IN THE MATTER OF
THE QUEENSLAND FLOODS COMMISSION OF INQUIRY

A COMMISSION OF INQUIRY UNDER THE COMMISSIONS OF INQUIRY ACT 1950

AND PURSUANT TO COMMISSIONS OF INQUIRY ORDER (No. 1) 2011

THIRD STATEMENT OF JAMES ANDREW PRUSS

On the 21st day of November 2011, I, James Andrew Pruss of 240 Margaret Street, Brisbane, state on oath:

1. I am employed by Queensland Bulk Water Supply Authority (***Seqwater***) in the position of Executive General Manager - Water Delivery. I have held this position since October 2009.

Preliminary

2. This statement provides an account pursuant to a requirement from the Commission, dated 10 November 2011, of the following:
   (a) the status of the 'North Pine Dam Optimisation Study' (***NPDOS***);
   (b) the work that remains to be done to complete NPDOS and the anticipated timeline for that work to be complete;
   (c) where applicable, how NPDOS will lead to the implementation of recommendations 2.27 and 2.28 made by the Commission in its Interim Report;
   (d) any work that has been done or is planned to be done aside from NPDOS to implement recommendations 2.27 and 2.28 made by the Commission in its Interim Report (***Other Work***), the anticipated timeline for the Other Work to be complete and, where applicable, how the Other Work will lead to the implementation of the same recommendations made by the Commission in its Interim Report.

Status of NPDOS

3. On or about 16 September 2011, Seqwater sought nominations from:
   (a) Department of Environment and Resource Management (***DERM***);
   (b) Queensland Water Commission (***QWC***);
   (c) South East Queensland Water Grid Manager (***Grid Manager***);

Filed on behalf of: Queensland Bulk Water Supply Authority trading as Seqwater

Allens Arthur Robinson
Lawyers
Riverside Centre
123 Eagle Street
Brisbane QLD 4000

DX 210 Brisbane
Tel (07) 3334 3000
Fax (07) 3334 3444
Ref MGI:120128021

(d) Brisbane City Council (***BCC***); and

(e) Moreton Bay Regional Council (***MBRC***),

for representatives to attend an establishment workshop for NPDOS.

4. Exhibited to this statement and marked JP-1 is a copy of the draft proposal for NPDOS prepared by Seqwater dated September 2011 which was attached to the invitations sent to the agencies listed above.

5. An establishment workshop was held on 13 October 2011 and attended by representatives of Seqwater, DERM, QWC, Grid Manager and Treasury. The representatives on behalf of BCC and MBRC were unable to attend. I subsequently briefed BCC and MBRC separately on the establishment workshop proceedings and outcomes.

6. The attendees at the establishment workshop agreed that the Steering Committee for NPDOS will comprise representatives of Seqwater, DERM, QWC, Grid Manager, BCC and MBRC. Furthermore, it was agreed that Seqwater will chair the Steering Committee.

7. The agenda and decision registers for the establishment workshop have been provided to the Commission under a separate cover letter dated 21 November 2011.

8. NPDOS will involve three parallel investigations into the following areas:

(a) water supply security, to be lead by QWC;

(b) catchment and dam hydrology, to be lead by Seqwater; and

(c) floodplain impacts, to be lead by MBRC.

9. Investigations into catchment and dam hydrology are well advanced in light of the commencement of the *North Pine Dam Acceptable Flood Study Investigations* (***NPDFI***), which was acknowledged by the Commission on page 91 of its Interim Report, prior to the establishment of NPDOS. The NPDFI will be completed as part of the catchment and dam hydrology investigation of NPDOS.

10. A copy of the status report for NPDFI prepared by Seqwater dated 6 May 2011 which lists nine tasks for the study has been provided to the Commission under separate cover letter dated 21 November 2011.

11. Copies of reports and memorandums produced to date for NPDFI / NPDOS have been provided to the Commission under separate cover letter dated 21 November 2011.

12. The scope of work for NPDOS will be reviewed to identify any additional assessment requirements arising from:

(a) the Final Report of the Queensland Floods Commission of Inquiry (***Final Report of the Commission***); and

(b) any further flood event information arising from any flood events during the 2011/2012 wet season.

[redacted]

13. An independent review panel (***IRP***) will review the technical work completed for each of respective investigations of NPDOS.

14. Since the establishment meeting, potential panellists for the IRP have been identified. The procurement of panellists for the IRP is ongoing and expected to be completed by the end of November 2011. The preferred panellists are a subset of those engaged in the separate 'Wivenhoe and Somerset Dams Optimisation Study' (***WSDOS***).

Remaining work and timeline for NPDOS

15. Following the procurement of the IRP, the Steering Committee will:

    (a) agree on the scope of work for the water supply security and floodplain impacts investigations, following advice from the lead agencies and the IRP;

    (b) agree on any further work to be undertaken for the catchment and dam hydrology investigation, following advice from the IRP;

    (c) engage a consultant to establish an integrated assessment framework for NPDOS and eventually produce a report of potential options for optimisation of the use of North Pine Dam to be presented to the Queensland Government; and, ultimately

    (d) present a report of options to the Queensland Government.

16. The program of work for NPDOS is expected to be completed by the end of June 2012.

17. Exhibited to this statement and marked JP-2 is a copy of the current draft Project Management Plan for NPDOS (Rev 2).

How NPDOS implements Commission's interim recommendations

18. The Steering Committee for NPDOS has resolved to deliver recommendations 2.27 and 2.28 made by the Commission in its Interim Report.

19. More particularly in relation to how NPDOS will implement recommendation 2.27 which states:

> *Seqwater should act immediately to establish:*
>
> *1. a steering committee to oversee the long term review of the North Pine manual including senior representatives of at least DERM, Seqwater, the Water Commission, the Water Grid Manager, Brisbane City Council and the Moreton Bay Regional Council*
>
> *2. a technical review committee comprised of independent experts in at least hydrology, meteorology and dam operations to examine all technical work completed as part of the review.*

    (a) The Steering Committee for NPDOS has been established and comprises representatives from each of the authorities referred to in recommendation 2.27(1), with the addition of Treasury;

[redacted]

(b) The procurement process of the IRP for NPDOS is nearing completion and will comprise independent experts in hydrology, meteorology and dam operations as referred to in recommendation 2.27(2).

(c) Relevant members of the IRP will review all technical work completed as part of the three investigations and report to the Steering Committee;

(d) NPDOS will ultimately produce a range of potential options for the optimal use of North Pine Dam based on the results of the investigations as reviewed by the IRP and as assessed through an integrated assessment framework for the Queensland Government to consider and base relevant policy decisions on. The decisions of the Queensland Government will eventually determine the scope of any revision to the *Manual of Operational Procedures for Flood Mitigation at North Pine Dam* (***Manual***).

(e) This approach is consistent with the rationale for the longer term review of the Manual given by the Commission in its Interim Report on pages 92 and 93:

[T]he steering committee should oversee modelling which assesses the consequences in terms of risk to life and safety, and economic, social and environmental damage of all potential operating strategies and full supply levels. However, the responsibility for identifying which operating strategy best satisfies the needs of the community rests with the Queensland Government.

(f) NPDOS will effectively come to an end after the Steering Committee presents the range of potential options to the Queensland Government;

(g) Seqwater intends to prepare any revision of the Manual in accordance with the direction of Queensland Government following determination of a preferred set of strategies and otherwise in accordance with Chapter 4, Part 2 of the *Water Supply (Safety and Reliability) Act 2008*.

20. More particularly in relation to how NPDOS will implement recommendation 2.28 which states:

The steering committee should:

1. *oversee the continuation of Seqwater's North Pine Dam Acceptable Flood Study Investigations in accordance with the scope and program of activities advised to the Commission as at 6 May 2011;*
2. *determine whether any hydrological studies, in addition to those undertaken as part of the North Pine Dam Acceptable Flood Study Investigations, are required;*
3. *ensure that modelling across a range of full supply levels and operating strategies, including variations of the gate increments and gate opening intervals is undertaken;*
4. *ensure all of the above work is reviewed by the technical review committee.*

(a) The NPDFI will be subsumed into NPDOS and completed as part of the catchment and dam hydrology investigation for NPDOS and reviewed by the IRP;

[redacted]

(b) The Steering Committee will determine any further work to be undertaken as part of the catchment and dam hydrology investigation based on advice from the IRP;

(c) modelling across a range of full supply levels and operating strategies, including variations of the gate increments and gate opening intervals is being undertaken by Seqwater; and

(d) all technical work completed for the three respective investigations of NPDOS will be reviewed by the IRP.

Other Work (in addition to NPDOS)

21. As noted above, following the completion of NPDOS, Seqwater intends to prepare any revision of the Manual in accordance with the direction of Queensland Government following determination of a preferred set of strategies, and otherwise in accordance with Chapter 4, Part 2 of the *Water Supply (Safety and Reliability) Act 2008*.

22. The timing for this long-term review of the Manual will be dependent upon the State Government's decision on the policy settings for optimising the use of North Pine Dam, as the extent of any changes to the Manual will be unknown until such time as the State determines how it wishes to proceed, having considered the options developed within the NPDOS process.

23. Also as mentioned above, Seqwater will review whether there are any implications for NPDOS or additional work required outside the NPDOS process arising from:

(a) the Final Report of the Commission; and

(b) any further flood event information arising from any flood events during the 2011/ 2012 wet season.

SWORN by **JAMES ANDREW PRUSS** on 21 November 2011 at Brisbane in the presence of:

[redacted]

Deponent

[redacted]

Solicitor

IN THE MATTER OF
THE QUEENSLAND FLOODS COMMISSION OF INQUIRY

A COMMISSION OF INQUIRY UNDER THE COMMISSIONS OF INQUIRY ACT 1950

AND PURSUANT TO COMMISSIONS OF INQUIRY ORDER (No. 1) 2011

THIRD STATEMENT OF JAMES ANDREW PRUSS

INDEX OF ANNEXURES

Annexure No.	Document	Date
JP-1	North Pine Dam Optimisation Study – Draft Study Proposal	00.11.2011
JP-2	North Pine Dam Optimisation Study - Draft Project Management Plan – Revision 2	00.11.2011

Filed on behalf of: Queensland Bulk Water Supply Authority trading as Seqwater

Allens Arthur Robinson
Lawyers
Riverside Centre
123 Eagle Street
Brisbane QLD 4000

DX 210 Brisbane
Tel (07) 3334 3000
Ref MGI:120128021

Fax (07) 3334 3444

[redacted]

"JP-1"

seqwater
WATER FOR LIFE

NORTH PINE DAM OPTIMISATION STUDY

DRAFT STUDY PROPOSAL

SEPTEMBER 2011

EXECUTIVE SUMMARY

Given the magnitude and impact of the January 2011 flood event (6 to 14 January), a formal long term review of the North Pine Manual will be progressed, in line with recommendations of the Queensland Floods Commission of Inquiry Interim Report, and consistent with standard practices after major flood events. This scope of works outlines the review process, including an Optimisation Study, to determine the most favourable operation of North Pine Dam for both water supply and downstream consequences.

The results of this study will determine the benefits and impacts of a range of scenarios which will then inform the Queensland Government in making a determination for the future operating strategy that best satisfies the needs of the community. In turn, this will inform the long term review of the **Manual of Operational Procedures for Flood Events at North Pine Dam.**

From a technical sense, the Optimisation Study will incorporate three parallel initiatives, which will need to be fully integrated:

1. Water Supply Security Investigation.
2. Catchment and Dam Hydrology Investigation.
3. Floodplain Impacts Investigation.

The Water Supply Security Investigation would review the impacts of any proposed options to provide additional air space in the dam to manage flood events, upon the water supply security for the SEQ region, including upon existing capital works programs, operating costs and short-term risks to supply. The Catchment and Dam Hydrology Investigation would examine the benefits and impacts of the possible options for managing the flood events being passed through the dam as well as potential new structural options. The Floodplain Impacts Investigation will assess alternative full supply levels and associated flood release strategies and impacts for North Pine Dam.

Ultimately, it is expected the Optimisation Study will progress the investigation, assessment and evaluation of options, across all of the above considerations, resulting in the nomination of options or scenarios for government consideration.

The Optimisation Study is to be overseen by a nominated Steering Committee. A suitable Independent (Expert) Review Panel will examine and endorse the technical studies and outputs of the review.

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1. INTRODUCTION

North Pine Dam is located in the Pine Rivers Basin. The Dam supplies urban water (including drinking water) to South East Queensland and was not designed specifically to provide flood mitigation. Flood events that impact North Pine Dam are caused by rainfall events that vary in intensity, duration and distribution over a catchment area of 345km^2 above the Dam. During flood events, decisions regarding Dam releases are based on the amount of rainfall occurring in the Dam's catchment area and the resulting inflow into the Dam.

Significant inflows into the Dam can occur within two hours of heavy rainfall beginning in the catchment area. Consistent with the scale of the January 2011 flood event in the Pine Rivers Basin, and as a requirement of the Queensland Floods Commission of inquiry Interim Report, a long term review of the **Manual of Operational Procedures for Flood Events at North Pine Dam** (the Manual) will be undertaken. This scope of works outlines how this will be progressed, including the delivery of an optimisation study.

The challenge in conducting a successful Optimisation Study will be to balance the needs of the community now and into the future with existing dam operating procedures and management practices. Community engagement will therefore be incorporated into the process.

A study to optimise the way North Pine Dam is operated in the future will need to consider all potential benefits and will require choices to be made against the level of each benefit that will be provided, in an integrated fashion.

2. NATURE OF THE OPTIMISATION STUDY

It is proposed the optimisation study takes the form of an 'options study' that examines broadly, in the first instance, the options that can be employed when managing the dam.

From a technical sense, the study would consider three parallel investigations, which will need to be fully integrated:

1. Water Supply Security Investigation.
2. Catchment and Dam Hydrology Investigation.
3. Floodplain Impacts Investigation.

The following table details the Agencies with the knowledge and tools to lead each of the three separate investigations, as well as the primary stakeholders associated with each investigation.

STUDY COMPONENT	LEAD AGENCY	PRIMARY STAKEHOLDERS
1. Water Supply Security Investigation	Queensland Water Commission	SEQ Water Grid Manager Department of Environment & Resource Management (DERM)

2. Catchment and Dam Hydrology Investigation	Seqwater	DERM Bureau of Meteorology (BoM) Moreton Bay Regional Council Brisbane City Council
3. Floodplain Impacts Investigation	Moreton Bay Regional Council	Communities of South East Queensland. The State will also be a key stakeholder through considerations of future land use planning and development implications (eg SEQ Regional Plan) and policies

The work expected to be undertaken in each of the three studies is detailed below.

3. **Water Supply Security Investigation**

The Water Supply Security Investigation would review the impacts of options upon the water supply security for the SEQ region, including upon existing capital works programs, operating costs and short-term risks to supply.

Possible options for the future operation of the dam to be considered include how the dam Full Supply Level is set and managed now and into the future.

There are significant water supply security risks involved in temporarily or permanently lowering the Full Supply Level of North Pine Dam. Scenario analysis contained in the South East Queensland Water Strategy indicates there is the potential for climate change to negatively impact the region's water supply in the near future. Impacts from climate change may lead to additional water supply infrastructure being required to service communities from 2017, with construction needing to commence by 2014. Reducing the Full Supply Level of North Pine Dam may have the potential to bring this timetable forward even further.

As any decision to change the North Pine Dam Full Supply Level will have a very direct and significant impact on urban water supply security for Brisbane and the Sunshine Coast. In South East Queensland, these decisions would be made by the State on the advice of the Queensland Water Commission (QWC). To provide comprehensive advice on this matter, it is expected the QWC would consider:

- The implications for the Water Resource (Moreton) Plan 2007 and the Moreton Resource Operations Plan.
- The implications for the SEQ Regional Water Supply Strategy and associated Water Security Program.
- The implications in relations to increased operating costs and operational supply risks

- Consultation with and advice from the BoM and the Office of Climate Change on long-term weather patterns and forecasts.

Each of the factors would be examined in detail and recommendations provided on how the Full Supply Levels of North Pine Dam would be best set and managed in order to optimise the benefits across South East Queensland communities.

The Water Supply Security Investigation would be led by the Queensland Water Commission with involvement from DERM and SEQ Water Grid Manager. As the manager of South East Queensland's bulk water assets, Seqwater would implement any relevant operational aspects of the recommendations in accordance with its charter.

4. Catchment and Dam Hydrology Investigation

The Catchment and Dam Hydrology Investigation (*North Pine Dam Flood Capacity Study- URS 2011)* has undertaken a detailed review of the dam hydrology and spillway capacity of North Pine Dam, together with a review of the bridge structure and the spillway gates. The review has focused of the following key items:

- Assessment of the flood hydrology of the North Pine catchment and revising the flood flows based on the rare January 2011 event.
- Investigation of the spillway gate ratings and the capacity to pass flood flows.
- Structural analysis of the bridge and spillway gates to assess the ability to withstand the additional loading during a flood event.
- Assessment of the mechanical and electrical systems and identify limitations of the current systems to remain operable during large flood events.
- Estimate the percentage of the PMF that the dam can safely pass.

4.1 Hydrology Assessment Summary

Assessment of the flood flow hydrology has been undertaken for the North Pine Dam catchment to estimate the Probable Maximum Flood (PMF) inflow hydrographs. The assessment involved development of a new hydrologic model using the RORB software. The model was subsequently calibrated to historic flood events, then used to estimate the PMF derived from Probable Maximum Precipitation (PMP) design rainfall depths and temporal pattern simulations.

4.2 Storage Rating Curve Verification

The existing storage rating curve has been assessed through comparison of LiDAR data (flown in 2006 and 2009) provided by the Moreton Bay Regional Council. Comparison of the data sets displays good correlation with differences in storage volume noted as less than 1 percent. As a result, the existing storage rating curve was deemed suitable for use within subsequent analyses.

4.3 Spillway Rating Curve Assessment

As part of the spillway rating curve assessment, an independent estimate of theNorth Pine Dam spillway rating curve for water levels up to the dam crest level using previous studies, design drawings and technical design publications was performed.

4.4 Structural Assessment of Bridge and Gates

Structural assessments have been performed based on original hand calculations for the bridge wind bracing, bearings, and main steel plate girders. The structural assessment also included analysis of the gates. The likely failure modes have been identified as:

- Failure of hoists, cables, or connections
- High static or dynamic (bouncing) loading

4.5 Mechanical and Electrical Assessment

An assessment of gate motors, hoist equipment, and electrical workings has been made based on a site visit by mechanical and electrical engineers. The assessment included identification of the potential ramifications due to inundation of any of the aforementioned equipment and their respective levels.

Since the initial assessment, Seqwater has commissioned works to address the rapid shutting of the gate by installing a locking mechanism and also adding disc brakes.

4.6 Revised Flood Routing Assessment

By incorporating the revised hydrology, existing (verified) storage rating curve, revised spillway rating curve for a one inoperable gate scenario, and the gate operating rules from the Manual for a one gate inoperable scenario, a revised flood routing assessment has been performed to determine the approximate current flood capacity. The results of the revised flood routing assessment indicate that the current flood capacity (at dam crest or 43.28 mAHD) of North Pine Dam is approximately 55 percent of the PMF.

The Steering Committee will consider the findings of the *North Pine Dam Flood Capacity Study* in the long term review of the manual.

5. Floodplain Impacts Investigation

A detailed hydraulic analysis is being undertaken for the assessment of alternative full supply levels and flood release strategies for the North Pine Dam (*North Pine Dam TUFLOW Hydraulic Modelling Report, Worley Parsons 2011).*

This hydraulic analysis has been carried out utilising the Moreton Bay Regional Council (MBRC) WBNM hydrologic model developed for the catchments of the Pine Rivers system in

combination with the TUFLOW two-dimensional (2D) hydraulic model established for the Lower Pine River region.

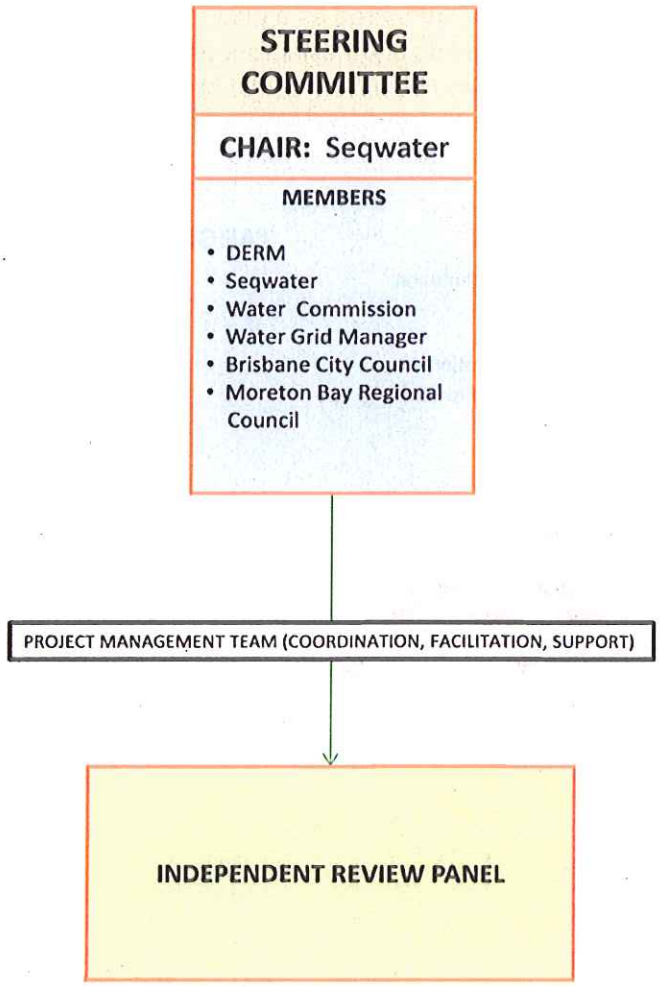
Moreton Bay Regional Council investment in floodplain impacts to also be included here

6. PROPOSED STUDY GOVERNANCE PROCESS

As noted above, the Optimisation Study will involve three parallel investigations, which will need to be integrated:

1. Water Supply Security Investigation.
2. Catchment and Dam Hydrology Investigation.
3. Floodplain Impacts Investigation.

To achieve the degree of integration and coordination required to deliver the Optimisation Study, a governance structure is required with clear roles and responsibilities to provide effective oversight of the Study integration. The roles will include a Steering Committee and an Independent Review Panel. The following governance structure is recommended for the management and successful completion of the Optimisation Study.



One of the functions of the Steering Committee will be to ensure that scientific investigations and modelling work recommended by the Queensland Floods Commission of Inquiry are addressed (refer to Recommendation 2.28).

The Independent Review Panel will comprise of independent experts in relevant disciplines to examine all technical work completed as a part of the Study.

7. PROPOSED STUDY TIMETABLE

It is proposed that the study would be undertaken in three phases:

- Establishment of the project Governance structure (September 2011);
- Optimisation Study Report – (Dec 2011); and
- Final Report (2012).

The following draft timetable has been prepared as a guide to show how the phases of the Study might progress. The timetable has been established to allow input into the Queensland Floods Commission of Inquiry final report which is due to be handed down in February 2012.

MILESTONE DESCRIPTION	TARGET COMPLETION DATE
Engage with organisations and agree representation for Steering Committee	Mid September 2011
Steering Committee Meeting No 1 – confirmation of governance, scope of work and independent review panel	Late September 2011
Independent Review of studies	October 2011
Development of scenarios for assessment	Early November 2011
Steering Committee workshop to assess scenarios	Late November 2011
Finalisation and confirmation of preferred options and associated report	January 2012

"JP-2"

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WATER FOR LIFE

North Pine Dam Optimisation Study

PROJECT MANAGEMENT PLAN

- Rev 2
- November 2011

Contents

Error! Bookmark not defined.1 Introduction

1.1 Background

During the summer of 2010/11, greater than average rainfall fell in South-East Queensland, associated with a La Nina weather event in the Pacific Ocean. The rainfall caused a major flood event in the North Pine Dam catchment, with associated impacts.

On Monday 17 January 2011, the Queensland Premier established an independent Queensland Floods Commission of Inquiry (QFCI) to examine the flooding that had impacted 70 per cent of the State. On 1 August 2011, the QFCI released an Interim Report, making 175 recommendations to the State Government on matters associated with flood preparedness prior to the 2011/12 wet season.

In Section 2.10.6 of the QFCI August 2011 report 'Longer term review of the North Pine Manual', the following specific recommendations were made:

'2.27 Seqwater should act immediately to establish:

1. a steering committee to oversee the long term review of the North Pine manual including senior representatives of at least DERM, Seqwater, the Water Commission, the Water Grid Manager, Brisbane City Council and the Moreton Bay Regional Council
2. a technical review committee comprised of independent experts in at least hydrology, meteorology and dam operations to examine all technical work completed as part of the review.

2.28 The steering committee should:

1. Oversee the continuation of Seqwater's *North Pine Dam Acceptable Flood Study Investigations* in accordance with the scope and program of activities advised to the Commission as at 6 May 2011
2. determine whether any hydrological studies, in addition to those undertaken as part of the *North Pine Dam Acceptable Flood Study Investigation*, are required
3. ensure that modelling across a range of full supply levels and operating strategies, including variations of the gate increments and gate openings is undertaken
4. ensure all of the above work is reviewed by the technical review committee.'

1.2 Overview of Project/Study

To respond to the January 2011 event and recommendations 2.127 to 2.28 of the QFCI, it is proposed to undertake a comprehensive optimisation study of the operation of North Pine Dam for both water supply and flood management.

It is envisaged the study scope of work will consist of a number of different components, which will need to be integrated. These components include:

- Catchment and dam hydrology;
- Floodplain impacts investigation, strategic options and risk management;
- Water supply security impacts and options investigation.

It is expected the optimisation study will progress the investigation, assessment and evaluation of options, resulting in the nomination of options or scenarios for government consideration. The process will involve stakeholder consultation and is intended to provide the basis for long-term review of the North Pine Dam flood operations manual, consistent with the nominated options.

1.3 Purpose of Document

The purpose of this Project Management Plan (PMP) is to:

- Describe the Project/Study Governance Framework;
- Define the project management approach, including outlining the scope of work, roles and responsibilities, deliverables, Study schedule, Risk management, quality and document management;
- Outline the reporting and communication protocols for the project.

1.4 References/Key Documents

A substantial number of documents have been produced regarding North Pine Dam and associated flooding/flood management. Many of these have been tabled during the course of the Queensland Floods Commission of Inquiry. It is not intended to reference all documents here; instead these will be referenced, as appropriate, in the supporting technical studies.

2 Project Governance Framework

2.1 Introduction

This section outlines a proposed Project Governance Framework for the North Pine Dam Optimisation Study (NPDOS). A clear and robust governance structure is essential in ensuring project outcomes are achieved.

This section outlines the governance structure, membership, roles and responsibilities for the Study. These are largely consistent with those established for the Wivenhoe Dam and Somerset Dam Optimisation Study (WSDOS), in recognition of the significant parallel investments that are being undertaken contemporaneously.

2.2 Project Governance Principles and Objectives

The core principles that underpin the Project Governance Framework are:

- Coordination – provide appropriate forums for coordination across project, across Study members and across government agencies.
- Decision making – be empowered to make decisions to allow the study to progress, define authority for decision making and empower facilitation of decision making at appropriate levels.
- Partnership – joint outcomes being achieved through effective stakeholder relationships.
- Certainty of outcomes – recognise the objectives of each stakeholder and work collaboratively to provide certainty of outcomes for each party.
- Resourcing – support implementation with appropriate resourcing.

The Project Governance Framework:

- Defines the relationships between the Study members (and stakeholders) involved in the project.
- Defines the proper flow of information to all Study members and stakeholders.
- Ensures the appropriate review of issues encountered within each component study or assessment.
- Ensures that required approvals and direction for the project are obtained at each key stage of the project.

The implementation of the Project Governance Framework is intended to achieve the following objectives:

- More durable project outcomes through increased ownership by Study members.
- Foster trust between partners and promote collaborative leadership.

- Ensure that both the project goals and requirements of individual organisations/agencies are met.
- Promote open, accurate and timely communication.
- Timely and effective decision making through clearly defined responsibilities and relationships between all groups involved in the project (both internal and external).
- Proactive identification and management of project risks and emergent issues.
- Greater support for action through coordinated mobilisation of resources.

It is critical that members recognise that the role they play in the Project Governance Framework, and whilst representative of their individual entities or agencies, are focused on the delivery of the broader whole of government and community project outcomes.

2.3 Values and Behaviours

While the Governance Framework outlines the key roles and responsibilities, the overarching values and behaviours of all involved in the Study and its governance will also be critical in achieving the project outcomes.

These shared values and behaviours include:

- Willingness to communicate in an open and honest way.
- Commitment and willingness to make collaboration succeed
- Being decisive and accountable.
- Own and respect team decisions.
- Promoting mutual trust and long-term commitment.
- Assigning adequate organisational resources.
- Prioritising project outcomes over individual organisations' agendas.
- Timely response and engagement.
- Focus on solutions in a 'no blame' culture.
- Commitment to the project and its outcomes.

2.4 Project Governance Framework Overview

Governance Structure Overview

The proposed Project Governance Structure/Framework is summarised on the following page in **Error! Reference source not found.**. The remainder of this section provides more details on the roles and responsibilities within this framework.

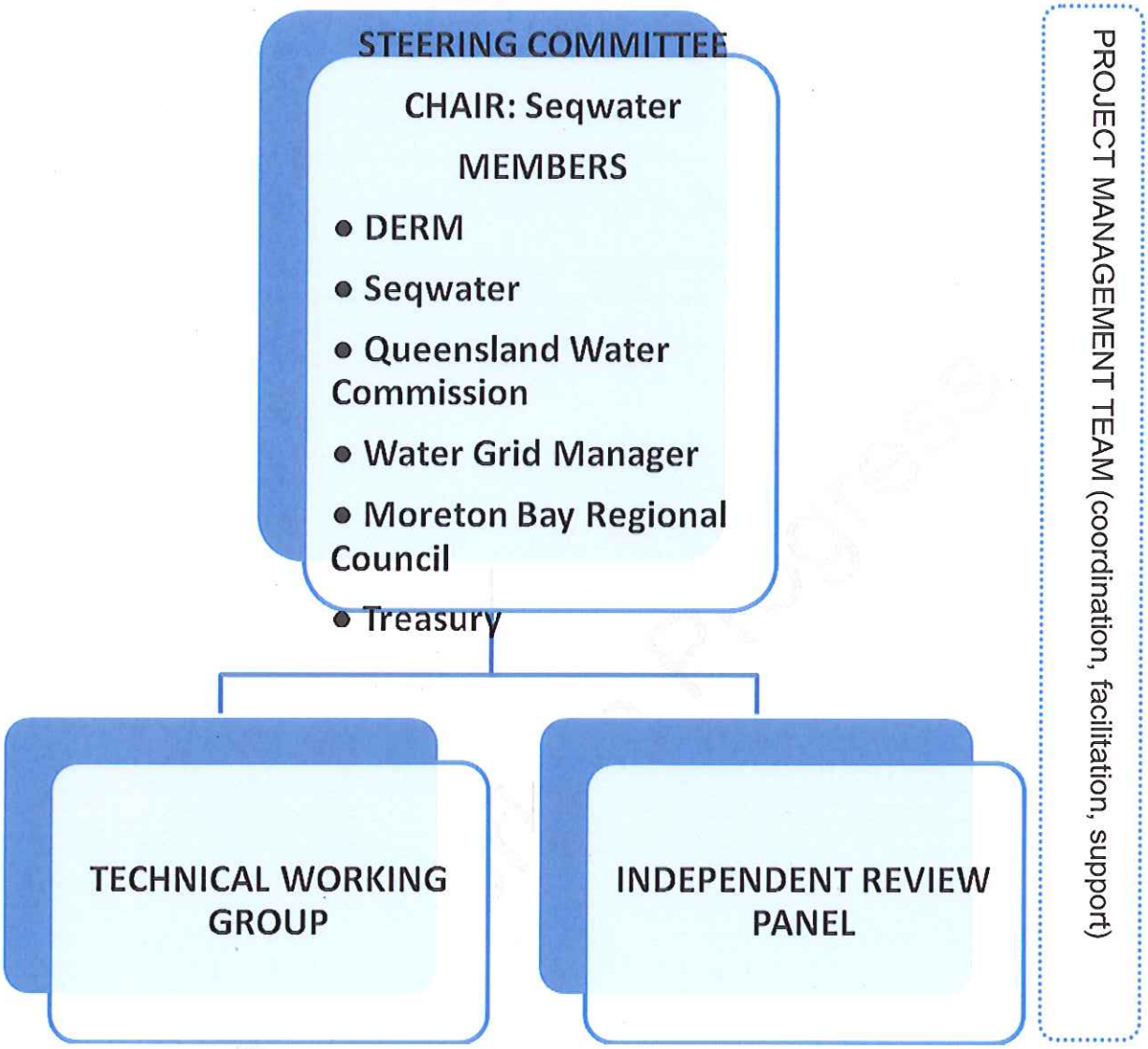


Figure 2-1 Governance Structure

Steering Committee

The Steering Committee has overall responsibility for the project success and should focus on strategic decisions to ensure that the project outcomes are fit for purpose and realise the objectives of the project.

Responsibilities

- Ownership of the project outcomes.
- Provides overall direction and leadership for the delivery of the project (and in particular sets the direction of the investigations undertaken through the Technical Working Group).
- Accountable for ultimate delivery of the project.
- Provides resolution of issues raised through the Technical Working Group or Independent Review Panel.

- Empower the Technical Working Group to make decisions within the scope of the role.
- Accountable for key strategic decisions around project outcomes
- Exhibit leadership behaviour at all times.
- Take a 'bigger picture' perspective, as compared to focusing upon the needs of individual organisations solely.
- Accountable for ensuring the Project Governance Framework is implemented.
- Maintains the alignment of the project with other government initiatives and related processes.
- Manages the interface of the project with external stakeholders.

Independent Review Panel

The Independent Review Panel provides assurance on technical outcomes from the Technical Working Group processes. This role spans from formal assurance of technical information prior to consideration by the Steering Committee, through to more informal engagement with the Steering Committee or Technical Working Group on specific matters of concern.

Responsibilities

- Accountable for assurance and ratification of technical material and Reports prior to consideration by the Steering Committee
- Provide expert technical advice to the Steering Committee as required
- Attend selected Technical Working Group Meetings to provide informal technical advice and review

Membership

The Independent Review Panel membership will consist of technical experts across the following disciplines:

- Hydrologic Modelling.
- Dam Operations
- Meteorology

The following key attributes are required of Panel members:

- Recognised technical expertise in one of the required disciplines.
- The ability to provide constructive review to inform Steering Committee decisions.
- The ability to engage with the Technical Working Group to improve technical decisions and to engage with other disciplines.
- Senior management attributes.

Technical Working Groups

The Technical Working Group will be established for ....(to be completed).

Responsibilities

Responsibilities of the Technical Working Group include:

- Refine and detail the Scope of Work for the supporting projects.
- Propose matters for Decision or Note for the consideration of the Steering Committee.
- Managing and resolving any risks and other issues that may arise.
- Coordinating engagement with Independent Review Panel and appropriate input into project process.
- Accountable for endorsing Technical Reports and making recommendations to the Steering Committee.

Project Management Team

The Project Management Team is responsible for the project management of the project, ensuring that the various pieces of work are both coordinated and integrated and have a common vision and demonstration of project outcomes, timelines and deliverables.

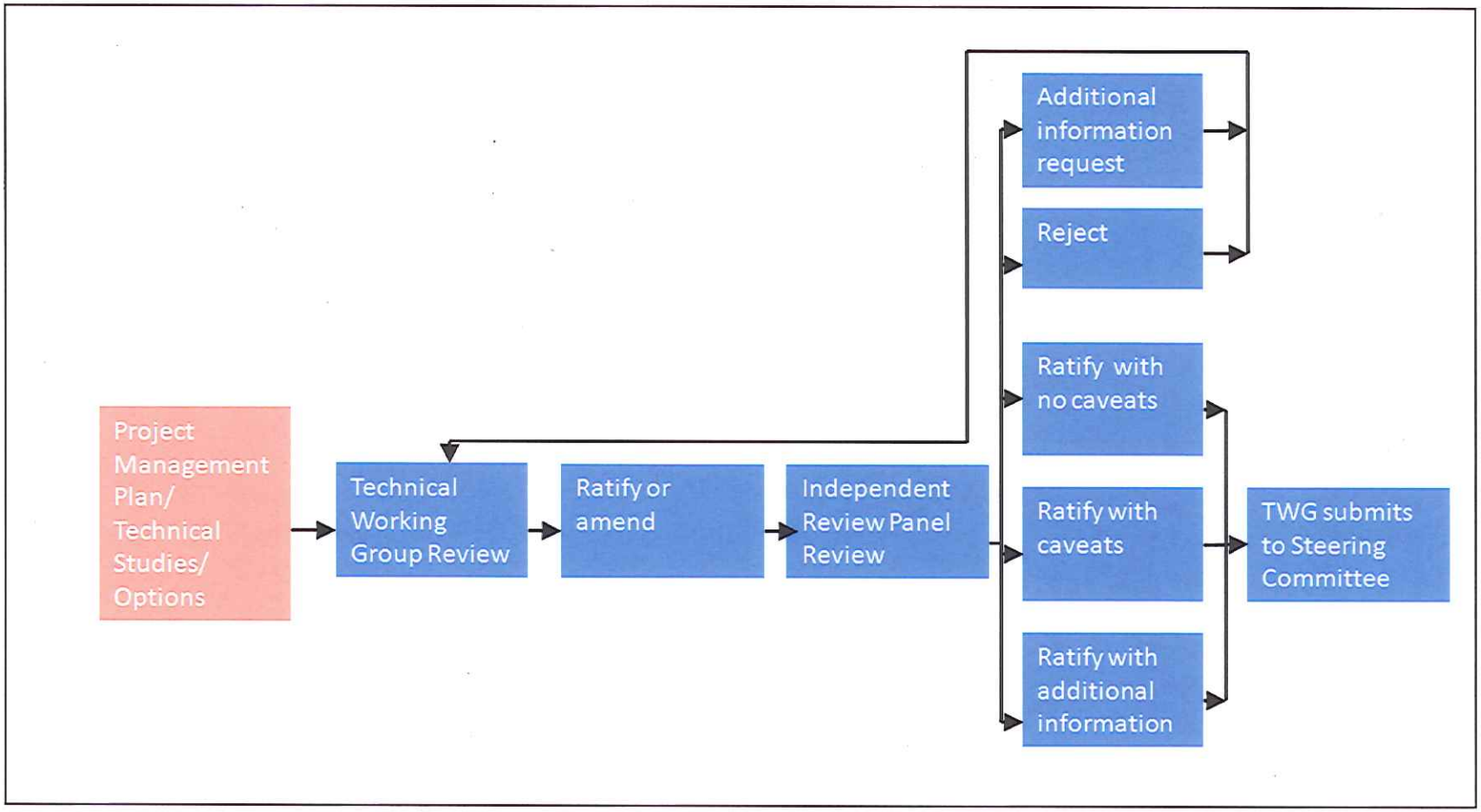
Responsibilities

- Report to the Chair of the Steering Committee.
- Development of the overarching Project Plan for the Project including identification of:
  - Deliverables and associated timeframes.
  - Interactions, work processes and approvals between the Steering Committee, Independent Review Panel and Technical Working Group.
- Work with the Chairs of the Steering Committee and Technical Working Group to develop Scope of Works and delineation of roles and responsibilities.
- Facilitate the resolution of technical issues that arise between the Technical Working Groups.
- Supervise and manage the project to ensure that reports and other deliverables are delivered in a timely and cost effective manner.
- Attend meetings, and liaise with, senior representatives of the Stakeholder organisations.
- Provide administrative support to Committees including organising meetings, agendas and minutes etc.
- Liaise with Seqwater's or other owner/leader organisation's procurement team to assist in engaging consultants for the project.

- Manage progress payment control for consultants, as required.
- Develop protocols for distribution of data, both internally and externally.
- Undertake Project Status reporting including preparing reports against project plan milestones and budget.
- Undertake risk identification and management through the development of a risk register.

Workflow and Process Overview

Error! Reference source not found. provides an overview of the process and the workflow and roles involved in delivering project outcomes, decision making and approvals.


Project Management Plan/ Technical Studies/ Options
Technical Working Group Review
Ratify or amend
Independent Review Panel Review
Additional information request
Reject
Ratify with no caveats
Ratify with caveats
Ratify with additional information
TWG submits to Steering Committee

3 Outline of Study and Scope of Work

3.1 Possible Outline of Study

A possible outline of the NPDOS is set out in Figure 3.1 and below

- Establishment of the project Governance structure and representation (Oct 2011);
- Optimisation Study Progress Report No 1 – For submission to QFCI (Dec 2011);
- Optimisation Study Report and nomination of options through Government submission/s – 2012.

Implementation and other activities will occur following any Government decision making and will not be part of the scope of this Study.

Establishment of the Project Governance

The proposed governance structure of the study includes a Steering Committee, Independent (Expert) Review Panel and Technical Working Group which will oversee the studies.

Possible key activities and milestones are as follows:

Table 0-1 Key activities and milestones – Project Establishment

Activities	Target Dates
Engage with organisations, and agree representation for Steering Committee	Sept 2011
Steering Committee Meeting No 1	Mid Oct 2011
Independent Review Panel Meeting No 1	End Nov 2011
Technical Working Group Meeting No 1	End Nov 2011

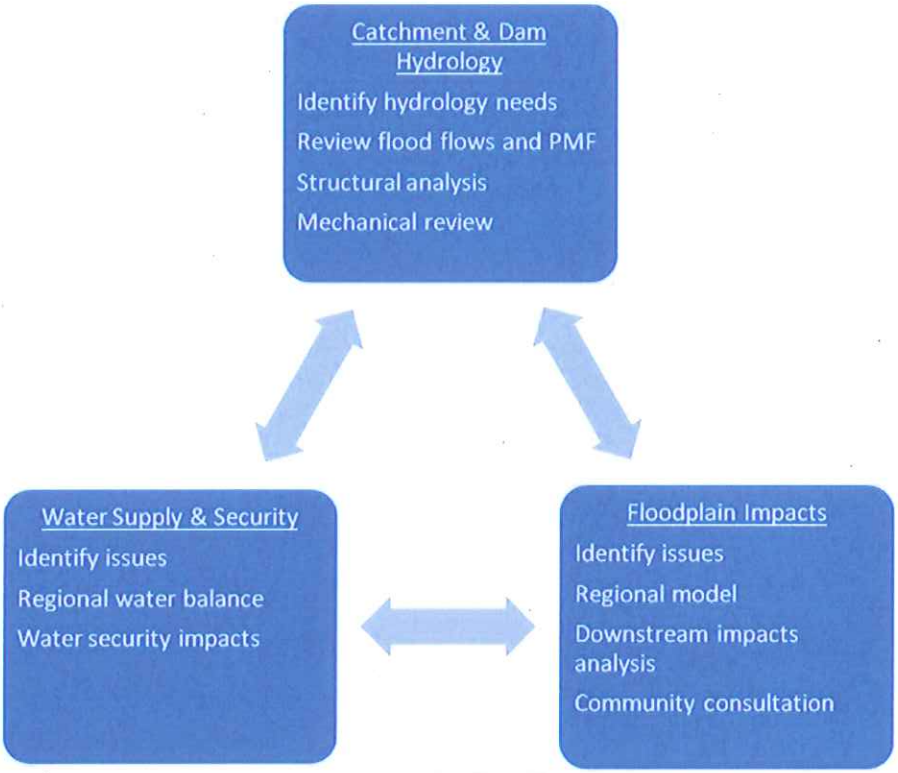


Figure 0-2 Study overview

3.2 Study Scope of Work

It is proposed that the overall Study scope of work will consist of the following components:

- QFCI recommendations 2.27 and 2.28
- Options Identification
- Catchment and dam hydrology Study
- Floodplain Impacts Assessment
- Water Supply Security Assessment
- Options Evaluation and Selection

It is proposed that the following is out of the Study scope of work:

- Other QFCI recommendations
- Flood Manual Revision
- Local scale or waterway/creek system floodplain management/mitigation options
- Legislative amendments, ROP, revisions to planning instruments
- Building code amendments
- Government decision on preferred option/s

- Implementation

While a number of the components within the Study will each have their own scope of work, it is critical that close integration occurs between all components.

Catchment and Dam Hydrology Study

The Catchment and Dam Hydrology Investigation (North Pine Dam Flood Capacity Study- URS 2011) has undertaken a detailed review of the dam hydrology and spillway capacity of North Pine Dam, together with a review of the bridge structure and the spillway gates. The review has focused of the following key items:

- Assessment of the flood hydrology of the North Pine catchment and revising the flood flows based on the rare January 2011 event.
- Investigation of the spillway gate ratings and the capacity to pass flood flows.
- Structural analysis of the bridge and spillway gates to assess the ability to withstand the additional loading during a flood event.
- Assessment of the mechanical and electrical systems and identify limitations of the current systems to remain operable during large flood events.
- Estimate the percentage of the PMF that the dam can safely pass.

Hydrology Assessment Summary

Assessment of the flood flow hydrology has been undertaken for the North Pine Dam catchment to estimate the Probable Maximum Flood (PMF) inflow hydrographs. The assessment involved development of a new hydrologic model using the RORB software. The model was subsequently calibrated to historic flood events, then used to estimate the PMF derived from Probable Maximum Precipitation (PMP) design rainfall depths and temporal pattern simulations.

Storage Rating Curve Verification

The existing storage rating curve has been assessed through comparison of LiDAR data (flown in 2006 and 2009) provided by the Moreton Bay Regional Council. Comparison of the data sets displays good correlation with differences in storage volume noted as less than 1 percent. As a result, the existing storage rating curve was deemed suitable for use within subsequent analyses.

Spillway Rating Curve Assessment

As part of the spillway rating curve assessment, an independent estimate of the North Pine Dam spillway rating curve for water levels up to the dam crest level using previous studies, design drawings and technical design publications was performed.

Structural Assessment of Bridge and Gates

Structural assessments have been performed based on original hand calculations for the bridge wind bracing, bearings, and main steel plate girders. The structural assessment also included analysis of the gates. The likely failure modes have been identified as:

- Failure of hoists, cables, or connections
- High static or dynamic (bouncing) loading

Mechanical and Electrical Assessment

An assessment of gate motors, hoist equipment, and electrical workings has been made based on a site visit by mechanical and electrical engineers. The assessment included identification of the potential ramifications due to inundation of any of the aforementioned equipment and their respective levels.

Since the initial assessment, Seqwater has commissioned works to address the rapid shutting of the gate by installing a locking mechanism and also adding disc brakes.

Revised Flood Routing Assessment

By incorporating the revised hydrology, existing (verified) storage rating curve, revised spillway rating curve for a one inoperable gate scenario, and the gate operating rules from the Manual for a one gate inoperable scenario, a revised flood routing assessment has been performed to determine the approximate current flood capacity. The results of the revised flood routing assessment indicate that the current flood capacity (at dam crest or 43.28 mAHD) of North Pine Dam is approximately 55 percent of the PMF.

The Steering Committee will consider the findings of the North Pine Dam Flood Capacity Study in the long term review of the manual.

Floodplain Impacts Investigation

A detailed hydraulic analysis has been undertaken for the assessment of alternative full supply levels and flood release strategies for the North Pine Dam (North Pine Dam TUFLOW Hydraulic Modelling Report, Worley Parsons 2011).

This hydraulic analysis has been carried out utilising the Moreton Bay Regional Council (MBRC) WBNM hydrologic model developed for the catchments of the Pine Rivers system in combination with the TUFLOW two-dimensional (2D) hydraulic model established for the Lower Pine River region.

Moreton Bay Regional Council investment in floodplain impacts to also be included here

Water Supply Security Investigation

The Water Supply Security Investigation would review the impacts of options upon the water supply security for the SEQ region, including upon existing capital works programs, operating costs and short-term risks to supply.

Possible options for the future operation of the dam to be considered include how the dam Full Supply Level is set and managed now and into the future.

There are significant water supply security risks involved in temporarily or permanently lowering the Full Supply Level of North Pine Dam. Scenario analysis contained in the South East Queensland Water Strategy indicates there is the potential for climate change to negatively impact the region's water supply in the near future. Impacts from climate change may lead to additional water supply infrastructure being required to service communities from 2017, with construction needing to commence by 2014. Reducing the Full Supply Level of North Pine Dam may have the potential to bring this timetable forward even further.

As any decision to change the North Pine Dam Full Supply Level will have a very direct and significant impact on urban water supply security for Brisbane and the Sunshine Coast. In South East Queensland, these decisions would be made by the State on the advice of the Queensland Water Commission (QWC). To provide comprehensive advice on this matter, it is expected the QWC would consider:

- The implications for the Water Resource (Moreton) Plan 2007 and the Moreton Resource Operations Plan.
- The implications for the SEQ Regional Water Supply Strategy and associated Water Security Program.
- The implications in relations to increased operating costs and operational supply risks
- Consultation with and advice from the BoM and the Office of Climate Change on long-term weather patterns and forecasts.

Each of the factors would be examined in detail and recommendations provided on how the Full Supply Levels of North Pine Dam would be best set and managed in order to optimise the benefits across South East Queensland communities.

The Water Supply Security Investigation would be led by the Queensland Water Commission with involvement from DERM and SEQ Water Grid Manager. As the manager of South East Queensland's bulk water assets, Seqwater would implement any relevant operational aspects of the recommendations in accordance with its charter.

4 Risk Management

Risk Management

Risk will be managed in accordance with the relevant Australian Standards. A risk management plan is being developed for the study.

The Study Risk Management Plan will be reviewed by the Steering Committee once established. The risk management plan will be a live document and will be reviewed quarterly.

The risk management plan will incorporate:

- a methodology for risk assessment, control and monitoring;
- a risk register to identify study specific risks;
- plans to mitigate and monitor specific risks; and
- a framework for incorporating risk assessment into key decision making and planning processes for the study.

5 Study Schedule

A high level schedule (**Error! Reference source not found.**) has been prepared based on the outline of the study and scope of work detailed in **Section 0.**

The scope of activities in the first two phases of the study has been scheduled to complete the associated works in the balance of 2011. The schedule for completion of the study work beyond 2011 will depend upon the detailed Scope of Work agreed for each component of the study.

Implementation and other activities will occur following any Government decision making and will not be part of the scope of this Study.

MILESTONE DESCRIPTION	TARGET COMPLETION DATE
Engage with organisations and agree representation for Steering Committee	Mid September 2011
Steering Committee Meeting No 1 – confirmation of governance, scope of work and independent review panel	October 2011
Independent Review of studies	November - March 2012
Development of scenarios for assessment	March – April 2012
Steering Committee workshop to assess scenarios	May 2012
Finalisation and confirmation of preferred options and associated report	June 2012

Appendices

Appendix 1 Title

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Heading 3 (Green Bold Arial 11)

NOTE
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  - Dot Point level 2
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Emphasis (Arial Italix 10)

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Grey –	129	130	134