

Prepared by **Sunwater Limited**

Emergency Action Plan—Bjelke-Petersen Dam

Issue: 7.1

Date: September 2019

Project: Bjelke-Petersen Dam EAP

File no.: 08-000354/001

Rural no.: N/A

Location: Lat. -26.305691° Lon. 151.981376°
26°18'20.42"S 151°58'52.91"E

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Emergency activation quick reference

The Emergency Action Plan (EAP) for Bjelke-Petersen Dam covers five dam hazards evaluated within Sunwater's Dam Safety Management Program.

Use the following table to select the relevant section of the EAP that deals with the dam hazard. **The Incident Coordinator (IC) is responsible for the decision to activate the EAP. Should the IC be unavailable, the Local Event Coordinator (LEC) or Dam Duty Officer (DDO) is responsible for the decision.**

Table 1: Emergency activation quick reference

Dam Hazards and section numbers	Activation Levels			
	Alert	Lean Forward	Stand Up	Stand Down
	<ul style="list-style-type: none"> Locally managed (DDO) 	<ul style="list-style-type: none"> Locally managed (DDO and IC) 	<ul style="list-style-type: none"> Locally managed (DDO and IC) with advice from Owner's Rep/DSTDM 	<ul style="list-style-type: none"> Locally managed (DDO and IC) with advice from Owner's Rep/DSTDM
Activation triggers for dam hazards				
Flood operations See section 5	<ul style="list-style-type: none"> EL 307.20m and rising (0.1m below FSL) 	<ul style="list-style-type: none"> Storage above FSL 307.30m 	<ul style="list-style-type: none"> Storage above EL 310.20m 	<ul style="list-style-type: none"> Storage level EL 307.40m and falling
Chemical spill/toxic conditions See section 6	<ul style="list-style-type: none"> Reports of contamination or potential contamination in the catchment area of the storage (excludes normal operating and monitoring of BGA) Escalated BGA or toxic condition from the Sunwater Environmental group 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Confirmation of or highly likely probability of a large amount of chemical spill/toxic conditions found in the storage/catchment 	<ul style="list-style-type: none"> Risk assessment that risk has reduced Confirmation that significant contamination has not occurred All clear WQ test result
Piping: embankment, foundation, or abutments See section 7	<ul style="list-style-type: none"> Increasing leakage through an embankment, the foundations, or abutments 	<ul style="list-style-type: none"> Increasing leakage through an embankment, the foundations, or abutments with cloudy water 	<ul style="list-style-type: none"> Piping condition has been established 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Earthquake See section 8	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity less than 5 Modified Mercalli (MM) 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity greater than or equal to 5MM, OR Intensity less than 5MM and change detected during surveillance inspection 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND A possible failure path has been identified 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Terrorist threat/ activity or high energy impact See section 9	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Possible terrorist activity noticed at dam or threat received Large explosion heard/observed at dam (e.g., bomb explosion, aircraft hit) Failure in progress or likely due to impact or explosion Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced

CONTINUED NEXT PAGE: EMERGENCY ACTIVATION QUICK REFERENCE



ALL ACTION MUST BE TAKEN WHEN IT IS SAFE TO DO SO
 e.g., taking photographs/video, dam inspections, instrument readings
ALL PHOTOS MUST BE DATE STAMPED

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Emergency activation quick reference – Other Emergency Situations

The EAP for Bjelke-Petersen Dam covers one other emergency situation evaluated within Sunwater's Dam Safety Management Program. Use the following table to select the relevant section of the EAP that deals with the other emergency situation. **Note: The Incident Coordinator (IC) is responsible for the decision to activate the EAP. Should the IC be unavailable, the Local Event Coordinator (LEC) or Dam Duty Officer (DDO) is responsible for the decision.**

Table 1 (continued): Emergency activation quick reference

Other Emergency Situations and section numbers	Activation level		
	Communications Failure – Dam Site (DDO)	Communications Failure – Local Area (LEC/SM)	Communications Failure – Brisbane (IC/DSTDM)
	<ul style="list-style-type: none"> Site managed (DDO - becomes LEC) 	<ul style="list-style-type: none"> Brisbane managed by Incident Coordinator (IC) 	<ul style="list-style-type: none"> Locally managed by Local Event Coordinator (LEC)
	Activation triggers for other emergency situations		
Comms Failure See section 10	<ul style="list-style-type: none"> Unable to communicate to or from Dam site 	<ul style="list-style-type: none"> Unable to communicate to or from Local Area 	<ul style="list-style-type: none"> Unable to communicate to or from Sunwater Brisbane



ALL ACTION MUST BE TAKEN WHEN IT IS SAFE TO DO SO
e.g., taking photographs/video, dam inspections, instrument readings
ALL PHOTOS MUST BE DATE STAMPED

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Document control

Authorisation of document

This document has been reviewed and accepted by the following:

Name	Position/role	Signature/date
James Stuart RPEQ 09486	SunWater General Manager Water Resources & Dam Safety— Prepared for submission	 27/9/18
Alex Black RPEQ 19251	SunWater Dam Safety Surveillance Coordinator—Approved for submission	 28/9/18

Document revision history

Version	Date	Prepared by	Reason for change	Hummingbird ref no.
2	May 2008		Significant changes of Bjelke-Petersen Dam Emergency Action Plan to reflect Sunwater Management Structure and other minor changes.	HB # 711932
3	October 2011		Significant changes to all sections of Bjelke-Petersen Dam Emergency Action Plan to reflect current Sunwater Management structure and other changes.	HB # 1060254
3C	September 2016		Amendments due to new legislative requirements.	HB # 1060254
4	August 2016		New Emergency Action Plan developed at expiry of 3E approval. Issued for consultation with Relevant Disaster Management Groups.	HB # 1880976
5	October 2017		New Emergency Action Plan with minor amendments including contact list updates.	HB # 2090797
6	June 2018	M Salmon	Revised and reviewed Emergency Action Plan includes; updates that reflect the Water Legislation (Dam Safety) Amendment Act 2017, implementation of changes to Sunwater management structure, new event management roles and addition of new Emergency Activation section (<i>Other Emergency Situations</i>). LDMG3, LDMG4 and DDMG2 were removed after consultation and agreement, as they were determined not to be affected by a dam hazard.	HB # 2273053
7	December 2018	M Salmon	Amended contacts and associated sections, e.g. Organisation chart & Controlled Copy Holders list. Minor error corrections and other non-substantive changes.	HB # 2367459
7.1	September 2019	M Salmon	Amended contacts and associated sections, eg Organisation chart & Controlled Copy Holders list. Minor error corrections and other non-substantive changes.	HB # 2457503

Controlled document distribution list

Copy no.	Position	Location
1	Storage Supervisor	Sunwater, Bjelke-Petersen Dam
2	General Manager, Burnett & Lower Mary	Sunwater, Bundaberg
3	Dam Safety Surveillance Coordinator	Sunwater, Brisbane
4	Chief Executive	(electronic copy only) Department of Natural Resources, Mining and Energy, Brisbane
5	Local Disaster Coordinator—Local Disaster Management Group (LDMG1)	South Burnett Regional Council, Kingaroy
6	Local Disaster Coordinator (CEO)—Local Disaster Management Group (LDMG 2)	Cherbourg Aboriginal Shire Council, Cherbourg
7	Officer in Charge—Murgon Police	Police, Murgon
8	Executive Officer—Gympie DDMG	Police, Gympie
9	Director Disaster Management Services	(electronic copy only) State Disaster Coordination Centre— Queensland Fire and Emergency Services, Brisbane
10	Emergency Management Coordinator	Queensland Fire and Emergency Services, Caloundra

Notes: Communication information for each 'Controlled Copy Holder' is attached in Appendix A

1. References, abbreviations, and definitions

1.1 References/associated documents

Ref.	Document title	Reference/location
A	Strategic Response Manual	http://simon.sunwater.com.au/policies-and-forms/crisis-management-emergency-response-plans-business-continuity/RM00-Sunwater-Strategic-Response-Manual.pdf
B	Bjelke-Petersen Dam Operation and Maintenance Manual	Bjelke-Petersen Dam OM Manual
C	Bjelke-Petersen Dam Safety Condition Schedule	HB # 05-009144/003
D	Queensland Disaster Management Guidelines	http://www.disaster.qld.gov.au
E	Inundation/Flooding of Public Roads Policy	http://simon.sunwater.com.au/policies-and-forms/property-management/policies
F	Queensland Rainfall and River Conditions (Flood Warning)	http://www.bom.gov.au/qld/flood/index.shtml?ref=hdr
G	Incident and Near Miss Alert Form (Alert Notification)	http://simon.sunwater.com.au/policies-and-forms/online/incident-and-near-miss-alert
H	Emergency Alert Protocol	HB # 15-001003/001
I	Blue Green Algae (BGA) Monitoring Program Manual (EM29)	http://simon.sunwater.com.au/policies-and-forms/environmental-management/blue-green-algae

1.2 Abbreviations and acronyms

AEP	Annual Exceedance Probability	ME	Manager Environment
AHD	Australian Height Datum	MM	Modified Mercalli
AMTD	Adopted Mean Thread Distance	O&M	Operation & Maintenance
ANCOLD	Australian National Committee on Large Dams	OB	Observation Bore
AOM	Area Operations Manager	OC	Operations Centre
BOM	Bureau of Meteorology	OCO	Operations Coordinator
CED	Chief Engineer Dams	OM	Operator Maintainer
CEO	Chief Executive Officer	OMGR	Operations Manager
CRA	Comprehensive Risk Assessment	OS	Operations Supervisor
D/S	Downstream	ORR	Owner's Regional Representative
DCF	Dam Crest Flood	PAR	Population at Risk
DCL	Dam Crest Level	PFRM	Predictive Flood Routing Model
DDC	District Disaster Coordinator	PLL	Probable Loss of Life
DDMG	District Disaster Management Group	PMF	Probable Maximum Flood
DDMP	District Disaster Management Plan	PMP	Probable Maximum Precipitation
DDO	Dam Duty Officer	PMPDF	Probable Maximum Precipitation Design Flood
DDS	Director Dam Safety	PWRE	Principal Water Resources Engineer
DNRME	Department of Natural Resources, Mines & Energy	QDMC	Queensland Disaster Management Committee
DSR	Dam Safety Regulator	QFES	Queensland Fire & Emergency Services
DSSC	Dam Safety Surveillance Coordinator	QPS	Queensland Police Service
DSTDM	Dam Safety Technical Decision Maker	RB	Right Bank
EAP	Emergency Action Plan	RC	Regional Council
EA	Emergency Alert	RCC	Roller Compacted Concrete
EER	Emergency Event Report	ROC	Regional Operations Centre
EGMO	Executive General Manager Operations	RPEQ	Registered Professional Engineer of Queensland
EL	Elevation Level	RSL	Reduced Supply Level
FCL	Fixed Crest Level	SCED	Senior Civil Engineer Dams
FODM	Flood Operations Decision Maker	SDCC	State Disaster Coordination Centre
FSL	Full Supply Level	SDF	Sunny Day Failure
GMC	General Manager Central	SDTE	Senior Dam Technical Engineer
GMN	General Manager North	SES	State Emergency Service
GMWR&DS	General Manager Water Resources & Dam Safety	SMS	Short Message Service
IC	Incident Coordinator	SMT	Sunwater Media Team
IFHC	Incremental Flood Hazard Category	SO	Standby Operator
IGEM	Inspector-General Emergency Management	SOP	Standard Operating Procedure
LB	Left Bank	SRT	Strategic Response Team
LDC	Local Disaster Coordinator	SS	Storage Supervisor
LDMG	Local Disaster Management Group	SWL	Storage Water Level
LDMP	Local Disaster Management Plan	SWRE	Senior Water Resources Engineer
LEC	Local Event Coordinator	U/S	Upstream
MAP	Manager Asset Planning	WHS	Workplace Health & Safety
Max. OL	Maximum Operating Level	WQ	Water Quality

1.3 Business terms and definitions

The meaning of terms used in this section are set out in accordance with relevant legislation or as defined by operator requirements.

Term	Definition
Terms set out in section 352A of the <i>Water Supply (Safety and Reliability) Act 2008 (Qld)</i> - Amended	
Dam hazard	Means a reasonably foreseeable situation or condition that may: <ul style="list-style-type: none"> • cause or contribute to the failure of the dam, if the failure may cause harm to persons or property, OR • require an automatic or controlled release of water from the dam, if the release of the water may cause harm to persons or property.
Dam hazard event	Means an event arising from a <i>dam hazard</i> if: <ul style="list-style-type: none"> • persons or property may be harmed because of the event, AND • a coordinated response, involving 2 or more of the following relevant entities, is unlikely to be required; each local group and district group for the EAP, each local government whose area may be affected, the chief executive, another entity the owner of the dam considers appropriate, AND • the event is not an emergency event.
Disaster management plan	Of a <i>district group</i> or local government, means the group's or local government's disaster management plan under the Disaster Management Act.
District group (District Disaster Management Group)	For an emergency action plan (EAP), means a district group established under the Disaster Management Act, section 22 whose disaster district under that Act could, under the plan, be affected by a <i>dam hazard</i> .
Emergency event	Means an event arising from a <i>dam hazard</i> if: <ul style="list-style-type: none"> • persons or property may be harmed because of the event, AND • any of the following apply: <ul style="list-style-type: none"> ○ a coordinated response, involving 2 or more of the following <i>relevant entities</i>, is likely to be required; each <i>local group</i> and <i>district group</i> for the EAP, each local government whose area may be affected, the chief executive, another entity the owner of the dam considers appropriate, OR ○ the event may arise because of a disaster situation declared under the Disaster Management Act, OR ○ an entity performing functions under the State <i>disaster management plan</i> may, under that plan, require the owner of the dam to give the entity information about the event.
Local group (Local Disaster Management Group)	For an EAP, means a local group established under the Disaster Management Act, section 29 whose local government area could, under the plan, be affected by a <i>dam hazard</i> .
Notice response	A dam owner's written response to a notice following an assessment of an EAP by a local government or <i>district group</i> .

Term	Definition
Referable dam	<p>A dam, or a proposed dam after its construction, will be a referable dam if:</p> <ul style="list-style-type: none"> • a failure impact assessment of the dam, or the proposed dam, is carried out under the Act, AND • the assessment states the dam has, or the proposed dam after its construction will have, a category 1 or category 2 failure impact rating, AND • the chief executive has, under section 349 of the Act, accepted the assessment. <p>Also, a dam is a referable dam if:</p> <ul style="list-style-type: none"> • under section 342B of the Act, the owner of a dam is given a referable dam notice and, before the effective day for the notice, does not give the chief executive a failure impact assessment for the dam, AND • the chief executive has not, under section 349 of the Act, accepted a failure impact assessment of the dam.
Relevant entity	<p>Means each of the following under the EAP for the dam:</p> <ul style="list-style-type: none"> • the persons who may be affected, or whose property may be affected, if a dam hazard event or emergency event were to happen for the dam, e.g. the owners of parcels of farm land adjacent to the dam or residents of a township • each local group and district group for the EAP • each local government whose local government area may be affected if a dam hazard event or emergency event were to happen • the chief executive • another entity the owner of the dam considers appropriate e.g., the Queensland Police Service.

Terms consistent with Queensland disaster management arrangements:

Activation levels	<p>The four levels of EAP activation are:</p> <ul style="list-style-type: none"> • Alert: A heightened level of vigilance due to the possibility of an event occurring. No further action may be required; however, the situation should be monitored by someone capable of assessing the potential of the threat. Moving to an Alert level indicates the dam owner is getting ready to activate the Lean Forward level of the EAP if the situation deteriorates. • Lean Forward: An operational state characterised by a heightened level of situational awareness of an impending disaster event and a state of operational readiness. Disaster coordination centres are on standby and prepared but not activated. • Stand Up: The operational state where resources are mobilised, personnel are activated, and operational activities commenced. Disaster coordination centres are activated. The dam owner needs to provide an Emergency Event Report (EER) in accordance with the provision of the Act. • Stand Down: Transition from responding to an event back to normal core business and/or continuance of recovery operations. There is no longer a requirement to respond to the event and the threat is no longer present. <p>The movement through these levels of activation is not necessarily sequential. It should be applied with flexibility and adaptability and be tailored to the location and event. Triggering one of these levels of activation may not necessarily mean a similar activation of LDMGs or DDMGs.</p>
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Term	Definition
Bureau of Meteorology flood level classifications	<p>The three levels of flooding are:</p> <ul style="list-style-type: none"> • Minor flooding: This causes inconvenience such as closing of minor roads and the submergence of low-level bridges and makes the removal of pumps located adjacent to the river necessary. • Moderate flooding: This causes the inundation of low-lying areas requiring the removal of stock and/or the evacuation of some houses. Main traffic bridges may be closed by flood waters. • Major flooding: This causes inundation of large areas, isolating towns and cities. Major disruptions occur to road and rail links. Evacuation of many houses and business premises may be required. In rural areas widespread flooding of farmland is likely.
Chemical spill/toxic condition	The contamination of water in the storage of the dam that could create a dam hazard.
Concurrent Flooding	Flood flows downstream of a dam that are not a result of dam outflows, for instance those from adjacent catchments or from the sea, and which occur in the same period as downstream releases or flooding from the dam.
Dam crest failure	<p>Dam crest flood is when failure occurs during a flood event with the water level at the crest of the non-overflow section of the dam embankment:</p> <ul style="list-style-type: none"> • for an embankment dam, is the lowest point of the embankment crest • for a concrete dam, is the level of the non-overflow section of the dam, excluding handrails and parapets if they do not store water against them • for a concrete faced rockfill dam, is the lowest point of the crest structure.
Dam failure	Dam failure is the physical collapse of all or part of a dam or the uncontrolled release of any of its contents.
Downstream releases	Downstream releases are outflows from the dam made through appurtenant structures such as spillways or outlet works that are in accordance with the design of the dam.
Earthquake	<p>A sudden release of energy in the earth's crust or upper mantle, usually caused by movement along a fault plane or by volcanic activity, resulting in the generation of seismic waves that can be destructive. The potential consequences of an earthquake include:</p> <ul style="list-style-type: none"> • settlement, sliding, or overturning of monoliths in the dam wall • initiation of seepage lines in the foundations or abutments that could lead to piping damage and potential inoperability of appurtenant works.
Flood release	A flood release from a dam occurs when catchment inflows raise the storage level above the Full Supply Level (FSL) resulting in a discharge from the spillway of the dam.
Piping	Internal scour caused by the water flow and seepage that occurs through earth dams, dam foundations, or dam abutments. The internal scour can lead to the formation of a pipe, which can lead to a failure of the dam.
Plane strike or other impact	The impact of a plane, meteorite, or other high-energy item on or in close vicinity of a dam that could damage the dam structure or create a wave that could overtop the dam.
Probable maximum flood	Probable maximum flood is the flood resulting from probable maximum precipitation coupled with the worst catchment conditions that can be realistically expected.
Probable maximum precipitation	Probable maximum precipitation is the theoretical greatest depth of precipitation physically possible based on generalised methods.

Term	Definition
Probable maximum precipitation design flood	Probable maximum precipitation design flood is the flood resulting from probable maximum precipitation coupled with standard catchment conditions that can be expected.
Stability, main embankment	High foundation pore pressure peaks may reduce the Factor of Safety against slip circle failure to an unacceptable level.
‘Sunny day’ failure	‘Sunny day’ dam failure is where the failure occurs at the full supply level and there is no concurrent rain associated flooding.
Terrorist activity	A deliberate attempt to damage, fail or contaminate a dam.

Note: Sunwater has attempted to write the EAP to cope with all reasonably foreseeable emergency situations. However, there is considerable uncertainty about how any emergency situation might develop and progress. Factors such as the weather, the location, the mechanics, and the rate and size of any actual failure can considerably affect any resulting flood discharges. Therefore, a significant number of assumptions have had to be made in compiling sections of the EAP. Some variation in outcome should be expected where the event differs from the assumed behaviour.

2. Introduction

2.1 Context

Under the *Water Supply (Safety and Reliability) Act 2008* (the Act), the owner of a referable dam must have an approved EAP for the dam. Referable dams, by definition, would put lives at risk if they were to fail.

This EAP has been prepared in accordance with Chapter 4 of the Act. The content requirements for EAPs are contained in section 352H of the Act.

Summary of legal requirements – Section 352H

Section 352H(1) of the Act requires that the EAP must identify each dam hazard for the dam; and for each of these dam hazard types (e.g., flood operations, or chemical spill/toxic conditions):

1. identify the area likely to be affected by a dam hazard event or emergency event arising from the dam hazard; and
2. identify each circumstance that indicates a material increase in the likelihood of the dam hazard event or emergency event happening; and
3. state when and how the owner of the dam plans to warn persons who may be harmed, or whose property may be harmed by an event caused by the dam hazard, if one happens, and/or there is a material increase in the likelihood of an occurrence, including the order of priority in which the persons or categories of persons are to be warned; and
4. state when and how the owner plans to notify the relevant entities for the dam, if a dam hazard event or emergency event happens or, there is a material increase in the likelihood of such an occurrence, including the order of priority in which the relevant entities are to be notified; and
5. state the actions the owner of the dam plans to take in response to a dam hazard event or emergency event.

In accordance with section 352H(2) of the Act, the EAP may provide for the dam owner to make arrangements with a relevant entity for warnings to be given by the relevant entity on behalf of the dam owner in appropriate circumstances.

Section 352HA of the Act states that before giving the chief executive an EAP, the owner of the dam must give a copy of the plan to each local government whose area may be affected by a dam hazard identified in the plan; and each district group for the plan.

Section 352HB of the Act states that the local government must assess the EAP for consistency with its disaster management plan. In its assessment, the local government must consult with the local district group for the plan.

Within 30 business days of receiving the EAP, the local government must give the owner of the dam a notice, which states whether it considers the plan is consistent with its disaster management plan; and if not, give reason why it considers the EAP is not consistent. The EAP must include any such notices, provided to the owner of the dam by a local government (or district group); and any responses which the owner gives to these notices. Section 352H(1) further stipulates that an EAP must include any other relevant matter prescribed by regulation.

The local government whose areas may be affected by a dam hazard for Bjelke-Petersen Dam have been assessed as **South Burnett Regional Council (SBRC)** and **Cherbourg Aboriginal Shire Council (CASC)**. Sunwater has provided all councils with a copy of the draft EAP for assessment.

Section 352HC of the Act states that a district group may review the EAP for consistency with its disaster management plan. The district group for Bjelke-Petersen Dam is **Gympie District Disaster Management Group (DDMG)**. Sunwater has provided the DDMG with a copy of the draft EAP for review.

2.2 Purpose

The purpose of this EAP is:

- to minimise the risk of harm to persons or property if a dam hazard event or emergency event for the dam happens
- to identify dam hazards that could occur at Bjelke-Petersen Dam and the area likely to be affected for each hazard
- to prescribe emergency actions taken by the dam owners and operating personnel in identifying and responding to dam hazards and notifying relevant entities.

It is possible for more than one dam hazard to exist at Bjelke-Petersen Dam at the one time. In such a circumstance, it may be necessary to act on the procedures within separate sections simultaneously.

The focus of this EAP is the management of dam hazards at Bjelke-Petersen Dam by the owner of the dam (Sunwater) and the communication and notification of dam hazards to the LDMGs, DDMGs and broader community. However, the EAP sits within the broader emergency response framework. This EAP has been developed to be consistent with and support the objectives of the South Burnett and Cherbourg's Local Disaster Management Plans.

2.3 Scope

The Bjelke-Petersen Dam EAP covers:

- dam hazards evaluated within Sunwater's Dam Safety Management Program
- details about the dam that are relevant to a dam hazard
- triggers for activation of a tiered response to dam hazards
- roles and responsibilities in responding to a dam hazard
- notification and communication protocols
- inspection, monitoring, and reporting protocols during emergencies
- other relevant information that may assist with identifying the area affected by a dam hazard, and the management of such dam hazards.

2.4 Sunwater provides training

Training of the use and implementation of this EAP document is carried out at various times throughout the year, but specific pre- wet season training is undertaken in the months leading up to the wet season at each dam site.

During this time Sunwater staff have work instructions for site preparations, and during July to September carry out checks on stores, supplies of fuel, on the current EAP such as contact details for individuals and Dam information.

The EAP training that is carried out on site (with DDO's, LEC and IC present) include walkthroughs of new changes, scenario (role play) and Q & A to check the knowledge and competency of all those who attended. DSTDM information sessions are carried out once a year with the same walkthrough of new changes and Q & A but this is not specific to any one Dam. New employees to these various roles would also have a walkthrough of the EAP to understand after they start at Sunwater.

Sunwater is also working towards carrying out a full test once annually involving each local Council. Where there is more than one referable dam in a local area, the exercise could involve more than one dam or the location will be rotated. This full test would involve the SDCC and include the (non- live) testing of Emergency Alerts.

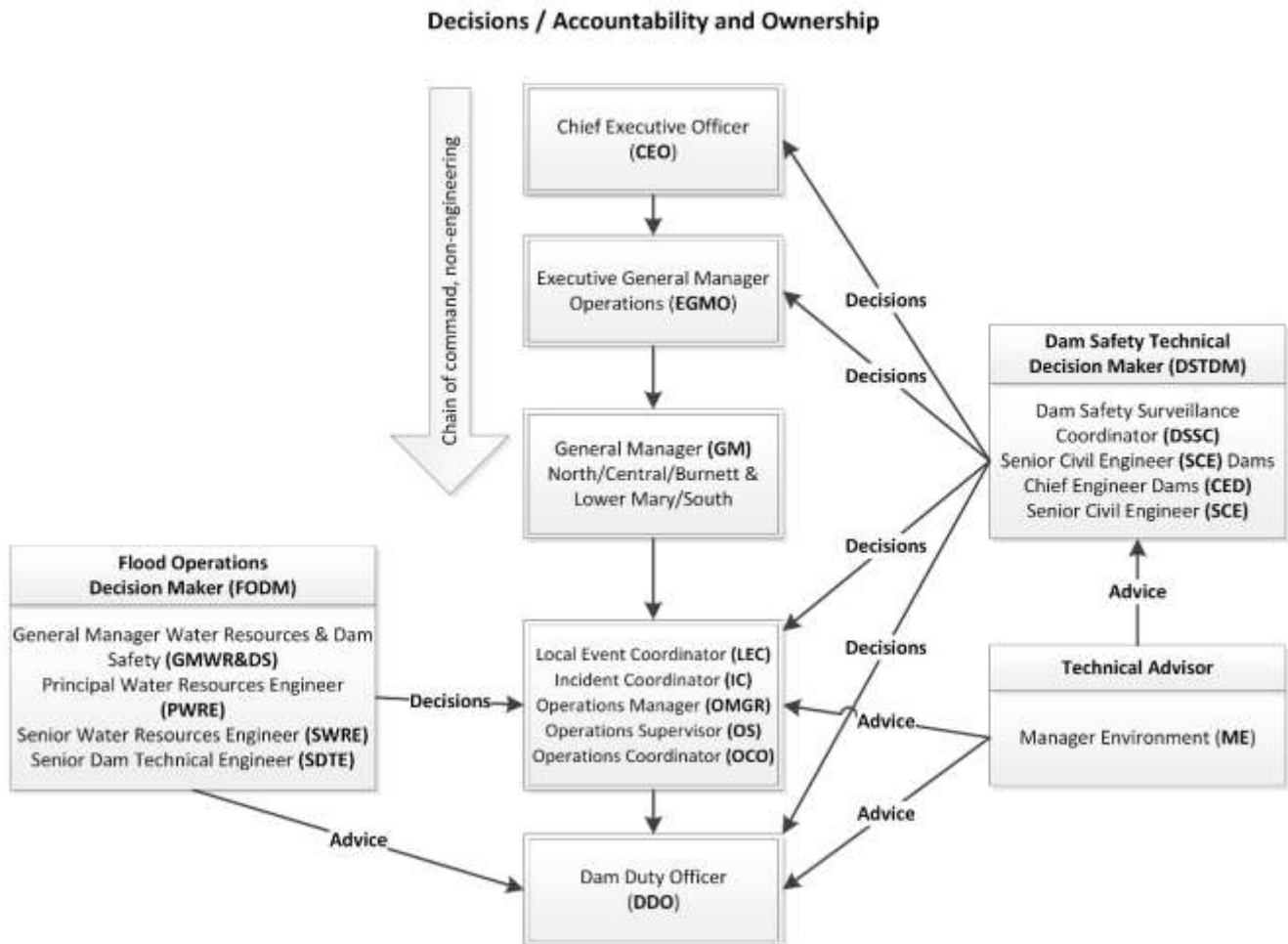
2.5 Principles used in developing this EAP

- The LDMGs have principal carriage of managing any disaster situation within the community, with the support of the district and state groups.
- Sunwater will aim to inform and support the LDMGs in the South Burnett and Cherbourg areas.
- The LDMGs will be the principle voice on all communication to the community during a disaster situation where practical.
- During a dam hazard that occurs with little or no warning, Sunwater will undertake the following actions to ensure the community is informed as soon as possible:
 - maintain an up to date list of immediately D/S residents of Bjelke-Petersen Dam. The downstream limit is shown in Figure B3 by the zone labelled *Limit of downstream notification area*
 - provide timely advice to the LDMGs
 - notify the immediately D/S residents via SMS
 - contact SDCC Watch desk to send emergency notification to the Bjelke-Petersen Dam Emergency polygon.
- During a dam hazard South Burnett Regional Council will take the lead role in notifying all relevant persons. Sunwater will support all the LDMGs by undertaking the following actions to ensure the community is informed as soon as possible:
 - maintain an up to date list of immediately D/S residents of Bjelke-Petersen Dam. The downstream limit is shown in Figure B3 by the zone labelled *Limit of downstream notification area*
 - notify the immediate D/S residents via SMS unless otherwise agreed with LDMGs
 - provide timely advice to the LDMGs.
- Sunwater will aim to inform and support the Gympie DDMG.

2.5.1 Dam emergency organisation within Sunwater

The Sunwater emergency management framework generally utilises the organisation's hierarchy and in-house experts as illustrated in Figure 1 below.

Figure 1: Sunwater emergency response organisation



Key aspects of the emergency management framework are:

- Central to the framework is the role of Incident Coordinator (IC) for any dam hazard at a dam. The IC will maintain overall responsibility for managing the dam hazard.
- The IC is responsible for the decision to activate the EAP. Should the IC be unavailable, the Local Event Coordinator (LEC) followed by the Dam Duty Officer (DDO) is responsible for the decision. If the IC loses all communications during a dam hazard, then as a fail-safe position, the LEC followed by the DDO will assume the duties and responsibility of the IC. However, loss of communications could result in some communication processes defined in this EAP not being carried out.
- Sunwater's in-house engineering and technical staff will provide technical advice to the IC, LEC and DDO on an as needs basis. The Flood Operations Decision Maker (FODM) and Dam Safety Technical Decision Maker (DSTDM) will provide flood and dam engineering advice respectively during a dam hazard. Such advice will be provided within an established framework of Standing Operating Procedures (SOPs), models, standards, and manuals. This is an advisory role only and does not diminish the decision responsibility of the IC, LEC or DDO.

- If circumstances develop during a dam hazard that exceeds the established framework, it will be necessary to escalate to either the FODM or DSTDM. These roles are filled by Registered Professional Engineers of Queensland (RPEQ) and are suitably qualified professionals who can make engineering decisions and provide engineering decisions as defined in the *Professional Engineers Act of Queensland*. In some circumstances these decision-making roles may need to direct those in the direct chain of command. These decision-making roles are providing direct engineering supervision to the advisors through the established framework of SOPs, models, standards, and manuals or through direct supervision.

2.6 Community information

- Sunwater with the assistance of the local councils will ensure community education around messaging and impacts of the EAP and its related events is undertaken and continually improved.
- Sunwater currently provides information externally to customers, downstream residents and the community in a range of ways or channels in relation to Dam hazards and Emergency Situations. Individuals can access information through Facebook, Twitter, the Sunwater web page, Sunwater App and at several regional show/field days across regional Queensland where Sunwater may have stalls and information available.
- Immediately D/S residents of Bjelke-Petersen Dam are also provided information in text message/phone calls in the event of an activation of this EAP.
- In the event of a Dam failure or when required Sunwater also have the use of the National Emergency Alert System to send a voice message and SMS. This service is provided by Telstra and is managed by the State Disaster Coordination Centre and the process Sunwater follows is documented in Appendix A9.
- A copy of all Sunwater approved EAPs are available to the public on the Business Queensland website - <https://www.business.qld.gov.au/industries/mining-energy-water/water/industry-infrastructure/dams/emergency-action-plans/map> These copies are redacted to protect people's personal details.

2.7 Lessons learnt

- Sunwater carries out Lessons Learnt workshops as part of its post event management. These Lessons learnt can result in changes to the EAP. These are captured and if applicable to this document are implemented at the earliest opportunity and are made available in the next EAP update to the regulator as part of Sunwater's continual improvement of its EAPs. The lessons learnt actions if relevant are provided to stakeholders, such as the LDMGs, DDMGs, other dam owners and DNRME as appropriate.
- In addition, Sunwater requests any post event learnings be communicated regarding operational effectiveness and areas for improvement.

2.8 Downstream notifications lists

- Sunwater has compiled the notification lists through an iterative process. At least every 5 years Sunwater writes to all lot on plan landholders that are impacted in the downstream zones. In addition to individual letters, advertisements are placed yearly in local papers to capture any new residents in the areas. All year, applicable individuals are able to register to receive notifications for this EAP and are able to register either through the Sunwater website or by calling Sunwater Customer Enquiries on 13 15 89.

2.9 Comprehensive Risk Assessments

- Comprehensive Risk Assessments (CRA) are carried out on all Sunwater Dams. These are technical reports that are utilised to ascertain risks for each dam as the basis for emergency triggers. The CRA can be made available to Disaster Management Personnel whom require further assurance around the findings. To obtain a copy of a relevant CRA a request should be made in writing to Sunwater's General Manager Water Resources and Dam Safety, it should detail the reason for the request and indicate who will be interpreting the data, i.e. engineering capability, for any unqualified personnel.

3. Dam Details

3.1 General dam information

Location: The dam is situated approximately 67km south-west of Gympie and 8kms south of Murgon. The dam is located on the Barker Creek (AMTD 1.3km) and just upstream of the confluence with Barambah Creek.

Purpose: The purpose of the dam is to provide an assured supply of water for irrigation for the Barker-Barambah irrigation project and to supplement the town water supply for the townships of Murgon, Wondai, Byee, and Cherbourg.

Catchment: 1,670km².

Storage Capacity: The storage capacity at FSL is 134,900ML.

Construction: The Bjelke-Petersen Dam was originally constructed in 1988. Additional works (stage 1 upgrade) involving the construction of a crest parapet wall, were carried out in 2007 as part of the spillway upgrade program to improve the discharge capacity of the dam to safely pass the 50% Probable Maximum Precipitation Design Flood (PMPDF)—flood event. This has subsequently been reassessed and the dam satisfies 100% Acceptable Flood Capacity (AFC) under a risk-based approach.

Specification: The table below lists general specifications of Bjelke-Petersen Dam.

Table 2: Bjelke-Petersen Dam specifications

Description	Specification
Main dam type	Central core earth and rock-fill
Full Supply Level (FSL)	EL 307.30m
Historical recorded max storage—Jan 2011	EL 311.819m
Storage capacity at FSL	134,900ML
Storage area at FSL	2,250ha
Dam Crest Level (DCL)	El 315.60m
Dam length (m)	550m—Original 620m—Stage 1
Top of crest wall	EL 317.45m (upgrade completed in 2007)
Dam height above foundation	44m (approx.)
Spillway type	Un-gated concrete ogee crest spillway chute and dissipator
Spillway crest level	El 307.30m
Spillway capacity at DCL	4,920m ³ /s (425,088ML/d)
Spillway crest length	80m
Outlet description	Irrigation and river outlets—2400mm concrete-lined mild steel pipe with a 900mm offtake to Joe Sippel Weir and 2 x 1200mm offtakes to Barker Creek
Outlet control	Each offtake controlled by fixed cone dispersion valves and isolated by butterfly valves

Description	Specification
Saddle dam type	Earth and rock-fill embankment with inclined core
Saddle dam embankment crest level	EL 315.60m
Top of crest wall	EL 317.45m (top of wave wall cap)
Length	590m—Original 826m—Stage 1
Embankment max height	15m

3.2 Population at risk

Bjelke-Petersen Dam is classified as an 'High A' Hazard Category dam, based on an incremental Population at Risk (PAR) of 152 for the Sunny Day Failure (SDF) event with the severity of damage and loss assessed as 'Major' in accordance with *Guidelines on the Consequence Categories for Dams (ANCOLD, 2012)*.

The dam was assessed for Flood Failure events as having an 'Extreme' consequence rating in accordance with the *Guidelines on the Consequence Categories for Dams (ANCOLD, 2012)*. The incremental PAR for flood failure is 262 and the severity of damage and loss for the incremental flood impact zone between the Probable Maximum Flood (PMF) 'Dam Failure' and PMF 'No Dam Failure' is 'Major'.

3.3 Spillway adequacy

A Comprehensive Risk Assessment (CRA) of the Dam was completed in June 2006 (Sunwater, 2006b), updated in October 2010 (Sunwater, 2010m) and after this a summary revision was completed in July 2012 (Sunwater, 2012b). That CRA concluded that the dam is capable of safely passing 50% of the acceptable flood capacity (standard-based assessment). A 50% AFC represents a 1:93,300 AEP flood (DCF) and is equivalent to the minimum standard Sunwater has set for all its major dams. The CRA further concluded that the current Stage 1 arrangement satisfies 100% AFC as determined by the Risk Assessment approach.

3.4 General Arrangement

The general arrangement drawings are in Appendix B.

3.5 Emergency inspections and monitoring

The Bjelke-Petersen Dam has been designed to conform to modern design standards, so that its failure is highly unlikely. To maintain the dam in a safe condition and detect any dam hazard, as soon as it begins to develop, or becomes apparent, the following is applicable to Bjelke-Petersen Dam.

3.5.1 Inspections

- **Routine Visual Inspection:** Conducted as per the ANCOLD Guidelines or as directed by the DSTDM
- Detailed Inspection: Conducted annually
- Comprehensive Inspection: Conducted 5-yearly

3.5.2 Instrumentation and monitoring

To confirm the structural behaviour and safety of the embankment, the following instrumentation was installed, and is monitored, at Bjelke-Petersen Dam.

Settlement/movement measurement

- Main Dam
 - 27 surface settlement points—16 located along the crest of the embankment, 3 on the upstream face, and 8 on the downstream face of the embankment
 - 12 pneumatic piezometers (currently not operational)
 - 12 pressure cells adjacent to the piezometers
 - 3 pressure cells on the conduit
 - 24 strain gauges along the conduit
 - 12 observation bores
 - 1 v-notch weir at toe of the dam
- Saddle Dam
 - 5 surface settlement points
 - 3 rectangular weirs at toe of Saddle Dam

3.5.3 Instrumentation layout

The instrumentation layout drawing (102260) is in Appendix B.

4. EAP Roles and responsibilities

EAP roles and responsibilities	Position holder
Owner <ul style="list-style-type: none"> • Liaise with the Board and Minister • Activate Sunwater Strategic Response and Business Continuity Plans, if required • Ensure necessary resources are available to manage any event • Record communications, notifications and observations as required 	CEO EGMO GMWR&DS
Owner's Head Office Representative <ul style="list-style-type: none"> • Authorise the issuing of EAPs, SOPs and O&M Manuals and Amendments • Facilitate Dam Safety Training Courses for Service Managers, Operations Supervisor, Dam Operators and other staff as appropriate and ensure that all staff required to undertake Dam Safety work are trained and accredited • Ensure that risks identified in CRAs or other technical reports undertaken in relation to Dam Safety are Included in the EAP • Ensure visual inspections and instrumentation monitoring frequencies conform to ANCOLD Guidelines • Ensure all Dam Safety work orders, work instructions and lesson learned outcomes are fully implemented. • Ensure requirements of the Dam Condition Schedule are met • Ensure the work instructions are correct and the Log Books, SOPs, Data Books, and EAPs are reviewed annually as per the Condition Schedule • Undertake and prepare the 5 yearly Comprehensive Inspection Reports with suitably qualified personnel within the time specified in the Condition Schedule and that work orders are created for recommendations and work is undertaken as required • Undertake Annual Inspections and prepare reports within the time frames specified in the Condition Schedule and that work orders are created for recommendations and work is undertaken as required • Review the Dam Safety Instrumentation Database and evaluate data to verify the structural integrity of the dams on a regular basis and maintain a spread sheet for verification for audit and quality control • Record communications, notifications and observations as required 	DSPM DSPE DSSC CDE MAP
Owner's Regional Representative (ORR) <ul style="list-style-type: none"> • Liaise with the Storage Supervisor/Operator Maintainer • Arrange dam specific training and accreditation for relevant staff • Ensure competent, trained and accredited personnel operate the storages • Undertake the role of LEC as required • Record communications, notifications and observations as required • Ensure all work orders, work instructions and lesson learned outcomes are fully implemented. 	OMGR OCO OS
Technical Advisor <ul style="list-style-type: none"> • Analyse the situation and provide expert technical advice • Discuss issue with peers and other technical experts and make sound decisions to mitigate the risk • Determine response to incidents and emerging issues • Record communications, notifications and observations as required 	ME

EAP roles and responsibilities	Position holder
Dam Safety Technical Decision Maker (DSTDM) <ul style="list-style-type: none"> Analyse the situation and provide expert technical advice in relation to Dam Safety Discuss Dam Hazard with peers and other technical experts and make sound decisions to mitigate the risk Determine response to incidents and emerging issues Issue warning on dam failure and advise on protective measures Ensure the EAP is implemented appropriately and carry out the DSTDM role as required Maintain current RPEQ accreditation Liaise with Regulator as required Record communications, notifications and observations as required 	Various personnel as per DSTDM roster
Flood Operations Decision Maker (FODM) <ul style="list-style-type: none"> Provide hydrological advice in relation to predicted and actual dam outflows Ensure model outputs are checked and approved Ensure the EAP is implemented appropriately and carry out the FODM role as required Record communications, notifications and observations as required 	Various personnel as per FODM roster
Operations Centre Duty Officer (OCDO) <ul style="list-style-type: none"> Decide if a flood is imminent and record modes of operation Extract data relative to the event from available sources Utilise this data in predictive flood models and determine results from these models for approval by FODM Liaise with the FODM or IC to update current flood situation and routing data Record communications, notifications and observations as required 	Various personnel as per OC roster
Sunwater Media Team (SMT) <ul style="list-style-type: none"> Analyse sensitive issues, discuss with the Owner and issue media releases Handle public and customer comments (including social media) and advise the Owner if necessary Liaise with the IC and update SDMG of flood events Record communications, notifications and observations as required 	Various personnel as per Media Team roster
Incident Coordinator (IC) <ul style="list-style-type: none"> Notify council of intent to use the Emergency Alert Activate the EAP Ensure the EAP is implemented appropriately and carry out the IC role as required Arrange Situation Reports and determine frequency, as required Record communications, notifications and observations as required 	Various personnel as per IC roster
Local Event Coordinator (LEC) <ul style="list-style-type: none"> Liaise with the Local Disaster Coordinator or proxy Activate the EAP, when necessary Ensure the EAP is implemented appropriately and carry out the LEC role as required Record communications, notifications and observations as required 	Various personnel as per LEC roster

EAP roles and responsibilities	Position holder
Dam Duty Officer (DDO) <ul style="list-style-type: none"> Complete accreditation to operate and maintain relevant storage Ensure the EAP is implemented appropriately and carry out the DDO role as required Take direction from the DSTDM and IC as requested Arrange immediate site inspection and make informed assessment of the situation Escalate any issue not covered in the EAP or where actions are not clear Record communications, notifications and observations as required 	SOM SS OM
South Burnett Regional Council and Cherbourg Aboriginal Shire Council Councils have legislated local government functions, as per Section 80 of the Qld Disaster Management Act (2003). These include: <ul style="list-style-type: none"> Ensure it has a disaster response capability Approve its local disaster management plan Ensure information about an event or a disaster in its area is promptly given to the district disaster coordinator for the disaster district in which area it is situated Perform other functions given to the local government under the Act And as per Section 352HB of the Water Legislation (Dam Safety) Amendment Act (2017): <ul style="list-style-type: none"> Must assess (in consultation with its LDMG) the EAP for consistency with the Local Disaster Management Plan 	
Disaster Management Groups/Personnel - (In addition to requirements outlined in the Qld. Disaster Mgmt. Act (2003)) LDMG <ul style="list-style-type: none"> Assist Sunwater and the Councils to ensure community education around messaging and impacts of EAP related events is undertaken and continually improves Work with Councils and Sunwater to ensure the EAP is regularly exercised Identify and coordinate the use of manpower and resources that may be required for an EAP event Identify and provide advice to DDMG about support services required by the LDMG to manage an EAP event Provide reports and make recommendations to the relevant DDMG about matters relating to EAP events and any support required QFES <ul style="list-style-type: none"> Work with dam owner and LDMGs to ensure Emergency Alerts polygons are prepared, stored and tested DDMG <ul style="list-style-type: none"> DDMG may review plan with consistency with the District Disaster Management Plan 	LDMG DDMG QFES
Dam Safety Regulator (DSR) <ul style="list-style-type: none"> Liaise with relevant Minister on necessary actions. Approve this document as required under legislation Liaise with chief executive as required in administering (regulating) the Water Supply (Safety and Reliability) Act 2008 	DDS

5. Dam hazard—flood operations

5.1 Overview

The emergency action described in this section (dam hazard—flood operations) relates to:

- A dam hazard where natural catchment inflows fill Bjelke-Petersen Dam to FSL 307.30m and the rate of inflow exceeds the capacity of the outlet works. The spillway will then discharge water downstream into the Barker and Barambah Creeks. These flood flows can create a dam hazard. Inflows will also cause the storage to temporarily rise to above the full supply level of the storage. Note:
 - The greater the rate of inflow, the higher the storage will rise.
 - The higher the storage level rises, the greater the loads on the dam structure.
 - Although unlikely, the greater the loading, the higher the likelihood of a dam failure.

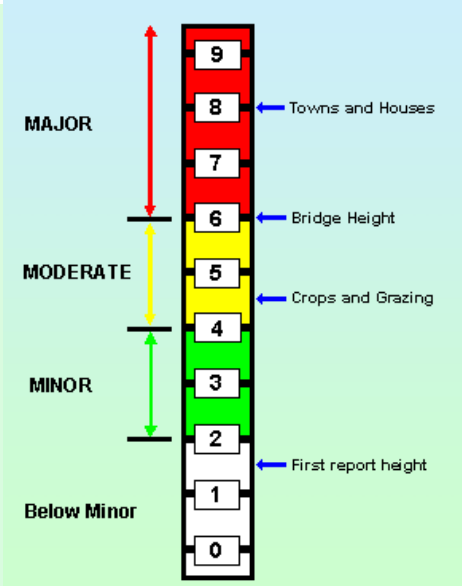
Typically, the level of surveillance is increased during flood operations (refer tables in this section).

- Spillway discharge from the dam where there have been no indications that a dam failure may be initiating or in progress.

The area likely to be affected by this emergency event is described as:

- For small flows, the water will be contained within Barker and Barambah creeks and will not create a dam hazard.
- As the rate of discharge increases there will be an impact on low-level road crossings on the Barker and Barambah Creeks and other infrastructure in the river such as pump sites.
- When the storage height exceeds major flood levels (3.5m over the spillway) EL 310.80m, 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 traffic routes closed. Evacuation of flood affected areas may be required. Utility services may be impacted.

Table 3: Flood classification triggers

	Flood Classification Level	Depth over Spillway (m)	Storage Elevation (m AHD)
 <p>Example of Flood Level Classification</p>	Major	3.50m	310.80m
	Moderate	2.90m	310.20m
	Minor	1.70m	309.00m

Source: Bureau of Meteorology

The following table shows historical floods experienced at Bjelke-Petersen Dam.

Table 4: Historical floods experienced at Bjelke-Petersen Dam

Flood rank	Date	Peak Height EL	Peak Height (m over crest)
1	Jan 2011	311.82m	4.52m
2	Jan 2013	310.01m	2.70m
3	Mar 2013	309.15m	1.84m
4	Feb 1999	308.41m	1.11m
5	Feb 2001	308.15m	0.84m

5.2 Emergency actions

In the table below, each level of activation includes both its own actions and the actions of any lower level, unless those lower level actions are superseded.

5.2.1 Activation triggers

Table 5: Flood emergency activation trigger summary

Alert	<ul style="list-style-type: none"> EL 307.20m and rising (0.1 below FSL)
Lean Forward	<ul style="list-style-type: none"> Storage above FSL 307.30m
Stand Up—greater than moderate flood level	<ul style="list-style-type: none"> Storage above EL 310.20m (Moderate flood classification level)
Stand Up—greater than flood of record	<ul style="list-style-type: none"> Storage above EL 311.82m (Flood of record—Jan 2011)
Stand Up—3	<ul style="list-style-type: none"> Storage above EL 317.45m (Top of crest parapet wall)
Stand Down	<ul style="list-style-type: none"> Storage level EL 307.40m and falling

While this EAP is not triggered until Bjelke-Petersen Dam reaches a level of 307.20m, Sunwater and the South Burnett Regional Council and Cherbourg Aboriginal Shire Council LDMGs will work cooperatively and will endeavour to share intelligence of any rainfall event as and when either organisation becomes aware of a situation that could result in the activation of the EAP.

5.2.2 Assessment of circumstances that indicate an increase in the likelihood of flood operations

The Operations Centre Duty Officer (OCDO) will assess the weather and flood warnings daily in accordance with the Operations Centre (OC) SOP. The OCDO will escalate to the Incident Coordinator (IC) any warnings that have the potential to generate an inflow event in the catchment in the following 24 hours.

The on-call IC will escalate to the FODM any local intelligence on catchment conditions that could increase the probability of inflows to the dam.

The FODM will determine whether it is reasonably likely that the dam could reach EL 307.20m within the subsequent 24 hours. If so assessed, the FODM will instruct the IC to trigger the Alert status for flood operations.

5.2.3 Emergency action roles

Table 6 to Table 10 specify emergency actions for the following roles:

- Dam Duty Officer (DDO)
- Local Event Coordinator (LEC)
- Incident Coordinator (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Table 6: Flood operations—DDO emergency action

Activation level	Alert	Lean Forward	Stand Up—greater than moderate flood level	Stand Up—greater than flood of record	Stand Up—3	Stand Down
Activation trigger	• EL 307.20m and rising (0.1m below FSL)	• Storage above FSL 307.30m	• Storage above EL 310.20m	• Storage above EL 311.82m	• Storage above EL 317.45m	• Storage level EL 307.40m and falling
Actions	<ul style="list-style-type: none"> Inspect the main embankment and Saddle Dam as per routine work instructions (or as instructed by the DSTDM) and photograph/video and record using the approved forms in Appendix D and send to DSTDM and IC Undertake site preparations to (if not already complete) including but not limited: <ul style="list-style-type: none"> Check fuel and operation of backup generator Check communication systems (including backup, radio, and satellite phones) Monitor catchment conditions Notify the SO Record the Storage Level twice daily (or as instructed by the ORR/DSTDM) using the gauge boards and confirm accuracy of gauging station Record rainfall—daily Record all communication Update Dam Log Book as per SOP 12 	<ul style="list-style-type: none"> As per previous activation level, AND Inspect the main embankment and Saddle Dam daily (or as instructed by the DSTDM) and photograph/video and record using the approved forms in Appendix D and send to IC and DSTDM. Attention will be given to: <ul style="list-style-type: none"> Visual inspection of flow patterns over spillway and dissipator for evidence of scouring or loss of concrete in the chute Inspect embankment for leaks, deformation, slumping, or slides Obvious signs of seepage Report any unusual readings or observations to the DSTDM and IC as soon as practical Read Main Dam and Saddle Dam instrumentation daily (or as instructed by the DSTDM) on activation of this level, and then as instructed, as shown in section 3.5. <p>NOTE: Site access may be limited before reaching Stand Up</p>	<ul style="list-style-type: none"> As per previous activation level, AND Inspect the main embankment and Saddle Dam twice daily (or as instructed by the DSTDM) and photograph/video and record using the approved forms in Appendix D and send to DSTDM and IC 	<ul style="list-style-type: none"> As per previous activation level, AND Monitor tailwater and Photograph discharge Inspect the main embankment and Saddle Dam at 6-hourly intervals (or as instructed by the DSTDM) and photograph/video and record using the approved forms in Appendix D and send to DSTDM and IC <p>NOTE: Once at EL 315.60m (DCL) there will be an impact on ability to undertake surveillance</p>	<ul style="list-style-type: none"> As per previous activation level, AND Remotely inspect the main embankment and Saddle Dam (or as instructed by the DSTDM) and photograph/video and record using the approved forms in Appendix D and send to DSTDM and IC. Attention will be given to: <ul style="list-style-type: none"> Any damage to water overtopping the embankments Report observed damage immediately Record rainfall—as often as necessary Check signs of erosion on D/S face especially near spillway, if possible 	<ul style="list-style-type: none"> Return to routine surveillance activities and frequencies—inspect the dam for any damage identified Forward information for EER to IC email Update Dam Log Book as per SOP 12 Return to routine activities
Internal notifications	1. IC 2. SO	• As per previous activation level	• As per previous activation level	• As per previous activation level	• As per previous activation level	• As per previous activation level, AND • DSTDM (at end of event)
External notifications	• As required	• As required	• As required	• As required	• As required	• As required



ALL ACTION MUST BE TAKEN WHEN IT IS SAFE TO DO SO
e.g., taking photographs/video, dam inspections, instrument readings
ALL PHOTOS MUST BE DATE STAMPED

13 15 89 Sunwater Customer
Support 24-hour contact line

Table 7: Flood operations—LEC emergency action

Activation level	Alert	Lean Forward	Stand Up—greater than minor flood level	Stand Up—greater than flood of record	Stand Up—3	Stand Down
Activation trigger	<ul style="list-style-type: none"> EL 307.20m and rising (0.1m below FSL) 	<ul style="list-style-type: none"> Storage above FSL 307.30m 	<ul style="list-style-type: none"> Storage above EL 310.20m 	<ul style="list-style-type: none"> Storage above EL 311.82m 	<ul style="list-style-type: none"> Storage above EL 317.45m 	<ul style="list-style-type: none"> Storage level EL 307.40m and falling
Actions	<ul style="list-style-type: none"> Liaise with LDMGs re: situation Develop/implement staff roster Record all communication 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Forward information for to IC email Return to routine activities
Internal notifications	<ol style="list-style-type: none"> IC DDO 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ol style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 8: Flood operations—IC emergency action

Activation level	Alert	Lean Forward	Stand Up—greater than moderate flood level	Stand Up—greater than flood of record	Stand Up—3	Stand Down
Activation trigger	• EL 307.20m and rising (0.1m below FSL)	• Storage above FSL 307.30m	• Storage above EL 310.20m	• Storage above EL 311.82m	• Storage above EL 317.45m	• Storage level EL 307.40m and falling
Actions	<ul style="list-style-type: none"> • Liaise with Sunwater Customer Support to send SMS to D/S residents • Obtain catchment conditions from the DDO • Liaise with the DSTDM • Record all communication • Issue Sunwater incident alert <div>NOTE: IC to carry out LEC actions unless LDMG1 is stood up</div>	<ul style="list-style-type: none"> • As per previous activation level, AND • Prepare Daily Situation Report, unless otherwise directed • Ensure all abnormal observations or damage has been reported to DSTDM <div>NOTE: Site access may be limited before reaching Stand Up</div>	• As per previous activation level	• As per previous activation level	<ul style="list-style-type: none"> • As per previous activation level, AND <div>IC to trigger Paradise Dam EAP for flows over secondary spillway</div>	<ul style="list-style-type: none"> • Deactivate EAP • Compile EER and deliver to DSR if required • Complete Situation Report (final) • Return to routine activities
Internal notifications	3. DDO 4. DSTDM 5. FODM 6. LEC 7. ORR 8. SMT	• As per previous activation level	• As per previous activation level	• As per previous activation level	• As per previous activation level	• Inform previous notifications of deactivation as required
External notifications	1. D/S Residents & Irrigators 2. DDMG	• As per previous activation level	• As per previous activation level	• As per previous activation level	• As per previous activation level, AND • SDCC Watch Desk	• As required



ALL ACTION MUST BE TAKEN WHEN IT IS SAFE TO DO SO
 e.g., taking photographs/video, dam inspections, instrument readings
 ALL PHOTOS MUST BE DATE STAMPED

13 15 89 Sunwater Customer
 Support 24-hour contact line

Table 9: Flood operations—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Alert	<ul style="list-style-type: none"> When EL 307.20m and rising(preparedness) 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> Phone and email 	Describe current situation with dam—What is the event? What is the status? Advise current storage level
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Flood STATUS: Storage likely to spill ACTION: Stay alert for further advice
Lean Forward	<ul style="list-style-type: none"> Storage above FSL 307.30m 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? What is the status? Advise of current storage level
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Flood STATUS: Storage spilling ACTION: Stay alert for further advice
Stand Up—greater than moderate flood level	<ul style="list-style-type: none"> Storage above EL 310.20m 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? What is the status? (storage is greater than moderate flood level) Advise current storage level Advise of any forecasts you are aware of
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Flood STATUS: Moderate flooding ACTION: Monitor weather and local conditions
Stand Up—greater than flood of record	<ul style="list-style-type: none"> Storage above EL 311.82m 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? What is the status? (storage is greater than flood of record) Advise current storage level Advise of any forecasts you are aware of
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Flood STATUS: Flood of record ACTION: Consider your need to self-evacuate

Table 9 (Continued): Flood operations—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Stand Up—3	• Storage above EL 317.45m	<ul style="list-style-type: none"> • LDMG 1 • LDMG 2 • DDMG 	• Phone	Describe current situation with dam—What is the event? What is the status? Advise current storage level Advise of any forecasts you are aware of
		• SDCC Watch Desk	• Phone & Email	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. SMS text as follows: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
		• D/S Residents & Irrigators	• SMS (Phone for those without mobiles)	Liaise with Sunwater Customer Support to send SMS: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
Stand Down	• Storage level EL 307.40m and falling	<ul style="list-style-type: none"> • LDMG 1 • LDMG 2 • DDMG 	• Phone	Describe current situation with dam—What is the event? What is the status? Advise current storage level Advise EAP has been deactivated
		• D/S Residents & Irrigators	• SMS (Phone for those without mobiles)	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Flood STATUS: Dam hazard stood down ACTION: None

Table 10: Flood operations—DSTDM emergency action

Activation level	Alert	Lean Forward	Stand Up—greater than major flood level	Stand Up—greater than flood of record	Stand Up—3	Stand Down
Activation trigger	<ul style="list-style-type: none"> EL 307.20m and rising (0.1m below FSL) 	<ul style="list-style-type: none"> Storage above FSL307.30m 	<ul style="list-style-type: none"> Storage above EL 310.20m 	<ul style="list-style-type: none"> Storage above EL 311.82m 	<ul style="list-style-type: none"> Storage above EL 317.45m 	<ul style="list-style-type: none"> Storage level EL 307.40m and falling
Action	<ul style="list-style-type: none"> Provide technical advice to DDO and IC on a needs basis Review surveillance reports and determine if any additional responses are required Record all communication 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level Make assessment on likely impacts to Paradise Dam 	<ul style="list-style-type: none"> Forward information for EER to IC email Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DDO IC 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND CEO—if time permits 	<ul style="list-style-type: none"> As per previous activation level
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> Dam Safety Regulator 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



ALL ACTION MUST BE TAKEN WHEN IT IS SAFE TO DO SO
e.g., taking photographs/video, dam inspections, instrument readings
ALL PHOTOS MUST BE DATE STAMPED

13 15 89 Sunwater Customer
Support 24-hour contact line

6. Dam hazard—chemical spill/toxic conditions

6.1 Overview

The emergency action described in this section relates to:

- the presence of substantial volumes of chemicals or other potentially toxic contaminants can create a dam hazard
- the dam hazard can occur due to a traffic or industrial accident, a flood event transporting chemical drums into the storage, or an activity on or near the storage
- the dam hazard can impact urban, domestic, or stock users of water either within or downstream of the storage, or on recreational users
- the maximum area affected by any spill will depend on whether the river is in flood and/or the spillway is discharging. The maximum affected area of any spill would be the PMF map as an upper limit.
- the maximum area affected by any spill will depend on whether the river is in flood and/or the spillway is discharging. The maximum affected area of any spill would be the PMF map as an upper limit.

Note: This section does not apply for normal operating and monitoring of Blue Green Algae (BGA) within the storage under the Sunwater policy for BGA management (Refer: EM29 BGA Manual).

6.2 Emergency action roles

Table 11 to Table 15 specify emergency actions for the following roles:

- Dam Duty Officer (DDO)
- Local Event Coordinator (LEC)
- Incident Coordinator (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Figure 2: Chemical spill/toxic conditions flowchart

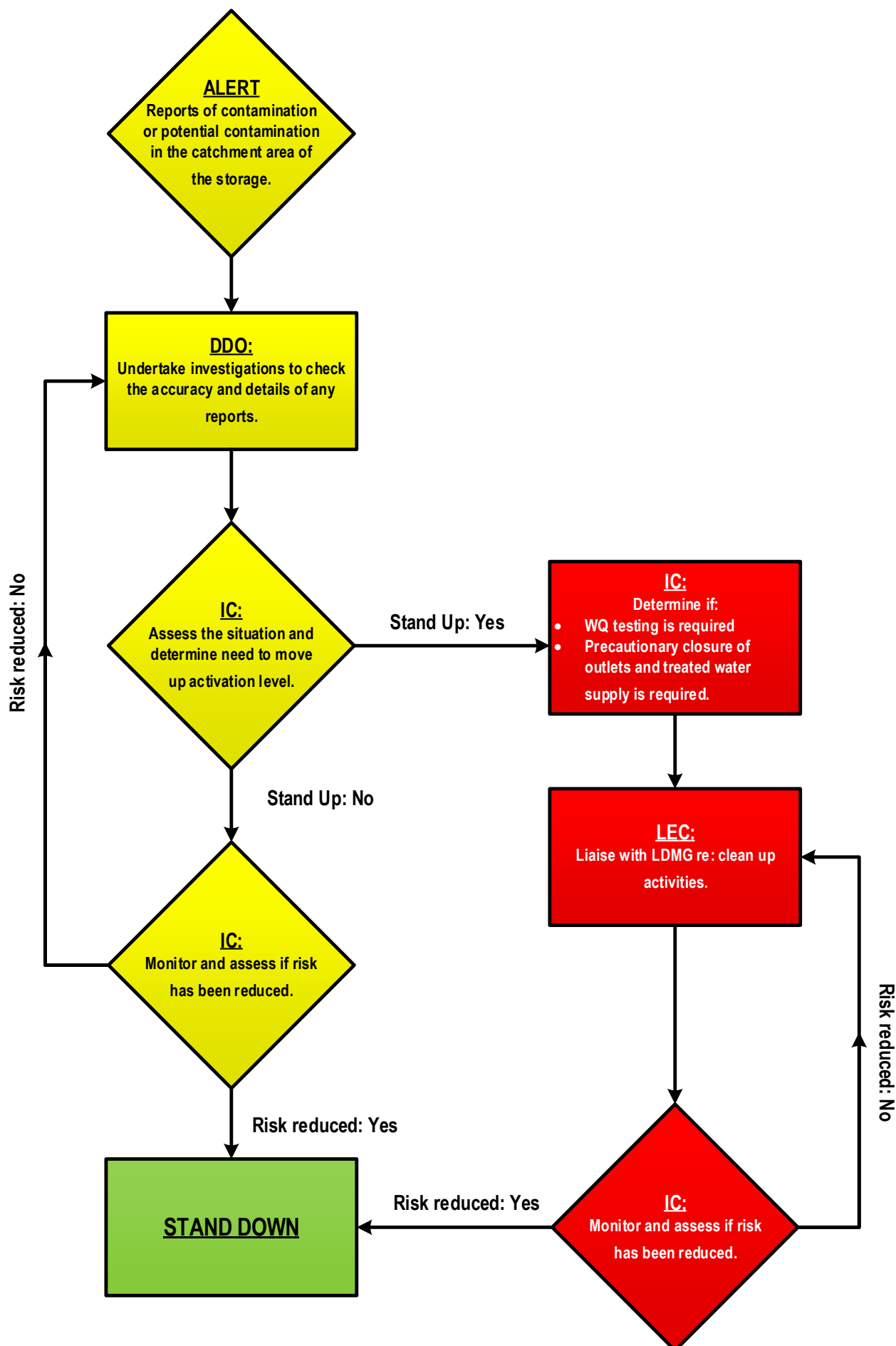


Table 11: Chemical spill/toxic conditions—DDO emergency action

Activation level	Alert	Lean Forward	Stand Up	Stand Down
Activation trigger	<ul style="list-style-type: none"> • Reports of contamination or potential contamination in the catchment area of the storage (excludes normal operating and monitoring of BGA) • Escalated BGA or toxic condition from the Sunwater Environmental group 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Confirmation or high probability of a large amount of chemical spill/toxic conditions found in the storage/catchment 	<ul style="list-style-type: none"> • Risk assessment that risk has reduced • Confirmation that significant contamination has not occurred • All clear WQ test result
Actions	<ul style="list-style-type: none"> • Undertake investigations to ascertain the veracity and details of any reports • Sketch, measure, photograph, and locate the spill's position in the reservoir/catchment and record using the approved forms in Appendix D and send to DSTDM and IC • Update Dam Log Book as per SOP 12 • Liaise with DSTDM and IC • Record all communication <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> NOTE: For normal BGA management (which is excluded) refer to the Sunwater Policy EM29 BGA Manual. </div>	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Update BGA warning signage, if relevant • Collect water samples, if directed • Close all outlet works, if directed • Shut off all treated water offtakes, if directed • Update Dam Log Book as per SOP 12 • Close storage to recreational use 	<ul style="list-style-type: none"> • Forward information for EER to IC email • Update Dam Log Book as per SOP 12 • Return to routine activities
Internal notifications	<ol style="list-style-type: none"> 1. DSTDM 2. IC 	<ul style="list-style-type: none"> • Not applicable 	<ol style="list-style-type: none"> 1. DSTDM 2. IC 3. LEC 	<ul style="list-style-type: none"> • As per previous activation level
External notifications	<ul style="list-style-type: none"> • As required 	<ul style="list-style-type: none"> • Not applicable 	<ol style="list-style-type: none"> 4. Call 000/112 if emergency services are required 	<ul style="list-style-type: none"> • As required



Table 12: Chemical spill/toxic conditions—LEC emergency action

Activation level	Alert	Lean Forward	Stand Up	Stand Down
Activation trigger	<ul style="list-style-type: none"> • Reports of contamination or potential contamination in the catchment area of the storage (excludes normal operating and monitoring of BGA) • Escalated BGA or toxic condition from the Sunwater Environmental group 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Confirmation or high probability of a large amount of chemical spill/toxic conditions found in the storage/catchment 	<ul style="list-style-type: none"> • Risk assessment that risk has reduced • Confirmation that significant contamination has not occurred • All clear WQ test result
Actions	<ul style="list-style-type: none"> • Liaise with DDO, LDMGs & IC re: situation • Record all communication <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> NOTE: For normal BGA management (which is excluded) refer to the Sunwater Policy EM29 BGA Manual. </div>	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Liaise with LDMGs, IC re: situation • Check support required to assist DDO in closure of storage to recreational use • Record all communication 	<ul style="list-style-type: none"> • Forward information for EER to IC email • Return to routine activities
Internal notifications	1. IC 2. DDO	<ul style="list-style-type: none"> • Not applicable 	1. IC 2. DDO	<ul style="list-style-type: none"> • As required
External notifications	3. LDMG 1 4. LDMG 2	<ul style="list-style-type: none"> • Not applicable 	3. LDMG 1 4. LDMG 2	<ul style="list-style-type: none"> • As required



Table 13: Chemical spill/toxic conditions—IC emergency action

Activation level	Alert	Lean Forward	Stand Up	Stand Down
Activation trigger	<ul style="list-style-type: none"> • Reports of contamination or potential contamination in the catchment area of the storage (excludes normal operating and monitoring of BGA) • Escalated BGA or toxic condition from the Sunwater Environmental group 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Confirmation or high probability of a large amount of chemical spill/toxic conditions found in the storage/catchment 	<ul style="list-style-type: none"> • Risk assessment that risk has reduced • Confirmation that significant contamination has not occurred • All clear WQ test result
Actions	<ul style="list-style-type: none"> • Liaise with DDO and DSTDM re: situation • Record all communication <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> NOTE 1: IC to carry out LEC actions unless LDMG1 is <i>Stood Up</i> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> NOTE 2: For normal BGA management (which is excluded) refer to the Sunwater Policy EM29 BGA Manual. </div>	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Monitor situation and assess risks • Coordinate with the LEC, DSTDM and the Senior Environmental Health Officer of the relevant Council to determine need for WQ testing, shut down of treated water supplies, and precautionary closure of outlet works • Complete situation report, unless otherwise directed • Check support required to assist DDO in closure of storage to recreational usage • SW Incident and Near Miss Alert • Consider if any customers in water supply scheme should be notified of the condition. If so, contact customer support on 13 15 89 and have notification messages sent 	<ul style="list-style-type: none"> • Deactivate EAP • Compile EER and deliver to DSR if required • Return to routine activities • Check WQ Plan for any close out processes • Complete situation report
Internal notifications	<ol style="list-style-type: none"> 1. DDO 2. DSTDM 3. LEC 	<ul style="list-style-type: none"> • Not applicable 	<ol style="list-style-type: none"> 3. DSTDM 4. DDO 5. ORR 6. SMT 7. LEC 	<ul style="list-style-type: none"> • Inform previous notifications of deactivation as required
External notification	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Not applicable 	<ol style="list-style-type: none"> 1. D/S Residents, Irrigators & Treated water supply users 2. DDMG 	<ul style="list-style-type: none"> • As required



Table 14: Chemical spill/toxic conditions—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Alert	<ul style="list-style-type: none"> Reports of contamination or potential contamination in the catchment area of the storage (excludes normal operating and monitoring of BGA) Escalated BGA or toxic condition from the Sunwater Environmental group 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? (<i>Water Quality</i>) What is the status? (Investigation underway) Advise of any issues you are aware of
Lean Forward	LEAN FORWARD NOT APPLICABLE			
Stand Up	<ul style="list-style-type: none"> Confirmation or high probability of a large amount of chemical spill/toxic conditions found in the storage/catchment 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam— What is the event? (<i>Water Quality</i>) What is the status? (AVOID USE OR CONTACT WITH WATER) Advise of any issues you are aware of
		<ul style="list-style-type: none"> D/S Residents, Irrigators & Treated Water Supply Users 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification—urgent DAM: Bjelke-Petersen EVENT: Water quality STATUS: Water supply contamination ACTION: Avoid use or contact with water
Stand Down	<ul style="list-style-type: none"> Risk assessment that risk has reduced Confirmation that significant contamination has not occurred All clear WQ test result 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG (if from Stand Up) 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? (<i>Water Quality</i>) What is the status? (Dam hazard Stood Down) Advise that significant contamination has not occurred and/or the WQ test results are all clear. Water is safe to use and EAP has been deactivated
		<ul style="list-style-type: none"> D/S Residents, Irrigators & Treated Water Supply Users (if from Stand Up) 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Water quality STATUS: Dam hazard stood down ACTION: Water safe to use

Table 15: Chemical spill/toxic conditions—DSTDM emergency action

Activation level	Alert	Lean Forward	Stand Up	Stand Down
Activation trigger	<ul style="list-style-type: none"> • Reports of contamination or potential contamination in the catchment area of the storage (excludes normal operating and monitoring of BGA) • Escalated BGA or toxic condition from the Sunwater Environmental group 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Confirmation or high probability of a large amount of chemical spill/toxic conditions found in the storage/catchment 	<ul style="list-style-type: none"> • Risk assessment that risk has reduced • Confirmation that significant contamination has not occurred • All clear WQ test result
Action	<ul style="list-style-type: none"> • Assess situation and determine need to move to Stand Up • Monitor situation and assess risks • Record all communication <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> NOTE: For normal BGA management (which is excluded) refer to the Sunwater Policy EM29 BGA Manual. </div>	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Assess risks and determine actions including need for WQ testing, shut down of treated water supplies, and precautionary closure of outlet works • Obtain technical advice from Manager Environment, if available • Liaise with IC 	<ul style="list-style-type: none"> • Forward information for EER to IC email • Return to routine activities
Internal notifications	1. IC 2. DDO	<ul style="list-style-type: none"> • Not applicable 	1. IC 2. DDO 3. CEO—if time permits	<ul style="list-style-type: none"> • As per previous activation level
External notifications	<ul style="list-style-type: none"> • As required 	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • As required 	<ul style="list-style-type: none"> • As required



7. Dam hazard—piping: embankment, foundation, or abutments

7.1 Overview

The emergency action described in this section relates to a potential dam hazard due to a piping condition through the embankments (Main Dam or Saddle Dams), foundations, or dam abutment. An early indicator of a piping condition can be an increase in seepage or a new area of seepage. If the seepage water is cloudy or has become cloudy, this may indicate that material is being transported and a pipe is being established.

If a pipe is established and progresses, then a dam failure may result. If a potential pipe is detected early, remedial repairs maybe possible in the form of constructing a filter and weighting zone over the pipe exit if safe to do so.

The flood outlines in Appendix B are there to provide indicative outlines of the maximum potentially affected area of a dam hazard caused by piping. The use of these flood outlines is prescribed below:

- Use the Sunny Day Failure (SDF) outline when a dam failure is in progress or likely due to piping and no concurrent flooding or downstream releases are occurring or expected to occur, or
- Use the Probable Maximum Precipitation Design Flood (PMPDF) outline when a dam failure is in progress or likely due to piping and concurrent flooding or downstream releases are occurring or expected to occur.

Notes: Definitions for *Concurrent Flooding* and *Downstream Releases* are provided in Section 1.3

7.1.1 Assessment of circumstances that indicate an increase in the likelihood of piping

An increase in seepage or a new area of seepage is a circumstance that could indicate an increase likelihood of piping. This circumstance is the trigger for the alert status for piping.

Cloudy seepage water is a circumstance that could indicate an increase likelihood of piping. This circumstance is the trigger for the lean forward status for piping.

7.2 Emergency action roles

Table 16 to Table 20 specify emergency actions for the following roles:

- Dam Duty Officer (DDO)
- Local Event Coordinator (LEC)
- Incident Coordinator (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Figure 3: Piping: embankment, foundation, or abutments flowchart

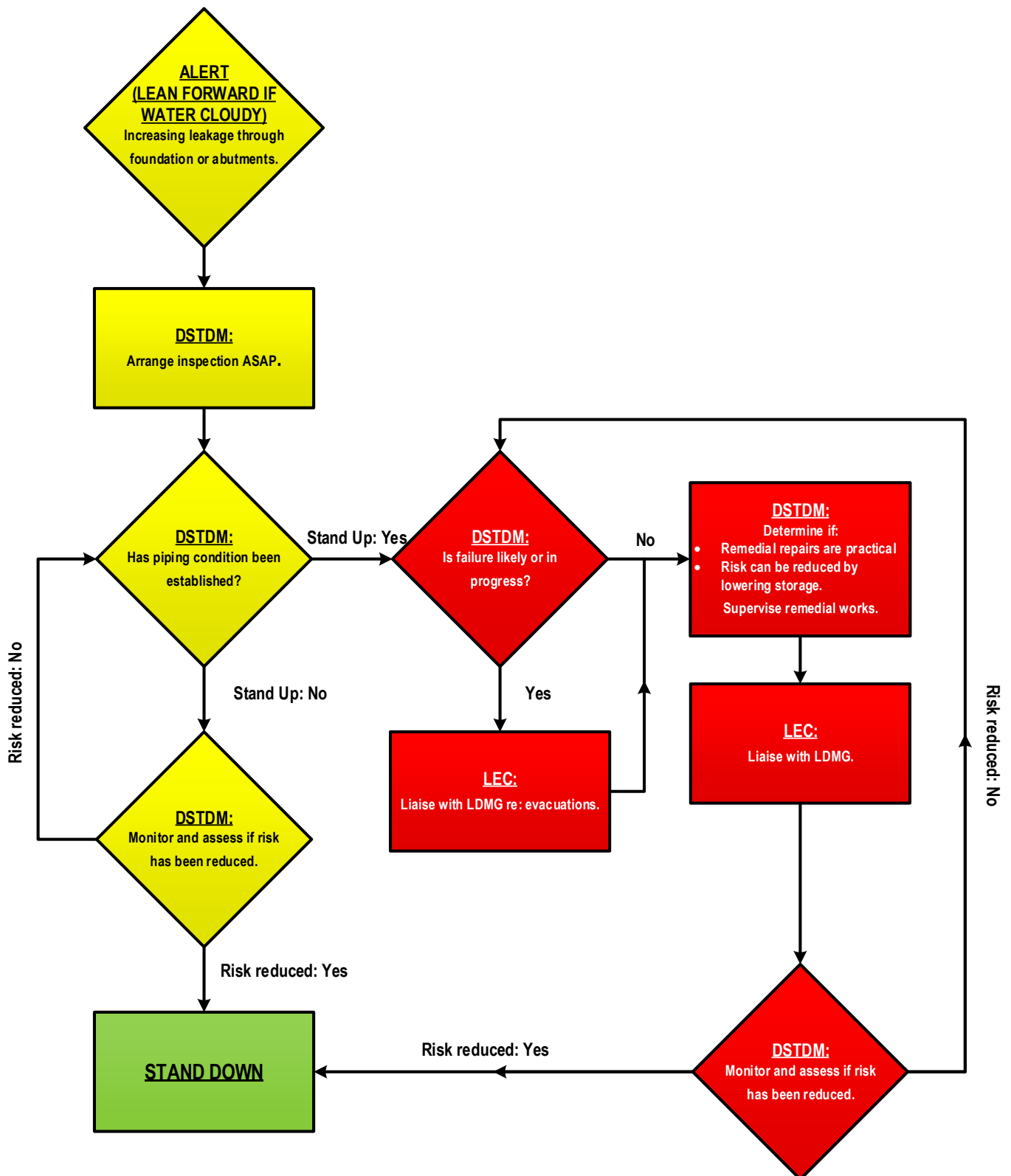


Table 16: Piping: embankment, foundation, or abutments—DDO emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments 	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments with cloudy water 	<ul style="list-style-type: none"> Piping condition has been established 	<ul style="list-style-type: none"> Failure in progress or likely due to piping, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Monitor flows every 6 hours (or as otherwise instructed by the DSTDM) until a decreasing trend is observable, or as directed by the IC Photograph/video the piping from a safe point and record using the approved forms in Appendix D and send to DSTDM and IC Notify SO Update Dam Log Book as per SOP 12 Record all communication 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND Support/supervise remedial works as required Close any affected roads if not already closed by others Maintain surveillance of area immediately downstream of Main Dam or Saddle Dam (if safe to do so) and move on any members of the public 	<ul style="list-style-type: none"> As per previous activation level, AND Vacate the immediate vicinity of the piping condition 	<ul style="list-style-type: none"> Forward information for EER to IC email Update Dam Log Book as per SOP 12 Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DSTDM IC SO 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required



Table 17: Piping: embankment, foundation, abutments or gates—LEC emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments 	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments with cloudy water 	<ul style="list-style-type: none"> Piping condition has been established 	<ul style="list-style-type: none"> Failure in progress or likely due to piping, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Liaise with DDO and IC re: situation Record all communication 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND Liaise with relevant Council(s) regarding potential road/bridge closures 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Forward information for EER to IC email Return to routine activities
Internal notifications	<ol style="list-style-type: none"> IC DDO 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> As required 	<ol style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 18: Piping: embankment, foundation, or abutments—IC emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments 	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments with cloudy water 	<ul style="list-style-type: none"> Piping condition has been established 	<ul style="list-style-type: none"> Failure in progress or likely due to piping, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Liaise with DDO, LEC & DSTDM re: situation Complete Situation Report, unless otherwise directed Record all communication SW Incident and Near Miss Alert <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: IC to carry out LEC actions unless LDMG1 is <i>Stood Up</i></p> </div>	<ul style="list-style-type: none"> As per previous activation level, AND Investigate availability of machinery and materials (if insufficient stockpiles available) Place machinery operators on standby if directed by DSTDM Consider the need to appoint a recovery coordinator. The recovery coordinator is then responsible for the follow through on actions to close out all matters and works outstanding after the initial emergency is over. 	<ul style="list-style-type: none"> As per previous activation level, AND Mobilise resources to undertake remedial works if directed by DSTDM 	<ul style="list-style-type: none"> As per previous activation level, AND Trigger Paradise Dam EAP for flows over secondary spillway 	<ul style="list-style-type: none"> Deactivate EAP Compile EER and deliver to DSR if required Complete Situation Report (final) Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DSTDM DDO LEC ORR SMT 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Inform previous notifications of deactivation as required
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As per previous activation level, AND DDMG 	<ul style="list-style-type: none"> As per previous activation level, AND 1. D/S Residents & Irrigators 2. SDCC Watch Desk 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level



Bjelke-Petersen–2019/20-i7.1



Table 19: Piping: embankment, foundation, or abutments—LEC & IC communication plan

Activation level	Trigger for communications			
Alert	<ul style="list-style-type: none"> Increase in leakage through an embankment, the foundations, or abutments 			N/A internal communications only
Lean Forward	<ul style="list-style-type: none"> Increase in leakage through an embankment, the foundations, or abutments with cloudy water 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	<p>Describe current situation with dam—What is the event? (<i>Unconfirmed piping risk</i>)</p> <p>What is the status? (<i>Unconfirmed leakage—Investigation continues</i>)</p> <p>Advise current storage level</p> <p>Advise any issues you are aware of</p> <p>Standby for further advice</p>
Stand Up—1	<ul style="list-style-type: none"> Piping condition has been established 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	<p>Describe current situation with dam—What is the event? (<i>Confirmed piping risk</i>)</p> <p>What is the status? (<i>Confirmed piping/leakage</i>)</p> <p>Advise current storage level</p> <p>Advise any issues you are aware of. Discuss any potential road/bridge closures</p> <p>Prepare for possible evacuations</p>
		<ul style="list-style-type: none"> SDCC Watch Desk 	<ul style="list-style-type: none"> Email & Phone 	<p>Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send.</p> <p><i>Develop messages in consultation with DSTDM</i></p>
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	<p>Liaise with Sunwater Customer Support to send SMS:</p> <p>Sunwater Emergency notification</p> <p>DAM: Bjelke-Petersen</p> <p>EVENT: Dam safety risk—piping</p> <p>STATUS: Confirmed—piping/leakage</p> <p>ACTION: Possible issue at dam listen for further advice</p>

Bjelke-Petersen–2019/20-i7.1



Table 19 (Continued): Piping: embankment, foundation, or abutments—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Stand Up—2	<ul style="list-style-type: none"> Failure likely due to piping, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	• Phone	Describe current situation with dam—What is the event? (<i>Confirmed piping risk</i>) What is the status? (Possible Dam Failure) Advise current storage level Prepare coordinated evacuations
		• SDCC Watch Desk	• Email & Phone	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. <i>Develop messages in consultation with DSTDM</i>
		• D/S Residents & Irrigators	• SMS (Phone for those without mobiles)	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification—urgent DAM: Bjelke-Petersen EVENT: Dam safety risk—piping STATUS: Dam failure likely ACTION: Possible evacuation follow instructions of emergency services
	• Dam failure in progress	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	• Phone	Describe current situation with dam—What is the event? (<i>Confirmed piping risk</i>) What is the status? (Dam Failure In Progress) Advise current storage level LDMG to coordinate evacuations of affected Downstream Residents and move people to higher ground
		• SDCC Watch Desk	• Email & Phone	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. SMS text as follows: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
Stand Down	• Risk assessment has determined that failure risk has reduced	• D/S Residents & Irrigators	• SMS (Phone for those without mobiles)	Liaise with Sunwater Customer Support to send SMS: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
		<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	• Phone	Describe current situation with Dam—What is the event? (<i>Dam Safety Risk—piping</i>) What is the status? (Dam hazard Stood Down) Advise risk assessment has determined that failure risk has reduced and EAP has been deactivated
		• D/S Residents & Irrigators	• SMS (Phone for those without mobiles)	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Dam safety risk—piping STATUS: Dam hazard stood down ACTION: None

Table 20: Piping: embankment, foundation, or abutments—DSTDM emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations, or abutments 	<ul style="list-style-type: none"> Increasing leakage through the embankment, the foundations or abutments with cloudy water 	<ul style="list-style-type: none"> Piping condition has been established 	<ul style="list-style-type: none"> Failure in progress or likely due to piping, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Action	<ul style="list-style-type: none"> Arrange an inspection of the dam to assess its condition as soon as possible, when safe to do so Determine if piping condition has been established Monitor situation and assess risks Record all communication 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND Assess risk and determine if failure likely or in progress Determine if remedial repairs are practical Determine if risks can be reduced by lowering storage Supervise* remedial repairs (if applicable) 	<ul style="list-style-type: none"> As per previous activation level, AND Liaise with the IC and advise on need to recommend evacuations Make assessment on likely impacts to Paradise Dam 	<ul style="list-style-type: none"> Forward information for EER to IC Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DDO IC 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND CEO—if time permits 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> Dam Safety Regulator 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required

* Supervision means provide technical oversight to the work. It does not necessarily mean on-site supervision.

8. Dam hazard—earthquake

8.1 Overview

The emergency action described in this section relates to a potential dam hazard due to an earthquake causing damage to the dam embankments (Main Dam or Saddle Dam), foundations, or dam abutment. Damage could take the form of cracking or slumping of the embankment, deformation or land slip, or increased seepage.

If damage does occur then a dam failure may result. If damage is detected early, remedial repairs may be possible depending on the nature of the damage.

The flood outlines in Appendix B are there to provide indicative outlines of the maximum potentially affected area of a dam hazard caused by earthquake damage. The use of these flood outlines is prescribed below:

- Use the Sunny Day Failure (SDF) outline when a dam failure is in progress or likely due to earthquake damage and no concurrent flooding or downstream releases are occurring or expected to occur, or
- Use the Probable Maximum Precipitation Design Flood (PMPDF) outline when a dam failure is in progress or likely due to earthquake damage and concurrent flooding or downstream releases are occurring or expected to occur.

Notes: Definitions for *Concurrent Flooding* and *Downstream Releases* are provided in Section 1.3

8.2 Emergency action roles

Table 21 to Table 25 to specify emergency actions for the following roles:

- Dam Duty Officer (DDO)
- Local Event Coordinator (LEC)
- Incident Coordinator (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Figure 4: Earthquake flowchart

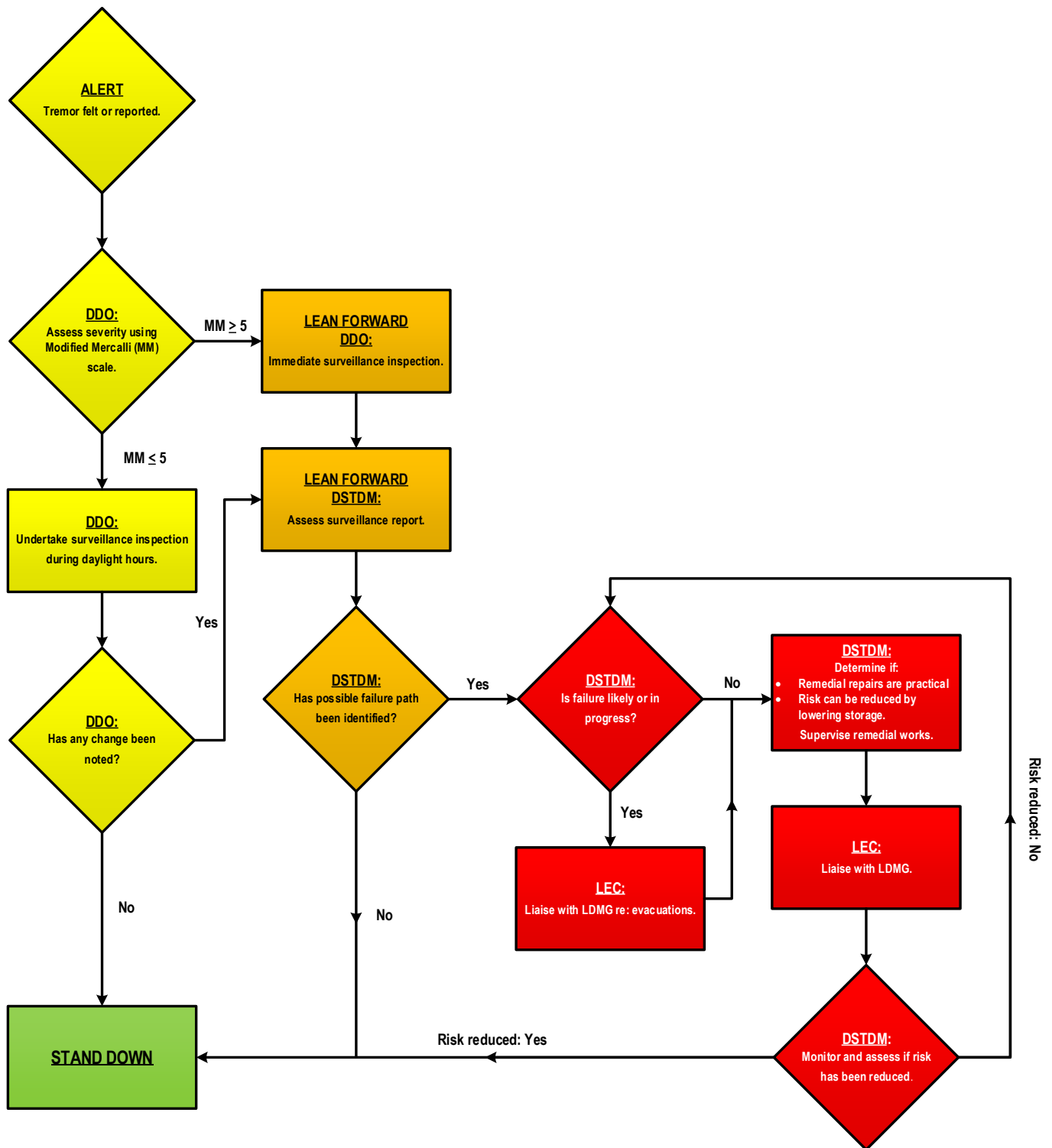


Table 21: Earthquake—DDO emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity less than 5MM* 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity greater than or equal to 5MM*, OR Intensity less than 5MM and change detected during surveillance inspection 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND A possible failure path has been identified 	<ul style="list-style-type: none"> Failure in progress or likely due to earthquake, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has been determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Inspect the Main Embankment, Spillway Structure, Abutments, and Saddle Dam in daylight hours (if safe to do so) and report to the DSTDM and IC—photograph/video and record using the approved forms in Appendix D and send to DSTDM and IC Check for leaks, deformation, erosion, and concrete damage Notify SO Update Dam Log Book as per SOP 12 Record all communication 	<ul style="list-style-type: none"> As per previous activation level, AND Immediately inspect the Main Embankment, Spillway Structure, Abutments, and Saddle Dam (if safe to do so) and report to the DSTDM and IC—photograph/video and record using the approved forms in Appendix D and send to DSTDM and IC Repeat the inspection as directed 	<ul style="list-style-type: none"> As per previous activation level, AND Support/supervise remedial work as required Liaise with LEC regarding potential road closure Maintain surveillance of area immediately downstream of dam or Saddle Dam (if safe to do so) and move on any members of the public Vacate the immediate vicinity of the embankment 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Forward information for EER to IC Update Dam Log Book as per SOP 12 Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DSTDM IC LEC SO 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required

* DDO to assess magnitude (MM scale) at dam location.



Table 22: Earthquake—LEC emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity less than 5 MM 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity greater than or equal to 5 MM, OR Intensity less than 5 MM and change detected during surveillance inspection 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND A possible failure path has been identified 	<ul style="list-style-type: none"> Failure in progress or likely due to earthquake, AND Sufficient water in storage to create a dam hazard 	<ul style="list-style-type: none"> Risk assessment has been determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Liaise with DDO & IC re: situation Record all communication 	<ul style="list-style-type: none"> As per previous activation level, AND Liaise with LDMG re: situation 	<ul style="list-style-type: none"> As per previous activation level, AND Liaise with DDO & relevant Council(s) regarding potential road/bridge closures 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Forward information for EER to IC email Return to routine activities
Internal notifications	<ol style="list-style-type: none"> IC DDO 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> As required 	<ol style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 23: Earthquake—IC emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity less than 5MM 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity greater than or equal to 5MM*, OR Intensity less than 5MM and change detected during surveillance inspection 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND A possible failure path has been identified 	<ul style="list-style-type: none"> Failure in progress or likely due to earthquake, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has been determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Liaise with DDO and DSTDM re: situation Record all communication <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: IC to carry out LEC actions unless LDMG1 is <i>Stood Up</i></p> </div>	<ul style="list-style-type: none"> As per previous activation level, AND Investigate availability of machinery and materials (if insufficient stockpiles available) Place machinery operators on standby if directed by DSTDM Complete Situation Report, unless otherwise directed SW Incident and Near Miss Alert 	<ul style="list-style-type: none"> As per previous activation level, AND Mobilise resources to undertake remedial works if directed by DSTDM 	<ul style="list-style-type: none"> As per previous activation level, AND IC to trigger Paradise Dam EAP for flows over secondary spillway 	<ul style="list-style-type: none"> Deactivate EAP Compile EER and deliver to DSR if required Complete Situation Report (final) Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DDO DSTDM LEC ORR SMT 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Inform previous notifications of deactivation as required
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required 	<ol style="list-style-type: none"> D/S Residents & Irrigators SDCC Watch desk DDMG 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 24: Earthquake—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Alert	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity less than 5MM 			N/A—Internal communications only
Lean Forward	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity greater than or equal to 5MM, OR Intensity less than 5MM and change detected during surveillance inspection 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> Phone 	<p>Describe current situation with dam—What is the event? (<i>Dam Safety Risk—Earthquake damage</i>)</p> <p>What is the status? (Under investigation)</p> <p>Advise current storage level</p> <p>Stand by for further information</p>
		Send Sunwater Incident and Near Miss Report		EAP Alert Notification—Bjelke-Petersen Dam—Earthquake Reported in area
Stand Up—1	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND A possible failure path has been identified 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	<p>Describe current situation with dam—What is the event? (<i>Dam Safety Risk—Earthquake felt or reported in area</i>)</p> <p>What is the status? (Possible earthquake damage to dam)</p> <p>Advise current storage level. Discuss any potential road/bridge closures.</p> <p>Activate emergency response</p>
		SDCC Watch Desk	Email & Phone	<p>Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send.</p> <p><i>Develop messages in consultation with DSTDM</i></p>
		D/S Residents & Irrigators	SMS (Phone for those without mobiles)	<p>Liaise with Sunwater Customer Support to send SMS:</p> <p>Sunwater Emergency notification</p> <p>DAM: Bjelke-Petersen</p> <p>EVENT: Dam safety risk—earthquake damage</p> <p>STATUS: Confirmed—earthquake damage</p> <p>ACTION: Possible issue at dam listen for further advice</p>

Table 24 (Continued): Earthquake—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Stand Up—2	<ul style="list-style-type: none"> Failure likely due to earthquake, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? (<i>Dam Safety Risk—Earthquake damage</i>) What is the status? (Dam Failure Likely) Advise current storage level. Discuss any potential road/bridge closures (if not discussed at Stand Up—1) Prepare coordinated evacuation
		<ul style="list-style-type: none"> SDCC Watch Desk 	<ul style="list-style-type: none"> Email & Phone 	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. <i>Develop messages in consultation with DSTDM</i>
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification—urgent DAM: Bjelke-Petersen EVENT: Dam safety risk—earthquake damage STATUS: Dam failure likely ACTION: Possible evacuation follow instructions of emergency services
	<ul style="list-style-type: none"> Dam failure in progress 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? (<i>Dam Safety Risk—Earthquake damage</i>) What is the status? (Dam Failure In Progress) Advise of current storage level Coordinate evacuation of Downstream Residents and move people to higher ground
		<ul style="list-style-type: none"> SDCC Watch Desk 	<ul style="list-style-type: none"> Email & Phone 	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. SMS text as follows: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.

Table 24 (Continued): Earthquake—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Stand Down	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG (if from Stand Up) 	<ul style="list-style-type: none"> Phone 	<p>Describe current situation with dam—What is the event? (<i>Dam Safety Risk—Earthquake damage</i>) What is the status? (<i>Dam hazard Stood Down</i>) Advise risk assessment has been determined that failure risk has reduced and that EAP has been deactivated</p>
		<ul style="list-style-type: none"> D/S Residents & Irrigators (if from Stand Up) 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	<p>Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Dam safety risk—earthquake damage STATUS: Dam hazard stood down ACTION: None</p>

Table 25: Earthquake—DSTDM emergency action

Activation level	Alert	Lean Forward	Stand Up—1	Stand Up—2	Stand Down
Activation trigger	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity less than 5MM 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND Intensity greater than or equal to 5MM, OR Intensity less than 5MM and change detected during surveillance inspection 	<ul style="list-style-type: none"> Earthquake reported or felt in the area, AND A possible failure path has been identified 	<ul style="list-style-type: none"> Failure in progress or likely due to earthquake, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has been determined that failure risk has reduced
Action	<ul style="list-style-type: none"> Monitor situation and assess risks Liaise with DDO & IC Record all communication <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NOTE: 'Reported' is defined as an alert received from Geoscience Australia or other source that advises an Earthquake >4.8ML (Richter Scale) has occurred within a 200km radius of the Dam.</p> </div>	<ul style="list-style-type: none"> As per previous activation level, AND Review surveillance inspection of the dam and assess its condition as soon as possible Determine if there are any possible failure paths from reported damage 	<ul style="list-style-type: none"> As per previous activation level, AND Arrange an inspection of the dam and assess its condition as soon as possible, when safe to do so Assess risk and determine if failure likely or in progress Liaise with the IC Determine if remedial repairs are practical Determine if risks can be reduced by lowering storage Supervise* remedial repairs (if applicable) 	<ul style="list-style-type: none"> As per previous activation level, AND Make assessment on likely impacts to Paradise Dam 	<ul style="list-style-type: none"> Forward information for EER to IC email Return to routine activities
Internal notifications	<ol style="list-style-type: none"> DDO IC 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND CEO—if time permits 	<ul style="list-style-type: none"> As per previous activation level, AND CEO—if time permits (if not from Stand Up—1) 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> Dam Safety Regulator 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required

* Supervision means provide technical oversight to the work. It does not necessarily mean on-site supervision.



9. Dam hazard—terrorist threat/activity or high energy impact

9.1 Overview

The emergency action described in this section relates to a potential dam hazard due to a terrorist threat or activity or a high energy impact on the dam such as a plane crash or meteorite.

The flood outlines in Appendix B are there to provide indicative outlines of the maximum potentially affected area of a dam hazard caused by a terrorist attack or a high energy impact. The use of these flood outlines is prescribed below:

- Use the Sunny Day Failure (SDF) outline when a dam failure is in progress or likely due to a terrorist attack or a high energy impact and no concurrent flooding or downstream releases are occurring or expected to occur, or
- Use the Probable Maximum Precipitation Design Flood (PMPDF) outline when a dam failure is in progress or likely due to a terrorist attack or a high energy impact and concurrent flooding or downstream releases are occurring or expected to occur.

Notes: Definitions for *Concurrent Flooding* and *Downstream Releases* are provided in Section 1.3

9.1.1 Assessment of circumstances that indicate an increase in the likelihood of terrorist activity or high energy impact

Advice from authorities of a specific risk to water infrastructure is a circumstance that could indicate increased likelihood a terrorist threat. If this were specific enough to name a dam, this circumstance would trigger Stand Up—1 activation level.

9.2 Emergency action roles

Table 26 to Table 30 specify emergency actions for the following roles:

- Dam Duty Officer (DDO)
- Local Event Coordinator (LEC)
- Incident Coordinator (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Figure 5: Terrorist threat/activity or high energy impact flowchart

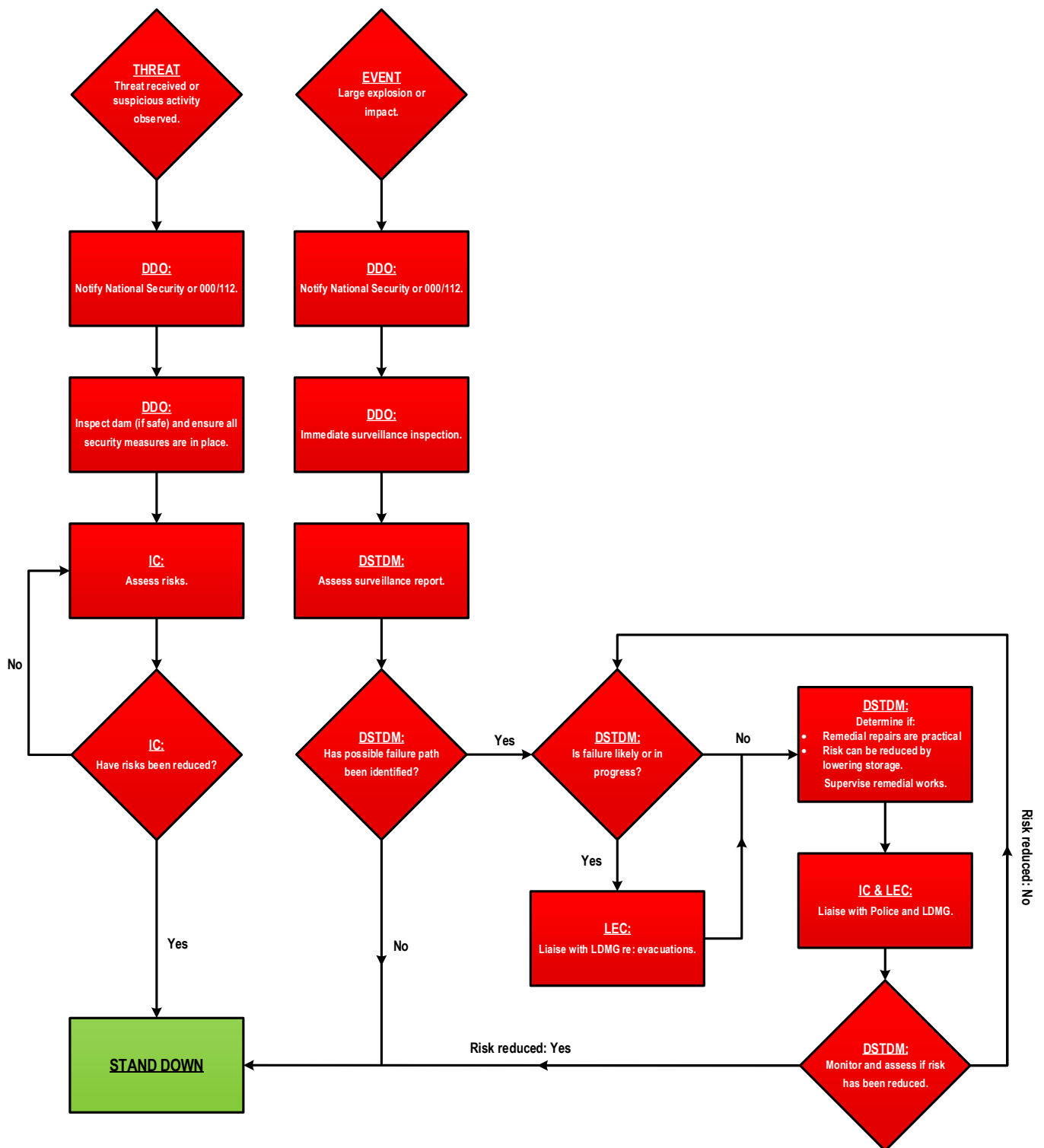


Table 26: Terrorist threat/activity or high energy impact—DDO emergency action

Activation level	Alert/Lean Forward	Stand Up—1	Stand Up—2	Stand Up—3	Stand Down
Activation trigger	<ul style="list-style-type: none"> Not applicable 	THREAT <ul style="list-style-type: none"> Possible terrorist activity/suspicious behaviour noticed at the dam, OR Threat received 	EVENT <ul style="list-style-type: none"> Large Explosion heard/observed at dam (e.g., bomb explosion, aircraft hit) 	RESPONSE <ul style="list-style-type: none"> Failure in progress or likely due to impact or explosion, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> NOTE: If any suspicious behaviour noticed, contact DSTDM for advice. If instructed by DSTDM, of if threat received, complete the following: Notify National Security or 000/112 Inspect dam (if safe) and ensure all security measures are in place (locked gates, etc.) Photograph/video the damage from a safe point and record using the approved forms in Appendix D and send to IC & DSTDM Close any affected roads, if not already closed by others Notify SO Update Dam Log Book as per SOP 12 If Police appoint incident manager support and follow instructions Record all communication 	<ul style="list-style-type: none"> As per previous activation level, AND Vacate the immediate vicinity of the affected area Undertake surveillance inspect dam (if safe) 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Forward information for EER to IC email Return to routine activities Update Dam Log Book as per SOP 12
Internal notifications	<ul style="list-style-type: none"> Not applicable 	<ol style="list-style-type: none"> DSTDM IC LEC SO 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> Not applicable 	<ol style="list-style-type: none"> Notify immediately the National Security Line or 000/112 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 27: Terrorist threat/activity or high energy impact—LEC emergency action

Activation level	Alert/Lean Forward	Stand Up—1	Stand Up—2	Stand Up—3	Stand Down
Activation trigger	<ul style="list-style-type: none"> Not applicable 	THREAT <ul style="list-style-type: none"> Possible terrorist activity/suspicious behaviour noticed at the dam, OR Threat received 	EVENT <ul style="list-style-type: none"> Large explosion heard/observed at dam (e.g., bomb explosion, aircraft hit) 	RESPONSE <ul style="list-style-type: none"> Failure in progress or likely due to impact or explosion, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Liaise with IC, DDO and LDMG re: situation If Police appoint incident manager support and follow instructions Monitor situation and assess risks Liaise with relevant Council(s) regarding possible road/bridge closures Record all communication 	<ul style="list-style-type: none"> As per previous activation level, AND 	<ul style="list-style-type: none"> As per previous activation level, AND Liaise with DDO and LDMGs re: potential for evacuations 	<ul style="list-style-type: none"> Forward information for EER to IC email Return to routine activities
Internal notifications	<ul style="list-style-type: none"> Not applicable 	<ol style="list-style-type: none"> DDO IC 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required
External notifications	<ul style="list-style-type: none"> Not applicable 	<ol style="list-style-type: none"> LDMG 1 LDMG 2 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 28: Terrorist threat/activity or high energy impact—IC emergency action

Activation level	Alert/Lean Forward	Stand Up—1	Stand Up—2	Stand Up—3	Stand Down
Activation trigger	<ul style="list-style-type: none"> Not applicable 	THREAT <ul style="list-style-type: none"> Possible terrorist activity/suspicious behaviour noticed at the dam. OR Threat received <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> NOTE: IC to carry out LEC actions unless LDMG1 is <i>Stood Up</i> </div>	EVENT <ul style="list-style-type: none"> Large explosion heard/observed at dam (e.g., bomb explosion, aircraft hit) 	RESPONSE <ul style="list-style-type: none"> Failure in progress or likely due to impact or explosion, AND Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> Risk assessment has determined that failure risk has reduced
Actions	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Liaise with DSTDM re: situation Complete Situation Report, unless otherwise directed If Police appoint incident manager support and follow instructions Monitor Situation & assess risks Record all communication SW Incident and Near Miss Alert 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level, AND Mobilise resources to undertake remedial works if directed by DSTDM IC to trigger Paradise Dam EAP for flows over secondary spillway 	<ul style="list-style-type: none"> Deactivate EAP event Compile EER and deliver to DSR if required Complete Situation Report (final) Return to routine activities
Internal Notifications	<ul style="list-style-type: none"> Not applicable 	3. DDO 4. DSTDM 5. LEC 6. ORR 7. SMT	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> Inform previous notifications of deactivation as required
External Notifications	<ul style="list-style-type: none"> Not applicable 	1. National Security Hotline (if not completed by DDO) 2. DDMG	<ul style="list-style-type: none"> As per previous activation level, AND 1. D/S Residents & Irrigators 2. SDCC Watch Desk	<ul style="list-style-type: none"> As per previous activation level 	<ul style="list-style-type: none"> As required



Table 29: Terrorist threat/activity or high energy impact—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Alert	ALERT NOT APPLICABLE			
Lean Forward	LEAN FORWARD NOT APPLICABLE			
Stand Up—1	THREAT <ul style="list-style-type: none"> Possible terrorist activity/suspicious behaviour notice at the dam, OR Threat received 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG National Security Hotline (if not completed by DDO) 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? (Dam Safety Risk—Security threat/ impact/explosion, etc.) What is the status? (Received/noted terrorist threat) Discuss any potential road/bridge closures Activate emergency response
		Send SW Incident and Near Miss Alert		EAP Alert Notification Bjelke-Petersen Dam—Possible Terrorist Activity
Stand Up—2	EVENT <ul style="list-style-type: none"> Large explosion heard/observed at dam (e.g., bomb explosion, aircraft hit) 	<ul style="list-style-type: none"> LDMG 1 LDMG 2 DDMG National Security Hotline (if not completed by DDO, or at Stand Up 1) 	<ul style="list-style-type: none"> Phone 	Describe current situation with dam—What is the event? (Dam Safety Risk—Security threat/ impact/explosion, etc.) What is the status? (Under Investigation) Discuss any potential road/bridge closures (if not discussed at Stand Up—1) Prepare coordinated evacuation
		<ul style="list-style-type: none"> SDCC Watch desk 	<ul style="list-style-type: none"> Email & Phone 	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. <i>Develop messages in consultation with DSTDM</i>
		<ul style="list-style-type: none"> D/S Residents & Irrigators 	<ul style="list-style-type: none"> SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification—urgent DAM: Bjelke-Petersen EVENT: Dam safety risk—security threat/impact/explosion STATUS: Under investigation ACTION: Possible evacuation follow instructions of emergency services

Table 29 (Continued): Terrorist threat/activity or high energy impact—LEC & IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message text
Stand Up—3	RESPONSE <ul style="list-style-type: none"> • Failure in progress or likely due to impact or explosion, AND • Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> • LDMG 1 • LDMG 2 • DDMG 	<ul style="list-style-type: none"> • Phone 	Describe current situation with dam—What is the event? (Dam Safety Risk—Security threat/impact/explosion, etc.) What is the status? (Dam Failure Likely/In Progress) Initiate evacuations
		<ul style="list-style-type: none"> • SDCC Watch desk 	<ul style="list-style-type: none"> • Email & Phone 	Complete Emergency Alert Request Form as per instructions (copies in Appendix A9 and Appendix D) and email to SDCC Watch Desk to send. SMS text as follows: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
		<ul style="list-style-type: none"> • D/S Residents & Irrigators 	<ul style="list-style-type: none"> • SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.
Stand Down	<ul style="list-style-type: none"> • Risk assessment has determined that failure risk has reduced 	<ul style="list-style-type: none"> • LDMG 1 • LDMG 2 • DDMG (if from Stand Up) 	<ul style="list-style-type: none"> • Phone 	Describe current situation with dam—What is the event? (Dam Safety Risk—Security threat/impact/explosion, etc.) What is the status? (Dam hazard Stood Down) Advise that failure risk has been reduced and EAP has been deactivated
		<ul style="list-style-type: none"> • D/S Residents & Irrigators (if from Stand Up) 	<ul style="list-style-type: none"> • SMS (Phone for those without mobiles) 	Liaise with Sunwater Customer Support to send SMS: Sunwater Emergency notification DAM: Bjelke-Petersen EVENT: Dam safety risk—security threat/impact/explosion STATUS: Dam hazard stood down ACTION: None

Table 30: Terrorist threat/activity or high energy impact—DSTDM emergency action

Activation level	Alert/Lean Forward	Stand Up—1	Stand Up—2	Stand Up—3	Stand Down
Activation trigger	<ul style="list-style-type: none"> • Not applicable 	THREAT <ul style="list-style-type: none"> • Possible terrorist activity/suspicious behaviour noticed at the dam • Threat received 	EVENT <ul style="list-style-type: none"> • Large explosion heard/observed at dam (e.g., bomb explosion, aircraft hit) 	RESPONSE <ul style="list-style-type: none"> • Failure in progress or likely due to impact or explosion, AND • Sufficient water in storage to create an emergency event 	<ul style="list-style-type: none"> • Risk assessment has determined that failure risk has reduced
Action	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • Liaise with IC and DDO • Liaise with Sunwater Executive • Record all communication 	<ul style="list-style-type: none"> • As per previous activation level, AND • Arrange an inspection of the dam and assess its condition as soon as possible, when safe to do so • Assess risk and determine if failure likely or in progress • Liaise with IC • Determine if remedial repairs are practical • Determine if risks can be reduced by lowering storage • Supervise* remedial repairs (if applicable) • Monitor situation and assess risks 	<ul style="list-style-type: none"> • As per previous activation level, AND • Liaise with the IC and advise on need to recommend evacuations • Make assessment on likely impacts to Paradise Dam 	<ul style="list-style-type: none"> • Forward information for EER to IC email • Return to routine activities
Internal notifications	<ul style="list-style-type: none"> • Not applicable 	<ol style="list-style-type: none"> 1. DDO 2. IC 	<ul style="list-style-type: none"> • As per previous activation level 	<ul style="list-style-type: none"> • As per previous activation level, AND • CEO—if time permits 	<ul style="list-style-type: none"> • As required
External notifications	<ul style="list-style-type: none"> • Not applicable 	<ul style="list-style-type: none"> • As required 	<ul style="list-style-type: none"> • Dam Safety Regulator 	<ul style="list-style-type: none"> • As per previous activation level 	<ul style="list-style-type: none"> • As required

* Supervision means provide technical oversight to the work. It does not necessarily mean on-site supervision.



10. Other emergency situation—communications failure

10.1 Overview

The emergency action described in this section (other emergency situation—communications failure) relates to either:

- An emergency situation where all means of communication at the Dam site have been lost.
- An emergency situation where all means of communication with the Local area have been lost.
- An emergency situation where all means of communication with Brisbane site have been lost.

This section specifies actions and provides guidance for the three situations.

10.2 Emergency actions

Due to the large number of different possible scenarios, the table below only covers the most common or likely conditions.

10.2.1 Activation triggers

Table 31: Communications failure emergency activation trigger summary

Comms Failure – Site	<ul style="list-style-type: none"> • Unable to communicate to or from Dam site (usually affects DDO)
Comms Failure – Local area	<ul style="list-style-type: none"> • Unable to communicate to or from Local Area (likely to affect LEC or SM)
Comms Failure – Brisbane	<ul style="list-style-type: none"> • Unable to communicate to or from Sunwater Brisbane (could affect DSTDM or FODM & will affect IC)

10.2.2 Assessment of circumstances that indicate the likelihood of communications failure escalating the activation level of a current Dam Hazard

The Operations Centre Duty Officer (OCDO) will assess the weather and flood warnings on a daily basis in accordance with the Operations Centre (OC) SOP. The OCDO will escalate to the Flood Operations Decision Maker (FODM) any warnings that have the potential to cause a significant communications failure.

The on-call IC will escalate to the FODM any local intelligence on conditions that could increase the probability of a significant communications failure.

The FODM will determine whether it is reasonably likely that there will be a significant communications failure within the subsequent 24 hours and assess the likely effect on current Dam Hazards. If required the FODM will instruct the IC to escalate the activation level of any current Dam Hazards.

10.2.3 Emergency action roles

Table 32 to Table 37 specify emergency actions for the following roles:

- Dam Duty Officer (DDO)
- Local Event Coordinator (LEC)
- Incident Coordinator (IC)
- Dam Safety Technical Decision Maker (DSTDM)
- Flood Operations Decision Maker (FODM)

Table 32: Communications failure—DDO emergency action

Activation level	Comms Failure – Local Area	Comms Failure – Brisbane
Activation trigger	<ul style="list-style-type: none"> Unable to communicate to Local Area including LEC or SM 	<ul style="list-style-type: none"> Unable to communicate to Sunwater Brisbane including IC or DSTDM or FODM
Actions	<ul style="list-style-type: none"> As much as practicable assume the role of LEC Continue tasks in accordance with any other current Emergency Action Every hour attempt communications by any and all means noting the following: <ul style="list-style-type: none"> Mobile phone-try texting instead of voice, much higher probability of success Satellite Phone-needs to access open sky unless external antenna fitted Fax-generally uses fixed landline and is therefore less likely to have failed Social Media-e.g. Facebook (Internet may be available via landline) Record all communication and attempts via Dam Log Book entries as per SOP 12 and communications log if EAP event is current 	<ul style="list-style-type: none"> Determine if LEC is in communication and if not, assume the LEC role as much as is practicable Continue tasks in accordance with any other current Emergency Action Every hour attempt communications by any and all means noting the following: <ul style="list-style-type: none"> Mobile phone-try texting instead of voice, much higher probability of success Satellite Phone-needs to access open sky unless external antenna fitted Fax-generally uses fixed landline and is therefore less likely to have failed Social Media-e.g. Facebook (Internet may be available via landline) Record all communication and attempts via Dam Log Book entries as per SOP 12 and communications log if EAP event is current
Internal notifications	<ol style="list-style-type: none"> IC SO (if available) 	<ol style="list-style-type: none"> LEC SO (if available)
External notifications	<ul style="list-style-type: none"> As required 	<ul style="list-style-type: none"> As required

Table 33: Communications failure—LEC emergency action

Activation level	Comms Failure – Dam Site	Comms Failure – Brisbane
Activation trigger	<ul style="list-style-type: none"> Unable to communicate to Dam site 	<ul style="list-style-type: none"> Unable to communicate to Sunwater Brisbane including IC or DSTDM or FODM
Actions	<ul style="list-style-type: none"> Every hour attempt communications by any and all means noting the following: <ul style="list-style-type: none"> Mobile phone-try texting instead of voice, much higher probability of success Satellite Phone-needs to access open sky unless external antenna fitted Fax-generally uses fixed landline and is therefore less likely to have failed Social Media-e.g. Facebook (Internet may be available via landline) Record all communication and attempts Assume that the DDO is carrying out LEC role at site as much as practicable Liaise with IC Liaise with DSTDM As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action 	<ul style="list-style-type: none"> Issue Sunwater Incident Alert Every hour attempt communications by any and all means noting the following: <ul style="list-style-type: none"> Mobile phone-try texting instead of voice, much higher probability of success Satellite Phone-needs to access open sky unless external antenna fitted Fax-generally uses fixed landline and is therefore less likely to have failed Social Media-e.g. Facebook (Internet may be available via landline) Record all communication and attempts Liaise with the DDO and assume IC role As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action
Internal notifications	<ol style="list-style-type: none"> IC DSTDM SO (if available) 	<ol style="list-style-type: none"> DDO DSTDM (if available) SO
External notifications	<ol style="list-style-type: none"> LDMGs 	<ol style="list-style-type: none"> LDMGs DDMG

Table 34: Communications failure—IC emergency action

Activation level	Comms Failure – Dam Site	Comms Failure – Local Area
Activation trigger	<ul style="list-style-type: none"> • Unable to communicate to Dam site 	<ul style="list-style-type: none"> • Unable to communicate to Local Area including LEC and SM
Actions	<ul style="list-style-type: none"> • Issue Sunwater Incident Alert • Every hour attempt communications by any and all means noting the following: <ul style="list-style-type: none"> – Mobile phone-try texting instead of voice, much higher probability of success – Satellite Phone-needs to access open sky unless external antenna fitted – Fax-generally uses fixed landline and is therefore less likely to have failed – Social Media-e.g. Facebook (Internet may be available via landline) • Record all communication and attempts • Liaise with LEC • Liaise with DSTDM • As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action 	<ul style="list-style-type: none"> • Issue Sunwater Incident Alert • Every hour attempt communications by any and all means noting the following: <ul style="list-style-type: none"> – Mobile phone-try texting instead of voice, much higher probability of success – Satellite Phone-needs to access open sky unless external antenna fitted – Fax-generally uses fixed landline and is therefore less likely to have failed – Social Media-e.g. Facebook (Internet may be available via landline) • Record all communication and attempts • Liaise with the DDO and carry out functions of the LEC as much as practicable • As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action
Internal notifications	<ol style="list-style-type: none"> 1. LEC 2. DSTDM 3. SO (if available) 	<ol style="list-style-type: none"> 1. DDO (if available) 2. DSTDM 3. SO (if available)
External notifications	<ol style="list-style-type: none"> 4. DDMG 	<ol style="list-style-type: none"> 4. LDMGs (if available) 5. DDMG (if available)

Table 35: Communications failure—LEC and IC communication plan

Activation level	Trigger for communications	Group to contact	Method	Message code	Message text
Comms Failure – Site	<ul style="list-style-type: none">• Unable to communicate to or from Dam site, AND• DDO is at Dam site	<ul style="list-style-type: none">• IC/LEC• DSTDM• SO (if available)• LDMGs• DDMG	<ul style="list-style-type: none">• Phone		Describe current situation with dam communications. What is the status – estimated time to restore communications?
	IC to send Sunwater Incident and Near Miss Alert				EAP Alert Notification—Bjelke-Petersen Dam—Site Communications Failure
Comms Failure – Local Area	<ul style="list-style-type: none">• Unable to communicate to or from Local Area including LEC and SM	<ul style="list-style-type: none">• DDO (if available)• DSTDM• SO (if available)• LDMGs (if available)• DDMG (if available)	<ul style="list-style-type: none">• Phone		Describe current situation with dam communications. What is the status – estimated time to restore communications?
	IC to send Sunwater Incident and Near Miss Alert				EAP Alert Notification—Bjelke-Petersen Dam—Local Area Communications Failure
Comms Failure – Brisbane	<ul style="list-style-type: none">• Unable to communicate to or from Sunwater Brisbane	<ul style="list-style-type: none">• DSTDM (if available)• LDMGs• DDMG	<ul style="list-style-type: none">• Phone		Describe current situation with dam communications. What is the status – estimated time to restore communications?
	LEC to send Sunwater Incident and Near Miss Alert				EAP Alert Notification—Sunwater Brisbane Communications Failure

Table 36: Communications failure—DSTDM emergency action

Activation level	Comms Failure – Site	Comms Failure – Local Area
Activation trigger	<ul style="list-style-type: none"> Unable to communicate to Dam site 	<ul style="list-style-type: none"> Unable to communicate to Local Area including LEC and SM
Actions	<ul style="list-style-type: none"> Provide technical advice to IC/LEC on a needs basis Record all communication As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action 	<ul style="list-style-type: none"> Provide technical advice to IC on a needs basis Record all communication Assume that the DDO is assisting IC with LEC role As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action
Internal notifications	<ol style="list-style-type: none"> IC LEC CEO (if time permits) 	<ol style="list-style-type: none"> IC DDO (if available) CEO (if time permits)
External notifications	<ol style="list-style-type: none"> Dam Safety Regulator (if applicable) 	<ol style="list-style-type: none"> Dam Safety Regulator (if applicable)

Table 37: Communications failure—FODM emergency action

Activation level	Comms Failure – Site	Comms Failure – Local Area
Activation trigger	<ul style="list-style-type: none"> Unable to communicate to Dam site 	<ul style="list-style-type: none"> Unable to communicate to Local Area including LEC and SM
Actions	<ul style="list-style-type: none"> Liaise with IC Record all communication As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action 	<ul style="list-style-type: none"> Liaise with IC Record all communication Assume that the DDO is assisting IC with LEC role As much as is practicable continue other tasks associated with the role in accordance with any other current Emergency Action
Internal notifications	<ol style="list-style-type: none"> IC LEC DSTDM 	<ol style="list-style-type: none"> IC DDO (if available) DSTDM
External notifications	<ul style="list-style-type: none"> Not applicable 	<ul style="list-style-type: none"> Not applicable

APPENDIX A Notification and communication lists

- A1 Sunwater regional notification list
- A2 Sunwater Brisbane notification list
- A3 External notification list
- A4 D/S Residents notification list
- A5 Other D/S Residents notification list (outside area—from previous EAP/requested messaging)
- A6 Irrigators notification list
- A7 Other reference contacts
- A8 Emergency alert polygon
- A9 Dam failure emergency alert request

Appendix A1: Sunwater regional notification list

Notification group	Name	Phone business	Phone mobile	Fax	Email
DDO/SO	Gary Goschnick Storage Supervisor 1	07 4168 4803	0407 739 313	07 4168 4795	Gary.Goschnick@sunwater.com.au
	Robert Bartlett Operator Maintainer	07 4168 4803	0427 739 315	07 4168 4795	Robert.Bartlett@sunwater.com.au
	Bryce Pearce Standby Operator	07 4168 9133	0477 705 688		Bryce.pearce@sunwater.com.au
	Ross Hosking Senior Operator Maintainer	07 4168 9133	0427 739 314	07 4168 9485	Ross.Hosking@sunwater.com.au
	Satellite phone Bjelke-Petersen Dam	0147 184 704			
ORR	Darren Large General Manager, Burnett & Lower Mary 2	07 4132 6226	0407 698 504	07 4132 6251	Darren.large@sunwater.com.au
LEC	Local Event Coordinator	07 4132 6298	Automatically diverts to the on-call LEC.		LEC@sunwater.com.au

NOTE: Controlled EAP copy holders shown numbered (e.g., **2**) and shaded grey.

Appendix A2: Sunwater Brisbane notification list

Notification group	Name	Phone	Email
IC	Incident Coordinator	07 3120 0320	IC@sunwater.com.au
DSTDM	Dam Safety Technical Decision Maker	07 3120 0100	DSTDM_DamSafetyTechnicalDecisionMaker@sunwater.com.au
FODM	Flood Operations Decision Maker	07 3120 0264	FODM@sunwater.com.au
OC	Operations Centre 24/7	07 3120 0245 07 3120 0244	N/A
Hydrographers	Hydrographer	07 3120 0333	Hydrographers@sunwater.com.au
SMT	Sunwater Media Team	07 3120 0047	Media@sunwater.com.au
SRT	Strategic Response Team	0418 102 328	SRT@sunwater.com.au
24-Hour Sunwater contact line		13 15 89	131589oncall@sunwater.com.au
Emergency Action Plan enquiries		N/A	EAP.tasks@sunwater.com.au
Name/title	Mobile	Phone	Email
Nicole Hollows — CEO	0402 021 454	07 3120 0055	Nicole.Hollows@sunwater.com.au
Colin Bendall — Executive GM, Operations	0417 700 736	07 3120 0105	Colin.Bendall@sunwater.com.au
James Stuart — GM, Water Resources & Dam Safety	0417 157 077	07 3120 0181	James.Stuart@sunwater.com.au
Gordon Delaney — Manager, Environment	0439 875 847	07 3120 0143	Gordon.Delaney@sunwater.com.au
Alex Black Dam Safety Surveillance Coordinator 3	0439 767 226	07 3120 0366	Alex.Black@sunwater.com.au

Appendix A3: External notification list

Notification group	Contact order	Name	Phone business	Phone mobile	Phone A/H	Fax	Email/Address
LDMG 1	1	Keith Campbell Mayor – Chair LDMG (South Burnett Regional Council)	07 4189 9155	0439 708 553	0439 708 553	07 4162 4806	mayor@southburnett.qld.gov.au PO Box 336 Kingaroy QLD 4610
	2	Aaron Meehan Local Disaster Coordinator (South Burnett Regional Council) 5	07 4189 9454	0419 579 561	0419 579 561	07 4162 4806	ameehan@southburnett.qld.gov.au PO Box 336 Kingaroy QLD 4610
	3	James D’Arcy Deputy Local Disaster Coordinator (South Burnett Regional Council)	07 4189 9425	0427 166 486	0427 166 486	07 4162 4806	jdarcy@southburnett.qld.gov.au PO Box 336 Kingaroy QLD 4610
	4	Peter O’May Deputy Local Disaster Coordinator (South Burnett Regional Council)	07 4189 9136	0429 635 127	0429 635 127	07 4162 4806	pomay@southburnett.qld.gov.au PO Box 336 Kingaroy QLD 4610
	5	Mark Pitt CEO (South Burnett Regional Council)	07 4189 9157	0428 006 429	0428 006 429	07 4162 4806	mpitt@southburnett.qld.gov.au info@southburnett.qld.gov.au PO Box 336 Kingaroy QLD 4610
LDMG 2	1	Warren Collins CEO & Local Disaster Coordinator (Cherbourg Aboriginal Shire Council) 6	07 4168 1866	0417 195 175	07 4168 3557	07 4168 2727	ceo@cherbourg.qld.gov.au 22 Barambah Avenue Cherbourg QLD 4605

NOTE: Controlled EAP copy holders shown numbered (e.g., **2**) and shaded grey.

Appendix A3: External notification list (continued)

Notification group	Contact order	Name	Phone business	Phone mobile	Phone A/H	Fax	Email/Address
SDCC	1	24/7 Watch Desk 9	07 3635 2387	0408 190 872	07 3635 2387	07 3357 4682	sdcc@qfes.qld.gov.au GPO Box 1425 Brisbane QLD 4001
QFES	1	Peter Harkin Emergency Management Coordinator 10	07 5420 7522	0457 750 288	0457 750 288		peter.harkin@qfes.qld.gov.au PO Box 3768 Caloundra DC QLD 4551
DDMG	1	Insp Stephen Donnelly DDC–Gympie DDMG Gympie Police Station	07 5480 1400	0477 364 305		07 5482 1385	DDC.gympie@police.qld.gov.au Gympie Police Station PO Box 176 Gympie QLD 4570
	2	Sen Sgt Paul Algie XO–Gympie DDMG Gympie Police Station 8	07 5480 1412	0447 203 389	0447 203 389	07 5482 1385	Algie.PaulA@police.qld.gov.au Gympie Police Station PO Box 176 Gympie QLD 4570
	3	Officer in Charge Murgon Police Station 7	07 4179 5222 (diverts to Gympie—24- hrs)		07 5482 2111	07 4179 5299	Murgon Police Station 38 Kreb Street Murgon QLD 4605
	4	Police Communications Centre Gympie Police	07 5480 1111				
DSR	1	DNRME Incident Hotline	1300 596 709 (24-hours)				
	2	Chris Nielsen Chief Executive, DNRME 4	07 3199 4848	0436 658 451	0436 658 451	07 3405 3156	chris.nielsen@dnrme.qld.gov.au damsafety@dnrme.qld.gov.au DNRME, PO Box 15216 City East QLD 4002

NOTE: Controlled EAP copy holders shown numbered (e.g., **2**) and shaded grey.

Appendix A4: D/S residents notification list

D/S residents notification list					
Number	Name	Mobile Number	Landline	Email	Lot on Plan
1	Tony Wessling	0409 727 993 (limited coverage)	07 4168 4778	tonywessling55@gmail.com	5/SP195988 7/SP195988
2	Andrew Martin	0437 146 566	07 4168 4794		6/SP195988 A/AP21091
	Michelle Muir	0429 985 534		andrew.martin@graymont.com	
	Brad & Tracey Thompson(tenants)	0427 862 551		michelle.muir@graymont.com	
3	Jamie Ian King	Land Line ONLY	07 4168 4818	jamie.king@skymesh.com.au	2/SP307572
	John Gehrmann			jgehrmann@skymesh.com.au	
4	John Crawford	Land Line ONLY	07 4168 1960		50/FY272 46/FY272
5	Pam Ricketts	0417 613 777	07 4168 4880	jutt8@live.com.au	1/SP138764
	Peter Ricketts	0407 548 636			
6	Geoff Sullivan	0419 505 368	07 4168 4775		2/SP138764 12/RP7174
	Maree Sullivan	Land Line ONLY			
7	Jason Kinsella	0428 684 797	07 4168 4797	wine@moffatdaleridge.com.au	13/RP7174
	Geoffrey Kinsella	Land Line ONLY	07 4168 4870		
8	Michael Laughton	0429 635 256		admin@remkoeng.com.au	11/RP7174
	Margaret Laughton	0407 684 730			
9	Paul Ackinclose	0407 257 327	07 4168 3344 (Plumbing store)	paul@ackplumbing.com.au	10/RP7174
	Carley Ackinclose	0400 166 379	07 4168 4800 (House)	paulandcarley@hotmail.com	
10	Jason John Godden	0488 755 230	07 4168 1506		7/SP247981
	Cynthia Elizabeth Bryant	Land Line ONLY			
11	Russell Craig Frahm			05.09.2019 - Does not want to be contacted.	2/RP221212
12	Jeffrey Graeme Haddrick			Awaiting confirmation of contact details	5/RP862334

Bjelke-Petersen



D/S residents notification list					
Number	Name	Mobile Number	Landline	Email	Lot on Plan
13	Maurice Ashley Harch			Awaiting confirmation of contact details	1/RP184076
14	Ann Sippel	0428 784 101	07 4168 1534	sippelgrandview@outlook.com	316/FY2720 68/FY284
	Greg Sippel	0417 072 393			
15	Neville Frederick Hunt	Land Line ONLY	07 4168 1054		318/FY2736
	Marcia Mary Hunt				
16	Rick Parke	0408 715 966	07 4168 1085 (Caravan Park)	barambahbush@burnett.net.au	3/RP221212
	Barbara Parke				
17	Blue Carney	0400 893 866	07 4168 3866	carneys@feedstore.com.au	2/RP209453
	Benita Carney	0458 537 417	07 4169 5650		
18	Greg Cooney	0418 732 823		g.j.cooney@hotmail.com	1/SP247978
	Michelle Cooney	0402 563 308		michelle_forrester@hotmail.com	4/SP247978
19	Mark Leslie Peddle			Awaiting confirmation of contact details	1/RP187978
20	Neville Weier	0428 681 481	07 4168 1481	mandnweier@bigpond.com	1/RP184676
	Marilyn Weier	Land Line ONLY			
21	Kylia Sippel	0427 676 511	07 4168 1856 (limited coverage)	kylia.sippel@burnett.net.au	2/RP66951
22	Colin Heathwood	0427 629 157	07 4168 7224	colin.heathwood@gmail.com	83/FY1775
	Jean Heathwood	Land Line ONLY			
	Chris Heathwood	0429 687 107		ck.heathwood@bigpond.com	
23	Brian Macrae	0409 655 702			1/RP66951
24	Greg Sippel	0417 072 393			59/FY2662
	Robyn Sippel	0408 994 175			
	Paul Sippel	0417 899 875		sipps@datawave.net.au	
	Tony Sippel	0427 573 027		tony.sippel79@gmail.com	
25	Noel Keith Hooper	Land Line ONLY	07 4168 1636		53/FY271
	Sarah Hooper	(limited coverage)			

D/S residents notification list					
Number	Name	Mobile Number	Landline	Email	Lot on Plan
26	Aaron Stephan	0467 975 199			2/RP160737 40/RP160652
27	Peter Ian Hunt	0428 643 565	07 4163 5254	mahunt28@gmail.com	102/FY275
	Margaret Anne Hunt				
28	Gerry Shane Morrison	0427 841 455	07 4169 5632	nat.new@bigpond.com	304/FY2549
	Enid Natalie Morrison				
29	Rodney Bryan Hatchett	Land Line ONLY	07 4168 1781		3/RP193714
	Cynthia Laurel Hatchett				
	Ruth Laurel Verbrugge				

Appendix A5: Other D/S residents notification list (outside area—requested messaging)

Name	Mobile number	Landline	Email
Peter Angel	0417 681 617	07 4168 1628	inter184@gmail.com

Appendix A6: Irrigators notification list

Name	Mobile number	Landline	Area
Wayne Davis	LANDLINE ONLY	07 4168 4717	Redgate
Graham Ewart	0427 681 529	07 4168 1529	Krebs Bridge to Byee Bridge
John Allen (Absentee Owner)	0429 636 877		Byee Bridge to Silverleaf Weir
Wayne Weller	0427 642 220	07 4164 2220	Byee Bridge to Silverleaf Weir
Daryl Harch	0427 689 737	07 4168 9737	Silverleaf Weir to Stonelands (right hand side)
Col Farer	0428 854 485	07 4168 9787	Silverleaf Weir to Stonelands (left hand side)
Glenn & Janelle Kapernick	0427 684 748	07 4168 4748	Redgate
Geoffrey Savage	LANDLINE ONLY	07 4168 4997	Krebs Bridge to Byee Bridge
Mark Kerkow (Property Manager)	0418 112 956		Byee Bridge to Silverleaf Weir

Appendix A7: Other reference contacts

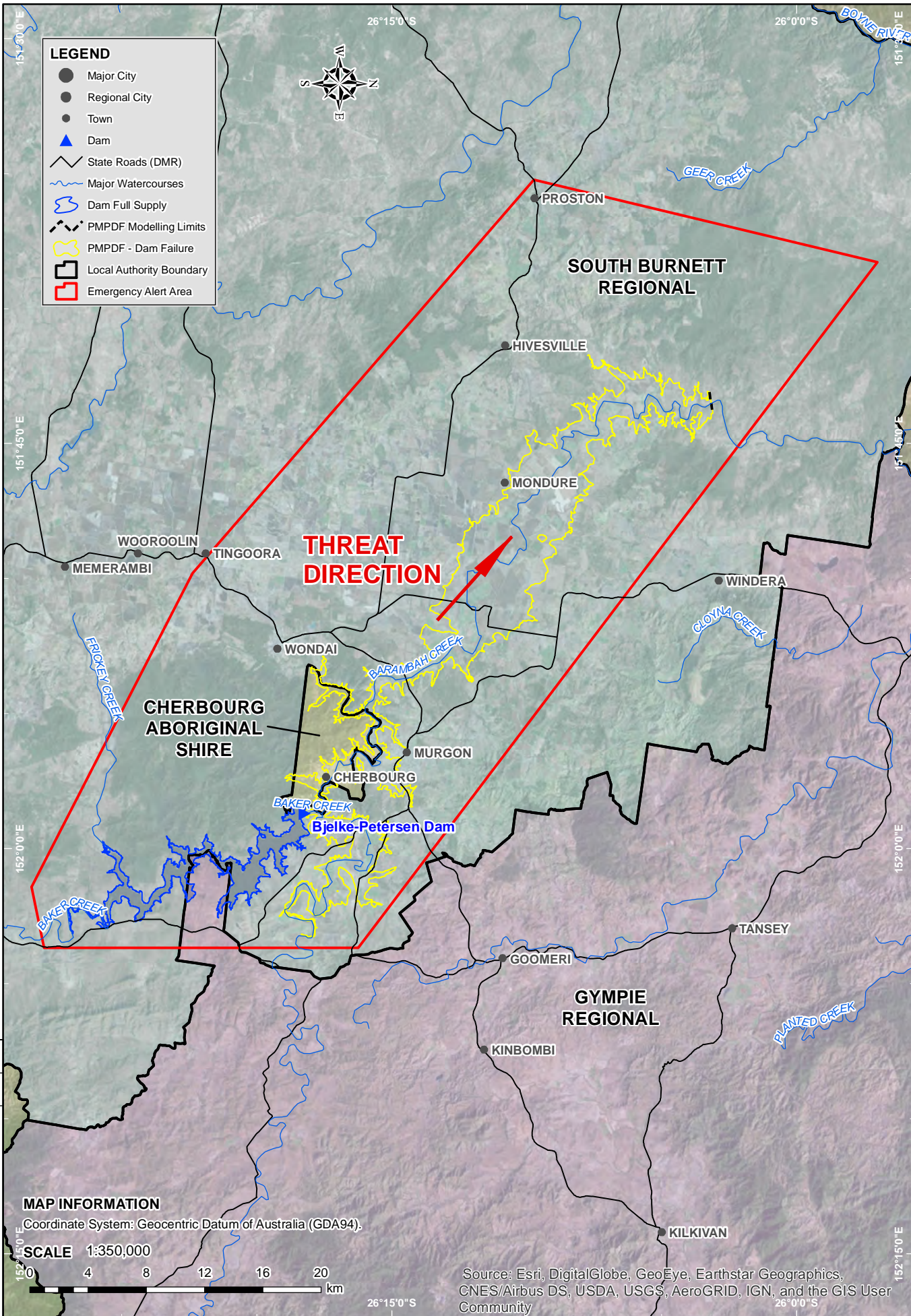
Title/name	Phone business	Phone mobile	Phone A/H	Fax	Address
Chemical Hazards Local Fire Brigade Unit	000	112	000		
National Security Hotline	1800 123 400				
Pollution Hotline	1300 130 372				
State Emergency Service (SES)	132 500				
Title/name	Phone number/call sign/mobile number			Comment	
Stream gauging stations					
Storage Recorder Level	0407 188 316 (SMS: WDATA)				
Litzow’s	Access via computer			Might assist with upstream catchment conditions.	
Glenmore	Access via computer			Might assist with upstream catchment conditions.	

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Document: S:\BW Asset Delivery\SW-BW Service Delivery\YR-WSRW-38-01-05-01 EAP Mapping\Drawings\ ArchMap\Emergency Alerts\249568-B.mxd
 Printed: Monday, 03/09/2018 03:20:53 PM

MAP PRODUCED BY:
 WATER RESOURCES & DAM SAFETY
 TEL: (07)3120 0000

REVISION	ALERT AREA AMENDED		REMARKS
	MB	MH	
B	MB	MH	PSD
03/09/18	A		
23/01/18			
DATE			
APPROVED			
M. HUGHES			
23/1/2018			



DRAWN IDH		DESIGNED	
CHECKED MB		CHECKED	
APPROVED			
M. HUGHES			
23/1/2018			

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 ACN 131 034 985

**BJELKE PETERSEN DAM
 EMERGENCY ACTION PLAN
 EMERGENCY ALERT AREA**

CONTRACT NUMBER	
DRAWING NUMBER	REV.
249568	B
SHEET 1 OF 1	
DATE JANUARY 2018	

Appendix A9: Dam failure emergency alert request

Queensland emergency alert request guidelines


An Emergency Alert Request form should be completed, if required (see Sections 5 to 9 for actions), and sent to the SDCC Watch Desk to activate the Bjelke-Petersen dam Emergency Polygon.

Instructions

- This form is not to be used for Flood UNLESS a flood has triggered an emergency event.
- Print off the following Queensland Emergency Alert Request form.
- Telephone the SDCC Watch Desk on 07 3635 2387 or 0408 190 872 and tell them your intention to use the Emergency Alert for an emergency event for Bjelke-Petersen Dam.
- A KML Polygon for this dam is stored in the Sunwater area of the Disaster Management Portal in the Emergency Alert area. Ask the SDCC operative to locate the polygon. It will be a KML file called *Bjelke_Petersen_Polygon*.
- Give them your phone number, confirm their name, and end the call after advising the form will be sent shortly.
- IC and DSTDM will work together to craft a message relevant to the hazard and discuss with the LDMG, if there is time.
- Fill in the form and send to SDCC watch desk email: sdcc@qfes.qld.gov.au. This form must come from the IC, DSTDM, or member of the Executive.
- Phone back to check the message has been sent and ask for an email to confirm.
- Send an internal Incident Alert to advise of completion.
- This form MUST be sent from a Sunwater email address. If Sunwater email is not functional, they can confirm identification through the DNRME (Regulator), if required.
- Use the following text to complete the emergency alert request:

Filename:	Message:	SMS:
Bjelke_Petersen_Dam_Polygon	EMERGENCY. EMERGENCY. BJELKE-PETERSEN DAM IS FAILING OR EXPECTED TO FAIL. RESIDENTS DOWNSTREAM OF THE DAM NEED TO act TO PROTECT LIFE AND LEAVE IMMEDIATELY. FAILURE OF THE DAM WILL RESULT IN EXTREMELY DANGEROUS FLOODING DOWNSTREAM INCLUDING: CHERBOURG AND MURGON. DO NOT DELAY. LEAVE NOW. GOOMERI AND KINGAROY ARE SAFE LOCATIONS	IMMINENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.

The following two pages are a pre-filled copy of the default Bjelke-Petersen Dam Emergency Alert request form.

 Queensland Government	EMERGENCY ALERT REQUEST	
	Location: Bjelke-Petersen Dam	Date: / /
		Time: : hrs
Requesting Officer:		Telephone:
Agency/Position:		Email:

Event Type	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"><input type="checkbox"/> Cyclone</div> <div style="width: 50%;"><input type="checkbox"/> Storm Surge</div> <div style="width: 50%;"><input type="checkbox"/> Flash Flood</div> <div style="width: 50%;"><input type="checkbox"/> Flood</div> <div style="width: 50%;"><input type="checkbox"/> Bushfire</div> <div style="width: 50%;"><input type="checkbox"/> Fire Incident</div> <div style="width: 50%;"><input type="checkbox"/> Smoke or Toxic Plume</div> <div style="width: 50%;"><input type="checkbox"/> Chemical Spill</div> <div style="width: 100%;"><input type="checkbox"/> Tsunami (NOTE Tsunami EA campaigns will be sent as Location Based Text Message ONLY)</div> <div style="width: 100%;"><input checked="" type="checkbox"/> Other (please specify): Catastrophic Dam Failure</div> </div>
Message Severity	<input checked="" type="checkbox"/> Emergency Warning (NOTE activates the SEWS) <input type="checkbox"/> Watch & Act <input type="checkbox"/> Advice
Campaign Mode	<input checked="" type="checkbox"/> Voice <input checked="" type="checkbox"/> SMS – Location Based <input type="checkbox"/> SMS – Service Address Based
LDMG Advised	<input type="checkbox"/> YES <input type="checkbox"/> NO DDMG Advised <input type="checkbox"/> YES <input type="checkbox"/> NO

Threat Direction Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	Note: Can only be used for Emergency Warnings. Indicate direction on map
----------------------------	--	---

STEP 1. EA Polygon Area: <input checked="" type="checkbox"/> Map attached	STEP 2. Filename:
STEP 3. Spatial format: (Indicate the format used) <input checked="" type="checkbox"/> KML *.kml (preferred format as per Spatial guidelines) <input type="checkbox"/> ESRI *.dbf, *.prj, *.shp, *.shx <input type="checkbox"/> GML *.gml, *.xsd <input type="checkbox"/> MapInfo TAB *.dat, *.id, *.map, *.tab <input type="checkbox"/> MapInfo Mid/Mif *. MIDI Sequence, *.mif <input type="checkbox"/> OTHER (insert)	STEP 4. Messaging/spatial data, is it supplied via <input checked="" type="checkbox"/> DMportal - specify filenames below <input type="checkbox"/> FTP - specify filenames below <input type="checkbox"/> Email <input type="checkbox"/> Other (please specify)

Type (please use capitals for clarity) or handwrite Voice message (Ideally message should be less than 450 characters) . EMERGENCY. EMERGENCY. BJELKE-PETERSEN DAM IS FAILING OR EXPECTED TO FAIL. RESIDENTS DOWNSTREAM OF THE DAM NEED TO act TO PROTECT LIFE AND LEAVE IMMEDIATELY. FAILURE OF THE DAM WILL RESULT IN EXTREMELY DANGEROUS FLOODING DOWNSTREAM INCLUDING: CHERBOURG AND MURGON. DO NOT DELAY. LEAVE NOW. GOOMERI AND KINGAROY ARE SAFE LOCATIONS
--

Type or handwrite SMS below (maximum of 160 characters including spaces) IMMIDENT FAILURE OF BJELKE-PETERSEN DAM TAKE ACTION TO PROTECT LIFE, LEAVE NOW. CHERBOURG & MURGON ARE AT RISK. INFO ON ABC RADIO. GOOMERI & KINGAROY ARE SAFE.

SEND TO sdcc@qfes.qld.gov.au and call 07 36352387 TO CONFIRM

FOR USE BY SDCC			
Requesting Officer:	Signature	/ /20	<input type="checkbox"/> Manual Transmission <input type="checkbox"/> EMS Transmission EA Campaign No. _____ EMS Report ID: _____
EA User Name:	Signature	/ /20	
Authorising Officer Name:	Signature	/ /20	
EA Manual and the Emergency Alert Request Form Template are available at: www.disaster.qld.gov.au			

DO NOT SEND THIS PAGE

GUIDE TO COMPLETE STEPS 1 – 4

STEP 1.	EA Polygon Area (e.g. detailed description and location reference to allow positive identification of message area, including street names with cross street, areas of interest such as parks, rivers, dams, coastal areas) it is preferable to attach a map identifying the message area. If a Threat Direction has been requested, please clearly indicate it on the map.
STEP 2.	Tick applicable box and note the file name.
STEP 3.	<p>Voice Message: type or handwritten the required message. As the message will be translated by a text-to-speech process it is important that words are not unintelligible when translated e.g. “qld” used in a web site address must be entered as “q l d”, similarly the word “dot” must be entered into a web address instead of a full stop.</p> <p>Voice Message ideally should have no more than 450 characters including spaces. Do not use special characters – refer to EA Manual for details. Warning message must start with “Emergency Emergency”</p>
STEP 4.	SMS Is restricted to a maximum of 160 characters including spaces and punctuation. Either type the message or handwrite the characters into the boxes.

Example: SMS Flash Flood Warning from SES for Opal Valley-immediate threat to life/property-Warn others-Leave area/prepare NOW or seek higher ground-Listen to local radio

If using template EA messages, please provide the appropriate variables that are in the template message guides. Refer to the Queensland Emergency Alert Manual for copies of the template message guides.

//RELEVANTAUTHORITY//

//DIRECTIONANDAREA//

//NAME//

//NUMBER//

//TIME//

//TIMEandDAY//

//DIRECTIONandPLACE//

//HOURSMINUTES//

//PLACE//

//PLACEPLACE//

//EXTERNAL/INTERNAL//

//SUBURBS//

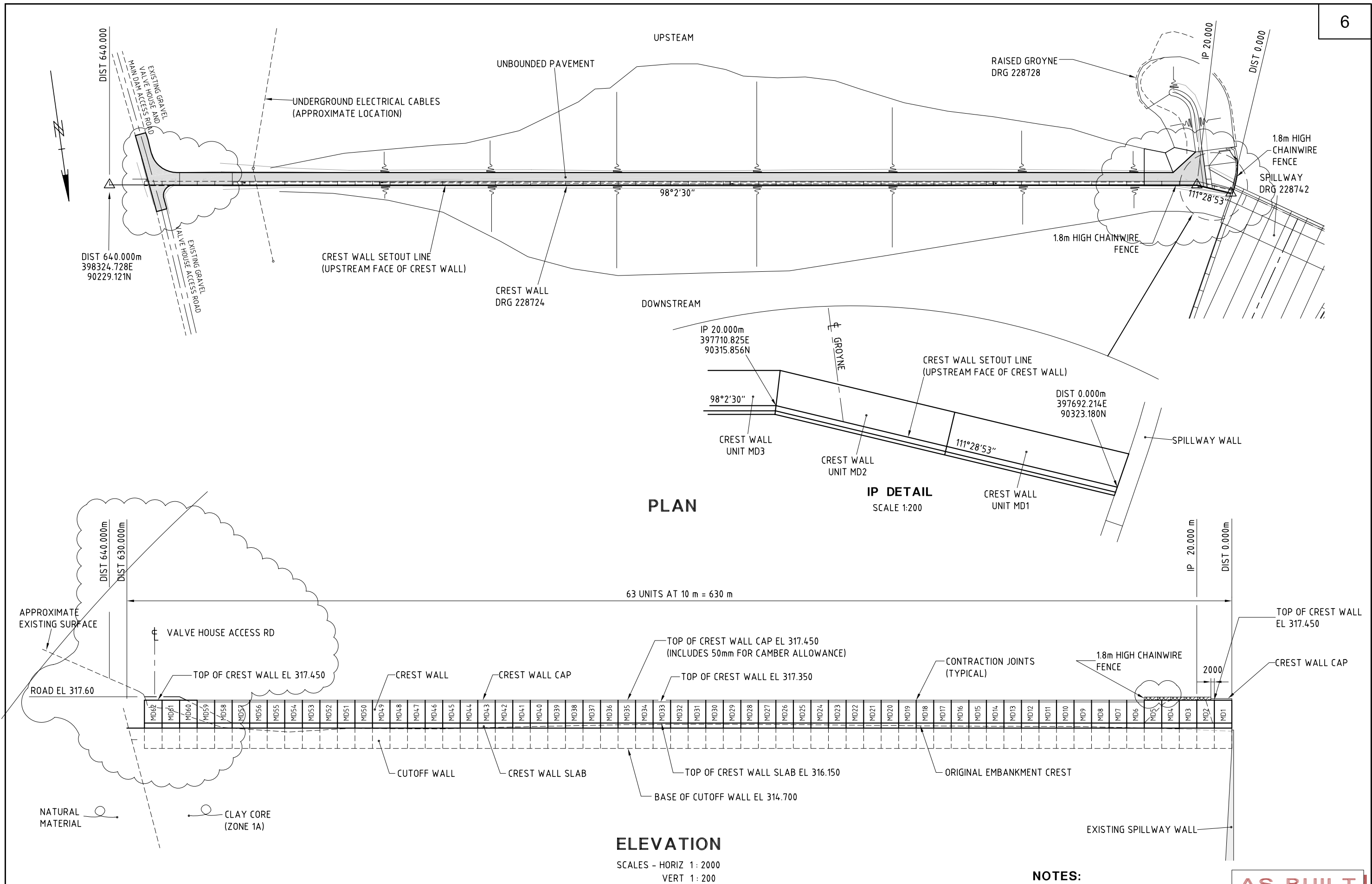
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APPENDIX B Drawings, maps and emergency control measures

- B1 Drawings
- B2 Flood impacts—downstream
- B3 Inundation maps
- B4 Locality plan
- B5 Catchment area

NOTE: Actual levels may differ from those shown in flood inundation maps due to variations in assumptions made in the models to actual flood events.


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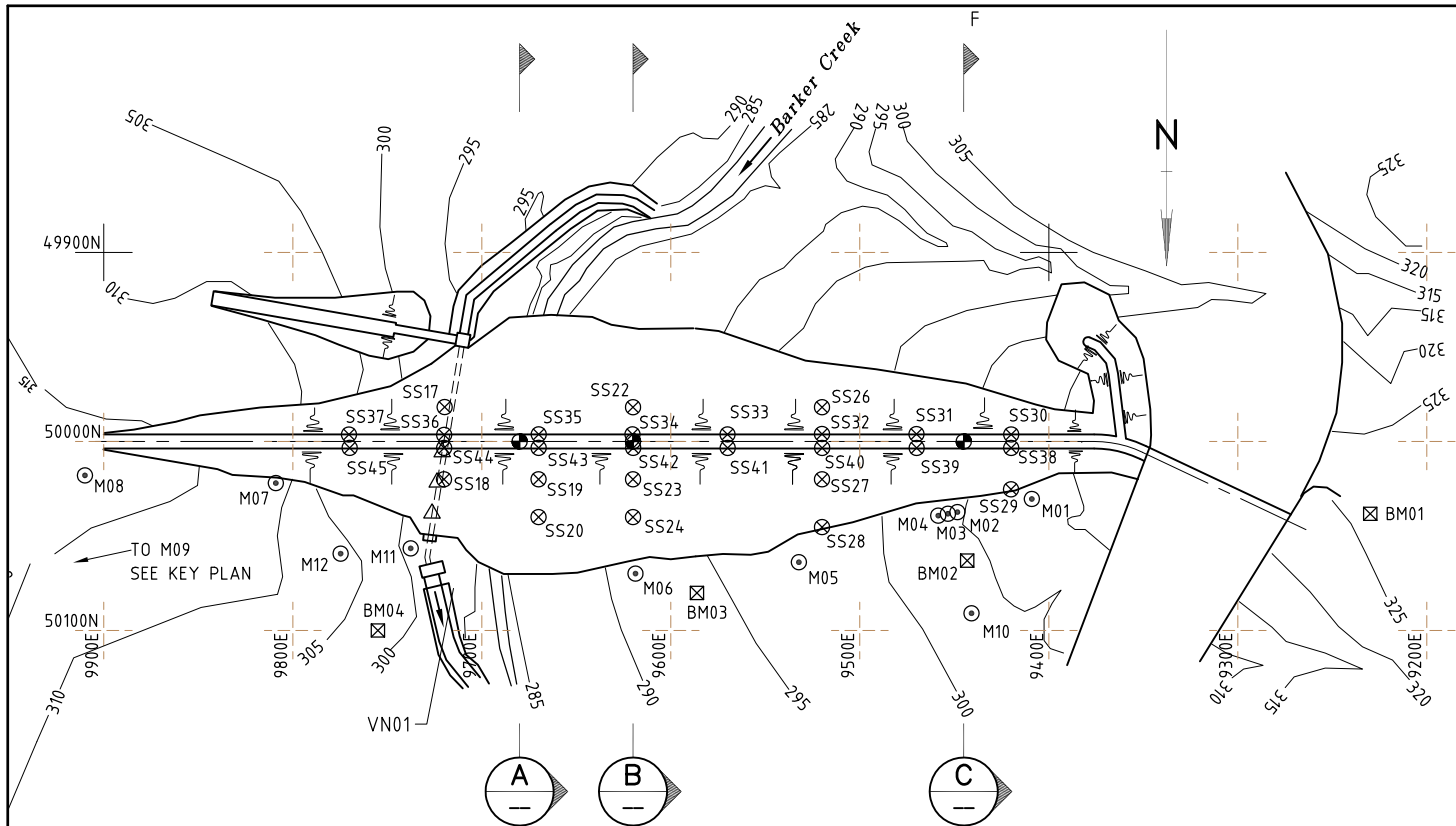
NOTES:

1. FOR SURVEY DATUMS REFER DRG 228626

AS-BUILT

REVISION						REFERENCE DRAWINGS			SCALES H 0 50 100 METRES 1:2000 V 0 5000 10000 MILLIMETRES 1:200	DRAWN LMD	DESIGNED BJMT	 Level 9, 120 Edward Street Brisbane Qld 4002 Tel: (07) 3120 0000	BJELKE-PETERSEN DAM SPILLWAY CAPACITY UPGRADE STAGE 1 MAIN DAM EMBANKMENT CREST WALL ARRANGEMENT	CONTRACT NUMBER .	
										CHECKED RR	CHECKED RR			DRAWING NUMBER 228723	
	15.11.07	B	AS BUILT		BT		JKR	APPROVED J.K.RICHARDSON for CHIEF DESIGN ENGINEER		SH 2 OF 6				DATE NOV 2007	
	20.03.07	A	REVISED		LMD		JKR								
	DATE		REMARKS		CKD		PSD								

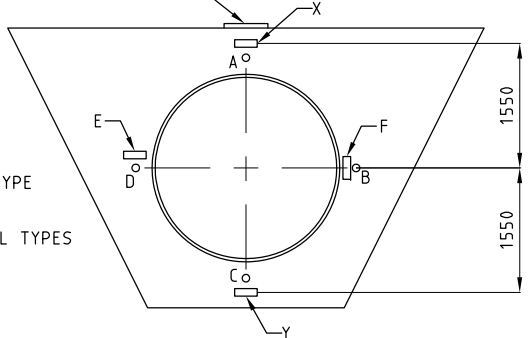
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MAIN EMBANKMENT

SCALE B

SMEC STD TOTAL PRESSURE CELL
(N.B. - NOT LOCATED DIRECTLY
OVER STRAIN GAUGES -
SEE TABLE FOR CONDUIT DISTANCE)



DIVERSION CONDUIT SECTION

NOT TO SCALE

LEGEND

- COMBINED INSTALLATION OF TOTAL PRESSURE CELL & PNEUMATIC PIEZOMETER
- △ CONDUIT INSTRUMENTATION INSTALLATION
- ⊗ SURFACE MOVEMENT POINT
- ⊠ SURVEY CONTROL STATION
- ⊙ OBSERVATION BORE
- ⊖ FOUNDATION DRAIN

NOTES:

- TOTAL PRESSURE CELL INSTALLATIONS IN THE CONDUIT DISCONNECTED AFTER CONSTRUCTION.
- STRAIN GAUGES RECORDINGS IN VALVE HOUSE DONE APPROX 5 YEARLY.
- LEVEL DATUM : AHD BASED ON PM9098 AT EL331.316m AHD.
- AZIMUTH DATUM : ARBITRARY GRID BASED ON BEARING 238° 05' 00" BETWEEN BM783001 AND BM783011.
- COORDINATE SYSTEM : LOCAL PLANE BASED ON BM783001 E 10 000 N 50 000.
- TOP OF PILLAR & SETTLEMENT MARKS ARE 0.055m LOWER THAN LEVELS SHOWN IN TABLES.
- COORDINATES & LEVELS FROM INITIAL DEFORMATION SURVEY IN FEB 1989 (SS17-SS29) & IN AUGUST 2007 (SS30-SS45),(SD01-SD05).
- SS01-SS16 DESTROYED IN AUG 2007 UPGRADE & REPLACED BY SS30-SS45

V-NOTCH WEIR

No	LOCATION	COMMENTS
VN01	TOE OF MAIN DAM	

TOTAL PRESSURE CELL
INSTALLATIONS - CONDUIT

No	CONDUIT DISTANCE	OFFSET FROM AXIS	ELEVATION
TP13*	63.64	0	286.09
TP14*	79.88	0	285.95
TP15*	96.49	0	285.77

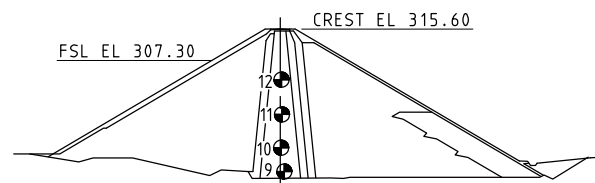
* SEE NOTE 1.

STRAIN GAUGES

No	CONDUIT DISTANCE	DIRECTION	FIXING DETAILS
1A	66.326	L	STRUCT REINF
1B	"	L	"
1C	"	L	"
1D	"	L	"
1E	"	T	DUMMY REINF
1F	"	V	"
1X	"	T	CONCRETE
1Y	"	T	"
2A	82.226	L	STRUCT REINF
2B	"	L	"
2C	"	L	"
2D	"	L	"
2E	"	T	DUMMY REINF
2F	"	V	"
2X	"	T	CONCRETE
2Y	"	T	"
3A	98.127	L	STRUCT REINF
3B	"	L	"
3C	"	L	"
3D	"	L	"
3E	"	T	DUMMY REINF
3F	"	V	"
3X	"	T	CONCRETE
3Y	"	T	"

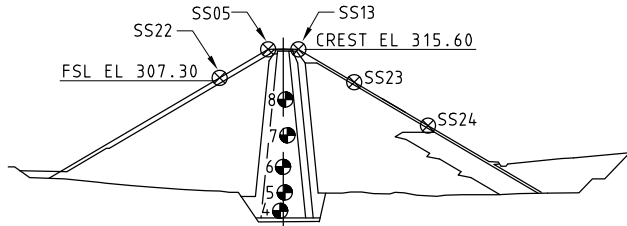
FOUNDATION DRAINS

No	EASTING	NORTHING	ELEVATION
FD1	10708.33	50522.91	300.91
FD2	10631.23	50478.63	299.26
FD3	10562.32	50417.83	299.76



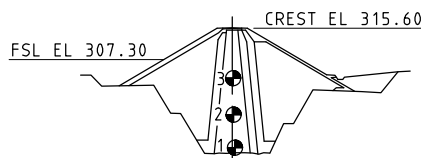
SECTION A

SCALE C



SECTION B

SCALE C



SECTION C

SCALE C

KEY PLAN

SCALE A

MAIN EMBANKMENT
(SEE ENLARGEMENT FOR DETAILS)

OBSERVATION BORES - EMBANKMENT & SADDLE DAM

No	EASTING	NORTHING	ELEVATION	DEPTH (m)	COMMENTS
M01	9408.97	50030.41	306.09	20	LEFT ABUTMENT PHYLLITE
M02	9448.35	50037.36	302.12	25	LIMESTONE/PHYLLITE CONTACT
M03	9453.38	50038.23	301.58	25	" "
M04	9458.52	50039.22	300.87	25	" "
M05	9532.25	50063.85	294.80	20	LIMESTONE - DRY
M06	9618.70	50069.89	288.61	25	LIMESTONE / ANDESITE
M07	9808.99	50022.02	311.27	15	ANDESITE
M08	9910.00	50017.94	316.03	25	LIMESTONE FEATURE 1
M09	10249.95	50134.93	315.94	25	LIMESTONE FEATURE 2 - DRY
M10	9440.91	50090.88	302.34	25	
M11	9737.64	50056.54	287.68	10	VALVE HOUSE ACCESS LEVEL
M12	9774.72	50059.33	307.16	20	
S01	10530.54	50313.96	309.49	10	WESTERN BORDER FAULT
S02	10604.89	50403.37	302.49	10	
S03	10681.38	50466.75	302.25	15	SYNCLINE
S04	10775.39	50518.33	305.25	15	

TOTAL PRESSURE CELL
INSTALLATIONS - EMBANKMENT

No	AXIS DISTANCE	OFFSET FROM AXIS	ELEVATION
TP01	9445.10	0.04 D/S	284.11
TP02	9445.52	0.45 U/S	292.83
TP03	9445.11	0.47 U/S	302.41
TP04	9620.18	0.39 U/S	272.92
TP05	9619.77	0.05 U/S	277.86
TP06	9620.52	0.62 U/S	284.61
TP07	9620.37	0.24 D/S	292.94
TP08	9620.56	0.00	302.35
TP09	9680.41	0.69 D/S	278.03
TP10	9680.03	0.27 U/S	284.33
TP11	9680.10	0.32 U/S	293.11
TP12	9675.06	0.08 U/S	302.33

PNEUMATIC
PIEZOMETER INSTALLATIONS

TIP No	AXIS DISTANCE	OFFSET FROM AXIS	ELEVATION
PP01	9445.60	0.72 D/S	284.01
PP02	9445.83	0.36 D/S	292.74
PP03	9445.49	0.24 D/S	302.38
PP04	9619.59	0.82 U/S	272.89
PP05	9619.12	0.40 D/S	277.75
PP06	9619.81	0.05 U/S	284.51
PP07	9619.94	1.10 D/S	292.87
PP08	9620.77	0.58 D/S	302.34
PP09	9679.61	1.08 D/S	277.96
PP10	9680.69	0.24 D/S	284.25
PP11	9680.41	0.46 D/S	293.05
PP12	9675.50	0.34 D/S	302.25

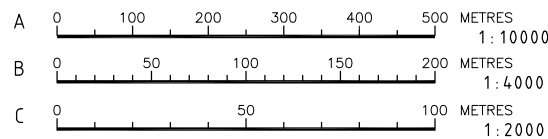
SURFACE MOVEMENT POINTS

No	EASTING	NORTHING	ELEVATION
SD01	10545.249	50292.186	317.560
SD02	10607.133	50342.840	317.584
SD03	10684.545	50406.196	317.586
SD04	10762.552	50468.696	317.595
SD05	10824.898	50500.461	317.603
SS17	9719.662	49981.808	307.942
SS18	9719.903	50020.041	306.984
SS19	9669.945	50020.024	306.890
SS20	9669.933	50039.959	295.365
SS22	9620.268	49982.250	307.931
SS23	9619.884	50020.001	306.788
SS24	9619.816	50039.929	295.318
SS26	9520.194	49981.784	307.961
SS27	9519.957	50019.937	307.007
SS28	9519.975	50040.020	295.002
SS29	9419.945	50022.695	305.202
SS30	9419.893	49996.296	316.714
SS31	9470.011	49996.108	316.724
SS32	9520.007	49996.052	316.754
SS33	9569.978	49996.274	316.764
SS34	9620.291	49996.230	316.748
SS35	9669.896	49996.246	316.806
SS36	9719.942	49996.512	316.845
SS37	9770.291	49996.343	316.721
SS38	9419.889	50003.419	317.514
SS39	9469.913	50003.438	317.541
SS40	9519.933	50003.432	317.536
SS41	9569.905	50003.414	317.540
SS42	9619.907	50003.399	317.547
SS43	9669.937	50003.381	317.543
SS44	9719.928	50003.402	317.555
SS45	9769.921	50003.397	317.552
BM01	9229.965	50038.257	327.203
BM02	9443.171	50063.318	304.731
BM03	9586.145	50080.101	294.383
BM04	9754.998	50099.973	304.672
BM07	10431.519	50212.031	317.820
BM08	10941.937	50537.454	319.689
BM09	11005.304	50161.627	309.702

CONTROL
STATIONS

REVISION	DATE	REMARKS	CKD	PSD	REFERENCE	DRAWINGS
13.05.16	E	FOUNDATION DRAINS ADDED	TJA	RM		
16.01.08	D	SPILLWAY UPGRADE	RT	WH		
26.02.07	C	NOTES		DH		
10.02.04	B	NOTES ADDED, SMP's BACK TO ORIG. DATA	DNH	DNH	A1-83346	CONDUIT INSTRUMENTATION - CABLE INSTALLATION
12.03.01	A	DRAWING COMPLETED AND SIGNED		HK	A1-86034	MAIN EMBANKMENT & SADDLE DAM - OBSERVATION BORES
					A1-83347	MAIN EMBANKMENT - INSTRUMENTATION

SCALES



DRAFTING	DESIGN
DRN	
CHK	CHK
	H.Khadka
APPROVED	
	K.L. EHM
	14/3/01
	CHIEF ENGINEER CIVIL DESIGN



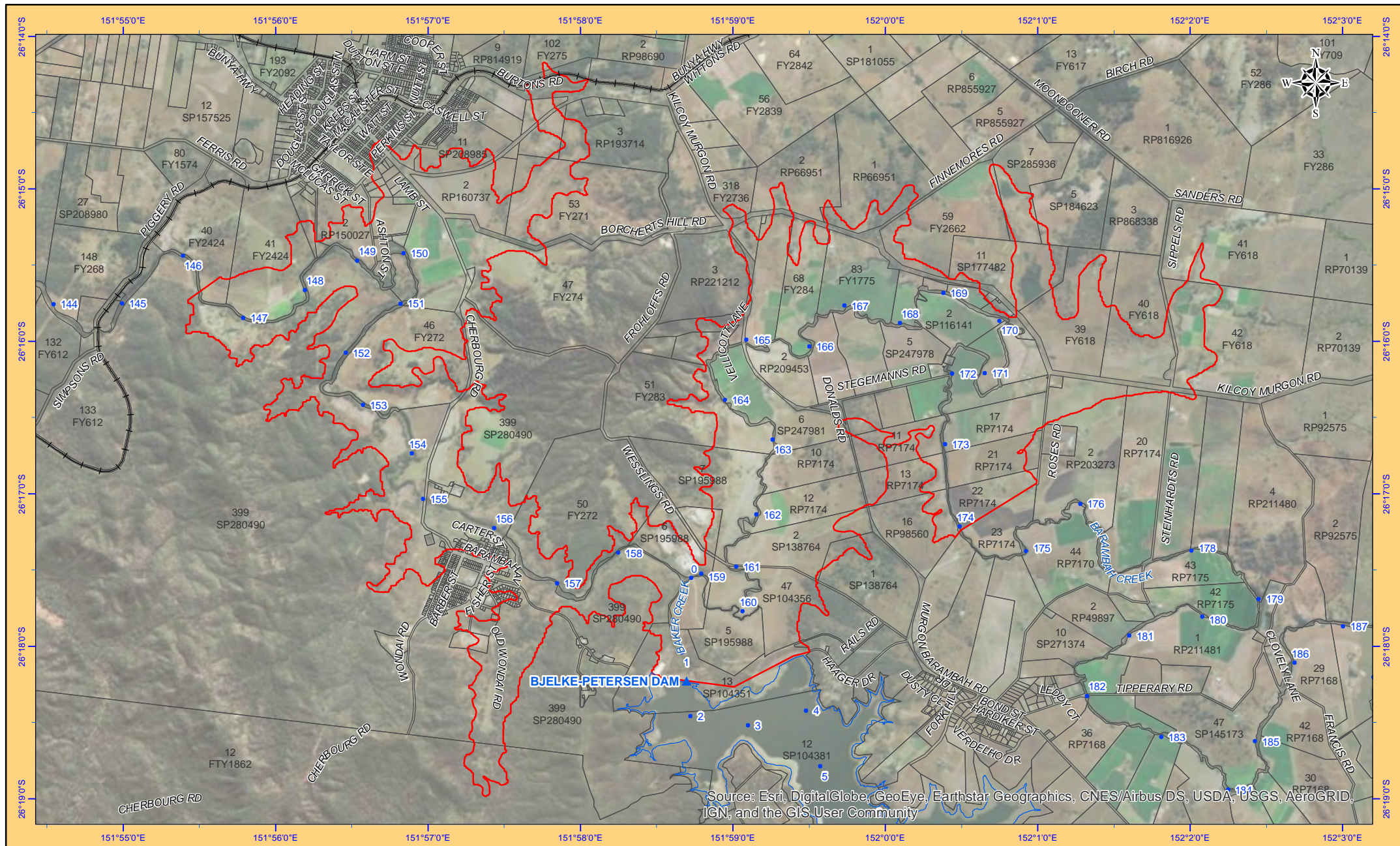
BJELKE-PETERSEN DAM
INSTRUMENTATION
ARRANGEMENT

CONTRACT NUMBER
DRAWING NUMBER
A3-102260
DATE
FEB 2001
A B C D E

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Appendix B2: Flood impacts—downstream

A Flood Impact Assessment of Bjelke-Petersen Dam was conducted by Sunwater in March 2018, HB# [2171236](#) (Internal link).



The information and material contained on this map are for general information purposes only, and are not intended to constitute legal or professional advice and should not be relied on or treated as a substitute for specific advice relevant to particular circumstances.

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MAP INFORMATION

Coordinate System: Geocentric Datum of Australia (GDA94).

SCALE (A4 SIZE)

0 600 1,200 1,800 2,400 3,000 m 1:60,000

LEGEND

- AMTD (Markers)
- Dam Full Supply Level
- Limit of Downstream Notification Area

**BJELKE PETERSEN DAM
DOWNSTREAM NOTIFICATION AREA**

NOTES

Areas further downstream will become progressively more impacted by other rainfall and inflows that occur downstream of the dam (not shown here).



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DRAWING No. 250706 B

Appendix B3: Inundation maps

Drawings:

- 249759 – Keymap
- 249760 – SDF (5 maps)
- 249761 – DCF (5 maps)
- 249762 – PMPDF (5 maps)

Disclaimer: Every effort has been made to ensure the currency of the flood inundation maps reproduced in this EAP. However, as the maps have been extracted from external sources, their accuracy cannot be guaranteed. Please refer to the Local Disaster Management Plan for the most current information.

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Printed: Tuesday, 17/04/2018 09:05:02 AM

MAP PRODUCED BY:
ASSET DELIVERY
TEL: (07) 5120 0000

REVISION					
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DATE		REMARKS		CKD	PSD

MAP INFORMATION
Coordinate System: Geocentric Datum of Australia (GDA94).

REFERENCE DRAWINGS
249760 - Sunny Day Failure
249761 - Dam Crest Flood
249762 - Probable Maximum Precipitation Design Flood

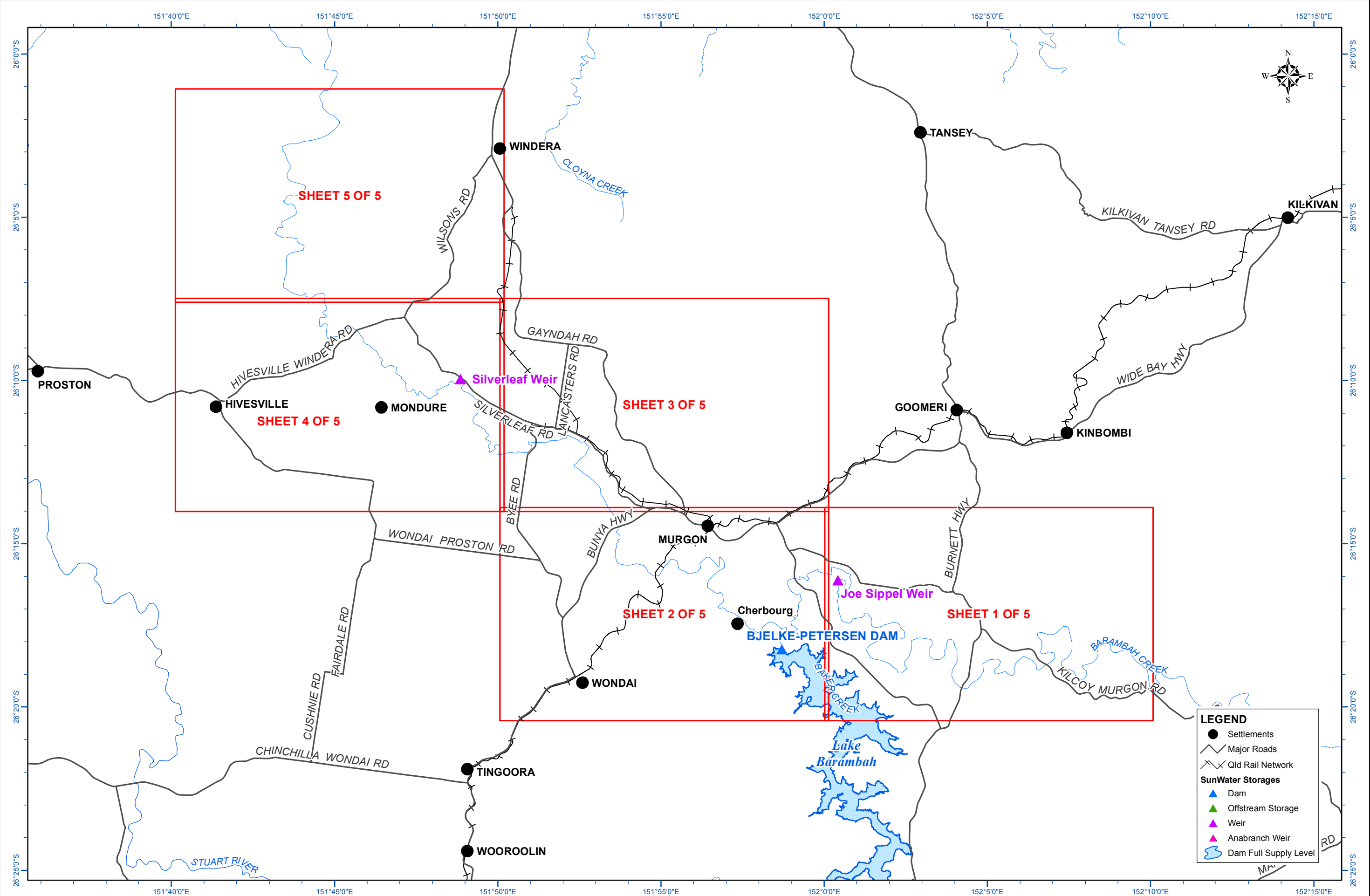
SCALES (A3 SIZE)

0 2 4 6 8 10 km 1:200,000

DRAWN	IDH	DESIGNED	MH
CHECKED	KP	CHECKED	
APPROVED			
M. HUGHES		17/04/2018	



Bjelke Petersen Dam Dam Break Analysis Inundation Plan - 2004/2009 Keymap		CONTRACT NUMBER	
		DRAWING NUMBER	REV.
		249759	A
		SHEET 1 OF 1	
		DATE APRIL 2018	

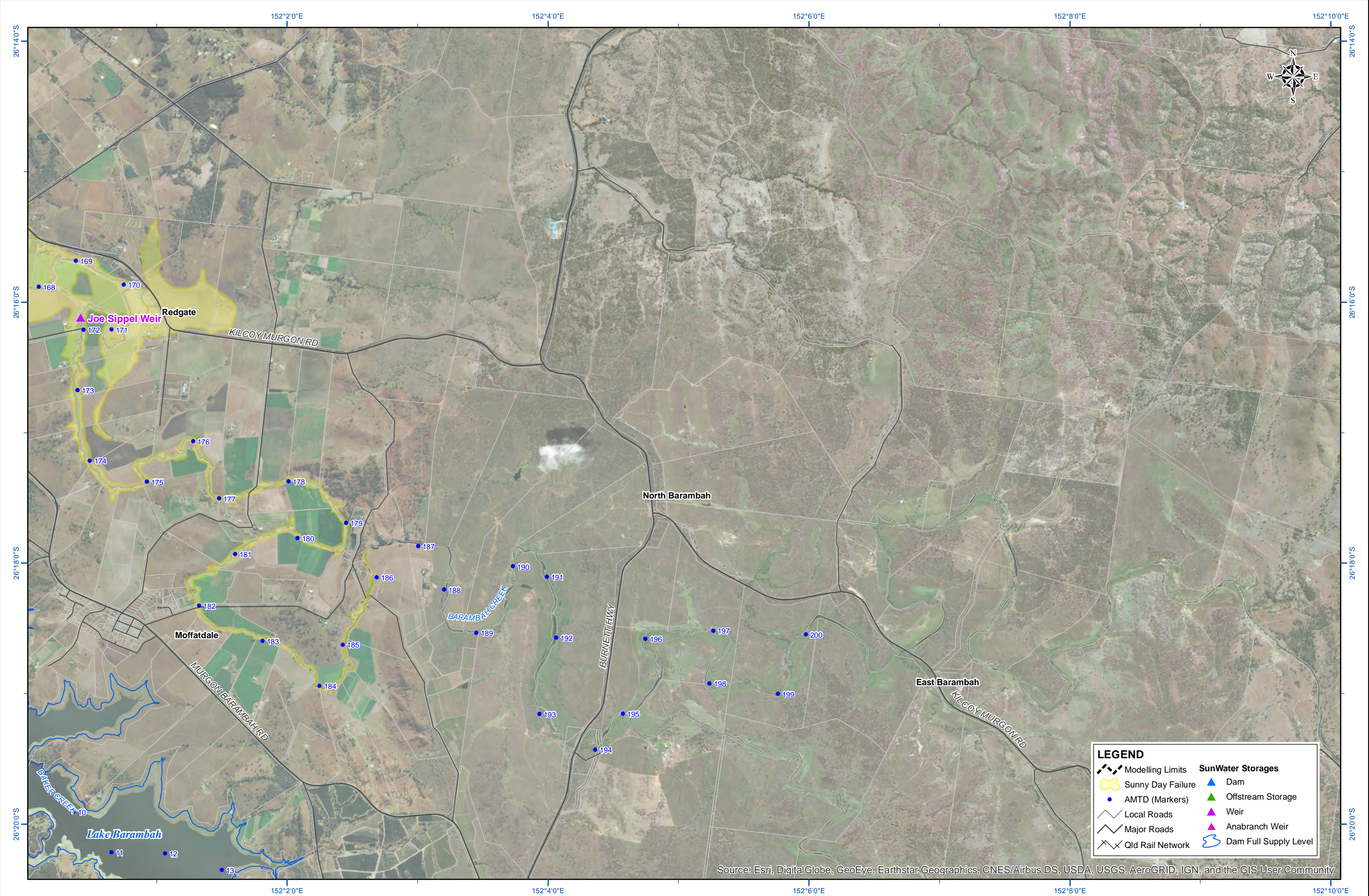


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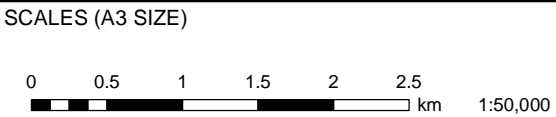
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MAP INFORMATION
Coordinate System: Geocentric Datum of Australia (GDA94).
REFERENCE DRAWINGS
249759 - Keymap



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APPROVED			
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CONTRACT NUMBER	
DRAWING NUMBER	REV.
249760	A
SHEET 1 OF 5	
DATE APRIL 2018	

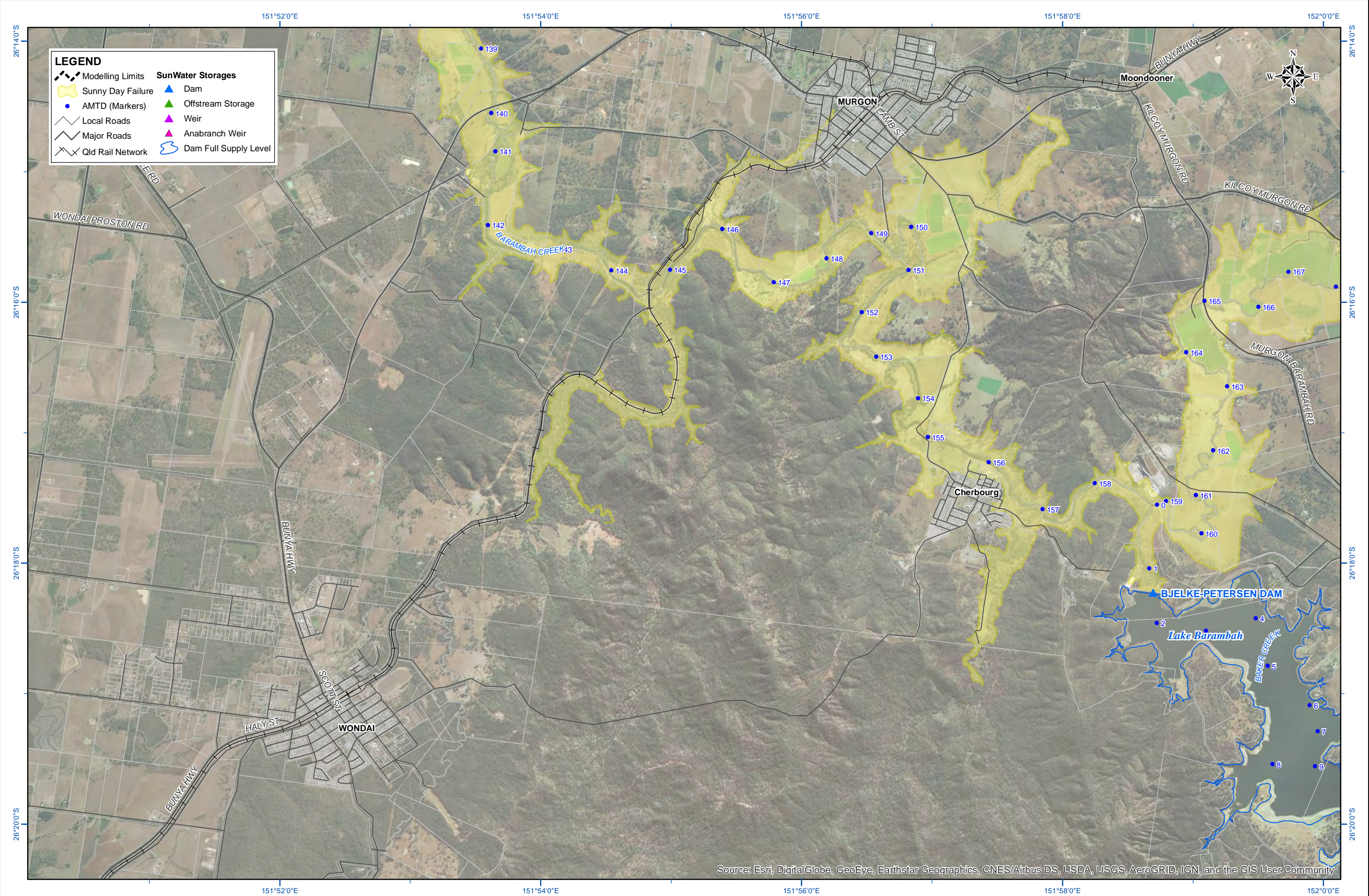
**BJELKE PETERSEN DAM
DAM BREAK ANALYSIS
INUNDATION PLAN - 2004
SUNNY DAY FAILURE**

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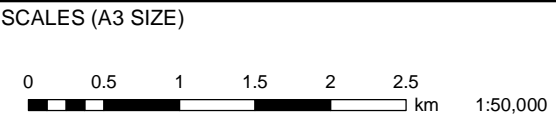
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MAP INFORMATION
Coordinate System: Geocentric Datum of Australia (GDA94).
REFERENCE DRAWINGS
249759 - Keymap



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Bjelke Petersen Dam Dam Break Analysis Inundation Plan - 2004 Sunny Day Failure	
CONTRACT NUMBER	
DRAWING NUMBER	REV.
249760	A
SHEET 2 OF 5	
DATE APRIL 2018	

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	17/04/18	A		ISSUED FOR USE	KP	MH

MAP INFORMATION
Coordinate System: Geocentric Datum of Australia (GDA94).
REFERENCE DRAWINGS
249759 - Keymap

SCALES (A3 SIZE)
0 0.5 1 1.5 2 2.5 km 1:50,000

DRAWN IDH
CHECKED KP
APPROVED M. HUGHES
17/04/2018

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**BJELKE PETERSEN DAM
DAM BREAK ANALYSIS
INUNDATION PLAN - 2004
SUNNY DAY FAILURE**

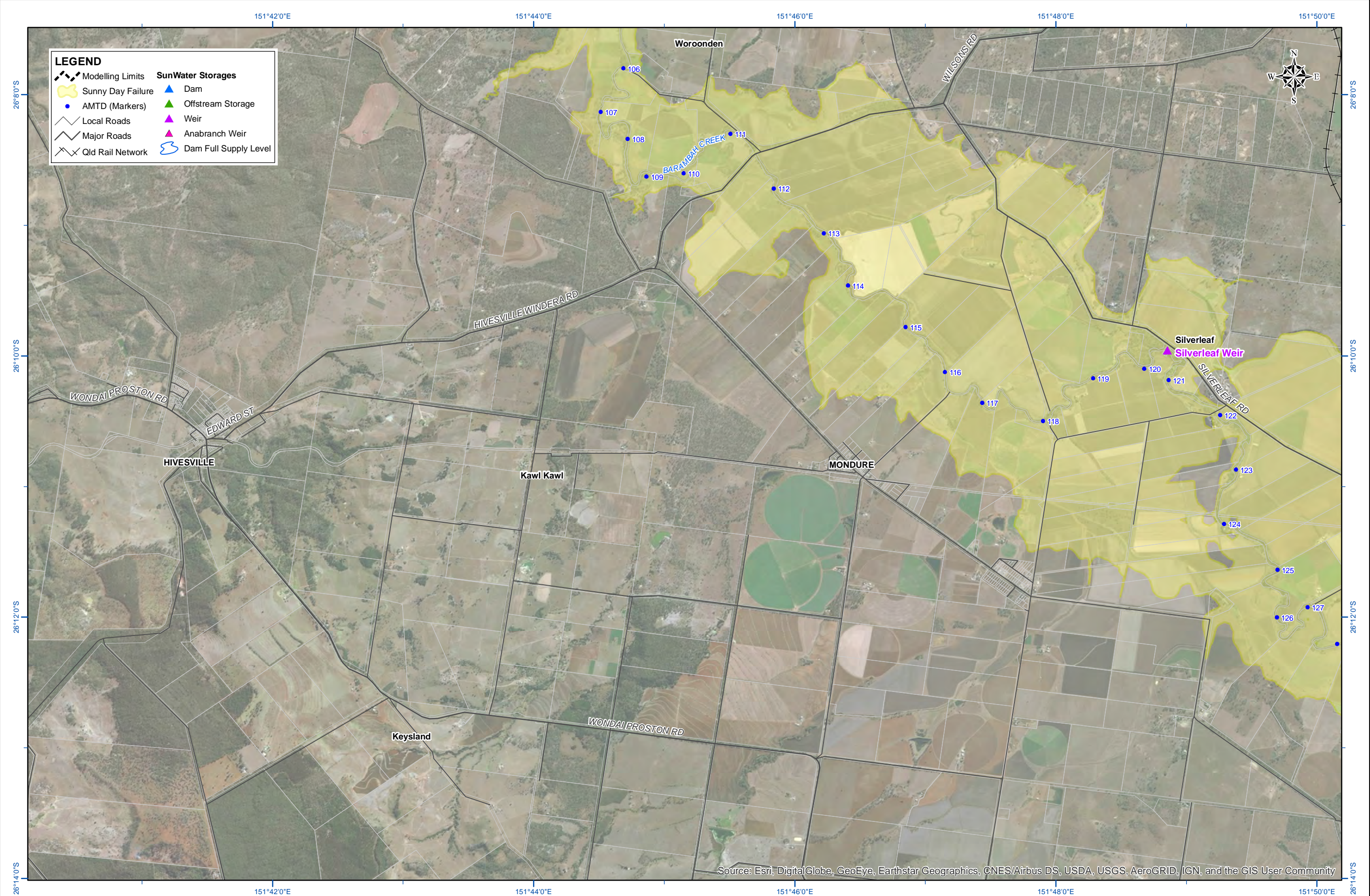
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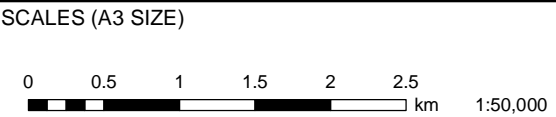
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M. HUGHES			
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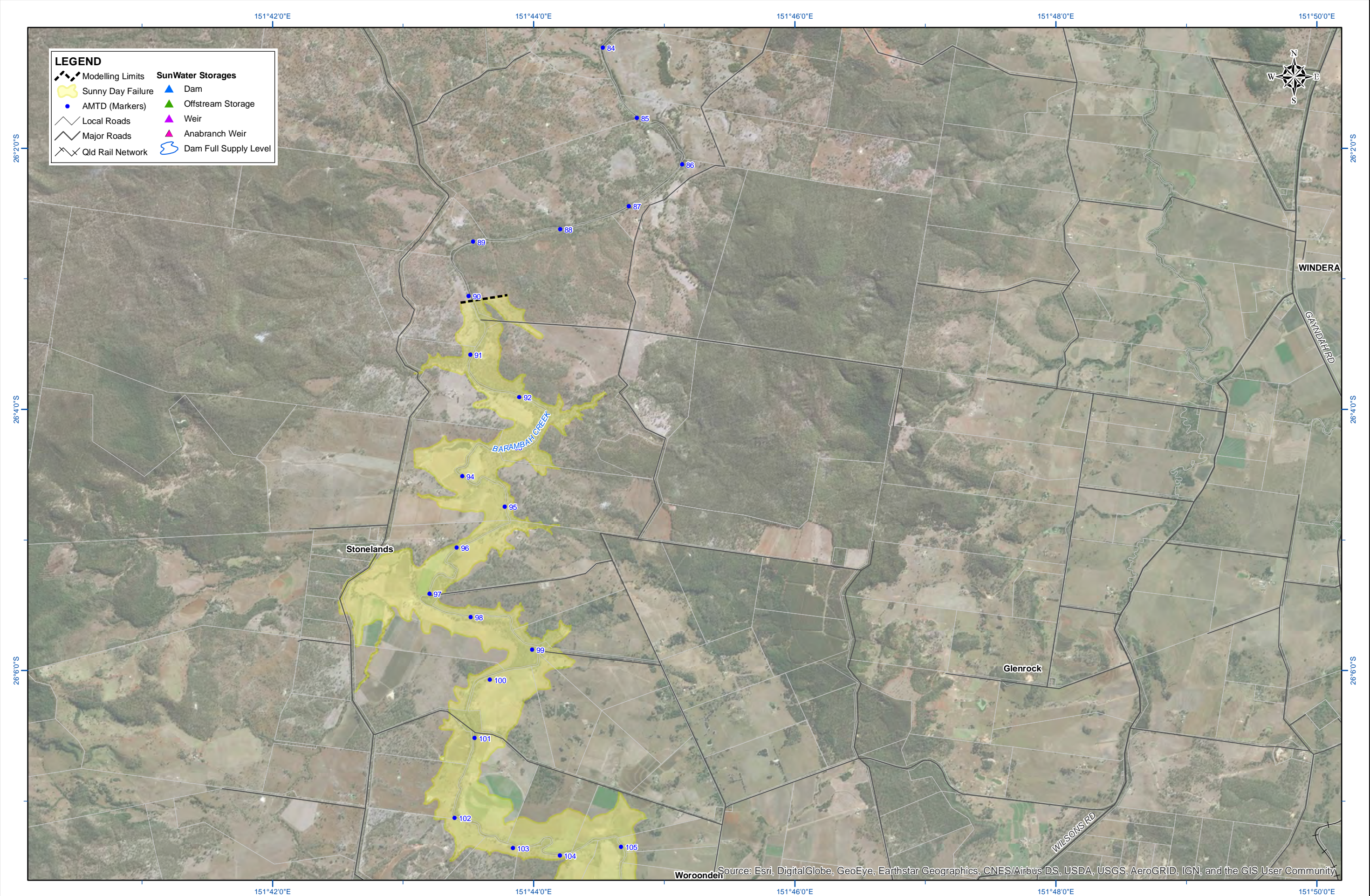
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DRAWING NUMBER	REV.		
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SHEET 4 OF 5			
DATE		APRIL 2018	

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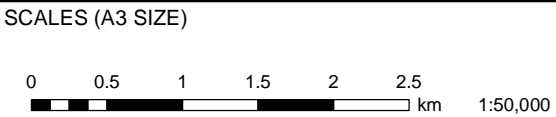
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DATE APRIL 2018	

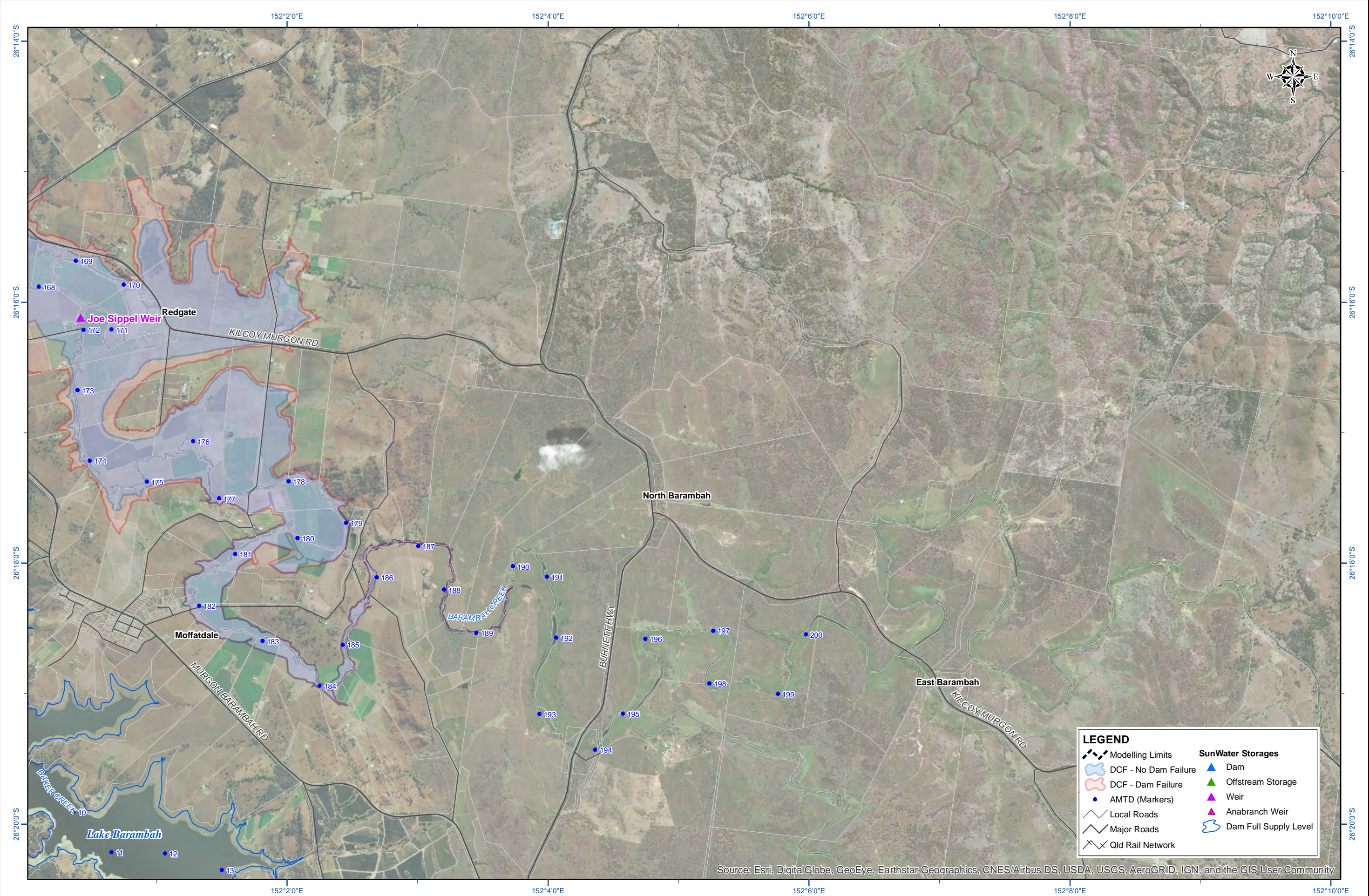
**BJELKE PETERSEN DAM
DAM BREAK ANALYSIS
INUNDATION PLAN - 2004
SUNNY DAY FAILURE**

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DATE		REMARKS		CKD	PSD

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- Coordinate System: Geocentric Datum of Australia (GDA94).	
- The 'Dam Failure' flood extent also includes the 'No Dam Failure' flood extent.	
REFERENCE DRAWINGS	
249759 - Keymap	

SCALES (A3 SIZE)	
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1:50,000	

DRAWN	DESIGNED
IDH	MH
CHECKED	CHECKED
KP	
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M. HUGHES	
17/04/2018	



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DRAWING NUMBER	REV.
249761	A
SHEET 1 OF 5	
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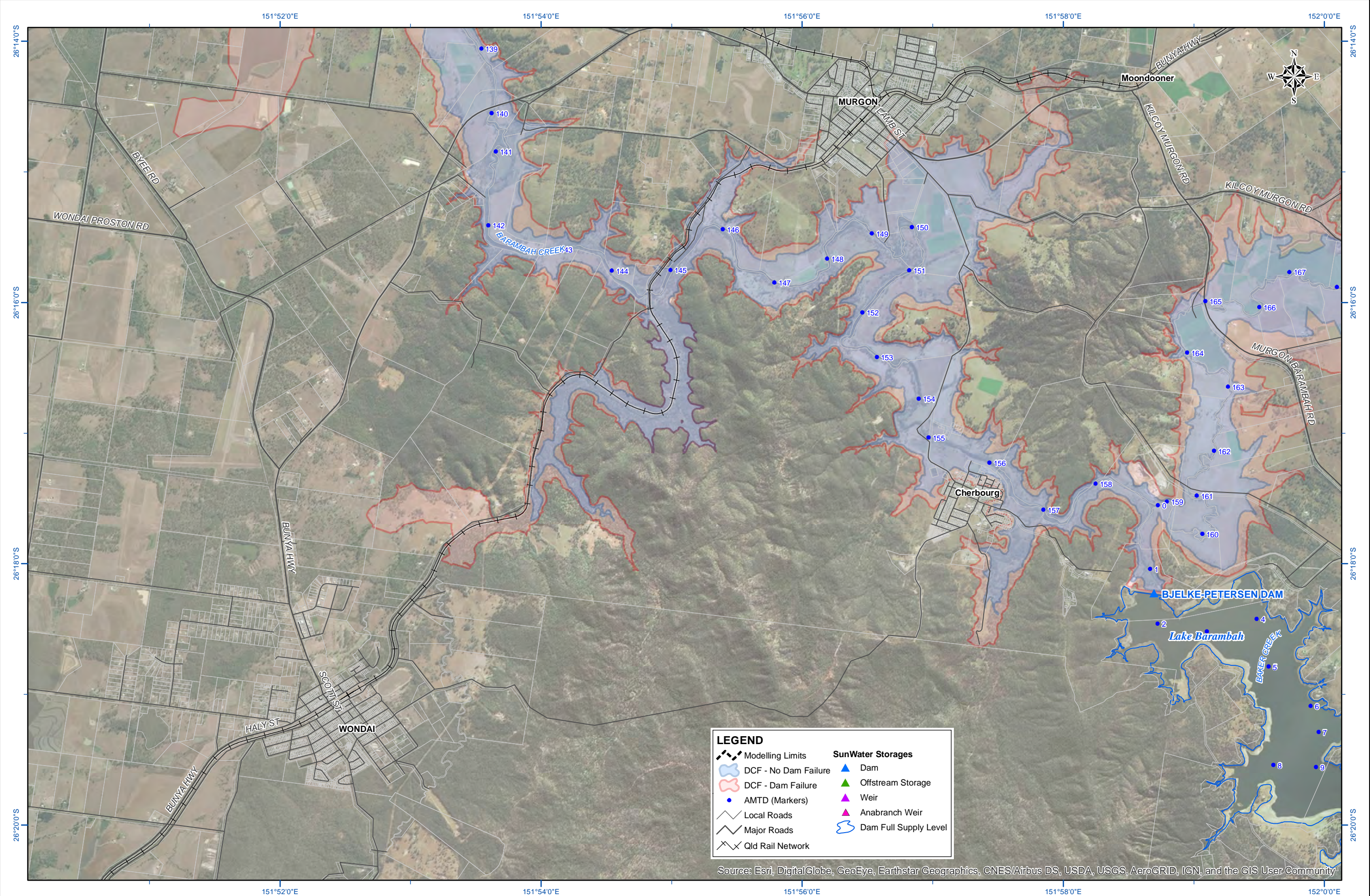
**BJELKE PETERSEN DAM
DAM BREAK ANALYSIS
INUNDATION PLAN - 2009
DAM CREST FLOOD**

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MAP PRODUCED BY:
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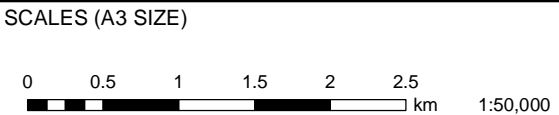


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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MAP INFORMATION
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- The 'Dam Failure' flood extent also includes the 'No Dam Failure' flood extent.

REFERENCE DRAWINGS
249759 - Keymap



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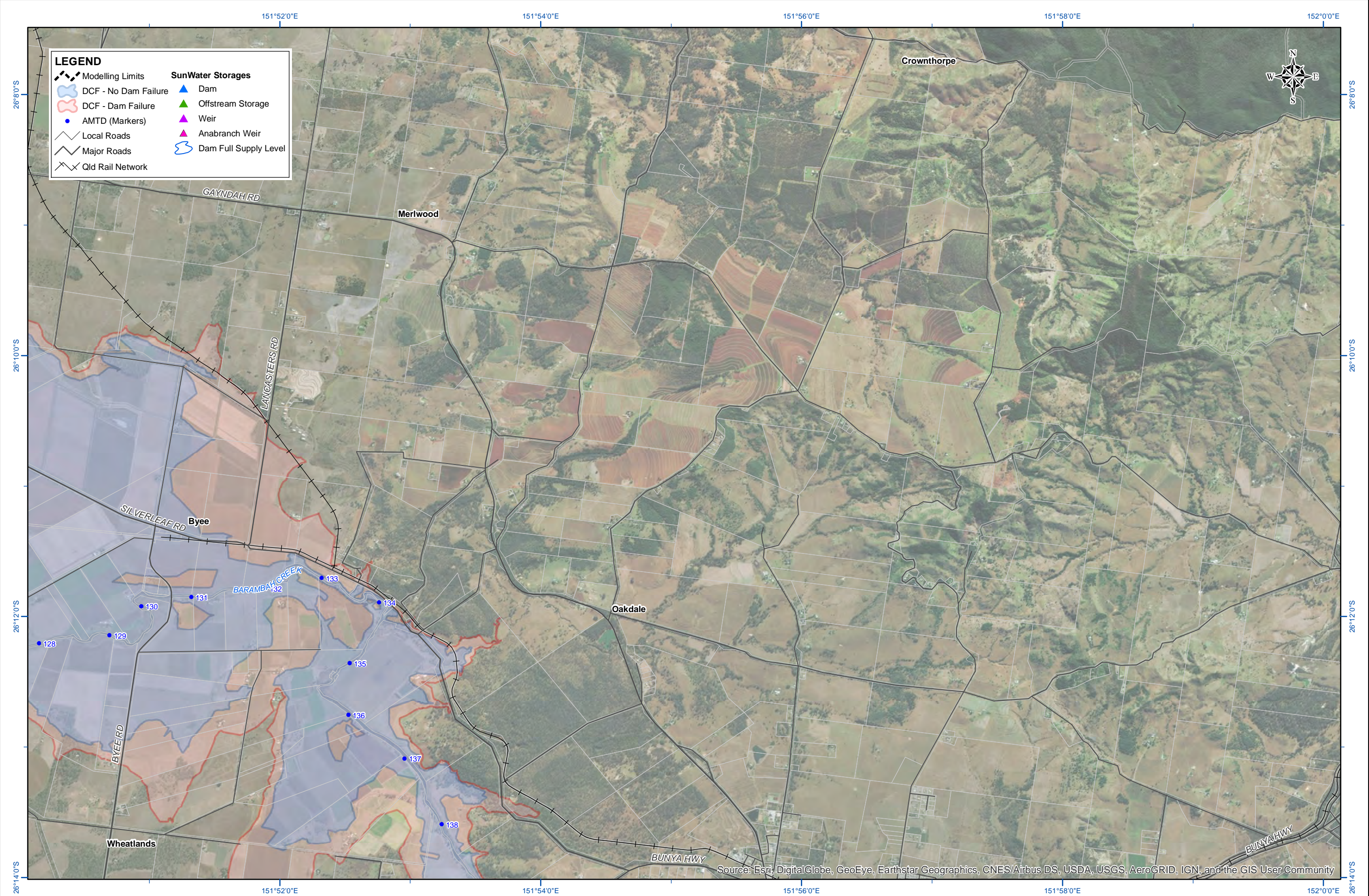
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DRAWING NUMBER	REV.		
249761	A		
SHEET 2 OF 5			
DATE		APRIL 2018	

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DATE		REMARKS		CKD	PSD

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REFERENCE DRAWINGS	
249759 - Keymap	

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1:50,000	

DRAWN	DESIGNED
IDH	MH
CHECKED	CHECKED
KP	
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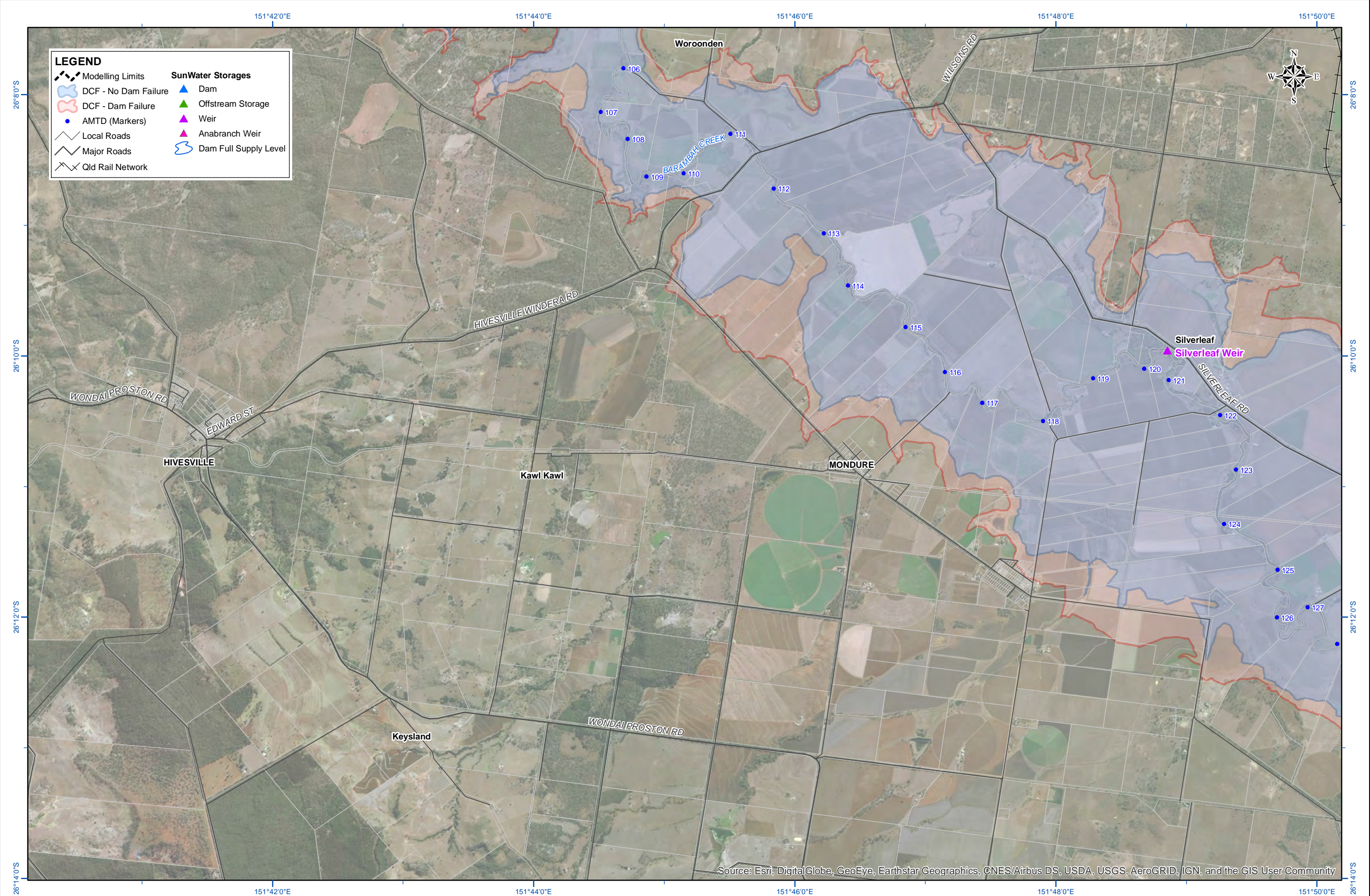
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CONTRACT NUMBER	
DRAWING NUMBER	REV.
249761	A
SHEET 3 OF 5	
DATE APRIL 2018	

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DATE		REMARKS		CKD	PSD

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REFERENCE DRAWINGS	
249759 - Keymap	

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1:50,000	

DRAWN	DESIGNED
IDH	MH
CHECKED	CHECKED
KP	
APPROVED	
M. HUGHES	
17/04/2018	



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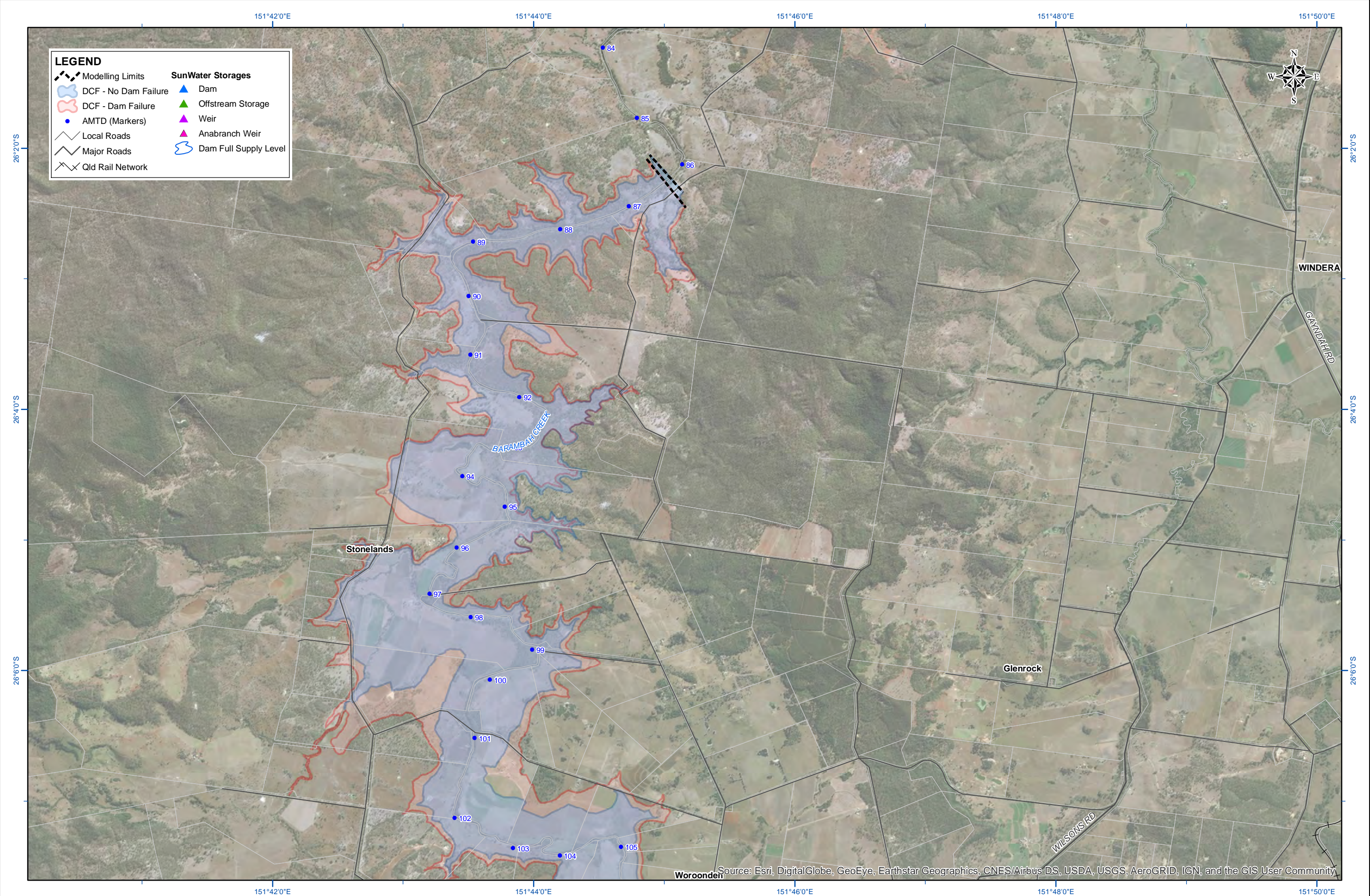
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CONTRACT NUMBER	
DRAWING NUMBER	REV.
249761	A
SHEET 4 OF 5	
DATE APRIL 2018	

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MAP PRODUCED BY:
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REVISION					
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DATE		REMARKS		CKD	PSD

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REFERENCE DRAWINGS	
249759 - Keymap	

SCALES (A3 SIZE)	
0 0.5 1 1.5 2 2.5 km 1:50,000	

DRAWN	IDH	DESIGNED	MH
CHECKED	KP	CHECKED	
APPROVED		M. HUGHES	
		17/04/2018	


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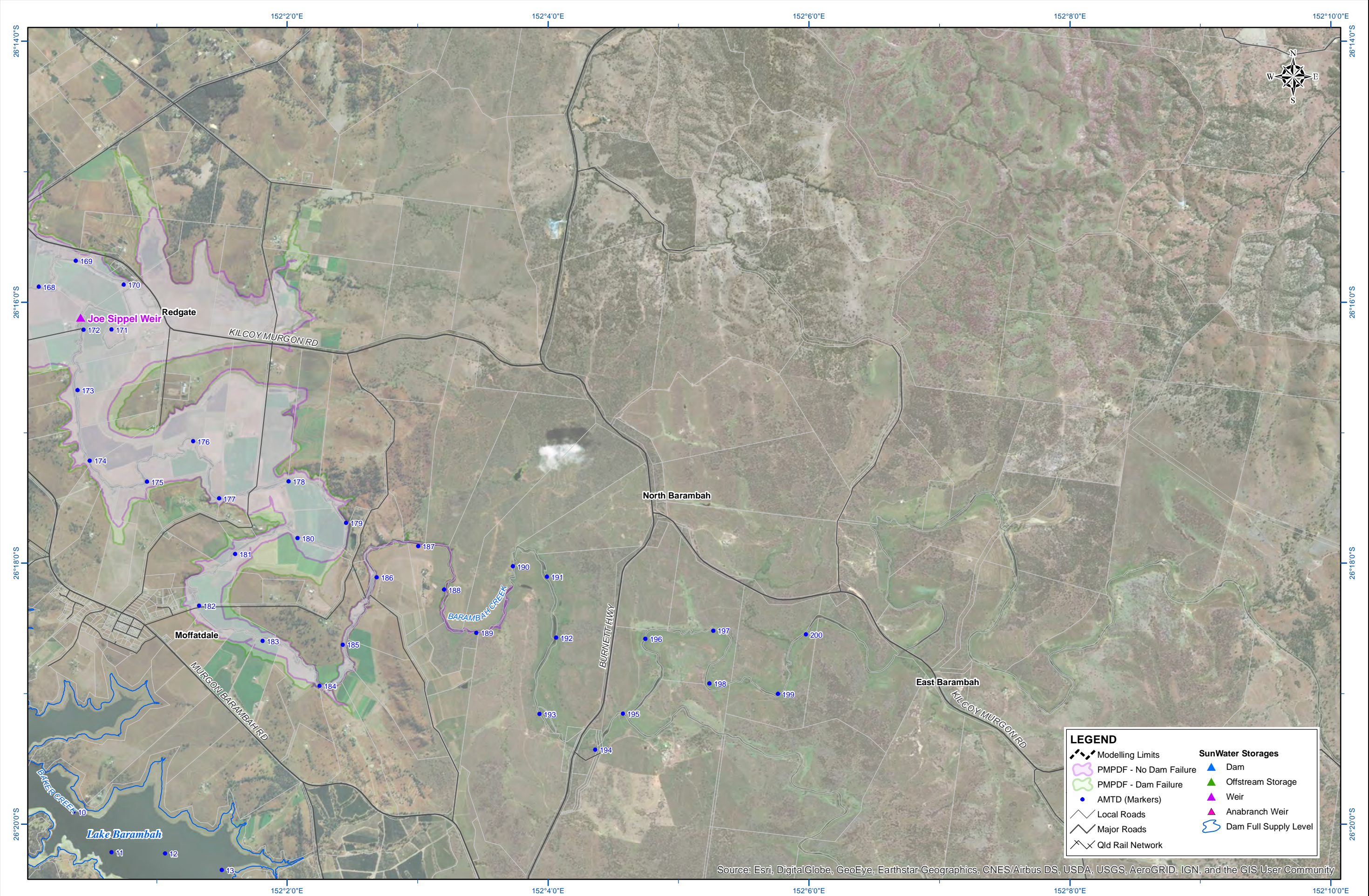
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CONTRACT NUMBER	
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MAP PRODUCED BY:
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TEL: (07) 5120 0000



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

REVISION					
17/04/18	A	ISSUED FOR USE		KP	MH
DATE		REMARKS		CKD	PSD

MAP INFORMATION	
- Coordinate System: Geocentric Datum of Australia (GDA94).	
- The 'Dam Failure' flood extent also includes the 'No Dam Failure' flood extent.	
REFERENCE DRAWINGS	
249759 - Keymap	

SCALES (A3 SIZE)	
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DRAWN	DESIGNED
IDH	MH
CHECKED	CHECKED
KP	
APPROVED	
M. HUGHES	
17/04/2018	



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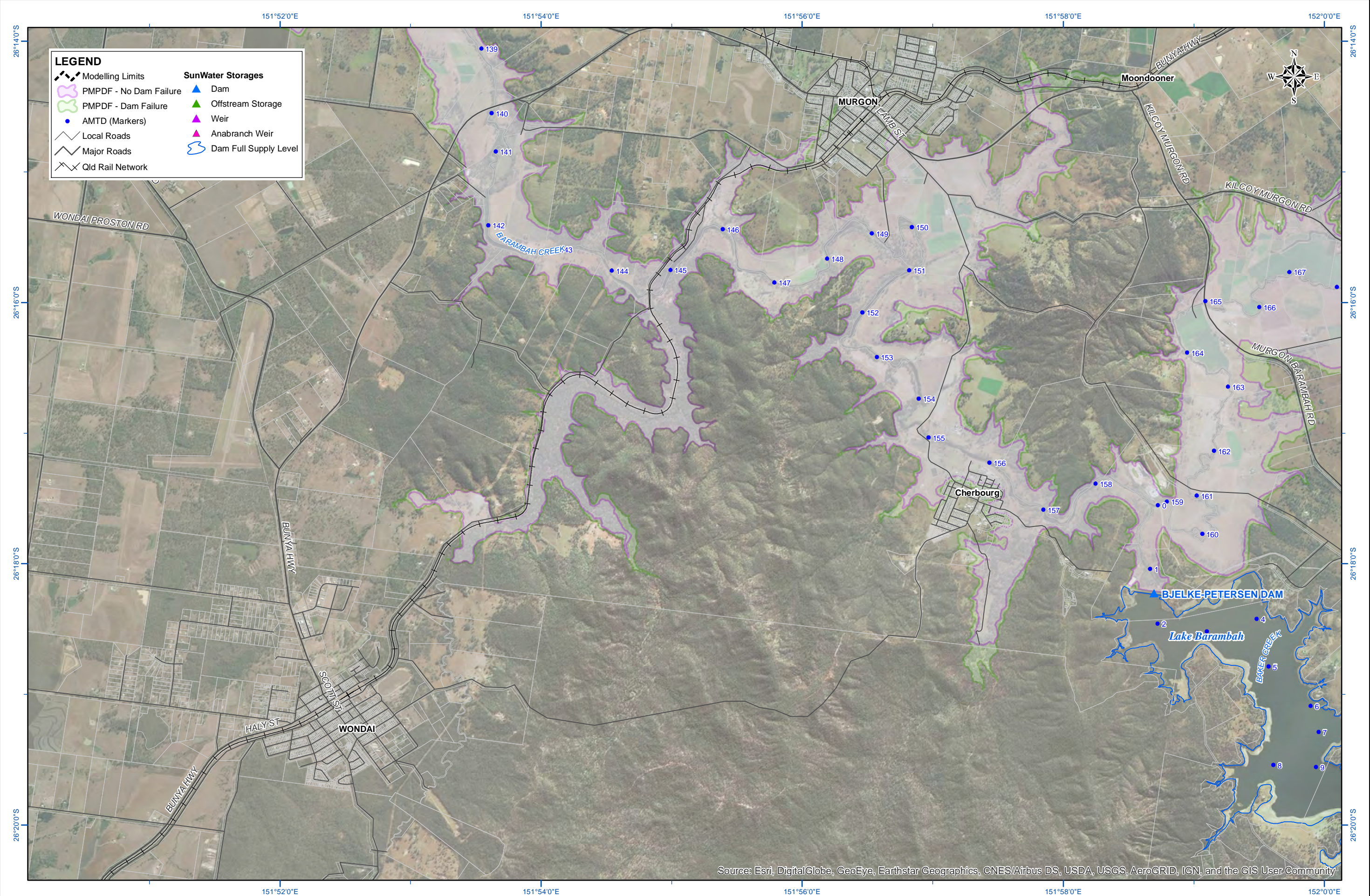
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249762	A
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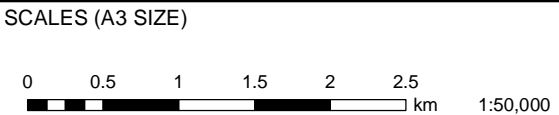


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**BJELKE PETERSEN DAM
DAM BREAK ANALYSIS
INUNDATION PLAN - 2009
PROBABLE MAXIMUM PRECIPITATION
DESIGN FLOOD**

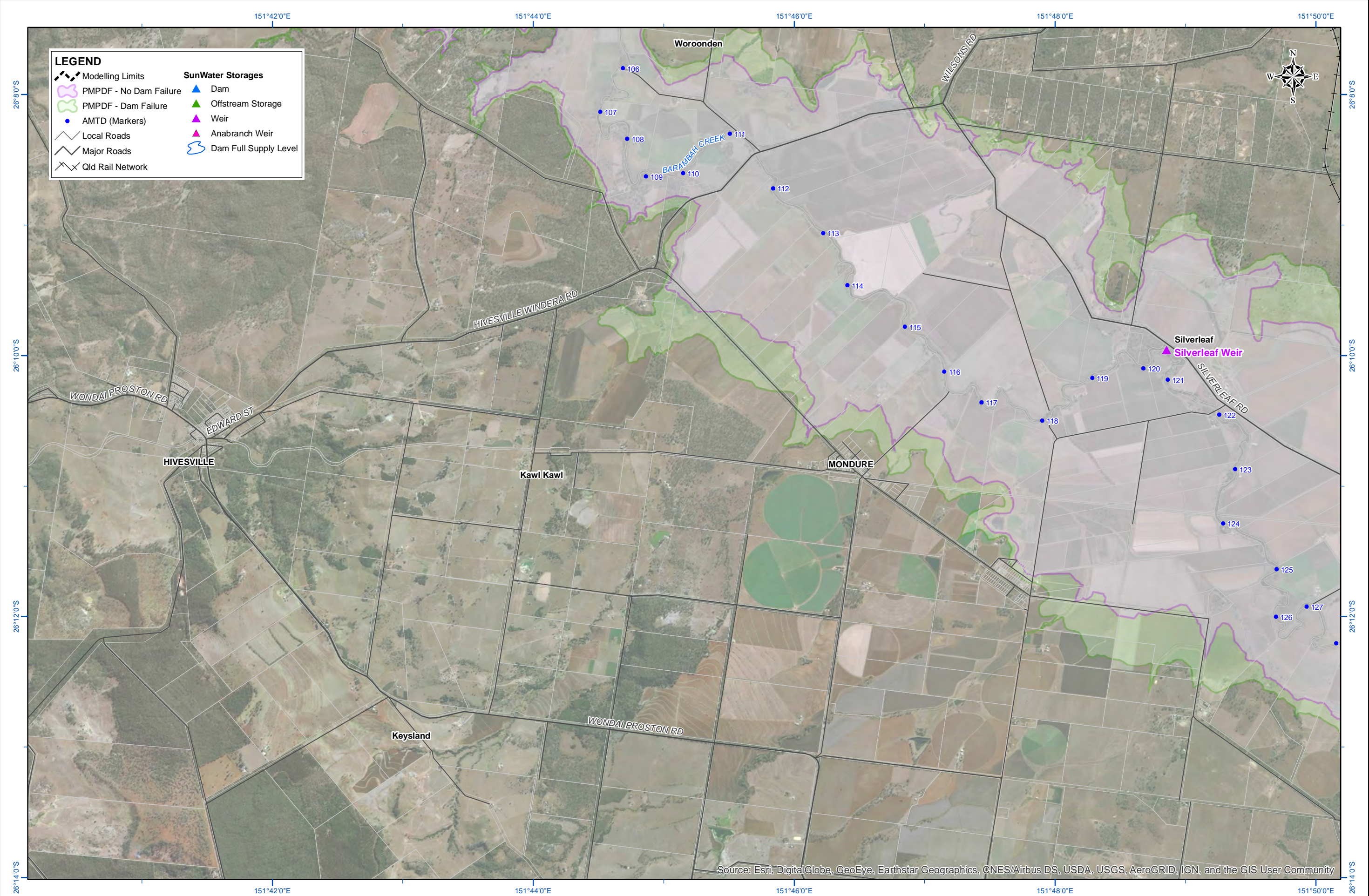
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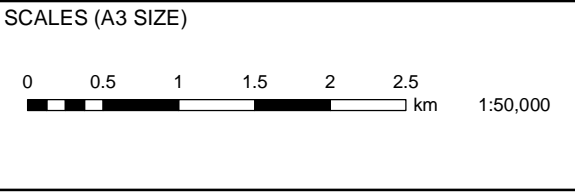
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**BJELKE PETERSEN DAM
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PROBABLE MAXIMUM PRECIPITATION
DESIGN FLOOD**

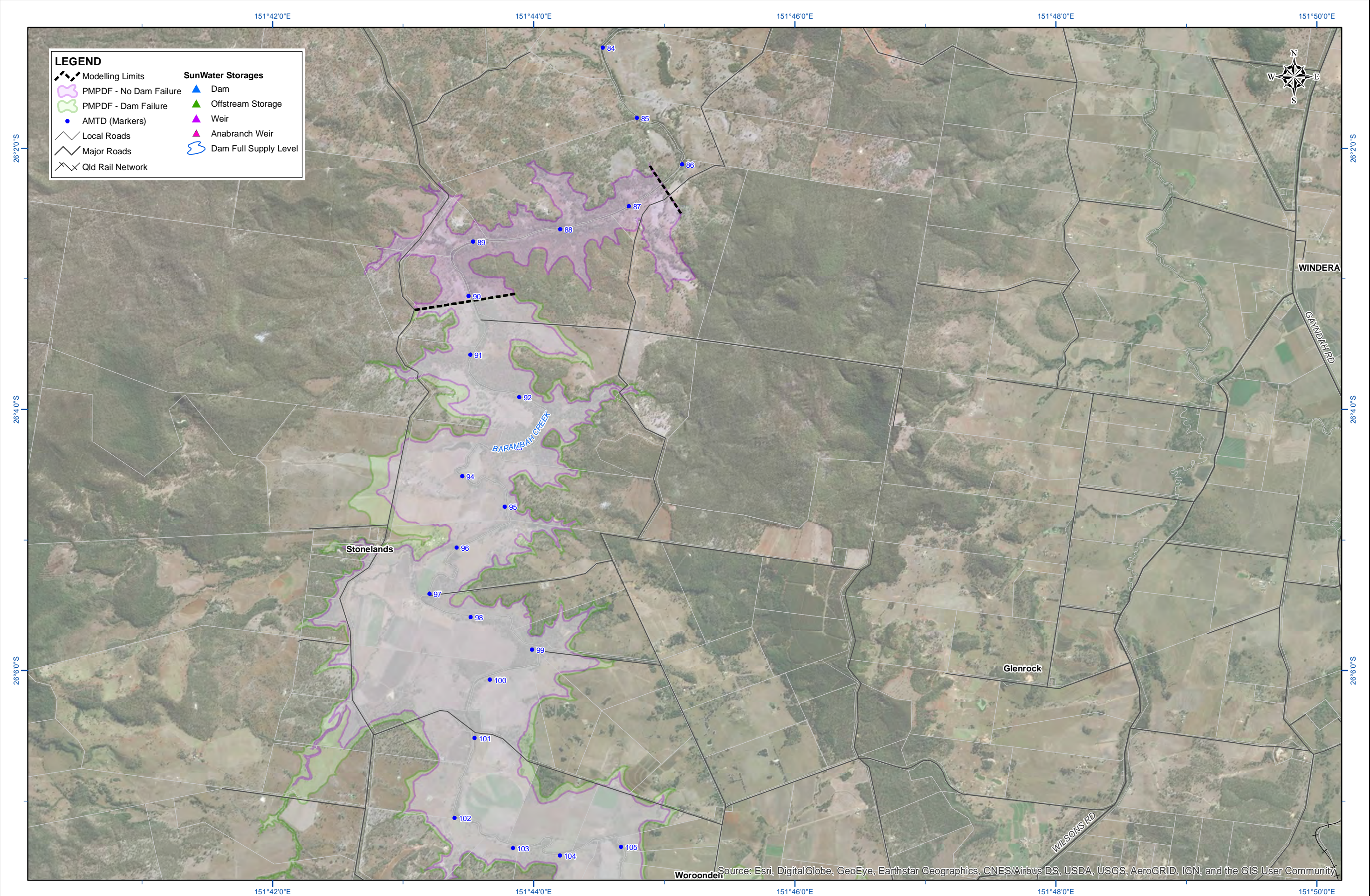
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SCALES (A3 SIZE)	
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DRAWN	IDH	DESIGNED	MH
CHECKED	KP	CHECKED	
APPROVED		M. HUGHES	
		17/04/2018	



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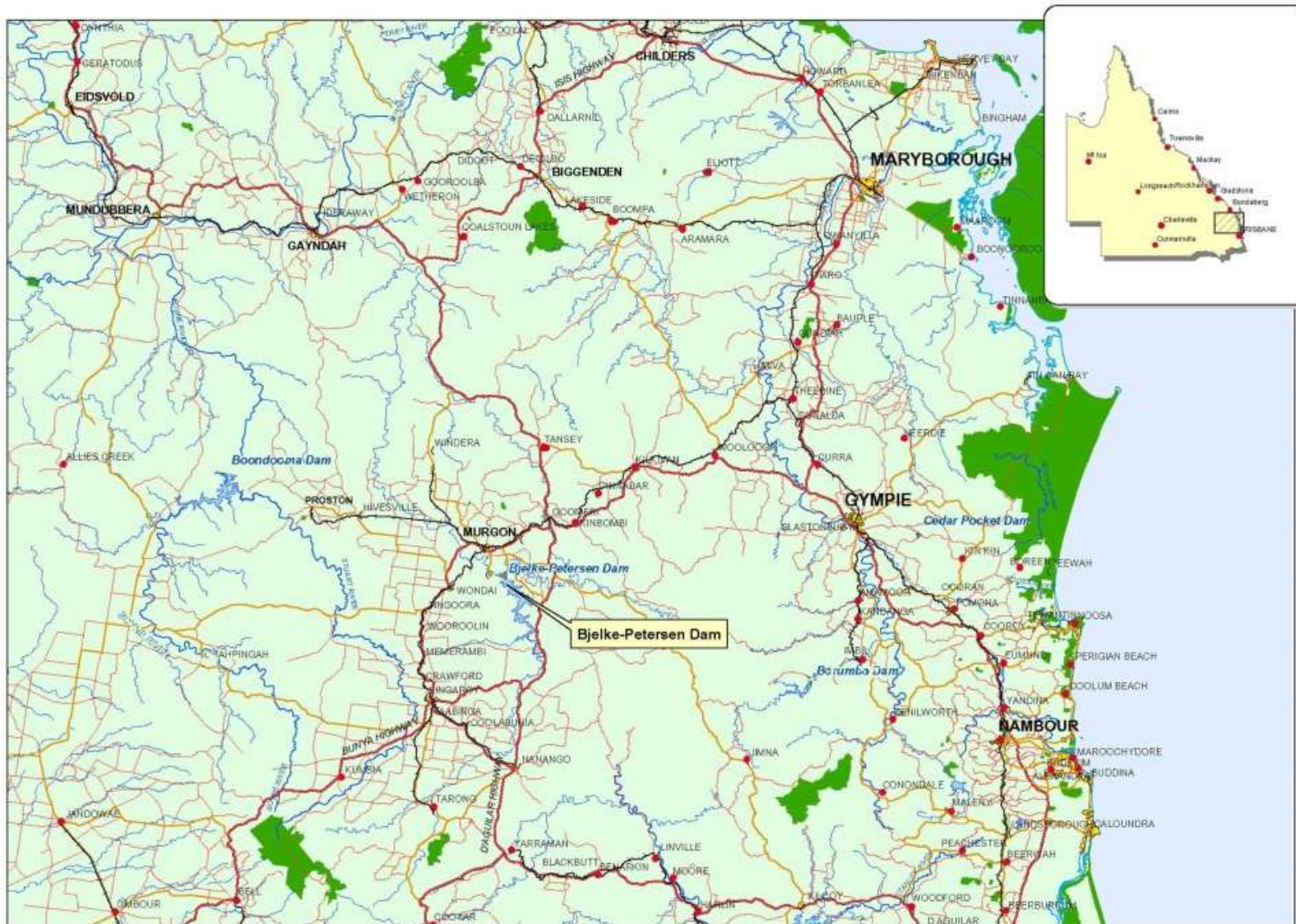
**BJELKE PETERSEN DAM
DAM BREAK ANALYSIS
INUNDATION PLAN - 2009
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CONTRACT NUMBER	
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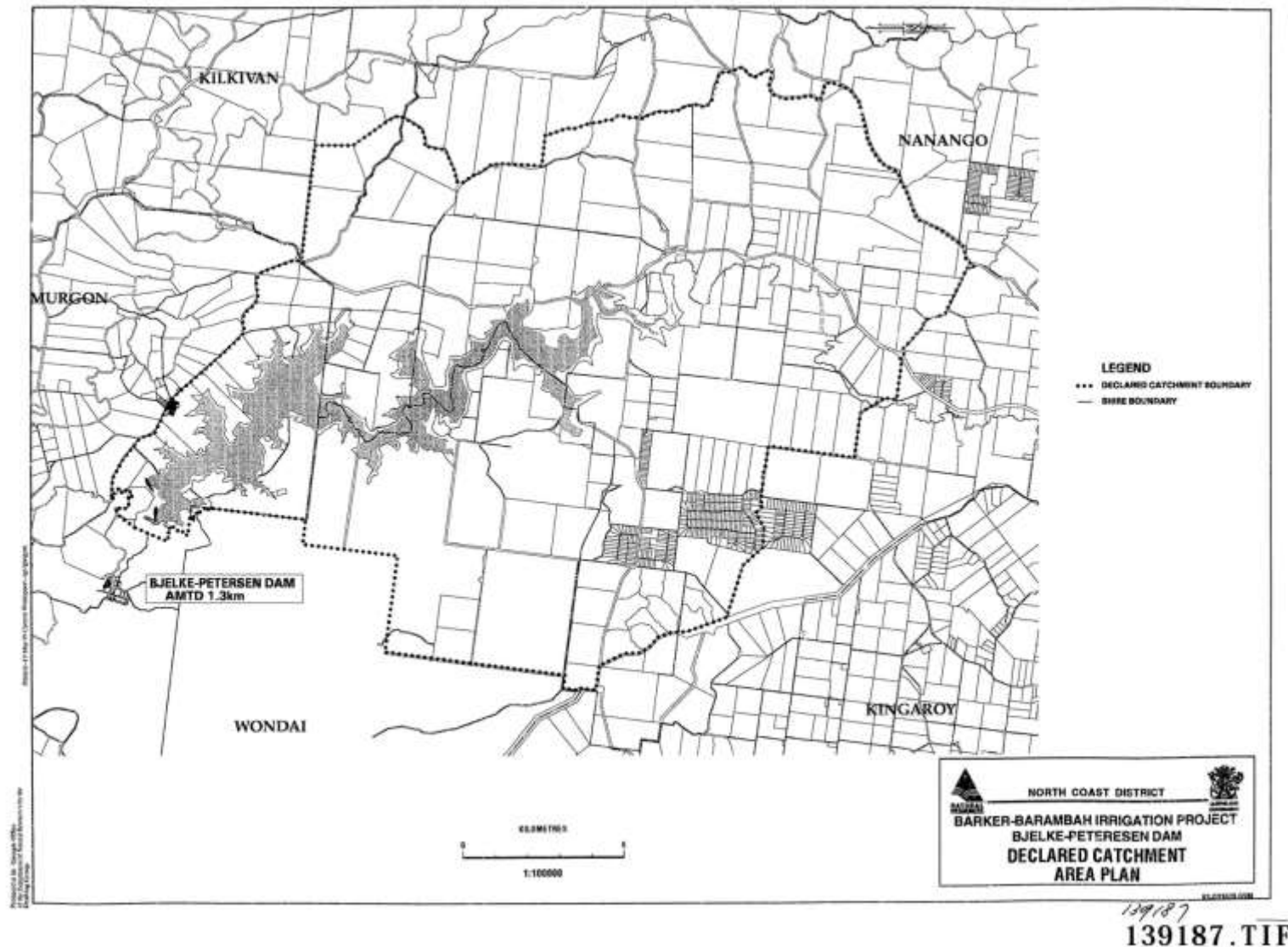
Appendix B4: Locality plan

Figure B4: Bjelke-Petersen Dam locality plan



Appendix B5: Catchment plan

Figure B5: Bjelke-Petersen Dam declared catchment boundary plan



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APPENDIX C Equipment and technical information

- C1 List of equipment available during an emergency
- C2 Bjelke-Petersen Dam discharge curve
- C3 Bjelke-Petersen Dam storage curve
- C4 Bjelke-Petersen Dam river outlet rating

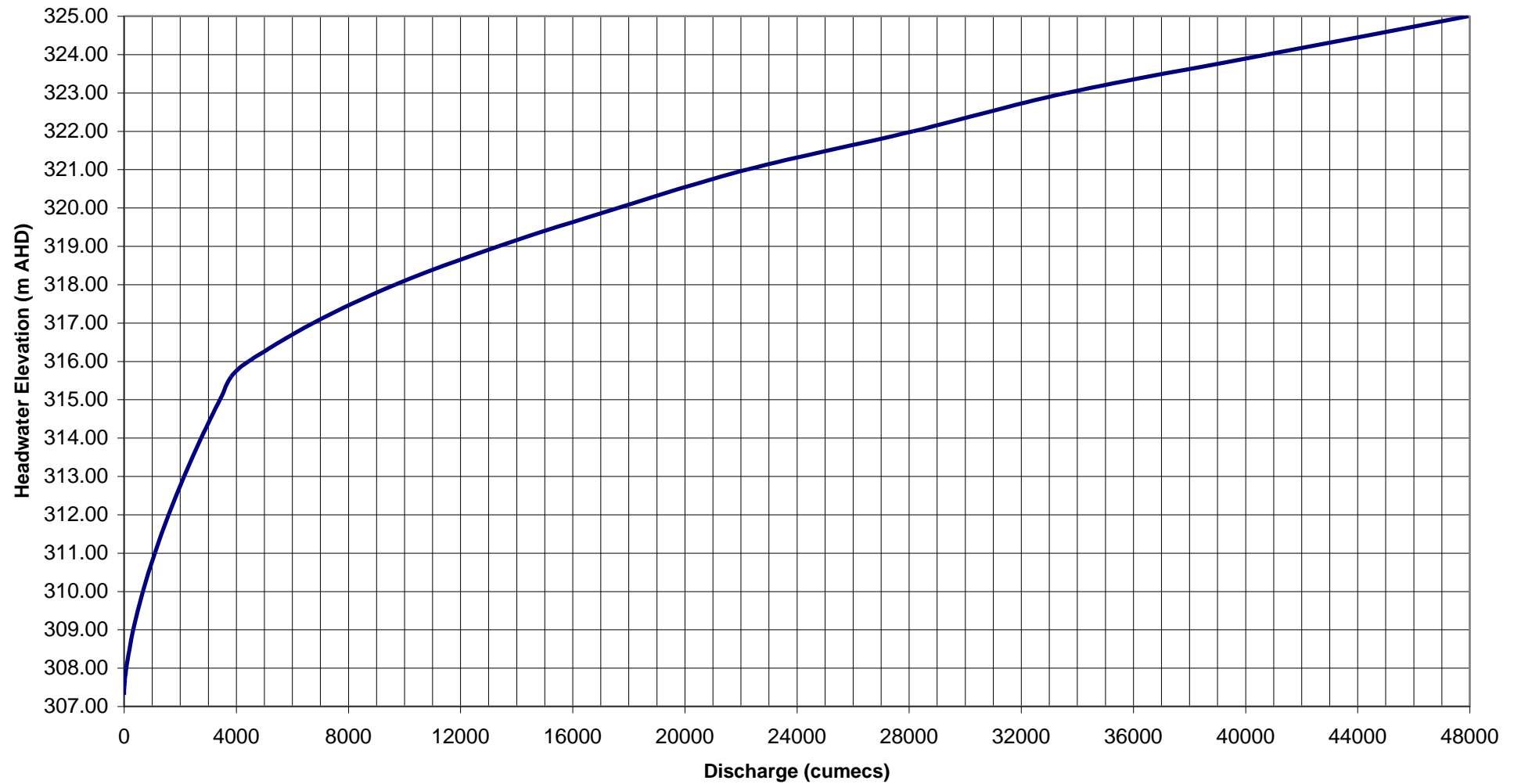
Appendix C1: List of equipment available during an emergency

Name of equipment	No.	Owner	Contact name	Contact number	Depot
Boat	1	Sunwater	Gary Goschnick	0407 739 313 or 07 4168 4803	Bjelke-Petersen Dam Depot
Generator	1	Sunwater	Gary Goschnick	0407 739 313 or 07 4168 4803	Bjelke-Petersen Dam Depot
Workshop facilities		Sunwater	Gary Goschnick	0407 739 313 or 07 4168 4803	Bjelke-Petersen Dam Depot
Mobile crane		Jack Hams Engineering		07 4162 1801	16 Stolzenberg Road, Kingaroy QLD 4610
Franna crane	1	BZ Engineering	Brian Zelinski	0427 779 035 or 07 4168 2245	20 Gayndah Road, Murgon QLD 4605
3T, 6T, & 20T excavators and tip trucks		Robert Zelinski Excavator Hire	Robert Zelinski	0417 774 020 or 07 4168 2566	Murgon
Helicopter	3+	Becker Helicopters	Fergus	0427 608 510 or 07 5448 9888	Maroochydore
Helicopter	3+	MI Helicopters	Shane	07 4622 1165 or 1800 600 345	Roma

Note: In addition to the above list, further resources can be accessed through Local, District, and State Disaster Management framework, if and when each Local Disaster Management Group is activated. See relevant pages in communication lists for contact details.

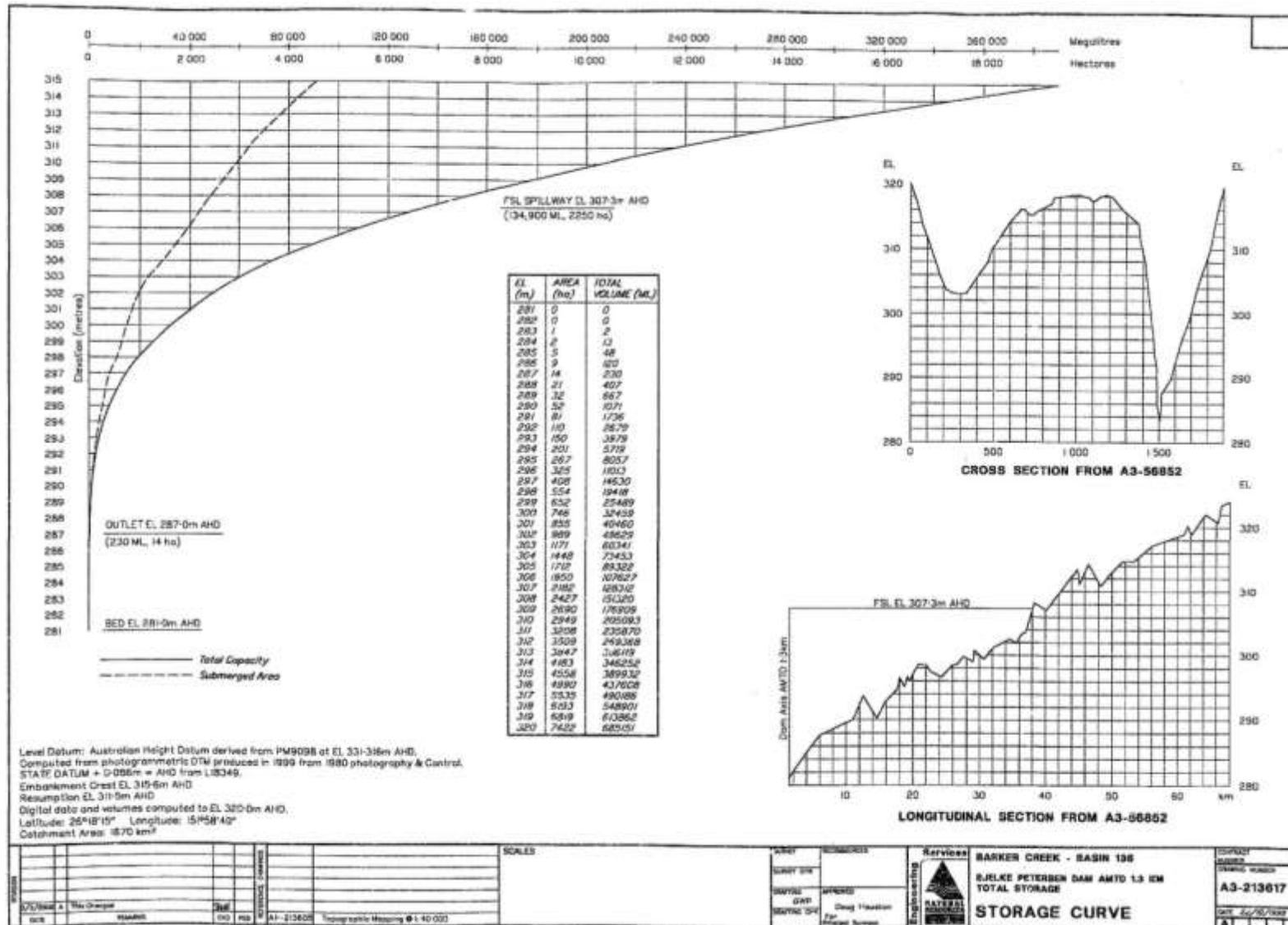
Appendix C2: Bjelke-Petersen Dam discharge curve

Figure C1: Bjelke-Petersen Dam discharge curve



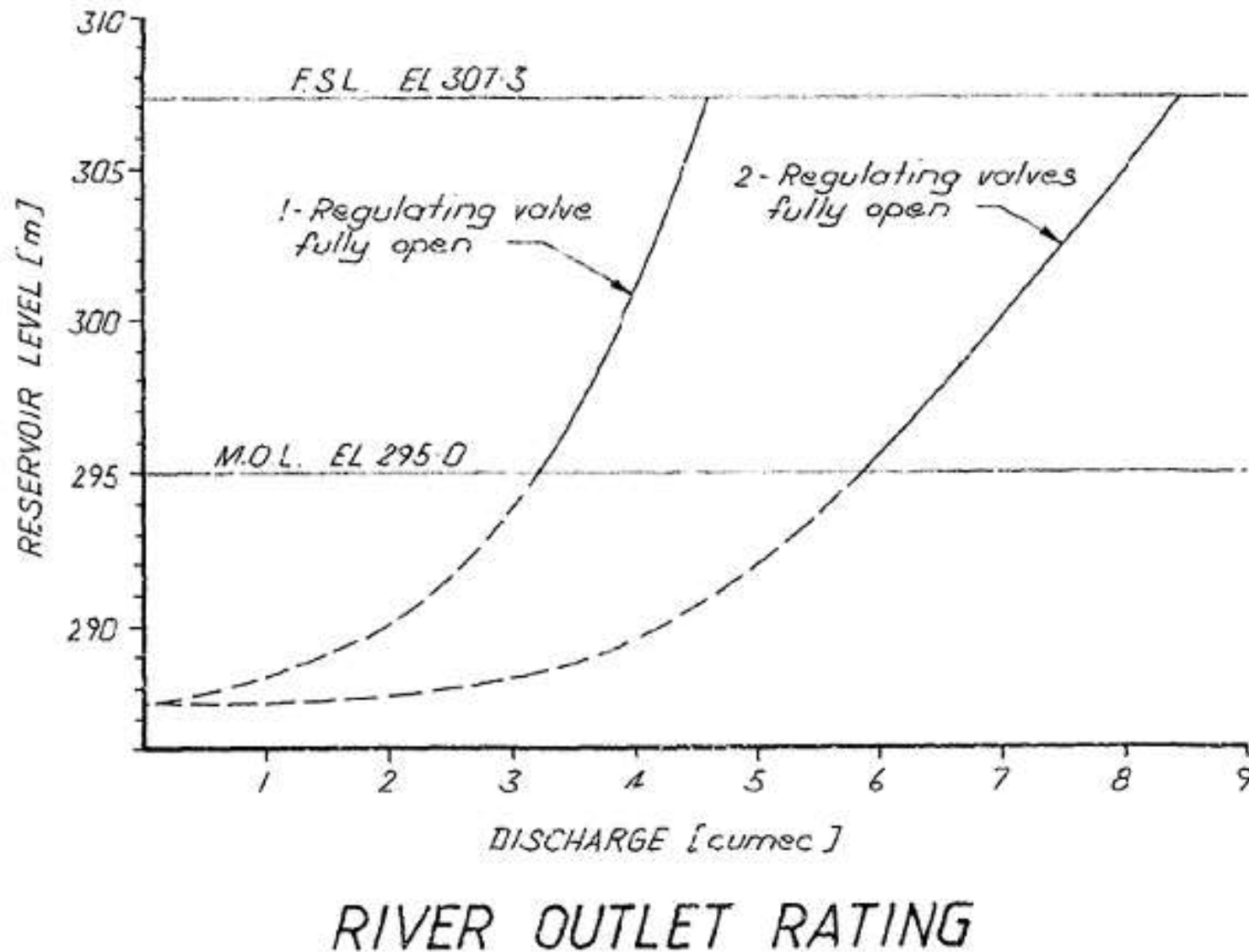
Appendix C3: Bjelke-Petersen Dam storage curve

Figure C2: Bjelke-Petersen Dam storage curve



Appendix C4: Bjelke-Petersen Dam river outlet rating

Figure C3: Bjelke-Petersen Dam river outlet rating



APPENDIX D Bjelke-Petersen Dam Emergency Action Plan toolkit

APPENDIX E Interaction with local government and district groups