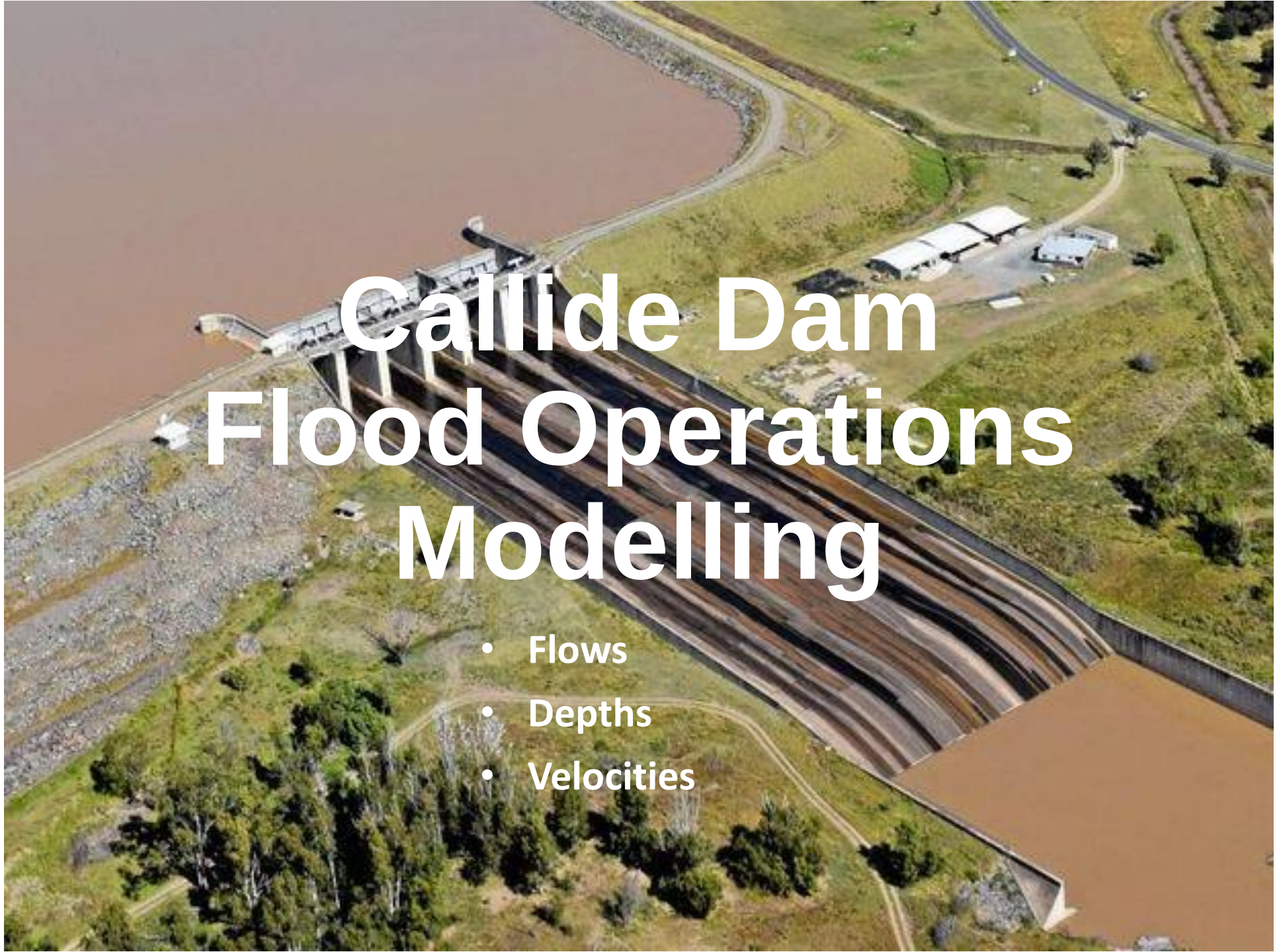
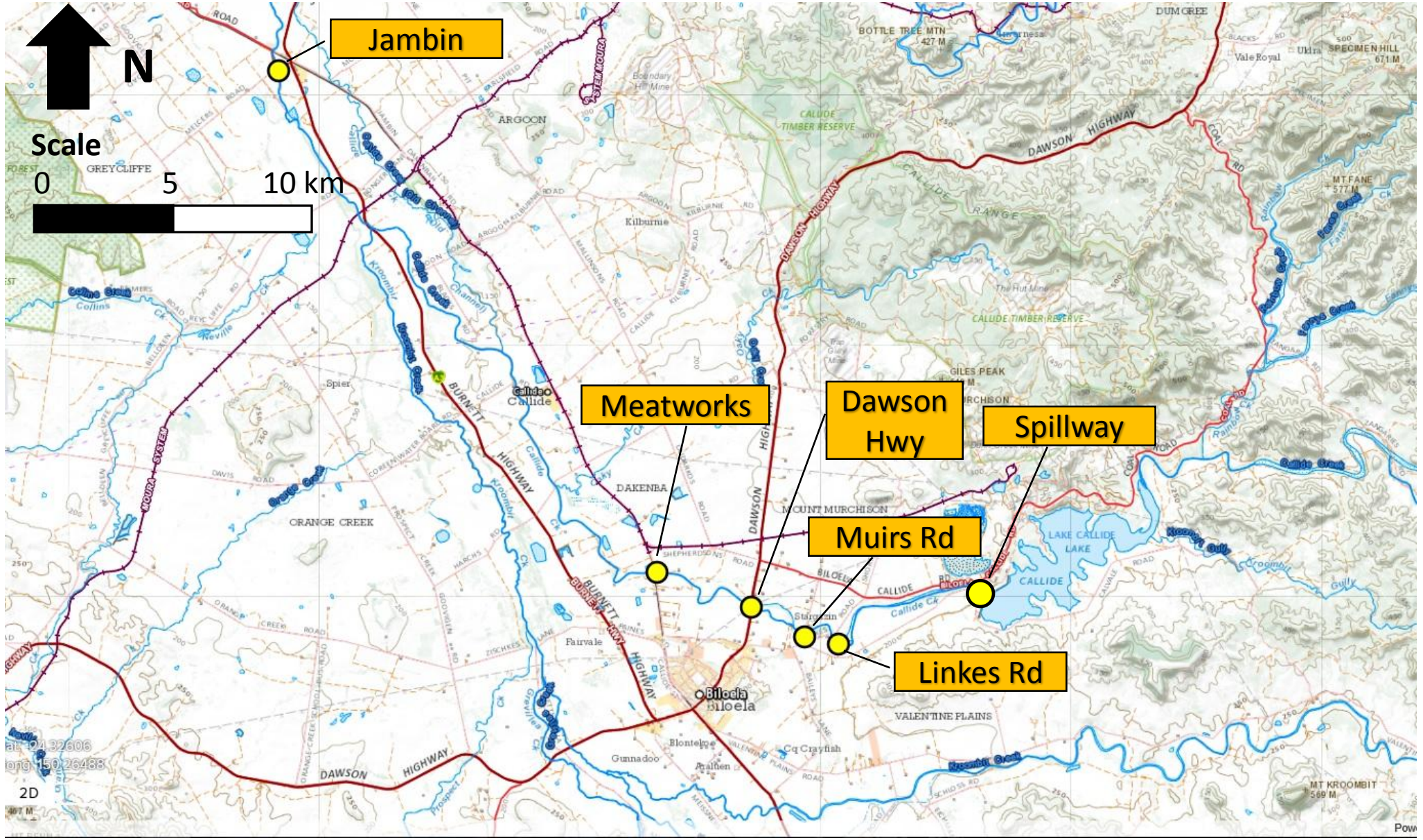


Callide Dam Flood Operations Modelling

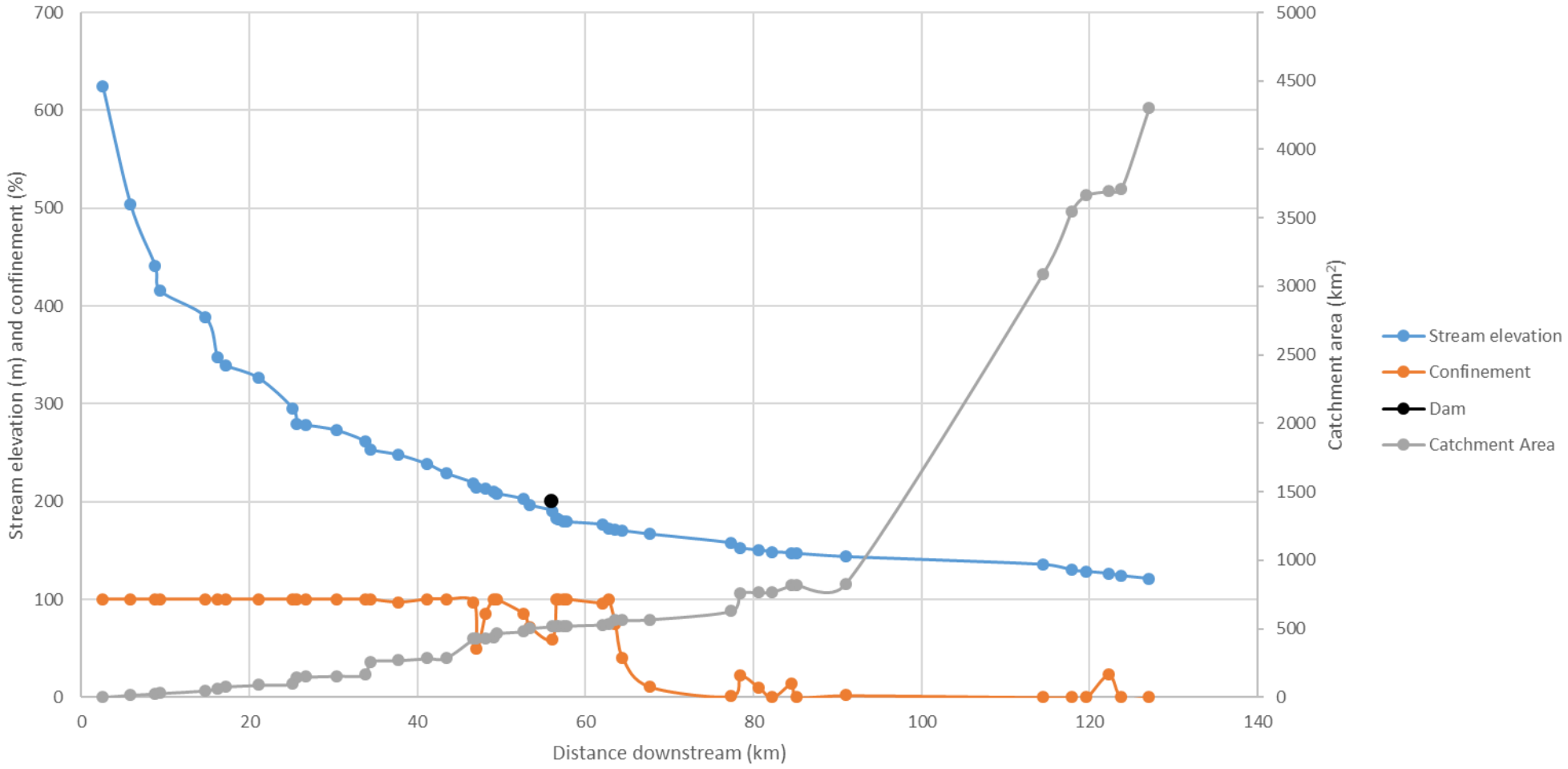
- Flows
- Depths
- Velocities



SunWater

Queensland Government

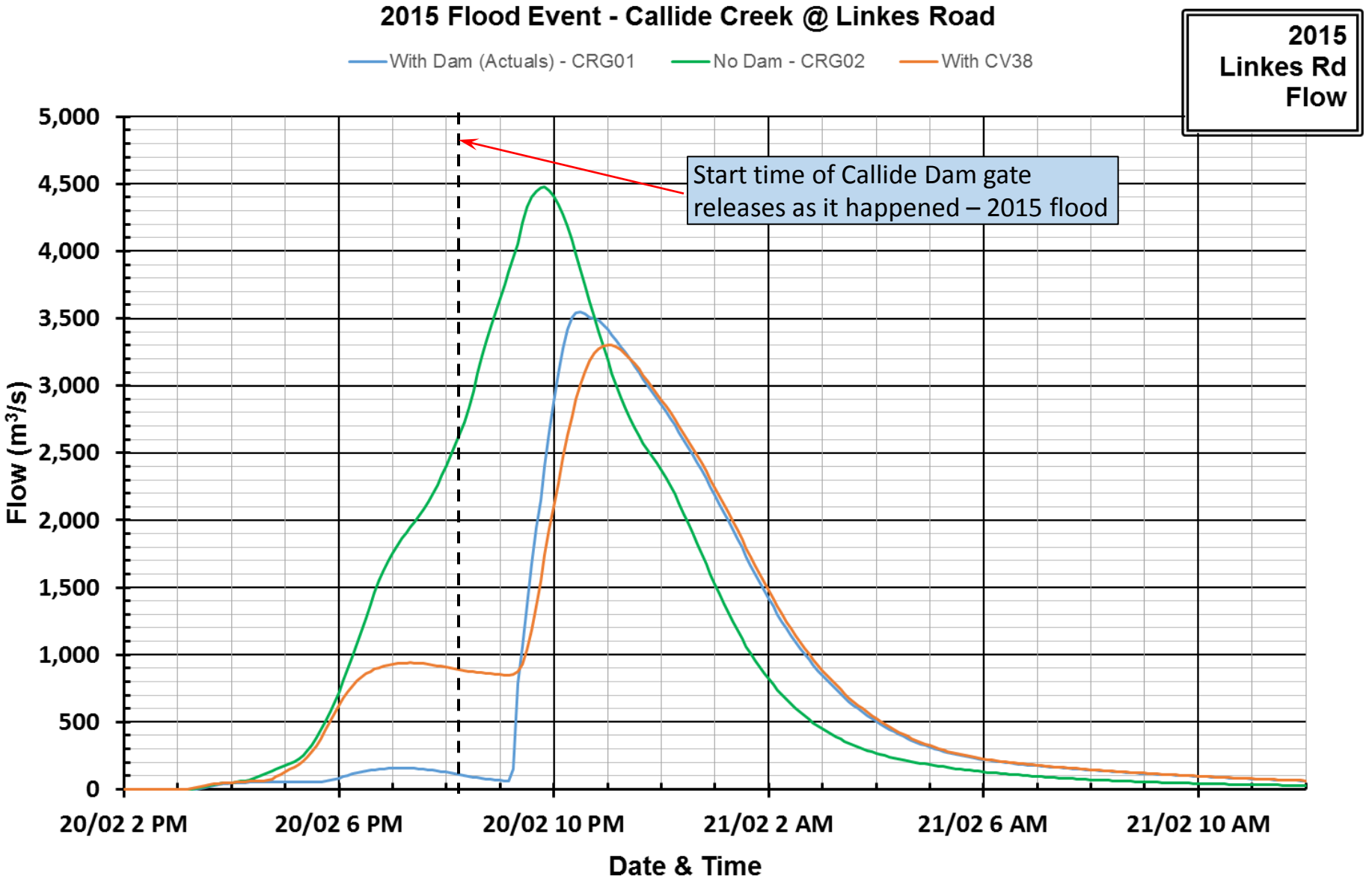
Stream grades / elevation

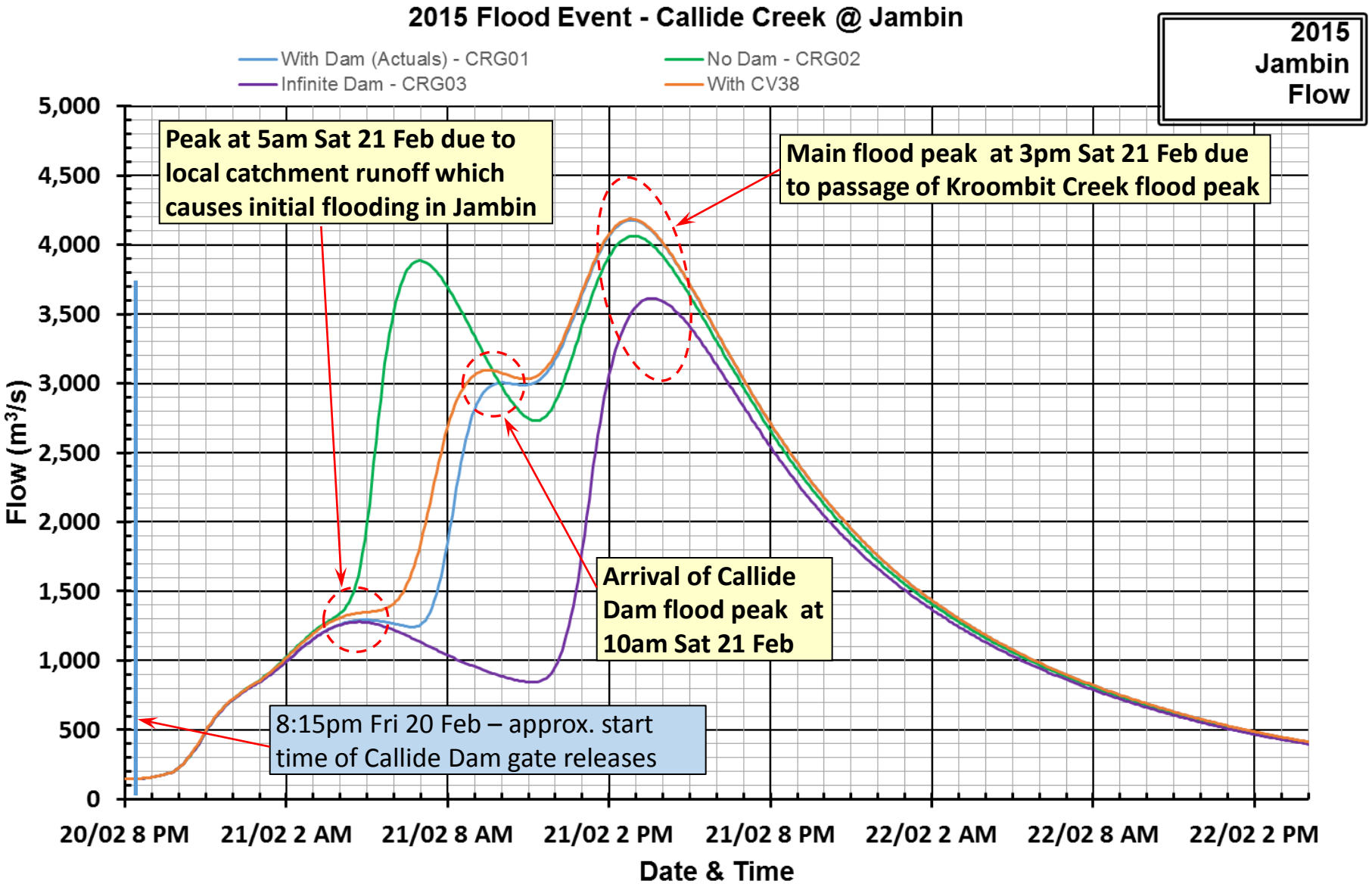


Scenarios Presented

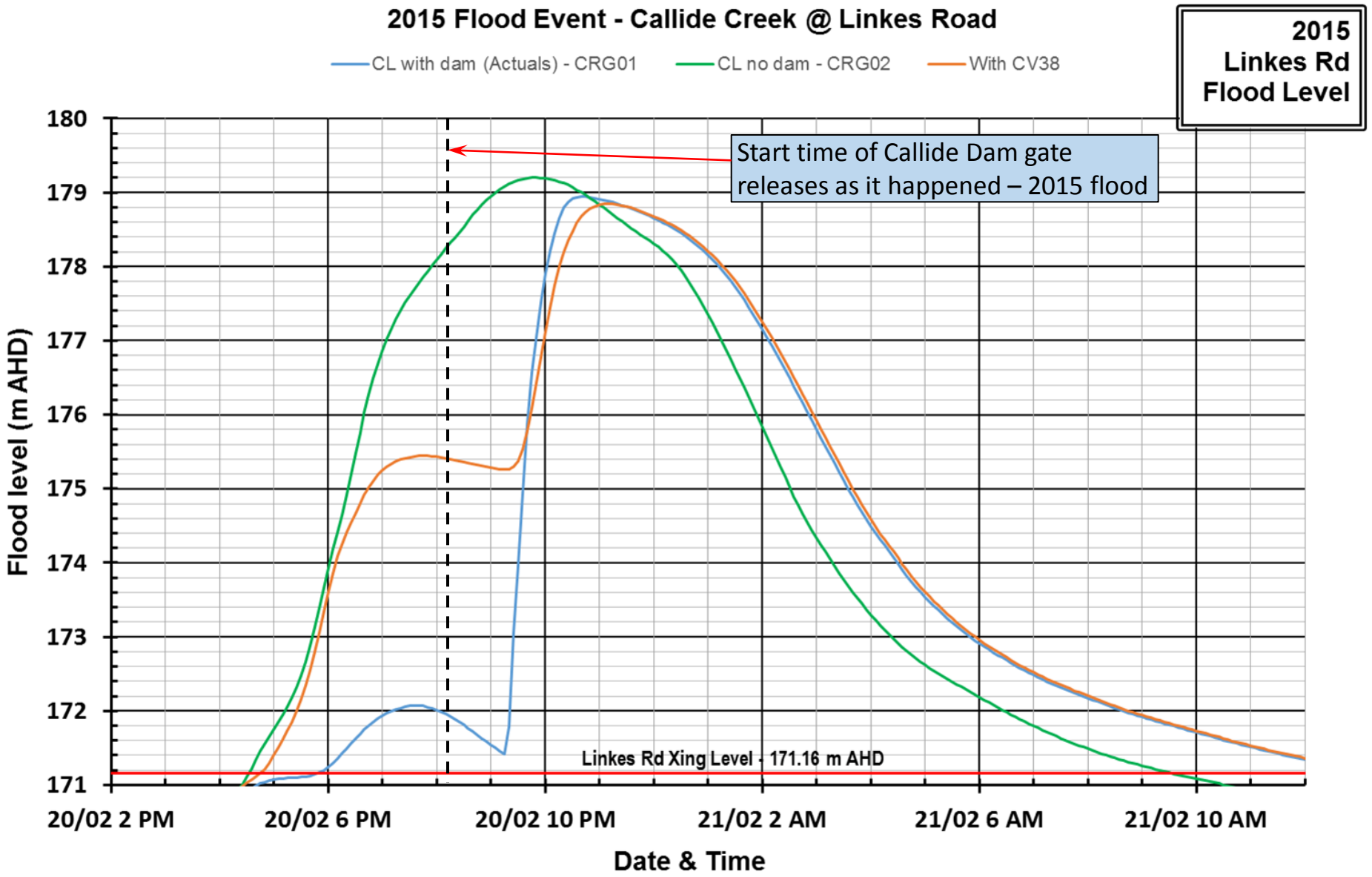
- CRG01 – Callide Dam as it operated during Tropical Cyclone ‘Marcia’
  - Callide Dam with existing automatic gate operations (releases above 216.18 m AHD).
  - MOL 95% of FSV
  - 2015 flood start level – 84% FSV – 114,000 ML
- CRG02 – No Callide Dam
- CRG03 – Infinite Callide Dam
- CV38 – An example of a possible risk based operational strategy
  - 90% FSV Callide Dam (IQQM modelled starting level based on 90% for the historical record)
  - Pre-release/ event release(s) based on rainfall trigger when Callide Dam storage volume >= 70 % FSV.
    - Initial pre-release/event release of 266 m3/s (relatively confined within Callide Valley)
    - Above 266 m3/s outflows match inflows up to a threshold of 800 m3/s until exceeded by auto gate operations
    - Rainfall within dam catchment > 20 mm received in previous hour OR Rainfall within dam catchment > 10 mm received in previous hour with accumulated rainfall of > 40 mm received in previous 24 hours
  - 2015 flood dam starting level = 90% FSV = 122,733 ML

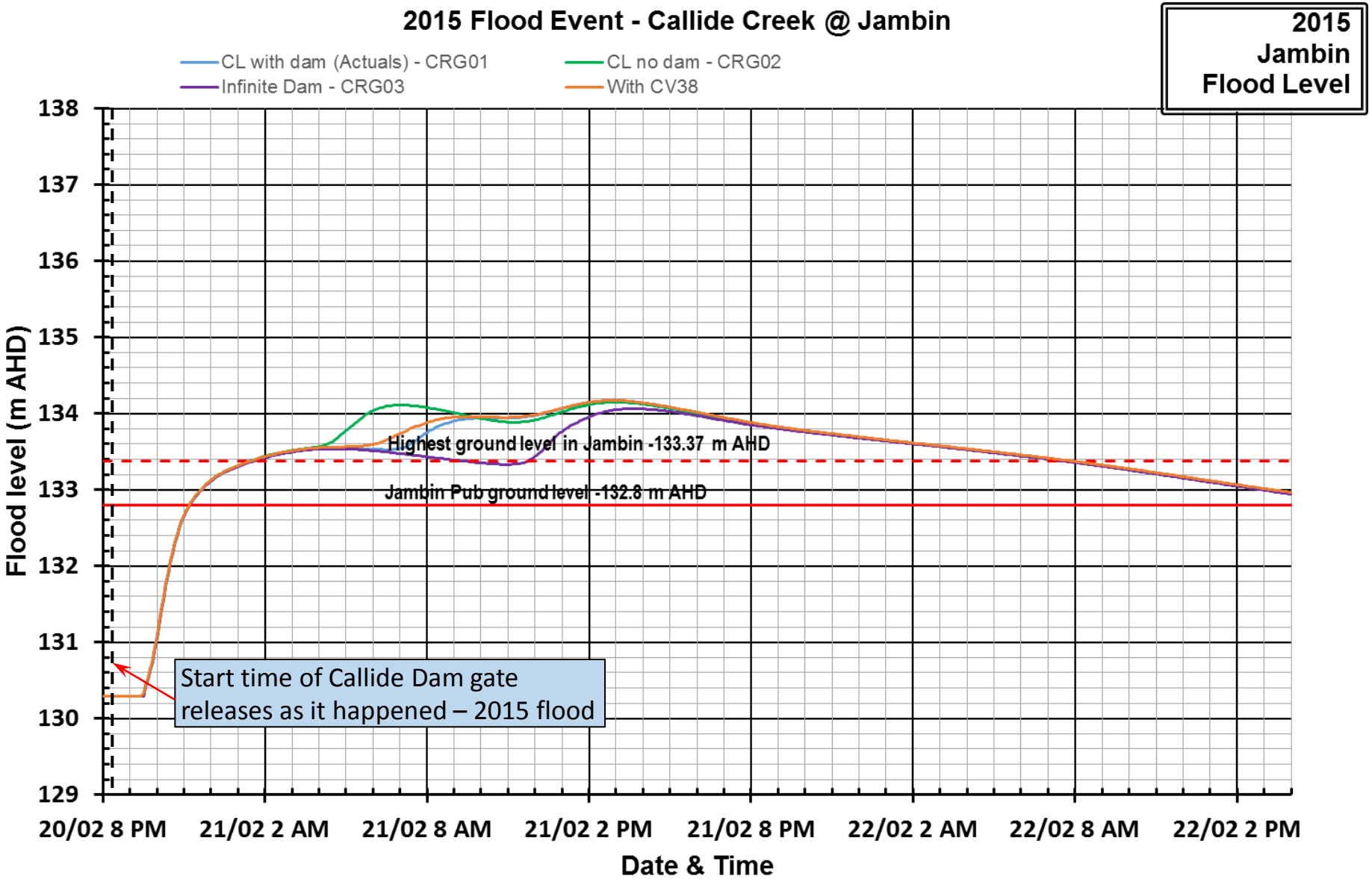
2015 Flow plots


2015 Flood Event - Callide Creek @ Linkes Road
With Dam (Actuals) - CRG01
No Dam - CRG02
With CV38
2015 Linkes Rd Flow
Start time of Callide Dam gate releases as it happened – 2015 flood
Flow (m³/s)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
20/02 2 PM
20/02 6 PM
20/02 10 PM
21/02 2 AM
21/02 6 AM
21/02 10 AM
Date & Time

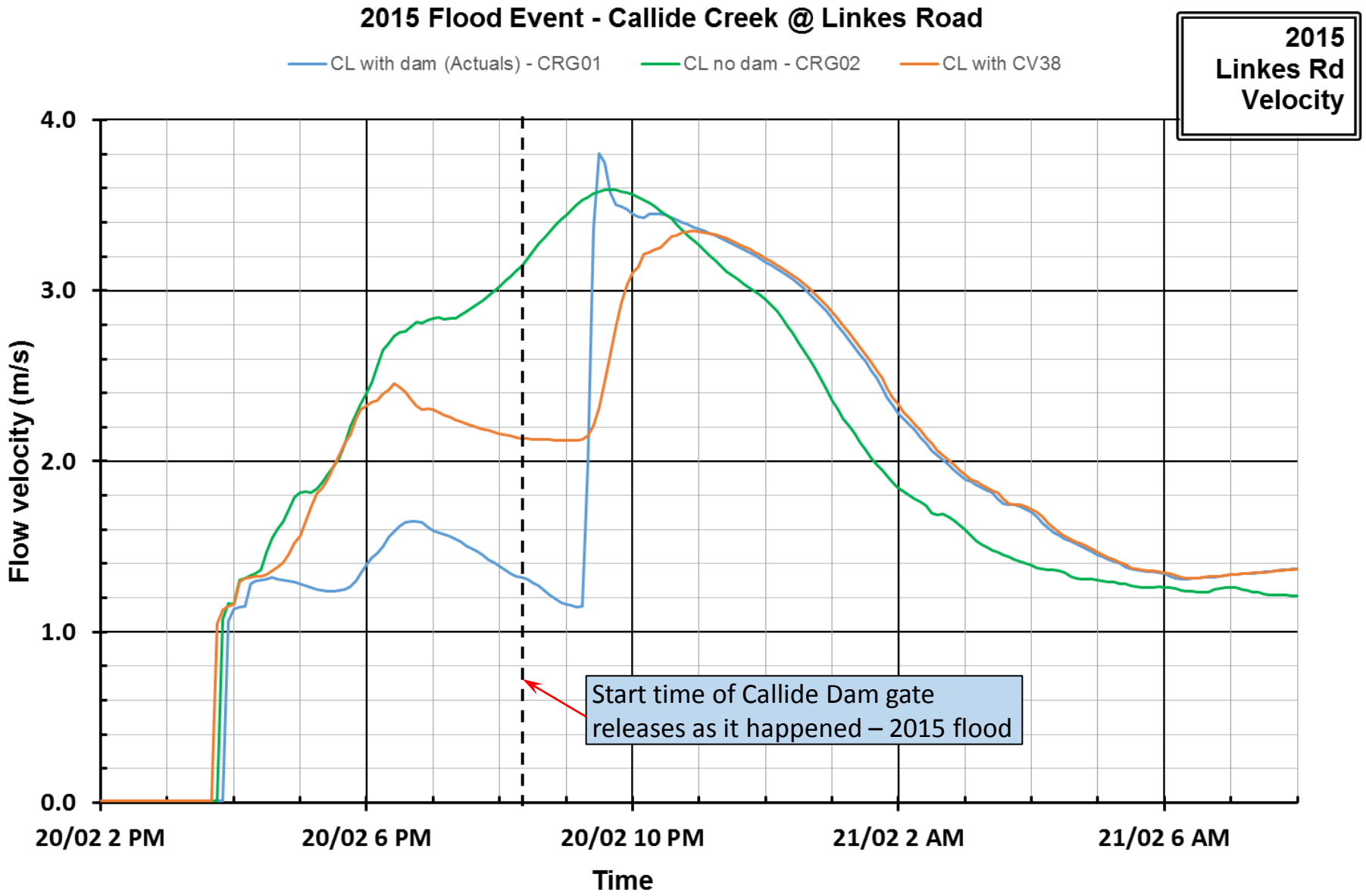

2015 Flood Event - Callide Creek @ Jambin
With Dam (Actuals) - CRG01
No Dam - CRG02
Infinite Dam - CRG03
With CV38
2015 Jambin Flow
Peak at 5am Sat 21 Feb due to local catchment runoff which causes initial flooding in Jambin
Main flood peak at 3pm Sat 21 Feb due to passage of Kroombit Creek flood peak
Arrival of Callide Dam flood peak at 10am Sat 21 Feb
8:15pm Fri 20 Feb – approx. start time of Callide Dam gate releases
Flow (m³/s)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
20/02 8 PM
21/02 2 AM
21/02 8 AM
21/02 2 PM
21/02 8 PM
22/02 2 AM
22/02 8 AM
22/02 2 PM
Date & Time

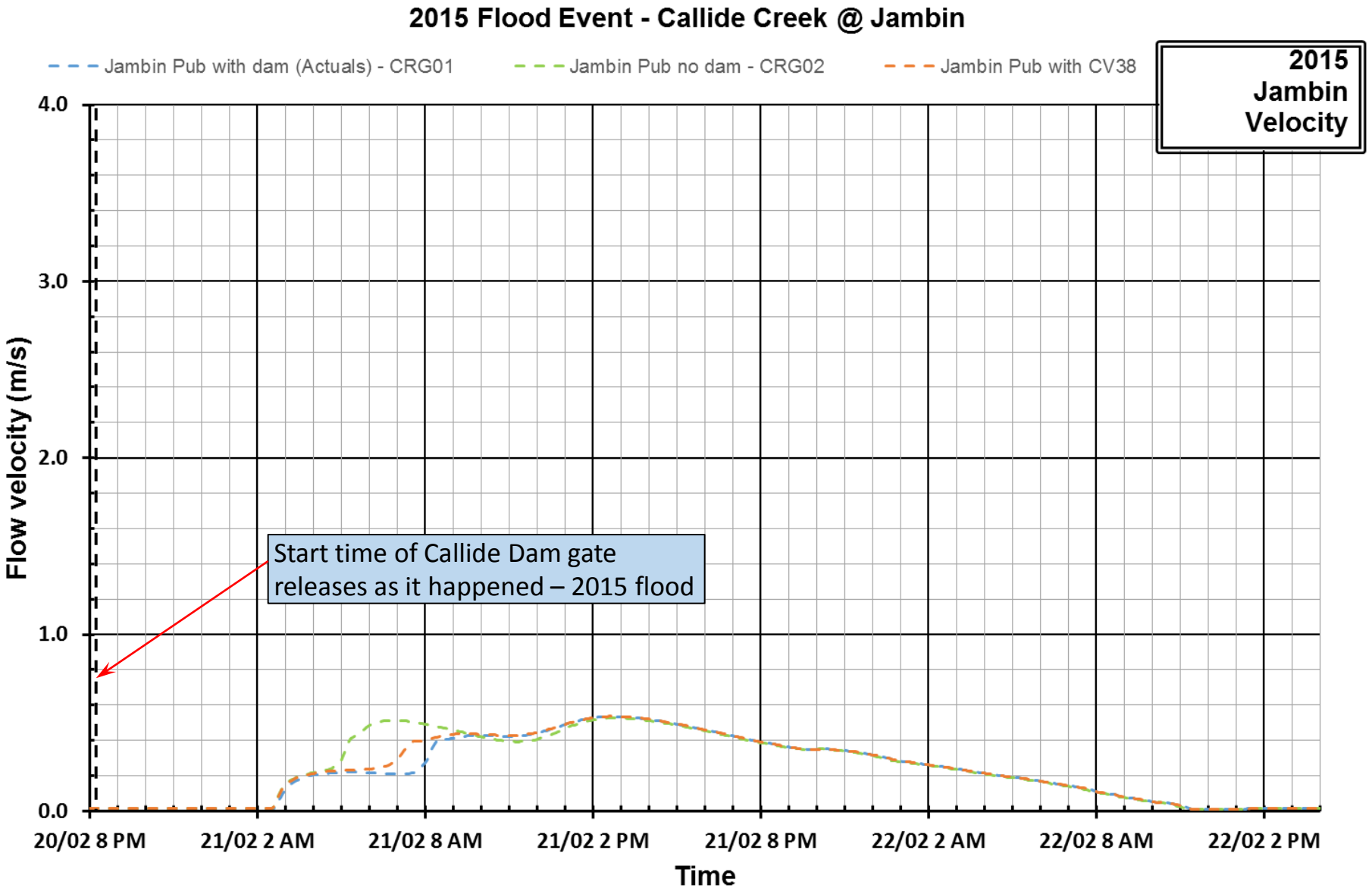
2015 Flood level plots


2015 Flood Event - Callide Creek @ Linkes Road
CL with dam (Actuals) - CRG01
CL no dam - CRG02
With CV38
2015
Linkes Rd
Flood Level
Start time of Callide Dam gate releases as it happened – 2015 flood
Linkes Rd Xing Level - 171.16 m AHD
Flood level (m AHD)
180
179
178
177
176
175
174
173
172
171
20/02 2 PM
20/02 6 PM
20/02 10 PM
21/02 2 AM
21/02 6 AM
21/02 10 AM
Date & Time


2015 Flood Event - Callide Creek @ Jambin
2015 Jambin Flood Level
CL with dam (Actuals) - CRG01
CL no dam - CRG02
Infinite Dam - CRG03
With CV38
Flood level (m AHD)
138
137
136
135
134
133
132
131
130
129
Highest ground level in Jambin -133.37 m AHD
Jambin Pub ground level -132.8 m AHD
Start time of Callide Dam gate releases as it happened – 2015 flood
20/02 8 PM
21/02 2 AM
21/02 8 AM
21/02 2 PM
21/02 8 PM
22/02 2 AM
22/02 8 AM
22/02 2 PM
Date & Time

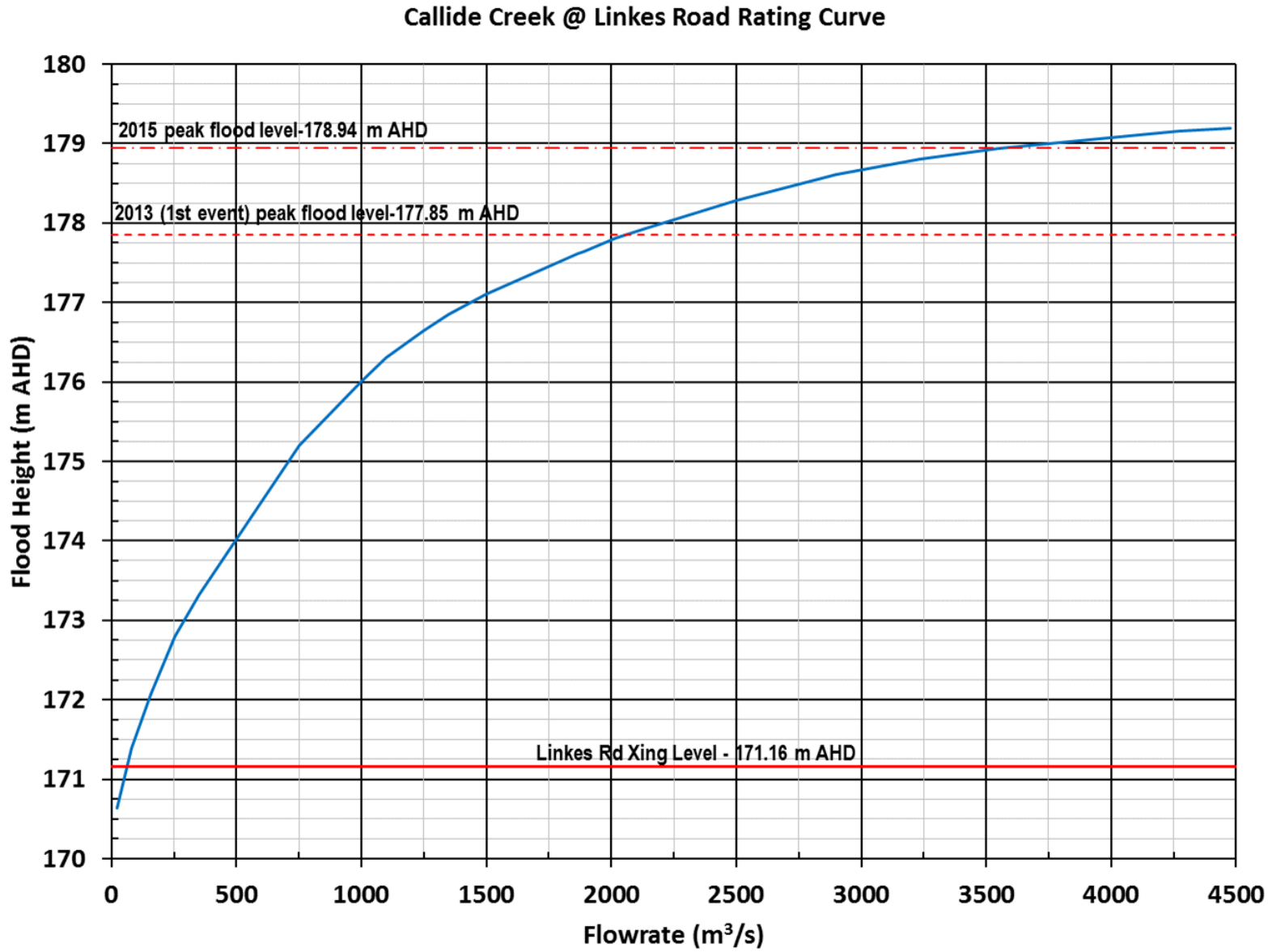
2015 Velocity plots

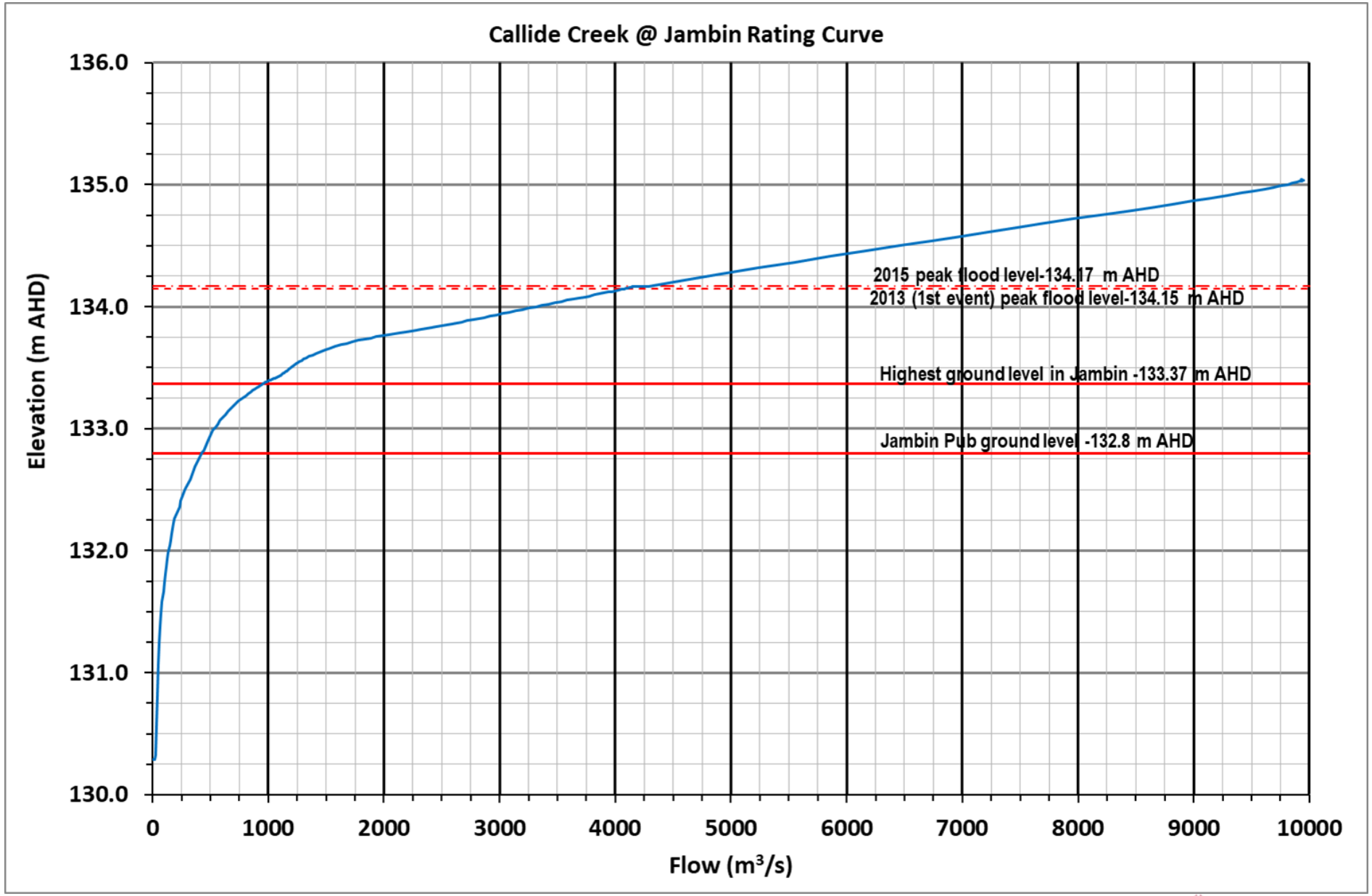

2015 Flood Event - Callide Creek @ Linkes Road
CL with dam (Actuals) - CRG01
CL no dam - CRG02
CL with CV38
2015 Linkes Rd Velocity
Flow velocity (m/s)
4.0
3.0
2.0
1.0
0.0
20/02 2 PM
20/02 6 PM
20/02 10 PM
21/02 2 AM
21/02 6 AM
Time
Start time of Callide Dam gate releases as it happened – 2015 flood


2015 Flood Event - Callide Creek @ Jambin
Jambin Pub with dam (Actuals) - CRG01
Jambin Pub no dam - CRG02
Jambin Pub with CV38
2015 Jambin Velocity
Flow velocity (m/s)
4.0
3.0
2.0
1.0
0.0
Start time of Callide Dam gate releases as it happened – 2015 flood
20/02 8 PM
21/02 2 AM
21/02 8 AM
21/02 2 PM
21/02 8 PM
22/02 2 AM
22/02 8 AM
22/02 2 PM
Time

Rating curves

- Callide Creek @ Linkes Road
- Callide Creek @ Jambin


Callide Creek @ Linkes Road Rating Curve
2015 peak flood level-178.94 m AHD
2013 (1st event) peak flood level-177.85 m AHD
Linkes Rd Xing Level - 171.16 m AHD
Flood Height (m AHD)
Flowrate (m³/s)
180
179
178
177
176
175
174
173
172
171
170
0
500
1000
1500
2000
2500
3000
3500
4000
4500


Callide Creek @ Jambin Rating Curve
136.0
135.0
134.0
133.0
132.0
131.0
130.0
Elevation (m AHD)
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
Flow (m³/s)
2015 peak flood level-134.17 m AHD
2013 (1st event) peak flood level-134.15 m AHD
Highest ground level in Jambin -133.37 m AHD
Jambin Pub ground level -132.8 m AHD