

Role Description

Engineer Flood Modelling



Department of Primary Industries and Regional Development

Portfolio	Primary Industries and Regional Development
Department	Department of Primary Industries and Regional Development
Group/Branch/Unit	NSW Public Works
Location	Various
Classification/Grade/Band	Clerk Grade 5/6
ANZSCO Code	233211
PCAT Code	1112292
Date of Approval	October 2024
Agency Website	www.dpird.nsw.gov.au or www.publicworks.nsw.gov.au

Agency overview

The Department of Primary Industries and Regional Development (DPIRD) is the department dedicated to growing primary industries and supporting regional economic development to deliver long term benefits to the state. Our focus is to protect, support and develop our primary industries, mining sector, and regions.

DPIRD brings together Agriculture and Biosecurity; Forestry and Fishing; Local Land Services; NSW Resources; Regional Development and Delivery; the Regional Growth NSW Development Corporation; NSW Public Works and Soil Conservation Service. We have nearly 5,000 employees, with almost 80 per cent living and working in regional NSW.

NSW Public Works is part of the Department of Primary Industries and Regional Development and supports local and state government agencies to deliver critical infrastructure initiatives by providing expert advisory, planning, design, delivery, and support services. Our work is in the hospitals, dams, water treatment plants and high schools – the real foundations of prosperous communities. Every day we help shape the ambitious projects that bring progress to more people in NSW. From forging a more sustainable relationship with the land around us, to engineering the big ideas of the future. In every challenge we see the chance to build stronger and more connected communities.

Primary purpose of the role

This role is responsible for providing computer modelling and engineering support services, in accordance with WHS policies and procedures, and assist with a range of water engineering investigations and design.

The role will contribute to the operation of the service line so that it is a viable commercial business providing value for money for clients.

Key accountabilities

- Provide computer modelling / engineering and technical advice to stakeholders so that Government and clients receive optimal technical, economic and environmental solutions for dams and water infrastructure projects.
- Remain up to date on the latest technology advancements and industry developments so as to ensure a high level of technical and project delivery capability.



- Demonstrate a safety culture which is focused on implementation of the NSW Public Works (NSWPW) Safety Management System and processes to meet legislative and safety certification requirements.
- Promote the technical and project capabilities of NSWPW and the team to internal clients in order to ensure the growth and viability of the business.
- Ensure accurate analysis of flood consequences and risks up to and including Probable Maximum Flood (PMF) events, to provide robust technical solutions for floodplain management and infrastructure resilience.
- Apply advanced flood hydrology and hydrodynamic modelling (1D and 2D) to support the investigation and design of Floodplain Risk Management Plans, dambreak studies and drainage conveyance systems.

Key challenges

- Working within a team environment and projects across numerous disciplines, whilst sustaining a client centric team culture.
- Delivering high-quality technical advice within agreed timeframes and with consideration of Governmental and regulatory requirements.
- Maintaining strong working relationships with the team members while managing current workloads.

Key relationships

Who	Why
Internal	
Principal Engineer	<ul style="list-style-type: none"> • Contribute to broader team issues and provide advice on issues • Identify business development opportunities • Escalate issues, keep informed, advise, receive guidance and instructions • Participate in discussions and decisions regarding service delivery and operational improvement
Work Team	<ul style="list-style-type: none"> • Work collaboratively to achieve business outcomes • Participate in discussions regarding solution development • Support team members and work collaboratively to contribute to achieving the team's business outcomes • Participate in meetings to share information and provide input on issues
Client/Stakeholders	<ul style="list-style-type: none"> • Ensure effective communication, seek clarification and provide advice and responses to ensure prompt resolution of issues • Provide solutions where possible, or redirect query to relevant area
External	
Clients and Stakeholders	<ul style="list-style-type: none"> • Ensure effective communication, seek clarification and provide advice and responses to ensure prompt resolution of issues • Provide solutions where possible, or redirect query to relevant area • Develop an understanding of key needs, issues and priorities

Role dimensions

Decision making

The incumbent has autonomy and authority to make decisions in accordance with the delegations of authority specific to the role of the Engineer Modelling. This role is fully accountable for the delivery of work assignments on time and to expectations in terms of quality, deliverables and outcomes.

Reporting line

Principal Engineer

Direct reports

Nil.

Budget/Expenditure

Contribute to the achievement of annual revenue and net cost of services targets and deliver projects to budget.

Key Knowledge and Experience

- Demonstrated experience in computer flood hydrology and / or 1D and 2D hydrodynamic modelling.
- Proficient at running contemporary proprietary computer 1D and 2D hydrodynamic modelling programs.
- Proficient at running contemporary proprietary computer modelling programs to produce flood hydrographs for subsequent computer hydraulic modelling use.
- Knowledge in climate change modelling for the exacerbation of future rainfall / flood events in accordance with current and evolving guidance from ARR2019.
- Proficient in applying concepts and guidance from Australian Rainfall and Runoff 2019 (ARR2019) and Bureau of Meteorology (BoM) into flood hydrologic modelling, up to and inclusive of Probable Maximum Flood (PMF) events.

Essential requirements

- Degree in Civil Engineering or equivalent discipline with eligibility for member status of Professional Engineer of Engineers Australia.
- Knowledge and experience in the nominated engineering discipline.
- A valid NSW Driver's license and willingness to drive to remote locations which may include overnight stays.

Capabilities for the role

The [NSW public sector capability framework](#) describes the capabilities (knowledge, skills and abilities) needed to perform a role. There are four main groups of capabilities: personal attributes, relationships, results and business enablers, with a fifth people management group of capabilities for roles with managerial responsibilities. These groups, combined with capabilities drawn from occupation-specific capability sets where relevant, work together to provide an understanding of the capabilities needed for the role.

The capabilities are separated into focus capabilities and complementary capabilities





Focus capabilities

Focus capabilities are the capabilities considered the most important for effective performance of the role. These capabilities will be assessed at recruitment.

The focus capabilities for this role are shown below with a brief explanation of what each capability covers and the indicators describing the types of behaviours expected at each level.

Focus capabilities

Capability group/sets	Capability name	Behavioural indicators	Level
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 <p>Personal Attributes</p>	<p>Manage Self Show drive and motivation, an ability to self-reflect and a commitment to learning</p>	<ul style="list-style-type: none"> • Adapt existing skills to new situations • Show commitment to achieving work goals • Show awareness of own strengths and areas for growth, and develop and apply new skills • Seek feedback from colleagues and stakeholders • Stay motivated when tasks become difficult 	<p>Intermediate</p>
 <p>Relationships</p>	<p>Communicate Effectively Communicate clearly, actively listen to others, and respond with understanding and respect</p>	<ul style="list-style-type: none"> • Focus on key points and speak in plain English • Clearly explain and present ideas and arguments • Listen to others to gain an understanding and ask appropriate, respectful questions • Promote the use of inclusive language and assist others to adjust where necessary • Monitor own and others' non-verbal cues and adapt where necessary • Write and prepare material that is well structured and easy to follow • Communicate routine technical information clearly 	<p>Intermediate</p>
 <p>Relationships</p>	<p>Commit to Customer Service Provide customer-focused services in line with public sector and organisational objectives</p>	<ul style="list-style-type: none"> • Take responsibility for delivering high-quality customer-focused services • Design processes and policies based on the customer's point of view and needs • Understand and measure what is important to customers • Use data and information to monitor and improve customer service delivery • Find opportunities to cooperate with internal and external stakeholders to improve outcomes for customers • Maintain relationships with key customers in area of expertise • Connect and collaborate with relevant customers within the community 	<p>Adept</p>
 <p>Results</p>	<p>Deliver Results Achieve results through the efficient use of resources and a commitment to quality outcomes</p>	<ul style="list-style-type: none"> • Seek and apply specialist advice when required • Complete work tasks within set budgets, timeframes and standards • Take the initiative to progress and deliver own work and that of the team or unit • Contribute to allocating responsibilities and resources to ensure the team or unit achieves goals • Identify any barriers to achieving results and resolve these where possible • Proactively change or adjust plans when needed 	<p>Intermediate</p>









	<p>Think and Solve Problems Think, analyse and consider the broader context to develop practical solutions</p>	<ul style="list-style-type: none"> Identify the facts and type of data needed to understand a problem or explore an opportunity Research and analyse information to make recommendations based on relevant evidence Identify issues that may hinder the completion of tasks and find appropriate solutions Be willing to seek input from others and share own ideas to achieve best outcomes Generate ideas and identify ways to improve systems and processes to meet user needs 	Intermediate
	<p>Technology Understand and use available technologies to maximise efficiencies and effectiveness</p>	<ul style="list-style-type: none"> Demonstrate a sound understanding of technology relevant to the work unit, and identify and select the most appropriate technology for assigned tasks Use available technology to improve individual performance and effectiveness Make effective use of records, information and knowledge management functions and systems Support the implementation of systems improvement initiatives, and the introduction and roll-out of new technologies 	Intermediate
	<p>Project Management Understand and apply effective planning, coordination and control methods</p>	<ul style="list-style-type: none"> Perform basic research and analysis to inform and support the achievement of project deliverables Contribute to developing project documentation and resource estimates Contribute to reviews of progress, outcomes and future improvements Identify and escalate possible variances from project plans 	Intermediate

Complementary capabilities

Complementary capabilities are also identified from the Capability Framework and relevant occupation-specific capability sets. They are important to identifying performance required for the role and development opportunities.

Note: capabilities listed as 'not essential' for this role are not relevant for recruitment purposes however may be relevant for future career development.

Capability group/sets	Capability name	Description	Level
	Display Resilience and Courage	Be open and honest, prepared to express your views, and willing to accept and commit to change	Intermediate

	Act with Integrity	Be ethical and professional, and uphold and promote the public sector values	Intermediate
	Value Diversity and Inclusion	Demonstrate inclusive behaviour and show respect for diverse backgrounds, experiences and perspectives	Foundational
	Work Collaboratively	Collaborate with others and value their contribution	Foundational
	Influence and Negotiate	Gain consensus and commitment from others, and resolve issues and conflicts	Foundational
	Plan and Prioritise	Plan to achieve priority outcomes and respond flexibly to changing circumstances	Intermediate
	Demonstrate Accountability	Be proactive and responsible for own actions, and adhere to legislation, policy and guidelines	Intermediate
	Finance	Understand and apply financial processes to achieve value for money and minimise financial risk	Foundational
	Procurement and Contract Management	Understand and apply procurement processes to ensure effective purchasing and contract performance	Foundational