# sunwater

Major Projects Overview Queensland Major Contractors Association

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# **Delivery of Major Projects**

#### **Sunwater Project Life Cycle**

- Corporate Development group leads projects up to Business Case approval
- *Major Projects & Technical Services* group leads projects through delivery and handover phase
- *Operations group* operates and maintains assets

Identification	Initiation	Evaluation	Definition	Execution	Closure	Benefits
Noive Noive	Initiate project.	Assess feasibility, analyse options and develop recommendation. Establish project governance, complete Preliminary Cost	Development of Business Case, Supply Strategy, Cost / Benefits analysis, etc.	Execute Supply strategy and conduct procurement. Award Contracts, Build / develop / deliver project outputs.	Transition back to the operations / Business as Usual and formally close the project.	Review if project benefits were realised and if not - why.
Decision Gates	Strategic Assessment	Benefits analysis and Preliminary Business Case. Preliminary Evaluation.	Financial Investment Decision. Commence Execution Phase. Award Contracts.	Project Completion. Meet Project Objectives	Project Closure	Benefits Realisation
Deliverable	Opportunity Identification & Initiation Document	Preliminary Business Case (P50)	Detailed Business Case (P90)	Executed Project Management Plan (PMP)	Project Closure Report	Benefits Realisation Report

# **Delivery of Major Projects**

#### **Project Approval and Building Queensland Framework**

- SunWater projects > **\$50M** required to follow Building Queensland Framework for Business Cases
- As established under the Building Queensland Act, 2015
  - Provides independent expert advice to the Qld Gov for proposed infrastructure funding and approval
  - Proposals with estimated capital cost \$50M to \$100M prepared with guidance from Building Qld
  - Proposals with estimated capital cost > \$100M led by Building Qld
    - Evaluation Identification Initiation Definition Benefits Supports detailed Execution Closure assessment of all Benefits analysis Financial Delivery to Strategic Project Benefits < Decision Gates and Preliminary Investment Contract Award. Assessment Closure Realisation components of the Evaluation -Decision and and Completion. **Preferred Option** Project (Proj Objectives) project through Gate 4 Gate 2 Gate 3 Gate 1 Gate 0 **Business Case** Project Closure **Benefits** Sunwater Deliverable Opportunity Preliminary Detailed Executed development Identification Project Realisation **Business** Case Report **Business** Case Report & Initiation (P50) Management (P90) Document Plan (PMP)

Building Queensland Framework shown to illustrate how and where the SunWater lifecycle maps to the Qld government



# **Sunwater Program – Major Projects**

#### **Major Projects by Program**

- Dam Improvement Program (DIP)
  - To ensure Sunwater's dams continue to function safely during extreme weather events; and
  - To comply with the latest dam safety guidelines and engineering standards
  - Works prioritized under Sunwater's Portfolio Risk Assessment (program review across all dams)
  - <sup>–</sup> \$1.4 billion program underway for current and future projects, for completion by 2028
  - <sup>–</sup> Two key projects currently in Business Case development Paradise Dam, and Burdekin Falls Dam Improvement
- Development Projects
  - New or additional water supply asset creation projects or upgrade of existing assets
  - Includes current projects approved (Business Case approved and funding commitment) eg. Rookwood Weir
  - Business Cases currently being progressed eg. Burdekin Falls Dam Raising
- Other
  - Efficiency projects to improve supply including National Water Infrastructure Development Fund projects
  - Renewals Program (may trigger Major Projects)

#### **Compliance & Guidelines**

- Queensland dam owners are responsible for safety dams under:
  - Water Supply (Safety and Reliability) Act (Qld Govt)
  - Guidelines for Failure Impact Assessment of Water Dams (Qld Govt)
  - Guidelines on Acceptable Flood Capacity for Water Dams (Qld Govt)
  - Queensland Dam Safety Management Guidelines (Qld Govt)
  - Guidelines on Acceptable Flood Capacity for Dams (ANCOLD)
  - Guidelines on Risk Assessment (ANCOLD)
  - Guidelines on the Consequence Category for Dams (ANCOLD)
  - Australian Rainfall and Runoff Guidelines (Commonwealth Govt)





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#### Considerations

- Program of review against current safety Guidelines and Regulatory requirements. Inputs include:
  - Annual inspections, and 5-yearly comprehensive inspections;
  - Regular Comprehensive Risk Reviews (CRA);
  - 20-yearly Dam Safety Review (review of design basis);
  - Hydrology reviews (catchment rainfall and inflows);
  - Failure Impact Assessment (consequence assessment)
- Takes into consideration impacts on each dam & changes including:
  - Current asset condition, and performance post flood events;
  - Improved methods of estimating extreme rainfall & flood events;
  - Extent of development & population growth downstream;
  - Revised assessment and methods of downstream consequences
  - Revised Guidelines, industry standards, risk assessment methods, and engineering design;
  - Other information from various reviews (updated studies)



Scour damage downstream of Paradise Dam – post 2013 Flood of Record

#### Portfolio Risk Assessment (PRA)

- Sunwater regularly reviews updated and new information for each dam, and assesses risks to identify the need for any proposed improvement works through Comprehensive Risk Assessments (CRAs)
- Due to changes over time this can result in the need for dam enhancements greater in scope than what would be considered as part of Sunwater's regular maintenance programs
- Risks and proposed improvements for each dam then assessed at a portfolio level the Portfolio Risk Assessment (PRA) – to prioritise projects and plan a staged program of work (Dam Improvement Program)
- Projects scoped and scheduled to ensure earliest reasonable risk retirement.
- The 2018 (Draft) PRA currently identifies:
  - <sup>-</sup> 18 Dam Improvement projects totaling approximately **\$1.4 billion**, for completion by 2028
  - Approximately 80% of the total cost is associated with three (3) dam improvement projects
    - Fairbairn Dam (currently in construction phase),
    - Paradise Dam (priority ranking No. 3 in Detail Business Case development phase),
    - Burdekin Falls Dam (priority ranking No. 4 finalising Preliminary Business Case development phase)

#### Portfolio Risk Assessment (PRA)

• Current prioritised projects, from 2018 PRA (Draft)

DIP Project	Priority	Current Status / Project Phase	Approval Process	Cost Estimate / Category <sup>2</sup>	Construction Period
Fairbairn Dam (Stages 1, 2, 3)	1	Construction	Approved	\$165 M	2017 - 2021
Beardmore Dam – Thuraggi Channel	2	Construction	Approved	\$4 M	2019
Paradise Dam Spillway Improvement	3	Detail Business Case	Bld Qld Bus Case, SHM <sup>1</sup>	>> \$100 M	2021 - 2025
Burdekin Falls Dam Improvement	4	Prelim Business Case	Bld Qld Bus Case, SHM <sup>1</sup>	>> \$100 M	2021 - 2024
Teemburra Dam Improvement	5	Prelim Business Case	SW Board, notify SHM <sup>1</sup>	\$10 – 20 M	2021 - 2023
Leslie Dam Improvement	6	Prelim Business Case	SW Board, notify SHM <sup>1</sup>	TBA	ТВА
Coolmunda Dam Improvement	7	Initiation	SunWater Board	\$5 - 10 M	2021 - 2022
Wuruma Dam Improvement	8	Future	SW Board, notify SHM <sup>1</sup>	\$20 – 30 M	2023 - 2025
Bjelke Peterson Dam Improvement	9	Future	Bld Qld Bus Case, SHM <sup>1</sup>	\$50 – 100 M	2025 - 2027
9 x remaining dam improvements	10 - 18	Future	SW Brd (each< \$10M)	approx \$40 M	2025 - 2028

<sup>1</sup> SHM = Shareholding Ministers (approval)

<sup>2</sup> Cost estimates given are generally for indicative cost category ranges, and considering project approval requirements

#### **Paradise Dam Spillway Improvement Project – Overview**

- Preliminary Business Case approved by Sunwater Board 2018 two shortlisted options
- Detail Business Case currently underway (to be led by Building Qld as project value > \$100M)
- Consultancy awarded for preliminary design (underway), including review of CRA
- Consultancy awarded for environmental assessment, including Impact Assessment Report for options (12 month process)
- DBC approval late 2020 (including delivery strategy)
- Likely early tender involvement / EOI / shortlisting with contractors in 2020 in reviewing / finalising DBC (though no commitment to progress until DBC approved)
- Major contract award 2021, completion by 2025



#### Paradise Dam Spillway Improvement Project – Scope

- Options include:
  - a) Full upgrade maintaining current full supply level
  - b) Reduced spillway level (eg. 10–12m lower) with reduced improvement scope



Paradise Dam – Indicative improvement scope for full upgrade option

#### **Burdekin Falls Dam Improvement Project – Overview**

- Significant review of hydrology undertaken 2018, considering large catchment size and adopting new methods for determining rainfall / frequency / design flood events necessary for this catchment.
- Various design options reviewed as part of Preliminary Business Case phase, and evaluated for preferred option
- Preliminary Business Case currently being finalised, for approval to progress with Detail Business Case (DBC) (to be led by Building Qld)
- DBC approval by Q3 to Q4 in 2020 (including delivery strategy)
- Likely early tender involvement / EOI / shortlisting with contractors in 2020 in parallel with reviewing / finalising DBC (though no commitment to progress until DBC approved)
- Major risk / issue of dam overtopping for extended and uncertain periods (typically Jan to Apr) during construction period
- Major contract award 2021, completion by 2024



#### **Burdekin Falls Dam Improvement Project – Scope**

- Proposed improvement works to Spillway and Abutments (Main Dam) see below, and;
- Proposed improvements to four Saddle Dams (total length 4,760m) raise crest level by 3.8m



Burdekin Falls Dam – Indicative improvement scope for Main Dam

#### Fairbairn Dam Spillway Improvement – Overview

- Designed and constructed in a staged delivery (Stages 1, 2 and 3) for earliest risk reduction to priority works
- Main construction activities (Stages 2 and 3) being managed by Sunwater (self perform), with subcontractors
- Scope includes:
  - Replacement of spillway under-slab drains, and filling voids;
  - Replace and increased anchoring (passive anchors) across full extent of spillway and spillway basin floor
  - Reinforced concrete slab overlays across spillway and spillway basin
  - Post tensioned anchoring across spillway crest
  - New reinforced concrete "gravity side walls" down length of spillway chute (at junction between floor and side walls)
- Construction works underway and predominantly committed by Sunwater





#### Fairbairn Dam Improvement Project



### **Development Projects**

#### **Rookwood Weir – Overview**

- Business Case approved to improve water security and deliver new business opportunities for irrigators and industry in Livingstone Shire, Rockhampton and Gladstone
- Approved funding by Commonwealth and State of \$352M, based on 2017 Detailed Business Case
- The project will make approximately 76,000 ML per annum of water available.
- Sunwater is committed to working closely with local industry to facilitate business opportunities through construction, wherever possible.
- Construction packages proposed, including weir and bridge works, and road upgrades
- Construct to design (detail design currently being finalised by Sunwater and consultant)
- QPP tender assessment weighting have been proposed



Rookwood Weir location, Fitzroy River

# **Development Projects**

#### **Rookwood Weir – Construction Packaging**

 Proposed construction packages as follows (subject to review):





Rookwood Weir – Artist's Impression



Riverslea Bridge – Artist's Impression

# **Rookwood Weir**

#### **Scope and Timing**

- <u>Early Works</u> Sunwater is currently progressing, including:
  - Primary approval conditions and secondary approvals
  - Road upgrades (Gogango intersection and Thirsty Creek Road).
  - Investigations around local procurement of construction materials and facilitating works
- <u>Main Works Package</u> Rookwood Weir, and bridges
  - Multi-stage process: Industry briefing, EOI, select tender, final negotiation, and award
  - EOI date being determined
  - Engagement undertaken with QMCA and CCF
  - Market sounding scheduled
- <u>Gogango Intersection</u> upgrade
  - To open mid 2019 (Pending Qld Purchasing Policy approvals)
- Thirsty Ck Road upgrade
  - Ready for issue, pending QPP requirements

# Rookwood Weir Packaging

Intersection upgrade – 2019 tender Main Works Package – 2019 EOI Rockhampton Regional Council works Hanrahan Crossing – To be advised



### **Local Focus**

- Project has obligations as a result of both the Queensland Procurement Policy, Queensland Charter for Local Content and the Australian Industry Participation Policy.
- Focused on creating opportunity for local enterprise.
- Opportunities to be engaged on the project may come directly (contractors) from Sunwater or indirectly (as a sub-contractor) via the appointed contractor(s) of relevant works packages.
- 10% 15% of total construction hours to be undertaken by apprentices and /or trainees or workforce training.

Foleyvale Bridge – Artist Impression



### **Contact Details**

#### **Major Projects**

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