

**Engineering Policy 146**

# **Severe Weather Management Plans (SWMP)**

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## **Engineering Policy**

### **1 Policy statement**

Site-specific Severe Weather Management Plans (SWMP) are to be provided on Transport and Main Roads construction projects insured under the department's Principal Arranged Insurance (PAI) Program. The purpose of the SWMP is to minimise the impact of severe weather on works under construction.

### **2 Applicability**

This policy is applicable for all contracts insured under Transport and Main Roads Principal Arranged Insurance (PAI) Program.

### **3 Context**

The department has PAI in place to cover construction of road and rail projects with a value greater than \$1M. There are two distinct components, Bulk and Major contracts.

Under its insurance program, Transport and Main Roads has a responsibility to minimise the cost impact to insurers of severe weather on the works.

Following the impact of severe weather on construction project losses in recent years, insurers now require the department, and departmental contractors, to have in place a planning and operational discipline so that Transport and Main Roads' construction projects are less susceptible to severe weather damage, hence reducing insurance claims from their present level.

A site-specific SWMP is the mechanism Transport and Main Roads uses to demonstrate it is undertaking best endeavours to minimise cost increases. The SWMP is based on sound risk management principles. Examples are provided in the guideline of what weather hazards have attracted the bulk of the claims in the past.

### **4 Objectives and benefits**

The planning and operational discipline of a SWMP will result in the reduction in quantum of insurance claims, a reduction of our risk profile and a consistent approach to managing severe weather on sites.

### **5 Consultation**

Transport and Main Roads has consulted with insurance specialists (Zurich Insurance, UK), Charles Taylor Loss Adjusters agency insurance brokers) and industry specialists (Civil Contractors' Federation and Queensland Major Contractors' Association) in the development of this policy and best practice guideline.

### **6 Evaluation**

The Executive Director (Infrastructure Management & Delivery) will review this policy as part of the PAI renewal process.

## 7 Definitions

ISU	Insurance Services Unit
PAI	Principal Arranged Insurance
SWMP	Severe Weather Management Plan
VARTOL <sup>1</sup>	Value of works at risk at time of loss

## 8 References

The current PAI program covers construction projects with an award value between \$1M and \$100M.

Major construction projects are considered those with an award value greater than \$100M and are covered on a project-by-project basis.

Minor works contracts with an award value less than \$1M will continue to be insured using Contractor Arranged Insurance.

The complete suite of PAI policies can be accessed via the *Infrastructure Contracts* webpage on the departmental website. (<https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Infrastructure-Contract>).

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<sup>1</sup> PAI Contract Works (Material Damage) Policy 2020-2023, Excess Schedule

## Engineering Guidelines

### 1 Scope

This best practice guideline relates to the development of a SWMP for individual work sites.

### 2 Introduction

It is a condition of Transport and Main Road's PAI program that the head contractor has a current SWMP in place for each contract.

The contractor is responsible for preparation and implementation of the SWMP.

The contractor is responsible for paying the contract deductible under the departments PAI programs (form of contract dependent). Deductibles for weather perils are dependent on the contract value and in some instances the *value of works at risk at a time of loss* (VARTOL).

The objective of the site specific SWMP is to reduce the financial and time impact on a project as a consequence of a severe weather event. In all cases the safety of individuals is the primary priority above the loss to property.

#### 2.1 SWMP Submission requirements

##### 2.1.1 Tender Offer

- All tenders over \$20M require a SWMP to be submitted as part of the tender offer.
- All tenders where the tender is a multi-stage process.
- All tenders where cyclonic and monsoonal weather patterns are anticipated.
- All tenders where soft or wet geotechnical conditions are evident.
- All tenders where the works are to be conducted in areas prone to flooding.

##### 2.1.2 Upon contract award

If specified as required under the Contract, SWMP's are required to be submitted to the contract administrator within 20 business days of the letter of acceptance being issued. The contract administrator will then assess the plan and advise as to its suitability.

The contractor is responsible for all SWMP measures being implemented prior to commencing work at any particular worksite. It is also the responsibility of the Contractor to note PAI policy terms and consider what effects these terms have on their respective construction programs.

##### 2.1.3 Unsealed Road

Of importance to Contractors will be the longitudinal limits imposed on unsealed roads under the Contract Works (Material Damage) policy. Damage to works without a weatherproof course is limited to 3 kilometres per section and 5 kilometres in the aggregate per project.

The weatherproof course in respect of roads is defined as when the bitumen based primary sealing (or other initial protection) is in place ahead of the subsequent final surfacing. Taking embankments as an example, the weatherproof course would be considered the final protection in place for that profile.

The definition of 'Unsealed Roads' has been updated to include embankments, cuttings, benches and temporary roadways. Initial weather proofing protection is expected as applicable to these inclusions.

### **3 Severe weather loss events**

The SWMP shall, as a minimum, detail what measures will be taken to reduce the extent of damage to the most common work activities affected by severe weather, including:

- pavements
- earthworks formation and batters (cuttings and embankments)
- culvert construction
- drainage (permanent and temporary)
- environmental protection (including silt fences and check dams)
- on site bushfire ignition and bushfire spread through or off site or from bushfires which enter site from surrounding land,
- major excavations.

The more specific causes of damage tend to be scouring, debris causing blockages and the pumping action created by running traffic on a wet pavement under construction.

### **4 Pre-construction planning by Transport and Main Roads**

Transport and Main Roads and its advisers will use their best endeavours to ensure all practicable measures are taken to reduce the impact of severe weather on the site. Measures under the control of Transport and Main Roads include:

- Scheduling contract award such that construction work may be undertaken outside high risk periods, such as the wet or bushfire season to the maximum extent possible. Identifying opportunities to amend Technical Specifications to better manage the works constructed during the wet season.
- Reviewing the tender validity period, as a long period (90 to 180 days) can adversely affect the contractor's ability to program the works.
- Provisional items in the schedule of quantities for lime and/or cement to be added to the working platform where pavement works are scheduled in the wet season.
- Reducing construction risk through appropriate design (e.g. design reinforced concrete pipes in gullies where flash flooding could occur rather than reinforced concrete box culverts which require cast in place slabs etc.).
- Designing solutions that allow quicker construction time in high risk areas i.e., a design solution whereby the contractor can choose a 'period of opportunity' to construct the works before more floods arrive. Lower risk solutions will normally allow for greater use of precast materials rather than cast insitu.

### **5 Severe weather identification**

The SWMP will identify the severe weather that might impact the site. Examples include bushfire, high winds, storm, cyclone, flood/inundation, extreme heat and prolonged rainfall leading to flooding. For each identified severe weather event, contractors must ensure strategies are documented to mitigate their impact on site.

## **6 Risk identification, evaluation and mitigation measures**

The SWMP will document weather related risks, treatments and controls. Such weather related risks include damage from high winds, flooding and damage to works susceptible to heavy or prolonged rain and bushfires which originate on site and spread through or off site or bushfires which enter site from surrounding land. Examples of works susceptible to prolonged rain include, but are not limited to, pavement and earthworks. Examples of works or equipment susceptible to bushfires include temporary site offices, plant, vehicles, stockpiled construction materials, erosion and sediment controls and flammable fluids or substances like fuel.

Risk mitigation measures shall be separated into three timeframes – long term, medium term and short term.

The SWMP shall include mitigation measures for all works under the contractor's control.

### **6.1 Long term weather treatments (over two months)**

Long term measures under the control of the contractor include (but are not limited to):

- Scheduling weather susceptible tasks outside high risk periods, such as the wet or bushfire season, and minimising critical path activities scheduled in these seasons.
- Training staff in good site management practices to minimise costs of rectification works as part of the toolbox talk program.
- Location of temporary material storage sites or laydown areas in areas of lower bushfire or flood risk.
- Locating temporary site buildings and assets above flood prone land and a safe distance away from bushfire prone areas with due consideration of site access during a flood or bushfire event.
- Ensuring appropriate equipment for suppression of small fires is available at areas of potential ignition and that staff are appropriately trained to in the use of the equipment.
- Ensuring appropriate consideration is given to the amount of roadworks without weather proof course (defined as the bitumen based primary seal) or other initial protections, exposed at any one time.

### **6.2 Medium term weather treatments (up to two months)**

Medium term measures under the control of the contractor include (but are not limited to):

- permanent and temporary protection measures
- stabilising pavement by adding small quantities of lime (up to 2%) or cement to the working platform where inclement weather is forecast (paid through a provisional item in schedule of prices, as instructed by the contract administrator)
- increased use of side tracks, instead of working under traffic
- programming of non-critical activities outside wet seasons
- appropriate controls are in place for each activity such as angle grinding, welding, slashing and mowing and thermoplastic work which pose a high bushfire ignition risk. Avoiding unnecessary activities that have potential for bushfire ignition are recommended on high fire danger days



- earthworks methodology to allow drainage during construction
- establishing protection measures for flood events up to a minimum one in 11 year event.
- Programming bitumen sealing works in accordance with relevant specifications.

### **6.3 Short term weather treatments (up to seven days)**

Short term measures under the control of the contractor include (but are not limited to):

- monitoring the BoM website for details of rainfall forecasted, storm speed, intensity and direction and monitoring of the BoM web site for severe weather alerts such as high fire danger days
- monitoring the Queensland Fire and Emergency Services website for nearby bushfires which may threaten site
- ensuring flammable fuels or materials, including cleared vegetation, is either removed from site, or stored away from areas considered as prone to bushfires
- rolling exposed earthworks at the end of each shift
- cutting temporary channels in the verge to allow works to drain
- removing pavement rills to enable water to drain out of boxed pavements
- filling dips and hollows that allow water to pond in pavement
- bringing sealing works forward if rain is forecast (when planning work for the week)
- cyclone proofing buildings
- forming a “catchbank” at the top of cuttings to prevent water running down the face
- additional pumps dewatering excavations
- head wall protection, including sand bagging
- erosion protection
- moving gear to high ground
- carrying out temporary repairs where possible to protect works from further damage
- clearing creeks and streams of debris from earlier events to improve flows
- site specific temporary relaxation of specification time periods (e.g. kerb curing times), if rain is due, enabling sealing to be carried out to weatherproof the works
- reducing the site speed limit during an event to reduce the risk of pothole damage
- maintenance crews may also work through the event to ensure all measures are operating and carrying out repair works where safe to do so.

## **7 Rectification and recovery**

Following a severe weather event the contractor shall take contemporary records, including photographs of any damage.

Typical responses post event include:

- cease work until the work site has dried out

- photos / records (separate cost codes)
- notify Transport and Main Road's Insurance Broker / Insurer / Loss Adjuster and comply with Loss Adjusters brief requirements
- learnings / feedback (what can you do different next time).

Where it has been identified that a claim may be made under Transport and Main Road's PAI program then the department must be notified immediately at [PAI\\_Program@tmr.qld.gov.au](mailto:PAI_Program@tmr.qld.gov.au)

The contractor shall also establish a suitable cost capture system to record time and costs of labour, plant and materials used to make good any damage.

## **8 Contact personnel**

The SWMP shall identify the appropriate responsible personnel for severe weather risk treatments. For more information, please contact the ISU at [PAI\\_Program@tmr.qld.gov.au](mailto:PAI_Program@tmr.qld.gov.au) or phone 3066 1339.

