CUMBERLAND
CITY COUNCIL

Flood Risk Management Policy

AUTHORISATION & VERSION CONTROL

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FLOOD RISK MANAGEMENT POLICY

BACKGROUND / INTRODUCTION

Council's Flood Risk Management Policy establishes Council's approach to flood risk management for Cumberland City through the local application of the NSW government's flood risk management principles. There are three floodplains within Cumberland City: Haslams Creek floodplain; Duck River floodplain; and Cooks River floodplain.

PURPOSE

The policy sets out Cumberland City Council's requirements and approach to flood risk management. The purpose of the policy is to reduce the impact of flooding and flood liability.

SCOPE

This policy applies to land within Cumberland City. It should be read in conjunction with the *Cumberland DCP 2021* and other relevant legislation and plans.

DEFINITIONS

ARI – average recurrence interval
DCP - *Cumberland Development Control Plan 2021*
Flood prone land - being synonymous with 'flood liable land' and 'floodplain' is the area of land which is subject to inundation by floods up to and including an extreme flood such as a probable maximum flood (PMF).
FRMP - Flood Risk Management Plan or study
FRP - Flood Risk Precinct
LEP - *Cumberland Local Environmental Plan 2021*
Probable Maximum Flood (PMF) - the largest flood that could conceivably occur at a particular location.

PRINCIPLES

1. To minimise risk to life and damage to property arising from flooding.
2. To manage and facilitate the appropriate development of flood prone land in an economically, environmentally and socially sustainable manner.
3. To ensure the appropriate assessment of proposed development on flood prone land.
4. To ensure that new development does not expose existing development to increased flood risks.
5. Measures to increase resilience across the city are encouraged to reduce the effects of flooding and flood risk.

REQUIREMENTS

1. Development applications lodged in accordance with the *Environmental Planning and Assessment Act 1979* on land affected by potential floods are to be assessed in accordance with the controls in the *Cumberland LEP 2021* and *Cumberland DCP 2021*, as well as the requirements of this policy, as applicable.

2. When assessing flood risk, both mainstream and overland flooding are to be considered.

3. Blockage needs to be included when analysing overland flow paths, pipes, etc. This analysis should be carried out on the basis that all bridges, culverts, pipes, etc. are at least 50% blocked.

4. A number of major land use categories have been identified for the purpose of floodplain management control. Table 1 (in the Appendix) shows these major categories together with the specific uses under each category (as defined by *Cumberland LEP 2021*), and the relevant requirements for each category.

5. Where flood compatible materials are required, refer to Table 2 in the Appendix:

6. Development is to comply with the controls applicable to the proposed land use category and FRPs within which the site is located:

    - Haslams Creek floodplain as specified in Table 3 in the Appendix;
    - Duck River floodplain; and
    - Cooks river floodplain.

    Maps for these catchment areas can be found in the appendix.

Note:

1. Council will prepare FRP Maps to identify flood hazards associated with main channels, creeks and rivers only. Other areas potentially affected by local overland flooding will require further study by the applicant, to determine the applicable FRP.
2. There may be areas beyond those mapped by Council, subject to potential flooding. These areas will require further study if identified, to determine an appropriate FRP.
3. Where the applicant is required to undertake further study to determine the applicable FRP, this will need to be undertaken by using an appropriate hydraulic analysis methodology by a suitably qualified hydraulic engineer with experience in urban flood studies.
4. Each of the floodplains within Cumberland City can be divided into flood risk precincts based on different levels of potential flood risk. These flood risk precincts are as follows:

    Haslams Creek floodplain:
    - *High flood risk:* the area within the envelope of land subject to a high hydraulic hazard (in accordance with the provisional criteria outlined in the Floodplain Management Manual) in a 100 year flood or potentially subject to evacuation difficulties.
    - *Medium flood risk:* as land below the 100 year flood level (plus freeboard) subject to low hydraulic hazard (in accordance with the provisional criteria outlined by the NSW Floodplain Management Manual).
    - *Low flood risk:* all other land within the floodplain (i.e. within the extent of the probable maximum flood) but not identified as either a high flood risk or medium flood risk FRP, where risk of damages are low for most land uses.

    Duck River floodplain:
    FRMPs are yet to be finalised for this floodplain. In the interim, the controls applicable to the Haslams Creek floodplain will be applied. No FRP maps apply and appropriate FRPs must be determined on an individual site basis.

    Cooks River floodplain:
    FRMPs are yet to be finalised for this floodplain. In the interim, the controls applicable to the Haslams Creek floodplain will be applied. No FRP maps apply, and appropriate FRPs must be determined on an individual site basis.

RELATED LEGISLATION

Conveyancing Act 1919
Floodplain Development Manual 2005 (NSW Government)
Australian Standards
Cumberland Local Environmental Plan 2021

RELATED DOCUMENTS AND COUNCIL POLICY

Cumberland City Council Development Control Plan 2021
Any applicable flood risk management plans (FRMP)
Managing Urban Stormwater: Soils and Construction (NSW Department of Housing)
Sydney Water Standards

APPENDIX

Table 1: Floodplain Management Controls – Land Use Categories

Essential community facilities	Critical utilities	Subdivision	Residential	Commercial or industrial	Non-urban activities or open space	Concessional development
Place of public entertainment or public administration buildings which may provide an important contribution to the notification and evacuation of the community during flood events. Hospitals and educational establishments.	Telecommunication facilities; fill; electricity generating works or infrastructure land uses which may cause pollution of waterways during flooding. are essential to evacuation during periods of flood or if affected during flood events would unreasonably affect the ability of the community to return to normal activities after flood events.	Subdivision of land which involves the creation of new allotments for any particular purpose.	Bed & Breakfast accommodation; boarding houses; dwelling houses; home industry; infrastructure land uses (other than critical infrastructure); multi dwelling housing; neighbourhood shops; permanent group homes; residential flat buildings; seniors housing; serviced apartments; transitional group homes.	Amusement centres; bulky goods premises; car parks; child care centres; business premises; community facilities; depots; educational establishments; food and drink premises (excluding pubs); function centre; hazardous industries; hazardous storage establishments; health consulting rooms; health service facilities;	Cemetery; depot; extractive industries; helipad; marinas; mining; recreation areas and recreation facilities (outdoor); stock and sale yard.	(a) In the case of residential development: (i) an addition to an existing dwelling house of not more than 10% or 35m² (whichever is the lesser) of the habitable floor area which existed at the date of commencement of this Plan; (ii) the construction of an outbuilding with a maximum floor area of 20m² or

Essential community facilities	Critical utilities	Subdivision	Residential	Commercial or industrial	Non-urban activities or open space	Concessional development
				hotel or motel accommodation; industries; light industries; liquid fuel depot; medical centres; offensive industries; offensive storage establishments; office premises; passenger transport facilities; place of public entertainment; places of public worship; public administration building; recreation facilities (indoor); recreation facilities (major); registered clubs; resource recovery facility; service stations; sex service premises; shops; storage premises; vehicle body repair workshops; vehicle repair stations; vehicle sales or hire premises; warehouse or distribution centres; wholesale supply.		(iii) re-development for the purposes of substantially reducing the extent of flood affectation to the existing building. (b) In the case of other development: (i) an addition to existing premises of not more than 10% of the floor area which existed at the date of commencement of this Plan; or (ii) re-development for the purposes of substantially reducing the extent of flood affectation to the existing building. (c) In the case of all development: (i) earthworks or filling operations covering 100m² or more than 0.3m deep, which do not raise ground levels above the 20-year ARI flood level, and is not located within the foreshore building line.

APPENDIX (CONTINUED)

Table 2: Flood Compatible Materials

Building component	Flood compatible material	Building component	Flood compatible material
Flooring and sub-floor structure	• Concrete slab-on-ground monolith construction • Suspension reinforced concrete slab	**Doors**	▪ Solid panel with water proof adhesives ▪ Flush door with marine ply filled with closed cell foam ▪ Painted metal construction ▪ Aluminium or galvanised steel frame
Floor covering	• Clay tiles • Concrete, precast or in situ • Concrete tiles • Epoxy, formed-in-place • Mastic flooring, formed-in-place • Rubber sheets or tiles with chemical-set adhesives • Silicone floors formed-in-place • Vinyl sheets or tiles with chemical-set adhesive • Ceramic tiles, fixed with mortar or chemical-set adhesive • Asphalt tiles, fixed with water resistant adhesive	**Wall and ceiling linings**	▪ Fibro-cement board ▪ Brick, face or glazed ▪ Clay tile glazed in waterproof mortar ▪ Concrete ▪ Concrete block ▪ Steel with waterproof applications ▪ Stone, natural solid or veneer, waterproof grout ▪ Glass blocks ▪ Glass ▪ Plastic sheeting or wall with waterproof adhesive
Wall structure	• Solid brickwork, blockwork, reinforced, concrete or mass concrete	**Insulation windows**	▪ Foam (closed cell types) ▪ Aluminium frame with stainless steel rollers or similar corrosion and water resistant material
Roofing structure (for situations where the relevant flood level is above the ceiling)	• Reinforced concrete construction • Galvanized metal construction	**Nails, bolts, hinges and fittings**	▪ Brass, nylon or stainless steel ▪ Removable pin hinges ▪ Hot dipped galvanized steel wire nails or similar
Electrical and mechanical equipment For dwellings constructed on land to which this Part applies, the electrical and mechanical materials, equipment and installation should conform to the following requirements.		**Heating and air conditioning systems** Heating and air conditioning systems should, to the maximum extent possible, be installed in areas and spaces of the house above the relevant flood level. When this is not feasible, every precaution should be taken to minimize the damage caused by submersion according to the following guidelines.	
Main power supply Subject to the approval of the relevant authority, the incoming main commercial power service equipment, including all metering equipment, shall be located above the relevant flood level. Means shall be available to easily disconnect the dwelling from the main power supply.		**Fuel** Heating systems using gas or oil as a fuel should have a manually operated valve located in the fuel supply line to enable fuel cut-off.	
Wiring All wiring, power outlets, switches, etc. should, to the maximum extent possible, be located above the relevant flood level. All electrical wiring installed below the relevant flood level should be suitable for continuous submergence in water and should contain no fibrous components. Earth core linkage systems (or safety switches) are to be installed. Only submersible-type splices should be used below the relevant flood level. All conduits located below the relevant designated flood level should be so installed that they will be self-draining if subjected to flooding.		**Installation** The heating equipment and fuel storage tanks should be mounted on and securely anchored to a foundation pad of sufficient mass to overcome buoyancy and prevent movement that could damage the fuel supply line. All storage tanks should be vented to an elevation of 600 millimetres above the relevant flood level.	
Equipment All equipment installed below or partially below the relevant flood level should be capable of disconnection by a single plug and socket assembly.		**Ducting** All ductwork located below the relevant flood level should be provided with openings for drainage and cleaning. Self draining may be achieved by constructing the ductwork on a suitable grade. Where ductwork must pass through a water-tight wall or floor below the relevant flood level, the ductwork should be protected by a closure assembly operated from above relevant flood level.	
Reconnection Should any electrical device and/or part of the wiring be flooded, it should be thoroughly cleaned or replaced and checked by an approved electrical contractor before reconnection.			

APPENDIX (CONTINUED)

Haslams Creek Floodplain

(Also applies to Duck River and Cooks River Floodplain in interim - subject to review)

Planning Consideration	Flood Risk Precincts (FRP's)																		
	Low Flood Risk							Medium Flood Risk						High Flood Risk					
	Essential Community Facilities	Critical Utilities	Subdivision	Residential	Commercial & Industrial	Recreation & Non-Urban	Concessional Development	Essential Community Facilities	Critical Utilities	Subdivision	Residential	Commercial & Industrial	Recreation & Non-Urban	Concessional Development	Essential Community Facilities	Critical Utilities	Subdivision	Residential	Commercial & Industrial	Recreation & Non-Urban	Concessional Development
Floor Level		5									2,3,4	2,3	1	6						1	2,6
Building Components		2									1	1	1	1						1	1
Structural Soundness		3									2	2	2	2						1	1
Flood Affectation		2								1	2	2	2	2						1	1
Evacuation		2,4	*	3,4	4					*	3,4	3,4	1	3						1	3
Management & Design		1,2,3	1							1	2,3,5	2,3,5	2,3,5	2,3,5						2,3,5	2,3,5

Not Relevant

Unsuitable Land Use

* Refer to 'Management & Design' planning consideration for subdivision

Note: *Filling of the site, where acceptable to Council, may change the FRP considered to determine the controls applied in the circumstances of individual applications.*

Floor level

1	All floor levels to be equal to or greater than the 5 year ARI flood level plus freeboard unless justified by site specific assessment.
2	Floor levels of open car parking areas to be equal to or greater than the 20 year ARI flood plus freeboard. This may be achieved with a suspended floor which allows the continued passage of flood waters or filling if justified by a site specific assessment, as required with reference to flood affectation and other controls below. Enclosed car parking (e.g. garages or basement car parking) must be protected from the 100 year ARI flood.
3	Habitable floor levels to be equal to or greater than the 100 year ARI flood plus freeboard.
4	Below ground swimming pools should be free from inundation from storms up to the 5 year ARI. Where required, the private open space of a dwelling should be a usable outdoor recreation area which, during storm events equal to less than the 5 year ARI, is free from inundation by overland flows exceeding 50mm.
5	All floor levels to be equal to or greater than the probable maximum flood plus freeboard.
6	Floor levels to be as close to the design floor level (the level nominated above that would apply if not concessional development) as practical and no lower than the existing floor level when undertaking alterations or additions.

Note: The freeboard height in the Haslams Creek floodplain is variable primarily, due to the implications of sub-critical and super-critical flows caused by obstructions to the flowpath of flood waters, and can be determined by reference to a map and tables produced as part of the Haslams Creek FRMP and held in the offices of Council. The freeboard height for the Duck River and Cooks River floodplains is 0.5m.

Building components and method (Also see Table 7)

1	All structures to have flood compatible building components below or at the 100 year ARI flood level.
2	All structures to have flood compatible building components below or at the PMF level.

Structural soundness

1	Engineers report to certify that any structure can withstand the forces of floodwater, debris and buoyancy up to and including a 100 year flood.
2	Applicant to demonstrate that any structure can withstand the forces of floodwater, debris and buoyancy up to and including a 100 year flood.

3	Applicant to demonstrate that any structure can withstand the forces of floodwater, debris and buoyancy up to and including a PMF flood.

Flood affectation

1	Engineers report required to certify that the development will not increase flood affectation elsewhere.
2	The impact of the development on flooding elsewhere to be considered.

Note: When assessing flood affectation the following must be considered:

1. Loss of storage area in the floodplain (except for filling occurring up to the 20 year ARI.
2. Changes in flood levels caused by alteration of conveyance of flood waters.
3. Filling between the 20 year and 100 year ARI flood levels will not be permitted.

Evacuation

1	Reliable access for pedestrians required during a 5 year ARI flood.
2	Reliable access for pedestrians and vehicles required during a PMF flood.
3	Reliable access for pedestrians or vehicles is required from the dwelling, commencing at a minimum flood level equal to the lowest habitable floor level to an area of refuge above the PMF level, either on-site of off-site.
4	Applicant to demonstrate that the development is to be consistent with any relevant DISPLAN or flood evacuation strategy.

Management and design

1	Applicant to demonstrate that potential development as a consequence of a subdivision proposal can be undertaken in accordance with this Part.
2	Site Emergency Response Flood plan required (except for single-dwelling houses) where floor levels are below the design floor level.
3	Applicant to demonstrate that area is available to store goods above the 100 year flood plus 0/5m (freeboard).
4	Applicant to demonstrate that area is available to store goods above the PMF flood plus 0.5m (freeboard).
5	No external storage of materials below design floor level which may cause pollution or be potentially hazardous during any flood.

APPENDIX (CONTINUED)

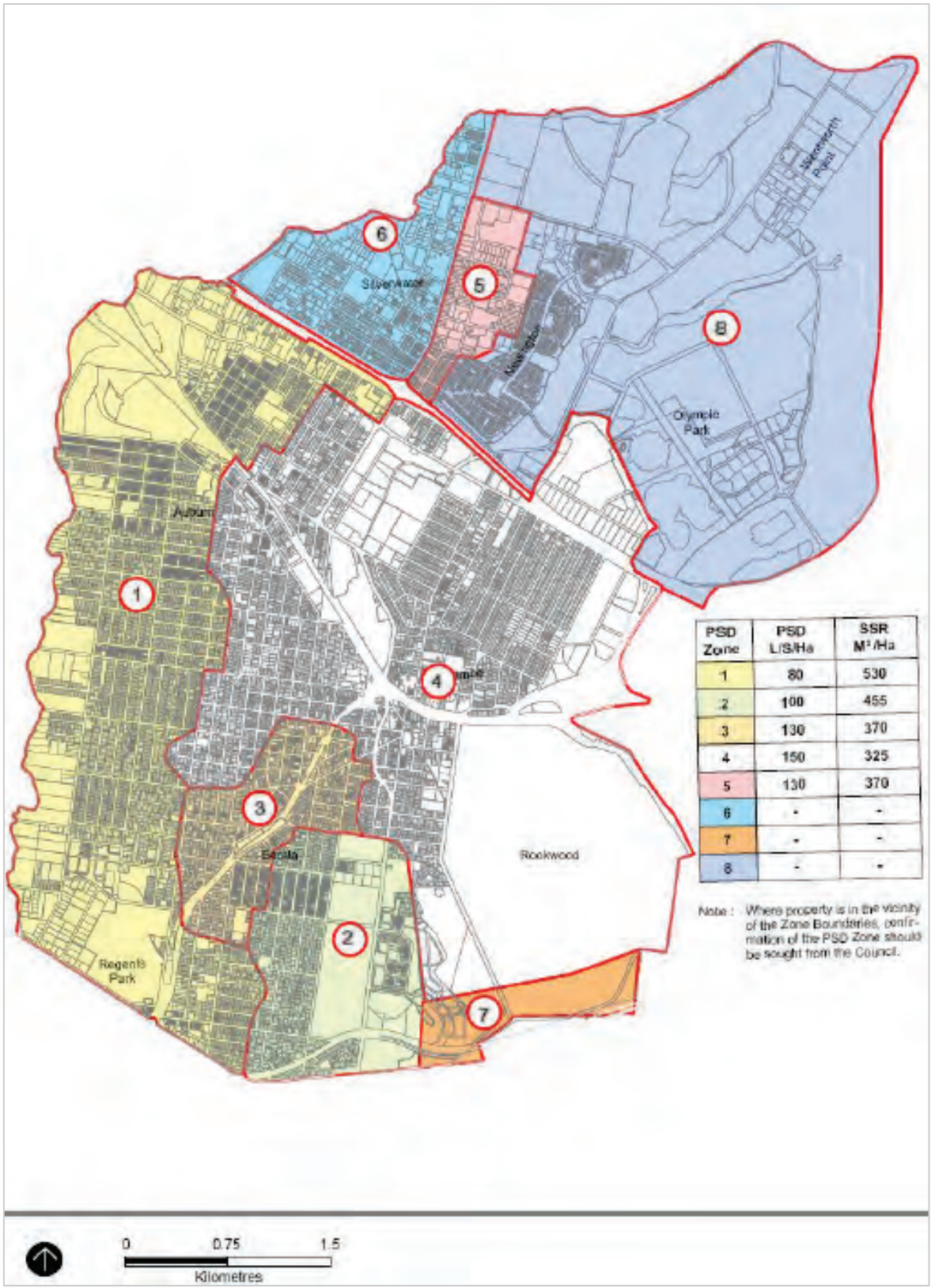

Figure 1: Haslams Creek catchment area

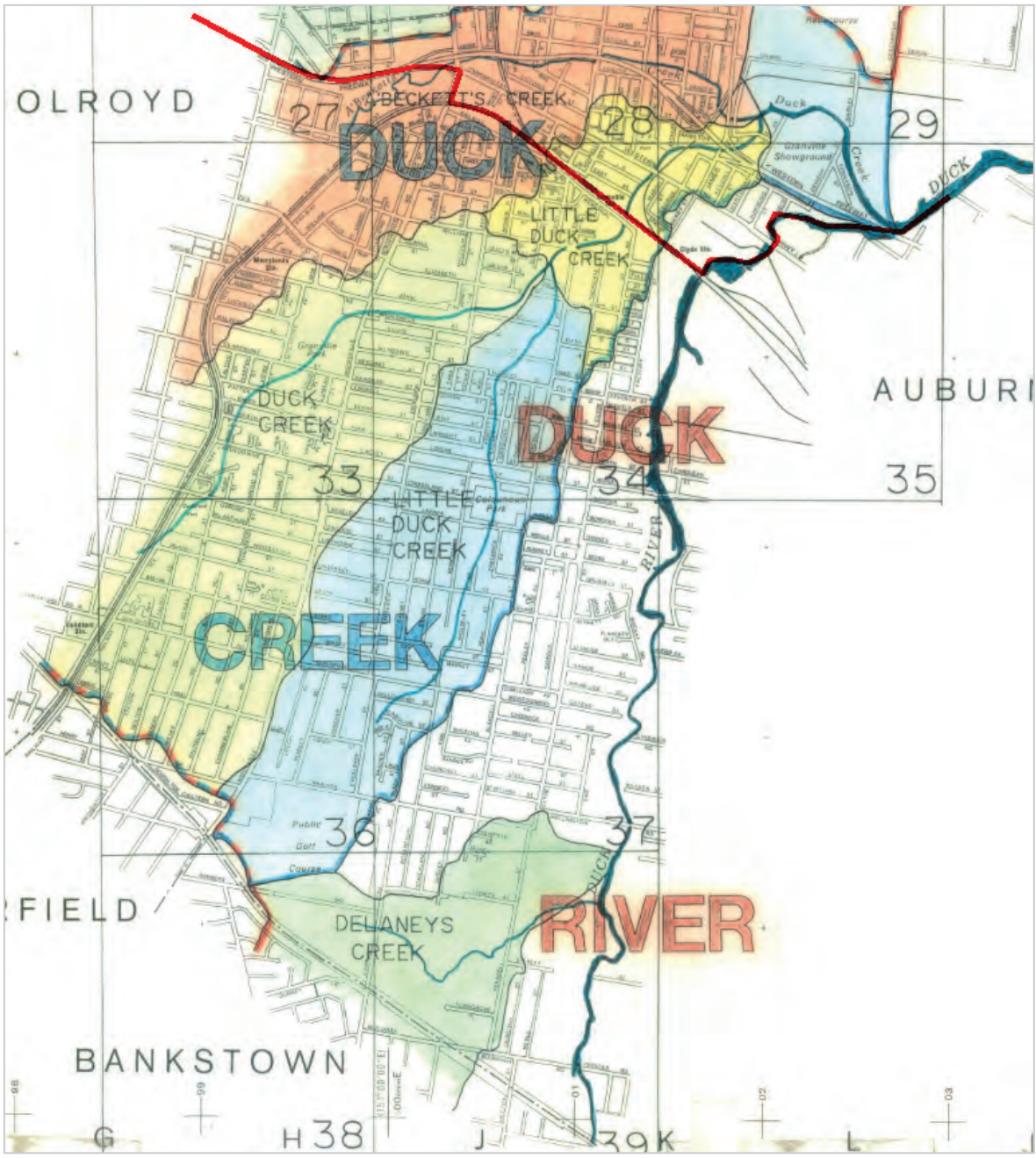

Figure 2: Duck River catchment area