Private Plan Change Request – Hughes Developments Limited
Appendix K – Flooding Assessment

DAVIE LOVELL-SMITH
PLANNING SURVEYING ENGINEERING

Davie, Lovell-Smith Ltd
116 Wrights Road, Addington
PO Box 679, Christchurch 8140
New Zealand
Telephone (03) 379-0793,
E-mail: office@dls.co.nz

15th July 2020

Selwyn District Council
Benjamin.Rhodes@selwyn.govt.nz

Attn: Mr Ben Rhodes

RE: Plan Change Application, Selwyn Road, Rolleston – Flood Assessment

Dear Ben

As part of a Plan Change Application, Council require an assessment of the effects of flooding on proposed sites and how it may be mitigated. In this case the assessment is for sites owned by Hughes Developments in Rolleston, Selwyn Road.

Selwyn District Council has with the help of Environment Canterbury (ECan) identified land across the Selwyn District which may be susceptible to flooding. Please refer to the four attached plans of the proposed plan change areas. These plans depict the modelled flood effects on the development site. Please note that all flows up to a 1 in 50 year event will be disposed of on site by infiltration to ground.

Plan A describes the channelization and water depth for a 1 in 200 year critical storm event on the Faringdon South West ODP Area.
Plan B describes the channelization and water depth for a 1 in 500 year critical storm event on the Faringdon South West ODP Area.
Plan C describes the channelization and water depth for a 1 in 200 year critical storm event on the Faringdon South East ODP Area.
Plan D describes the channelization and water depth for a 1 in 500 year critical storm event on the Faringdon South East ODP Area.

These clearly show channelized flow through and around the sites. To better locate these channels, please refer to the attached topographical plans of the site with overlaid LIDAR contours. The key flow channels have been superimposed over the LIDAR and they fall into distinct contour channels.

Faringdon South West Site
From this investigation there appear to be three main flow routes entering the development area and these are described on the plan as Channel 1-3. What is also apparent is that the site is quite flat but generally slopes towards the southeast at a gradient of 1 in 200.

Channel 1 enters the site at the corner of Goulds Road and East Maddisons Road. It flows south into a neighbouring property and then back out the other side into the development area before proceeding to Selwyn Road.

Channel 2 enters the site from Goulds Road, flows into the neighbours property and then out the other side back into the development block before connecting with Channel 1 and discharging to Selwyn Road.

Channel 3 is a minor channel entering the property off Goulds Road and drains through the site to Selwyn Road.

Faringdon South Site
From this investigation there appear to be four main flow routes entering the development area and these are described on the plan as Channel 1-4. The site is quite flat but generally slopes towards the southeast at a gradient of 1 in 185.

Channels 1-4 enter the development block at the northwest boundary and drain to Selwyn Road. There is also a significant flow running down Springston-Rolleston Road and into a low point on the land near the intersection with Selwyn Road and floods a small area of historic excavation.

Existing Topography and Flow Paths
Please refer to the attached plans of the two development areas with the flow channels depicted on the natural contours of the site.

Proposed Works
As part of the works on the proposed developments, the lots will become elevated and the roads will be lowered. The roads in effect will become the secondary flow paths though the sites in place of the natural channels. The key is to ensure that the roads provide for flood waters to enter the site and then drain on a downwards grade through the site to the rural land beyond where the water can rejoin with the natural flow paths.

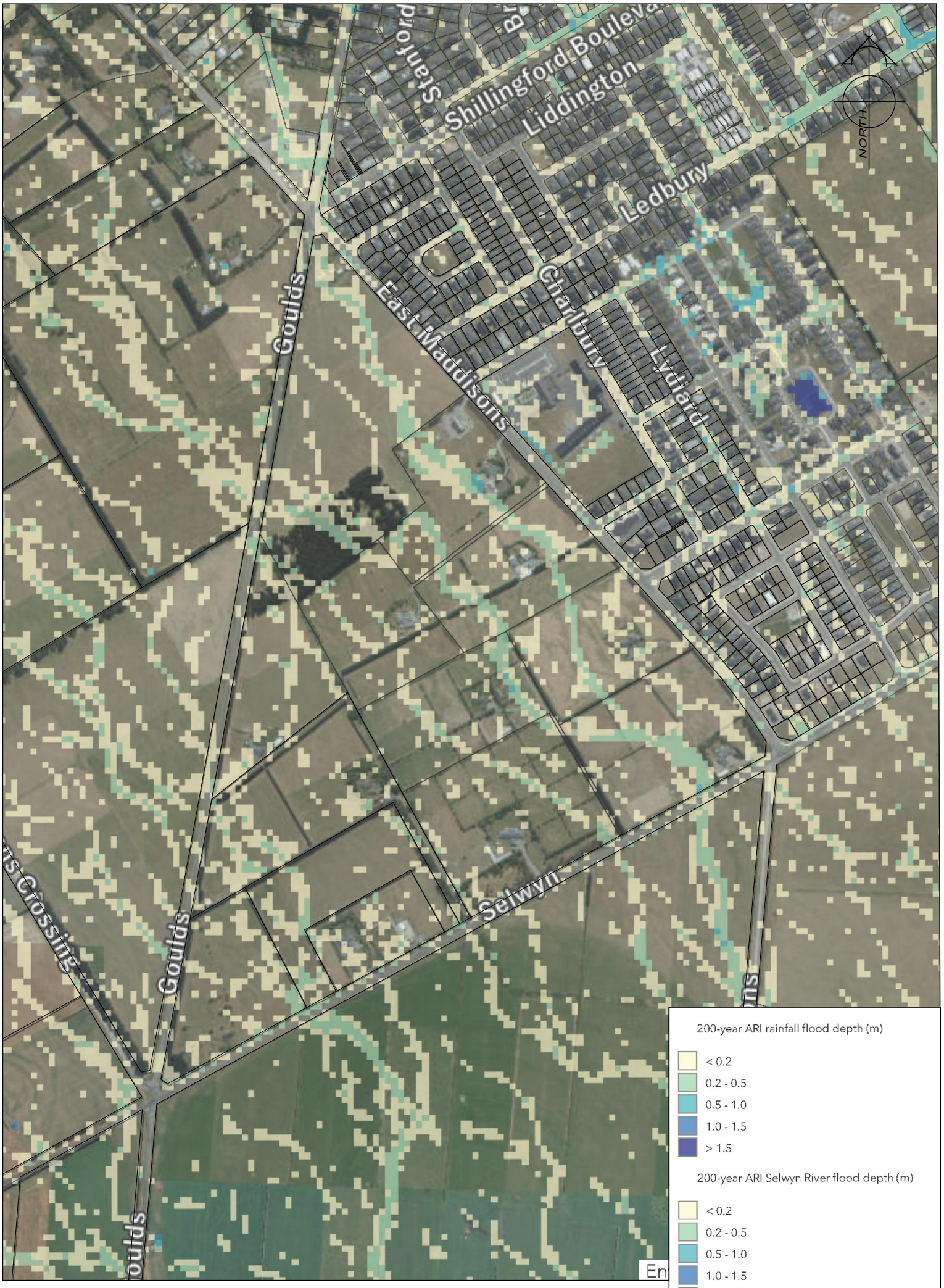
As the waters flow through the site the velocity should increase due to the reduced friction associated with an asphalt surface. This increased flow velocities will reduce water depths and allow safe and efficient transfer of flood water through the site.

By adhering to this assessment, the effects of significant flood events will be fully mitigated. The layout of roads will take into account the points of upstream overland flow and its passage through the site. The actual final floor levels in relation to this flow will be determined as part of the Detailed Design and subdivision process.

Should you have any queries, please do not hesitate to call.

Kind Regards

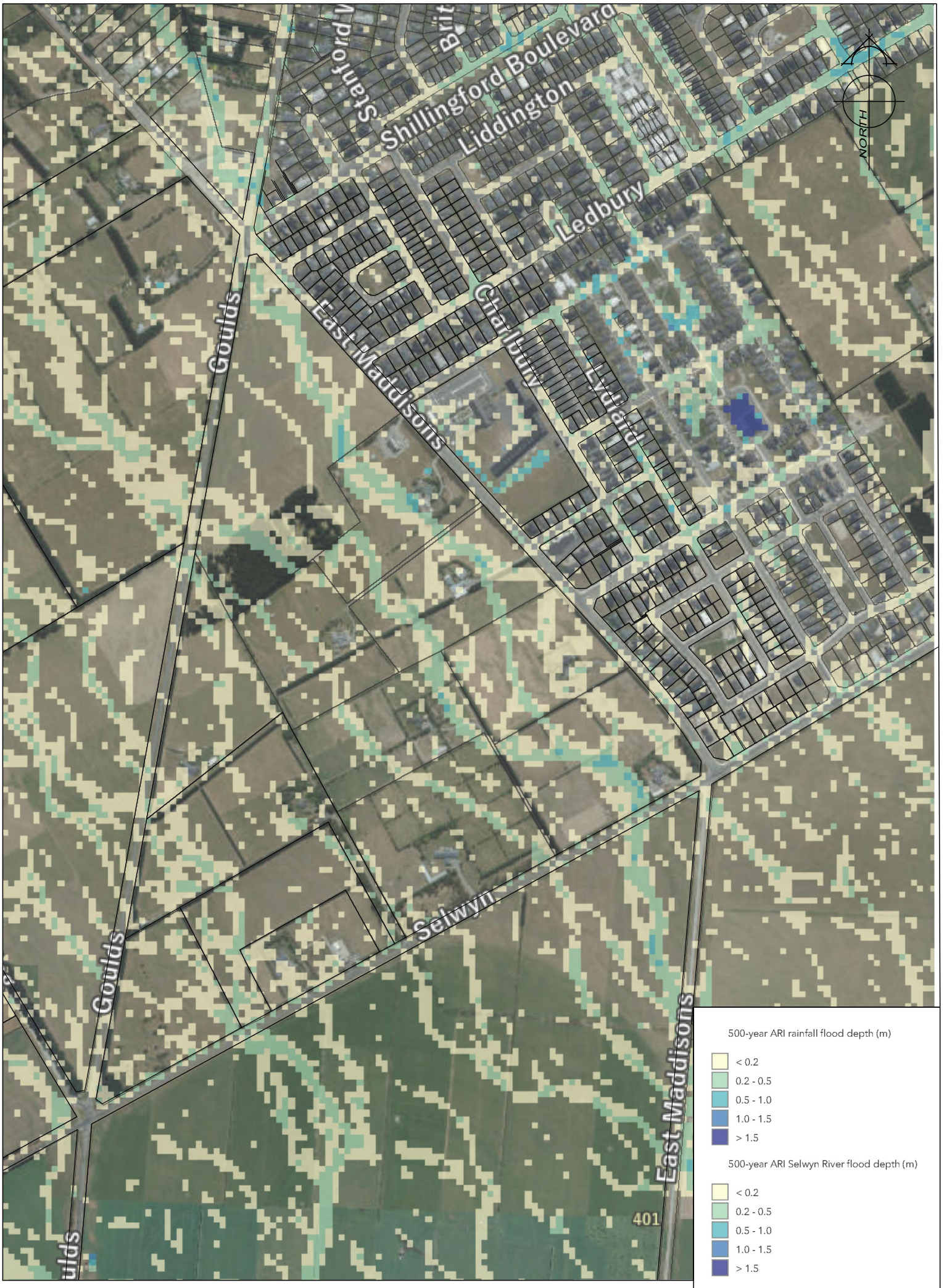
Andy Hall
Director
CPEng



1 in 200 year Flood Event

Scale 1:7500@A4

J:\18727\Flooding\Flooding.dwg



1 in 500 year Flood Event
Scale 1:7500@A4

J:\18727\Flooding\Flooding.dwg

1 in 200 year Flood Event

Scale 1:5000@A4

J:\18727\Flooding\South Flooding.dwg

1 in 500 year Flood Event
Scale 1:5000@A4

J:\18727\Flooding\South Flooding.dwg