This brochure describes the flood warning system operated by the Australian Government, Bureau of Meteorology for the upper Brisbane River above Wivenhoe Dam. It includes reference information which will be useful for understanding Flood Warnings and River Height Bulletins issued by the Bureau's Flood Warning Centre during periods of high rainfall and flooding.

Flood Risk

The upper Brisbane River catchment above Wivenhoe Dam drains an area of approximately 7,000 square kilometres. The Brisbane River rises in the Brisbane Range which is located some 40 kilometres east of Kingaroy. Major tributaries of the upper Brisbane River include Cooyar, Emu and Cressbrook Creeks which all enter the river from the west and travel in a southeast direction eventually passing through into Wivenhoe Dam. Its major tributary, the Stanley River, rises in the Conondale Ranges southeast of Maleny and travels in a southwest direction through one of the heaviest rainfall areas in Australia and into Somerset Dam and then eventually into Wivenhoe Dam.

Heavy rains in the upper reaches of the Brisbane River, particularly the Stanley River catchment, may result in significant local flooding of low lying areas, however, both the Somerset and
Wivenhoe Dam's have significantly reduced the frequency of flooding in the lower Brisbane River catchment to Brisbane City, where major flooding can still occur from local area run-off.

**Previous Flooding**

Flood records for most river height recording stations in the upper reaches of the Brisbane River are quite extensive with records for Woodford dating back to the 1890's. The record major flood of 1893 in Brisbane was a result of extremely heavy rainfall falling in the upper reaches of the Stanley River around Peachester. This event occurred well before the completion of the Somerset Dam in 1959. Wivenhoe Dam was completed in 1984. The largest flood since the large floods of the 1890's was recorded in January 2011 which produced large scale inundation of residential and agricultural areas throughout the Brisbane Valley.

**Flood Forecasting**

The Bureau of Meteorology, in association with the South East Queensland Water Corporation (SEQWater) and the Brisbane City Council (BCC) operate a flood warning system for the upper Brisbane River catchment above Wivenhoe Dam using data from the rainfall and river height network shown on the map. The network consists of manual rainfall and river height observers as well as automated telemetry equipment.

The flood warning system has been upgraded in recent years by the SEQWater, in association with the Bureau and the BCC, with the installation of many ALERT flood warning stations. These provide early warning of heavy rainfalls and river rises throughout the catchment and enable more accurate and timely response to impending river and creek flooding throughout the upper reaches of the Brisbane Valley.

In consultation with the SEQWater, the Bureau issues Flood Warnings for the upper Brisbane River catchment above Wivenhoe Dam. The SEQWater's role is to operate the dams during flood events. It provides the Bureau with detailed information regarding actual and projected releases from Somerset and Wivenhoe Dams which is used in the flood forecasting models.

**Local Information**

The Toowoomba Regional Council and the Somerset Regional Council are provided with regular River Height Bulletins and Flood Warnings when the upper Brisbane River catchment above
Wivenhoe Dam is in flood.

**Brisbane River ALERT System**

The upper Brisbane River ALERT flood warning system above Wivenhoe Dam was completed in the mid 1990's by the South East Queensland Water Corporation (SEQWater) with the assistance of the Bureau. The system comprises a comprehensive network of rainfall and river height field stations located throughout the catchment. They report via VHF radio to base station computers located in both SEQWater and local council offices and the Bureau of Meteorology in Brisbane. The field stations send reports for every 1 millimetre of rainfall and every 50 millimetre change in river height.

The base station computers located in both SEQWater and the various local council offices collect the data and have software that displays it in graphical and tabular form. The data is also received by the Bureau's Flood Warning Centre where it is used in hydrologic models to produce river height predictions.

**Flood Warnings and Bulletins**

In consultation with the SEQWater and the Somerset and Moreton Bay Regional Councils, the Bureau's Flood Warning Centre issues Flood Warnings and River Height Bulletins for the upper Brisbane River catchment above Wivenhoe Dam regularly during floods. They are sent to radio stations for broadcast, and to the Councils, emergency services and a large number of other agencies involved in managing flood response activities.

Flood Warnings and River Height Bulletins are available via:

**Radio**
Radio stations, particularly the local ABC, and local commercial stations, broadcast Flood Warnings and River Height Bulletins soon after issue or as part of their news services.

**Local response organisations**
These include the Councils, Police, and State Emergency Services in the local area.

**Internet/World Wide Web**

**Telephone Weather**
Flood Warnings are available through a recorded voice retrieval system, along with a wide range of other weather related and climate information.

<table>
<thead>
<tr>
<th>Main Directory</th>
<th>Phone</th>
<th>1900 955 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Warnings</td>
<td>Phone</td>
<td>1300 659 219</td>
</tr>
</tbody>
</table>

**Interpreting Flood Warnings and River Height Bulletins**

Flood Warnings and River Height Bulletins contain observed river heights for a selection of the river height monitoring locations. The time at which the river reading has been taken is given together with its tendency (e.g. rising, falling, steady or at its peak). The Flood Warnings may also contain predictions in the form of minor, moderate or major flooding for a period in the future. River Height Bulletins also give the height above or below the road bridge or causeway for each river station located near a road crossing.

One of the simplest ways of understanding what the actual or predicted river height means is to compare the height given in the Warning or Bulletin with the height of previous floods at that location.
The table below summarises the flood history of the upper Brisbane River catchment above Wivenhoe Dam. It contains the flood gauge heights of the highest known floods recorded at the main forecast locations, together with the heights reached in more recent flood events.

For further information, please refer to similar brochures issued for the lower Brisbane River below Wivenhoe Dam to Brisbane City and for the Bremer river.

<table>
<thead>
<tr>
<th>Flood Event</th>
<th>Woodford</th>
<th>Gregor Creek</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 1893</td>
<td>11.73*</td>
<td>17.98*</td>
</tr>
<tr>
<td>Feb 1893</td>
<td>10.05*</td>
<td>-</td>
</tr>
<tr>
<td>Jan 1898</td>
<td>10.29*</td>
<td>-</td>
</tr>
<tr>
<td>Feb 1931</td>
<td>8.53*</td>
<td>-</td>
</tr>
<tr>
<td>Mar 1955</td>
<td>8.94*</td>
<td>-</td>
</tr>
<tr>
<td>Feb 1972</td>
<td>9.14*</td>
<td>5.41*</td>
</tr>
<tr>
<td>Jan 1974</td>
<td>8.60*</td>
<td>14.45</td>
</tr>
<tr>
<td>Jun 1983</td>
<td>7.50*</td>
<td>13.92</td>
</tr>
<tr>
<td>Apr 1989</td>
<td>8.65*</td>
<td>12.65</td>
</tr>
<tr>
<td>Feb 1999</td>
<td>9.00*</td>
<td>14.53</td>
</tr>
<tr>
<td>Oct 2010</td>
<td>6.74</td>
<td>6.80</td>
</tr>
<tr>
<td>Jan 2011</td>
<td>9.38</td>
<td>14.56</td>
</tr>
<tr>
<td>Jan 2013</td>
<td>7.89</td>
<td>11.14</td>
</tr>
<tr>
<td>May 2015</td>
<td>6.86</td>
<td>4.32</td>
</tr>
<tr>
<td>Mar 2017</td>
<td>6.08</td>
<td>-</td>
</tr>
</tbody>
</table>

All heights are in metres on flood gauges. [*] Height has been observed from the manual station.

Historical flood heights for all river stations in the upper Brisbane River catchment above Wivenhoe Dam Floodwarning network, as shown on the map, are available from the Bureau of Meteorology upon request.

**UPPER BRISBANE RIVER CATCHMENT ABOVE WIVENHOE DAM**

**ASSESSMENT OF THE FLOOD POTENTIAL**

Major flooding requires a large scale rainfall situation over the upper Brisbane River catchment above Wivenhoe Dam. The following can be used as a rough guide to the likelihood of flooding in the catchment:

**Upper Brisbane River above Wivenhoe Dam:**

Average catchment rainfalls in excess of 200mm in 48 hours, may result in stream rises and the possibility of minor flooding and local traffic disabilities throughout the upper Brisbane River catchment above Wivenhoe Dam.

Average catchment rainfalls in excess 300mm in 48 hours, may result in stream rises and the possibility of major flooding and local traffic...
Flood Classifications

At each flood warning river height station, the severity of flooding is described as minor, moderate or major according to the effects caused in the local area or in nearby downstream areas. Terms used in Flood Warnings are based on the following definitions.

**Minor Flooding**: Causes inconvenience. Low-lying areas next to watercourses are inundated. Minor roads may be closed and low-level bridges submerged. In urban areas inundation may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas removal of stock and equipment may be required.

**Moderate Flooding**: In addition to the above, the area of inundation is more substantial. Main traffic routes may be affected. Some buildings may be affected above the floor level. Evacuation of flood affected areas may be required. In rural areas removal of stock is required.

**Major Flooding**: In addition to the above, extensive rural areas and/or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of flood affected areas may be required. Utility services may be impacted.

Each river height station has a pre-determined flood classification which details heights on gauges at which minor, moderate and major flooding commences. Other flood heights may also be defined which indicate at what height the local road crossing or town becomes affected by floodwaters.

The table below shows the flood classifications for selected river height stations in the upper Brisbane River catchment above Wivenhoe Dam.

<table>
<thead>
<tr>
<th>River Height Station</th>
<th>First Report Height</th>
<th>Crossing Height</th>
<th>Minor Flood Level</th>
<th>Crops &amp; Grazing</th>
<th>Moderate Flood Level</th>
<th>Towns and Houses</th>
<th>Major Flood Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gregor Creek</td>
<td>-</td>
<td>-</td>
<td>3.5</td>
<td>-</td>
<td>4.5</td>
<td>-</td>
<td>7.5</td>
</tr>
<tr>
<td>Woodford</td>
<td>-</td>
<td>6.10 (B)</td>
<td>5.0</td>
<td>5.0</td>
<td>6.1</td>
<td>10.7</td>
<td>8.5</td>
</tr>
</tbody>
</table>

All heights are in metres on flood gauges. (B) = Bridge
The above details are correct at the time of preparing this document. Up-to-date flood classifications and other details for all flood warning stations in the network are at:

Flood gauge information

For the latest rainfall and river height conditions please use the following link:

Latest rainfall and river heights

For the latest rainfall and river height network map please use the following link:

Network maps

For further information, contact:

The Flood Services Manager, Bureau of Meteorology, GPO Box 413, Brisbane Q 4001