cleanco queensland

Emergency Action Plan – Splityard Creek Dam

October 2023

Approved by the delegate of the Chief Executive, Department of Regional Development, Manufacturing and Water until 1 August 2025.

Emergency Action Plan – Splityard Creek Dam

Issue: 14.2 – October 2023 Expiry Date: 1 August 2025

Prepared by CleanCo

Controlled Copy No.

Gated: No Crest Control – Nil	Manned: Yes

Type: Earth and Rock fill embankment

Location: Lat. -27.371944° -17° 22’ 19”S
Long 152.640833° 1525° 38’ 27’’E

Emergency activation quick reference – Dam Hazards

The Emergency Action Plan (EAP) for Splityard Creek Dam covers dam hazards evaluated within CleanCo's Dam Safety Management System.
Use the following table to select the relevant section of the EAP that deals with the dam hazard. Note: The Incident Coordinator (IC) is responsible for activating the EAP unless otherwise directed by the Dam Safety Technical Decision Maker (DSTDM). Should the IC be unavailable, the Owner's Regional Representative (ORR) or Dam Duty Officer (DDO) is responsible.

Dam hazards and section numbers	Activation levels for dam hazards			
	Alert	Lean Forward	Stand Up	Stand Down
Dam hazard – Piping through embankment, foundation or abutment **See Section 5**	Unexpected increased leakage through the embankment, foundations or abutments, at v-notch weirs or new areas	Unexpected increased leakage through the embankment, foundations or abutments with cloudy water OR cloudy water in Pryde Ck or Splityard Junior	Piping condition has been established Or • Failure in progress or likely due to piping • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced
Dam hazard – Earthquake See Section 6	• Earthquake reported or felt in the area, AND • Intensity less than 5 MM	• Earthquake reported or felt in the area, AND • Intensity greater than or equal to 5 MM OR • Intensity less than 5MM and change detected during surveillance inspection	• Earthquake reported or felt in the area, AND • A possible failure path has been identified	Risk assessment has established risk has reduced
Terrorism threat / activity or high energy impact **See Section 7**	Not Applicable	Not Applicable	• Possible terrorist activity/suspicious behaviour noticed at the dam, OR • Threat received • Large explosion heard/observed at dam (eg, bomb explosion, aircraft hit)	Risk assessment has established risk has reduced

1. Table of Contents

Table of Figures

Document Control

Authorisation of document

Name	Position/role	Signature	Date
	Site Manager Wivenhoe Power Station ORR		30/10/2023
	Dam Safety Engineer DSTDM		30/10/2023
	General Manager Asset Operations OHOR		30/10/2023

Document revision history

REVISION STATUS:

REVISION	REVISION DESCRIPTION	REVISION DATE
1	Initial Issue	19/01/2001
2	Revision of Pt 1, Pt 2, Pt 4 and Pt 6	20/02/2002
3	Notification list revised and formatted	26/03/2003
4	Document completely revised and various changes made	08/04/2008
5	Document revised and various changes made	10/11/2010
6	Document substantially revised to incorporate Qld Floods Commission of Inquiry recommendations and to create Part 1 that contains Actions and Technical Data, and Part 2 that contains contact details only.	20/12/2011
7	Revised in accordance with amendments to the Water Supply (Safety and Reliability) Act 2008 and provisional guidelines for Emergency Action Planning for Referable Dams, June 2013 as issued by DEWS. [Incorporating Amendment No 1]	30/09/2013
8	Revised in accordance with amendments to the Water Supply Act	29/09/2017
9	Document updated to incorporate dam hazard tables, activation triggers, communications plans and better align with the SunWater standard EAP.	26/07/2019
10	Minor updates to include change of ownership details.	28/11/19
11	At the request of the Dam Safety Regulators office, a new version has been issued to more clearly identify the latest update to the EAP. Versions 9.1 and 10 comprise non-substantive changes, which primarily include the addition of	21/01/20

REVISION	REVISION DESCRIPTION	REVISION DATE
	CleanCo as the new Dam Owner, new contact details for CleanCo personnel roles within the EAP, a new figure for the Emergency Alert Polygon and corrections for minor formatting errors.	
12	Update the references and contact details for the CleanCo delegated EGMAM to [redacted] General Manager Asset Operations. Correct email addresses for the CEO and [redacted]	7/02/20
13	Somerset CEO and Local Disaster Coordinator contact details updated.	27/02/20
14.0	Reviewed and incorporated findings of DSR, LDMG feedback and more detailed communication plans	July 2021
14.1	Review and minor amendments including contact details	Sept 2022
14.2	Annual review and minor amendments including contact details plus addition of AWS messaging	Sept 2023

Controlled document distribution list

Copy Number	Position	Location
1	Site Manager	Wivenhoe Power Station
2	Hydro Optimisation Specialist	Wivenhoe Power Station
3	Splityard Ck Dam Copy	Wivenhoe Power Station
4	Dam Safety Engineer (DSTDM)	CleanCo, Brisbane office
5	Corporate Communications	CleanCo, Brisbane office
6	Physical Trading Desk	CleanCo, Brisbane office
7	District Disaster Coordinator – Ipswich District Disaster Management Group (DDMG)	Ipswich District Police Headquarters
8	Local Disaster Coordinator – Local Disaster Management Group (LDMG)	Somerset Regional Council, Esk
9	Officer in Charge	Lowood Police Station
10	Flood Operations Centre - Seqwater	

2. References, abbreviations and definitions

2.1. References/associated documents

Ref.	Document Title	Reference/location
A	Water Supply (Safety and Reliability) Act 2008	https://www.legislation.qld.gov.au/view/pdf/2017-07-03/act-2008-034
B	Queensland Disaster Management Act 2003	https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2003-091
C	Queensland Disaster Management Guidelines	http://www.disaster.qld.gov.au
D	Guidelines on Selection of Acceptable Flood Capacity for Dams (ANCOLD, 2000)	ANCOLD
E	Queensland Dam Safety Management Guidelines (DRDMW 2020)	https://www.resources.qld.gov.au/__data/assets/pdf_file/0007/78838/dam-safety-management.pdf
G	Emergency action plan for referable dam guideline (DRDMW 2021)	https://www.dews.qld.gov.au/__data/assets/pdf_file/0018/84015/eap-guideline.pdf
H	Queensland State Disaster Management Plan 2016 (Queensland's Disaster Management Arrangements)	Queensland-State-Disaster-Management-Plan
I	Queensland Government arrangements for coordinating public information in a crisis	https://www.disaster.qld.gov.au/dmg/st/Documents/H1159-Public-Information-Crisis-Communication-Document.pdf
J	Professional Engineers Act 2002 (RPEQ)	https://www.legislation.qld.gov.au/view/pdf/inforce/2013-09-23/act-2002-054
K	Guidelines for the Development of Communication Education, Awareness and Engagement Programs (Australian Institute for Disaster Resilience 2002)	https://knowledge.aidr.org.au/media/1970/manual-45-guidelines-for-the-development-of-communication-education-awareness-and-engagement-programs.pdf
L	Queensland Emergency Alert Manual – M.1.174	https://www.disaster.qld.gov.au/dmg/st/Documents/M1174-Queensland-Emergency-Alert-Manual.pdf
N	CleanCo (Internal) Crisis Management Plan	CleanCo Crisis Management Plan
M	Business Queensland – published EAPs	https://www.business.qld.gov.au/industries/mining-energy-water/water/industry-infrastructure/dams/emergency-action-plans
O	CleanCo (Internal) Business Continuity Plans	Under development
P	Splityard Creek Dam Safety Condition Schedule	B/D/15/12897
Q	Guidelines on Consequence Categories for Dams (ANCOLD, 2012)	ANCOLD ISBN: 978-0-9808192-5-0
R	Guideline for Failure Impact Assessment of Water Dams (DNRME 2018)	https://www.dews.qld.gov.au/__data/assets/pdf_file/0005/78836/guidelines-failure-impact-assessment.pdf
S	Splityard Creek Dam Failure Impact Assessment 2020	B/D/19/1591
T	CleanCo Splityard Creek Dam Comprehensive Risk Assessment	1450_CRA_2021_Jul_Draft.pdf
U	Guidelines on Dam Safety Management (ANCOLD, 2003)	ANCOLD ISBN: 0-731027620

Ref.	Document Title	Reference/location
W	Queensland Rainfall and River Conditions (BOM-Flood Warning)	http://www.bom.gov.au/qld/flood/index.shtml?ref=hdr
X	CleanCo Emergency Alert Protocol	
Y	SAP Incident Reporting & Management System	SAP
Z	Procedure - WIV-MAN-13 - Incident Response (Wivenhoe Power Station)	W/D/12/1267
AA	Procedure - WIV-OPS-15 - High Rainfall High Dam Water Levels (Wivenhoe Power Station)	W/D/11/111
BB	Procedure - CS-TRAD-01 - Wivenhoe Power Station Water Movement Notification to SEQWater (CS Energy)	B/D/11/46292
CC	Procedure - WIV-COMMS-01 - Communications Protocol with Seqwater - Water Movements (Splityard Creek Dam / Wivenhoe Dam)	B/D/12/79098
DD	Standard Operating Procedures (Splityard Creek Dam)	F/11/8636
EE	Water Act 2000	https://www.legislation.qld.gov.au/view/pdf/2017-07-03/act-2000-034
FF	Manual - Operation and Maintenance (Splityard Creek Dam)	W/D/13/644
GG	Somerset Regional Council Local Disaster Management Plan v2 August 2009	https://www.somerset.qld.gov.au/downloads/file/1578/local-disaster-management-plan-publicpdf
HH	Ipswich District Disaster Management Plan v1 January 2019	https://www.police.qld.gov.au/sites/default/files/2020-11/IpswichDDMP.pdf
JJ	Emergency Response Guides	Hardcopies located in Office Library

2.2. Abbreviations and acronyms

Acronym	Definition	Acronym	Definition
AEP	Annual exceedance probability	LHE	Lead Hydro Engineer (CleanCo) or Hydro Optimisation Specialist
AHD	Australian height datum	MM	Modified Mercalli
AMTD	Adopted Mean Thread Distance	MOL	Maximum operating level
ANCOLD	Australian National Committee on Large Dams	OB	Observation bore
BGA	Blue green algae	OHOR	Owners Head Office Representative
BOM	Bureau of Meteorology	ORR	Owners regional representative
CCQ	CleanCo Queensland	PAM	Portfolio Asset Manager (CleanCo)
CE	Dam Safety Engineer – Portfolio Asset Management (CleanCo)	PAR	Population at risk
CEO	Chief Executive Officer (CleanCo)	PFRM	Predictive flood routing model
CRA	Comprehensive risk assessment	PLL	Probable loss of life
CSTN	Counter Security & Terrorism Network	PMF	Probable maximum flood
D/S or d/s	Downstream	PMP	Probable maximum precipitation
DCF	Dam crest flood	PMPF	Probable maximum precipitation design flood
DCL	Dam crest level	PTD	Physical trading desk
DDC	District Disaster Coordinator	QDMC	Queensland Disaster Management Committee
DDMG	District Disaster Management Group	QFES	Queensland Fire & Emergency Services
DDMG1	Ipswich District Disaster Management Group	QPS	Queensland Police Service
DDMP	District disaster management plan	RB	Right bank
DDO	Dam Duty Officer (CleanCo)	RDMG	Relevant disaster management group
DRDM&W	Department of Regional Development, Manufacturing and Water	RPEQ	Registered professional engineer of Queensland
DSR	Dam safety regulator	SCTN	Security & Counter Terrorism Network
DSSP	Dam safety services provider	SDCC	State Disaster Coordination Centre
DSTDM	Dam safety technical decision maker	SDCG	State Disaster Coordination Group
EA	Emergency Alert	SDF	Sunny day failure
EAP	Emergency Action Plan	SES	State Emergency Service
EER	Emergency event report	SitRep	Situation Report
EL	Elevation level	SMS	Short message service
FCL	Fixed crest level	SMWPS	Site Manager Wivenhoe Power Station
FSL	Full supply level	SO	Standby officer

GMAO	General Manager Asset Operations (CleanCo)	SOP	Standing operating procedure
IC	Incident controller (CleanCo)	SWL	Storage water level
IFCC	Incremental flood consequence category	U/S or u/s	Upstream
LB	Left bank	WHS	Workplace health and safety
LDMG	Local disaster management group	WQ	Water quality
LDMG1	Somerset Regional Council LDMG		
LDMP	Local disaster management plan		

2.3. Business terms and definitions

Term	Definition
Terms set out in section 352A of the Water Supply (Safety and Reliability) Act 2008 (Qld) (Ref A)	
Dam Hazard	For a dam, means a reasonably foreseeable situation or condition that may; • 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	For a dam, means an event arising from a dam hazard if; • persons or property may be harmed because of the event; and • a coordinated response involving 2 or more of the relevant entities is unlikely to be required to respond to the event; and • the event is not an emergency event.
Disaster Management Plan (DDMP or LDMP)	Of a district group or local government, means the group's or local government's disaster management plan under the Disaster Management Act 2003.
District Group (DDMG)	For an emergency action plan (EAP), means a district group established under the Disaster Management Act 2003, section 22 whose disaster district under that Act could, under the plan, be affected by a dam hazard. For the purposes of the Splityard Creek Dam EAP this means the Ipswich DDMG
Emergency event	For a dam, means an event arising from a dam hazard if; • Persons or property may be harmed because of the event; and • Any of the following apply— ○ a coordinated response, involving the following relevant entities, is likely to be required; local group and district group for the EAP, local government 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 disaster management plan may, under that plan, require the owner of the dam to give the entity information about the event.
Local Group (LDMG)	For an EAP, means a local group established under the Disaster Management Act 2003, section 29 whose local government area could, under the plan, be affected by a dam hazard. For the purposes of the Splityard Creek Dam EAP this means the Somerset LDMG
Notice Response	A dam owner's written response to a notice following an assessment of an EAP by a local government or district group.

Term	Definition
Referable Dam	A dam, or a proposed dam after its construction, will be a referable dam if: • 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. Also, a dam is a referable dam if: • 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 Splityard Creek Dam is a referable dam
Relevant Entity	Means each of the following under the EAP for the dam: • 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 • local group and district group for the EAP • 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.
Other Terms	
Dam Crest (reference D)	The lowest elevation of the non-overflow crest section of the dam excluding handrails, parapets or wave walls that have not been designed to store water.
Dam crest flood (reference D)	The lowest elevation of the non-overflow crest section of the dam excluding handrails, parapets or wave walls that have not been designed to store water.
Dam Failure	Dam failure is the physical collapse of all or part of a dam or the sudden, rapid, and unintended release of impounded water.
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 and expected operation of the dam.
Earthquake	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: • settlement, sliding, or overturning of monoliths in the dam wall • initiation of seepage lines in the embankment, foundations or abutments that could lead to piping damage and potential inoperability of appurtenant works. • Slumping of the embankment and potential overtopping
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 or erosion 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, meteor or other high energy item on or in close vicinity of a dam could damage the dam structure or create a wave that could overtop the dam.

Term	Definition
Probable maximum flood (PMF) (reference E)	The flood resulting from the probable maximum precipitation coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions.
Probable maximum precipitation design flood (PMPDF) (reference F)	The flood resulting from the probable maximum precipitation coupled with typical catchment conditions.
Stability, dam embankments	The ability of the earth embankment of a dam to resist slip or slide failure. High foundation pore pressure peaks may reduce the Factor of Safety against slip circle failure to an unacceptable level. Instability can lead to dam failure due to overtopping or piping.
Stability, spillway	The ability of the concrete monoliths to resist sliding or over turning. High water levels during flood or an earthquake may reduce the factor of safety.
'Sunny day' failure (SDF)	A failure that occurs at the FSL and there is no concurrent rain associated flooding.
Terrorist activity	A deliberate attempt to damage, fail or contaminate a dam.

Terms used with notifications;

Term	Definition
Advise	To give advice or recommend particular actions or to give information.
Notify	To inform (someone) or to give or impart knowledge of a fact or circumstance.
Warn	To give a warning or to give notice, advice, or intimation to (a person, group, etc.) of danger.

2.4. Activation Levels

This EAP is activated using an escalation model based on the following levels:

The four levels of EAP activation are:

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.
Stand Up	The operational state where resources are mobilised, personnel are activated, and operational activities commenced.
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.

The triggering of one of these levels of activation may not necessarily mean a similar activation of Disaster Management Groups.

3. Introduction

3.1. Context

Under reference A (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 and references G, H & I. 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 area may be affected by a dam hazard for Splityard Creek Dam, have been determined as **Somerset Regional Council** (SRC). CleanCo has provided SRC 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 Splityard Creek Dam is **Ipswich** DDMG. CleanCo has provided the DDMG with a copy of the draft EAP for review**.**

Note: CleanCo 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**.**

3.2. 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 Splityard Creek 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 Splityard Creek 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 Splityard Creek Dam by the owner of the dam (CleanCo) 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 the relevant Local Disaster Management Plans.

3.3. Scope

The Splityard Creek Dam EAP covers:

- dam hazards evaluated within CleanCo's Dam Safety Management Program
- details about the dam that are relevant to a dam hazard
- identification of circumstances that indicates a material increase in the likelihood of a dam hazard event or emergency event
- triggers for activation of a tiered response to a dam hazard event or emergency event
- roles and responsibilities in responding to a dam hazard event or emergency event
- notification, warning, 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 event or emergency event, and the management of such

3.3.1. Hazards

Four dam hazards have been identified for Splityard Creek Dam and incorporated into dam hazard and emergency event scenario plans. These hazards have been identified in the recent CRA as the main contributors to the overall risk profile of the dam. The relevant hazards are:

Dam Hazard	Dam hazard and emergency event scenario	Plans to be found in the following sections of this plan
Piping/Seepage	Dam hazard – Piping: embankment, foundation or abutments or embankment instability / failure	Section 5
Embankment stability		
Earthquake	Response to Earthquake event in area	Section 6
Terrorism	Response to threat or actual incident of terrorism	Section 7

Table 1: Splityard Creek Dam Hazards

Splityard Creek Dam is an off stream pumped storage with only a small catchment. Flooding has been disregarded as a dam hazard event or an emergency event for this EAP for the following reasons:

- The dam spillway discharges into the storage area of Wivenhoe dam. There are no dwellings between the spillway discharge and Wivenhoe Dam.
- There is one road crossing (Wivenhoe-Somerset Road) that has the capacity to pass peak discharge at PMPF failure without the road overtopping. (However, a flood breach would potentially cause a bridge failure – refer next point).

- The spillway has the capacity to safely discharge the PMF plus any pumped flows without failing the dam embankment.

3.4. CleanCo 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 at Wivenhoe Power Station in the months leading up to the wet season.

The EAP training that is carried out on-site includes walkthroughs of new changes, scenario (role play) and Q&A to check the knowledge and competency of all those who attended. This on-site training is presented to relevant CleanCo staff (DDOs and ICs) and disaster management stakeholders.

In September 2020 key staff participated in a desk top exercise of the superseded version of this EAP. Lessons learnt from that training exercise have been incorporated into this version of the EAP. Staff at Wivenhoe Power Station and from head office participated in a training exercise on v14.0 of this EAP on 29 November 2021, a further exercise occurred in September 2022. On 12th September 2023 all DDO, IC and DSTDM staff, including new site staff were trained in the Splityard Ck EAP exercise.

New CleanCo employees in these various roles also have a walkthrough of the EAP as required.

RPEQs who fulfil the DSTDM role are provided with any updates to the EAP that are reviewed by the individual. These individuals are also provided with all inspection reports and engineering studies to review to ensure currency of knowledge of the individual dams.

CleanCo met with the SRC LDMG May 2021 and conducted a walk-through workshop of the EAP to ensure relevant entities had a working understanding of the EAP and to identify improvement opportunities. This revised EAP will be presented to relevant entities to commence the formal review process.

3.5. Dam emergency organsiations within CleanCo

The CleanCo emergency management framework generally utilises the organisations hierarchy and dam safety experts as illustrated in Figure 1 below

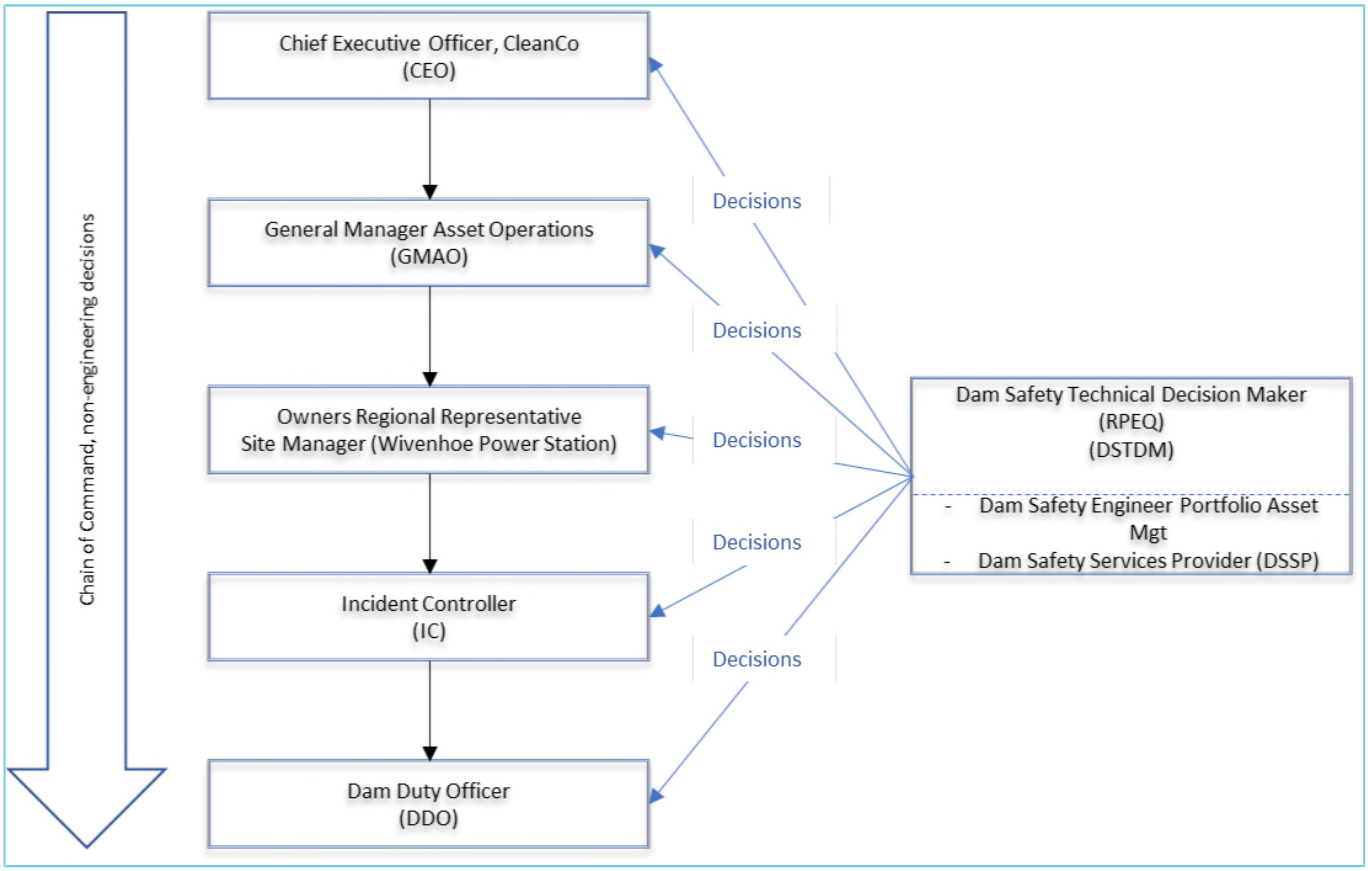


Figure 1: CleanCo emergency response organisation

Key aspects of the emergency management framework are described below:

- Central to the framework is the role of IC for any dam hazard at a dam. The IC will maintain overall responsibility for a coordinated response to the dam hazard incident.
- The IC is responsible for activating the EAP when the dam reaches an EAP activation level, unless instructed to activate by the DSTDM who have determined that it is reasonable likely that the dam could reach an EAP activation level. Should the IC be unavailable, the DDO is responsible for the activation. If the IC loses all communications during a dam hazard, then as a fail-safe position, the DDO will assume the duties and responsibilities of the IC. However, loss of communications could result in some communication processes defined in this EAP not being carried out.
- Technical staff will provide technical advice to the IC and DDO on an as needs basis. The DSTDM will also make flood and dam engineering decisions during a dam hazard. These roles are filled by Registered Professional Engineers of Queensland (RPEQs), or by experienced engineers under the direct supervision of an RPEQ and are suitably qualified professionals as defined in reference J. Such advice will be provided within an established framework of SOPs, models, standards and manuals. The DSTDM role will be filled

either the internal Civil Engineer Portfolio Asset Management or an externally sourced dam safety service provider.

3.6. Community Information

Applying reference K, CleanCo with the assistance of the local council will ensure community education around messaging and impacts of the EAP and its related events is undertaken and continually improved by incorporating actions from lessons learnt (Section 2.7).

CleanCo provides information externally to customers, D/S residents and the community in a range of methods or channels in relation to Dam hazards and Emergencies. In future, individuals may be able to access information through Facebook, Twitter and the CleanCo web page.

Immediately D/S residents are also provided information in text message/phone calls in the event of an activation of this EAP.

In the event of an emergency event or when otherwise required, CleanCo and the affected Local Government will use the National Emergency Alert System to send a voice message and SMS in accordance with reference L. This service is provided by Telstra and managed by QFES at the SDCC.

A copy of the CleanCo approved EAP is available to the public on the Business Queensland website, reference M. These copies are redacted to protect people's personal details.

3.7. Lessons learnt

CleanCo will carry out Lessons Learnt (debrief) workshops as part of its post event management once a stand down status is reached. The outcomes of any debrief will be included in the emergency event report. These Lessons Learnt can result in changes to the EAP. These will be captured and, if applicable to this document, will be implemented at the earliest opportunity and are made available in the next EAP update to the DSR as part of CleanCo's continual improvement of its EAPs. The Lessons Learnt actions, if relevant, will be provided to stakeholders, such as the LDMG, DDMG, other dam owners and DRDMW as appropriate.

In addition, CleanCo requests any post event learnings be communicated regarding operational effectiveness and areas for improvement with internal and external stakeholders as appropriate.

3.8. Downstream noticiation lists

CleanCo has worked with the Somerset Regional Council to ensure that the list of downstream residents is as up to date as possible. SRC has combined the CleanCo inundation maps with their GIS data to compile an up to date list of property owners.

CleanCo has written to landowners to

- Provide information on risks associated with the dam;

- Invite residents to provide phone numbers for CleanCo SMS notification service
- Request contact details of any occupier where the owner does not occupy the land.

3.9. Comprehensive Risk Assessments

A Comprehensive Risk Assessments (CRA) has been completed for Splityard Creek Dam. This is a technical report that is utilised to ascertain risks for the dam as the basis for emergency triggers. The CRA will 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 CleanCo General Manager Asset Operations. It should detail the reason for the request and indicate who will be interpreting the data, i.e. engineering capability, for any unqualified personnel.

The CRA has concluded that the risks associated with Splityard Creek Dam are within acceptable (tolerable) limits.

4. Roles and responsibilities

Role	Description	Positions
Owner	• Liaise with the Board, Dam Safety Regulator and Minister as required • Activate Crisis Management Plan and Crisis Management Team if required • Liaise with the Media team. • Ensure adequate resources available to manage any event	CEO GMAO SMWPS
Owner Head Office Representative	• Authorise the issuing of EAP, SOPs and O&M Manual and Amendments • Management responsibility for the DSMS • Prepare budgets for the DSMS activities • Ensure appropriate governance for the DSMS • Accountable for the performance of the DSMS	GMAO PAM

Owner Regional Representative	• Liaise with site staff (production and maintenance), traders and executive management
	• Ensure rosters are in place for all on site roles during an emergency event that adequately mitigate fatigue risk
	• Ensure competent, trained and accredited personnel operate the storages
	• Undertake the role of IC as required:
	  ○ Liaise with the Local Disaster Coordinator or proxy
	  ○ Activate the EAP, when necessary
	• Maintain contact with IC, DDO and DSTDM for duration of emergency event
	• Ensure all work orders, work instructions and lesson learned outcomes are fully implemented.
	• Ensure appropriate facilities and supplies are available at the dam.
	• Record communications, notifications and observations as required
		SMWPS
		or delegate

Role	Description	Positions
	• Procurement of external resources for local activities • Compile draft Emergency event reports for all events as identified in this EAP where the EAP is activated and submit to Owner Head Office Representative	
Dam Safety Technical Decision Maker (DSTDM)	• 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 • Liaise with DSR as required • Provide technical advice and oversight to the owner representatives to ensure the DSMS is fully implemented • Ensure that all dam safety risks are understood by the organisation and adequate controls are in place • Ensure visual inspections and instrumentation monitoring frequencies are appropriate to the situation • Record communications, notifications and observations as required	CE DSSP
Incident Controller (IC)	• Activate the EAP, when necessary and assume command of the emergency on site and lead external communications • Liaise with disaster coordinators when LDMGs are not stood up, otherwise liaise with LDMGs and DDMGs as required • Notify LDMGs, or councils if LDMGs of intent to use the Emergency Alert (EA)	SMWPS LHE or delegate

Role	Description	Positions
	• Arrange Situation Reports (SitRep) and determine frequency, as required • Record communications, notifications and observations as required • Ensure adequate resources and rosters are in place for an emergency event • Actions as described in the EAP	
Dam Duty Officer (DDO)	• 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 • Lead site activities such as surveillance, maintenance and operations • Assess any situations and escalate as appropriate • Ensure DSTDM is kept informed of the condition of the dam and any unusual conditions	Nominated Wivenhoe PS staff
CleanCo Media Team	• Oversight of all communication to external stakeholders will be the responsibility of CleanCo's Corporate Sustainability and Stakeholder Engagement team. • 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 SDCC on flood events as requested • Record communications, notifications and observations as required • Update the CleanCo Queensland Web Site	Manager Corporate Sustainability and Stakeholder Engagement or delegate

Role	Description	Positions
Council	Councils have legislated local government functions, as per Section 80 of reference B. These include: • 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 DDMG for the disaster district in which area it is situated • Perform other functions given to the local government under reference B	SRC
Queensland Police Service (QPS)	Manage the initial situation based on local operational procedures; including but not limited to: • Conduct emergency operations • Support CleanCo and LDMG during a declared emergency at the dam • Liaise with relevant organisations • Support evacuation of persons if required/requested through LDMG • Control of essential traffic • Security of specific areas	Lowood PS Ipswich PS
Disaster Management Groups/Personnel	LDMG • As per IGEM review recommendation; work together with CleanCo and the Council to ensure community education around messaging and impacts of EAP related events is undertaken and continually improves • Work with the Council and CleanCo to ensure the EAP is regularly exercised • Support and coordinate disaster management activities for their respective LGAs • Identify and coordinate the use of resources and support services that may be required for an EAP event, noting that for safety events unique to the dam, CleanCo will approach councils to initiate • During a dam hazard event, providing they are Stood Up, the LDMG in the affected local government area will take the lead role in notifying the broader community	LDMG QFES DDMG

Role	Description	Positions
	• Evacuation, search and rescue management • Identify and provide advice to the relevant 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 QFES • Work with dam owner and LDMG to ensure Emergency Alert polygons are prepared, stored and tested at the State Watch Desk • And as per Section 352HC of the Act: DDMG • May review the EAP for consistency with the DDMP	
Dam Safety Regulator (DSR)	• Liaison with relevant Minister on necessary actions • Approve this document as required under legislation • Liaise with chief executive as required in administering (regulating) the Act	Chief Executive of DRDMW or delegate

Note:

CCQ response processes to Incidents and Crisis are detailed in the Emergency Response Guides and the Crisis Management Plan. These documents clearly define the Roles and Responsibilities when a Crisis or Incident is declared. The Crisis Event Evaluation and Escalation process provides an outline of how these processes interact.

5. Dam details

5.1. General dam information

Location: Splityard Creek Dam is located 70km North-west of Brisbane on Pryde Creek in south-east Queensland.

Purpose: Splityard Creek Dam is owned and operated by CleanCo but was previously owned and operated by CS Energy. It is the upper storage pond for a pumped storage hydroelectric facility.

Catchment: The catchment and upstream geography is only 3.6 km^2 and is stable. Annual average rainfall is 1050 mm. Special consideration of upstream areas is not required.

Construction: The earth and rockfill dam was constructed in 1983 as an off-stream storage. A small saddle dam is located on the northern side of the reservoir rim.

Specification: The tables below lists general specifications of Splityard Creek Dam.

Key Level	AHD
Full Supply Level (FSL)	166.5m
Dam Crest Level (DCL)	168.0m
Spillway crest level	166.5m
Normal Operating Range	133m – 166.5m

Table 2: Splityard Creek Dam Key Levels

There are two level datum in use at Splityard Creek Dam. Unless otherwise stated, levels quoted in this EAP are to Australian Height Datum (AHD)

Datum Conversion: AHD = State Datum – 0.03m

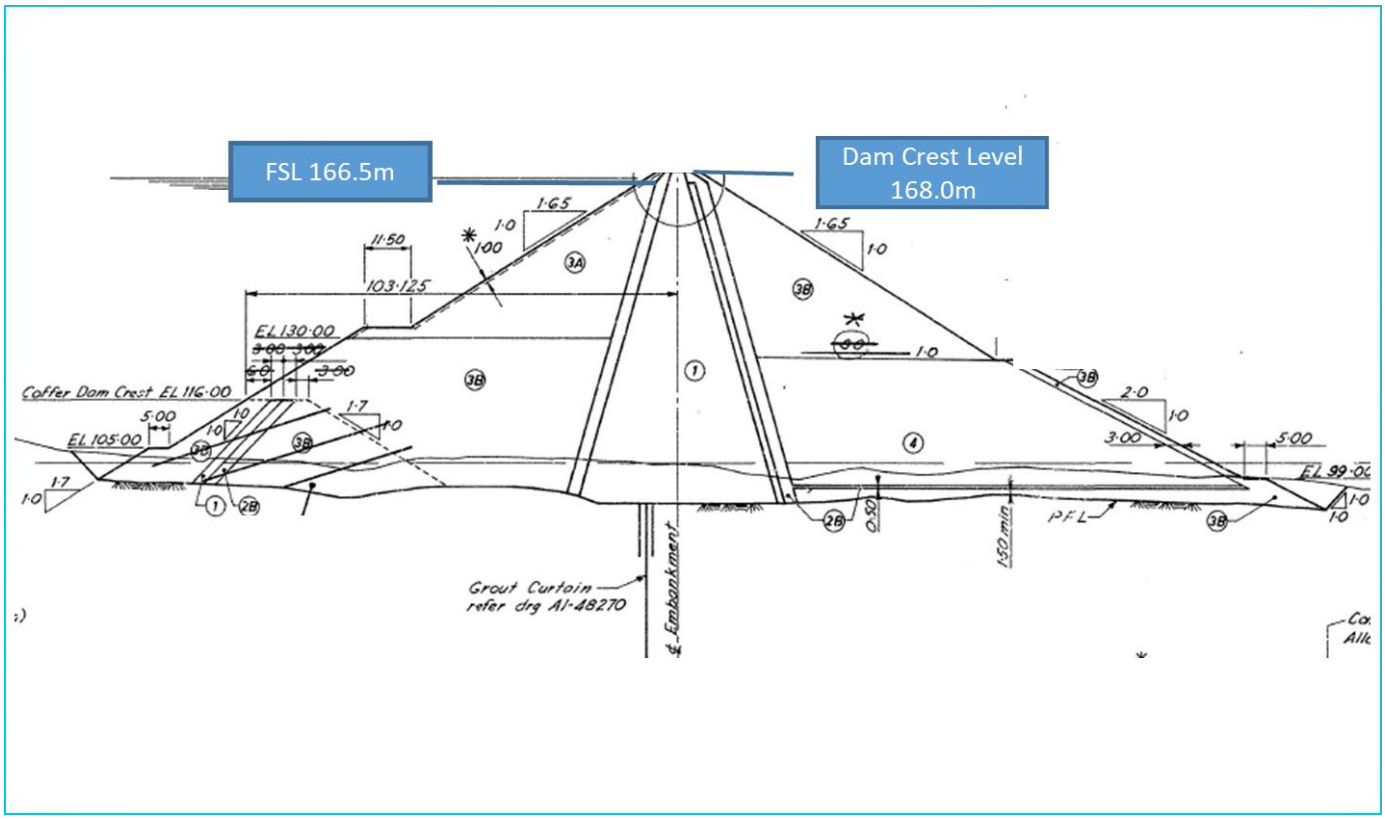


Figure 2: Dam Cross section showing key levels in AHD

Feature	Specification
Dam Identification Number	1450
Dam type	Zoned earth and rockfill embankment with central clay core
Full Supply Level (FSL)	EL 166.5 m
Design Operating Range	EL 133 m – EL 166.5 m
Dam Crest Level (DCL)	EL 168.0 m
Storage capacity at FSL	28,700 ML
Storage area (at FSL)	104 ha
Maximum embankment height	76 m
Total length	1,120 m
Spillway type	Open trapezoidal channel with a 1.0 m high concrete sill wall control structure
Spillway crest level	EL 166.5 m
Spillway crest width	190.4 m
Spillway Capacity at Dam Crest Level	635 m^3/s[1] (Exceeds PMF. Requires combination of PMF and pump shut off failure)
Outlet works	28 m high intake tower with 900 mm MSCL outlet pipe housed in a reinforced concrete outlet conduit
Outlet control	450 mm & 200 mm butterfly valves housed in the valve house at the toe of main embankment, currently blanked off.
Minimum draw down level through outlet works	EL 108.5 m
Minimum draw down level through power station	EL 133.0 m

Table 3: Splityard Creek Dam Specification - Main Dam

[1] *2020 FIA*

Feature	Specification
Saddle Dam type	Zoned earth and rockfill embankment with central clay core
Saddle Dam Crest Level	EL 168.0 M
Saddle Dam length	159 m
Saddle Dam maximum height	10 m

Table 4: Splityard Creek Dam Specification - Saddle Dam

5.1.1. General Arrangement

An aerial survey view of the dam is included in Figure 3. The general arrangement and other drawings are in Appendix E

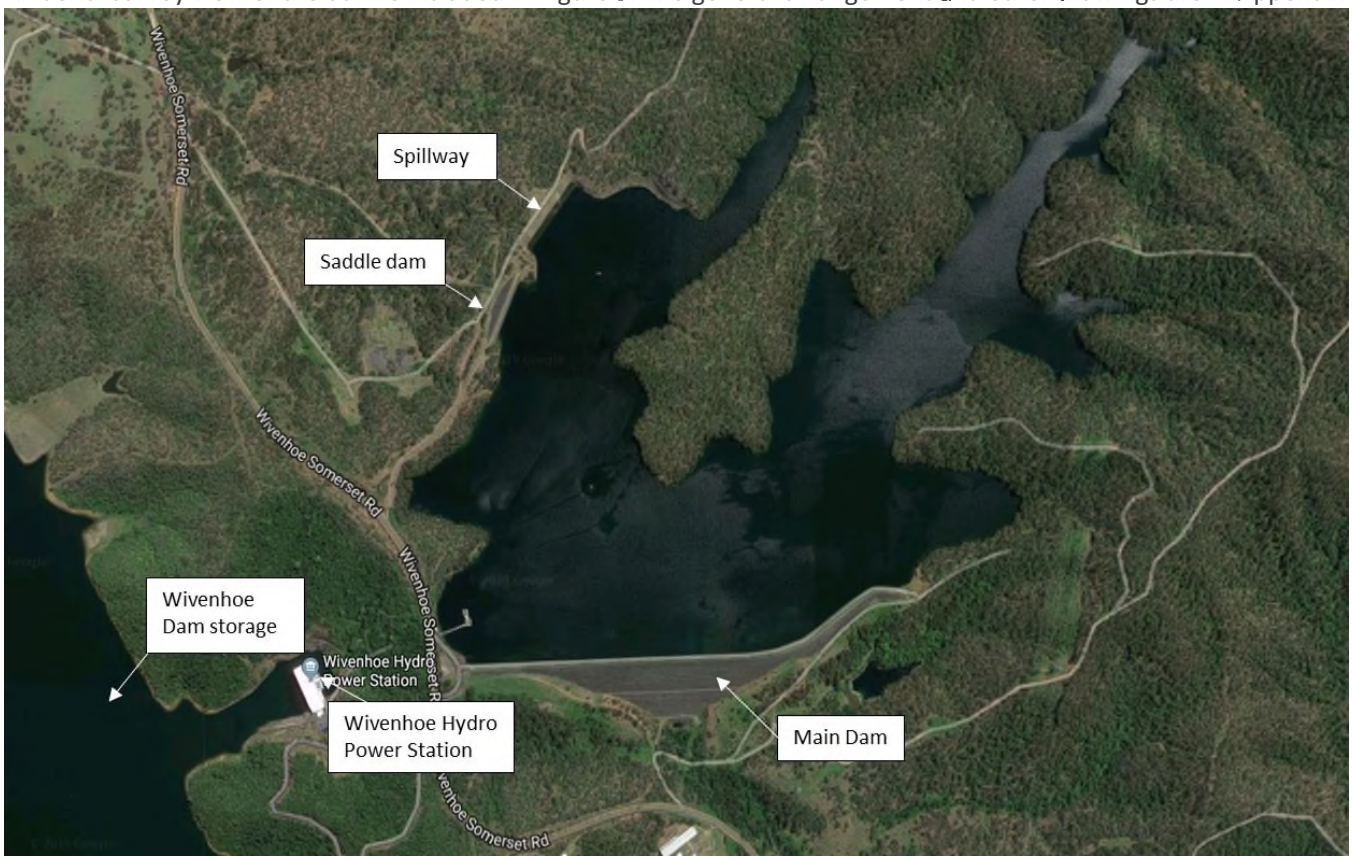


Figure 3: Splityard Creek Dam General Arrangement

5.2. Population at risk

A number of dam break studies have been compiled in the past, however the most recent dam break study was completed in 2021 by GHD as part of the dam safety review. Following the completion of the most recent dam break study, inundation mapping was produced for a number of critical cases. This mapping was then used to estimate the Population at Risk (PAR),

Details of the assessment to determine the incremental population at risk (PAR) can be found in the Splityard Creek Dam FIA (GHD 2021). Although flooding is not regarded as a dam hazard for Splityard Creek, the population at risk is significantly impacted by the level of coincident flooding occurring downstream of the dam.

The summary of the main dam incremental population at risk (PAR) is shown in Table 5. Noting that the maximum PAR occurs in the scenario when there is a 1 in 2000 AEP flood event occurring downstream (from Wivenhoe Dam) at the same time as a failure of Splityard Creek Dam.

Incremental PAR Location	Failure Scenario			
	SDF	I% AEP	1 in 2000 AEP	PMP
Australia Post	0	0	1	0
Childcare centre	0	0	30	0
Primary School	0	0	188	0
Stables	0	1	0	1
Houses – Pryde Ck	28	28	28	28
Houses - Other	0	185	36	207
Transient Population (Roads)	9	9	0	0

Table 5: Splityard Creek Dam Population at Risk estimates

5.3. Flood adequacy

The Dam Safety Regulator noted in the review of the previous version of this EAP that the EAP should specifically address why overtopping of the embankment was not a feasible failure scenario considering the combined impact of PMF and pumping capacity into the storage.

The 2021 dam safety review and comprehensive risk assessment process have considered the combination of a PMF coinciding with a failure of the pumps to shut off. The dam safety review notes:

> *The flood modelling for the PMPF flood along with a pump failure (pump continues filling reservoir) was also assessed and it was found that main embankment overtops during this scenario. The dam overtops for about 45 minutes with a maximum depth of flow of 0.07 m, which is very unlikely to lead to dam breach. (DSR section 4.6)*

The spillway capacity at dam crest level is 635m^3/s[2]. The peak outflow during a PMF is 244m^3/s. The peak outflow at PMF with pumps still operating is 700m^3/s[3]

5.4. Emergency inspections and monitoring

Splityard Creek 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 hazards, as soon as it begins to develop, or becomes apparent, the following is applicable to Splityard Creek Dam

[2] *2020 FIA*
[3] *2021 DSR*

5.4.1. Inspections

Routine Visual Inspection: conducted as per routine surveillance Work Order or as directed by the DSTDM

Detailed Inspection: conducted annually

Comprehensive Inspection: conducted 5-yearly

5.4.2. Instrumentation and monitoring

To confirm the structural behaviour and safety of the embankment, the following instrumentation was installed, and is monitored, at Splityard Creek Dam (Refer Appendix E for locations).

Water Level and seepage measurement

- Water level monitor
- 34 hydraulic piezometers to monitor pressure distribution through the embankment dam and its foundations.
- 47 groundwater observation bores to monitor for any variations in the level of the phreatic surface.
- 9 measuring weirs to monitor seepage from the embankment foundations and other parts of the dam.

Settlement / movement measurement:

- 35 movement points used to monitor the embankment surface both vertically (Z direction) and horizontally (X and Y directions).
- 4 inclinometers to monitor any movement within the embankment dam and/or its foundation.
- 8 extensometers installed in the core of the embankment where the axis deflects 37 degrees upstream and passes over a high knob in the topography. The purpose of these extensometers was to detect any movement of the embankment downstream, as well any transverse cracking caused by differential settlement of the embankment across the knob.

6. Dam hazard –Piping: embankment, foundation or abutments or embankment instability / failure

6.1. Overview

The emergency action described in this section relates to a potential dam hazard due to piping or excessive leaking through dam wall (main dam or saddle dams), foundations or dam abutment. An early indication 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 may be 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 A (p63) 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:

- if dam failure does not occur then there will not be any area affected
- Use the SDF outline when a dam failure is in progress or likely due to piping and no concurrent flooding is occurring or expected to occur in the Brisbane River, or
- Use the 1 in 2000 AEP outline when a dam failure is in progress or likely due to piping and concurrent flooding is occurring or expected to occur in the Brisbane River.

6.2. Emergency Actions

6.2.1. 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

6.2.2. Emergency action roles

Table 6 to Table 9 specify emergency actions and communication plan for the following roles:

- Dam Duty Officer (DDO)
- Incident Controller (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Figure 4: Piping / Increased leakage through embankment, foundation or abutment flowchart

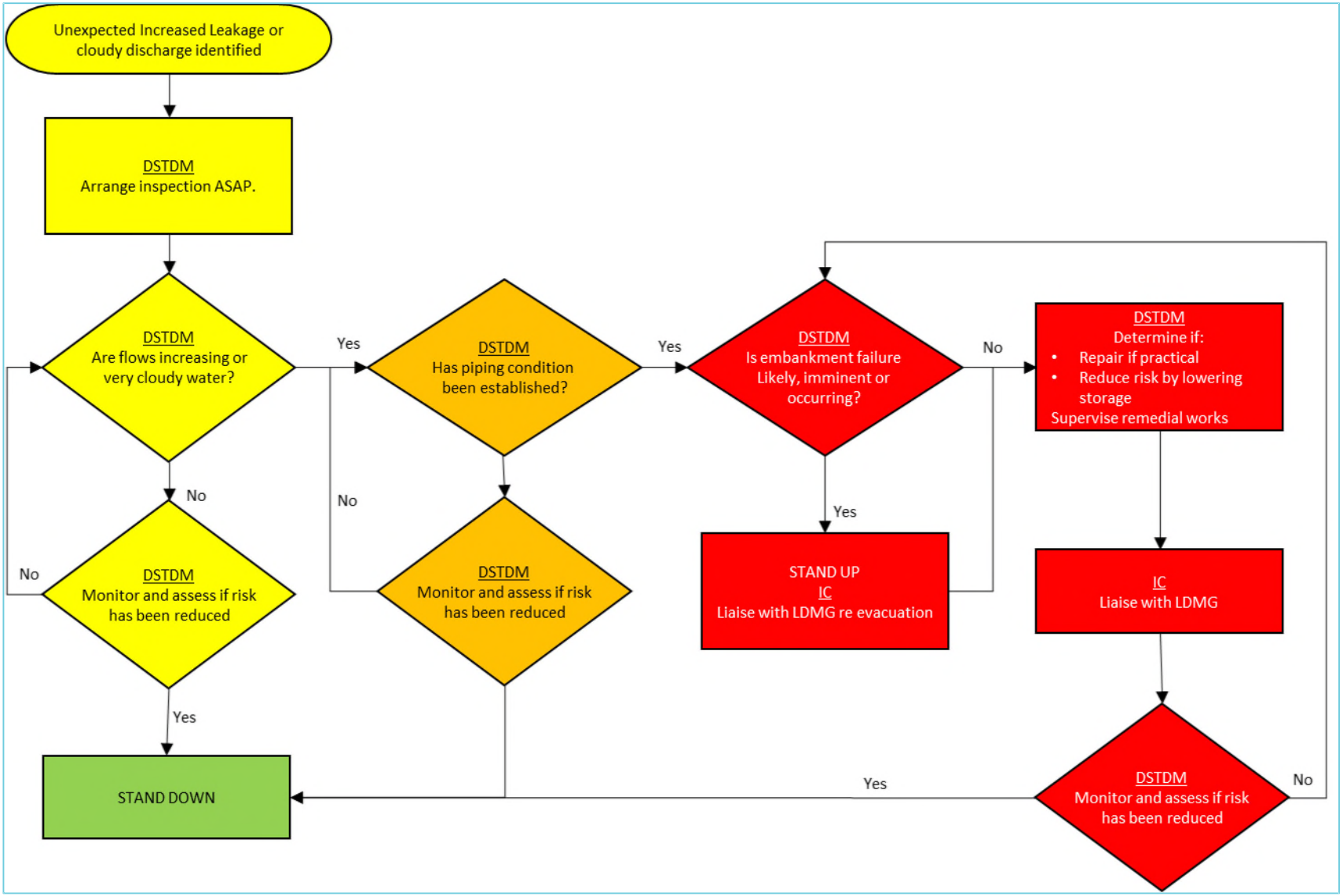


Table 6: Piping / Increased Leakage - DDO Emergency Action

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Activation trigger	Unexpected increased leakage through the embankment, foundations or abutments, at v-notch weirs or new areas	Unexpected increased leakage through the embankment, foundations or abutments with cloudy water OR cloudy water in Pryde Ck or Splityard Junior	Piping condition has been established	• Failure in progress or likely due to piping • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Record all communications • Measure, photograph/video and document flows and send to DSTDM and IC • Notify SO • Inspect dam for other signs of distress such as slumping, cracking or movement. Send inspection sheet to DSTDM • Takes instrumentation readings for v-notch weirs, piezometers and observation bores as directed by DSTDM • Monitor flows every 6 hours (or as instructed by DSTDM) until a decreasing trend is observed or as directed by IC • Update dam log book	• As per previous activation level	• As per previous activation level AND • Support/supervise remedial works as required • Lower the storage if directed • Close any affected roads if not already closed by others • Maintain surveillance of area immediately downstream of dam or saddle dam and attempt to 'move on' any members of the public • Liaise with IC and DSTDM re evacuations	• As per previous activation level, AND • Vacate the immediate vicinity of the piping condition • Ensure remedial works cease and plant and personnel have been moved to a safe location • Liaise with IC and DSTDM re evacuations	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Update dam log book • Return to routine activities

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Internal notifications	1. DSTDM 2. IC 3. SO	As per previous level	As per previous level	As per previous level	As per previous level
External notifications			Members of public in vicinity of dam		

Table 7: Piping / Increased Leakage - IC Emergency Action

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Activation trigger	Unexpected increased leakage through the embankment, foundations or abutments, at v-notch weirs or new areas	Unexpected increased leakage through the embankment, foundations or abutments with cloudy water OR cloudy water in Pryde Ck or Splityard Junior	Piping condition has been established	• Failure in progress or likely due to piping • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Record all communication • Liaise with DDO and DSTDM re: situation • Enact communication Plan • Review staffing levels and implement rosters • Raise incident in accordance with Event Management Standard • Notify PTD and GMAO	• As per previous activation level, AND • Liaise with LDMGs re: situation • Ensure DSTDM provides briefing to LDMG1 • 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 for the follow through on actions to close out all matters and works outstanding after the initial emergency is over.	• As per previous activation level, AND • Liaise with DDO and relevant LDMG(s) regarding potential for evacuations and road/bridge closures • Emergency Alert (EA) – through LDMG1 if practical • Follow up with phone call to SDCC to ask that Splityard Creek Dam Emergency Polygon is activated • Mobilise resources to undertake remedial works if directed by DSTDM • Consider lowering storage level • Notify Seqwater • Recommend to CleanCo CEO to enact crisis management plan	• As per previous activation level, AND • Liaise with DDO, DSTDM, Police and LDMG re potential for evacuations • Direct remedial works to cease if directed by the DSTDM and plant and personnel to be moved to a safe location • Liaise with the DSTDM to confirm that dam failure is in progress	• Complete all Internal and External notifications • Forward all communication, inspection sheets, photos and other data to ORR for EER • Close out Incident Report Record • Liaise with DSTDM for any immediate repairs and structural damage of the dam • Return to routine activities
Internal notifications	1. DSTDM 2. DDO 3. PTD 4. GMAO	As per previous level Corporate media	As per previous level CEO	As per previous level	As per previous level

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
External notifications	1. LDMG1	As per previous activation level 2. Lowood Police 3. DDMG1	As per previous activation level 4. Ipswich Police 5. d/s residents 6. Seqwater	As per previous activation level	As per previous activation level

Table 8: Piping / Increased leakage IC external communication plan

Activation level	Trigger for communication	Group to contact	Method	Message Text
Alert	Unexpected increased leakage through the embankment, foundations or abutments, at v-notch weirs or new areas	1. LDMG1	Phone Provide updates as required/requested	Describe current situation with dam: What is the event? (Dam Safety Risk—piping condition) What is the status? (Unconfirmed piping—Investigation continues) Advise of current storage level Advise any issues you are aware of Standby for further advices
Lean Forward	Unexpected increased leakage through the embankment, foundations or abutments with cloudy water OR cloudy water in Pryde Ck or Splityard Junior	1. LDMG1 2. Lowood Police 3. DDMG1	Phone Provide updates as required/requested 	Advice: Describe current situation with dam: What is the event? (Dam Safety Risk—piping condition) What is the status? (Unconfirmed piping—Investigation continues) Advise of current storage level Advise any issues you are aware of Standby for further advices
Stand Up 1	Piping condition has been established	1. LDMG1 2. DDMG1 3. Lowood Police 4. Ipswich Police 5. Seqwater	Phone Provide updates as required/requested Twice Daily SitRep 	Watch and Act: Describe current situation with dam: What is the event? (Dam Safety Risk—piping condition). What is the status? (Confirmed piping condition) Advise of current storage level Advise any issues you are aware of. Discuss any potential road/bridge closures • Close Wivenhoe Somerset Rd, North of Splityard Dam • Close Wivenhoe Somerset Rd Intersection of Brisbane Valley Highway and, • Close BVH/Forest Hill Fernvale Rd intersection • Close Northbrook Parkway Prepare for possible evacuations
		6. D/S residents 	Emergency Alert (EA) – Watch and Act through LDMG1 if practical	Watch and Act, CleanCo: Splityard Creek Dam in distressed condition. Prepare to move. Listen to local radio or Monitor www.cleancoqueensland.com.au/
			CleanCo SMS/Phone	Watch and Act, CleanCo: Splityard Creek Dam in distressed condition. Prepare to move. Listen to local radio or Monitor www.cleancoqueensland.com.au/
			• Local ABC radio ABC 612 Brisbane: [redacted] • River 94.9FM Phone: [redacted] | Studio: [redacted]	*<Coordinate with LDMG1>* Prepare and send AWS B9 Riverine Flood > Watch and Act > Prepare to Leave *<Provide brief of situation and link to SDF with failure flood maps>*
			CleanCo Web page & Facebook www.cleancoqueensland.com.au	AWS B9 Riverine Flood > Watch and Act > Prepare to Leave *<Provide brief of situation and link to SDF with failure flood maps>*

Activation level	Trigger for communication	Group to contact	Method	Message Text
Stand Up 2	• Failure in progress or likely due to piping • Sufficient water in storage to create a dam hazard	1. LDMG1 2. DDMG1 3. Lowood Police 4. Ipswich Police 5. Seqwater	Phone Provide updates as required/requested Twice Daily SitRep 	Describe current situation with dam: What is the event? (Dam Safety Risk—piping condition) What is the status? (Possible Dam Failure) Advise of current storage level • Proceed to coordinate evacuations
		6. D/S Residents 	Emergency Alert (EA) – Warning through LDMG1 if practical	Phone: Emergency. Emergency. This is a Flood Emergency Warning from Splityard Creek Dam. Areas along Pryde Creek are in immediate danger. You should warn neighbours, secure your belongings, and move to higher ground NOW. This is an EMERGENCY, do not DELAY. For more information listen to local radio or visit https://cleancoqueensland.com.au/ Emergency. Flood Warning. Properties near Pryde Creek. Evacuate to higher ground NOW. Warn neighbours. Listen to radio or https://cleancoqueensland.com.au/
			CleanCo SMS	Emergency. Flood Warning. Properties near Pryde Creek. Evacuate to higher ground NOW. Warn neighbours. Listen to radio or https://cleancoqueensland.com.au/
			Local ABC radio ABC 612 Brisbane: [redacted] River 94.9FM Phone: [redacted] | Studio: [redacted]	*<Coordinate with LDMG1>* Prepare and send – B10 - AWS RIVERINE FLOOD > EMERGENCY WARNING > LEAVE IMMEDIATELY *<link to SDF flood maps >*
			CleanCo Web page & Facebook www.cleancoqueensland.com.au	Prepare and send – B10 - AWS RIVERINE FLOOD > EMERGENCY WARNING > LEAVE IMMEDIATELY *<link to SDF flood maps >*
Stand down[4]	Risk assessment has established risk has reduced.	1. LDMG1 2. DDMG1 3. Lowood Police 4. Ipswich Police	Phone 	Describe current situation with Dam: What is the event? (Dam Safety Risk—piping) What is the status? (Dam hazard Stood Down) Advise risk assessment has determined that failure risk has reduced and EAP has been deactivated

[4] If event does not escalate to point where all stakeholders have been notified then communication at stand down should be limited to those that received communications during the event.

Activation level	Trigger for communication	Group to contact	Method	Message Text
		5. Seqwater		
		6. D/S Residents 	CleanCo SMS	Advice CleanCo: Dam emergency ceased, Splityard Creek Dam Refer Cleancoqueensland.com.au for more details
			Local ABC radio ABC 612 Brisbane: [redacted] River 94.9FM Phone: [redacted] | Studio: [redacted] CleanCo Web page & Facebook www.cleancoqueensland.com.au	Prepare and send: B11 - AWS After the flood > Advice > Threat is reduced *If event does not escalate to point where all stakeholders have been notified then communication at stand down should be limited to those that received communications during the event*

Table 9: Piping / Leakage DSTDM Emergency Actions

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Activation trigger	Unexpected increased leakage through the embankment, foundations or abutments, at v-notch weirs or new areas	Unexpected increased leakage through the embankment, foundations or abutments with cloudy water OR cloudy water in Pryde Ck or Splityard Junior	Piping condition has been established	• Failure in progress or likely due to piping • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Record all communication • Arrange an inspection of the dam and assess its condition as soon as possible, when safe to do so. • Determine if piping condition has been established • Monitor situation and assess risks • Provide technical advice to DDO and IC on a needs basis • Ensure back up resources for DSTDM are on stand by • Liaise with DSR and ensure situational awareness	• As per previous activation level, AND • Provide briefing to LDMG as required	• Assess risk and determine if failure likely or in progress • Liaise with the IC & DDO • Determine if remedial repairs are practical • Determine if risks can be reduced by lowering storage (if the storage is required to be drawn down, then the DSTDM needs to assess the maximum rate of drawn down based on latest available data and advise in writing to IC and DDO) • Supervise remedial repairs (if applicable)	• As per previous activation level, AND • Liaise with the IC and advise on need to recommend evacuations	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Conduct special inspection (if required) • Assess need for remedial works • Return to routine activities
Internal notifications	1. DDO 2. IC	As per previous level	As per previous level	As per previous level	As per previous level
External notifications	1. DSR	As per previous level, AND 2. LDMG1	As per previous level	As per previous level	As per previous level

7. Dam hazard – Earthquake

7.1. Overview

The emergency action described in this section relates to a potential dam hazard due to an earthquake causing damage to the dam embankment (main dam or saddle dams), 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 A (p63) are there to provide indicative outlines of the maximum potentially affected area of a dam hazard caused by earthquake. The use of these flood outlines is prescribed below:

- if dam failure does not occur then there will not be any area affected
- Use the SDF outline when a dam failure is in progress or likely due to piping and no concurrent flooding is occurring or expected to occur in the Brisbane River, or
- Use the 1 in 2000 AEP outline when a dam failure is in progress or likely due to piping and concurrent flooding is occurring or expected to occur in the Brisbane River.

7.2. Emergency action roles

Table 10 to Table 13 specify emergency actions and communication plan for the following roles:

- Dam Duty Officer (DDO)
- Incident Controller (IC)
- Dam Safety Technical Decision Maker (DSTDM)

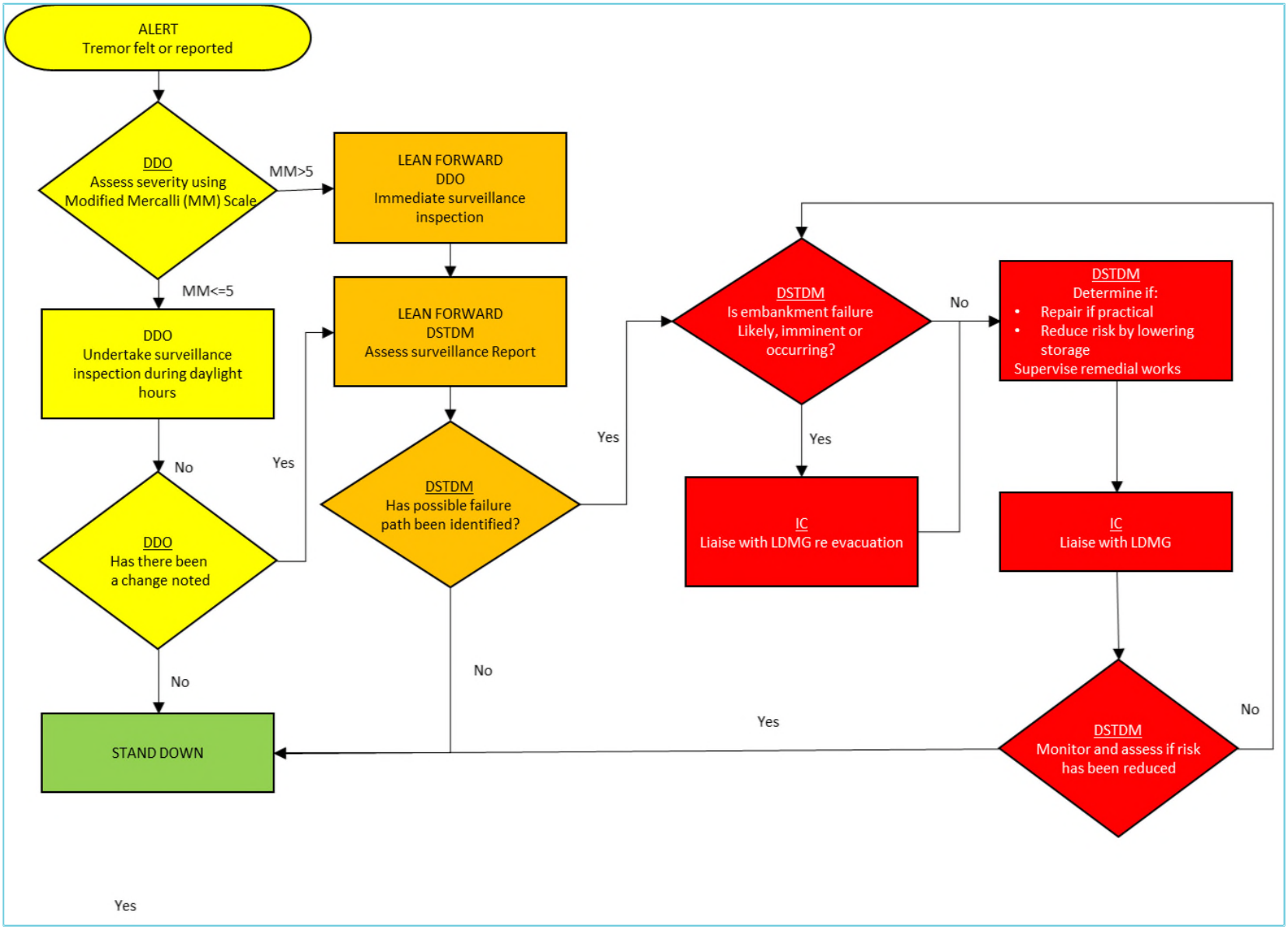


Figure 5: Earthquake flowchart

Table 10: Earthquake - DDO Emergency Action

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Activation trigger	• Earthquake reported or felt in the area, AND • Intensity less than 5 MM	• Earthquake reported or felt in the area, AND • Intensity greater than or equal to 5 MM OR • Intensity less than 5MM and change detected during surveillance inspection	• Earthquake reported or felt in the area, AND • A possible failure path has been identified	• Failure in progress or likely due to earthquake, AND • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• DDO to assess magnitude (MM scale) at dam location in consultation with DSTDM • Record all communications • Inspect dam in daylight hours for other signs of distress such as slumping, cracking or movement and report to the DSTDM and IC - photograph/ video and record • Check for leaks, deformation, and concrete damage • Notify SO • Update dam log book	• As per previous activation level, AND • Immediately inspect for leakage and evidence of initiation of piping of embankment slips on both upstream and downstream slopes, cracking or movement of concrete monoliths and in the abutments • Send Inspection sheet to DSTDM • Repeat the inspection as directed	• As per previous activation level AND • Support/supervise remedial works as required • Lower the storage if directed • Close any affected roads if not already closed by others	• As per previous activation level, AND • Vacate the immediate vicinity of damage / cracking / piping condition • Ensure remedial works cease and plant and personnel have been moved to a safe location • Liaise with IC and DSTDM re potential for evacuations	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Update dam log book • Return to routine activities
Internal notifications	4. DSTDM 5. IC 6. SO	As per previous level	As per previous level	As per previous level	As per previous level
External notifications					

Table 11: Earthquake - IC Emergency Action

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Activation trigger	• Earthquake reported or felt in the area, AND • Intensity less than 5 MM	• Earthquake reported or felt in the area, AND • Intensity greater than or equal to 5 MM OR • Intensity less than 5MM and change detected during surveillance inspection	• Earthquake reported or felt in the area, AND • A possible failure path has been identified	• Failure in progress or likely due to earthquake, AND • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Record all communication • Liaise with DDO and DSTDM re: situation • Enact communication Plan • Raise incident in accordance with Event Management Standard • Notify PTD and GMAO	• As per previous activation level, AND • Review staffing levels and implement rosters • Raise incident in accordance with Event Management Standard (if not already done) • Notify PTD and GMAO • Liaise with LDMG re: situation • Investigate availability of machinery and materials (if insufficient stockpiles available) • Place machinery operators on standby if directed by DSTDM	• As per previous activation level, AND • Liaise with DDO and relevant LDMG regarding potential road/bridge closures • Emergency Alert (EA) – through LDMG1 if practical • Mobilise resources to undertake remedial works if directed by DSTDM • Consider lowering storage level • Recommend to CleanCo CEO to enact crisis management plan	• As per previous activation level, AND • Direct remedial works to cease if directed by the DSTDM and plant and personnel to be moved to a safe location • Liaise with the DSTDM to confirm that dam failure is in progress	• Complete all Internal and External notifications • Forward all communication, inspection sheets, photos and other data to ORR for EER • Close out Incident Report Record • Liaise with DSTDM for any immediate repairs and structural damage of the dam • Return to routine activities
Internal notifications	1. DSTDM 2. PTD 3. GMAO	As per previous level Corporate media	As per previous level CEO	As per previous level	As per previous level
External notifications	1. LDMG1	As per previous activation level 1. Lowood Police 2. DDMG1	As per previous activation level 1. Ipswich Police 2. d/s residents	As per previous activation level	As per previous activation level

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
			3. Seqwater		

Table 12: Earthquake IC external communication plan

Activation level	Trigger for communication	Group to contact	Method	Message Text
Alert	• Earthquake reported or felt in the area, AND • Intensity less than 5 MM	1. Internal communication only		
Lean Forward	• Earthquake reported or felt in the area, AND • Intensity greater than or equal to 5 MM OR • Intensity less than 5MM and change detected during surveillance inspection	1. LDMG1 2. Lowood Police 3. DDMG1	Phone Provide updates as required/requested 	Describe current situation with dam: What is the event? (Dam Safety Risk–– earthquake felt or reported) What is the status? (Under Investigation) Advise of current storage level Advise any issues you are aware of Standby for further advices
Stand Up 1	• Earthquake reported or felt in the area, AND • A possible failure path has been identified	1. LDMG1 2. DDMG1 3. Lowood Police 4. Ipswich Police 5. Seqwater	Phone Provide updates as required/requested Twice Daily SitRep 	Describe current situation with dam: What is the event? (Dam Safety Risk––earthquake damage). What is the status? (Possible earthquake damage to dam) Advise of current storage level Advise any issues you are aware of. Discuss any potential road/bridge closures Close Wivenhoe Somerset Rd, North of Splityard Dam • Close Wivenhoe Somerset Rd Intersection of Brisbane Valley Highway and, • Close BVH/Forest Hill Fernvale Rd intersection • Close Northbrook Parkway Activate emergency LDMP Prepare for possible evacuations
		6. D/S residents 	Emergency Alert (EA) – Watch and Act through LDMG1 if practical	Watch and Act, CleanCo: Splityard Creek Dam in distressed condition. Prepare to move. Listen to local radio or Monitor www.cleancoqueensland.com.au/
			CleanCo SMS	Watch and Act, CleanCo: Splityard Creek Dam in distressed condition. Prepare to move. Listen to local radio or Monitor www.cleancoqueensland.com.au/
			• Local ABC radio ABC 612 Brisbane: [redacted] • River 94.9FM Phone: [redacted] | Studio: [redacted]	*<Coordinate with LDMG1>* Prepare and send AWS B9 Riverine Flood > Watch and Act > Prepare to Leave *<Provide brief of situation and link to SDF with failure flood maps>*

Activation level	Trigger for communication	Group to contact	Method	Message Text
			CleanCo Web page & Facebook www.cleancoqueensland.com.au	Prepare and send AWS B9 Riverine Flood > Watch and Act > Prepare to Leave *<Provide brief of situation and link to SDF with failure flood maps>*
Stand Up 2	• Failure in progress or likely due to earthquake, AND • Sufficient water in storage to create a dam hazard	1. LDMG1 2. DDMG1 3. Lowood Police 4. Ipswich Police 5. Seqwater	Phone Provide updates as required/requested Twice Daily SitRep 	Describe current situation with dam: What is the event? (Dam Safety Risk—Earthquake damage) What is the status? (Possible/Likely/In progress Dam Failure) Advise of current storage level Prepare coordinate evacuations
		6. D/S Residents 	Emergency Alert (EA) – Warning through LDMG1 if practical	Phone: Emergency. Emergency. This is a Flood Emergency Warning from Splityard Creek Dam. Areas along Pryde Creek are in immediate danger. You should warn neighbours, secure your belongings, and move to higher ground NOW. This is an EMERGENCY, do not DELAY. For more information listen to local radio or visit https://cleancoqueensland.com.au/ SMS Emergency. Flood Warning. Properties near Pryde Creek. Evacuate to higher ground NOW. Warn neighbours. Listen to radio or https://cleancoqueensland.com.au/
			CleanCo SMS	Emergency. Flood Warning. Properties near Pryde Creek. Evacuate to higher ground NOW. Warn neighbours. Listen to radio or https://cleancoqueensland.com.au/
			Local ABC radio ABC 612 Brisbane: [redacted] River 94.9FM Phone: [redacted] | Studio: [redacted]	*<Coordinate with LDMG1>* Prepare and send – B10 - AWS RIVERINE FLOOD > EMERGENCY WARNING > LEAVE IMMEDIATELY *<link to SDF flood maps* >
			CleanCo Web page & Facebook www.cleancoqueensland.com.au	Prepare and send – B10 - AWS RIVERINE FLOOD > EMERGENCY WARNING > LEAVE IMMEDIATELY *<link to SDF flood maps* >
Stand down	Risk assessment has established risk has reduced.	1. LDMG1 2. DDMG1 3. Lowood Police 4. Ipswich Police 5. Seqwater	Phone 	Describe current situation with Dam: What is the event? (Dam Safety Risk—earthquake) What is the status? (Dam hazard Stood Down) Advise risk assessment has determined that failure risk has reduced and EAP has been deactivated

Activation level	Trigger for communication	Group to contact	Method	Message Text
		6. D/S Residents 	CleanCo SMS[5]	Advice CleanCo: Dam emergency ceased, Splityard Creek Dam Refer Cleancoqueensland.com.au for more details
			Local ABC radio ABC 612 Brisbane: River 94.9FM Phone: | Studio:	Prepare and send: B11 - AWS After the flood > Advice > Threat is reduced *If event does not escalate to point where all stakeholders have been notified then communication at stand down should be limited to those that received communications during the event*

[5] *If event does not escalate to point where all stakeholders have been notified then communication at stand down should be limited to those that received communications during the event*

Table 13: Earthquake - DSTDM Emergency Actions

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Activation trigger	• Earthquake reported or felt in the area, AND • Intensity less than 5 MM	• Earthquake reported or felt in the area, AND • Intensity greater than or equal to 5 MM OR • Intensity less than 5MM and change detected during surveillance inspection	• Earthquake reported or felt in the area, AND • A possible failure path has been identified	• Failure in progress or likely due to earthquake, AND • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Confirm/estimate magnitude at dam site • Record all communication • Determine if piping, sliding, overturning, slumping or other failure condition has been established • Monitor situation and assess risks • Provide technical advice to DDO and IC on a needs basis • Liaise with DSR and ensure situational awareness	• As per previous activation level, AND • Review surveillance inspection of the dam and assess its condition as soon as possible • Determine if there are possible failure paths from reported damage • Provide briefing to LDMG as required • Ensure back up resources for DSTDM are on stand by	• Arrange a DSTDM 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 & DDO • Determine if remedial repairs are practical • Determine if risks can be reduced by lowering storage (if the storage is required to be drawn down, then the DSTDM needs to assess the maximum rate of drawn down based on latest available data and advise in writing to IC and DDO) • Supervise remedial repairs (if applicable)	• As per previous activation level, AND • Liaise with the IC and advise on need to recommend evacuations	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Conduct special inspection (if required) • Assess need for remedial works • Return to routine activities

Activation Level	Alert	Lean Forward	Stand Up 1	Stand Up 2	Stand Down
Internal notifications	1. DDO 2. IC	As per previous level	As per previous level	As per previous level	As per previous level
External notifications	1. DSR	As per previous level, AND 2. LDMG	As per previous level	As per previous level	As per previous level

8. Terrorist threat/activity or high energy impact

8.1. Overview

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

The vulnerability of Splityard Creek Dam to a terrorist attack is low.

The flood outlines in Appendix A (p63) are there to provide indicative outlines of the maximum potentially affected area of a dam hazard caused by a terrorist threat/activity or a high energy impact. The use of these flood outlines is prescribed below:

- if dam failure does not occur then there will not be any area affected
- Use the SDF outline when a dam failure is in progress or likely due to piping and no concurrent flooding is occurring or expected to occur in the Brisbane River, or
- Use the 1 in 2000 AEP outline when a dam failure is in progress or likely due to piping and concurrent flooding is occurring or expected to occur in the Brisbane River.

8.1.1. Assessment of circumstances that indicates an increase in the likelihood of terrorist threat/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

8.2. Emergency action roles

Table 14 to Table 17 specify emergency actions and communication plan for the following roles:

- Dam Duty Officer (DDO)
- Incident Controller (IC)
- Dam Safety Technical Decision Maker (DSTDM)

Figure 6: Terrorist threat/activity or high energy impact flowchart

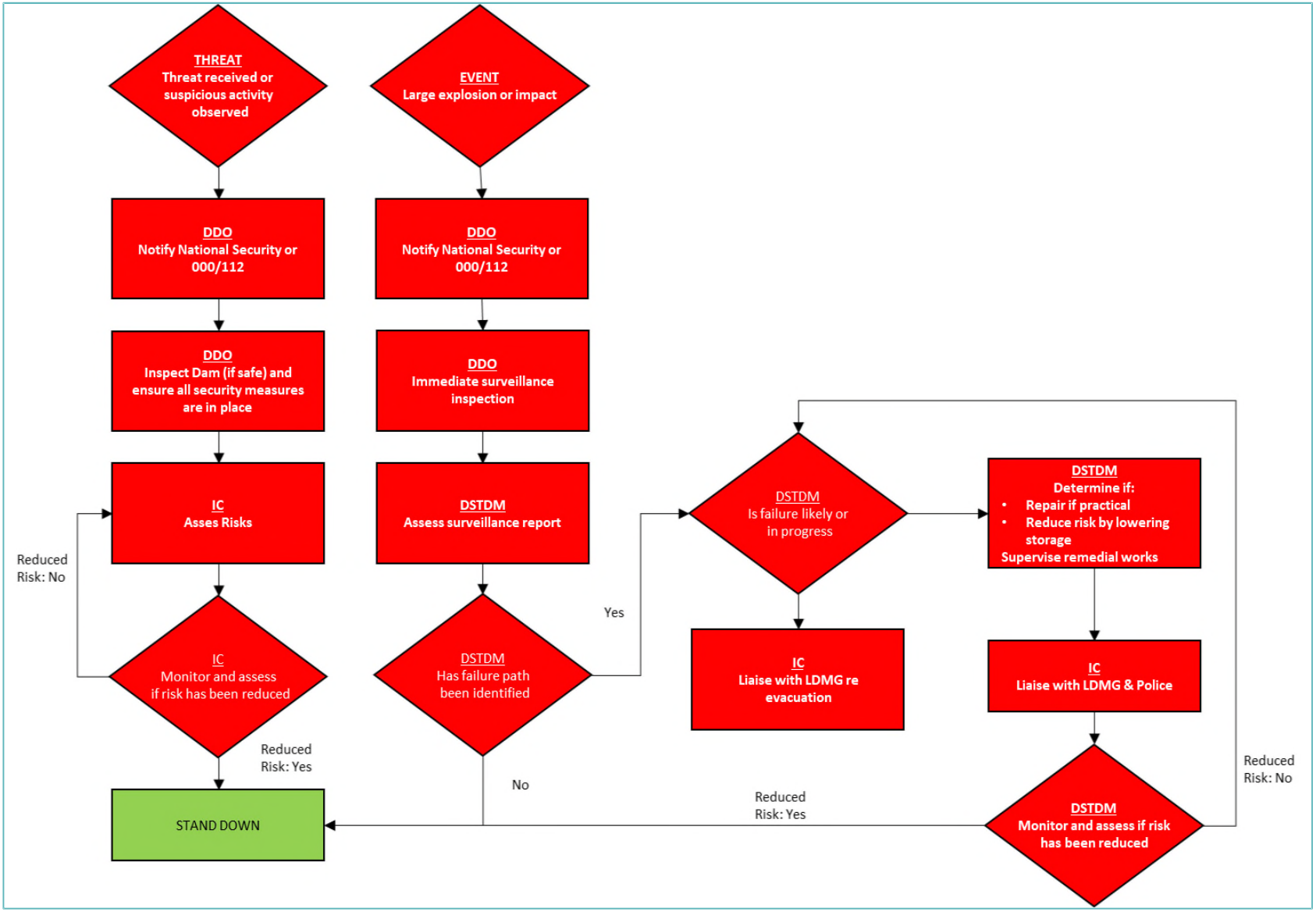


Table 14: Terrorist Threat - DDO Emergency Action

Activation Level	Alert / Lean Forward	Stand Up 1	Stand Up 2	Stand Up 3	Stand Down
Activation trigger	• Not applicable	**THREAT** • Possible terrorist activity/suspicious behaviour noticed at the dam, OR • Threat receive	**EVENT** • Large explosion heard/observed at dam (eg, bomb explosion, aircraft hit)	**RESPONSE** • Failure in progress or likely due to impact or explosion, AND • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Not applicable	NOTE: If any suspicious behaviour noticed, contact SMWPS for advice. If instructed by SMWPS, of if threat received, complete the following: • Notify National Security • Inspect dam (if safe) and ensure all security measures are in place (locked gates, etc.) • Close any affected roads, if not already closed by others • Notify SO • Update Dam Log Book • If Police appoint incident manager support and follow instructions • Record all communication	• As per previous activation level AND • Vacate the immediate vicinity of the affected area. • Inspect for damage (only if safe to do so or cleared by Police) • Photograph/video the damage from a safe point and record using the approved forms and send to IC & DSTDM	• As per previous activation level, AND • Lower storage level if directed	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Update dam log book • Return to routine activities
Internal notifications	Not applicable	1. SMWPS 2. DSTDM 3. IC 4. SO	As per previous level	As per previous level	As per previous level

Activation Level	Alert / Lean Forward	Stand Up 1	Stand Up 2	Stand Up 3	Stand Down
External notifications		Police if on site		Members of public in vicinity of dam	

Table 15: Terrorist Threat - IC Emergency Action

Activation Level	Alert / Lean Forward	Stand Up 1	Stand Up 2	Stand Up 3	Stand Down
Activation trigger	• Not applicable	**THREAT** • Possible terrorist activity/suspicious behaviour noticed at the dam, OR • Threat receive	**EVENT** • Large explosion heard/observed at dam (eg, bomb explosion, aircraft hit)	**RESPONSE** • Failure in progress or likely due to impact or explosion, AND • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Not applicable	• Liaise with DDO, DSTDM, IC and LDMG re: situation • If Police appoint incident manager support and follow instructions • Liaise with DDO and relevant Council regarding possible road/bridge closures • Monitor situation and assess risks • Raise incident in accordance with Event Management Standard • Contact GMAO or GM Performance Risk and Finance – Notify of EAP Activation. • Record all communication	• As per previous activation level • Consider lowering storage level • Mobilise resources to undertake remedial works if directed by DSTDM • Liaise with Police and LDMG regarding potential road/bridge closures, if directed by DSTDM • Send D/S Residents landline voice and SMS messages • Complete Emergency Alert Request Form and send to SDCC Watch Desk	• As per previous activation level, AND • Liaise with the DSTDM to confirm that dam failure is in progress • Liaise with DDO, and DSTDM re: potential for evacuations • Mobilise resources to undertake remedial works if directed by DSTDM	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Close incident report record • Return to routine activities
Internal notifications	Not applicable	1. DDO 2. DSTDM 3. GMAO	As per previous level	As per previous level	As per previous level

Activation Level	Alert / Lean Forward	Stand Up 1	Stand Up 2	Stand Up 3	Stand Down
External notifications		1. CSTN 2. Lowood Police 3. LDMG1 4. Ipswich Police	As per previous level	As per previous level	As per previous level

Table 16: Terrorist Threat IC external communication plan

Activation level	Trigger for communication	Group to contact	Method	Message Text
Alert	Not Applicable			
Lean Forward	Not Applicable			
Stand Up 1	**THREAT** • Possible terrorist activity/suspicious behaviour noticed at the dam, OR • Threat receive	1. CSTN (National Security Hotline) 2. Lowood Police 3. LDMG1 4. Ipswich Police	Phone Provide updates as required/requested	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
Stand Up 2	**EVENT** • Large explosion heard/observed at dam (eg, bomb explosion, aircraft hit)	1. CSTN (National Security Hotline) 2. Lowood Police 3. LDMG1 4. Ipswich Police	Phone Provide updates as required/requested	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) Close Wivenhoe Somerset Rd, North of Splityard Dam • Close Wivenhoe Somerset Rd Intersection of Brisbane Valley Highway and, • Close BVH/Forest Hill Fernvale Rd intersection • Close Northbrook Parkway Activate emergency LDMP Prepare for possible evacuations
		5. D/S Residents	Emergency Alert (EA) – Watch and act through LDMG1 if practical	*<Redevelop message to suit circumstance>* Watch & Act, CleanCo: Splityard Creek Dam Security incident Prepare to move and await further advice Monitor www.cleancoqueensland.com.au
			CleanCo SMS	Watch & Act, CleanCo: Splityard Creek Dam Security incident Prepare to move and await further advice Monitor www.cleancoqueensland.com.au
			Local ABC radio ABC 612 Brisbane: River 94.9FM Phone: | Studio:	*<Coordinate with LDMG1>* What is the event? (Dam Safety Risk—Security incident) What is the status? (Possible damage to dam under investigation) Advise any issues you are aware of Community should prepare for possible evacuations if situation deteriorates

Activation level	Trigger for communication	Group to contact	Method	Message Text
				Watch & Act, CleanCo: Splityard Creek Dam Security incident Prepare to move and await further advice Monitor www.cleancoqueensland.com.au
			CleanCo Web page & Facebook www.cleancoqueensland.com.au	Determined by LDMG1. Suggest link to SDF flood maps
Stand Up 3	• Failure in progress or likely due to impact or explosion, AND • Sufficient water in storage to create a dam hazard	1. CSTN 2. Lowood Police 3. LDMG1 4. Ipswich Police	Phone Provide updates as required/requested	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
		1. D/S Residents	Emergency Alert (EA) – Warning through LDMG1 if practical	Phone: Emergency. Emergency. This is a Flood Emergency Warning from Splityard Creek Dam. Areas along Pryde Creek are in immediate danger. You should warn neighbours, secure your belongings, and move to higher ground NOW. This is an EMERGENCY, do not DELAY. For more information listen to local radio or visit https://cleancoqueensland.com.au/ SMS Emergency. Flood Warning. Properties near Pryde Creek. Evacuate to higher ground NOW. Warn neighbours. Listen to radio or https://cleancoqueensland.com.au/
			CleanCo SMS	emergency. Flood Warning. Properties near Pryde Creek. Evacuate to higher ground NOW. Warn neighbours. Listen to radio or https://cleancoqueensland.com.au/
			Local ABC radio ABC 612 Brisbane: [redacted] River 94.9FM Phone: [redacted] | Studio: [redacted]	*<Coordinate with LDMG1>* What is the event? (Dam Safety Risk—damage from security incident) What is the status? (Possible/Likely/In progress Dam Failure) Advise any issues you are aware of Community should prepare for possible evacuations if situation deteriorates Warning, CleanCo: Splityard Creek Dam failure likely Expect rapid river rises Move away from Pryde Creek Monitor radio and www.cleancoqueensland.com.au • Upon arrival at safe location on higher ground • Call '000' to advise that you have received an Emergency Alert for Splityard Creek Dam and that you wish to advise that you reside at and that all (number) of

Activation level	Trigger for communication	Group to contact	Method	Message Text
				occupants have reached higher ground at the property and are currently safe and well. • Further updates as to the status of the Dam and the flood impacts are available at https://cleancoqueensland.com.au
			CleanCo Web page & facebook www.cleancoqueensland.com.au	Determined by LDMG1. Suggest link to SDF flood maps
Stand down	Risk assessment has established risk has reduced.	1. CSTN 2. Lowood Police 3. LDMG1 4. Ipswich Police	Phone	Describe current situation with Dam: What is the event? (Dam Safety Risk—security threat) What is the status? (Dam hazard Stood Down) Advise risk assessment has determined that failure risk has reduced and EAP has been deactivated
		1. D/S Residents	CleanCo SMS	Advice CleanCo: Dam emergency ceased, Splityard Creek Dam Refer Cleancoqueensland.com.au for more details
			Local ABC radio ABC 612 Brisbane: [redacted] River 94.9FM Phone: [redacted] | Studio: [redacted]	Advice CleanCo: Dam emergency ceased, Splityard Creek Dam Refer Cleancoqueensland.com.au for more details

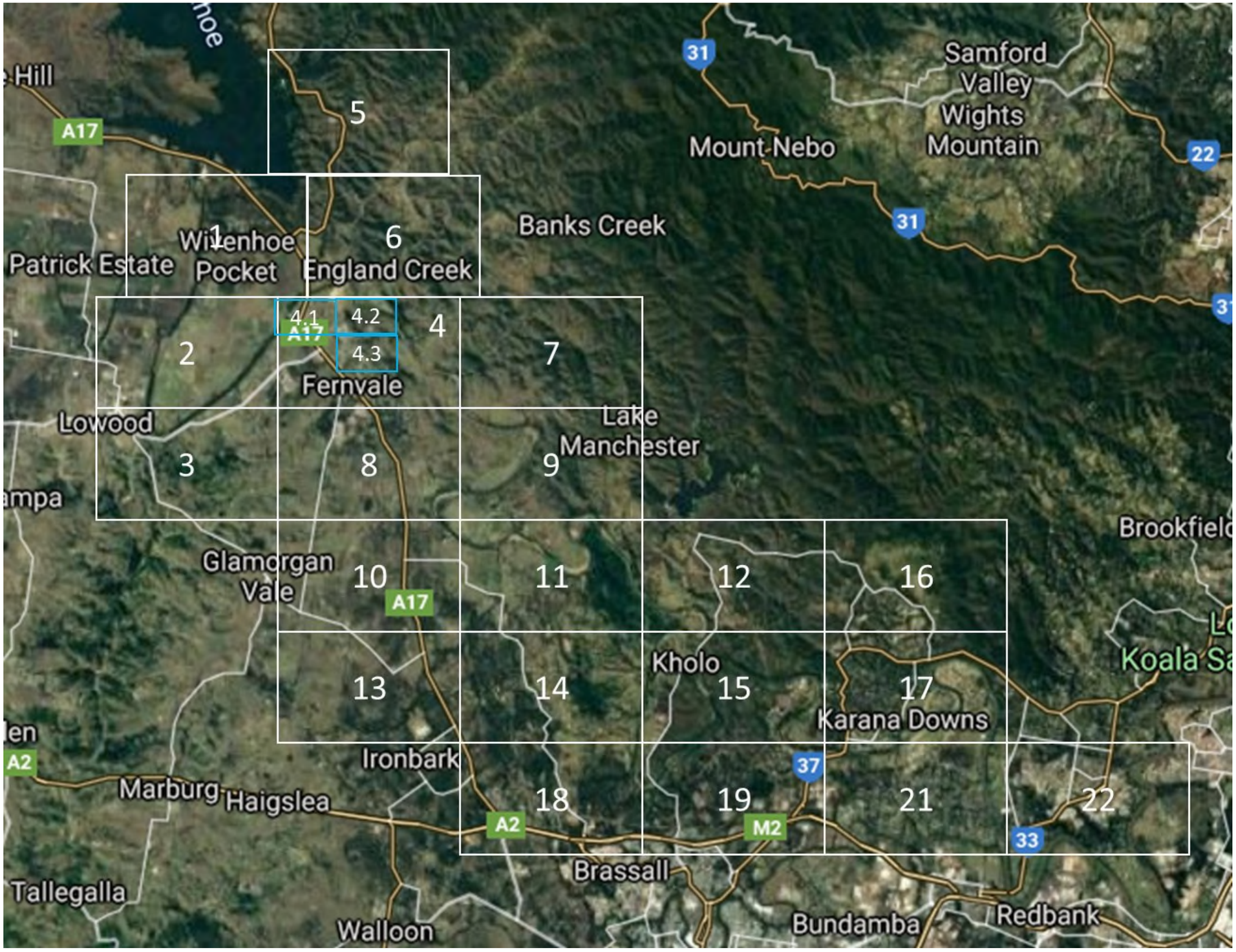
Table 17: Terrorist Threat - DSTDM Emergency Actions

Activation Level	Alert / Lean Forward	Stand Up 1	Stand Up 2	Stand Up 3	Stand Down
Activation trigger	• Not applicable	**THREAT** • Possible terrorist activity/suspicious behaviour noticed at the dam, OR • Threat receive	**EVENT** • Large explosion heard/observed at dam (eg, bomb explosion, aircraft hit)	**RESPONSE** • Failure in progress or likely due to impact or explosion, AND • Sufficient water in storage to create a dam hazard	Risk assessment has established risk has reduced.
Actions	• Not applicable	• Liaise with IC and DDO • Liaise with CleanCo Executive • Record all communication	• 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 (if the storage is required to be drawn down, then the DSTDM needs to assess the maximum rate of drawn down based on latest available data and advise in writing to IC and DDO) • Supervise remedial repairs (if applicable)	• As per previous activation level, AND • Liaise with the IC and advise on need to recommend evacuations	• Forward all communication, inspection sheets, photos and other data to ORR for EER • Conduct special inspection (if required) • Assess need for remedial works • Return to routine activities

Activation Level	Alert / Lean Forward	Stand Up 1	Stand Up 2	Stand Up 3	Stand Down
Internal notifications	Not applicable	1. IC 2. DDO 3. CleanCo Exec	As per previous level	As per previous level	As per previous level
External notifications		DSR	As per previous level	As per previous level	As per previous level

Appendix A INUNDATION MAPS

Figure 7: Key Map for all Inundation maps



A1 - Sunny Day Failure Inundation Maps

Figure 8: Sunny Day Failure (SDF) Flood Depth - Map 5

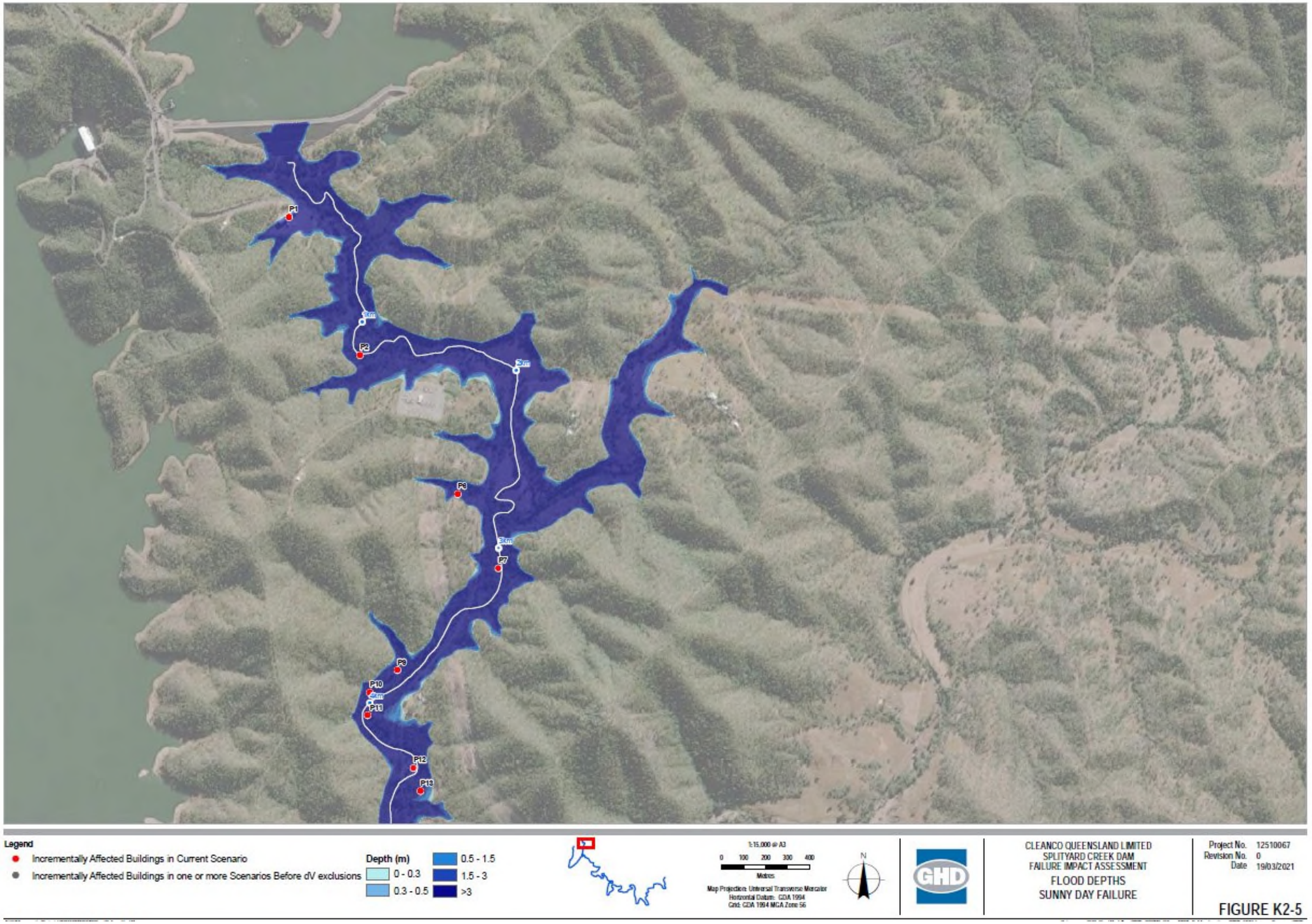


Figure 9: Sunny Day Failure (SDF) Flood Depth - Map 6

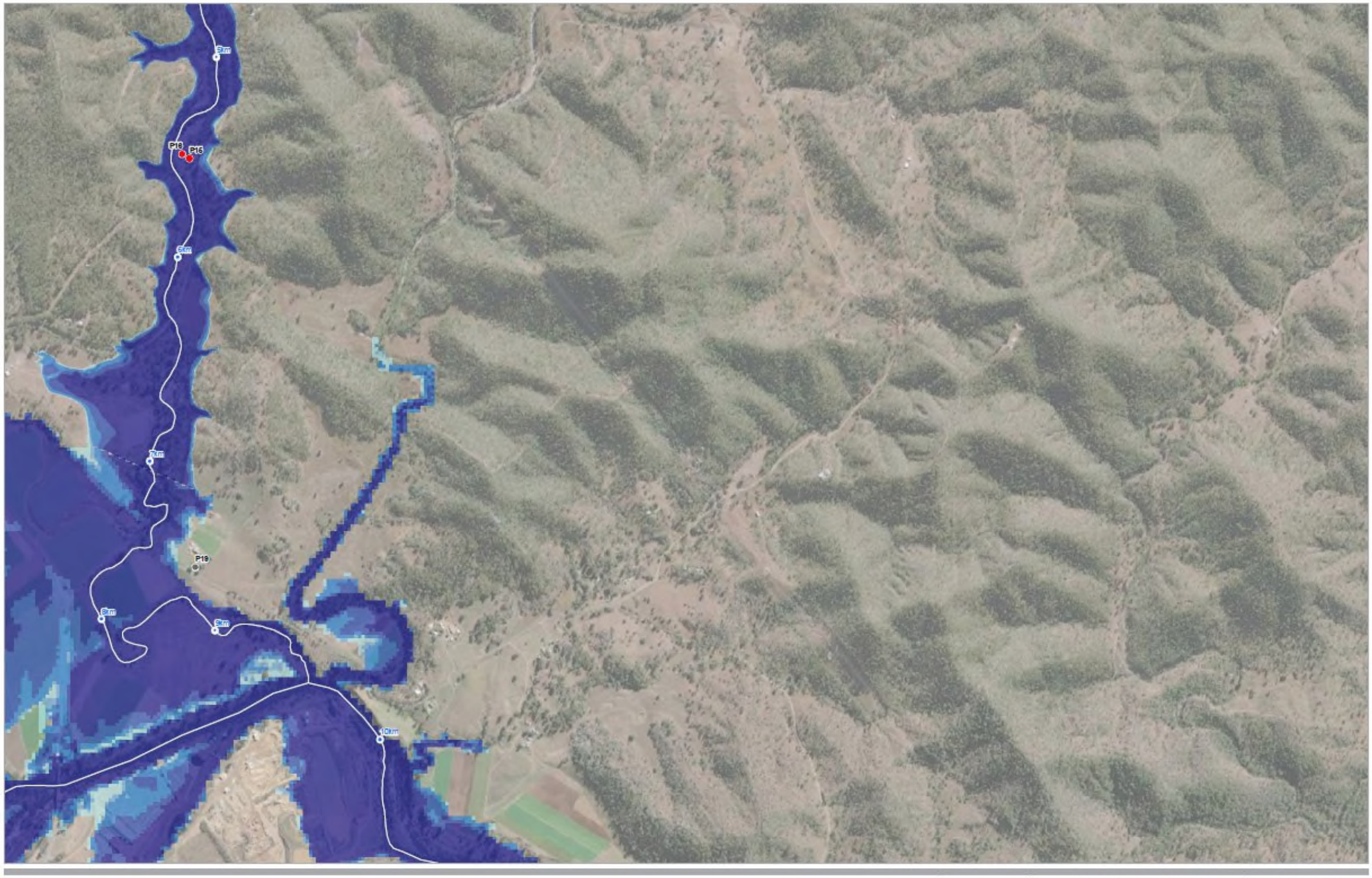
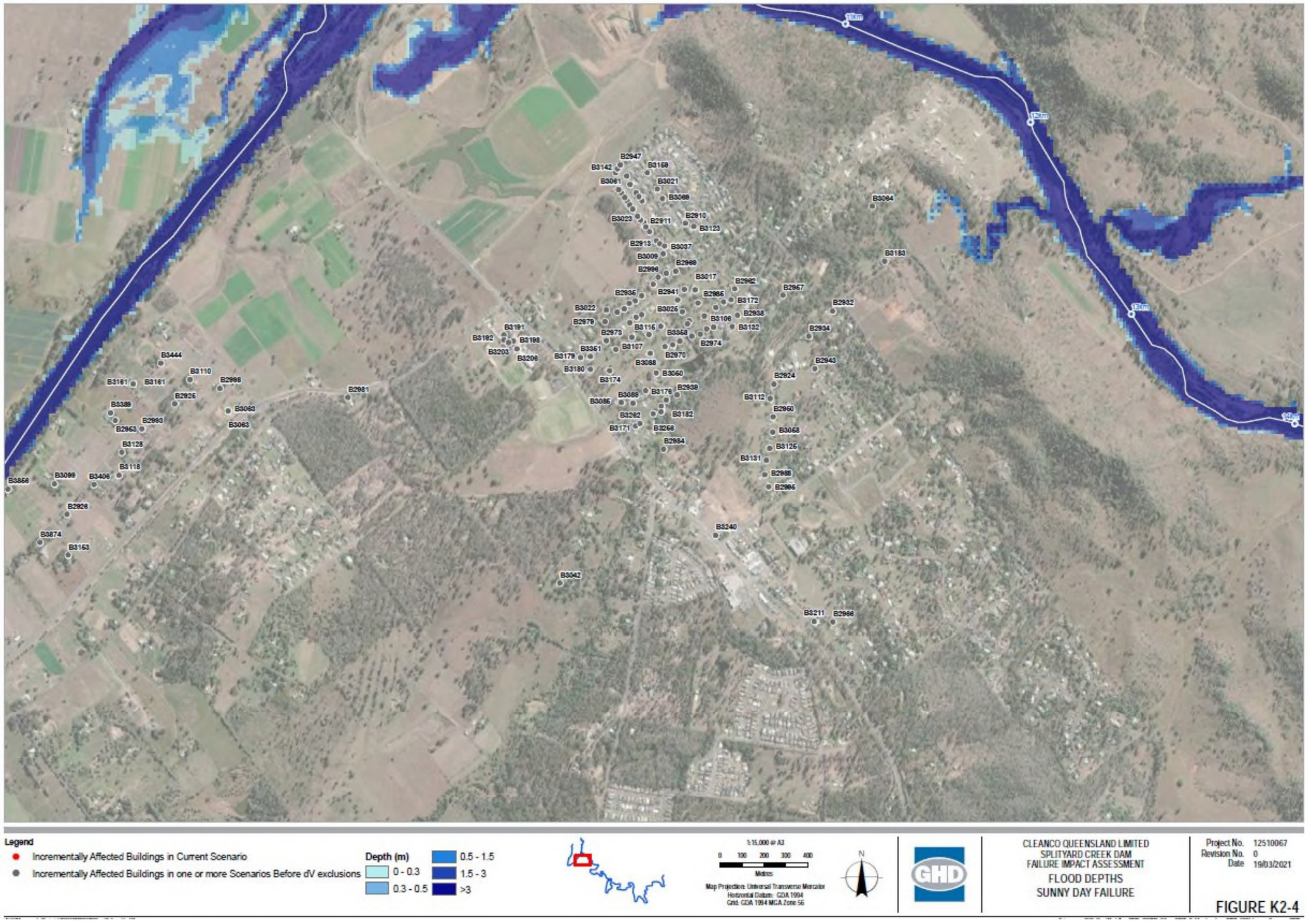


Figure 10: Sunny Day Failure (SDF) Flood Depth - Map 4



Legend

- Incrementally Affected Buildings in Current Scenario
- Incrementally Affected Buildings in one or more Scenarios Before dV exclusions

Depth (m)

0 - 0.3	0.5 - 1.5
0.3 - 0.5	1.5 - 3
	>3

1:15,000 @ A3
0 100 200 300 400
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

CLEANCO QUEENSLAND LIMITED
SPLITYARD CREEK DAM
FAILURE IMPACT ASSESSMENT
FLOOD DEPTHS
SUNNY DAY FAILURE

Project No. 12510067
Revision No. 0
Date 19/03/2021

FIGURE K2-4

Figure 11: Sunny Day Failure (SDF) Flood Depth - Map 7

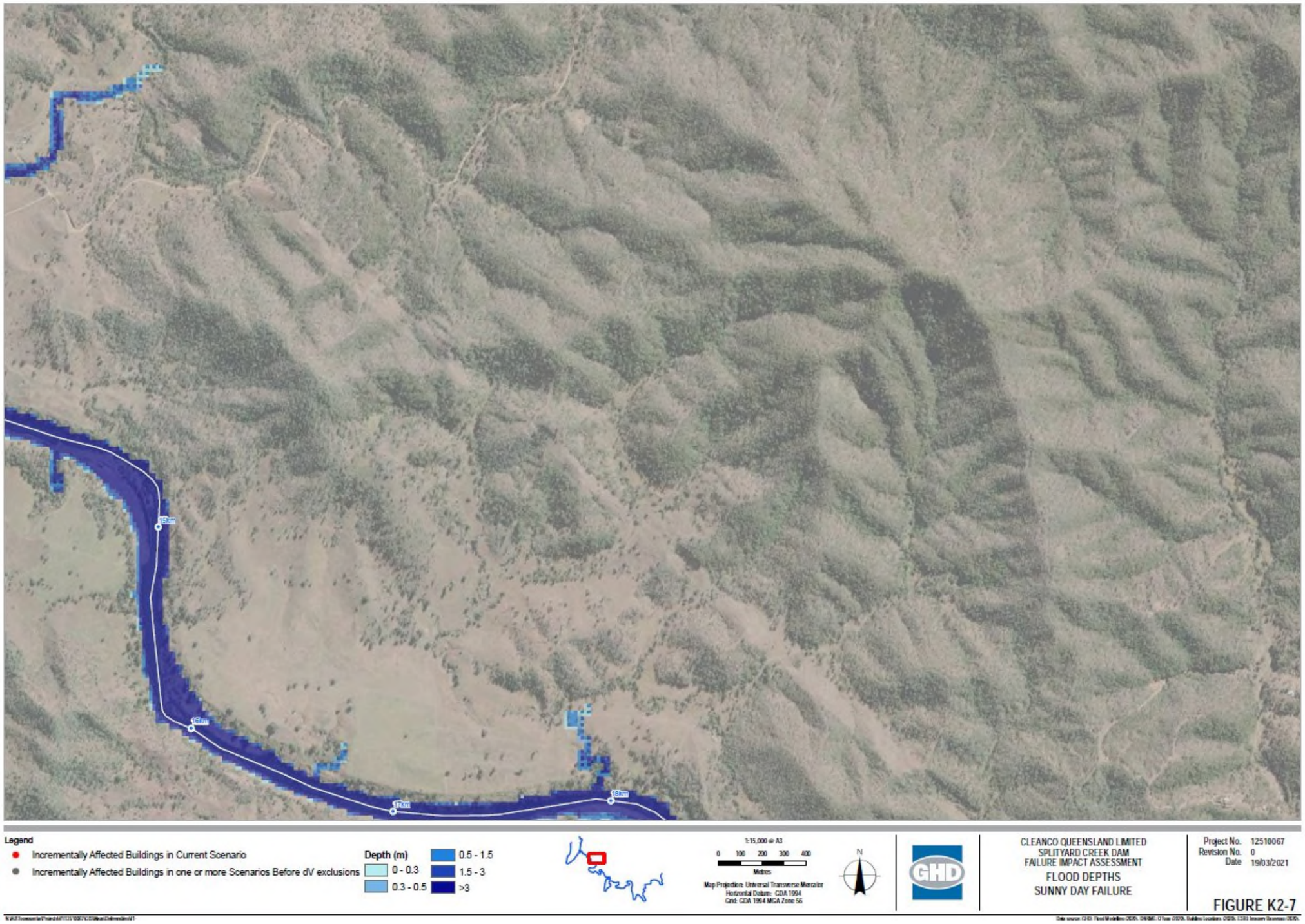


Figure 12: Sunny Day Failure (SDF) Flood Depth - Map 1

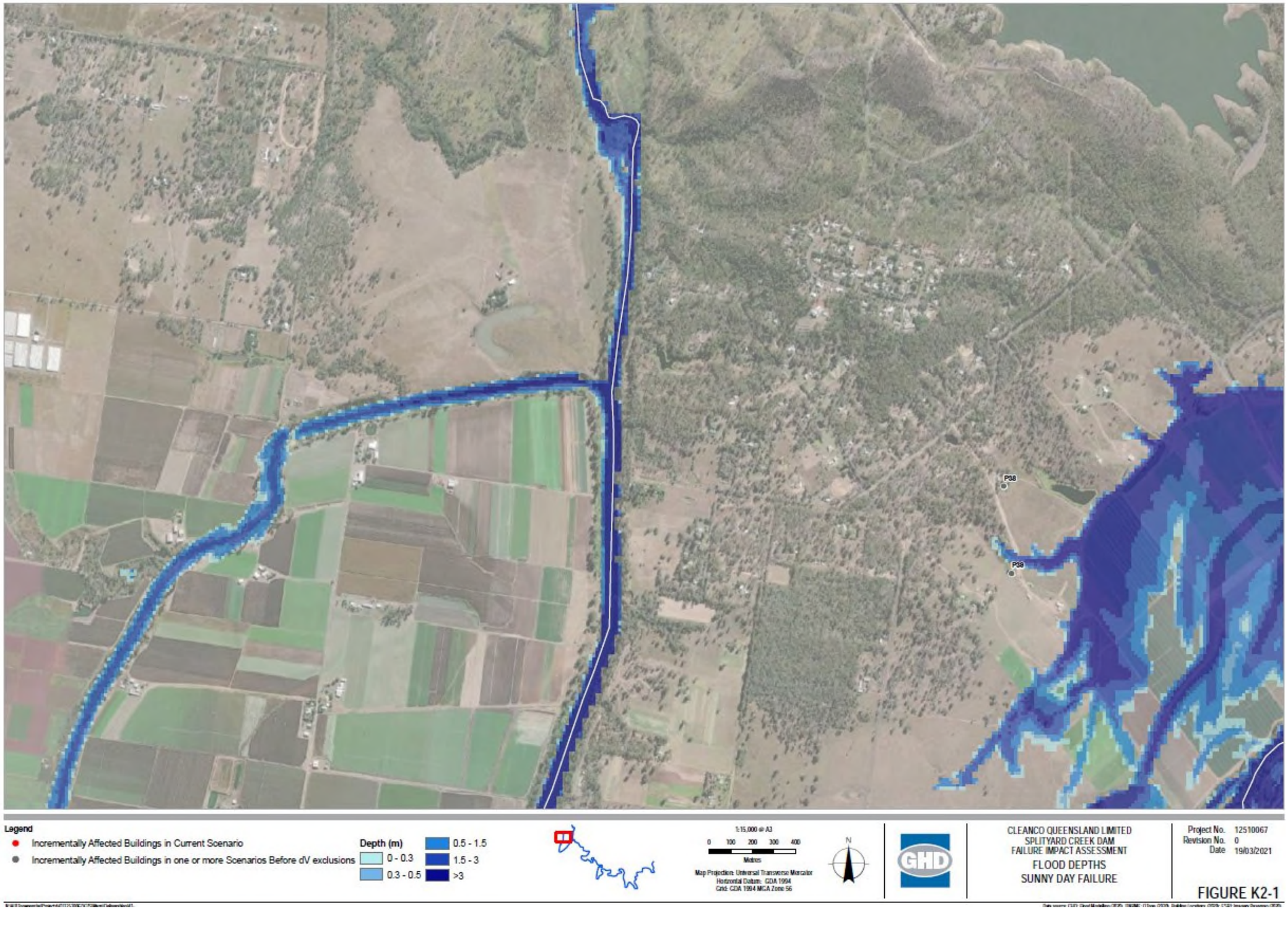


Figure 13: Sunny Day Failure (SDF) Flood Depth - Map 2

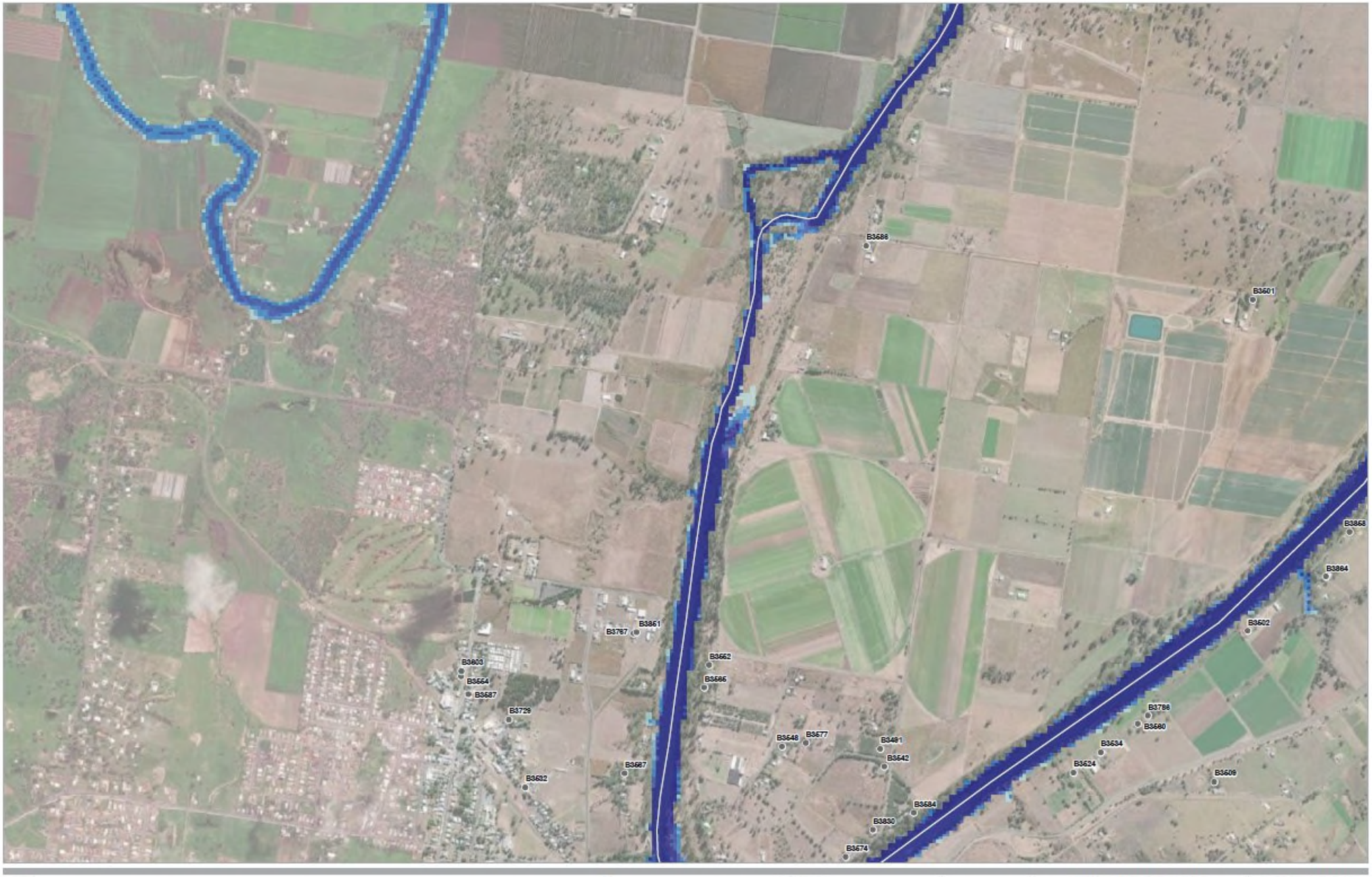


Figure 14: Sunny Day Failure (SDF) Flood Depth - Map 3

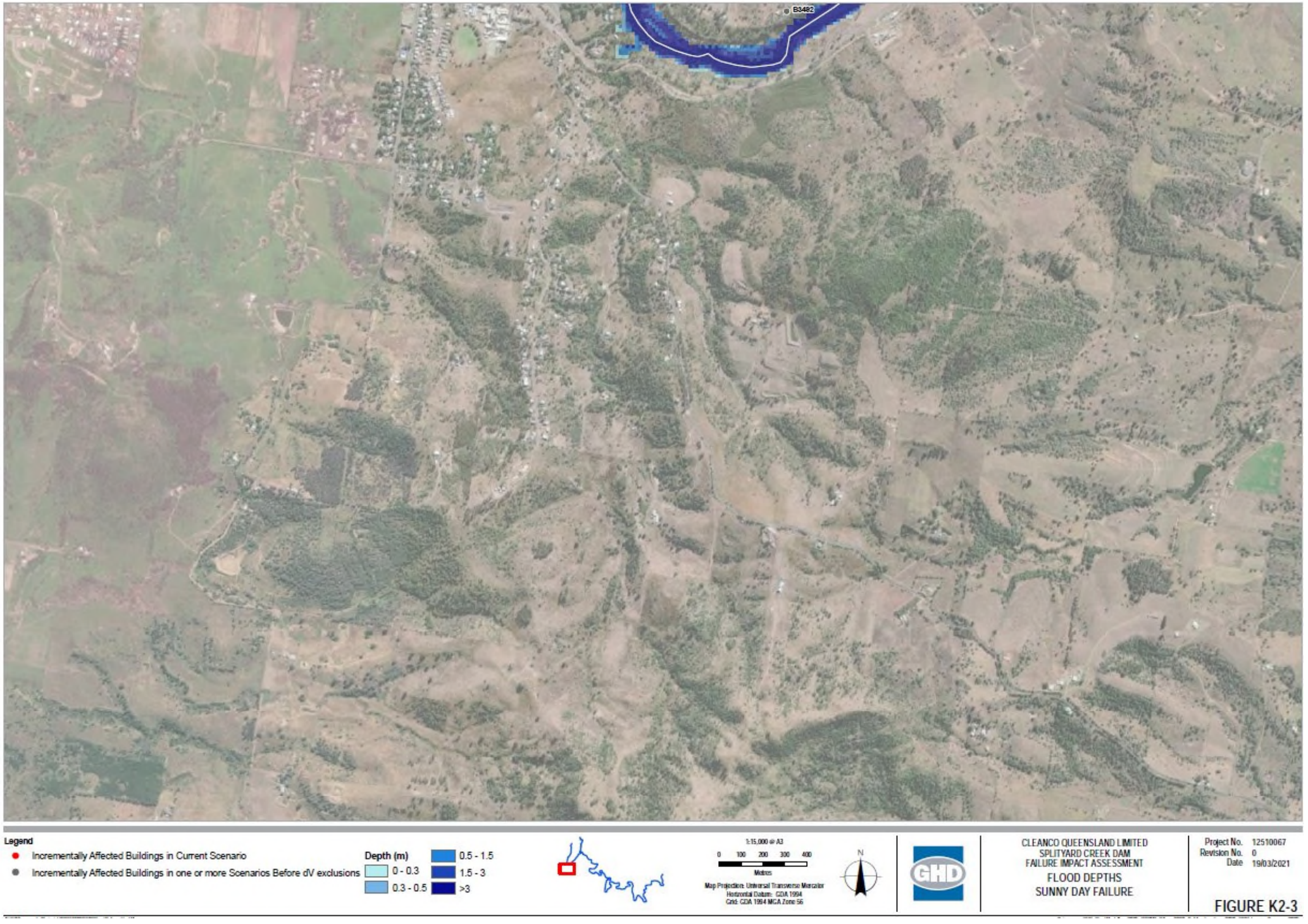


Figure 15: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 5

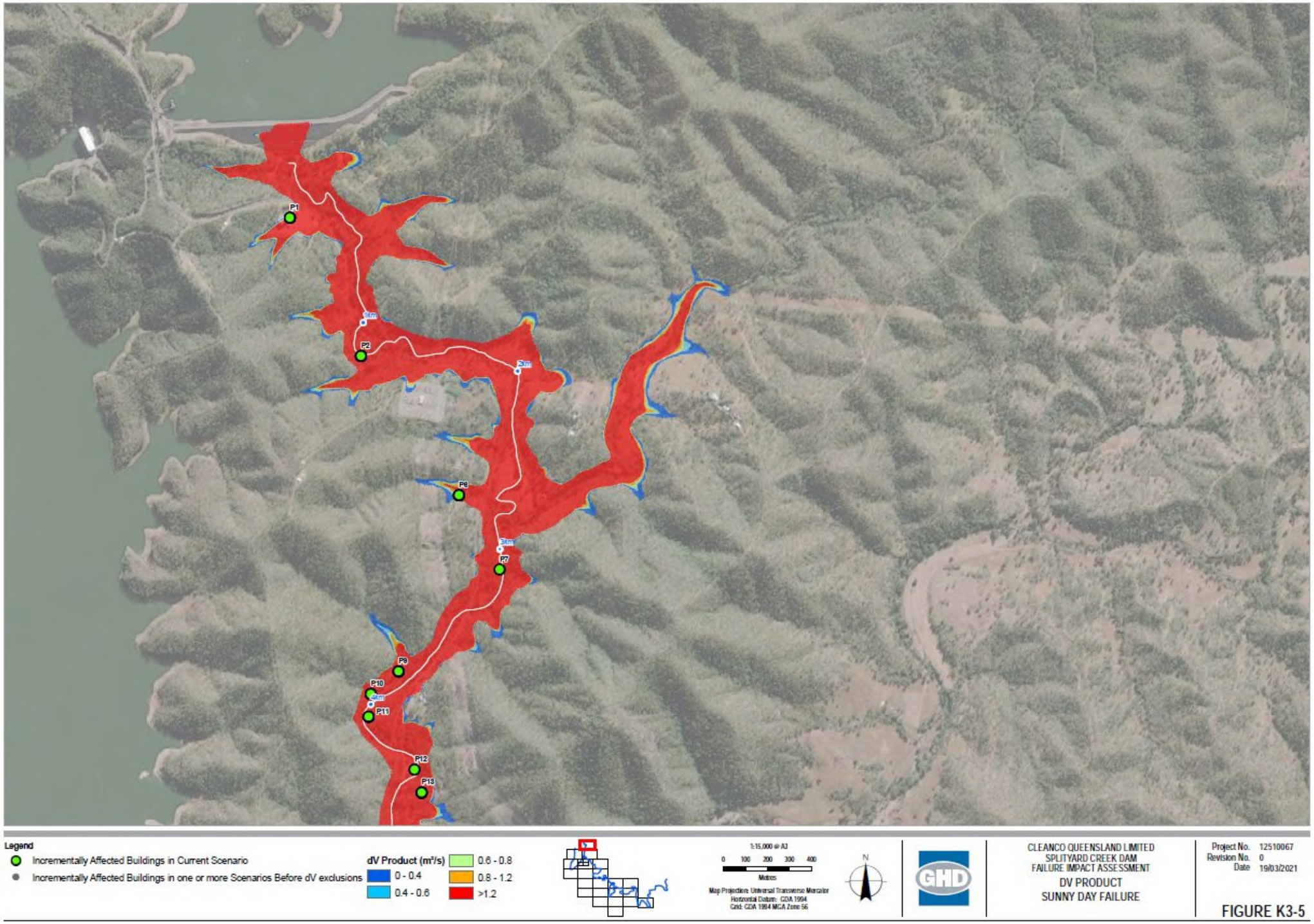


Figure 16: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 6

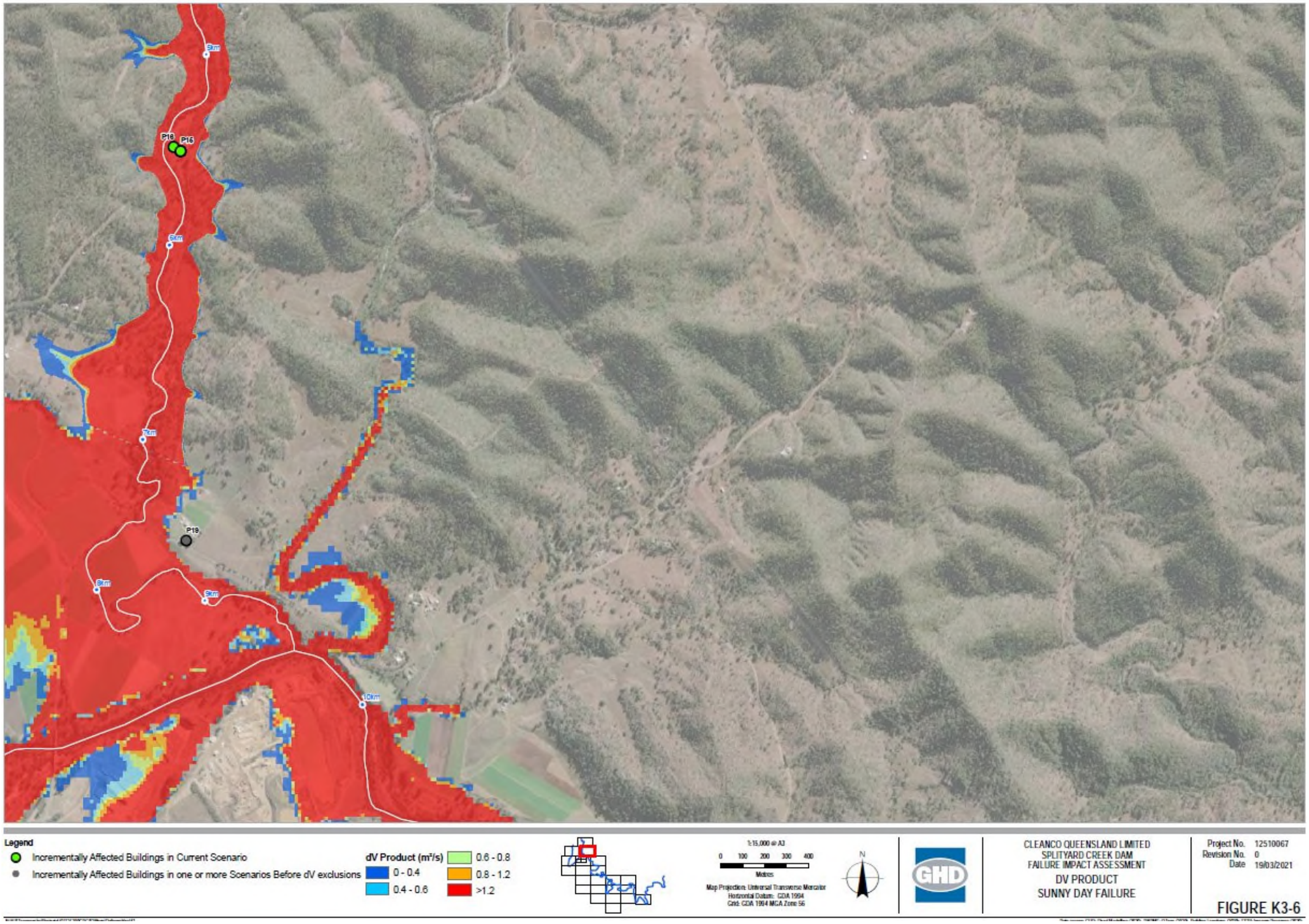
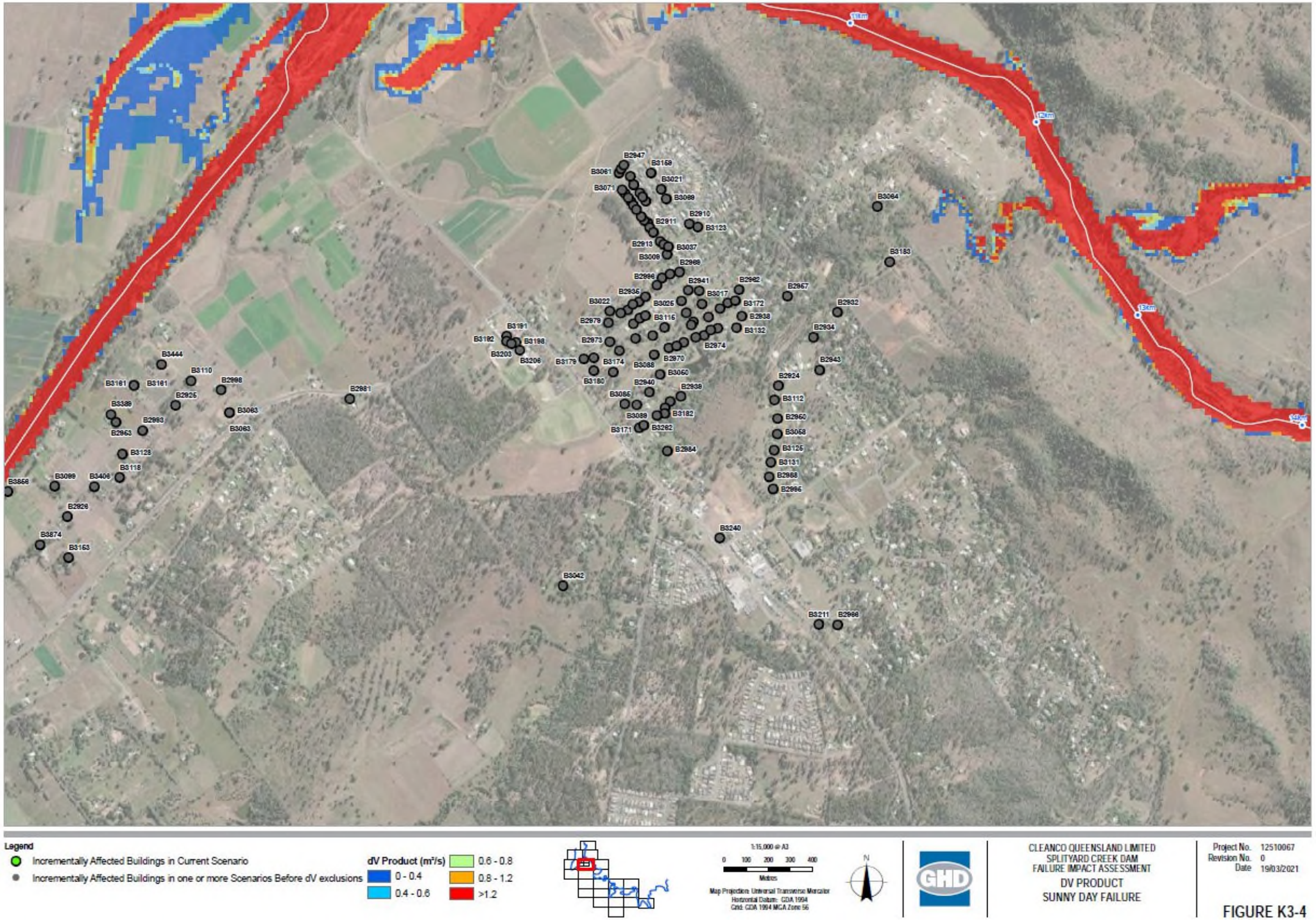


Figure 17: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 4



Legend

- Incrementally Affected Buildings in Current Scenario
- Incrementally Affected Buildings in one or more Scenarios Before dV exclusions

dV Product (m²/s)

0 - 0.4	0.6 - 0.8
0.4 - 0.6	0.8 - 1.2
	>1.2

1:15,000 @ A3
0 100 200 300 400
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

CLEANCO QUEENSLAND LIMITED
SPLITYARD CREEK DAM
FAILURE IMPACT ASSESSMENT
DV PRODUCT
SUNNY DAY FAILURE

Project No. 12510067
Revision No. 0
Date 19/03/2021

FIGURE K3-4

Figure 18: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 7

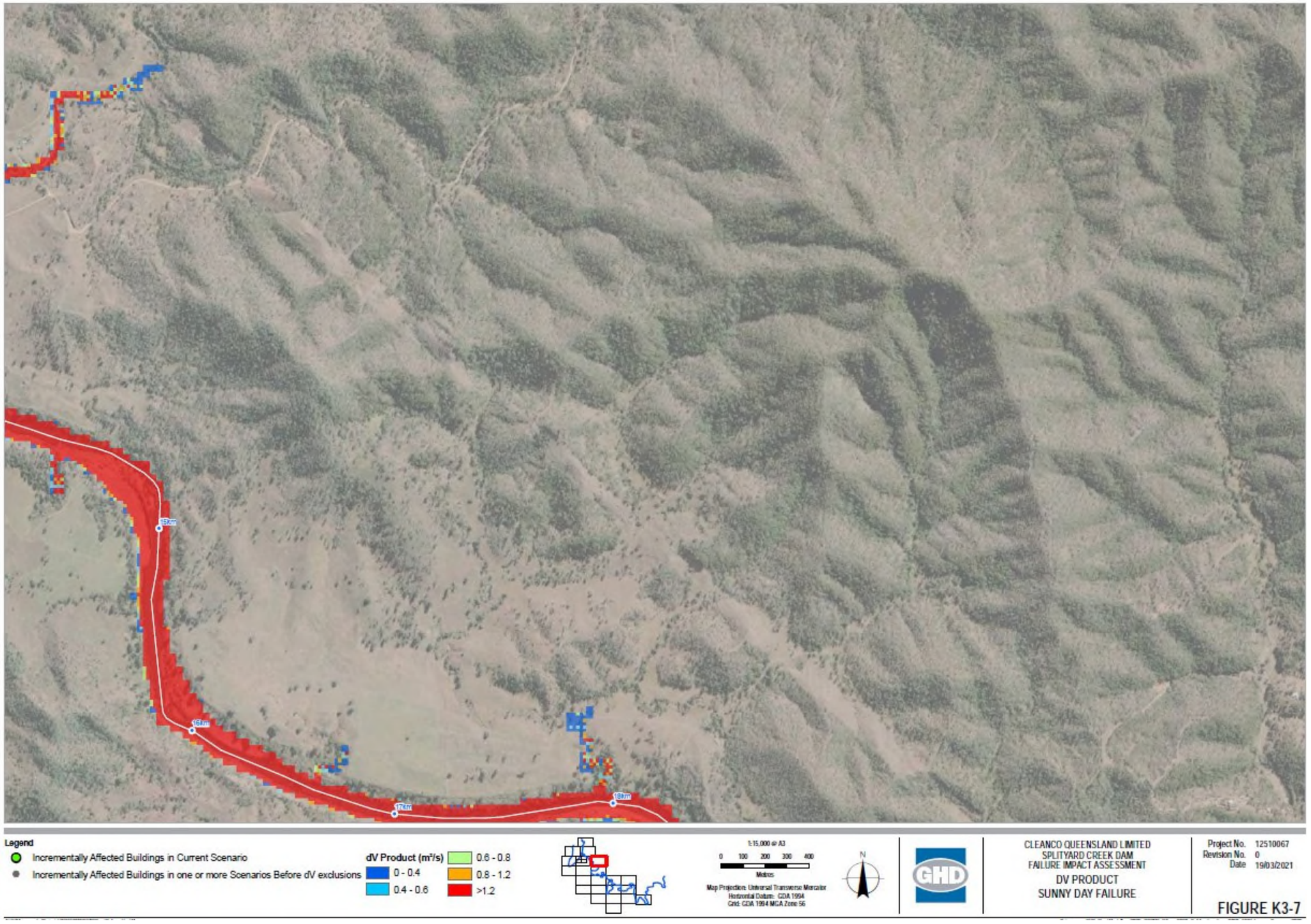


Figure 19: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 1

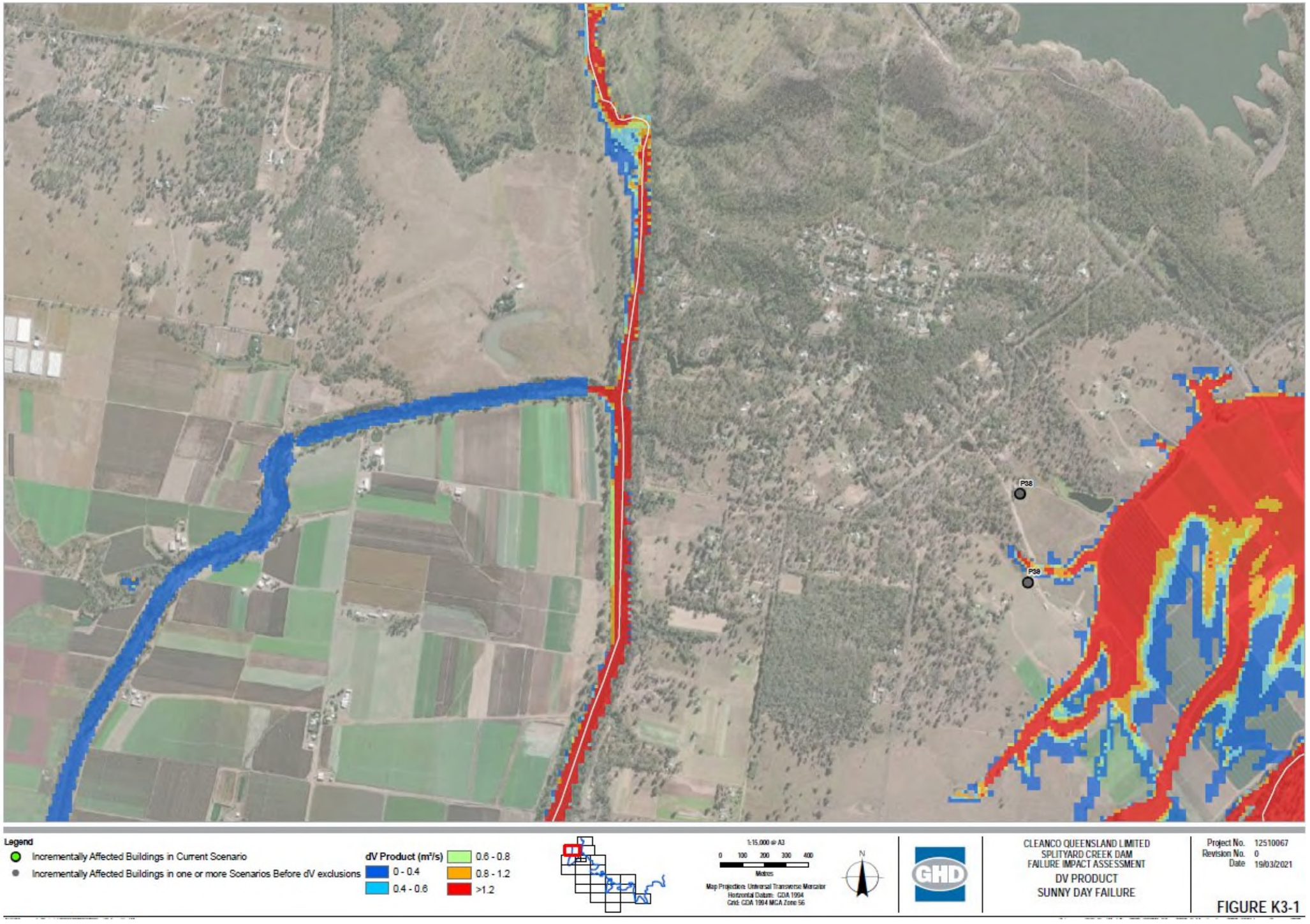


Figure 20: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 2

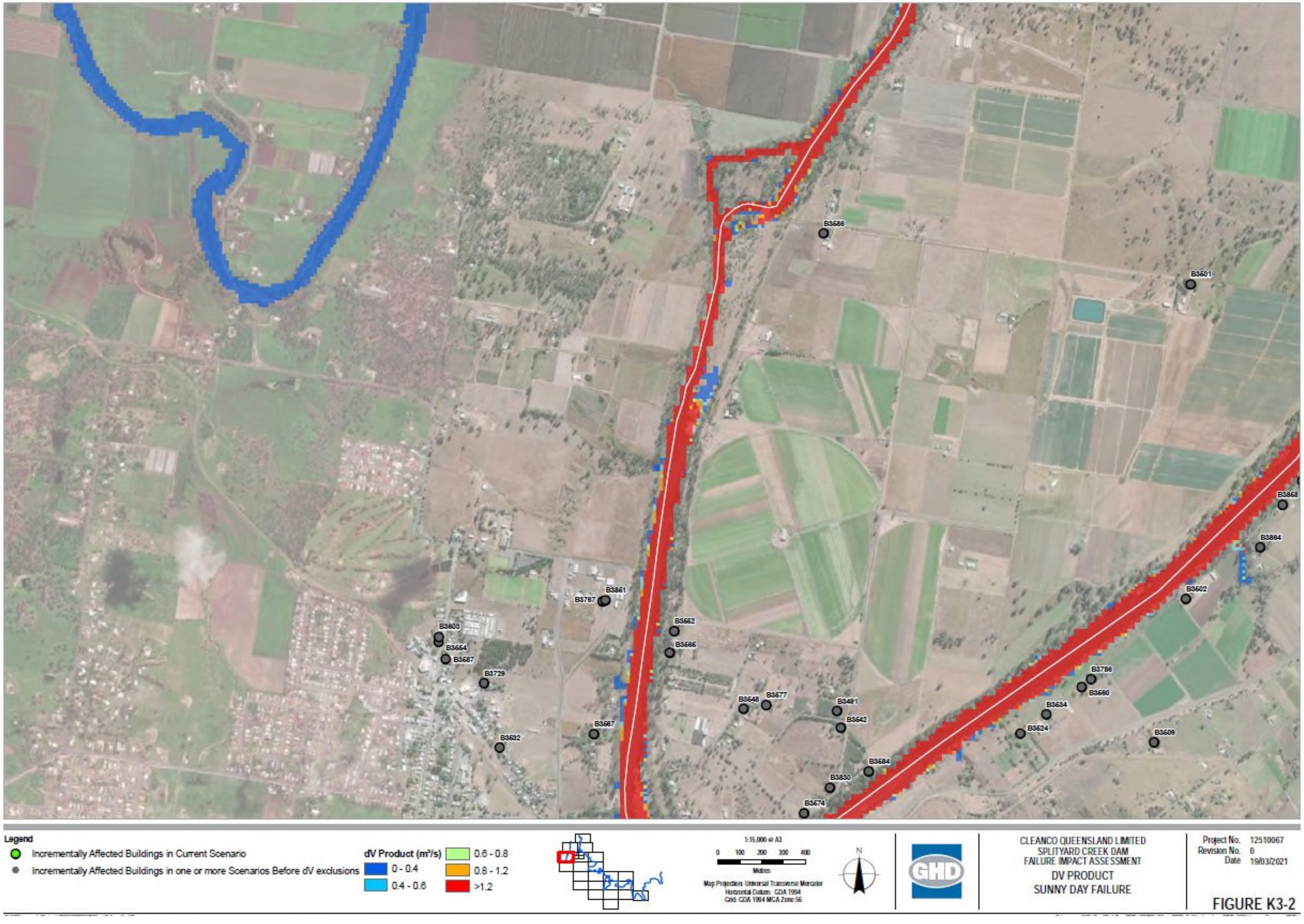
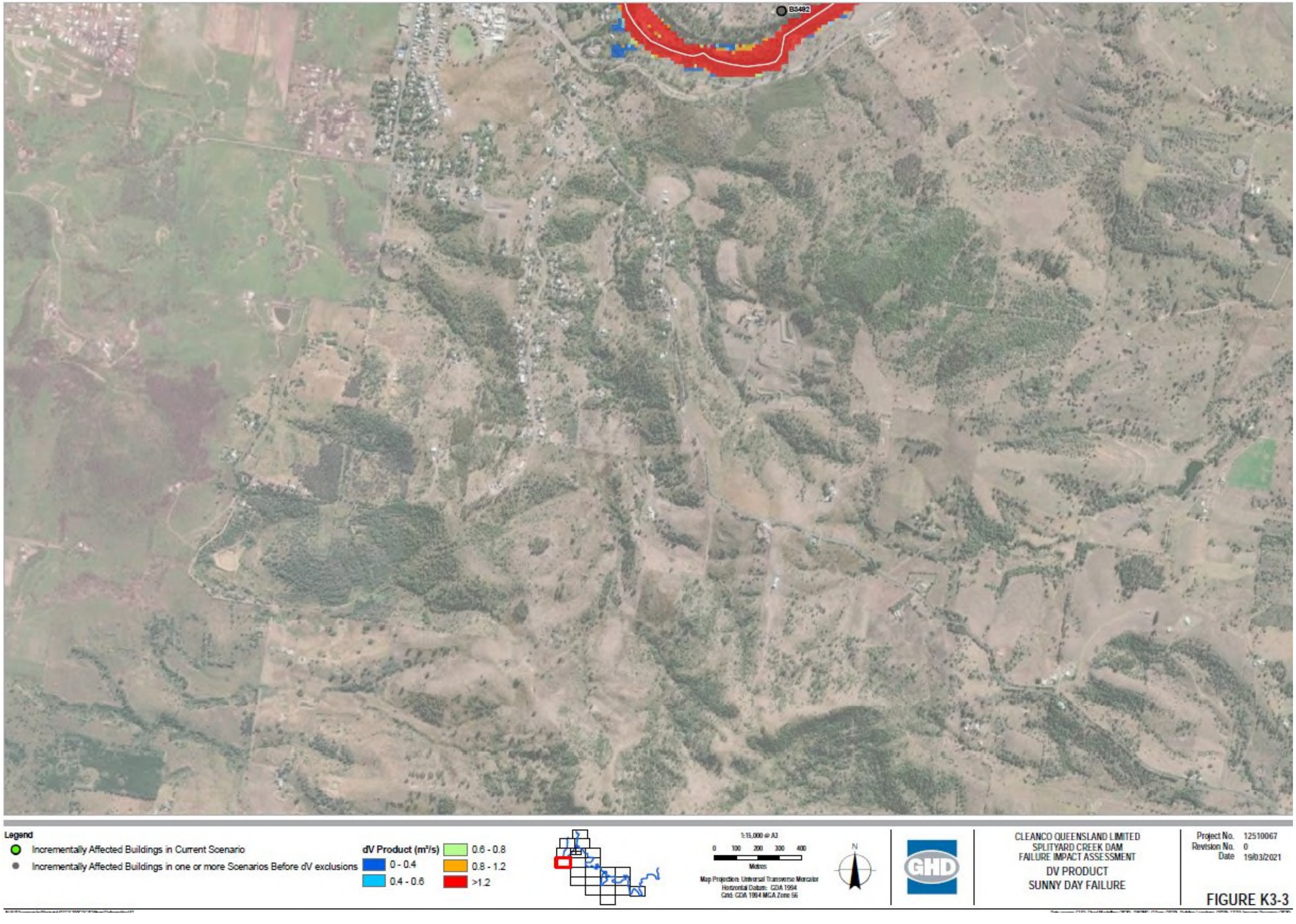


Figure 21: Sunny Day Failure (SDF) Flood Depth/Velocity Hazard - Map 3



A2 – AEP 1 in 2000 Inundation Maps

Figure 22: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 5

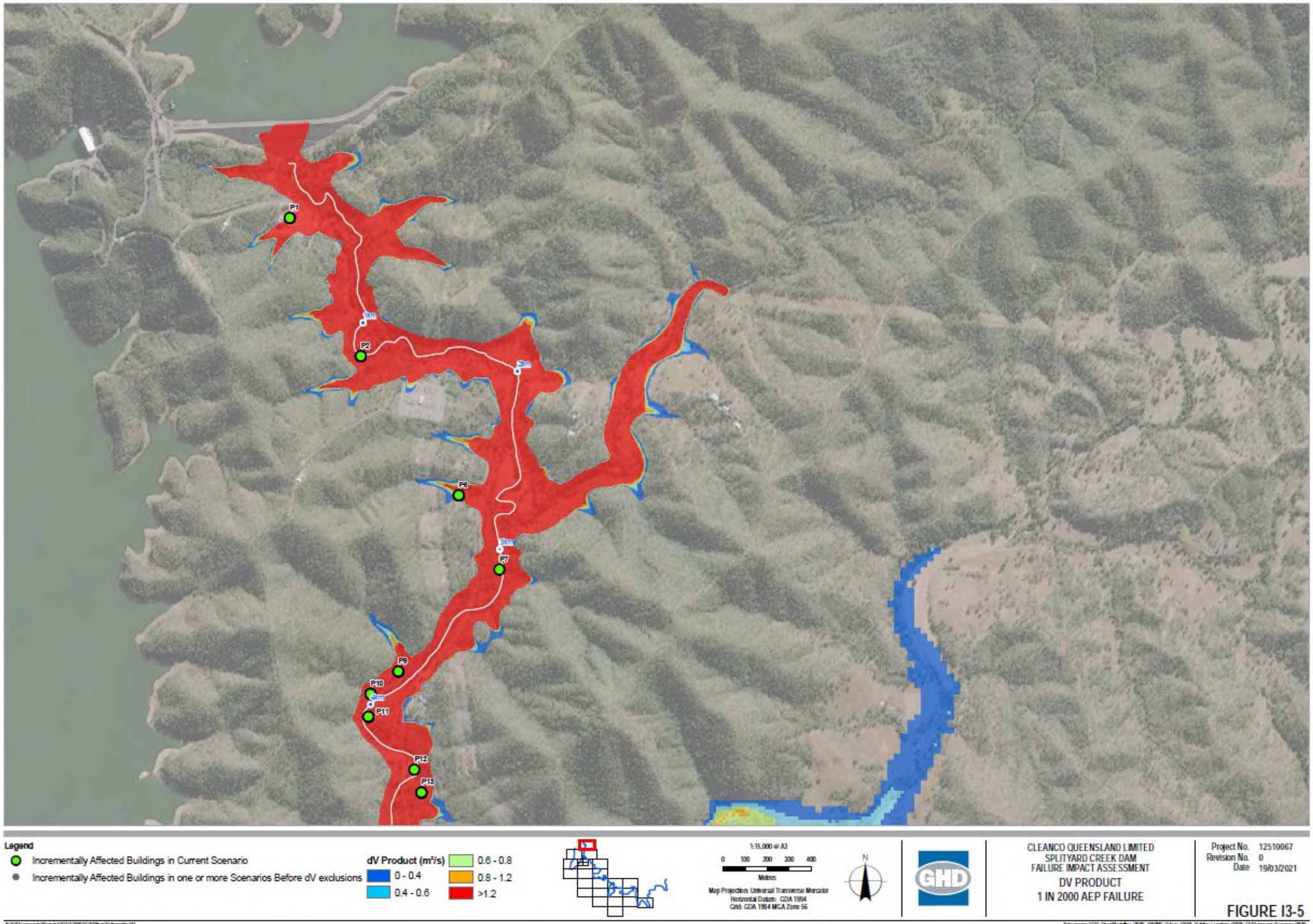


Figure 23: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 6

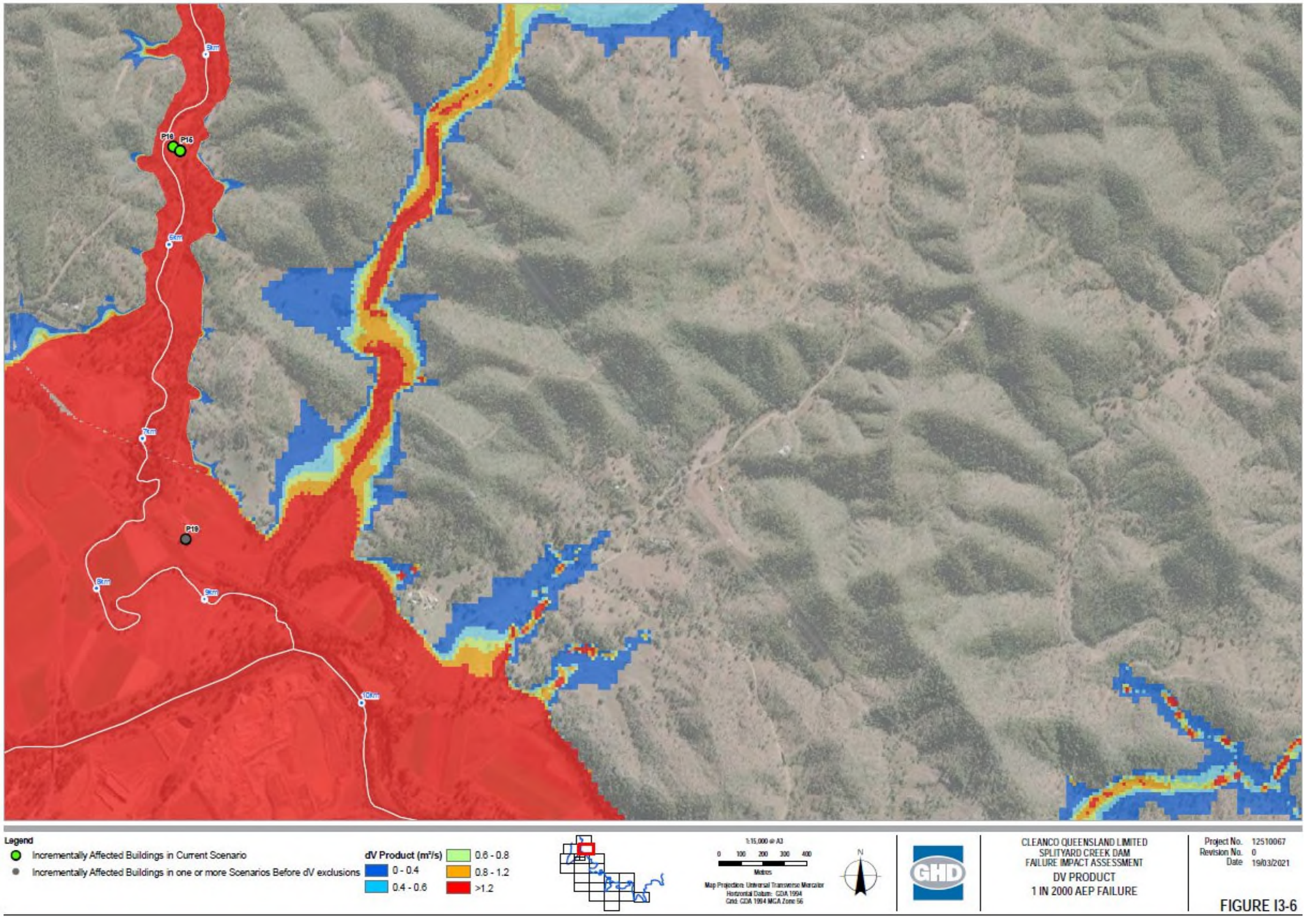
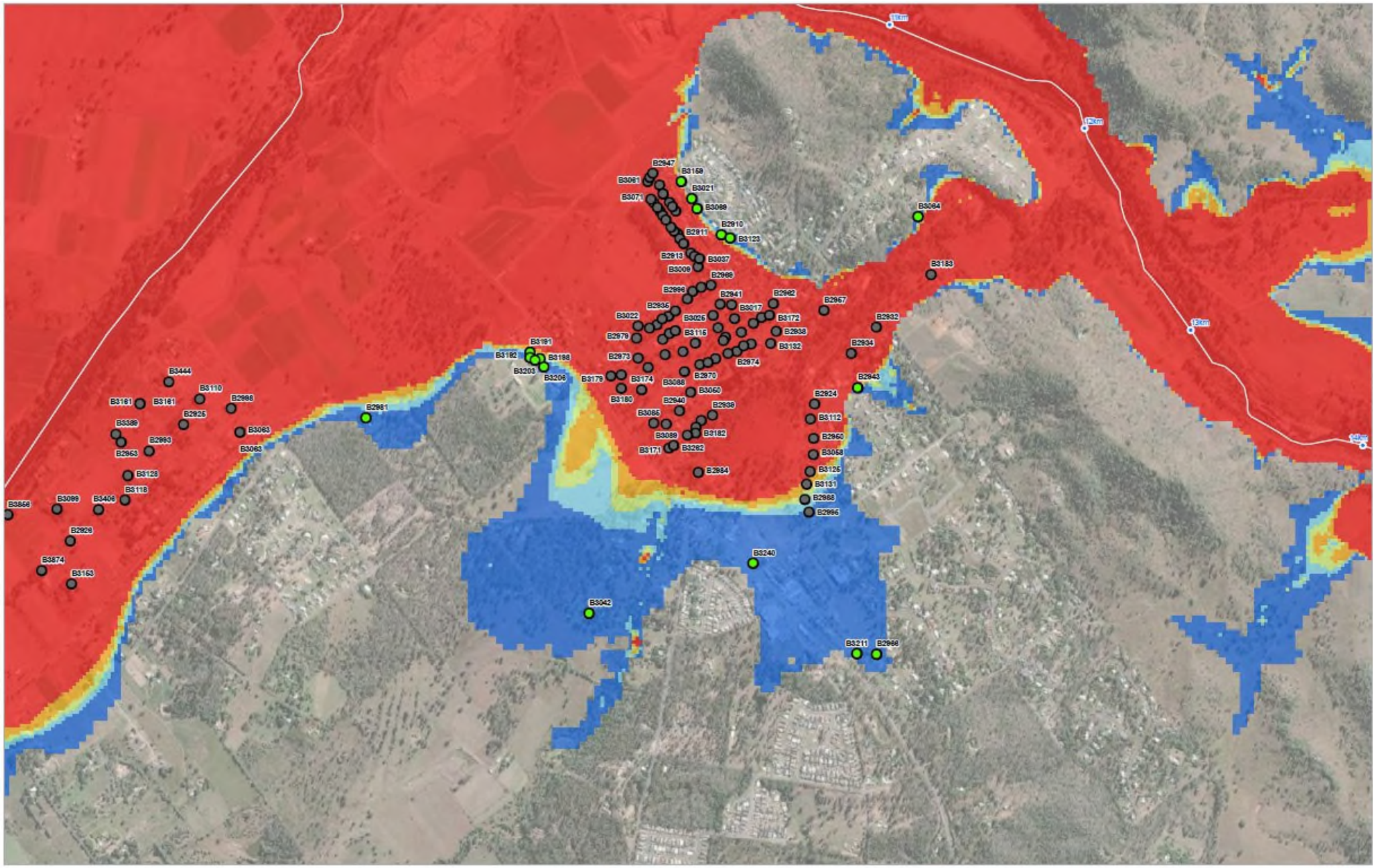


Figure 24: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 4



Legend

- Incrementally Affected Buildings in Current Scenario
- Incrementally Affected Buildings in one or more Scenarios Before dV exclusions

dV Product (m²/s)

0 - 0.4	0.6 - 0.8
0.4 - 0.6	0.8 - 1.2
	>1.2

1:15,000 @ A3
0 100 200 300 400
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

CLEANCO QUEENSLAND LIMITED
SPLITYARD CREEK DAM
FAILURE IMPACT ASSESSMENT
DV PRODUCT
1 IN 2000 AEP FAILURE

Project No. 12510067
Revision No. 0
Date 19/03/2021

FIGURE I3-4

Figure 25: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 4.2

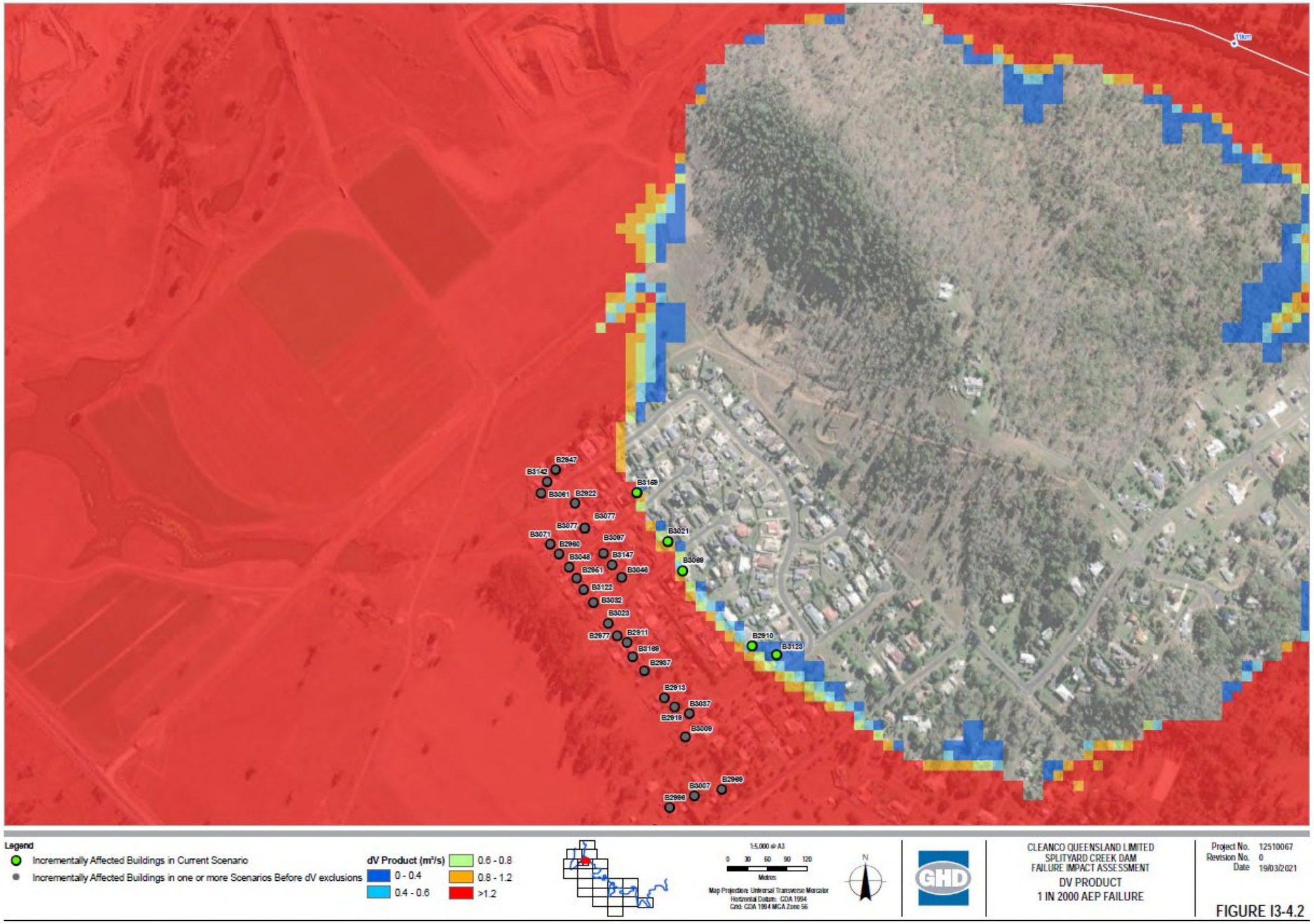


Figure 26: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 4.1

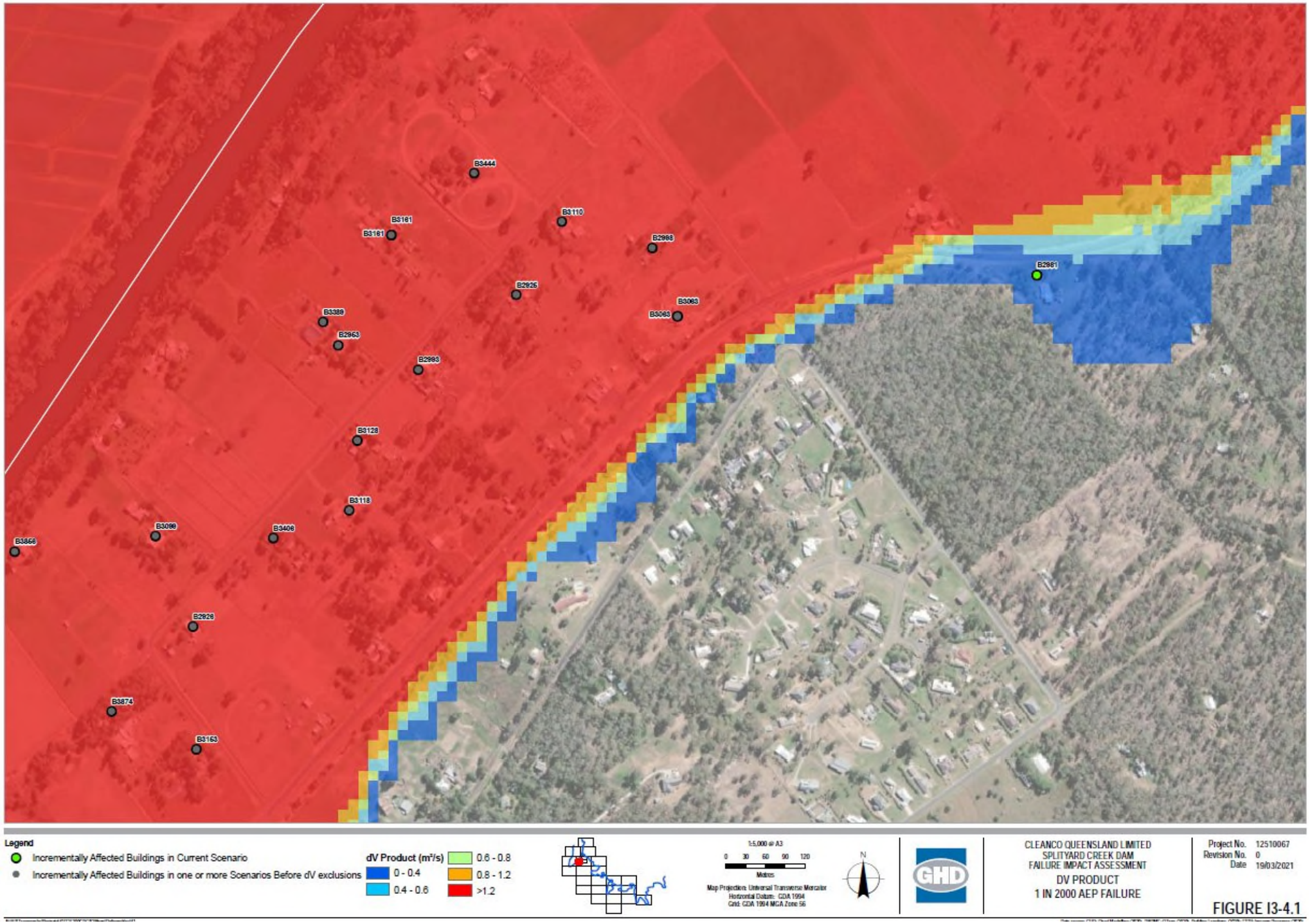


Figure 27: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 4.3

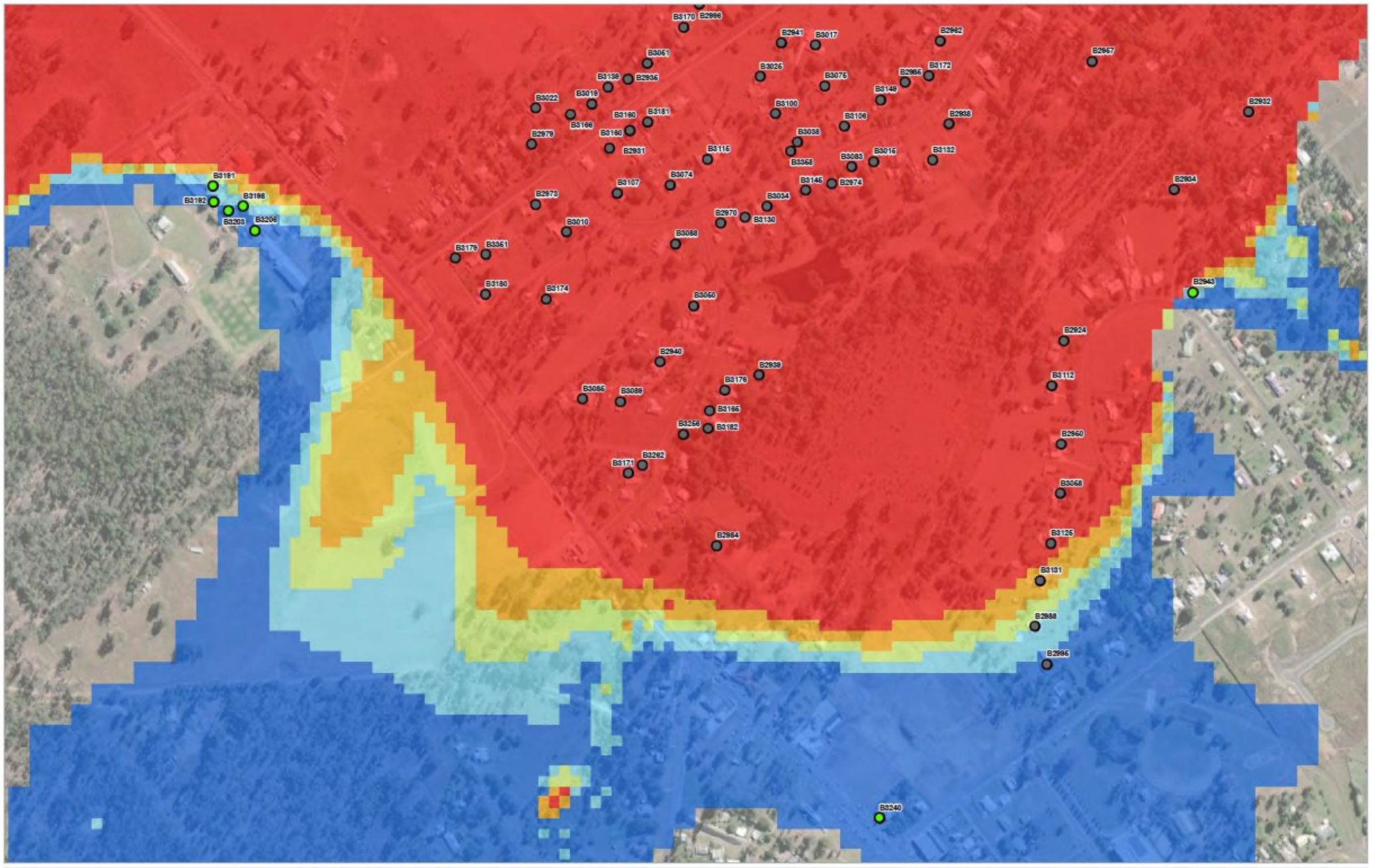


Figure 28: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 7

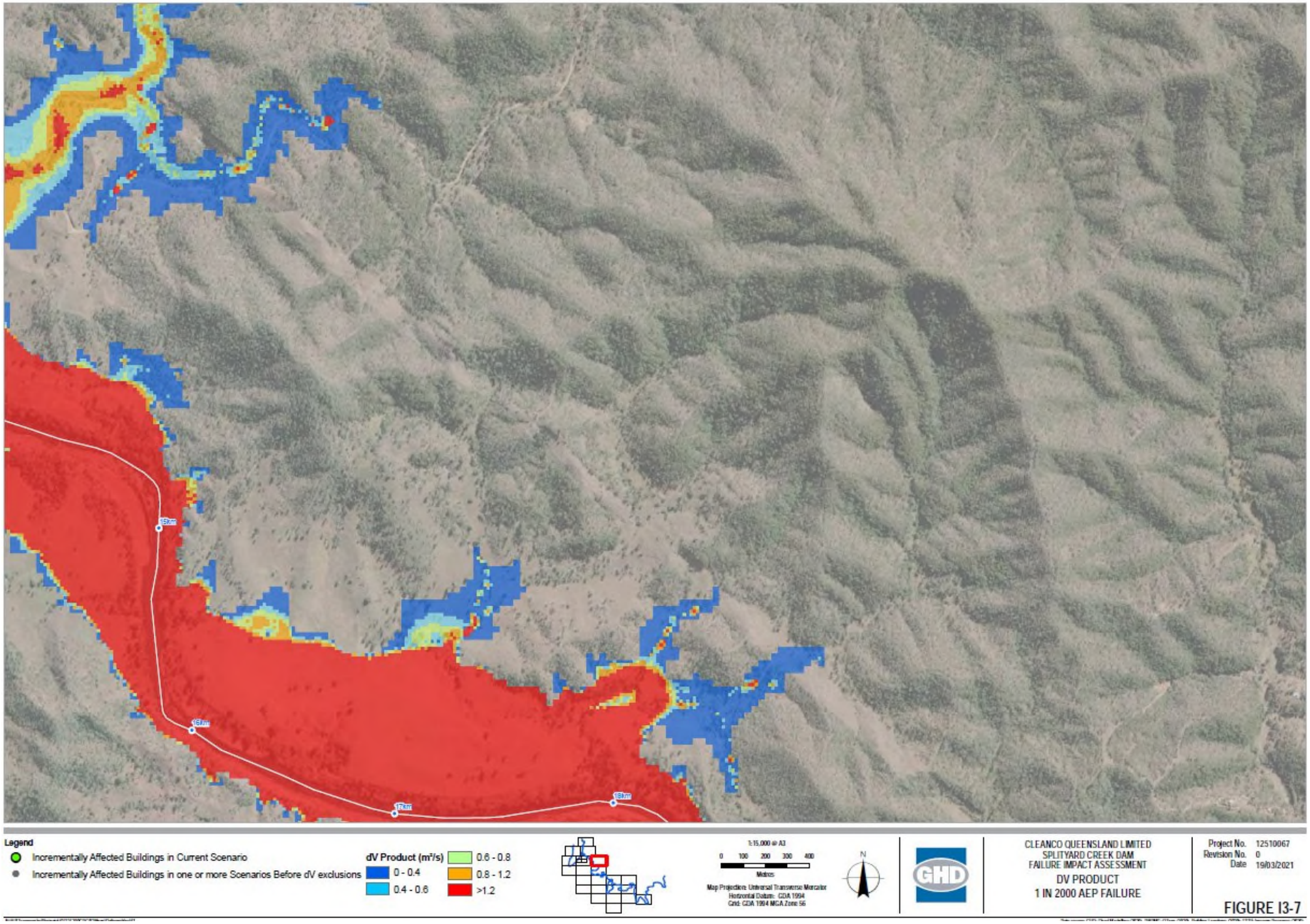


Figure 29: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 1

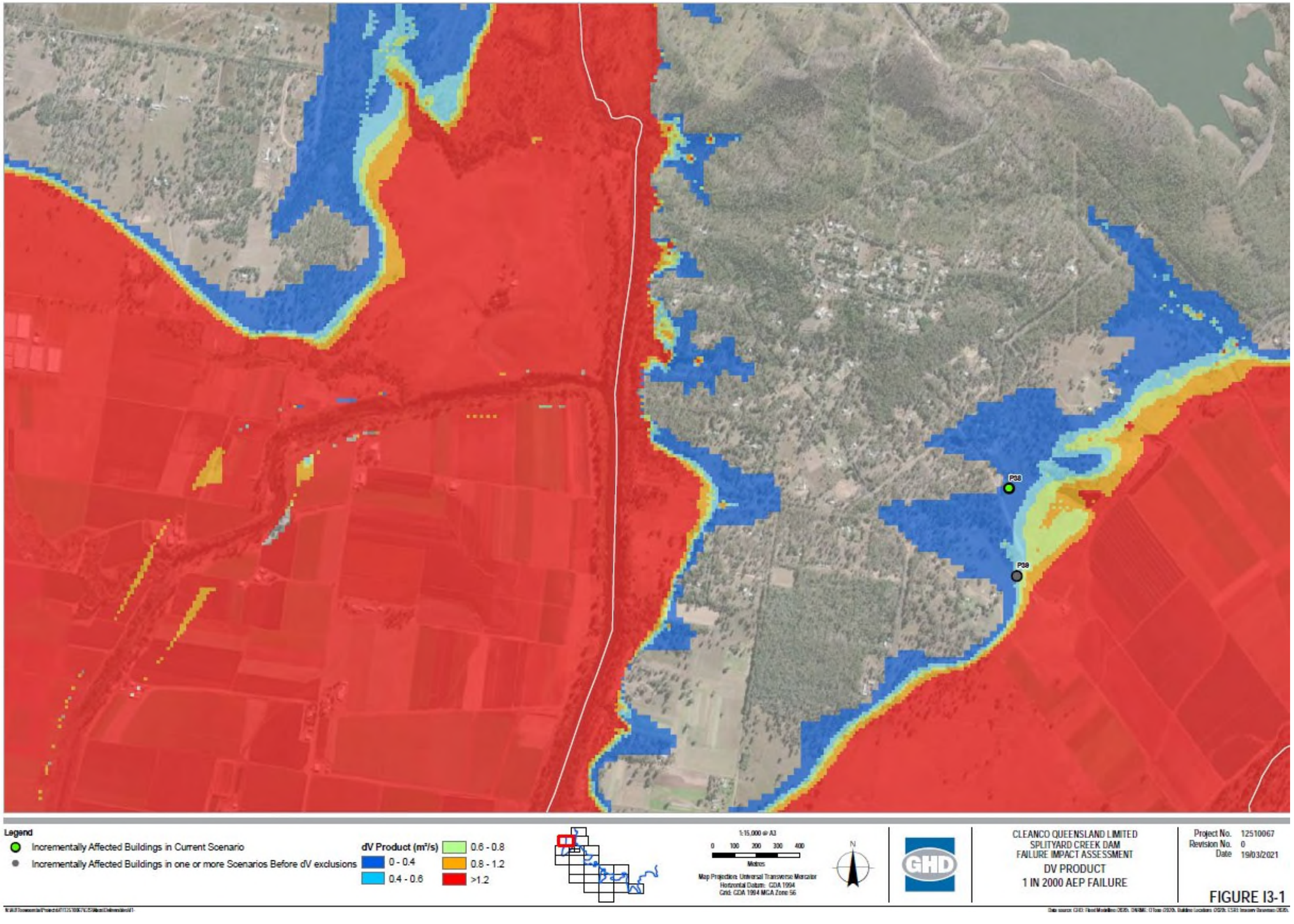


Figure 30: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 2

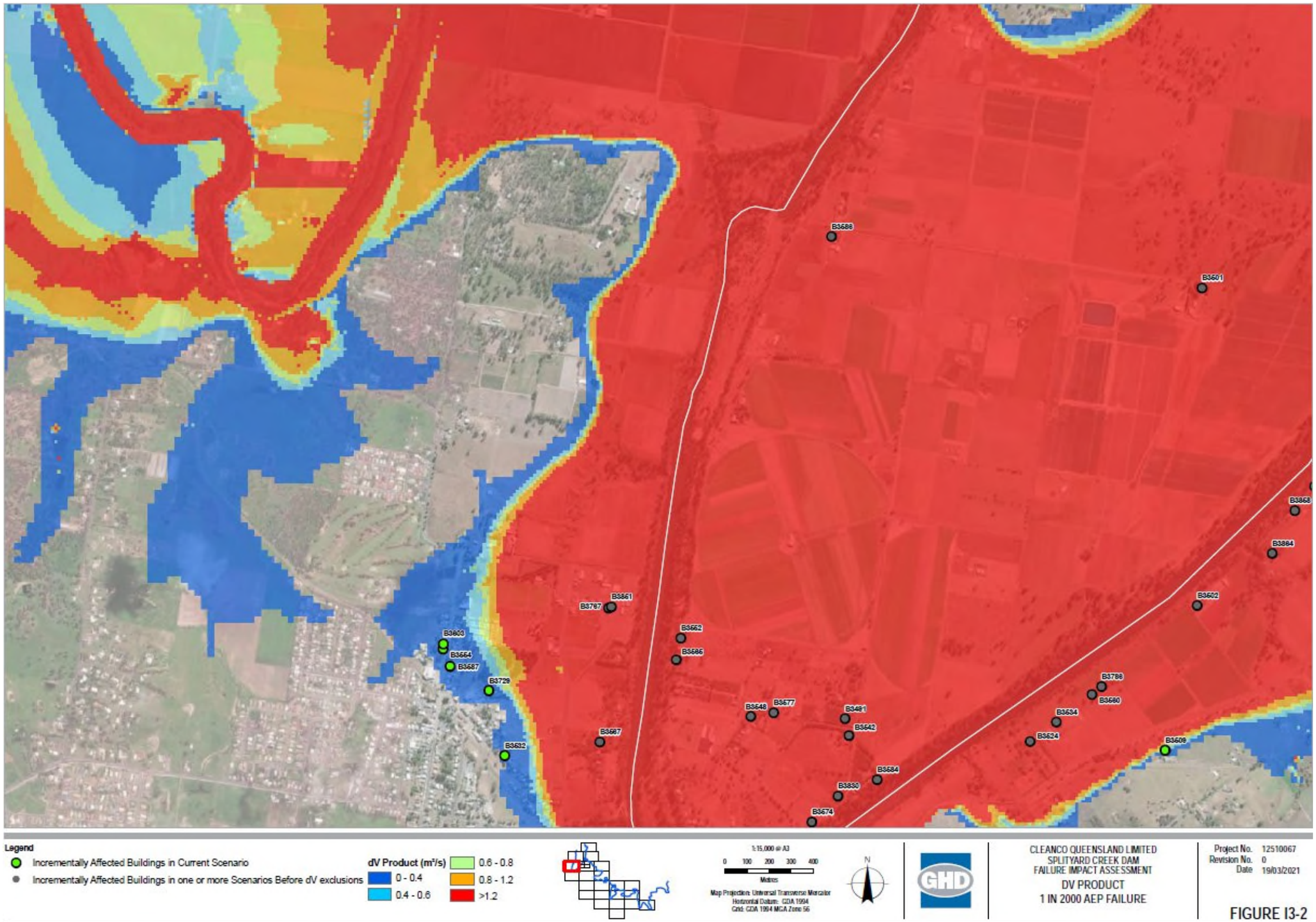
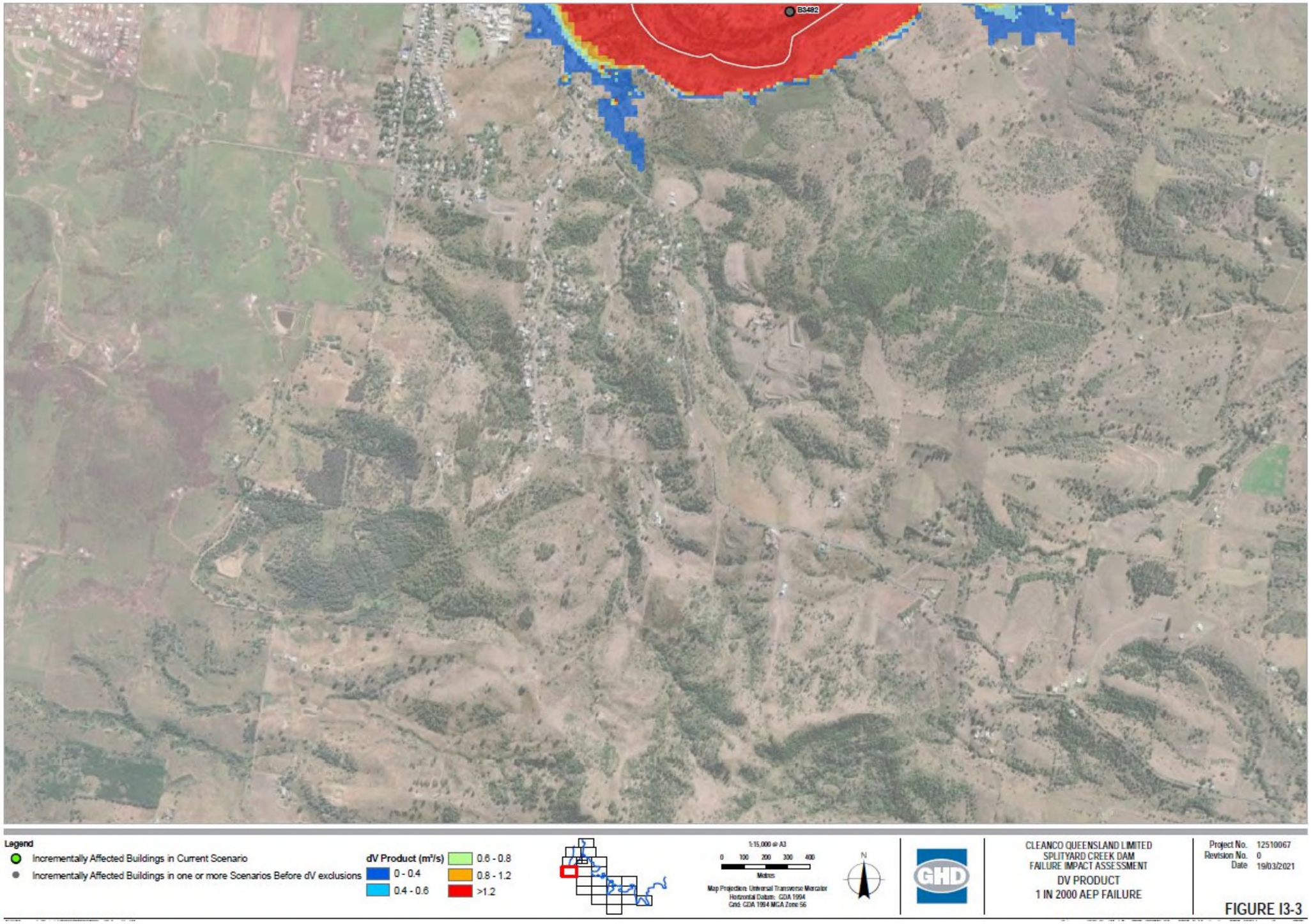


Figure 31: AEP 1 in 2000 Flood Depth/Velocity Hazard - Map 3



A3 – PMP Inundation Maps

Figure 32: PMP Flood Depth/Velocity Hazard - Map 5

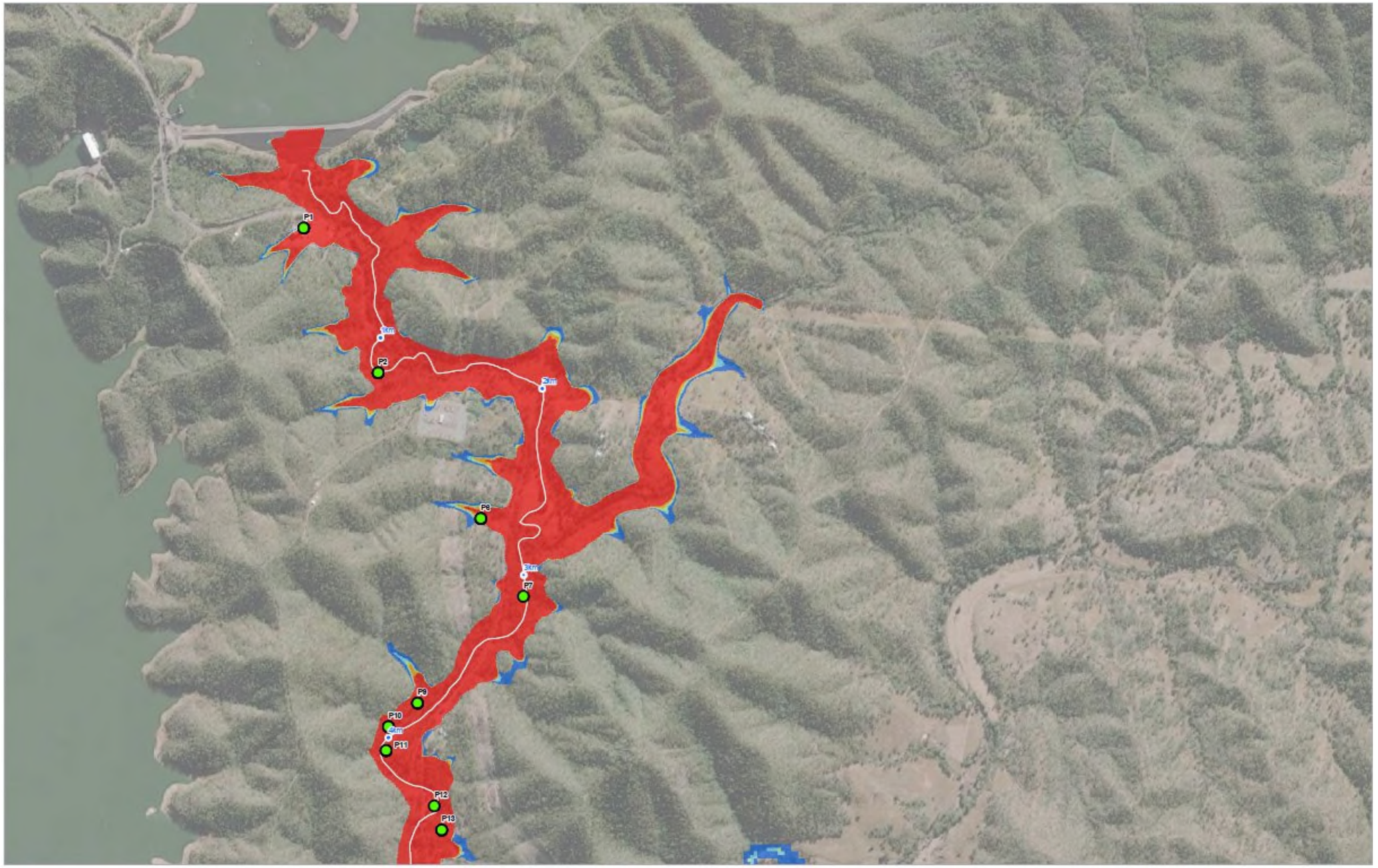


Figure 33: PMP Flood Depth/Velocity Hazard - Map 6

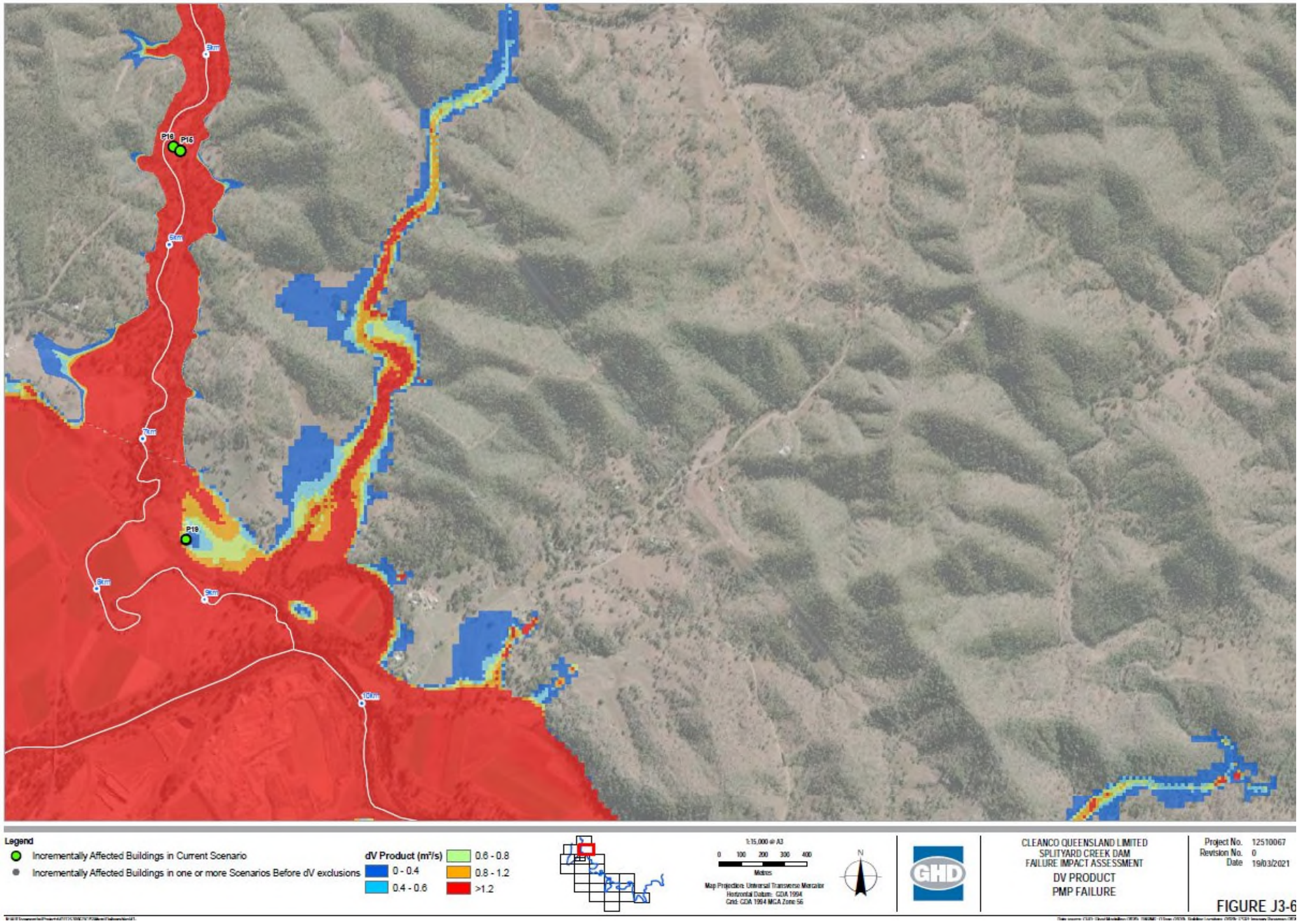
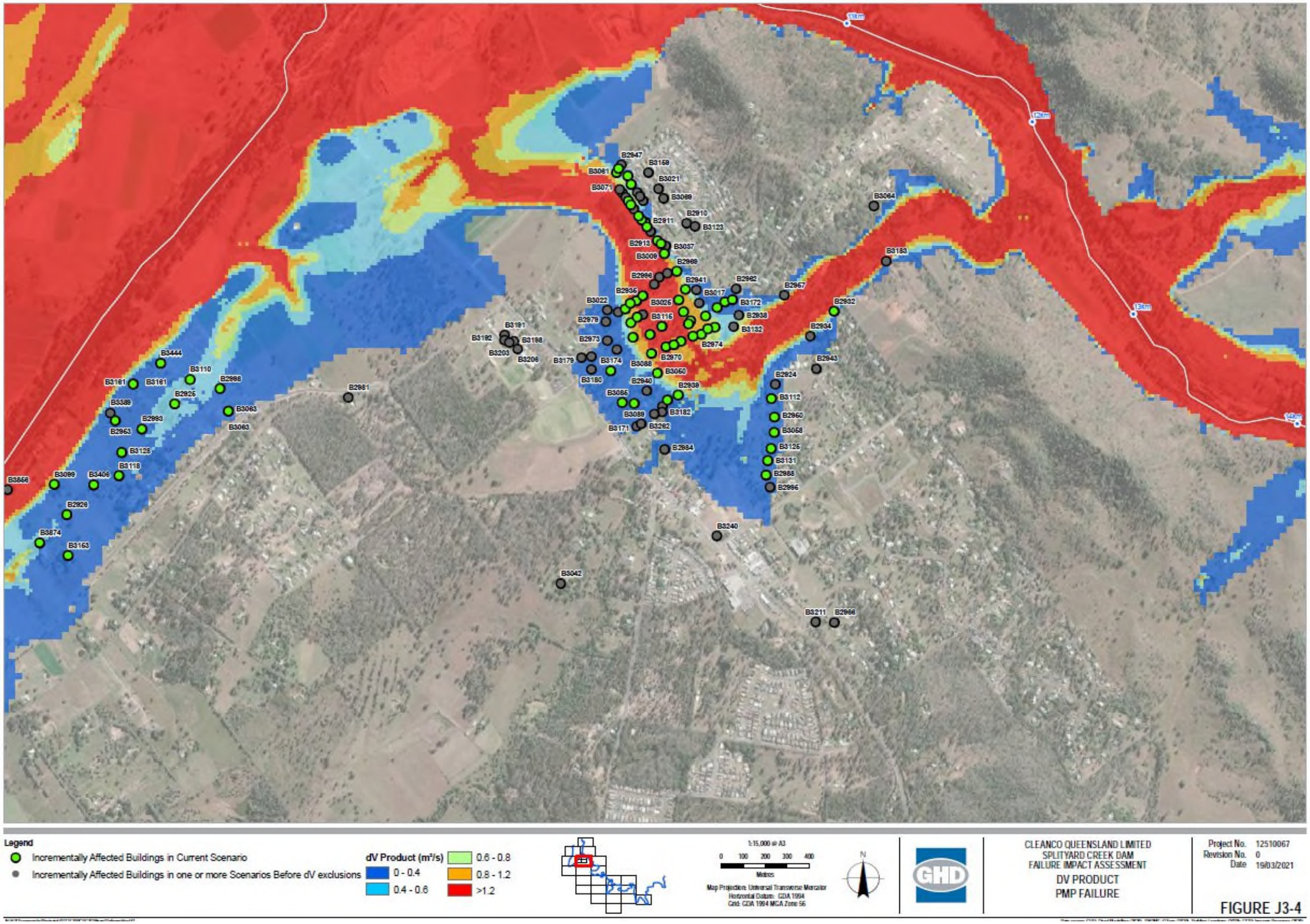


Figure 34: PMP Flood Depth/Velocity Hazard - Map 4



Legend

- Incrementally Affected Buildings in Current Scenario
- Incrementally Affected Buildings in one or more Scenarios Before dV exclusions

dV Product (m²/s)

0 - 0.4	0.6 - 0.8
0.4 - 0.6	0.8 - 1.2
	>1.2

1:15,000 @ A3
0 100 200 300 400
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

CLEANCO QUEENSLAND LIMITED
SPLITYARD CREEK DAM
FAILURE IMPACT ASSESSMENT
DV PRODUCT
PMP FAILURE

Project No. 12510067
Revision No. 0
Date 19/03/2021

FIGURE J3-4

Figure 35: PMP Flood Depth/Velocity Hazard - Map 4.2

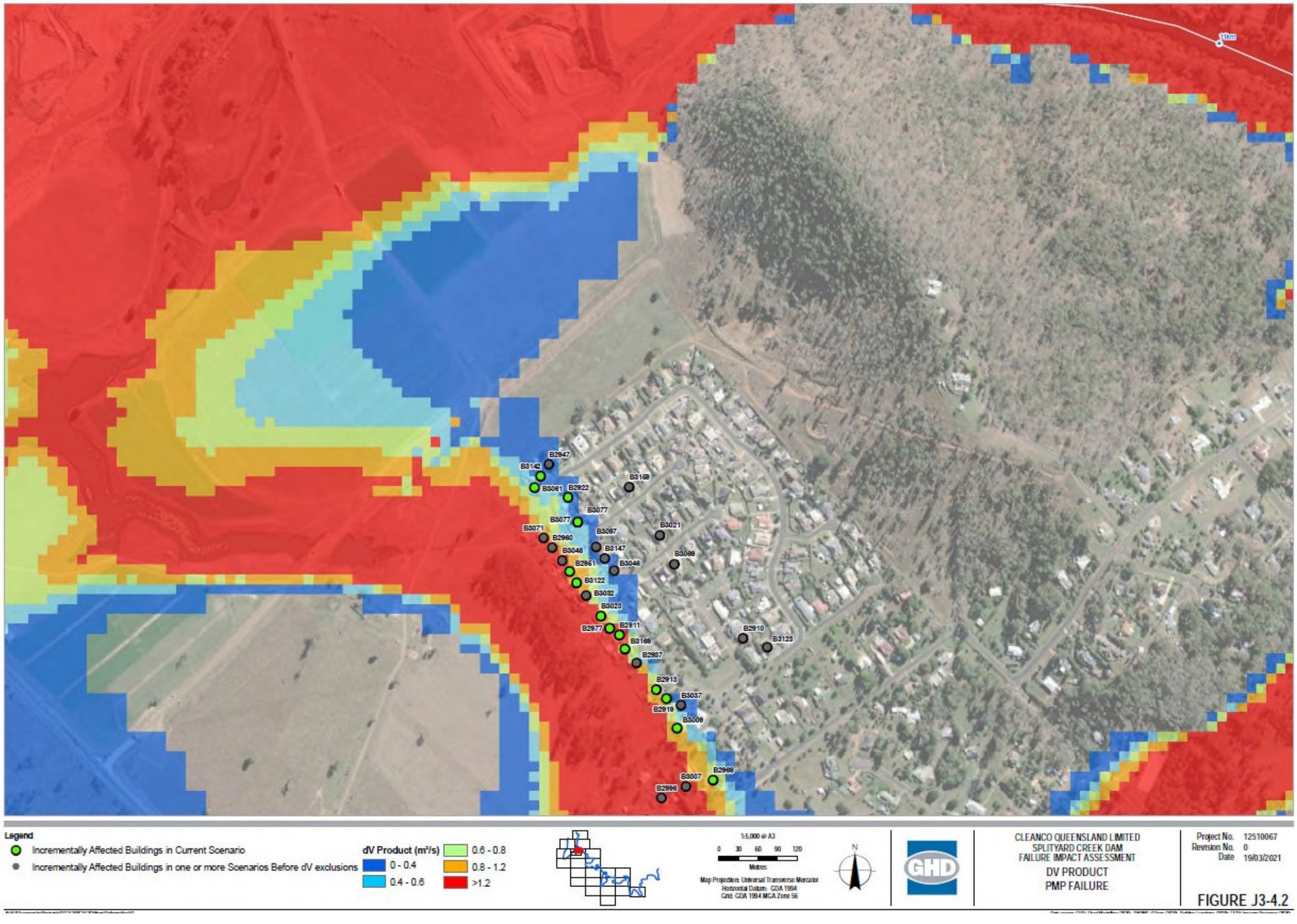


Figure 36: PMP Flood Depth/Velocity Hazard - Map 4.1

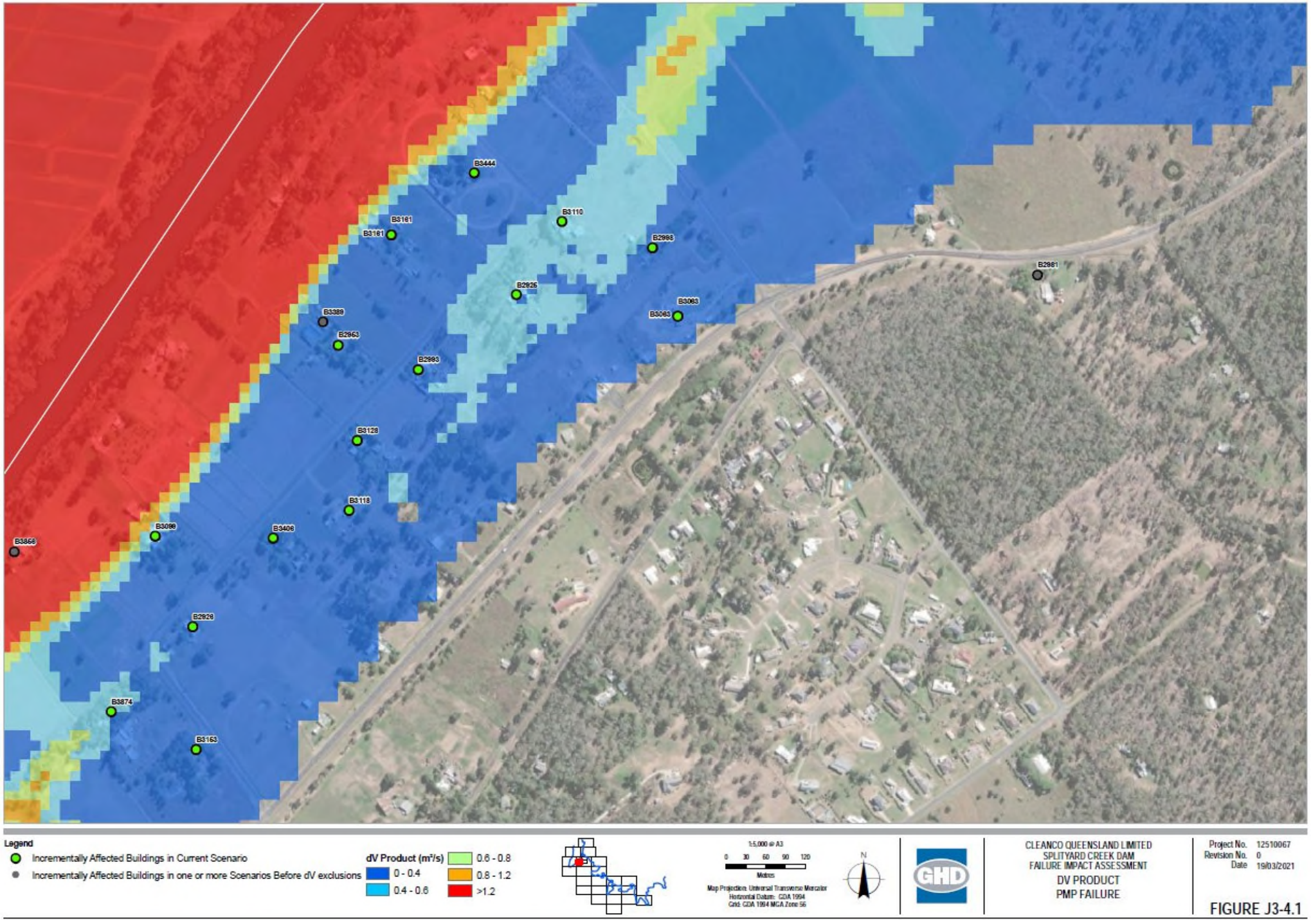
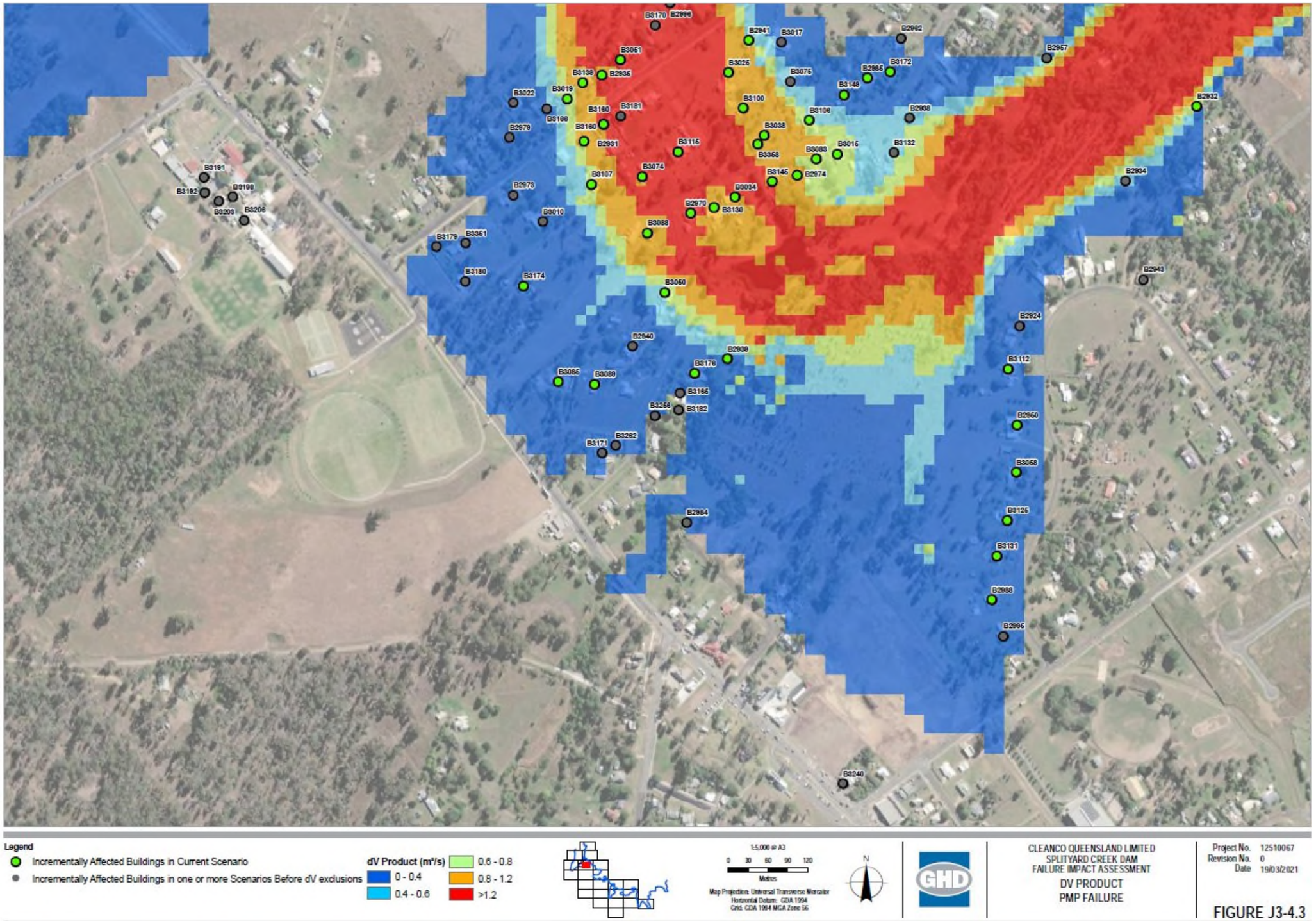


Figure 37: PMP Flood Depth/Velocity Hazard - Map 4.3



Legend

- Incrementally Affected Buildings in Current Scenario
- Incrementally Affected Buildings in one or more Scenarios Before dV exclusions

dV Product (m²/s)

0 - 0.4	0.6 - 0.8
0.4 - 0.6	0.8 - 1.2
	>1.2

1:5,000 @ A3
0 30 60 90 120
Metres
Map Projection: Universal Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

CLEANCO QUEENSLAND LIMITED
SPLITYARD CREEK DAM
FAILURE IMPACT ASSESSMENT
DV PRODUCT
PMP FAILURE

Project No. 12510067
Revision No. 0
Date 19/03/2021

FIGURE J3-4.3

Figure 38: PMP Flood Depth/Velocity Hazard - Map 7

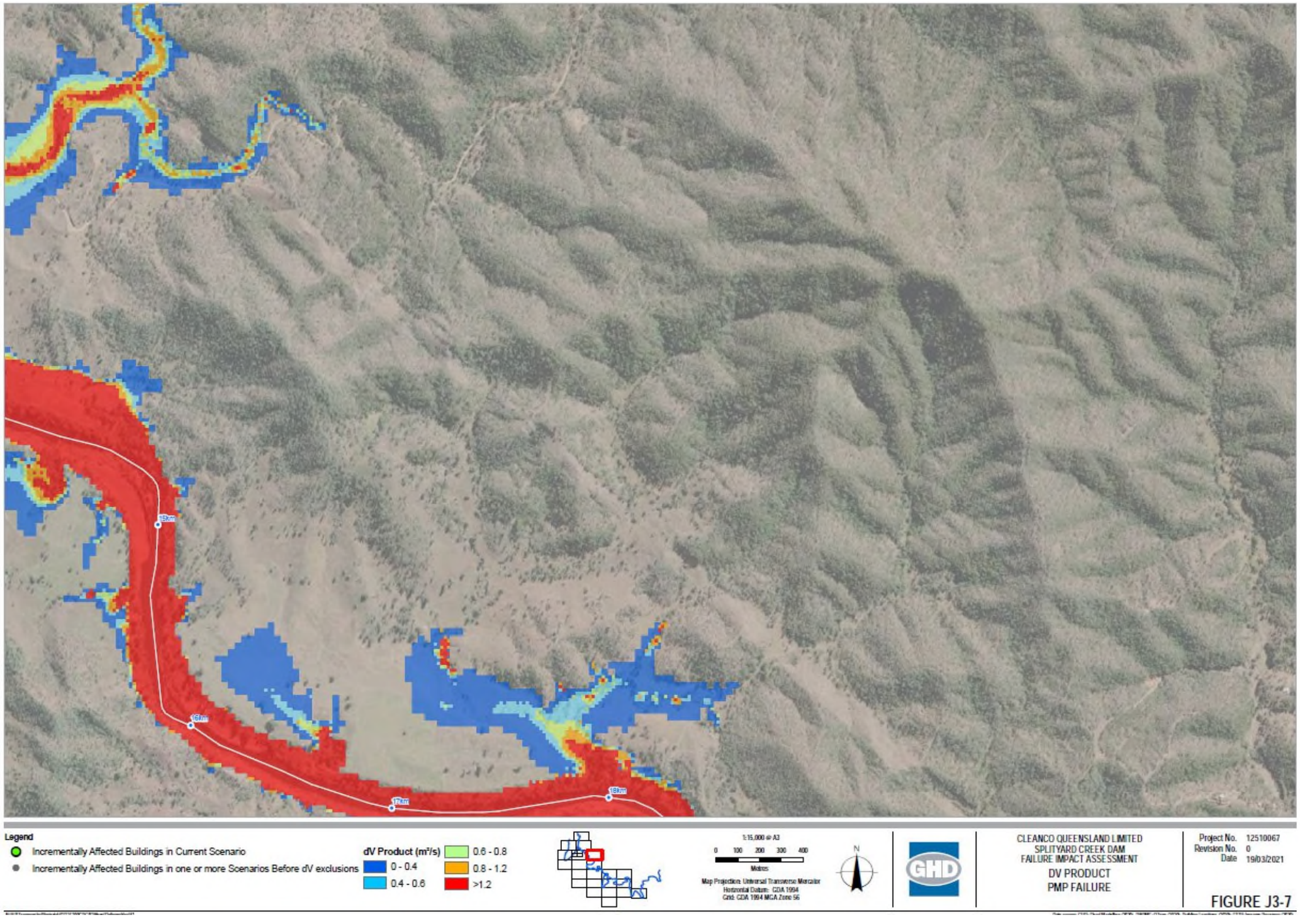


Figure 39: PMP Flood Depth/Velocity Hazard - Map 1

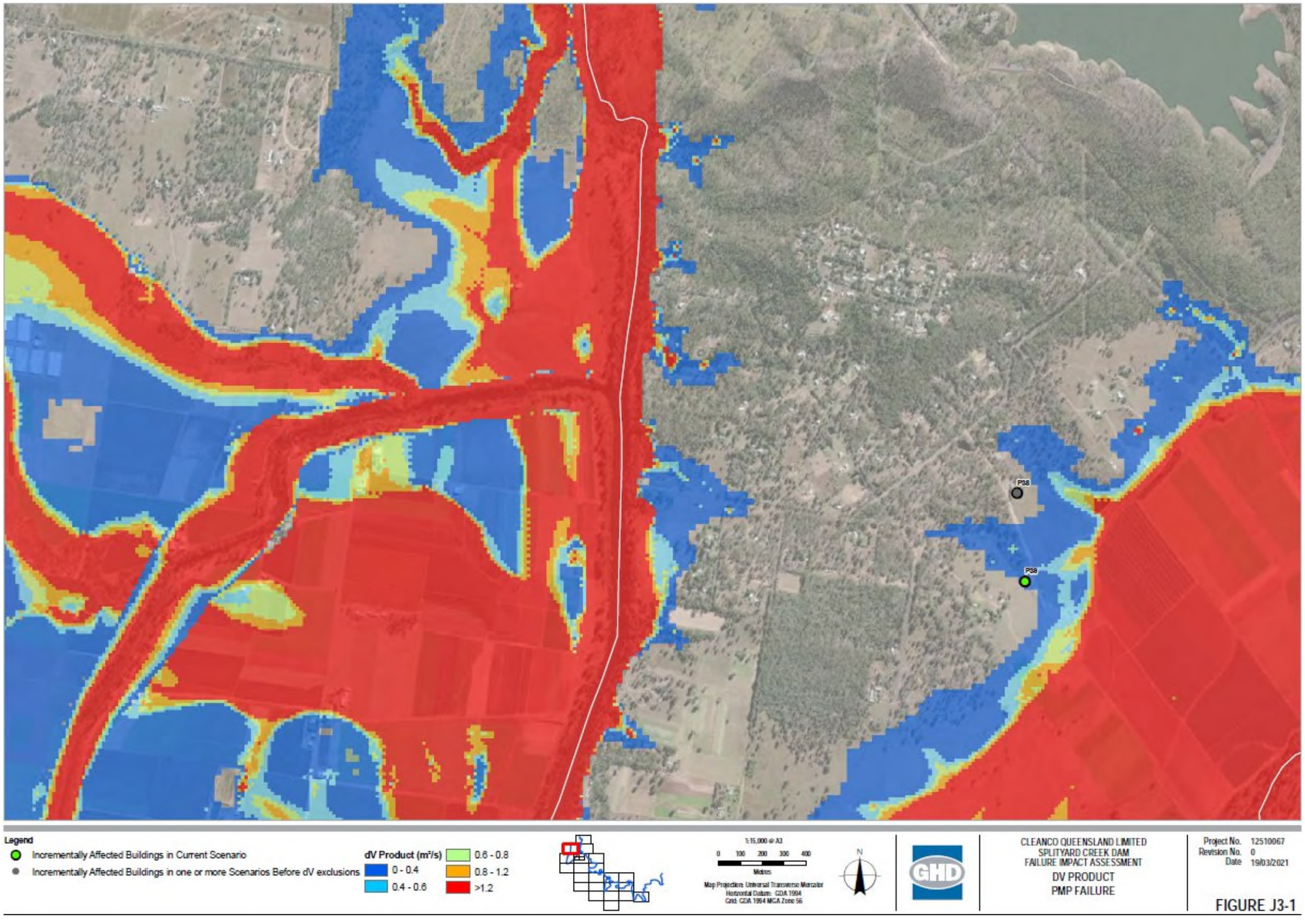


Figure 40: PMP Flood Depth/Velocity Hazard – Map 2

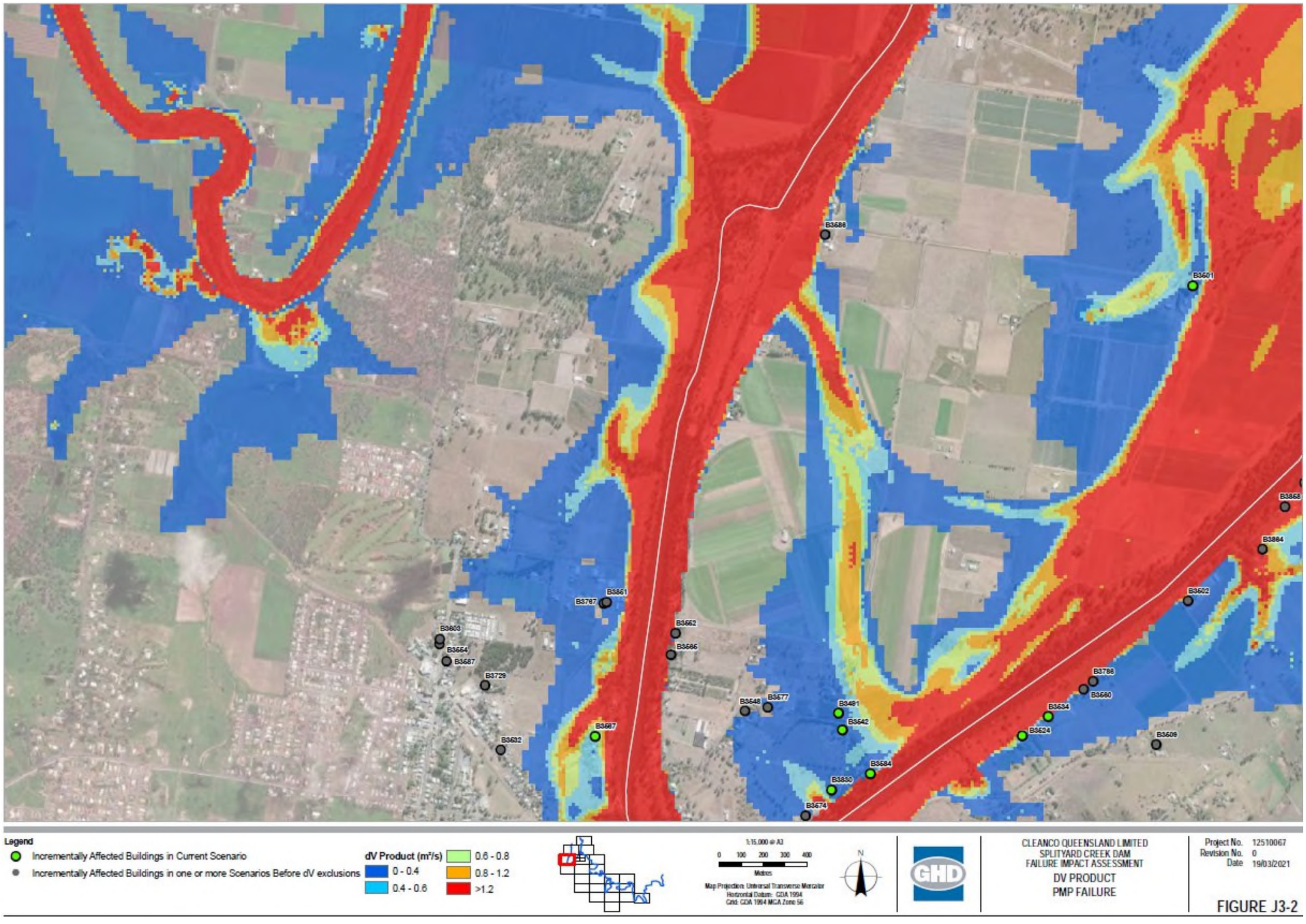


Figure 41: PMP Flood Depth/Velocity Hazard – Map 3

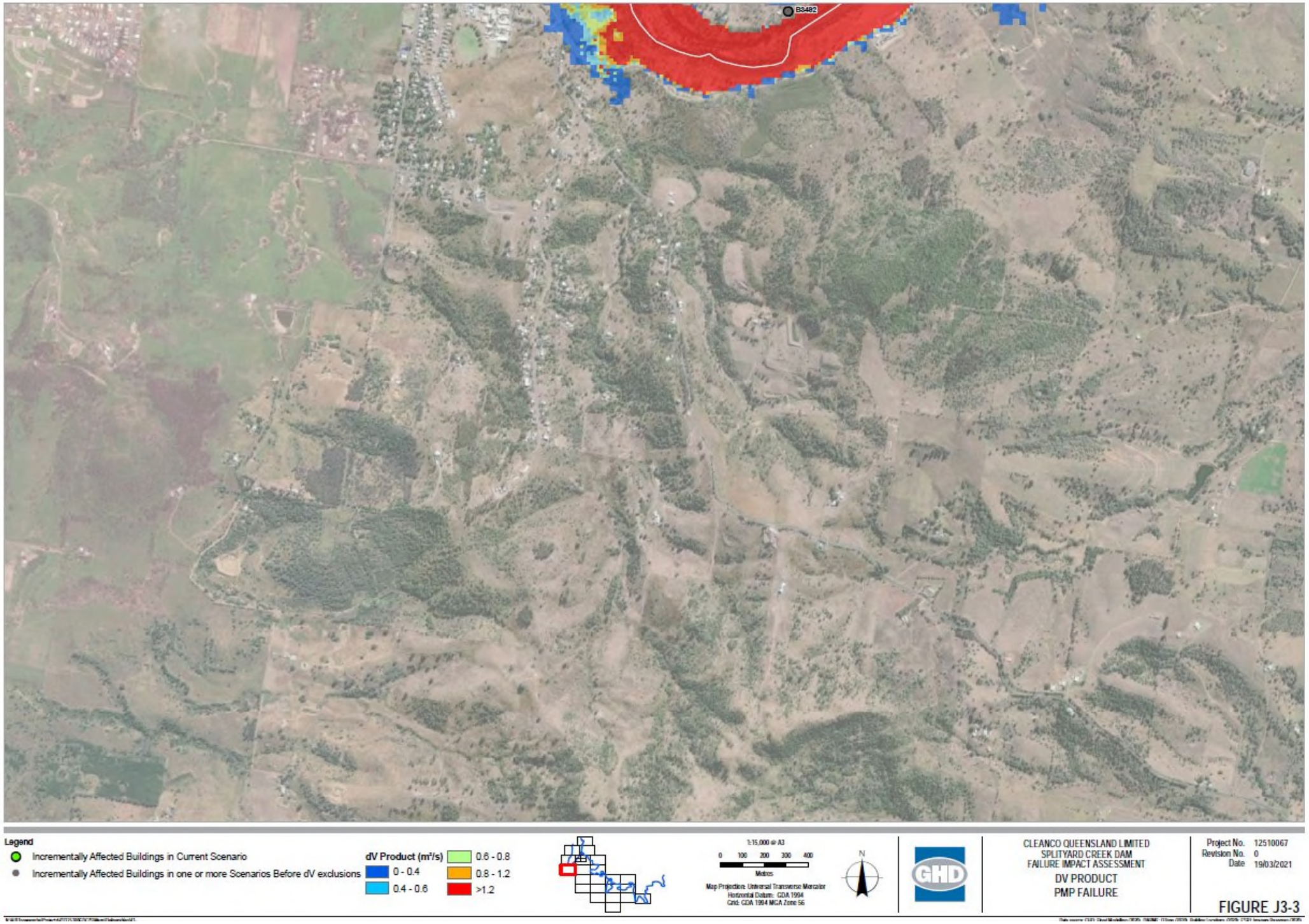


Figure 42: PMP Flood Depth/Velocity Hazard – Map 8

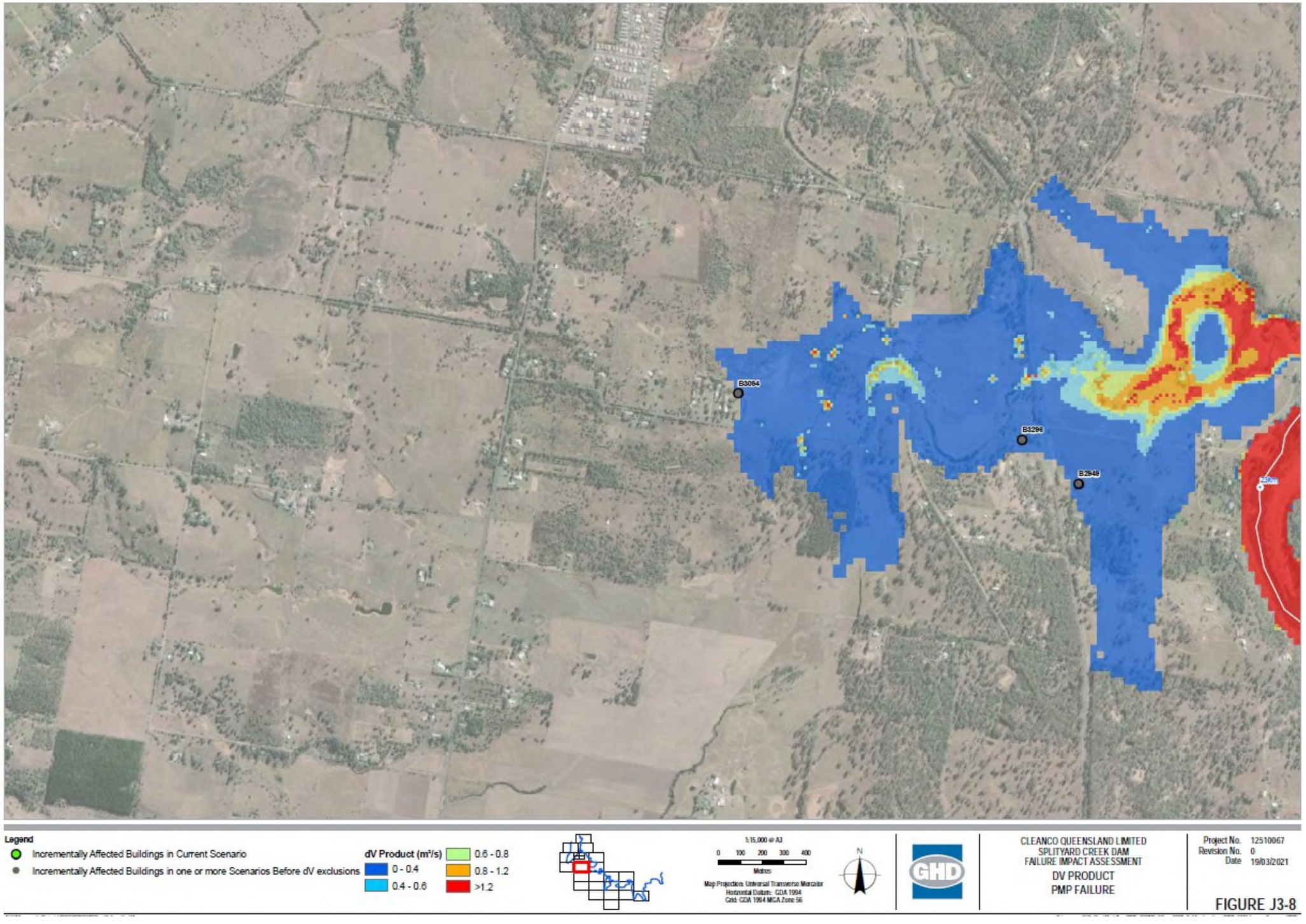
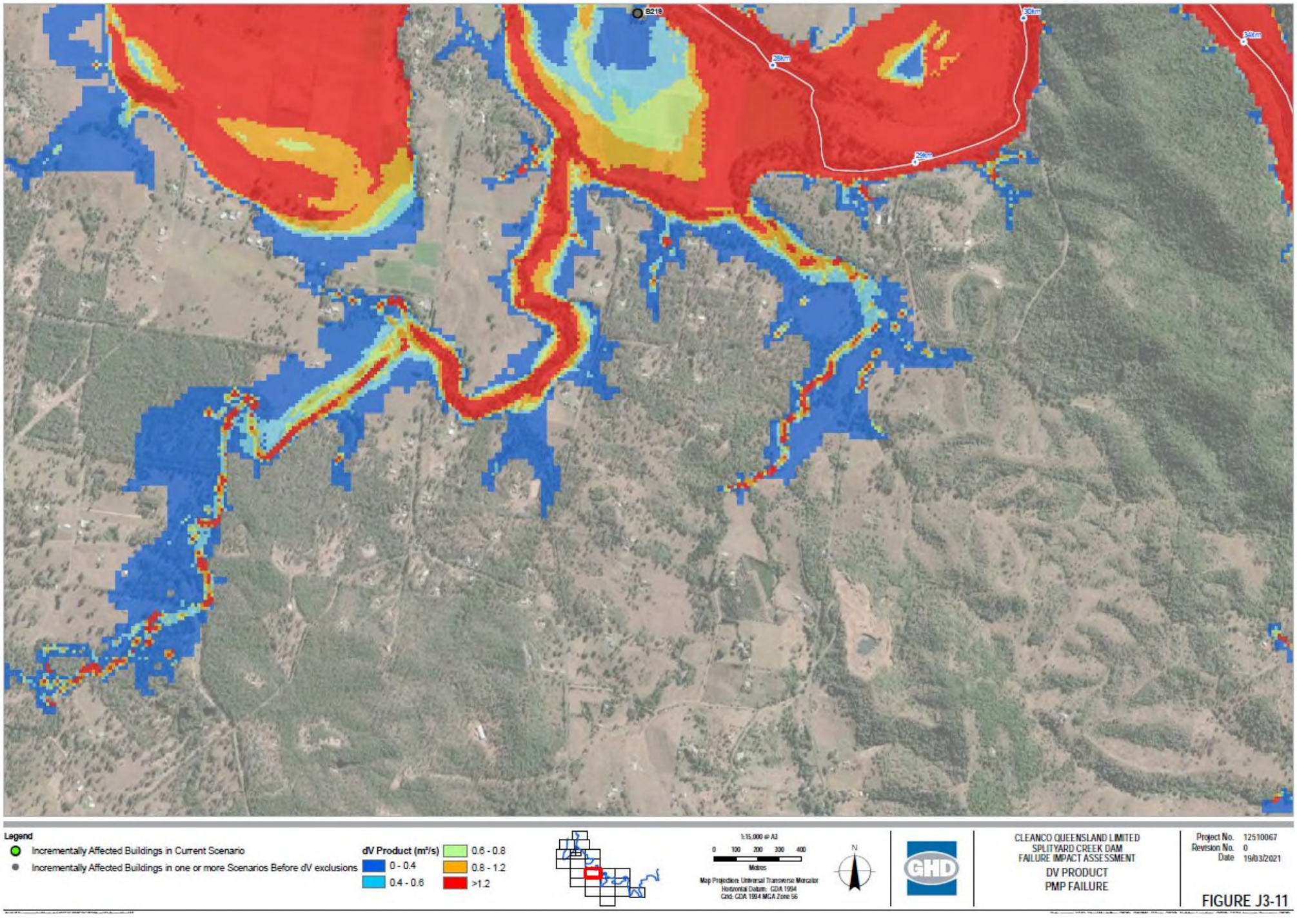


Figure 43: PMP Flood Depth/Velocity Hazard – Map 11

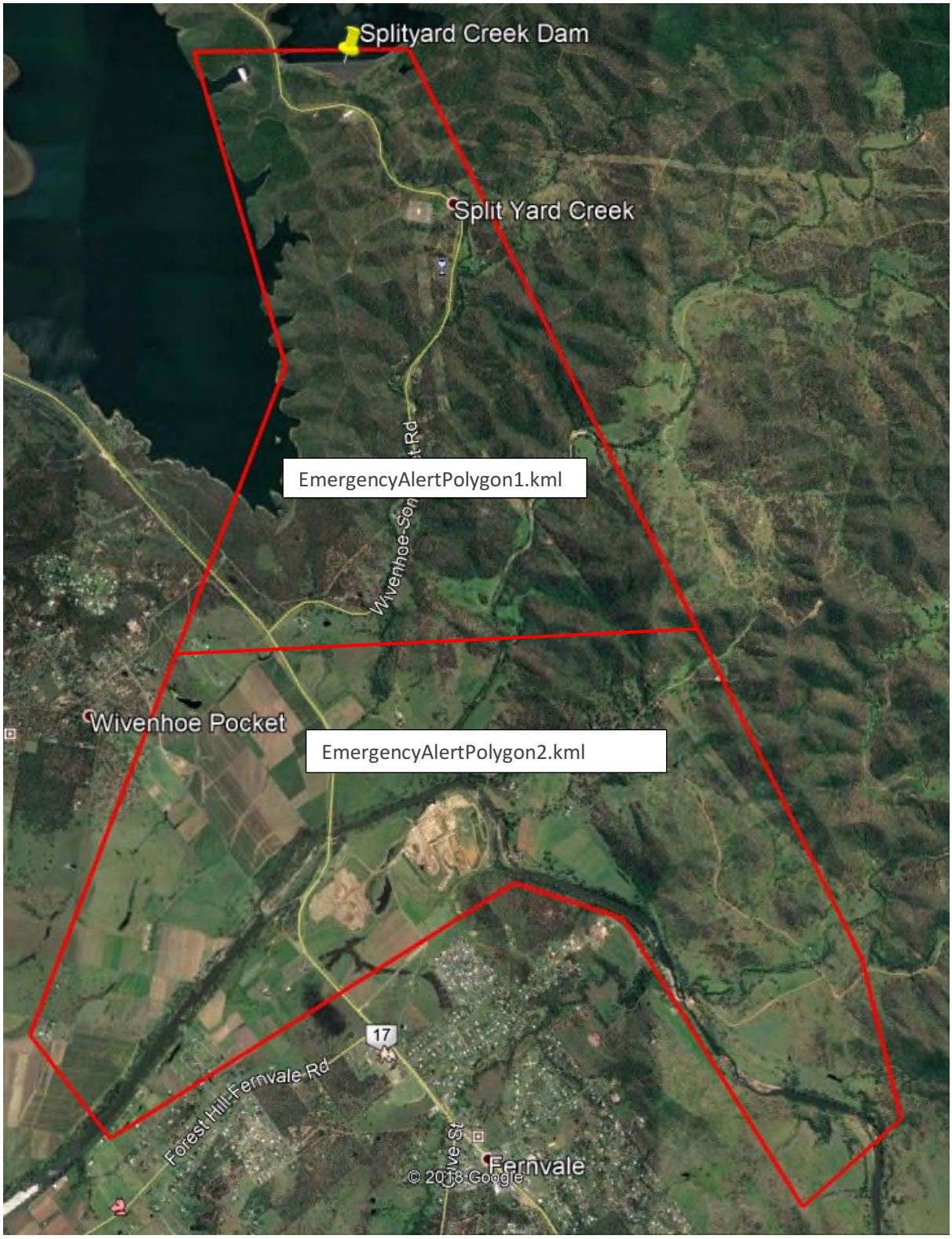


Appendix B NOTIFICATIONS AND COMMUNICATION LISTS

Appendix B1 to Appendix B5 have been redacted

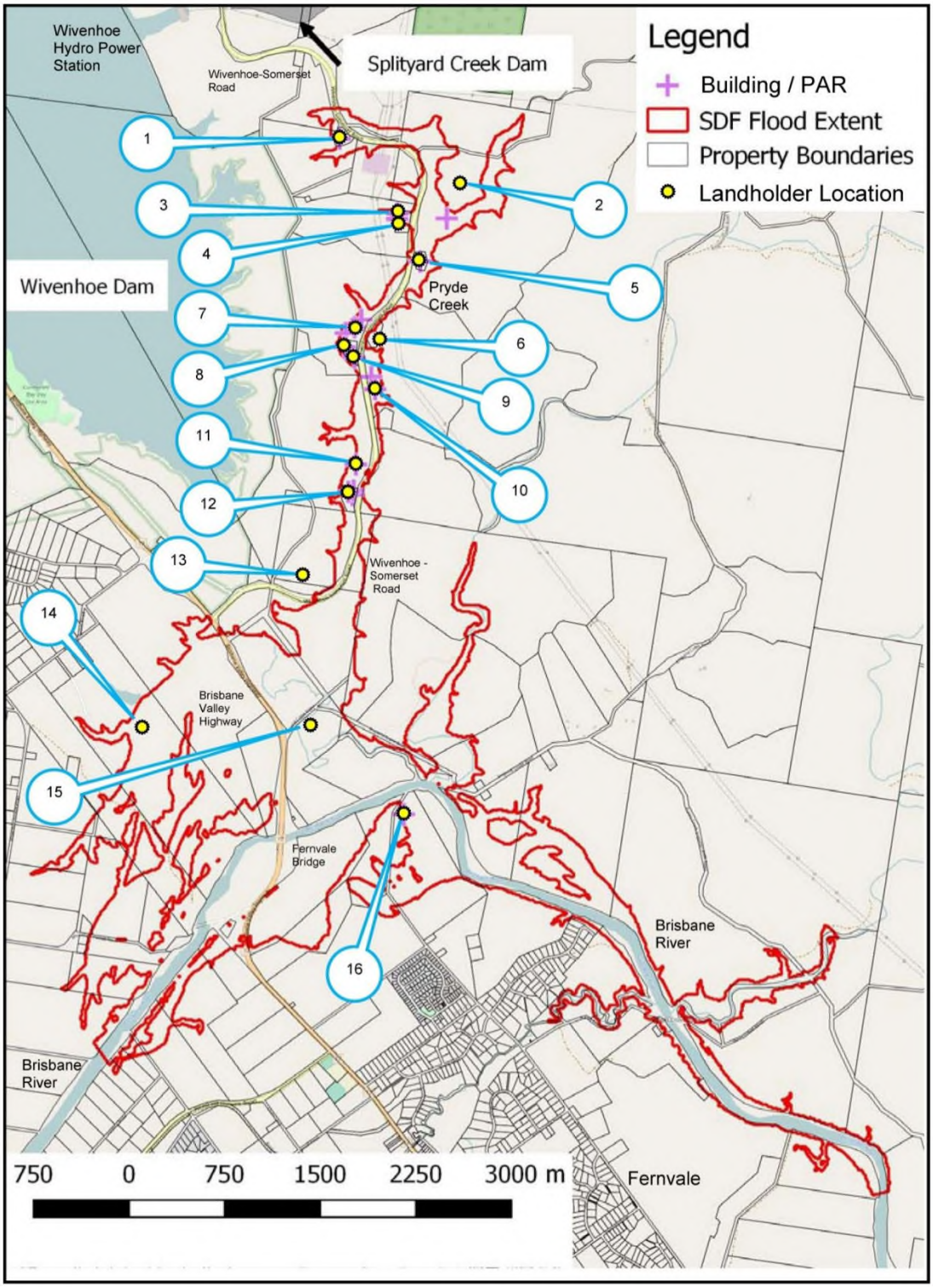
Appendix B6 EMERGENCY ALERT POLYGON

Figure 49: Emergency Alert Polygon



Appendix B7 SUNNY DAY FAILURE (SDF) FLOOD EXTENT AND PAR PROPERTY LOCATIONS

Figure 50: Sunny Day Failure (SDF) flood extent and PAR property locations



Appendix B8 DAM FAILURE EMERGENCY ALERT REQUEST

Sample only, create a new file using template W/D/20/54

Figure 51 Emergency Alert Request form

Queensland Government	EMERGENCY ALERT REQUEST	
	Location: Ipswich & Somerset LGAs	Date: xx / xx / xx20 Time: xxxx hrs
Requesting Officer: Name		Telephone: 24/7 available mobile no.
Agency/Position: CleanCo		Email: email address

Event Type	☐ Cyclone	☐ Storm Surge	☐ Flash Flood	☐ Flood
	☐ Bushfire	☐ Fire Incident	☐ Smoke or Toxic Plume	☐ Chemical Spill
	☐ Tsunami (NOTE Tsunami EA campaigns will be sent as Location Based Text Message ONLY)			
	☒ Other (please specify): Dam Emergency			
Message Severity	☐ Emergency Warning (NOTE activates the SEWS)		☐ Watch & Act	☐ Advice
Campaign Mode	☒ Voice	☒ SMS – Location Based	☐ SMS – Service Address Based	
LDMG Advised	☒ YES ☐ NO		DDMG Advised	☒ YES ☐ NO

Threat Direction Required?	☐ YES ☒ NO	Note: Can only be used for Emergency Warnings. Indicate direction on map
STEP 1. EA Polygon Area: Use Splityard Ck EmergencyAlertPolygon		STEP 2. Filename: EmergencyAlertPolygon2.kml
STEP 3. Spatial format: (Indicate the format used) ☒ KML *.kml (preferred format as per Spatial guidelines) ☐ ESRI *.dbf, *.prj, *.shp, *.shx ☐ GML *.gml, *.xsd ☐ MapInfo TAB *.dat, *.id, *.map, *.tab ☐ MapInfo Mid/Mif *. MIDI Sequence, *.mif ☐ OTHER		STEP 4. Messaging/spatial data, is it supplied via ☒ DMportal - specify filenames below ☐ FTP - specify filenames below ☐ Email ☐ Other (please specify) Filename: SplityardCkDam_Downstream.kml (saved in the "Referable Dams" > "Splityard Creek Dam" folder on the EA Portal

Type (please use capitals for clarity) or handwrite Voice message (Ideally message should be less than 450 characters).
This is a Dam Emergency message from Ipswich and Somerset Councils. There is a dam emergency occurring at the split yard creek dam. [more detailed warning information as required]. Residents downstream of the split yard creek dam should [action to take]. For more information, listen to local radio, or visit [website], or call [hotline]. In the case of a life threatening emergency, please dial triple zero immediately.
Type or handwrite SMS below (maximum of 160 characters including spaces)
Ipswich / Somerset Councils advise: Dam Emergency at the Splityard Creek Dam. [Action to take]. [Website / Hotline / Radio for more information]
SEND TO [redacted] TO CONFIRM

FOR USE BY SDCC		
Requesting Officer: / /20	Signature	☐ Manual Transmission ☐ EMS Transmission

EA User Name: / /20	Signature	EA Campaign No. _____ EMS Report ID: _____
Authorising Officer Name: / /20	Signature	
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.	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. 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"
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//

//FireIncident//

Appendix B9 AWS RIVERINE FLOOD > WATCH AND ACT > PREPARE TO LEAVE

PREPARE TO LEAVE – Pryde Creek (Wivenhoe-Somerset Road) – flood as at 00:00, Day, xx/xx/20XX

Warning level: WATCH AND ACT

Warning area: Areas along Pryde Creek (Wivenhoe-Somerset Road) Creek

People in the following places must prepare to leave:

- Pryde Creek (Wivenhoe-Somerset Road)
- England Creek
- Twin Bridges
- Wivenhoe Pocket

[Provide link to map of affected area]

Water in the Pryde Creek may rise and cause wide-spread flash flooding. You might need to leave if the situation gets worse.

Do not expect emergency services to come to your door.

If your life is in danger, call Triple Zero (000) immediately. For flood and storm emergency help, call the SES on 132 500 or download the SES Assistance QLD app.

What you should do

- Prepare to leave so you can go quickly and safely if the flood gets worse. Get ready now.
- If you have children make sure they are with you or a responsible adult.
- Move cars to high ground.
- Decide where you and the people you live with will go. Find a safe and high place away from flooding. This could be with family or a friend.
- People who do not live or work in the warning area (like visitors) should leave now.
- If you do not have a safe place, [an evacuation centre has / evacuation centres have] been set up at:
  - venue name and full address [add map link if available].
  - venue name and full address [add map link if available].
- Prepare to leave so you can go quickly and safely if the flood gets worse. Get ready now:
  - Lift important things onto benches, tables, high shelves or upstairs to protect them.
  - Charge mobile phones now.

  - Lock windows and doors.
  - Be ready to take your pets, pet food, pet lead or crate, mobile phone, charger, enough clothes for three days, important documents (like identification, insurance papers and passports), medicine, cash and keys with you.
  - If you have very young children, pack enough nappies for up to five days, wipes, bottles, formula or baby food. Plan to not have a fridge or microwave.
  - Batten down and tie up boats, jetskis. Haul out if you can.
- Decide how you will get to your safe place. If you come to a flooded road, turn around and go another way. Do not drive through floodwater.
- Warn friends, family and neighbours in the area that a flood is coming.
- Help others to get ready to leave if you can.
- If you find it hard to move quickly, leaving now is safer.
- If you do not drive, call your support service, a family member or a friend to organise transport if the flood gets worse and you need to leave.
- Stay informed:
  - Click here for all warnings http://disaster.somerset.qld.gov.au/
  - Listen to your local radio station ABC 612 Brisbane or River 94.9FM

Impacts in your area [insert what suits your area and event, such as]

- Flooding above ground floor level likely in some places.
- Main roads and bridges may be closed due to flooding.
- Evacuation routes might be cut off. You could be stuck.
- Power, phones, internet and water might stop working.
- Public transport could stop soon.

More information

- Ipswich City Council updates and a map of areas that flood near you, go tohttp://disaster.somerset.qld.gov.au/, [social media accounts].
- Weather warnings go to Bureau of Meteorology Queensland warnings page.
- Power outage information, go to Energex – https://www.energex.com.au/home/power-outages
- Traffic information and closed roads, go to QLD Traffic or call 13 19 40.
- Find out how to get ready for a flood at qfes.qld.gov.au/prepare/flooding. [or similar]

The next update will be sent at [time, day, date] or when the situation changes.

This warning is from [Somerset Regional Council/ CleanCo]

Appendix B10: AWS RIVERINE FLOOD > EMERGENCY WARNING > LEAVE IMMEDIATELY

LEAVE IMMEDIATELY – Pryde Creek (Wivenhoe-Somerset Road) – flood as at 00:00, Day, xx/xx/20XX

Warning level: EMERGENCY WARNING

Warning area: Areas along Pryde Creek (Wivenhoe-Somerset Road)

People in the following places must LEAVE IMMEDIATELY:

- Pryde Creek (Wivenhoe-Somerset Road)
- England Creek
- Twin Bridges
- Wivenhoe Pocket

[Provide link to map of affected area]

Major flooding is happening now. Water in the Pryde Creek is rising fast. Your life is at risk.

Do not expect emergency services to come to your door.

If your life is in danger call Triple Zero (000) immediately. If you are flooded in your home, call the SES on 132 500.

What you should do

- GO NOW to a safe place in a high part of Ipswich away from the flood. This could be with family or a friend.
- If you do not have a safe place, [an evacuation centre has / evacuation centres have] been set up at:
  - venue name and full address [add map link if available].
  - venue name and full address [add map link if available].
- Take your mobile phone, medicine, identification, cash, and keys with you.
- Decide how you will get to your safe place. If you come to a flooded road, turn around and go another way. Do not drive through floodwater. Do not walk, swim or boat through floodwater.
- Help others if you can.
- Stay informed:
  - Click here for all warnings http://disaster.somerset.qld.gov.au/

- Listen to your local radio station ABC 612 Brisbane or River 94.9FM

Impacts in your area

- Flooding above ground floor level likely in some places.
- Main roads and bridges may be closed due to flooding.
- Evacuation routes might be cut off. You could be stuck.
- Power, phones, internet and water might stop working.
- Public transport could stop soon.

More information

- Somerset Regional Council updates and a map of areas that flood near you, go tohttp://disaster.somerset.qld.gov.au/, [social media accounts].
- Weather warnings go to Bureau of Meteorology Queensland warnings page.
- Power outage information, go to Energex – https://www.energex.com.au/home/power-outages
- Traffic information and closed roads, go to QLD Traffic or call 13 19 40.
- Find out how to get ready for a flood at qfes.qld.gov.au/prepare/flooding. [or similar]

The next update will be sent at [time, day, date] or when the situation changes.

This warning is from [Somerset Regional Council/ CleanCo]

Appendix B11: AWS AFTER THE FLOOD > ADVICE > THREAT IS REDUCED

THREAT IS REDUCED – Pryde Creek (Wivenhoe-Somerset Road) – flood as at 00:00, Day, xx/xx/20XX

Warning level: ADVICE

Warning area: Areas along Pryde Creek

- Pryde Creek (Wivenhoe-Somerset Road)
- England Creek
- Twin Bridges
- Wivenhoe Pocket

Flooding has stopped and the water has gone down. If you left, it is now safe to come back. Be careful of damage.

What you should do:

- Return to your home or business to check the damage.
- Stay away from creeks, rivers and drains.
- If you have children make sure they are with you or an adult you trust.
- Drive slowly, obey all road signs and never drive through floodwaters. If the road is flooded or damaged, go another way.
- Stay away from the area unless you live or work there, or you are helping.

If your home or business has been flooded:

- Check for building damage before you go inside.
- Have all electrical and gas equipment professionally tested before use.
- If water went above power points have the house checked by an electrician before turning the power back on.
- Clean and dry out the building as soon as you can.
- Be careful where you walk – do not trip or slip.
- Protect your health and safety:
    - Wear strong boots, gloves and protective clothing when cleaning up.

  - Wash your hands and clothes often.
  - Do not eat food that has touched floodwater or mud.
  - Throw away food that should be kept cold or frozen if you lost power.
  - Drink only fresh drinking water, like bottled water.
- For flood and storm emergency help, call the SES on 132 500 or download the SES Assistance Queensland app. Help yourself and others if you can.

Impacts in your area

- Roads and buildings have been badly damaged. Visit QLD Traffic to find out about closed roads or call 13 19 40.
- Power and water are off in some places. These will be restored when it is safe. For power outage information, visit Energex https://www.energex.com.au/home/power-outages
- There is a lot of mud and rubbish on the ground and in the water.
- There could be more spiders, rats and snakes inside.

Support and recovery help

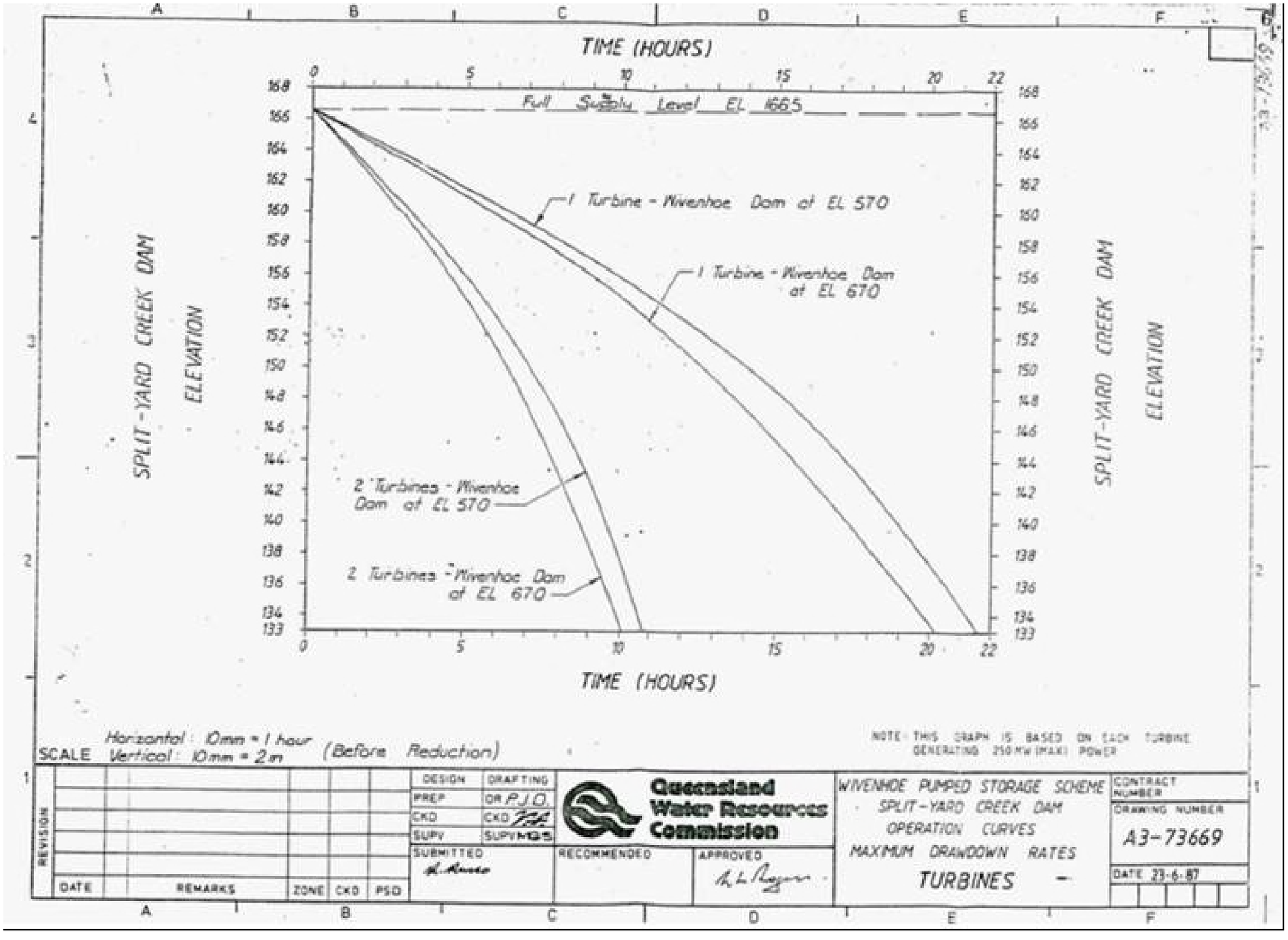
- Go to Ipswich City Council http://disaster.somerset.qld.gov.au/for clean-up and recovery information.
- For general relief and recovery information go to getready.qld.gov.au/after-disaster.
- Natural disasters can affect your mental health. If you need help, call any of these groups:
  - Lifeline: Go to http://www.lifeline.org.au or phone 13 11 14.
  - Beyond Blue: Go to http://www.beyondblue.org.au or phone 1300 224 636.
  - Kids Helpline: Go to http://www.kidshelpline.com.au or phone 1800 551 800.

This will be the last warning issued for this flood in Pryde Creek.

This warning is from [Somerset Regional Council/ CleanCo]

Appendix C STORAGE AND SPILLWAY DISCHARGE DATA

Figure 52: Appendix A1SPLITYARD CREEK DAM – OPERATIONAL CURVES FOR MAXIMUM DRAWDOWN RATES



NOTE: Spillway discharges flow north into Branch Creek and return to Wivenhoe Lake. Spillway discharges do not enter the original watercourse south into Pryde Creek

Figure 53: SPLITYARD CREEK DAM – SPILLWAY DISCHARGE CURVE

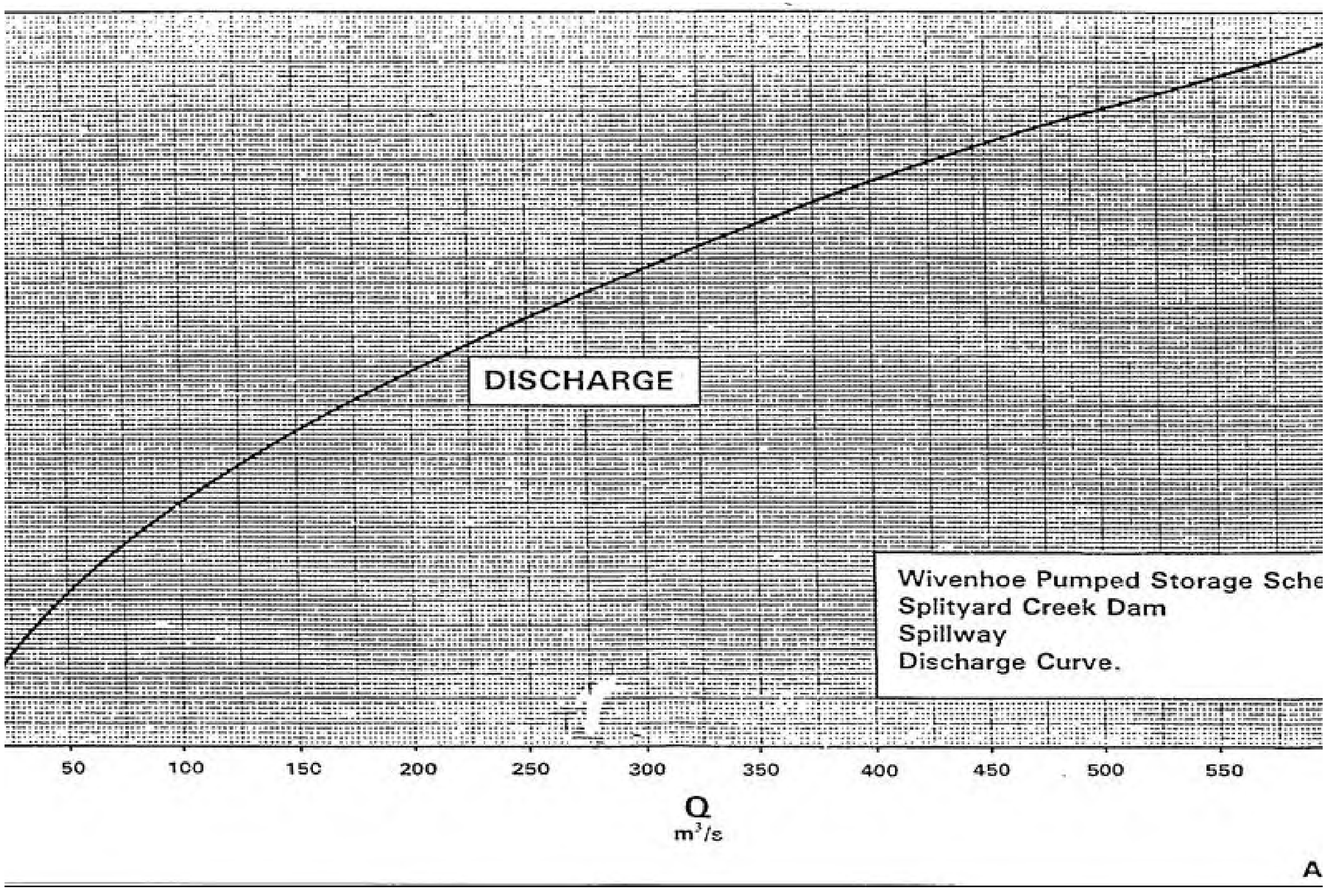
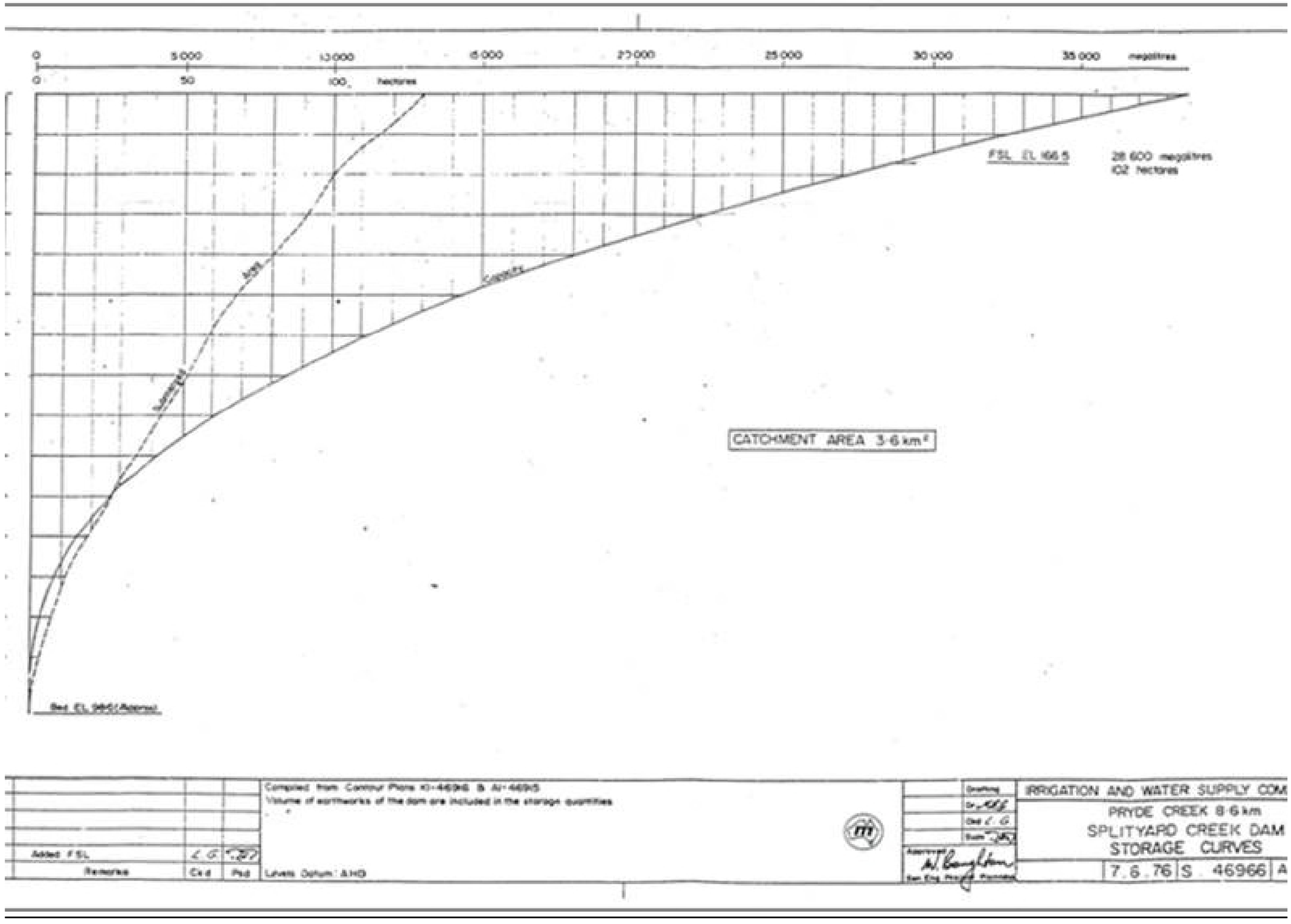


Figure 54: SPLITYARD CREEK DAM – RESERVOIR STORAGE CURVES



Appendix D DAM BREAK INFORMATION – FLOOD HEIGHTS AT BUILDING LOCATIONS

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Splityard Creek 2023 – v14.2

			1 in 100 year AEP			1 in 2000 year AEP			PMP			SDF	
ID	Building Type	Plinth	No Failure	Failure	+/-	No Failure	Failure	+/-	No Failure	Failure	+/-	Failure	+/-
B2910	House	50.06	-	-	-	50.24	50.92	0.68	-	-	-	-	-
B2911	House	42.67	42.81	43.80	1.00	50.31	50.99	0.67	42.80	43.88	1.08	-	-
B2913	House	42.71	42.77	43.68	0.91	50.29	50.96	0.68	42.76	43.74	0.99	-	-
B2919	House	42.82	42.75	43.64	0.88	50.28	50.95	0.68	42.74	43.70	0.95	-	-
B2922	House	43.35	-	44.12	0.76	50.41	51.08	0.67	-	44.20	0.85	-	-
B2925	House	43.28	43.13	44.43	1.30	50.56	51.23	0.67	43.11	44.51	1.40	-	-
B2926	House	43.81	43.55	44.55	1.00	50.63	51.27	0.65	-	44.62	0.81	-	-
B2931	House	42.46	42.41	43.08	0.67	50.27	50.95	0.68	42.40	43.14	0.74	-	-
B2932	House	41.26	41.57	42.71	1.14	50.05	50.72	0.66	41.56	42.81	1.25	-	-
B2935	House	42.43	42.55	43.25	0.71	50.27	50.95	0.68	42.54	43.31	0.77	-	-
B2939	House	41.84	-	42.74	0.90	50.26	50.95	0.69	-	42.84	1.00	-	-
B2941	House	42.74	-	43.15	0.41	50.23	50.91	0.68	-	43.21	0.46	-	-
B2943	House	49.98	-	-	-	50.12	50.80	0.68	-	-	-	-	-
B2950	House	42.26	-	42.74	0.47	50.26	50.95	0.69	-	42.84	0.58	-	-
B2951	House	42.81	42.88	44.01	1.13	50.37	51.04	0.67	42.87	44.09	1.22	-	-
B2953	House	43.88	-	44.47	0.59	50.58	51.24	0.66	-	44.54	0.66	-	-
B2966	House	50.20	-	-	-	50.27	50.97	0.70	-	-	-	-	-
B2969	House	42.81	42.66	43.40	0.74	50.24	50.92	0.68	42.64	43.45	0.81	-	-
B2970	House	41.68	41.74	42.77	1.03	50.25	50.94	0.68	41.73	42.87	1.14	-	-
B2974	House	41.56	41.57	42.73	1.15	50.23	50.91	0.68	41.56	42.83	1.27	-	-
B2977	House	42.63	42.81	43.83	1.02	50.32	51.00	0.67	42.80	43.90	1.10	-	-
B2981	House	50.27	-	-	-	50.51	51.20	0.69	-	-	-	-	-
B2985	House	41.90	41.57	42.72	1.15	50.19	50.87	0.68	41.56	42.82	1.26	-	-
B2988	House	42.13	-	42.74	0.61	50.27	50.96	0.69	-	42.84	0.72	-	-
B2993	House	43.77	-	44.45	0.68	50.58	51.24	0.66	-	44.53	0.76	-	-
B2998	House	43.02	43.13	44.41	1.29	50.55	51.22	0.67	43.11	44.50	1.39	-	-
B3009	House	42.77	-	43.55	0.78	50.26	50.94	0.68	-	43.61	0.84	-	-
B3015	House	41.32	41.57	42.72	1.15	50.22	50.90	0.68	41.56	42.82	1.27	-	-
B3019	House	42.59	42.51	43.19	0.68	50.27	50.96	0.68	42.51	43.25	0.75	-	-
B3021	House	50.13	-	-	-	-	51.02	0.89	-	-	-	-	-
B3023	House	42.74	42.82	43.86	1.04	50.33	51.00	0.67	42.81	43.93	1.12	-	-

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Splityard Creek 2023 – v14.2

			1 in 100 year AEP			1 in 2000 year AEP			PMP			SDF	
ID	Building Type	Plinth	No Failure	Failure	+/-	No Failure	Failure	+/-	No Failure	Failure	+/-	Failure	+/-
B3025	House	42.33	42.44	43.08	0.64	50.24	50.92	0.68	42.44	43.14	0.70	-	-
B3034	House	41.59	41.71	42.76	1.04	50.25	50.93	0.68	41.70	42.86	1.15	-	-
B3038	House	42.04	41.94	42.78	0.85	50.23	50.91	0.68	41.93	42.88	0.95	-	-
B3042	House	50.36	-	-	-	50.27	50.97	0.70	-	-	-	-	-
B3050	House	41.57	41.61	42.76	1.16	50.26	50.95	0.68	41.59	42.86	1.27	-	-
B3051	House	42.38	42.55	43.26	0.71	50.27	50.95	0.68	42.54	43.32	0.77	-	-
B3058	House	42.23	-	42.74	0.50	50.27	50.96	0.69	-	42.84	0.61	-	-
B3061	House	42.63	42.92	44.14	1.21	50.43	51.10	0.67	42.91	44.22	1.31	-	-
B3063	House	43.99	-	44.42	0.42	50.55	51.22	0.67	-	44.50	0.51	-	-
B3064	House	49.90	-	-	-	-	50.46	0.56	-	-	-	-	-
B3069	House	50.33	-	-	-	50.34	51.01	0.67	-	-	-	-	-
B3074	House	42.00	42.07	42.85	0.77	50.26	50.94	0.68	42.06	42.94	0.87	-	-
B3077	House	43.65	-	44.10	0.45	50.40	51.07	0.67	-	44.18	0.53	-	-
B3083	House	41.59	41.57	42.72	1.15	50.22	50.90	0.68	41.56	42.83	1.27	-	-
B3085	House	42.34	-	42.77	0.44	50.27	50.96	0.69	-	42.88	0.54	-	-
B3088	House	41.75	41.69	42.77	1.08	50.26	50.94	0.68	41.69	42.87	1.19	-	-
B3089	House	42.31	-	42.77	0.46	50.27	50.96	0.69	-	42.88	0.57	-	-
B3099	House	43.67	43.40	44.54	1.14	50.62	51.27	0.65	43.38	44.60	1.22	-	-
B3100	House	42.24	42.20	42.88	0.68	50.24	50.92	0.68	42.19	42.96	0.77	-	-
B3106	House	42.09	41.79	42.74	0.95	50.21	50.90	0.68	41.79	42.84	1.05	-	-
B3107	House	42.36	42.22	42.91	0.69	50.27	50.95	0.68	42.22	42.99	0.77	-	-
B3110	House	43.11	43.13	44.42	1.29	50.55	51.22	0.67	43.11	44.50	1.39	-	-
B3112	House	41.96	-	42.73	0.78	50.26	50.95	0.69	-	42.84	0.88	-	-
B3115	House	41.94	42.14	42.88	0.74	50.25	50.93	0.68	42.14	42.96	0.83	-	-
B3118	House	43.79	-	44.50	0.71	50.60	51.25	0.66	-	44.57	0.78	-	-
B3122	House	42.74	42.87	43.99	1.11	50.36	51.03	0.67	42.86	44.07	1.21	-	-
B3123	House	50.07	-	-	-	-	50.91	0.84	-	-	-	-	-
B3125	House	42.10	-	42.74	0.64	50.27	50.96	0.69	-	42.84	0.74	-	-
B3128	House	43.69	-	44.48	0.79	50.59	51.25	0.66	-	44.55	0.86	-	-
B3130	House	41.57	41.70	42.76	1.06	50.25	50.93	0.68	41.69	42.86	1.17	-	-
B3131	House	42.19	-	42.74	0.55	50.27	50.96	0.69	-	42.84	0.66	-	-

			1 in 100 year AEP			1 in 2000 year AEP			PMP			SDF	
ID	Building Type	Plinth	No Failure	Failure	+/-	No Failure	Failure	+/-	No Failure	Failure	+/-	Failure	+/-
B3139	House	42.42	42.54	43.25	0.71	50.28	50.96	0.68	42.54	43.31	0.77	-	-
B3142	House	43.05	-	44.13	1.08	50.43	51.10	0.67	-	44.22	1.17	-	-
B3145	House	41.70	41.72	42.75	1.03	50.24	50.92	0.68	41.71	42.85	1.14	-	-
B3149	House	42.17	-	42.72	0.55	50.20	50.88	0.68	-	42.82	0.65	-	-
B3153	House	44.01	-	44.58	0.57	50.64	51.28	0.64	-	44.65	0.64	-	-
B3159	House	50.06	-	-	-	-	51.06	0.99	-	-	-	-	-
B3160	House	42.12	42.42	43.11	0.69	50.27	50.95	0.68	42.41	43.17	0.76	-	-
B3161	House	44.01	-	44.44	0.43	50.57	51.23	0.66	-	44.52	0.50	-	-
B3169	House	42.59	42.80	43.78	0.98	50.31	50.98	0.67	42.79	43.85	1.06	-	-
B3172	House	41.77	-	42.72	0.95	50.18	50.86	0.68	-	42.82	1.05	-	-
B3174	House	42.35	-	42.77	0.43	50.27	50.96	0.68	-	42.88	0.53	-	-
B3176	House	42.15	41.59	42.75	1.16	50.26	50.95	0.69	-	42.85	0.70	-	-
B3191	Primary School	50.25	-	-	-	50.34	51.02	0.68	-	-	-	-	-
B3192	Primary School	50.51	-	-	-	50.33	51.02	0.69	-	-	-	-	-
B3198	Primary School	50.12	-	-	-	50.29	50.97	0.68	-	-	-	-	-
B3203	Primary School	50.46	-	-	-	50.31	50.98	0.67	-	-	-	-	-
B3206	Primary School	50.31	-	-	-	50.27	50.96	0.69	-	-	-	-	-
B3211	Early Childcare Centre	49.97	-	-	-	50.27	50.97	0.70	-	-	-	-	-
B3240	Australia Post	50.07	-	-	-	50.27	50.96	0.69	-	-	-	-	-
B3358	House	42.04	41.94	42.78	0.85	50.23	50.91	0.68	41.93	42.88	0.95	-	-
B3406	House	43.79	-	44.52	0.73	50.61	51.26	0.65	-	44.59	0.80	-	-
B3444	Stables	43.87	-	44.42	0.55	50.56	51.23	0.67	-	44.50	0.63	-	-
B3491	House	43.90	44.19	45.09	0.90	50.84	51.41	0.57	44.18	45.09	0.91	-	-
B3501	House	43.52	43.20	44.46	1.26	50.60	51.25	0.66	43.19	44.53	1.34	-	-
B3509	House	50.64	-	-	-	-	51.33	0.69	-	-	-	-	-
B3524	House	44.36	43.91	44.92	1.02	50.76	51.36	0.60	43.90	44.95	1.05	-	-
B3532	House	50.67	-	-	-	50.96	51.48	0.52	-	-	-	-	-
B3534	House	44.11	43.87	44.89	1.02	50.75	51.35	0.61	43.86	44.91	1.06	-	-
B3542	House	43.96	44.18	45.08	0.90	50.83	51.41	0.57	44.17	45.09	0.92	-	-
B3554	House	50.98	-	-	-	51.01	51.50	0.49	-	-	-	-	-

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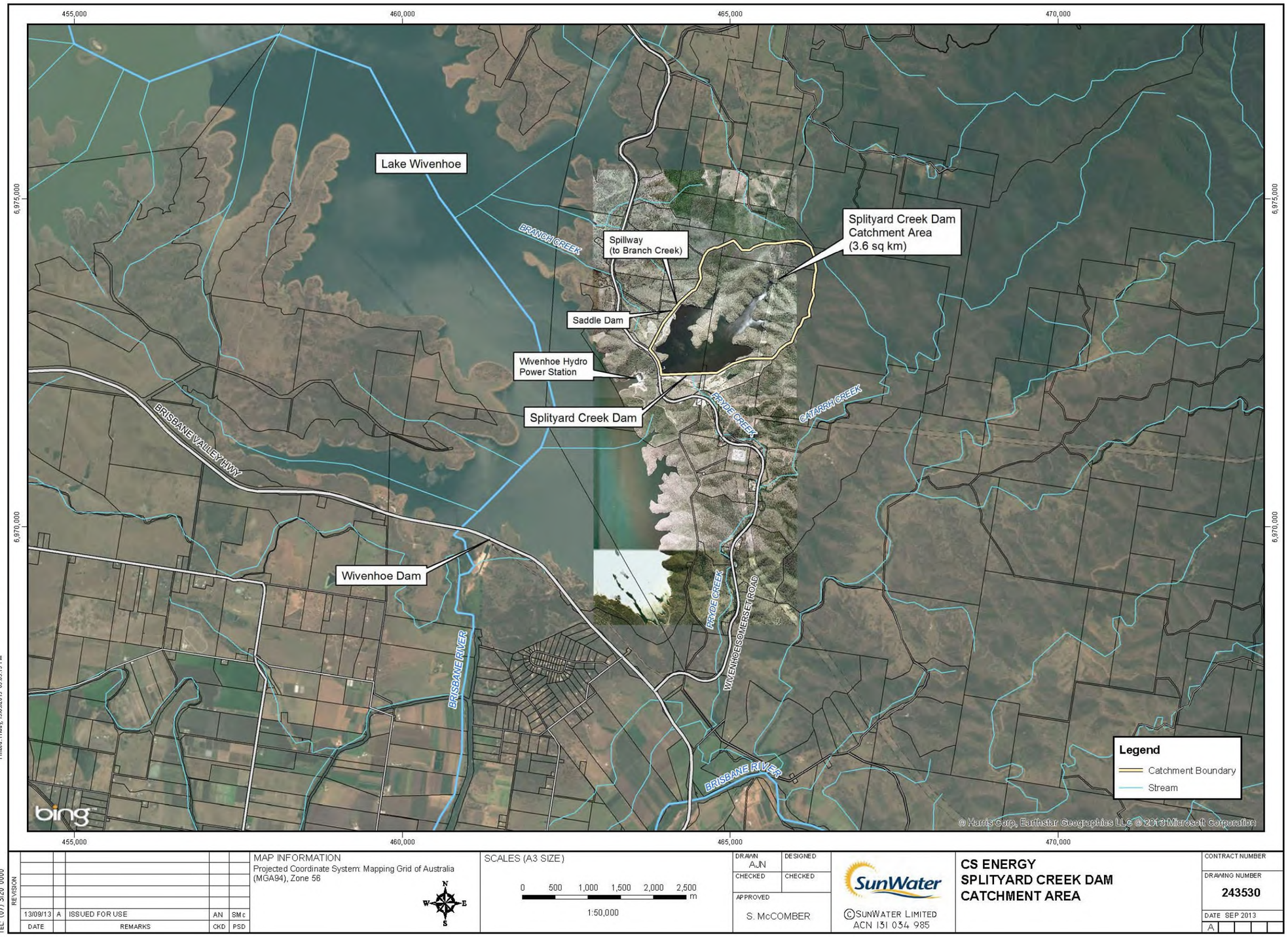
Splityard Creek 2023 – v14.2

			1 in 100 year AEP			1 in 2000 year AEP			PMP			SDF	
ID	Building Type	Plinth	No Failure	Failure	+/-	No Failure	Failure	+/-	No Failure	Failure	+/-	Failure	+/-
B3567	House	45.15	45.40	45.94	0.54	50.96	51.48	0.52	45.40	45.87	0.47	-	-
B3584	House	44.46	-	45.11	0.64	50.82	51.40	0.58	-	45.11	0.65	-	-
B3586	House	46.84	47.07	47.18	0.10	51.22	51.60	0.38	47.08	47.08	-	-	-
B3587	House	50.99	-	-	-	51.01	51.50	0.50	-	-	-	-	-
B3603	House	50.80	-	-	-	51.01	51.50	0.49	-	-	-	-	-
B3729	House	50.85	-	-	-	50.99	51.50	0.50	-	-	-	-	-
B3830	House	44.47	-	45.15	0.67	50.84	51.41	0.57	-	45.15	0.67	-	-
B3874	House	43.78	43.61	44.59	0.98	50.64	51.28	0.64	43.60	44.65	1.06	-	-
P1	Shed	105.49	-	110.14	4.65	-	110.19	4.70	-	110.38	4.89	110.11	4.62
P2	House	79.46	78.87	98.83	19.96	79.04	98.87	19.83	78.90	99.06	20.16	98.79	19.34
P6	House	75.28	-	78.74	3.46	-	78.88	3.60	-	79.07	3.78	78.62	3.33
P7	House	54.91	57.12	75.88	18.76	57.78	76.01	18.23	57.19	76.20	19.01	75.77	20.86
P9	House	59.10	-	67.67	8.57	-	67.77	8.67	-	67.89	8.80	67.58	8.49
P10	House	52.68	-	68.91	16.23	-	69.02	16.35	-	69.18	16.50	68.81	16.14
P11	House	50.11	-	66.86	16.75	50.37	67.00	16.63	-	67.17	17.06	66.75	16.65
P12	House	45.28	47.47	63.66	16.18	50.11	63.76	13.65	47.54	63.88	16.34	63.58	18.30
P13	House	59.04	-	62.33	3.29	-	62.41	3.37	-	62.51	3.47	62.27	3.23
P15	House	44.05	-	53.01	8.96	50.01	53.45	3.44	-	53.26	9.21	52.91	8.87
P16	House	40.65	42.02	53.75	11.73	50.01	54.14	4.13	42.02	54.00	11.98	53.65	13.01
P19*	House	43.01	43.01	44.23	1.22	50.51	51.09	0.58	42.99	44.31	1.32	-	-
P38*	House	50.50	-	-	-	50.52	51.18	0.65	-	-	-	-	-
P39*	House	43.90	43.03	44.32	1.29	50.52	51.18	0.65	43.02	44.41	1.39	-	-

**Buidlings belong to the Pryde Creek Precinct But have results dictated by the BRFS model*

Appendix E DRAWINGS

Figure 55: Splityard Creek Dam Catchment Area



Document: T:\Asset Solutions\Esk-CS Energy\P-AE\P-0204-AC\01143 Splityard Creek Dam Instrumentation\Drawings\Arc Map\243530-A.mxd
Printed: Friday, 13/09/2013 03:03:15 PM

Map Produced By:
Infrastructure Development
Tel: (07) 3120 0000

REVISION					
13/09/13	A	ISSUED FOR USE	AN	SMc	
DATE		REMARKS	CKD	PSD	

MAP INFORMATION
Projected Coordinate System: Mapping Grid of Australia (MGA94), Zone 56

SCALES (A3 SIZE)
0 500 1,000 1,500 2,000 2,500 m
1:50,000

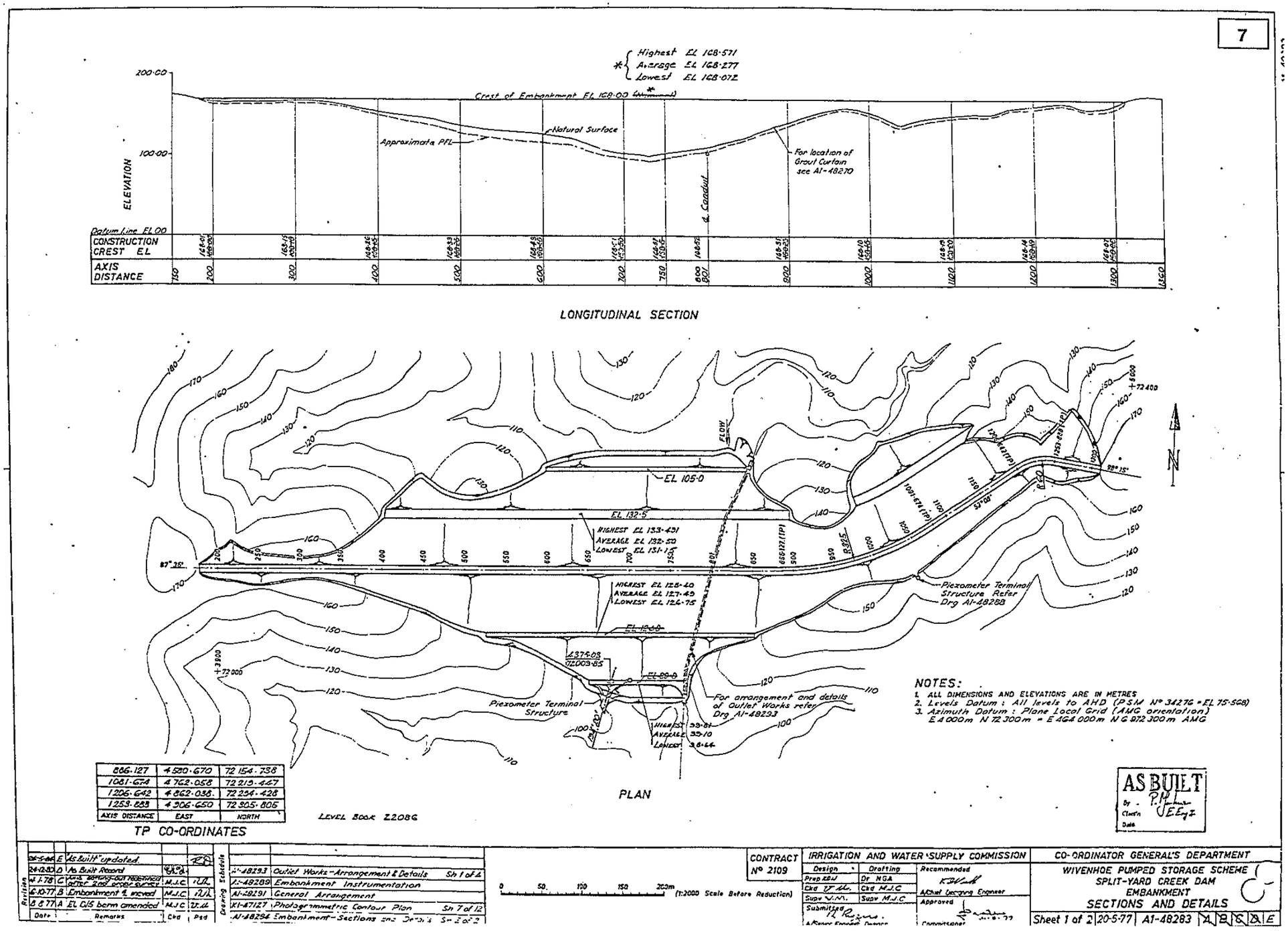
DRAWN	DESIGNED
AJN	
CHECKED	CHECKED
APPROVED	
S. McCOMBER	

SunWater
©SunWater Limited
ACN 131 034 985

CS ENERGY
SPLITYARD CREEK DAM
CATCHMENT AREA

CONTRACT NUMBER
DRAWING NUMBER
243530
DATE SEP 2013
A

Figure 56: Splityard Creek Dam Embankment Arrangement



866·127	4 580·670	72 154·738
1081·674	4 762·058	72 219·447
1206·642	4 862·038	72 254·426
1259·883	4 906·650	72 905·805
AXIS DISTANCE	EAST	NORTH

TP CO-ORDINATES

Revisions					Drawing Schedule		
Date		Remarks	Ckd	Psd			
26-5-86	E	"As Built" updated		RS			
24-12-80	D	As Built Record	M.J.C.		A1-48293	Outlet Works-Arrangement & Details	Sh 1 of 2
14-1-78	C	As Built Record	M.J.C.		A1-48289	Embankment Instrumentation	
6-10-77	B	Embankment & moved	M.J.C.		A1-48291	General Arrangement	
18 & 7-77	A	EL C/S berm amended	M.J.C.		X1-47127	Photogrammetric Contour Plan	Sh 7 of 12
					A1-48294	Embankment-Sections and Details	Sh 2 of 2

0 50 100 150 200m (1:2000 Scale Before Reduction)

CONTRACT N° 2109	IRRIGATION AND WATER SUPPLY COMMISSION		CO-ORDINATOR GENERAL'S DEPARTMENT
	Design	Drafting	WIVENHOE PUMPED STORAGE SCHEME
	Prep KBJ	Dr NGA	SPLIT-YARD CREEK DAM
	Ckd W.M.	Ckd M.J.C	EMBANKMENT
	Supv W.N.	Supv M.J.C	SECTIONS AND DETAILS
	Submitted R Rizzo. Acting Senior Design Engineer	Recommended K.B.J. Acting Design Engineer; Approved Commissioner	Sheet 1 of 2 | 20-5-77 | A1-48283 | A2 S A E

Figure 57: Splityard Creek Dam Embankment Cross Sections

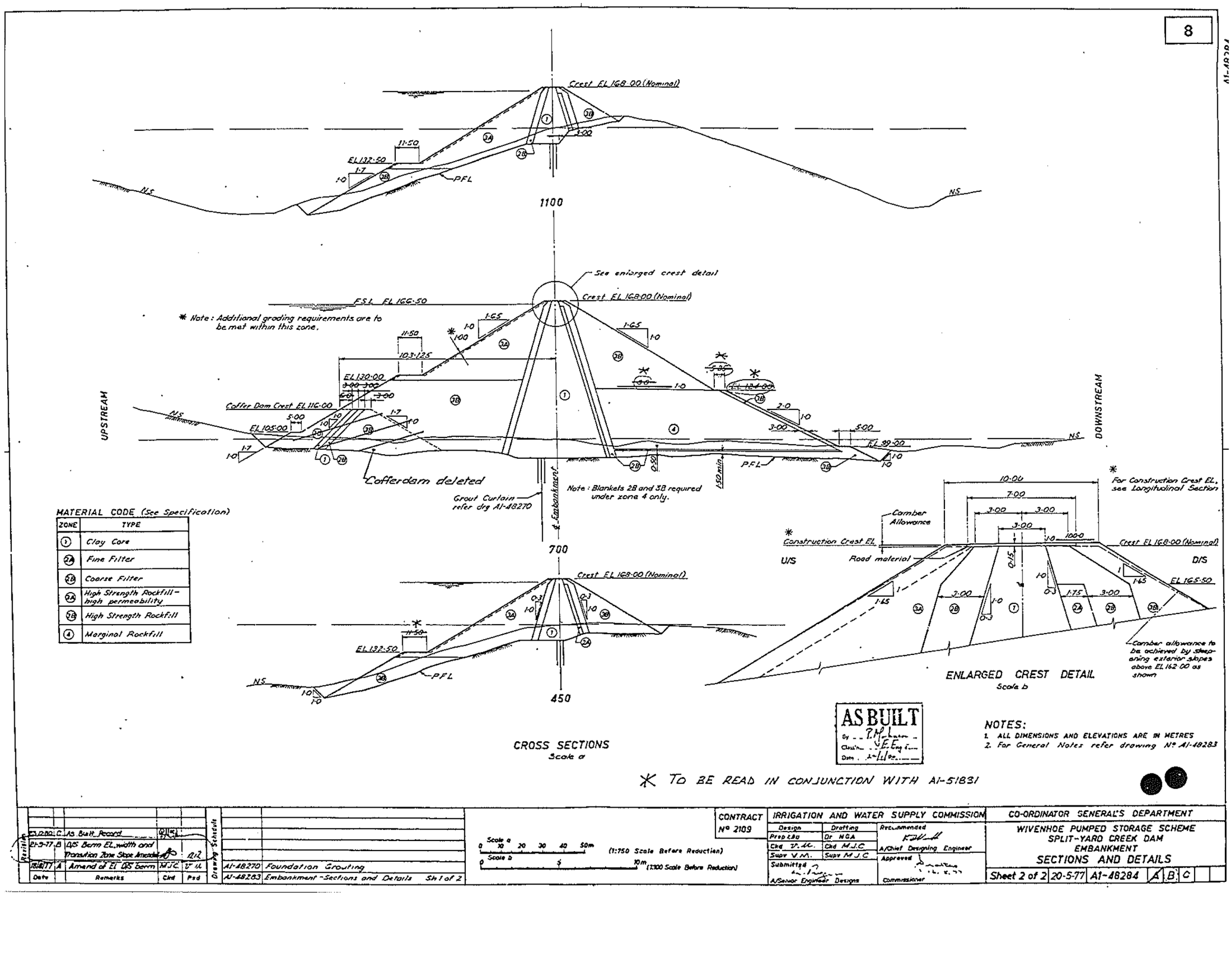


Figure 58: Saddle Dam

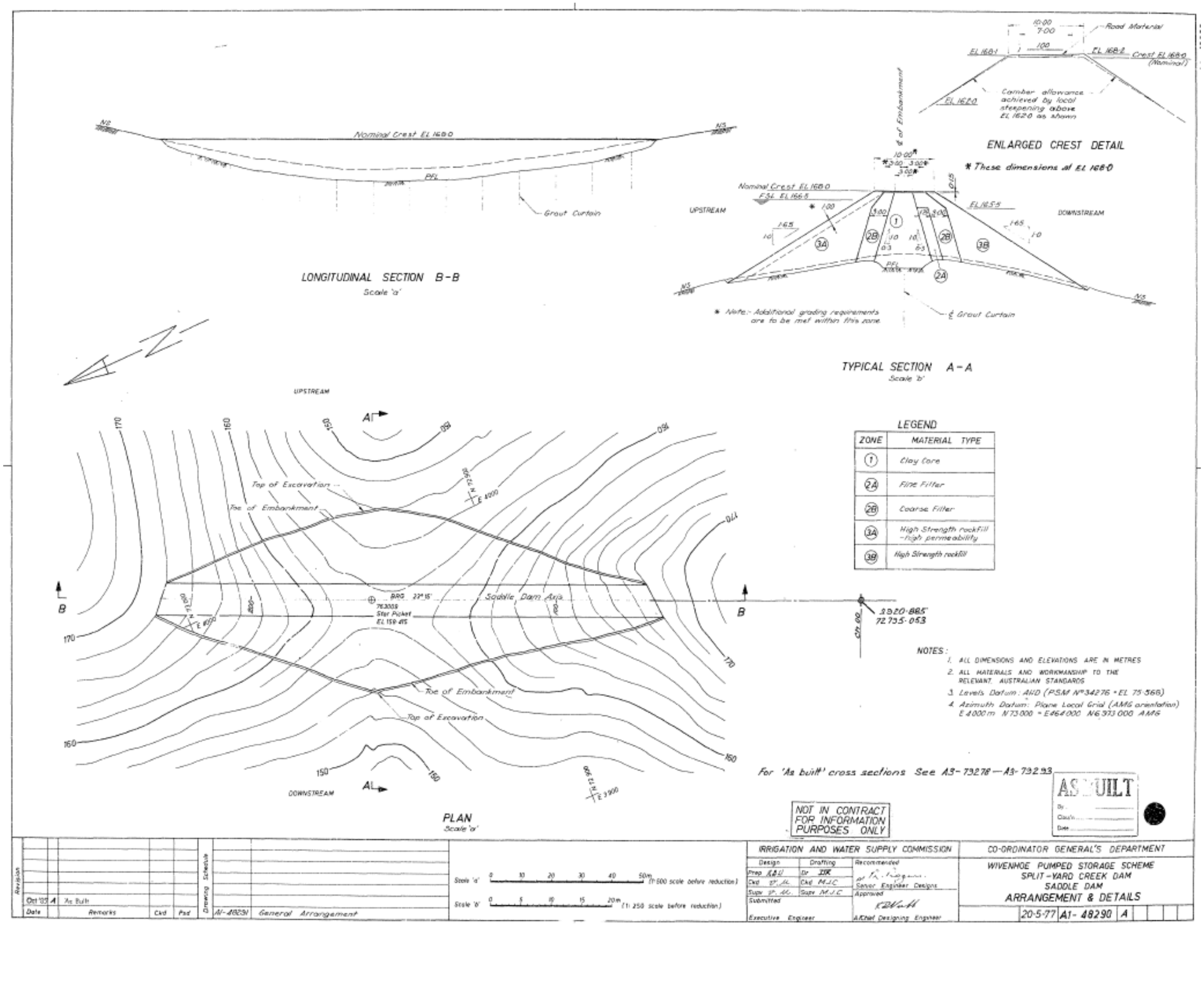


Figure 59: Splityard Creek Dam Location of Bore Holes and Measuring Weirs

23/07/13	B	BOREHOLE CORRECTIONS OH82/86	DJ	BT	
11/03/13	A	ISSUED FOR USE			
DATE		REMARKS	DKD	PSD	

MAP INFORMATION

Coordinate System: MGA94 Zone 56

REFERENCE DRAWINGS : 79262, 79261,76521, 76520

SCALES (A3 SIZE)

0 100 200 300 m

1:5,000

DRAWN	DESIGNED
DJ	BT
CHECKED	CHECKED
APPROVED	
B TREBILCO	

SunWater

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SPLITYARD CREEK DAM INSTRUMENTATION GROUND WATER OBSERVATION HOLES AND MEASURING WEIRS

CONTRACT NUMBER

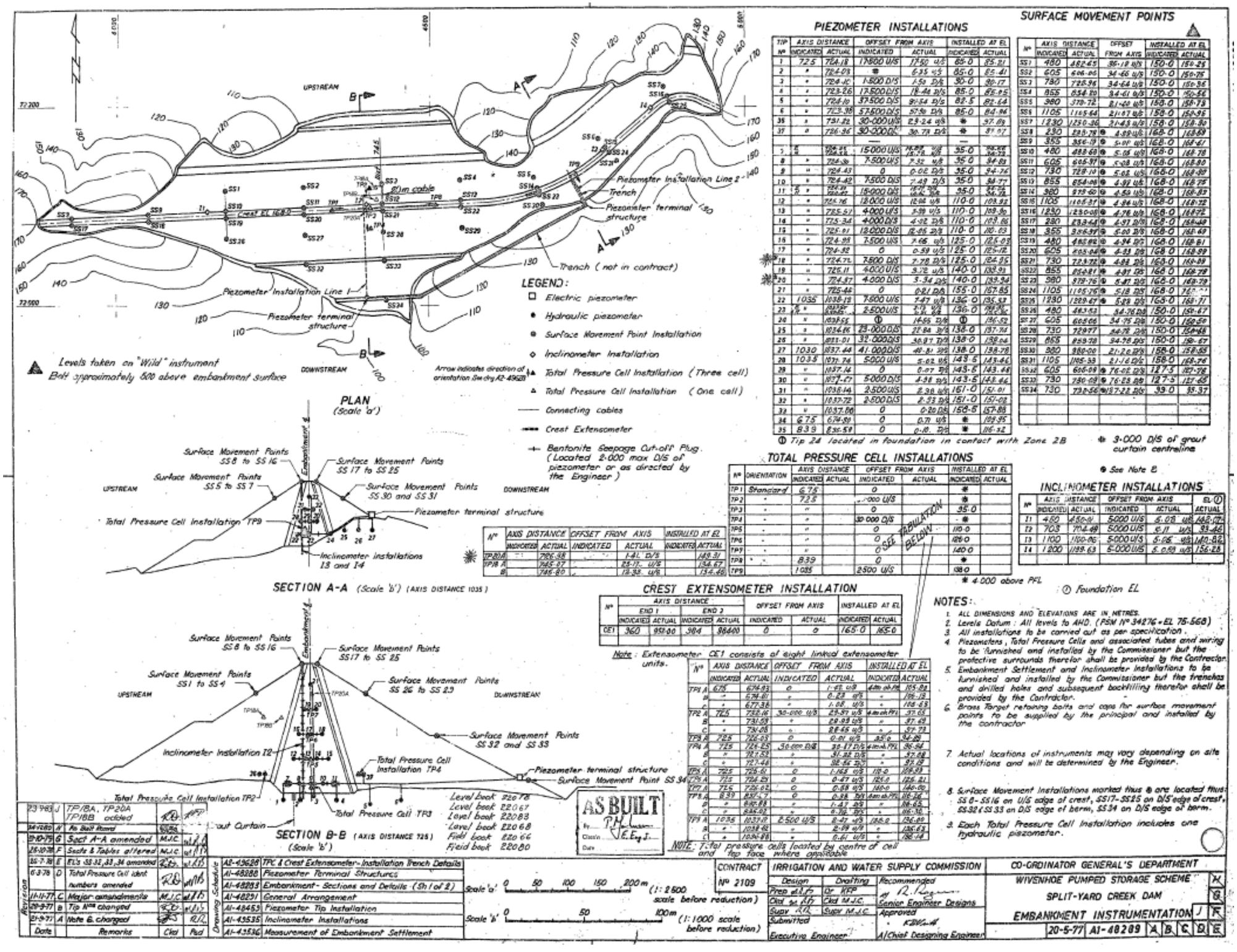
DRAWING NUMBER 243211

DATE JUNE 2013

A B

File Produced By: SUNWATER LEVEL 9, 179 TURBOT ST BRISBANE QLD 4000 TEL. (07) 3120 0000

Figure 60: Splityard Creek Embankment Instrumentation



TP N°	AXIS DISTANCE INDICATED	AXIS DISTANCE ACTUAL	OFFSET FROM AXIS INDICATED	OFFSET FROM AXIS ACTUAL	INSTALLED AT EL INDICATED	INSTALLED AT EL ACTUAL
1	725	724.18	17·500 U/S	17·50 U/S	85·0	85·21
2	"	724·08	⊕	6·35 U/S	85·0	85·41
3	"	724·16	1·500 D/S	1·50 D/S	90·0	90·17
4	"	723·26	17·500 D/S	18·44 D/S	85·0	85·15
5	"	724·19	37·500 D/S	37·54 D/S	82·5	82·64
6	"	723·38	57·500 D/S	57·59 D/S	85·0	84·96
35	"	731·22	30·000 U/S	29·24 U/S	⊕	97·08
37	"	726·96	30·000 D/S	30·78 D/S	⊕	81·07
7	725	726·25	15·000 U/S	14·82 U/S	95·0	96·66
8	"	724·36	7·500 U/S	7·32 U/S	95·0	94·83
9	"	724·43	0	0·02 D/S	95·0	94·76
10	"	724·42	7·500 D/S	7·49 D/S	95·0	96·77
11	"	724·29	15·000 D/S	15·07 D/S	95·0	94·76
12	"	725·76	12·000 U/S	12·06 U/S	110·0	108·92
13	"	725·52	4·000 U/S	3·98 U/S	110·0	109·90
14	"	775·34	4·000 D/S	4·02 D/S	110·0	109·86
15	"	725·91	12·000 D/S	12·06 D/S	110·0	110·03
16	"	724·95	7·500 U/S	7·46 U/S	125·0	125·03
17	"	724·92	0	0·59 U/S	125·0	125·12
18	"	724·71	7·500 D/S	7·78 D/S	125·0	124·95
19	"	725·11	4·000 U/S	3·72 U/S	140·0	139·93
20	"	724·87	4·000 D/S	5·34 D/S	140·0	139·94
21	"	725·46	0	0·21 D/S	155·0	157·85
22	1035	1035·13	7·500 U/S	7·47 U/S	136·0	135·93
23	"	1035·39	2·500 U/S	2·71 U/S	136·0	137·24
24	"	1033·55	①	14·65 D/S	①	136·52
25	"	1034·66	23·000 D/S	22·84 D/S	138·0	137·74
26	"	1033·01	32·000 D/S	36·87 D/S	138·0	138·64
27	1030	1037·44	41·000 D/S	40·81 D/S	138·0	138·78
28	1035	1031·76	5·000 U/S	5·02 U/S	143·5	143·46
29	"	1037·14	0	0·07 D/S	143·5	143·48
30	"	1037·47	5·000 D/S	4·98 D/S	143·5	143·46
31	"	1036·14	2·500 U/S	2·38 U/S	161·0	151·01
32	"	1037·72	2·500 D/S	2·93 D/S	151·0	157·02
33	"	1037·86	0	0·20 D/S	156·6	157·88
34	675	674·50	0	0·71 U/S	⊕	109·95
35	839	836·59	0	0·18 D/S	⊕	116·32

① Tip 24 located in foundation in contact with Zone 2B

⊕ 3·000 D/S of grout curtain centreline

⊕ See Note 2

N°	AXIS DISTANCE INDICATED	AXIS DISTANCE ACTUAL	OFFSET FROM AXIS	INSTALLED AT EL INDICATED	INSTALLED AT EL ACTUAL
SS1	480	482·65	35·18 U/S	150·0	150·25
SS2	605	606·86	34·66 U/S	150·0	150·76
SS3	730	728·96	34·64 U/S	150·0	150·56
SS4	855	854·20	34·61 U/S	150·0	150·56
SS5	980	978·72	21·42 U/S	158·0	158·78
SS6	1105	1105·64	21·67 U/S	158·0	158·96
SS7	1230	1230·36	21·43 U/S	158·0	158·80
SS8	230	228·78	4·99 U/S	168·0	168·89
SS9	355	356·19	5·01 U/S	168·0	168·61
SS10	480	482·68	5·08 U/S	168·0	168·78
SS11	605	606·97	5·08 U/S	168·0	168·88
SS12	730	728·10	5·02 U/S	168·0	168·99
SS13	855	854·06	4·99 U/S	168·0	168·75
SS14	980	979·60	4·89 U/S	168·0	168·83
SS15	1105	1105·87	4·84 U/S	168·0	168·92
SS16	1230	1230·08	4·76 U/S	168·0	168·72
SS17	230	230·44	4·97 D/S	168·0	168·48
SS18	355	356·57	5·00 D/S	168·0	168·69
SS19	480	482·82	4·94 D/S	168·0	168·81
SS20	605	605·84	4·83 D/S	168·0	168·99
SS21	730	729·72	4·82 D/S	168·0	168·89
SS22	855	854·81	4·81 D/S	168·0	168·78
SS23	980	979·76	5·41 D/S	165·0	165·79
SS24	1105	1105·76	5·18 D/S	168·0	168·71
SS25	1230	1229·67	5·28 D/S	165·0	165·71
SS26	480	483·53	34·76 D/S	150·0	150·67
SS27	605	606·66	34·75 D/S	150·0	150·58
SS28	730	729·77	34·78 D/S	150·0	150·48
SS29	855	854·98	34·98 D/S	150·0	150·67
SS30	980	980·00	21·20 D/S	158·0	158·65
SS31	1105	1105·33	21·16 D/S	158·0	158·76
SS32	605	606·09	⊕ 76·02 D/S	127·5	127·78
SS33	730	730·09	⊕ 76·28 D/S	127·5	127·65
SS34	730	732·56	⊕ 127·22 D/S	99·0	99·37

N°	AXIS DISTANCE INDICATED	AXIS DISTANCE ACTUAL	OFFSET FROM AXIS INDICATED	OFFSET FROM AXIS ACTUAL	EL ① ACTUAL
I1	480	480·61	5·000 U/S	5·018 U/S	142·07
I2	703	704·49	5·000 U/S	5·11 U/S	93·46
I3	1100	1100·06	5·000 U/S	5·056 U/S	140·82
I4	1200	1199·63	5·000 U/S	5·068 U/S	156·28

N°	ORIENTATION	AXIS DISTANCE INDICATED	AXIS DISTANCE ACTUAL	OFFSET FROM AXIS INDICATED	OFFSET FROM AXIS ACTUAL	INSTALLED AT EL INDICATED	INSTALLED AT EL ACTUAL
TP1	Standard	6·75		0		⊕	
TP2	"	725		4·000 U/S		⊕	
TP3	"	"		0		95·0	
TP4	"	"		30·000 D/S		⊕	
TP5	"	"		0		110·0	
TP6	"	"		0		126·0	
TP7	"	"		0		140·0	
TP8	"	839		0		⊕	
TP9	"	1035		2·500 U/S		138·0	

⊕ 4·000 above PFL

① Foundation EL

N°	AXIS DISTANCE END 1 INDICATED	AXIS DISTANCE END 1 ACTUAL	AXIS DISTANCE END 2 INDICATED	AXIS DISTANCE END 2 ACTUAL	OFFSET FROM AXIS INDICATED	OFFSET FROM AXIS ACTUAL	INSTALLED AT EL INDICATED	INSTALLED AT EL ACTUAL
CE1	360	357·06	384	386·00	0	0	165·0	165·0

Note: Extensometer CE1 consists of eight linked extensometer units.

N°	AXIS DISTANCE INDICATED	AXIS DISTANCE ACTUAL	OFFSET FROM AXIS INDICATED	OFFSET FROM AXIS ACTUAL	INSTALLED AT EL INDICATED	INSTALLED AT EL ACTUAL
TP1 A	6·75	6·74·93	0	1·45 U/S	4·0m abv PFL	155·83
B	"	6·74·87	"	0·23 U/S	"	156·18
C	"	6·77·36	"	1·08 U/S	"	156·53
TP2 A	725	722·16	30·000 U/S	29·57 U/S	4·0m abv PFL	97·05
B	"	731·59	"	29·99 U/S	"	97·49
C	"	734·08	"	28·46 U/S	"	97·73
TP3 A	725	726·93	0	0·01 U/S	95·0	94·89
TP4 A	725	724·25	30·000 D/S	30·17 D/S	4·0m abv PFL	96·84
B	"	721·53	"	31·32 D/S	"	97·28
C	"	727·48	"	32·56 D/S	"	97·15
TP5 A	725	725·61	0	1·168 U/S	110·0	109·93
TP6 A	725	724·25	0	0·47 U/S	126·0	126·21
TP7 A	725	726·02	0	0·88 U/S	140·0	140·00
TP8 A	839	837·17	0	0·96 D/S	4·0m abv PFL	115·56
B	"	835·88	"	1·47 D/S	"	116·15
C	"	836·02	"	0·78 D/S	"	116·10
TP9 A	1035	1033·19	2·500 U/S	2·47 U/S	136·0	136·89
B	"	1038·48	"	2·09 U/S	"	136·63
C	"	1034·88	"	0·61 U/S	"	136·14

NOTE: Total pressure cells located by centre of cell and top face where applicable

Revision				
23·9·83	J	TP/BA, TP20A TP/BB added	RD	AWP
24·2·82	N	As Built Issued	WJM	
29·10·79	G	Sect A-A amended	M.J.C.	W.J.C.
26·10·78	F	Sects & Tables altered	M.J.C.	W.J.C.
25·7·78	E	EL's SS32, 33, 34 amended	RD	W.J.C.
6·3·78	D	Total Pressure Cell ident numbers amended	RD	W.J.C.
14·11·77	C	Major amendments	M.J.C.	W.J.C.
20·9·77	B	Tip N°s changed	RD	W.J.C.
21·9·77	A	Note 6. changed	RD	RJC
Date		Remarks	Chkd	Paid

Drawing Schedule		
A2-49628	TPC & Crest Extensometer - Installation Trench Details	
A1-48288	Piezometer Terminal Structures	
A1-48289	Embankment - Sections and Details (Sh 1 of 2)	
A1-48291	General Arrangement	
A1-48453	Piezometer Tip Installation	
A1-43535	Inclinometer Installations	
A1-43536	Measurement of Embankment Settlement	

Scale 'a' 0 50 100 150 200 m (1:2500 scale before reduction)

Scale 'b' 0 50 100 m (1:1000 scale before reduction)

Design	Drafting	Recommended
Prep. W.J.C.	Dr. W.E.P.	W.J.C.
Chkd W.J.C.	Chkd M.J.C.	Senior Engineer Designs
Supv. R.D.	Supv. M.J.C.	Approved
Submitted		K.B.W.
Executive Engineer		A/Chief Designing Engineer

Appendix F FORMS

DAM HAZARD EMERGENCY EVENT RECORD

COMPLETE THIS COVER SHEET AND ATTACH RELEVANT RECORDING SHEETS

1. NATURE OF THE EVENT *(circle the event)*

Earthquake **Piping** **Terrorist Activity/Hoax/Other**

Commencing: Time ___:___am/pm; Date ___/___/_____
Finishing: Time ___:___am/pm; Date ___/___/_____

2. DESCIPTION OF THE EVENT

Attach relevant sheets from Appendix D

3. NOTIFICATION & STATISTICS

External entities to be notified, as per the EAP:	**Actual notification provided:**			
Local Disaster Coordinator – Somerset Council	Phone	Date:		
District Disaster Coordinator – Ipswich Police	Phone	Date:		
Queensland Fire and Emergency Service – SDDC	Phone	Date:		
Queensland Police Service - Lowood	Phone	Date:		
Dam Safety Regulator	Phone	Date:		

4. EVENT PROGRESS

Attach copies of the Dam Water Level versus Time Graph, the Record of Communication, the Log of Events / Actions, and Rainfall during a Flood Event (Appendix D).

5. GENERAL COMMENTS

Include in this section any observations or comments regarding the Event, such as equipment malfunctions, improved reporting, safety issues, or any suggestions which may improve monitoring of the Event.

6. DAMAGE REPORT

Detail any damage to the Dam wall, Spillway, Abutments or Stream bank in the downstream area of the Dam. Attach photos.

Name: ..... **Signed:** ..... **Designation:** ..... **Date:** .....

SPLITYARD CREEK DAM – EMERGENCY ACTION PLAN

RECORD OF COMMUNICATION AND LOG OF EVENTS / ACTIONS

Date	Time	Contact Person	Phone No.	Action Taken / Event Recorded / Message Sent or Received	Call Sent By / Received By

Appendix F1: Dam hazard specific forms

This sub-appendix includes the following forms:

- Piping Inspection Sheet
- Earthquake Inspection sheet
- Terrorist Activity/ Threat/ Other Inspection Sheet

For condition specific forms shown in bold above, Show results of inspections as follows:-

• New	**NEW**
• Significant increase (> 30%) or change in condition	**SG-INC**
• Slight increase (> 10%) or change in condition	**INC**
• NIL change of condition	**NIL**
• Slight decrease (< 10%) or change in condition	**DEC**

Significant Changes:

Any changes which, in the opinion of the inspecting officer, are more than just slight changes must be advised to the DSTDM. The degree of urgency of this advice varies with the nature of the issue. Mark changes on a plan if appropriate.

SPLITYARD CREEK DAM EAP — Piping Inspection Sheet

Visual Inspection and Storage Report - **REMEMBER: TAKE PHOTOS AND DATE STAMP THEM** Date.....

Tick Day of the Week	SUN	MON	TUE	WED	THU	FRI	SAT
VISUAL INSPECTION (Inspections should only be undertaken if / when it is safe to do so)				**First Inspection (As directed)**	**Second Inspection (As directed)**	**Third Inspection (As directed)**	**Fourth Inspection (As directed)**
(Walk or Drive at 10 km/hour. Write 'W' for walk and 'D' for Drive)							
Time							
Water Level – Max OL 166.5 m AHD (Spillway Level)							
Rainfall (mm)							
Location of new seepage point							
Describe approximate location in words							
New seepage point Estimated flow				L/s	L/s	L/s	L/s
Clear or turbid (tick for clear)							
Old seepage points Complete measuring weir sheet							
Main Embankment							
General condition/ Cracking							
Upstream Face (Use binoculars) General condition							
Displacement of riprap material							
Subsidence/ Slides/ Erosion							
Sign of seepage							
Downstream Face General condition							
Displacement of riprap material							
Subsidence/ Slides/ Erosion							
Sign of seepage							
Saddle Dam							
General condition							
Subsidence/ Slides/ Scouring/ Signs of seepage							
Details of significant changes. New occurrences and issues warranting further attention, Source of seepage (if known)							
Sketch, locate, measure and photograph if possible. (sketch the problem area on the General Arrangement Plan)							
Inspecting Officer's initials							

* Fax/Email to (tick if Faxed or Emailed) See Part 2 for Fax Number		Dam Safety Technical Decision Maker
		Incident Coordinator

* Original to be retained on site or in Area Office if no facility to store documents on site

SPLITYARD CREEK DAM EAP Piping

**** INSTRUCTIONS FOR COMPLETING SHEET - Piping**

VISUAL INSPECTION (To be carried out when/if safe to do so)

Frequency of visual inspection required is indicated by

STAGE 1	STAGE 2	STAGE 3
As directed	As directed	As directed

Additional Inspections should be made when:

- New seepage which requires further action
- When specifically requested

Show results of inspections as follows:-

• New seepage appeared	**NEW**
• Significant increase (> 30%) or change in condition	**SG-INC**
• Slight increase (> 10%) or change in condition	**INC**
• NIL change of condition	**NIL**
• Slight decrease (< 10%) or change in condition	**DEC**

Significant Changes

Any changes which, in the opinion of the inspecting officer, are more than just slight changes must be advised to the DSTDM. The degree of urgency of this advice varies with the nature of the issue. Mark changes on a plan if appropriate.

SPLITYARD CREEK DAM EAP — Earthquake Inspection Sheet

Visual Inspection and Storage Report - **REMEMBER: TAKE PHOTOS AND THE DATE STAMP THEM** Date.....

Tick Day of the Week	SUN	MON	TUE	WED	THU	FRI	SAT

Earthquake Intensity felt: .....MM **VISUAL INSPECTION** (Inspection to be undertaken only when safe to do so)		**First Inspection (As directed)**	**Second Inspection (As directed)**	**Third Inspection (As directed)**	**Fourth Inspection (As directed)**
(Walk OR Drive at 10 km/hour. Write 'W' for walk and 'D' for Drive)					
Time					
Water Level – Max OL 166.5 m AHD (Spillway Level)					
Rainfall (mm)					
Main Embankment					
Upstream Face (Use binoculars)	General condition				
	Displacement of riprap material				
	Subsidence/ Slides/ Erosion				
	Sign of seepage				
Downstream Face	General condition				
	Displacement of riprap material				
	Subsidence/ Slides/ Erosion				
	Sign of seepage				
Spillway	General condition				
	Damage to concrete/ Movement/ Cracks				
Saddle Dam					
Upstream Face (Use binoculars)	General condition				
	Displacement of riprap material				
	Subsidence/ Slides/ Erosion				
	Sign of seepage				
Downstream Face	General condition				
	Displacement of riprap material				
	Subsidence/ Slides/ Erosion				
	Sign of seepage				
Spillway Channel	General condition				
	Scouring/ Damage to concrete structure				
Inlet Structure/ Outlet Works	General condition				
	Cracks/ Concrete deterioration				
Area Downstream of Dam	General condition				
New seepage point	Estimated flow	L/s	L/s	L/s	L/s
	Clear or turbid (tick for clear)				
Old seepage points	Complete measuring weir sheet				

Details of significant changes. New occurrences and issues warranting further attention, additional records/inspections

New Cracks or Movements: Sketch, measure, photograph, and locate if possible. Sketch on the Plan (see over)

Inspecting Officer's initials				

* Original to be retained on site or in Area Office if no facility to store documents on site	Fax/Email to (tick if Faxed or Emailed) See Part 2 for Fax Number		Dam Safety Technical Decision Maker
			Incident Coordinator

SPLITYARD CREEK DAM EAP — Earthquake

**** INSTRUCTIONS FOR COMPLETING SHEET - Earthquake**

VISUAL INSPECTION (To be carried out when/if safe to do so)

Frequency of visual inspection required is indicated by:	Earthquake less than Alert Criteria, but felt at the dam or in the vicinity of the dam: COMPLETE FIRST VISUAL INSPECTION ONLY	Earthquake greater than Alert Criteria: COMPLETE ALL VISUAL INSPECTIONS (AND INSTRUMENTATION/ SURVEY DATA IF APPLICABLE AS WELL)

Additional Inspections should be made when:

- New cracks, settlements or sinkholes which requires further action
- When specifically requested

Show results of inspections as follows:-

• New observation	**NEW**
• Significant increase (> 30%) or change in condition	**SG-INC**
• Slight increase (> 10%) or change in condition	**INC**
• NIL change of condition	**NIL**
• Slight decrease (< 10%) or change in condition	**DEC**

Significant Changes

Any changes which, in the opinion of the inspecting officer, are more than just slight changes must be advised to the DSTDM. The degree of urgency of this advice varies with the nature of the issue. Mark changes on a plan if appropriate.

SPLITYARD CREEK DAM EAP Reported Earthquake

EARTHQUAKE / TREMOR INSTRUCTIONS

The occurrence of a significant seismic event could endanger the integrity of the dam, and requires a specific emergency response. If an earthquake occurs which has a magnitude that meets or exceeds the alert criteria shown below, or has been reported to have occurred, then the Emergency Action Plans in Section 6 should be followed.

REPORTED ALERT CRITERIA - Magnitude (Richter Scale)

Magnitude >4.0 within 25 km radius of the dam

Magnitude >5.0 within 50 km radius of the dam

Magnitude >6.0 within 80 km radius of the dam

Magnitude >7.0 within 125 km radius of the dam

Magnitude >8.0 within 200 km radius of the dam

Detailed information on recent earthquakes in Australia and nearby regions is available at the Geoscience Australia website (Ref: http://www.ga.gov.au/earthquakes/). Reference should be made to the Geoscience Australia website to confirm magnitude and location of any earthquakes. The Modified Mercalli Scale is included at Figure 13 for understanding earthquake magnitude and contingency backup, if the Geoscience Australia website not accessible or not operating.

SPLITYARD CREEK DAM EAP — Felt Earthquake

If any earthquake is felt at the dam or in the vicinity of the dam, which does not exceed the above criteria, then a routine inspection should be carried out by operating staff, and if any damage is observed, then the Emergency Action Plans in Section 6 should be followed.

Figure 61 Modified Mercalli Scale for Felt earthquake magnitude assessment

EARTHQUAKE ASSESSMENT (MODIFIED MERCALLI SCALE)	
MM 1	**Not felt by humans, except in especially favourable circumstances, but birds and animals may be disturbed**. Reported mainly from the upper floors of buildings more than 10 storeys high. Dizziness or nausea may be experienced. Branches of trees, chandeliers, doors and other suspended systems of long natural period may be seen to move slowly. Water in ponds, lakes reservoirs, etc. may be set into wave oscillation of short to long durations.
MM 2	**Felt by a few persons at rest indoors, especially by those on upper floors or otherwise favourably placed.** The long-period effects listed under MM 1 may be more noticeable.
MM 3	**Felt indoors, but not identified as an earthquake by everyone.** Vibration may be likened to passing of light traffic. It may be possible to estimate the duration, but not the direction. Hanging objects may swing slightly. Standing motorcars may rock slightly.
MM 4	**Generally noticed indoors, but not outside.** Very light sleepers may be wakened. Vibration may be likened to the passing of heavy traffic, or to the jolt of a heavy object falling or striking the building. Walls and frame of buildings are heard to creak. Doors and windows rattle. Glassware and crockery rattles. Liquids in open vessels may be slightly disturbed. Standing motorcars may rock, and the shock can be felt by their occupants.
MM 5	**Generally felt outside, and by almost everyone indoors.** Most sleepers awakened. A few people frightened. Direction of motion can be estimated. Small unstable objects are displaced or upset. Some glassware and crockery may be broken. Some windows cracked. A few earthenware toilet fixtures cracked. Hanging pictures move. Doors and shutters swing. Pendulum clocks stop, start, or change rate.
MM 6	**Felt by all.** People and animals alarmed. Many run outside. Difficulty experienced in walking steadily. Some plaster cracks or falls. Isolated cases of chimney damage.

EARTHQUAKE ASSESSMENT (MODIFIED MERCALLI SCALE)	
MM 7	**General alarm.** Difficulty experienced in standing. Noticed by drivers of motorcars. Trees and bushes strongly shaken. Large bells ring. A few instances of damage to masonry. Loose brickwork and tiles dislodged. Un-braced parapets and architectural ornaments may fall. Stone walls cracked. Weak chimneys broken, usually at the roof-line. Domestic water tanks burst. Concrete irrigation ditches damaged. Waves seen on ponds and lakes. Water made turbid by stirred-up mud. Small slips and caving-in of sand and gravel banks.
MM 8	**Alarm may approach panic.** Steering of motorcars affected. Masonry damaged, with partial collapse. Chimneys, factory stacks, monuments, towers, and elevated tanks twisted or brought down. Panel walls thrown out of frame structures. Some brick veneers damaged. Decayed wooden piles broken. Frame houses not secured to the foundation may move. Cracks appear on steep slopes and in wet ground. Landslips in roadside cuttings and unsupported excavations. Some branches may be broken off. Changes in the flow or temperature of springs and wells may occur. Small earthquake fountains.
MM 9	**General Panic.** Masonry heavily damaged, sometimes collapsing completely. Frame structures racked and distorted. Damage to foundations general. Frame houses not secured to the foundations shifted off. Brick veneers fall and expose frames. Cracking of the ground conspicuous. Minor damage to paths and roadways. Sand and mud ejected in alleviated areas, with the formation of earthquake fountains and sand craters. Underground pipes broken. Serious damage to reservoirs.
MM 10	**Most masonry structures destroyed, together with their foundations.** Some well built wooden buildings and bridges seriously damaged. Dams, dykes and embankments seriously damaged. Railway lines slightly bent. Concrete and asphalt roads and pavements badly cracked or thrown into waves. Large landslides on river banks and steep coasts. Sand and mud on beaches and flat land moved horizontally. Large and spectacular sand and mud fountains. Water from rivers, lakes, and canals thrown up on the banks.

SPLITYARD CREEK DAM EAP Terrorist Activity/ Threat/ Other Inspection Sheet

(Circle Activity)

Visual Inspection and Storage Report - **REMEMBER: TAKE PHOTOS AND THE DATE STAMP THEM** Date.....

Tick Day of the Week	SUN	MON	TUE	WED	THU	FRI	SAT

VISUAL INSPECTION Inspections should only be undertaken if / when it is safe to do so.	**First Inspection (As directed)**	**Interim Inspection (As directed)**	**Final Inspection (As directed)**
(Walk OR Drive at 10 km/hour. Write 'W' for walk and 'D' for Drive)			
Time			
Water Level – Max OL 166.5 m AHD			
Rainfall (mm)			
Main Embankment			
General condition/ Damage			
Upstream Face (use binoculars) Settlement			
Displacement of riprap material or sink holes			
Downstream Face Sloughing			
Sign of seepage/ Subsidence/ Slides/ Erosion			
Area Downstream of Dam			
New seepage			
Increase in seepage			
Inlet Structure/ Outlet Works General condition			
Damage/ Cracking/ Spalling/ Construction joints			
Damage/ Deterioration of valves			
Spillway			
Channel scouring			
Damage to concrete			
Saddle Dam			
General condition/ Erosion/ Damage			
Seepage			
New seepage point Estimated flow	L/s	L/s	L/s
Clear or turbid (tick for clear)			
Old seepage points Complete measuring weir sheet			

Details of significant changes. New occurrences and issues warranting further attention

New Cracks or Movements: Sketch, measure, photograph, and locate if possible. Sketch on the Plan (see over)

Inspecting Officer's initials			

* Original to be retained on site or in Area Office if no facility to store documents on site	* Fax/Email to (tick if Faxed or Emailed) See Part 2 for Fax Number		Dam Safety Technical Decision Maker
			Incident Coordinator

SPLITYARD CREEK DAM EAP **Terrorist Activity / Threat / Other**

** INSTRUCTIONS FOR COMPLETING SHEET – Terrorist Activity / Threat / Other

VISUAL INSPECTION

Frequency of visual inspection required is determined by the extent of damage | **AS DIRECTED**

Additional Inspections should be made when

- New cracks or breaching of dam is evident which require further action
- When specifically requested

Show results of inspections as follows:-

• New observation	**NEW**
• Significant increase (> 30%) or change in condition	**SG-INC**
• Slight increase (> 10%) or change in condition	**INC**
• NIL change of condition	**NIL**
• Slight decrease (< 10%) or change in condition	**DEC**

Significant Changes

Any changes which, in the opinion of the inspecting officer, are more than just slight changes must be advised to the DSTDM. The degree of urgency of this advice varies with the nature of the issue. Mark changes on a plan if appropriate.

MEASURING WEIR SEEPAGE MEASUREMENT READINGS SHEET

Date	Time	Storage Level (m)	MW1 (mm)		MW2 (mm)		MW3 (mm)		MW4 (mm)		MW5 (mm)		MW6 (mm)		MW7 (mm)		MW8 (mm)		MW9 (mm)	
			Clear / Turbid [7]		Clear / Turbid [2]		Clear / Turbid [2]	Clear / Turbid [2]	Clear / Turbid [2]		Clear / Turbid [2]		Clear / Turbid [2]		Clear / Turbid [2]		Clear / Turbid [2]		Clear / Turbid [2]	

[7] *Seepage water – Clear or Turbid (tick for clear)*

GROUND WATER BOREHOLE OBSERVATIONS SHEET

Date Observed ……..

Res. Level at start ……..

Time ……..

Borehole No

PH52	……..	OH64	……..
PH51	……..	OH59	……..
PH27	……..	OH58	……..
PH28	……..	OH65	……..
PH24	……..	OH66	……..
PH25	……..	OH67	……..
PH56	……..	PH48	……..
PH57	……..	PH31	……..
WH143	……..	PH49	……..
PH33	……..	PH50	……..
PH34	……..	OH70A	……..
PH46	……..	OH71	……..
PH47	……..	OH78	……..
OH62	……..	OH79	……..
OH63	……..	OH83	……..
OH61	……..	OH84	……..
OH60	……..	OH85	……..
OH74	……..	OH86	……..
OH73	……..	PH87	……..
OH75	……..	PH89	……..
OH72	……..	PH90	……..
OH76	……..	PH91	……..
OH69	……..	PH92	……..
OH68	……..		

Res. Level at End ……..

Time ……..

LOWER HUT PIEZOMETER READINGS SHEET

HYDRAULIC PIEZOMETER READINGS

MASTER GAUGE

Project: **Splityard Creek Dam** | Gauge Datum EL: 100.6

Reservoir Water EL _____ | Tailwater EL _____

Piez. No.	Inlet Setting (1)	Inlet Reading		Outlet Setting (1)	Outlet Reading		Average gauge reading	Tip Constant (2)	Average Pressure at tip
1								15.0	
2								14.8	
3								10.0	
4				INOPERATIVE					
5				INOPERATIVE					
6				INOPERATIVE					
7								5.4	
8								5.4	
9								5.4	
10								5.4	
11								5.4	
12								-9.8	
13								-9.8	
14								-9.8	
15								-9.8	
16				INOPERATIVE					
17								-25.0	
18								-24.8	
18A								-34.8	
18B								-34.4	
19								-39.8	
20								-39.8	
21				INOPERATIVE					
34								-9.8	
35								-16.2	
36								2.2	
37								3.0	

(1) Use the last reading as the gauge setting for the new readings

(2) The tip constant is the difference in elevation between the master gauge and the tip, measured to the nearest 0.2 m. Use a plus (+) for tip constants when the tip is below the elevation of the gauge , and minus (-) when the tip is above the gauge.

All pressures are in metres of water.

Remarks _____

Observed by _____ ____ / ____ / _____

UPPER HUT PIEZOMETER READINGS SHEET

HYDRAULIC PIEZOMETER READINGS

MASTER GAUGE

Project: **Splityard Creek Dam** Gauge Datum EL: 147.2

Reservoir Water EL _____ Tailwater EL _____

Piez. No.	Inlet Setting (1)	Inlet Reading	Outlet Setting (1)	Outlet Reading	Average gauge reading	Tip Constant (2)	Average Pressure at tip
22						11.2	
23						11.2	
24						10.6	
25						9.4	
26						9.2	
27	INOPERATIVE						
28						3.6	
29						3.6	
30						3.6	
31						-3.8	
32						-3.8	
33						-10.6	

(1) Use the last reading as the gauge setting for the new readings

(2) The tip constant is the difference in elevation between the master gauge and the tip, measured to the nearest 0.2 m. Use a plus (+) for tip constants when the tip is below the elevation of the gauge , and minus (-) when the tip is above the gauge.

All pressures are in metres of water.

Remarks _____

Observed by _____ ___/___/___

EXTENSOMETER READINGS SHEET

EXTENSOMETER READINGS

Project Splityard Creek Dam Location: Crest

Potenti - ometer No.	Resistance Red / Black (kW) A - B	Resistance Black / Green (kW) B - C	Resistance Red / Green (kW) A - C
1			
2			
3			
4			
5			
6			
7			
8	Unable to read		

Observed By .....

Date .....

Appendix G SITE ACCESS INFORMATION AND SUPPLIER INFORMATION

Normal access routes

The dam and surrounds are accessed by way of the perimeter gates and the access tracks within the boundary fences. Keys to the gates are held in the key cabinet in the station office. The Wivenhoe 4-wheel drive vehicles are to be used for access to the Splityard Creek Dam tracks for inspections and observations.

The normal access to Wivenhoe Power Station and Splityard Creek Dam is via the Brisbane Valley Highway, then Wivenhoe Somerset Road. Wivenhoe Somerset Road will become hazardous in the event of a catastrophic failure of Splityard Creek Dam.

For levels of severity Stand Up–1 and Stand Up-2, Wivenhoe Somerset Road should only be used on the advice of personnel physically inspecting the condition of the dam for evaluating "possibility of failure" status.

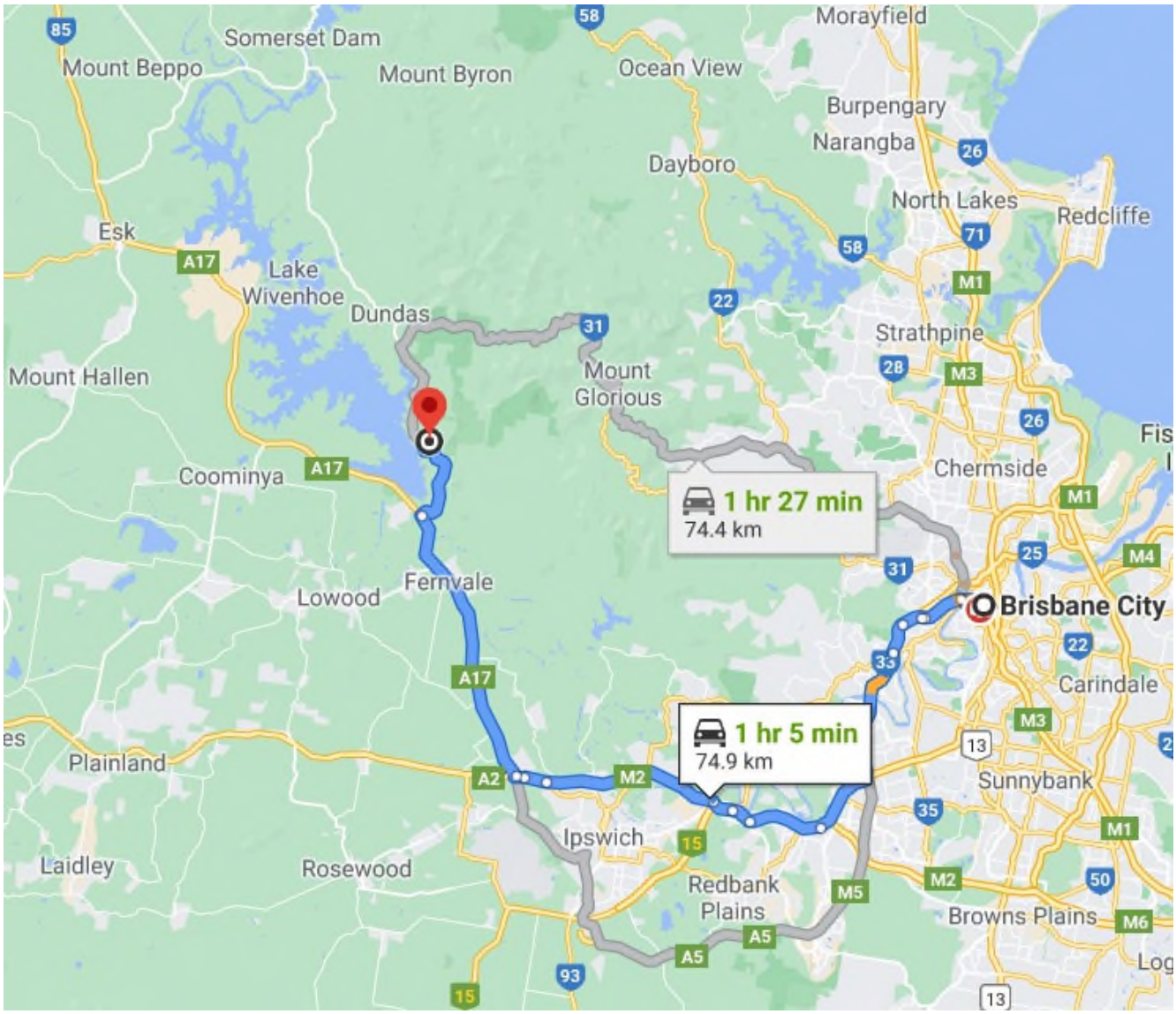
Emergency access routes

In the event of Wivenhoe Somerset Road not being accessible from the Brisbane Valley Highway, other methods of access to Splityard Creek Dam are (not in priority order):

Refer to Figure 11 for a map of the routes with indicative travel times.

Options	Alternative Route
1	Boat access from Seqwater information centre at Wivenhoe Dam across the lake to Wivenhoe Power Station, with cooperation from Seqwater personnel. Access from Wivenhoe Power Station to Splityard Creek Dam is unlikely to be restricted.
2	Vehicle access north via Brisbane Valley Highway through Esk, then east via Esk Kilcoy Road to Somerset, then south via Wivenhoe Somerset Road to Splityard Creek Dam.
3	Vehicle access north-west via Samford Road to Samford, then west via Mt Glorious Road to Mt Glorious, then west via Mount Glorious Road continuing onto Northbrook Parkway to a tee intersection with Wivenhoe Somerset Road, then south via Wivenhoe Somerset Road to Splityard Creek Dam.
4	North from Brisbane via Bruce Highway to Caboolture, then west via D'Aguilar Highway to Kilcoy, then south via Esk Kilcoy Road to Somerset, then south via Wivenhoe Somerset Road to Splityard Creek Dam.

Figure 62: Access Routes to Splityard Creek Dam



Equipment and Supplier Information

Equipment required for undertaking inspections include:

- Keys for access gates. Keys to the gates are held in the key cabinet in the Wivenhoe Power Station office.
- Measuring tapes for V-notch leakage weirs – carried in the 4-wheel drive vehicles.
- Dam inspection sheet and clipboard
- V-notch spreadsheet located electronically in CleanCo's record management system
- Torches, if inspections are carried out at night, held in the Wivenhoe Power Station tool store.
- 2-way radios for communications – carried by each individual Wivenhoe Power Station staff member.
- Cameras for images of V-notch weir water colour, and any observed defects at the outlet works, the embankment, the abutments, or any other location – held in Wivenhoe Power Station office.

Name of equipment	No	Owner	Contact number	Location
Satellite phone	1	CleanCo		**Wivenhoe Power Station**
Small front-end loader	1	CleanCo		**Wivenhoe Power Station**
4-wheel drive vehicles	3	CleanCo		**Wivenhoe Power Station**
First aid & rope rescue access equipment		CleanCo		**Wivenhoe Power Station**
Office space for coordination of emergency	**2**	**CleanCo**		**Wivenhoe Power Station**

Appendix H has been redacted