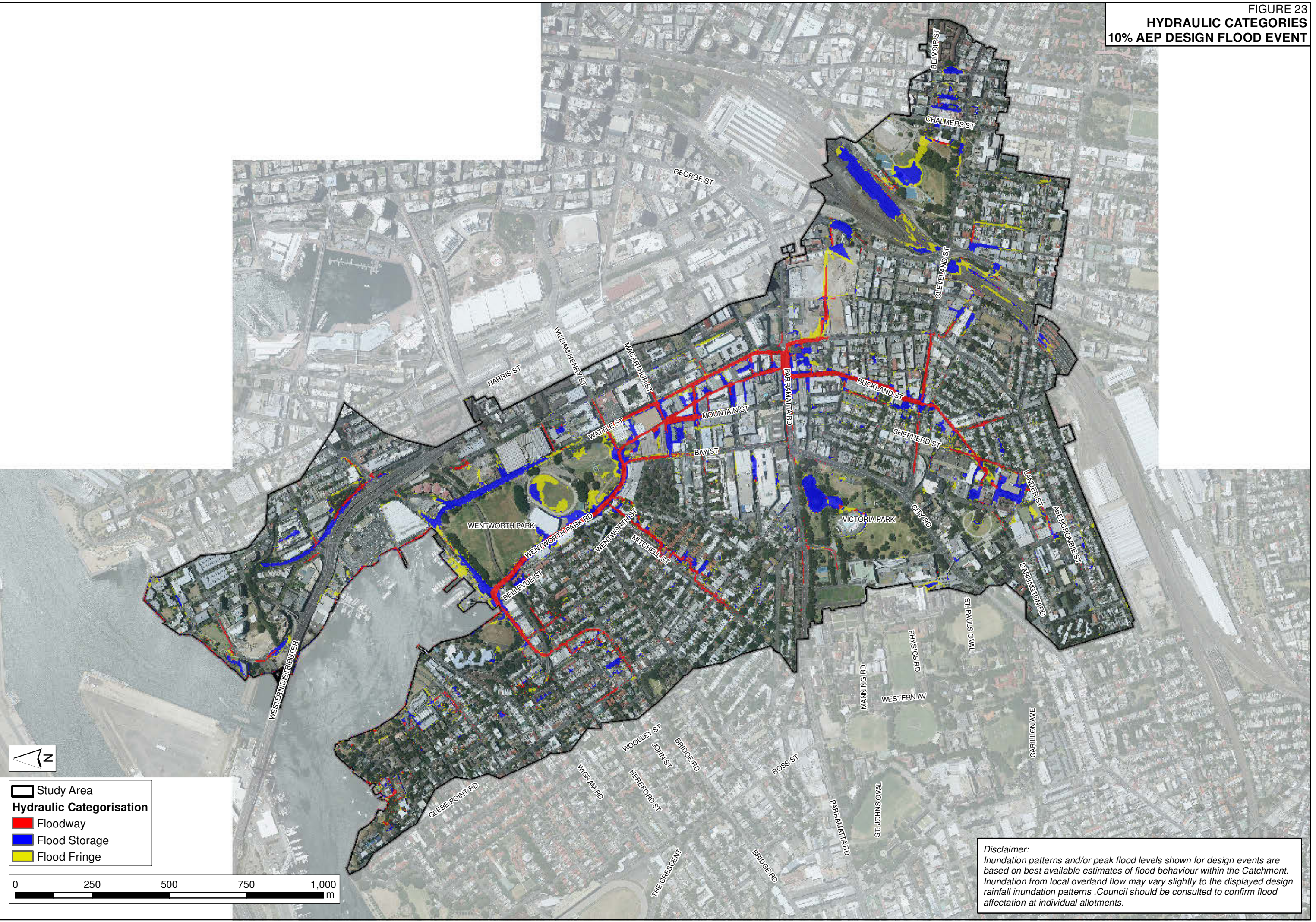
 Flood Fringe








Disclaimer:
 Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

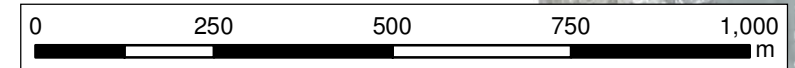
FIGURE 23
HYDRAULIC CATEGORIES
10% AEP DESIGN FLOOD EVENT

J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure34_Hydraulic_Categories_002.mxd



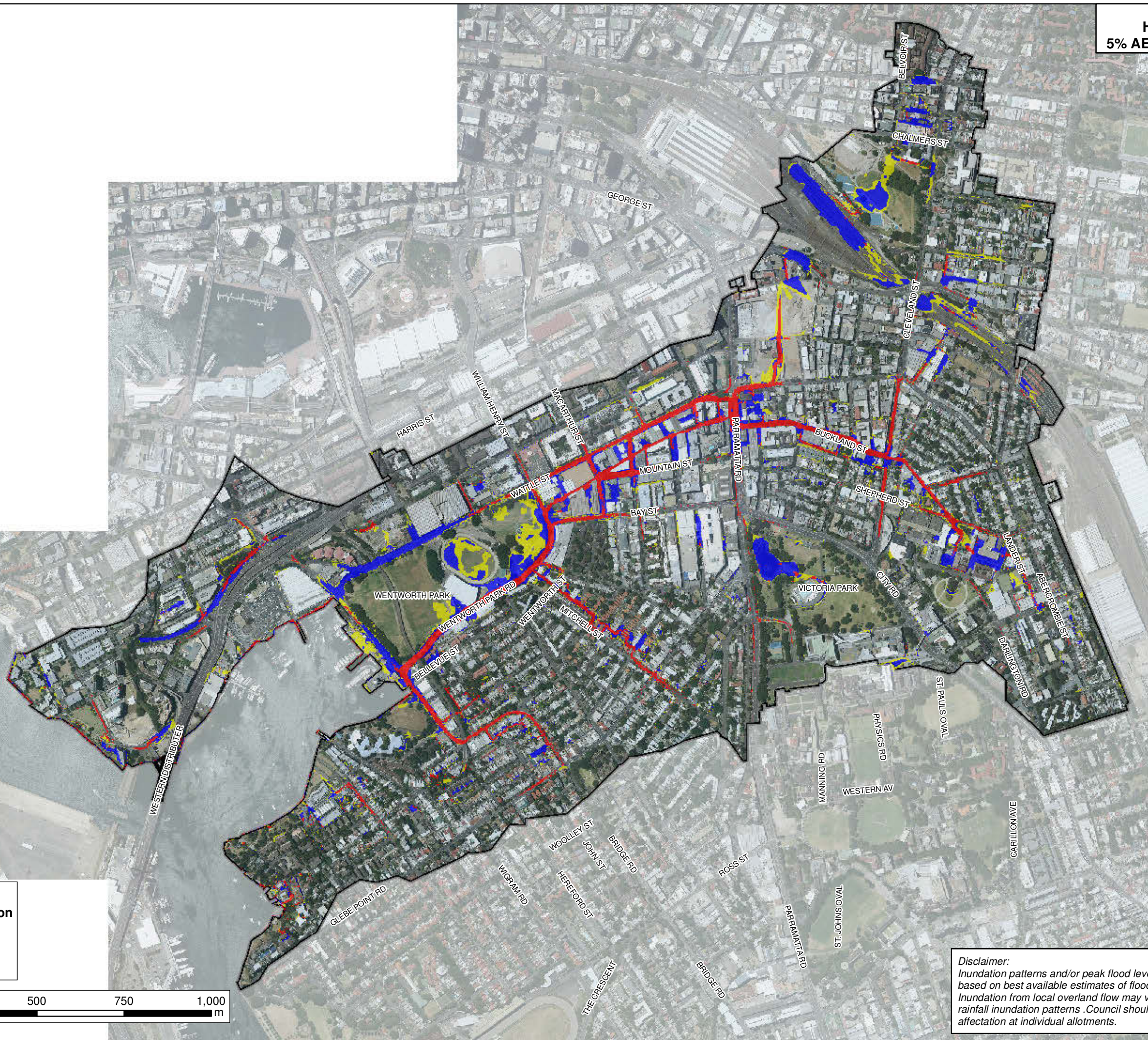


 Study Area
Hydraulic Categorisation
 Floodway
 Flood Storage
 Flood Fringe



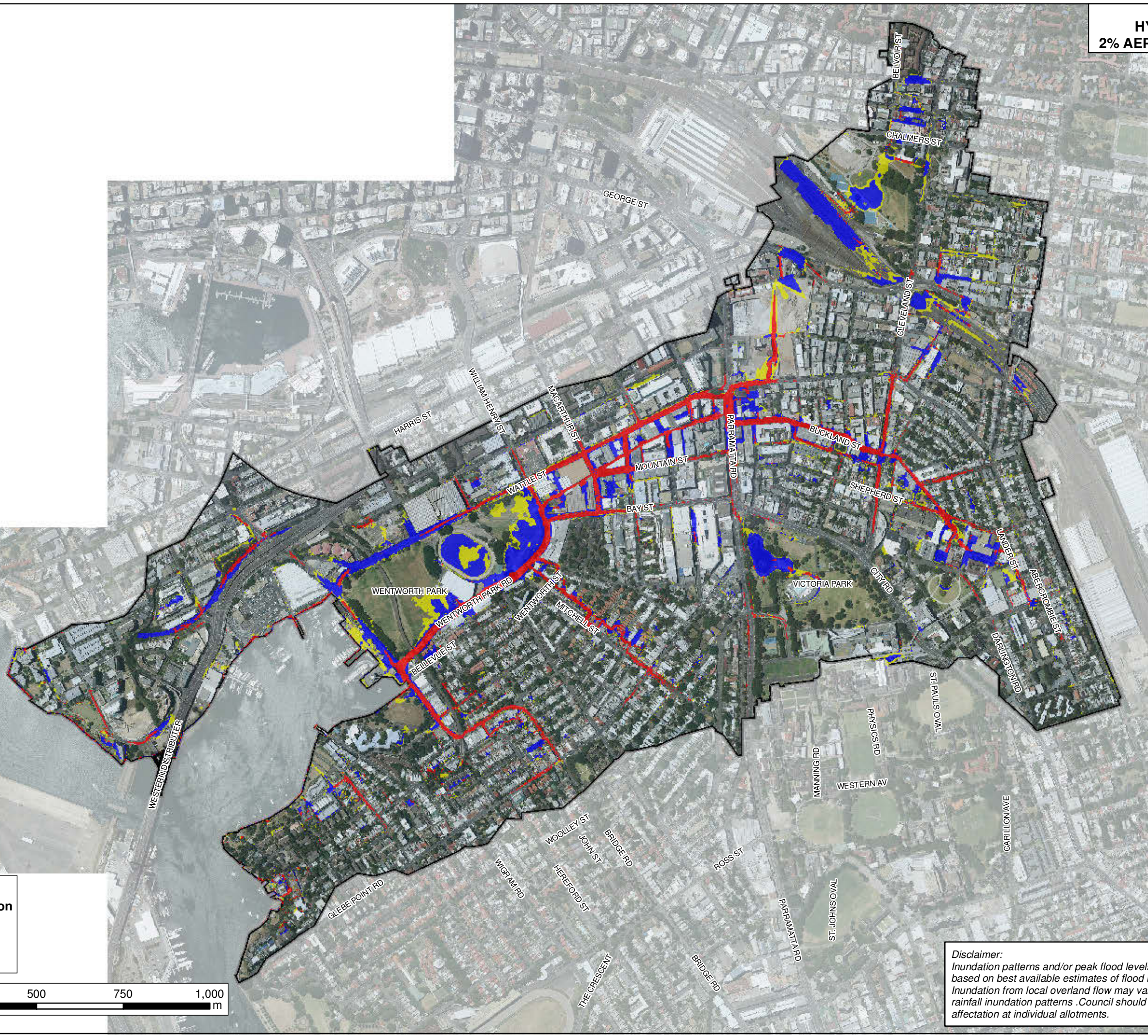
Disclaimer:
 Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 24
HYDRAULIC CATEGORIES
5% AEP DESIGN FLOOD EVENT



Disclaimer:
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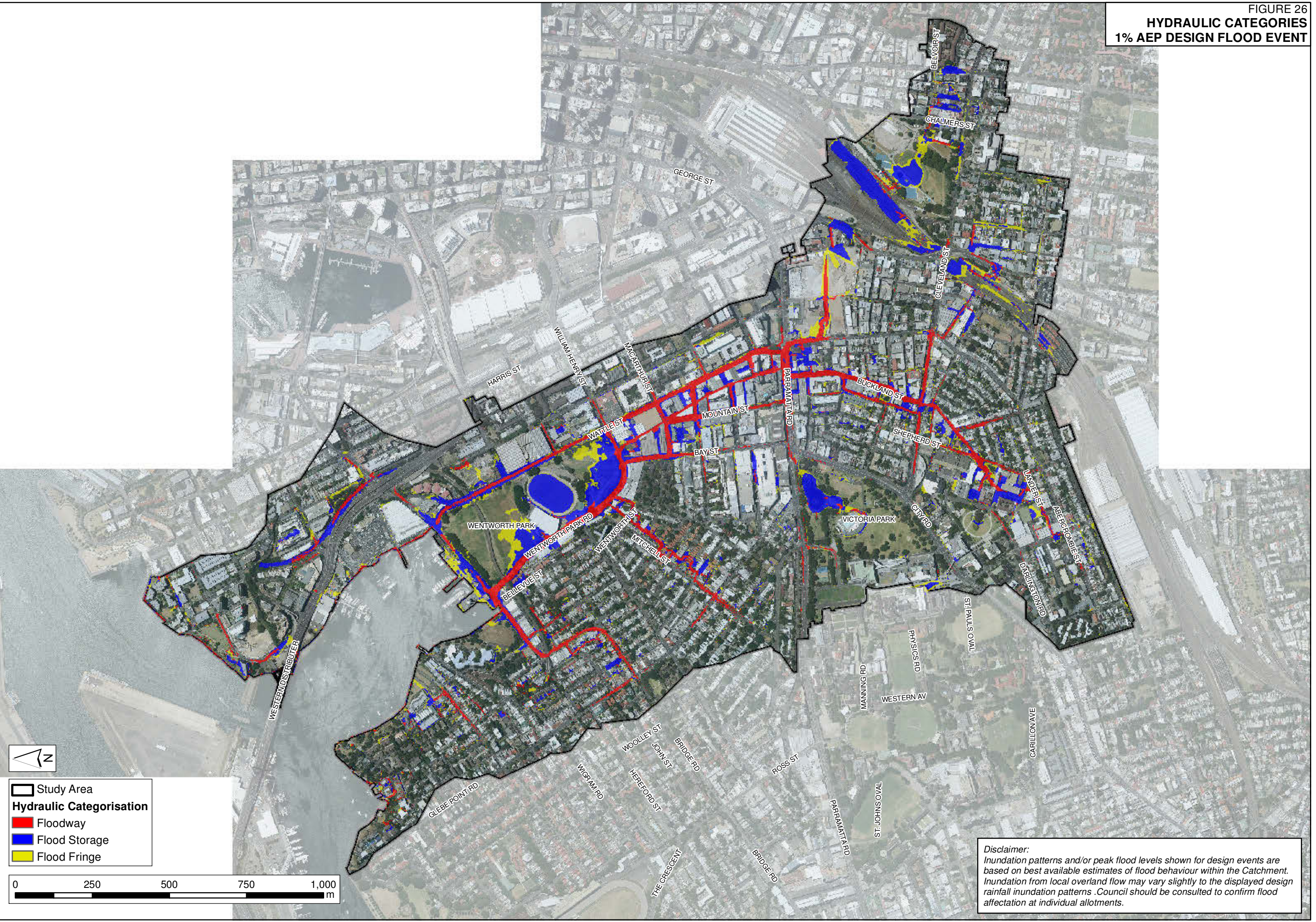
FIGURE 25
HYDRAULIC CATEGORIES
2% AEP DESIGN FLOOD EVENT








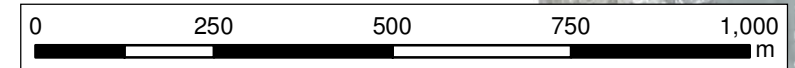
Disclaimer:
 Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 26
HYDRAULIC CATEGORIES
1% AEP DESIGN FLOOD EVENT

J:\Jobs\111021\GIS\ArcMaps\BWDraft_Report_Figs\Figure34_Hydraulic_Categories_002.mxd

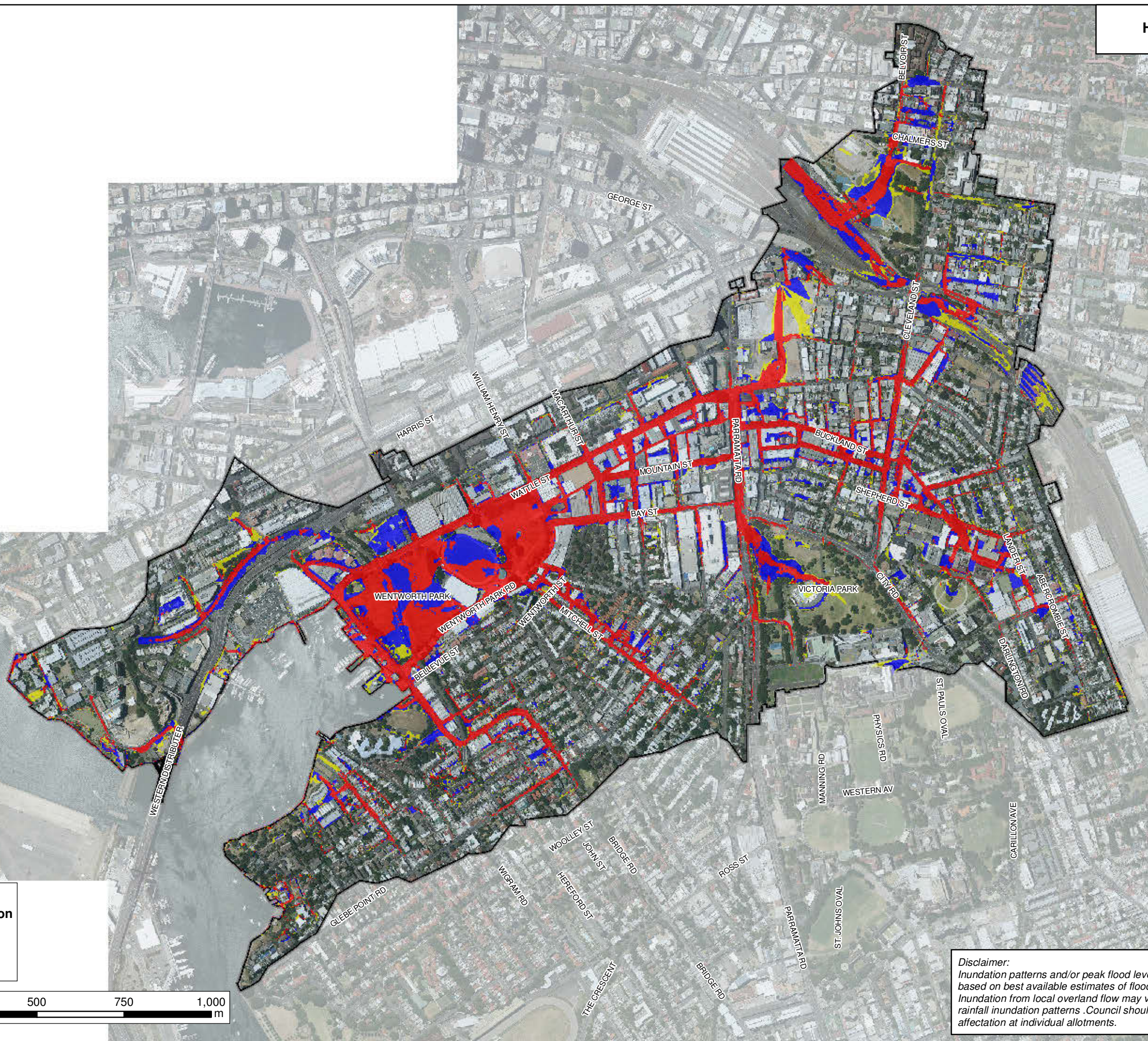



Study Area
 Study Area
Hydraulic Categorisation
 Floodway
 Flood Storage
 Flood Fringe



Disclaimer:
 Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 27
HYDRAULIC CATEGORIES
PMF EVENT



Disclaimer:
Inundation patterns and/or peak flood levels shown for design events are based on best available estimates of flood behaviour within the Catchment. Inundation from local overland flow may vary slightly to the displayed design rainfall inundation patterns. Council should be consulted to confirm flood affectation at individual allotments.

FIGURE 28
ACCESS ROAD FLOODING
1% AEP DESIGN FLOOD EVENT



- Study Area
- Tabulated Flooding Locations
- Depth (m)**
- 0.1 - 0.25
- 0.25 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- > 1

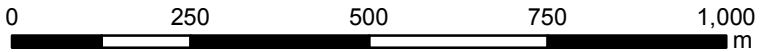
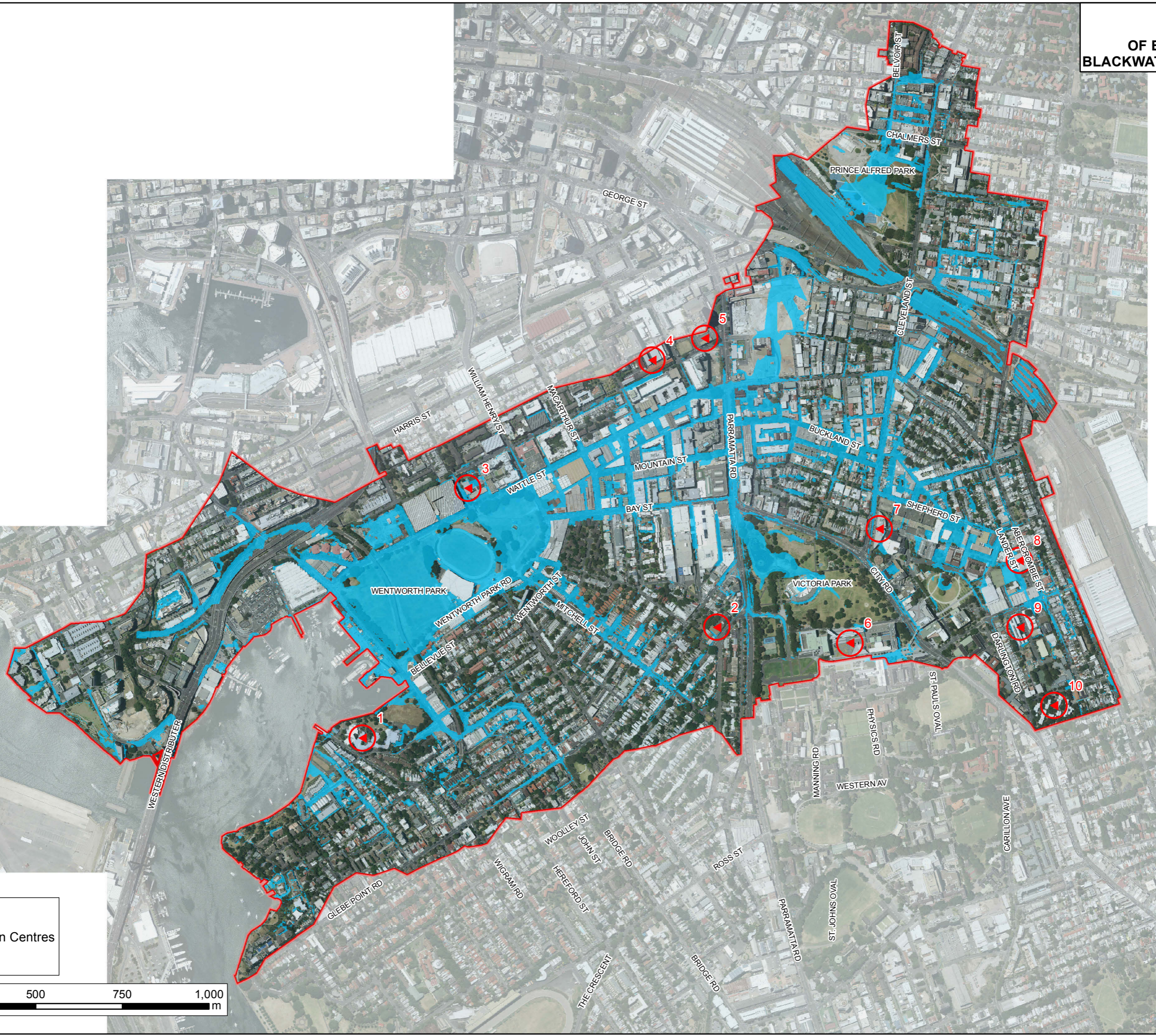
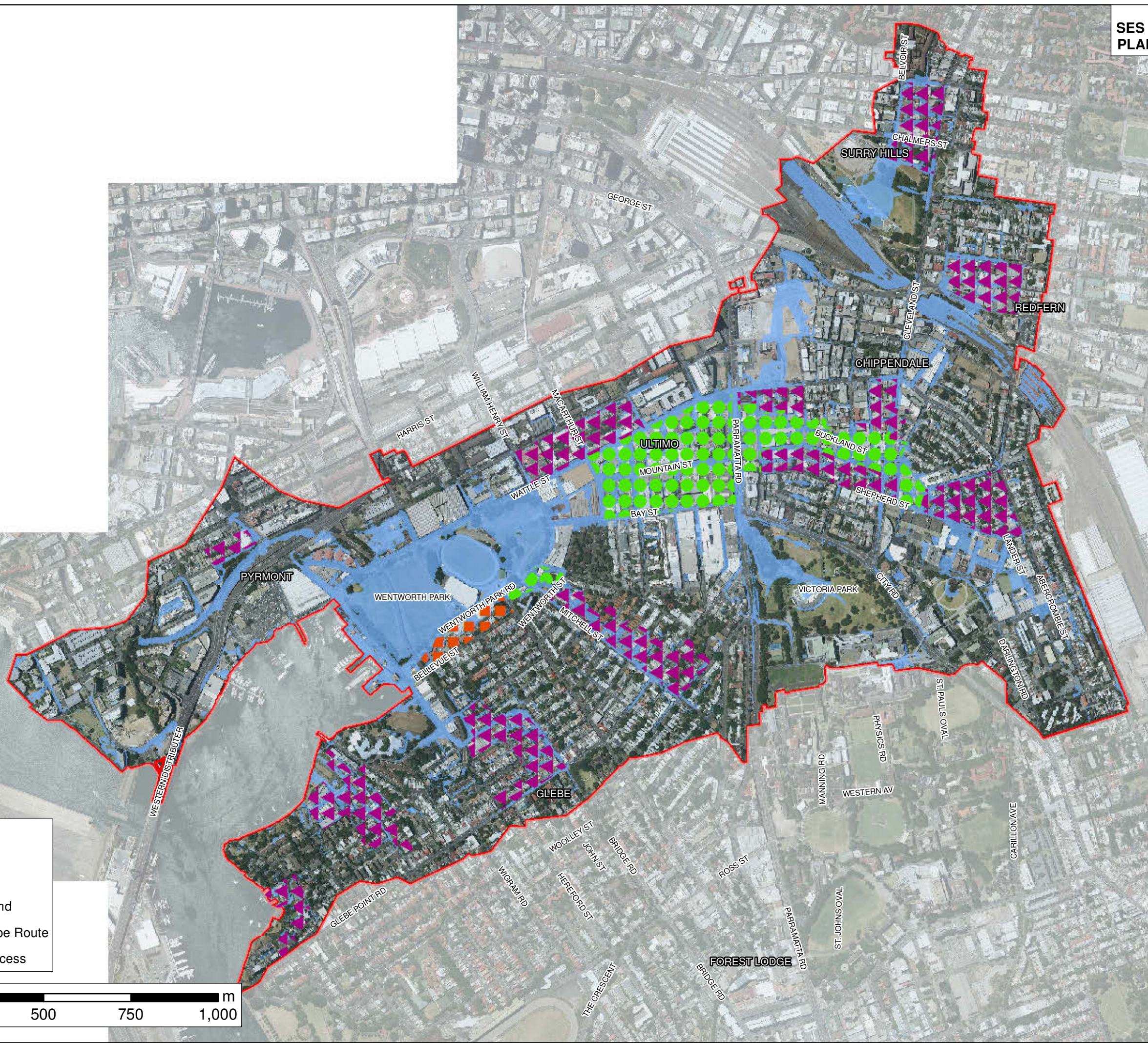


FIGURE 29
POSSIBLE LOCATIONS
OF EVACUATION CENTRES
BLACKWATTLE BAY CATCHMENT



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FIGURE 30
SES EMERGENCY RESPONSE
PLANNING CLASSIFICATIONS



- Study Area
- PMF Extent
- ERP Classification**
- High Flood Island
- Overland Escape Route
- Rising Road Access

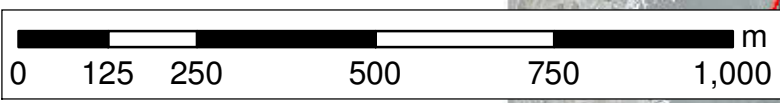
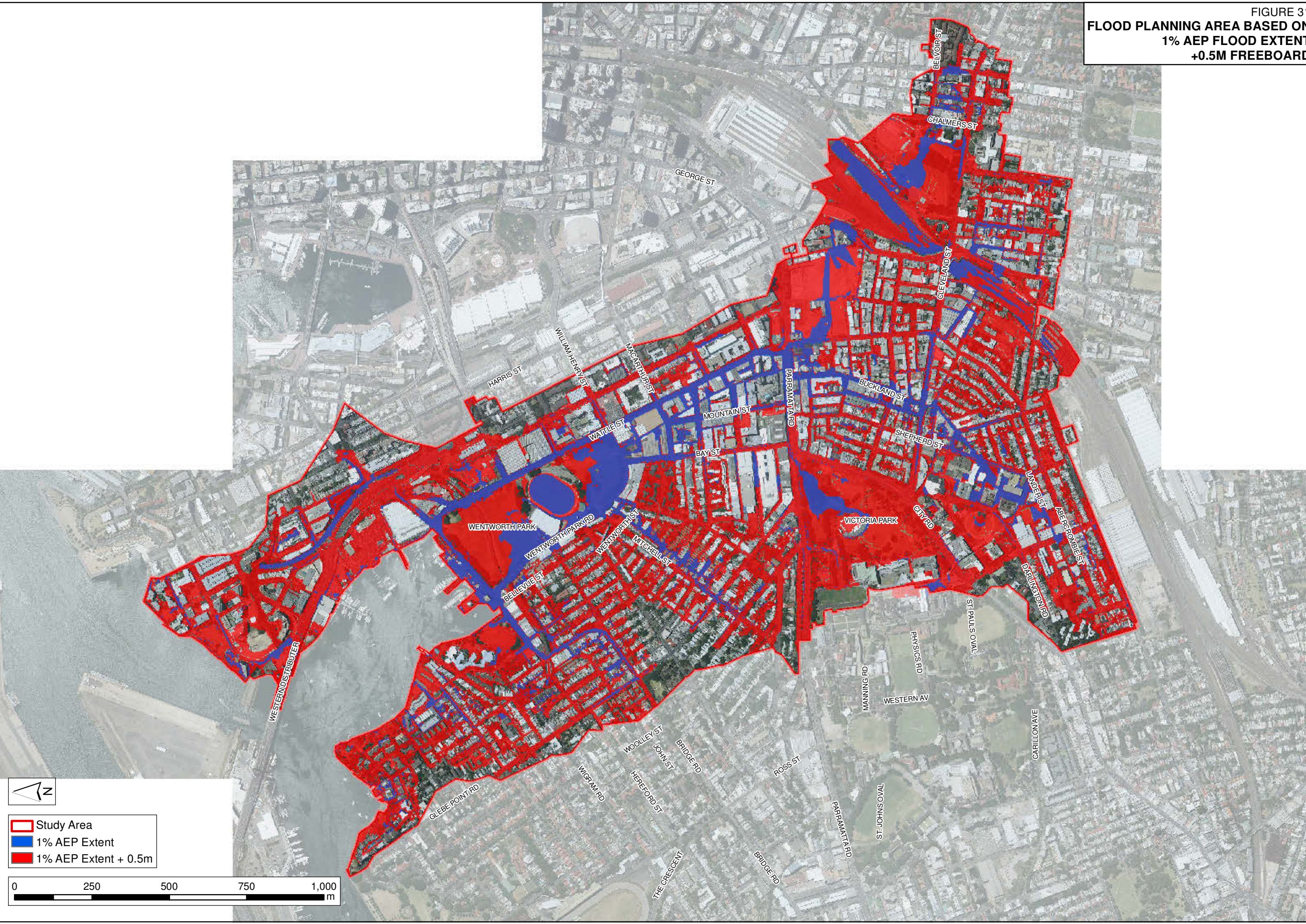
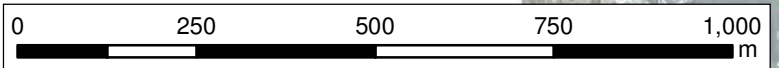


FIGURE 31
FLOOD PLANNING AREA BASED ON
1% AEP FLOOD EXTENT
+0.5M FREEBOARD



Study Area
1% AEP Extent
1% AEP Extent + 0.5m



FM-BB01 Additional Drainage and Detention Basin
Add drainage pipe along Belvoir St and drain to a detention basin in Prince Alfred Park

FM-BB07 Drainage Upgrade and Underground Storage
Upgrade capacity of trunk drainage between Wentworth Park and Cleveland St and put an underground storage tank under the council depot

FM-BB06 Underground Storage
Put an underground storage tank under the council depot

FM-BB05 Additional Drainage
Provide additional drainage pipes from City Rd/Broadway to Victoria Park

FM-BB03 Additional Outlet
Add an additional outlet into the bay opposite Bellevue St

FM-BB02 Additional Drainage
Add drainage pipe along Mitchell St

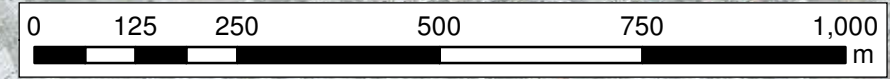
FM-BB04 Drainage Upgrade and Additional Outlet
Add an additional outlet and upgrade the approach pipes along Bridge Rd

Study Area (Red dashed line)

New/Upgrade Pits (Purple square)

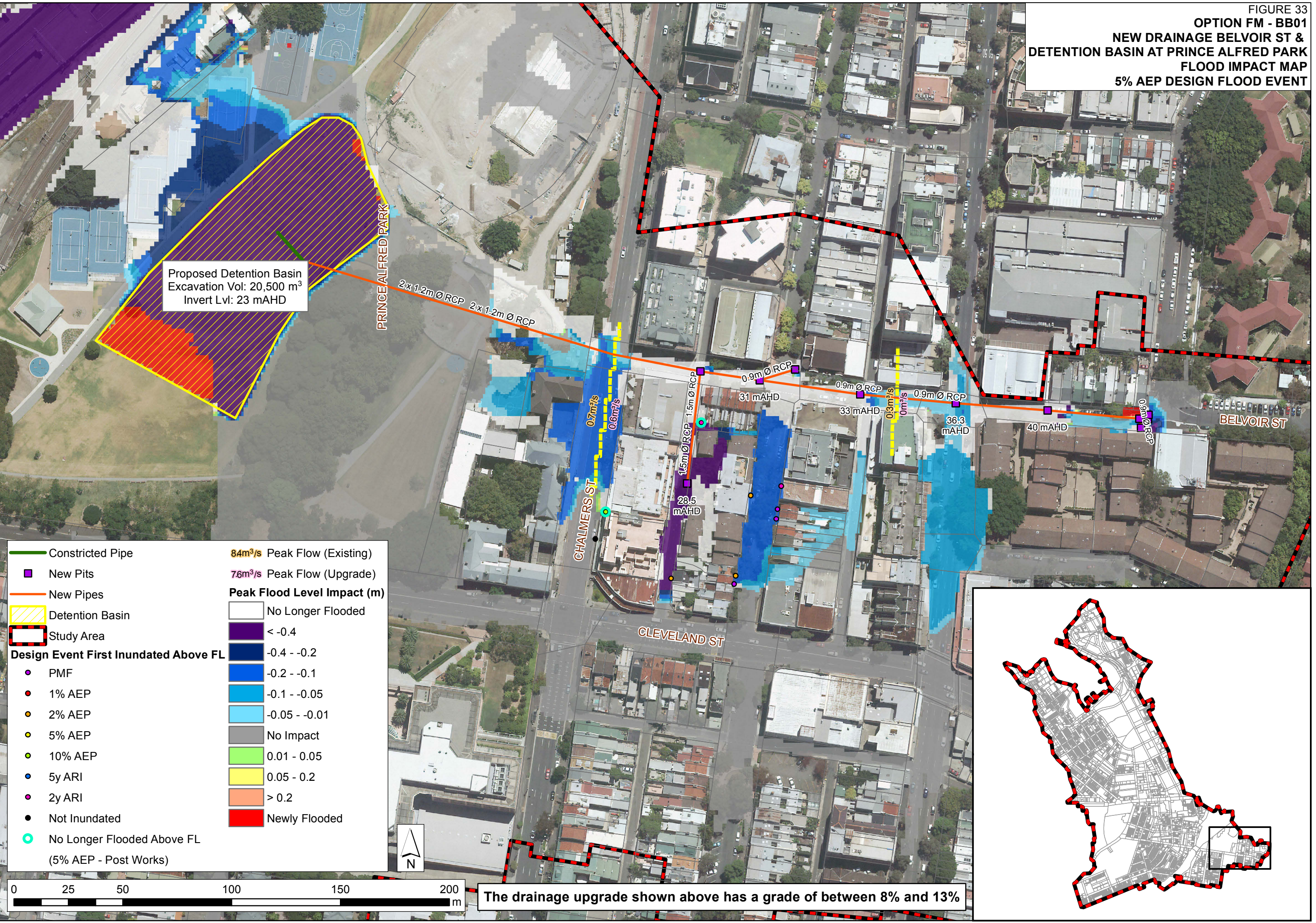
New/Upgrade Pipes (Orange line)

Detention Storage (Yellow hatched area)



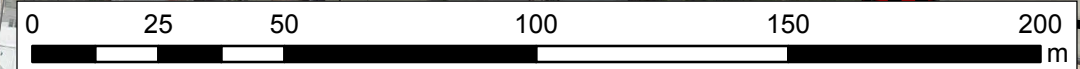
J:\Jobs\113046\ArcGIS\Arcl\Map\FRMS&P_Report\BW\Figure32 Flood Risk Mit. Management_Options_BW.mxd

FIGURE 33
OPTION FM - BB01
NEW DRAINAGE BELVOIR ST &
DETENTION BASIN AT PRINCE ALFRED PARK
FLOOD IMPACT MAP
5% AEP DESIGN FLOOD EVENT



Proposed Detention Basin
 Excavation Vol: 20,500 m³
 Invert Lvl: 23 mAHD

Constricted Pipe	New Pits	New Pipes	Detention Basin	Study Area
PMF	1% AEP	2% AEP	5% AEP	10% AEP
5y ARI	2y ARI	Not Inundated	No Longer Flooded Above FL	
84m ³ /s Peak Flow (Existing)	76m ³ /s Peak Flow (Upgrade)	Peak Flood Level Impact (m)		
No Longer Flooded	< -0.4	-0.4 - -0.2	-0.2 - -0.1	-0.1 - -0.05
-0.05 - -0.01	No Impact	0.01 - 0.05	0.05 - 0.2	> 0.2
Newly Flooded				



The drainage upgrade shown above has a grade of between 8% and 13%

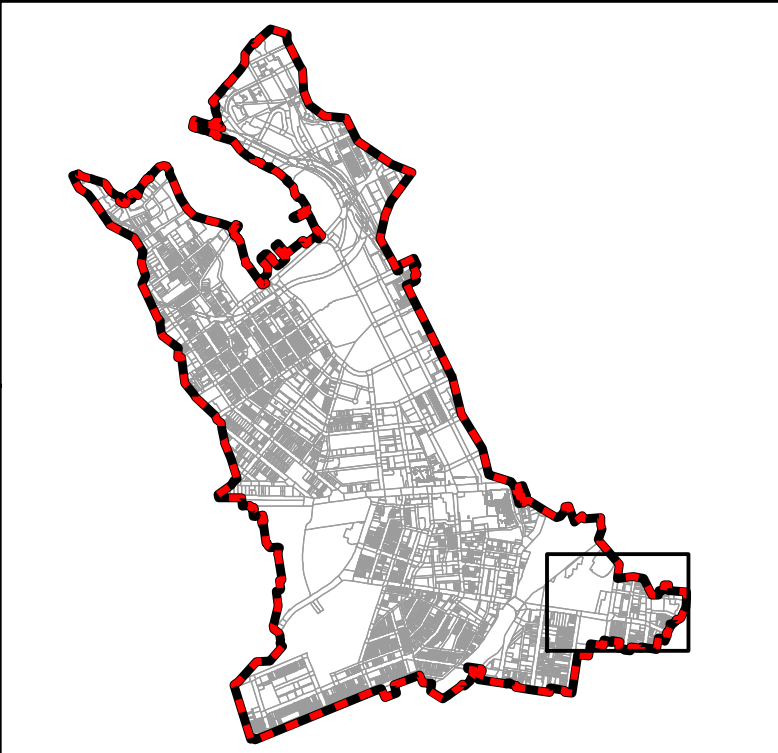
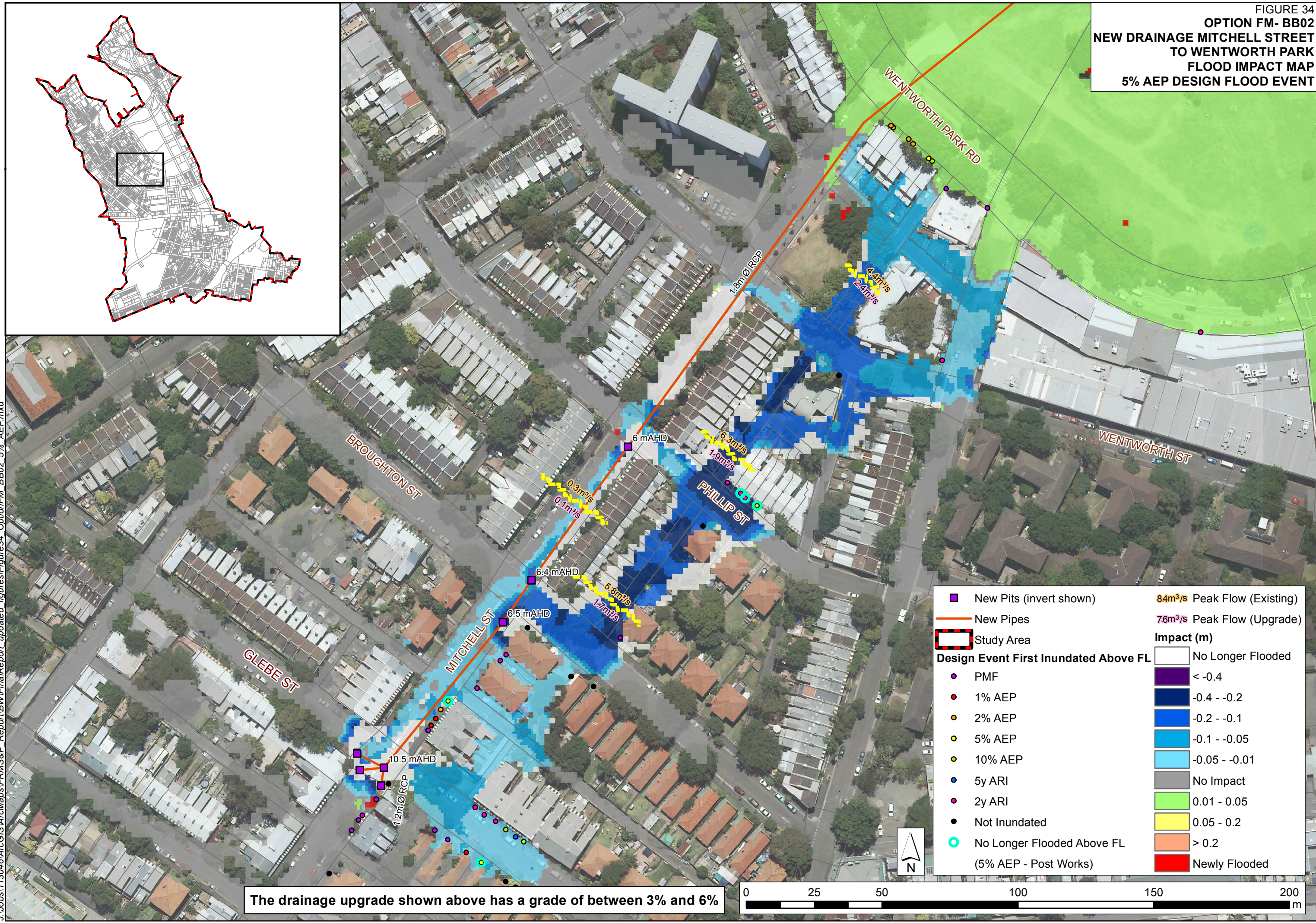


FIGURE 34
OPTION FM- BB02
NEW DRAINAGE MITCHELL STREET
TO WENTWORTH PARK
FLOOD IMPACT MAP
5% AEP DESIGN FLOOD EVENT

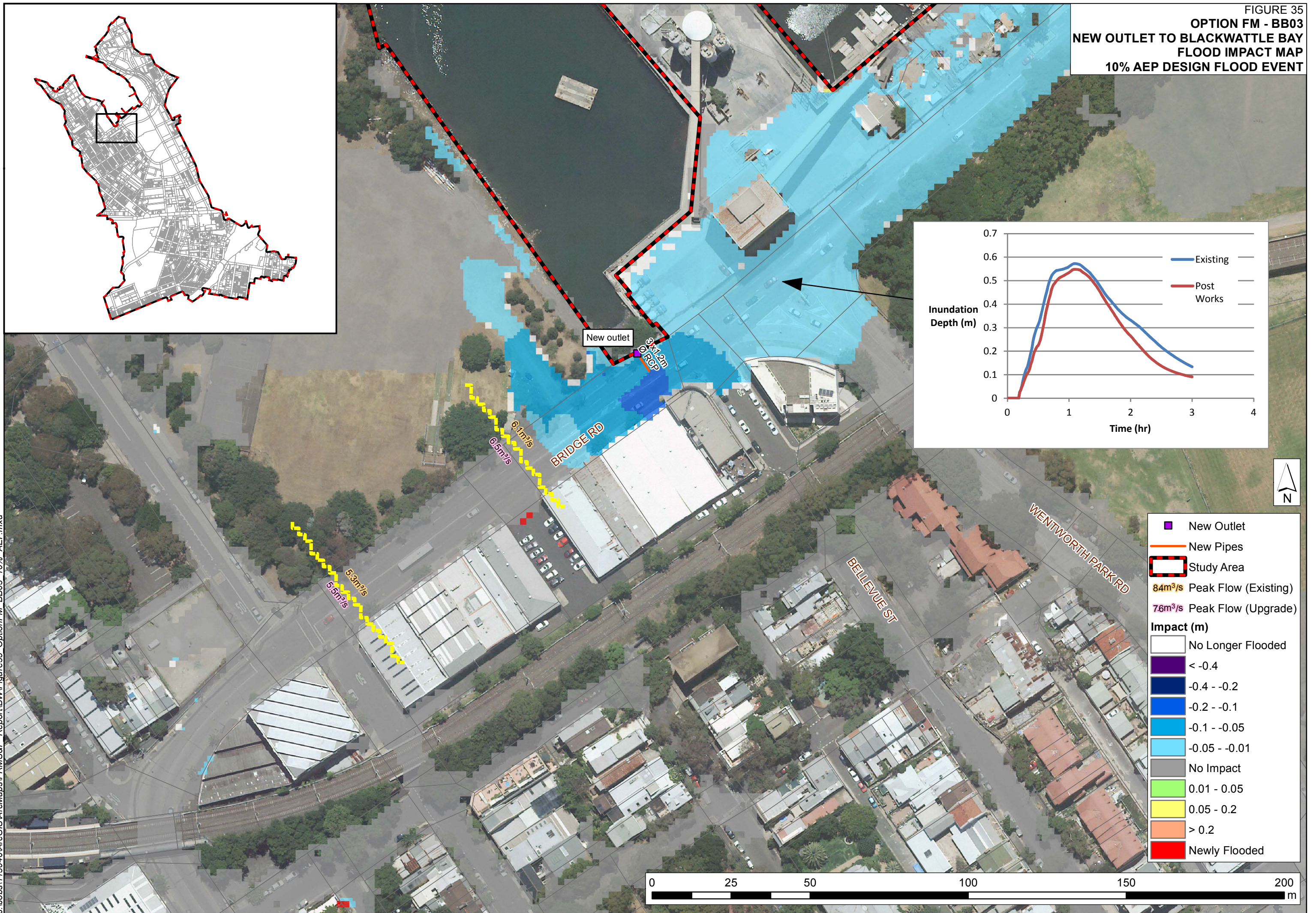


The drainage upgrade shown above has a grade of between 3% and 6%

■ New Pits (invert shown)	84m³/s Peak Flow (Existing)
— New Pipes	76m³/s Peak Flow (Upgrade)
▭ Study Area	Impact (m)
● PMF	□ Design Event First Inundated Above FL
● 1% AEP	■ < -0.4
● 2% AEP	■ -0.4 - -0.2
● 5% AEP	■ -0.2 - -0.1
● 10% AEP	■ -0.1 - -0.05
● 5y ARI	■ -0.05 - -0.01
● 2y ARI	■ No Impact
● Not Inundated	■ 0.01 - 0.05
● No Longer Flooded Above FL (5% AEP - Post Works)	■ 0.05 - 0.2
	■ > 0.2
	■ Newly Flooded

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FIGURE 35
OPTION FM - BB03
NEW OUTLET TO BLACKWATTLE BAY
FLOOD IMPACT MAP
10% AEP DESIGN FLOOD EVENT



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