



PLAY EQUIPMENT AND ORGANIC SURFACING 08B

MUNICIPAL
INFRASTRUCTURE
TECHNICAL
SPECIFICATION
08 - INCEDENTAL WORKS

Transport Canberra and
City Services

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1 PLAY EQUIPMENT AND ORGANIC SURFACING

1.1 General

General: This Specification comprises the construction of playground and fitness equipment and organic softfall.

Exclusions: This Specification does not include construction of rubber impact attenuating surfaces. Refer *MITSO8C Rubber impact attenuating surfaces*.

1.1.1 Responsibilities

Requirement: Provide for all works and activities associated with the supply and installation of playground equipment and organic softfall to meet the requirements of the Australian Standards.

1.1.2 Cross references

General: The following documents are related to this specification:

1.1.2.1 ACT Legislation

Environmental Protection Act

Work Health and Safety Act

Waste Minimisation Act

1.1.2.2 Specifications

Requirement: Conform to the following:

| | |
|---------|---|
| MITO 00 | Preliminaries |
| MITO 02 | Earthworks |
| MITO 03 | Underground services |
| MITO 06 | Concrete kerbs, footpaths and minor works |
| MITO 09 | Landscape |

1.1.2.3 Design Standards

General: The following Design Standards are related to this Specification:

| | |
|--------------|--------------------------------|
| MIS 21 | Recreation Facilities |
| Attachment B | Design acceptance requirements |

1.1.2.4 TCCS Reference Documents

General: The following TCCS reference documents are related to this Specification:

| | |
|-----------------------|---|
| Reference document 04 | Protection of public landscape assets |
| Reference document 07 | Operational acceptance submissions |
| Reference document 08 | Works as executed quality records |
| Reference document 09 | Final acceptance submissions |
| Reference document 10 | Landscape consolidation |
| Reference document 11 | Drafting Standard for Civil and Landscape works |

1.1.3 Referenced documents

1.1.3.1 Standards

General: The following documents are incorporated into this Specification by reference:

| | |
|-------------|--|
| AS 4685 | Playground Equipment and Surfacing |
| AS 4685.0 | Part 0: Development, installation, inspection maintenance |
| AS 4685.1 | Part 1: General Safety requirements and test methods |
| AS 4685.2 | Part 2: Additional specific safety requirements and test methods for swings |
| AS 4685.3 | Part 3: Additional specific safety requirements and test methods for slides |
| AS 4685.4 | Part 4: Additional specific safety requirements and test methods for cableways |
| AS 4685.5 | Part 5: Additional specific safety requirements and test methods for carousels |
| AS 4685.6 | Part 6: Additional specific safety requirements and test methods for rocking equipment |
| AS 4685.11 | Part 11: Additional specific safety requirements and test methods for spatial network |
| AS/NZS 4422 | Playground Surfacing – Specifications requirements and test methods |
| ISO 7708 | Air Quality- Particle size fraction definitions for health related sampling |

1.1.3.2 Other publications

Proprietary products: To *TCCS Products previously considered for use list*

1.1.4 Interpretation

1.1.4.1 Abbreviations

General: For the purposes of this Specification the following abbreviations apply:

| | |
|--------------|---|
| MPa: | Megapascal |
| MMDD: | Maximum modified dry density |
| uPVC: | Unplasticised polyvinyl chloride |
| TCCS: | Transport Canberra and City Services |
| NATA: | National Association of Testing Authorities |

1.1.4.2 Definitions

General: For the purposes of this Specification the definitions given below apply:

Organic softfall: An impact attenuating surface consisting of unbound graded organic wood particles.

Softfall surfacing: Surface which provides impact attenuation, may be bound such as rubber softfall or unbound such as organic softfall.

Critical fall height: The maximum free height of fall for which a surface provides an acceptable level of impact attenuation.

Free height of fall: The greatest vertical distance from the clearly intended body support to the impact area below.

Authorised person: PAP/ Superintendent/Client of the Works.

Select Fill: backfill material with known properties and grading placed and compacted in layers.

Inadequate foundation material: Material beneath or adjacent to the proposed drainage structures with insufficient strength to support the structure and loads on the structure or material with characteristics that would adversely affect the performance or construction.

1.1.5 Hold points and witness points

1.1.5.1 Notice

General: Give notice so that the documented inspection and submissions may be made to the **Hold point table**, the **Witness point table**.

Table 8B-1 Hold point table

| Item | Clause title | Requirement | Notice for inspection | Release by |
|------------------|--|--|--|-------------------|
| Materials | | | | |
| 8B.1 | Playground Equipment | Provide information from equipment manufacturer / supplier | At the time of project commencement | Authorised person |
| 8B.2 | Organic softfall | Submit 1kg sample with certification to meet AS4422 | 4 (four) weeks prior to commencement of installation | Authorised person |
| Execution | | | | |
| 8B.3 | Compaction - subgrade | Submit information confirming conformance | Two (2) days prior to installation of drainage sand | Authorised person |
| 8B.4 | High end risers | Setout location for high end risers | Two (2) days prior to installation | Authorised person |
| 8B.5 | Play Equipment Setout | Setout equipment and fall zones | Two (2) days prior to setting out | Authorised person |
| 8B.6 | Operation and Maintenance Manuals | Submit certifications, warranty and maintenance manuals | Prior to Operational Acceptance | Authorised person |
| 8B.7 | Playground Compliance Inspection and Audit | Submit report confirming compliance with AS4685 | Prior to Operational Acceptance | Authorised person |
| 8B.8 | Organic Softfall Testing | Submit report confirming compliance with AS4685 | Prior to Operational Acceptance | Authorised person |

Table 8B-2 Witness points table

| Item | Clause title | Requirement | Notice for inspection |
|------------------|--------------------|---|--|
| Execution | | | |
| 8B.1 | Drainage | Inspection during installation of drainage to confirm falls | Two (2) days prior to commencement of works. |
| 8B.2 | Equipment Markings | Ensure all proprietary equipment is supplied with compliance plate and plimsoll markers | Prior to Operational Acceptance |

1.2 Preconstruction planning

1.2.1 Submissions

1.2.1.1 Playground Equipment

Submission of documents: Prior to ordering, provide the following documentation from the play equipment manufacturer / supplier for each piece of equipment:

- > Confirmation of lead times for equipment and program for delivery to site
- > Certificate of compliance with AS4685
- > Shop drawings
- > Written confirmation that:
 - Impact attenuation requirements for each piece of equipment have been checked and coordinated with the fall heights noted on the design drawings
 - Minimum equipment fall zones will be achieved
 - Equipment fall heights suit final design levels
 - Equipment fixing details are suitable for the softfall surface within which the equipment is being installed
- > Draft warranty certificates

This is a **HOLD POINT**

1.2.1.2 Organic Softfall

Samples: Submit the following sample

- > 1kg bag representative of material to be used as a control

Label sample with:

- > Suppliers details
- > Product name / code / type

Certificate of Compliance

- > Provide certificate stating compliance with the requirements of AS4422 and AS4685

This is a **HOLD POINT**

1.3 Materials

1.3.1 Subgrade

1.3.1.1 General

Standard: to *AS 3798 Section 4*.

Quality: Clean, stable, free of perishable material and capable of compaction to the nominated density (Refer Execution).

Re-use excavated material: Only re-use suitable material in conformance with *AS 3798 Clause 4.4*.

1.3.2 Drainage

1.3.2.1 Drainage Sand

Specification: Type E filter material - To *MITS03I Subsurface drainage*

1.3.2.2 Drainage Pipes:

Pipe: Conform to the following:

Standard: To *AS2439.1*

Type: 100mm diameter corrugated and slotted to *MITS 03I Subsurface drainage*, and 100mm diameter uPVC solid walled pipe to *MITS 03B Pipe drainage*.

High End riser: Solid plastic, heavy duty cover to fit corrugated slotted pipe, screw fixed with galvanised or stainless steel screws to *Standard detail ACTSD 0302*.

1.3.3 Organic softfall

Standard: to *AS 4685*

Material: Clean Tan (pine) Bark, 20-80mm graded material of even, uniform dimension.

Tolerance: Maximum of 10% wood slivers / slender needle like / sharp pointed pieces which are a maximum of 50mm in length and present an unacceptable risk of splintering and a potential for puncture injuries to users.

Requirement: No silt, soil or clay particles shall be present.

1.4 Execution

1.4.1 Provision for traffic

1.4.1.1 General

Requirement: Conform to *MITSD 01 Traffic Management*

1.4.2 Site establishment

1.4.2.1 Survey

Requirement: Confirm site surface and benchmarks. Conform to *MITSD 00 Preliminaries*

1.4.3 Tan (pine) bark installation

1.4.3.1 Excavation and Subgrade Preparation

Clearing and Grubbing: To *MITSD 02A Clearing and grubbing*

Excavation and filling: Carry out detailed cut and fill as required to achieve the documented design.

Subgrade Preparation: To *MITSD 02B Bulk earthworks*

Removal of unsuitable material: Remove any soft, weak, saturated or organic material within the top 300mm of the subgrade to *MITSD 02B Bulk earthworks*.

Trimming: trim and shape the subgrade to fall to subsoil drains and drainage release lines.

Falls: Minimum 2%

Relative compaction: Minimum 98% MMDD

Requirement: Finished subgrade to have a tolerance of +/-20mm when measured across a 1.5m straight edge. Subgrade is to demonstrate falls to drainage outfalls. Once subgrade has been prepared and tested, there shall be no activities carried out that will compromise level and conformance.

This is a **HOLD POINT**

1.4.3.2 Drainage

Requirement: Before commencement of work, verify that the drainage intent as documented on the design drawings can be achieved to ensure no ponding or holding of water. Revise the layout if required to achieve drainage and submit to authorised person for approval prior to commencement of work.

Falls: Minimum 2%

High End risers: Mark locations for approval by Authorised person prior to installation. Install outside impact attenuating area and include a minimum 100mm wide concrete edge edge (if in grass) or finish in design pavement, flush with top of cover plate.

This is a **HOLD POINT**

Standard drawing: To ACTSD 0302.

Installation: Install slotted and solid pipe in accordance with *MITS 03 Underground services*

This is a **WITNESS POINT**

Connection to Stormwater structures: to the requirements of *MITS 03 Underground services*

1.4.3.3 Soakage Pit

Setout: Stake location of pit to achieve positive outflow of drainage water from playground excavation

This is **HOLD POINT**

Installation: Excavate pit minimum two (2) cubic metres volume or as otherwise detailed. Fill pit with stone ballast, cover with geotextile fabric. Select fill and minimum 100mm topsoil. Finish to match adjacent surface.

1.4.3.4 Installation

Impact layer: Spread pine bark to a depth noted on design documents and as required to achieve AS compliance for impact attenuation. Ensure even and consolidated depth of bark to avoid soft spots and depressions.

Requirement: Handpick after installation to remove residual timber slivers and other rubbish, contaminants and hazardous material.

1.4.3.5 Testing

Testing: refer to *MITS 00 Preliminaries*

Standard: *AS4422* and *AS4685*

Testing laboratory: Test shall be undertaken by a laboratory that fulfils requirements of *AS ISO/ IEC 17025*.

Requirement: Laboratory testing or indicative test results are not acceptable.

Infill depth: Infill depth shall be checked at various locations by the Independent Testing Agent across the playground to confirm consistency of surface depth.

Impact attenuation: A minimum of one impact attenuation test per playground carried out where loose fill is at its lowest infill depth, and at the highest impact attenuation requirement.

This is a **HOLD POINT**

Rectification: Undertake any modifications necessary to address any non compliances.

1.4.4 Proprietary playground equipment

1.4.4.1 General

Requirement: Order play equipment with sufficient lead time to achieve program dates.

Co ordination: The contactor is responsible for co ordination with each supplier.

1.4.4.2 Setout and Installation

Requirement: Setout the playground equipment in accordance with the manufacturers detail drawings and design documents, including setout of all fall zone dimensions. Mark accurately onsite for review by Authorised Person to demonstrate compliance.

This is a **HOLD POINT**

Installation: Installation of equipment is to be carried out by a specialist installer of playground equipment approved by the supplier / manufacturer of the equipment being installed.

1.4.4.3 Equipment Markings

Equipment Identification: Each module or separate piece of equipment shall have a compliance plate in accordance with AS4685 including the following information:

- > Name and address of manufacturer or authorised representative
- > Equipment reference and year of manufacture
- > The number and date of the relevant Australian Standard

Plimsoll lines: Plimsoll markers shall be clearly indicated on the proprietary equipment indicating the fall height of each piece of equipment. This shall be applied to equipment posts in organic softfall.

Tolerance: 0-50mm minimum within organic softfall.

This is a **WITNESS POINT**

1.4.4.4 Compliance Inspection and Audit

Requirement: At completion of installation, the equipment is to be inspected and audited for compliance with AS4685 and AS4422 by an independent Certified Level 3 Playground Assessor.

This is a **HOLD POINT**

Rectification: Undertake any modifications necessary to address any non compliances.

1.5 Completion

1.5.1.1 Submissions

Work as Executed Records: To *MITS 00B Quality Requirements*.

1.5.1.2 Operation and Maintenance Documents

Requirement: Provide the following documents:

- > Manufacturers / Suppliers Certificates certifying equipment has been supplied in compliance with *AS4685*
- > Installers certificate certifying equipment has been installed in compliance with *AS4685*
- > Warranty certificates
- > Manufacturers / Suppliers inspection, maintenance and operation manual in compliance with *AS4685*

This is a **HOLD POINT**.

2 MEASUREMENT AND PAYMENT

2.1 Measurement

2.1.1.1 General

Payments made to the Schedule of Rates: To *MITS 00 Preliminaries*, this Specification, the drawings and **Pay items** inclusive.

2.1.1.2 Methodology

The following methodology will be applied for measurement and payment:

- > Allow for all work, materials, testing and quality assurance requirements in each Pay Item.
- > Detailed excavation and preparation of subgrade: to this Specification
- > Removal of unsuitable material: to *MITS 02B Bulk earthworks*
- > Slotted drainage pipe and filter material: to *MITS 03I Subsurface drainage*
- > High end risers: to *MITS 03I Subsurface drainage*
- > Soakage pit: to this specification
- > Solid uPVC pipe including connections to existing drainage structures: to *MITS 03B Pipe drainage*
- > Impact attenuation testing – organic softfall: to this Specification
- > Impact attenuation testing – rubber softfall: to *MITS 08C Rubber Impact Attenuating Surface*
- > Playground compliance test report: to *MITS 00B Quality Construction*

2.2 Pay items

Table 8B-3 Pay items table

| Item No | Pay Item | Unit of measurement | Schedule of rates scope |
|-------------|----------------------|---------------------|--|
| 8B.1 | Soakage Pit | Item | All activities with excavation, removal of material, supply and installation of backfill, topsoil and reinstatement for the soakage pit as detailed. |
| 8B.2 | Organic softfall | m ² | All activities associated with detailed excavation, fill and trim, removal of material, subgrade preparation and compaction, supply and installation of sand drainage layer and organic softfall to the nominated thicknesses. A separate pay item shall be included in the contract for each material thickness. |
| 8B.3 | Playground Equipment | Item | All activities associated with supply and installation of each item of proprietary play equipment as specified. All installation shall be carried out by a specialist installer. |

ANNEXURE A – SCHEDULES TABLE

The following schedule shall be completed by the Designer for each piece of play equipment to be installed

| Equipment Type | Manufacturer | Model Number | Supplier | Materials | Colour | Additional notes |
|---------------------------------|--------------|-----------------|----------------|----------------------|----------------|--|
| E.g. Triple Seated Swing | E.g. Corplay | E.g. Cplay 2960 | E.g. Play Play | E.g. Stainless steel | E.g. Cplay Red | E.g. 1 x toddler seat, 1 x all abilities seat, 1 x standard seat |
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