0631 CERAMIC TILING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide tiling systems to walls, floors and other substrates, as documented.

Performance

Requirement:

- Consistent in colour and finish.
- Firmly bonded to substrates for the expected life of the installation.
- Set out with joints accurately aligned in both directions and wall tiling joints level and plumb.
- Direct all water flowing from supply points to drainage outlets without leakage to the substrate or adjacent areas.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements.*

1.3 STANDARDS

Tiling

General: Conform to the recommendations of those parts of AS 3958.1 which are referenced in this worksection.

Slip resistance

Classification: To AS 4586.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection the following definitions apply:

- Adhesives - cementitious (C): Adhesive in which the binders are hydraulic, e.g. General purpose cement, with aggregates and organic additives.
- Adhesives - dispersion (D): Adhesives in which the binders are in the form of aqueous polymer dispersion with mineral fillers and organic additives.
- Adhesives - reaction resin (R): Adhesives in which in the binders are synthetic resins with mineral fillers and organic additives. The curing occurs by chemical reaction.
- Bedding: Mixtures of materials which are applied to substrates in a plastic state and which dry, cure and adhere tiles to substrates:
  - Adhesive bedding: Paving/tiling adhered by adhesives.
  - Mortar bedding: Paving/tiling adhered in a cementitious mortar bed.
- Lippage: Height deviation between adjacent units.
- Stepping: The relative surface level of adjacent paving elements within the expanse of the main pavement.
- Substrate: The surface to which a material or product is applied.
- Tile: Thin slab made from clay and/or other inorganic raw materials used generally as coverings for floors and walls and adhered to continuous supporting substrates.
- Tiles – cementitious: Cement based prefinished tiles.
- Tiles – dry-pressed: Tiles made from a finely milled body mixture and shaped in moulds at high pressure. Also known as Type B.
- Tiles – extruded: Tiles whose body is shaped in the plastic state in an extruder then cut to size. Also known as Type A.
- Underlay: A non-structural layer of sheet material or in situ levelling material on the substrate to provide a smooth and level surface.

- Wet area: An area within a building supplied with a floor waste.

1.5 TOLERANCES

Completed tiling

Requirement: To the recommendations of AS 3958.1 clause 5.4.6.

1.6 SUBMISSIONS

Operation and maintenance manuals

General: Submit a manual describing care and maintenance of the tiling, including procedures for maintaining the slip-resistance classification stating the expected life of the slip-resistance classification.

Products and materials

Product conformity: Submit evidence of conformity to the following:

- Marking and classification of tiles with regard to water absorption and shaping to AS 13006.
- Marking and classification of tile adhesive to AS ISO 13007.1.
- Weighted normalised impact sound pressure level to AS ISO 717.2 as measured for the acoustic underlay as part of the entire tiling system.

Type tests: Submit results, as follows:

- Slip resistance of tiles.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Tests

Site tests: Submit results, as follows:

- Slip resistance of completed installation.

1.7 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before tiling.
- Trial set-outs before execution.
- Grout and sealant colours before application.

2 PRODUCTS

2.1 TILES AND ACCESSORIES

Tiles

Standard: To AS 13006.

Exposed edges: Purpose-made border tiles with the exposed edge (whether round, square or cushion) glazed to match the tile face. If such tiles are not available, mitre tiles on external corners.

Accessories

General: Provide tile accessories which match the composition, colour and finish of the surrounding tiles.

2.2 ADHESIVES

General

Standard: To AS ISO 13007.1.

Type

General: Provide adhesives compatible with the materials and surfaces to be adhered, and as documented.

Prohibited uses: Do not provide the following combinations:

- Cement-based adhesives on wood, metal, painted or glazed surfaces, gypsum-based plaster.
- Organic solvent-based adhesives on painted surfaces.
- Organic PVC-based adhesives and organic natural rubber latex adhesives in damp or wet conditions.
- PVA (polyvinyl acetate) based adhesives in wet areas or externally.

2.3 MORTAR

Materials

Cement type to AS 3972: GP.

- White cement: Iron salts content ≤ 1%.
- Off-white cement: Iron salts content ≤ 2.5%.

Lime: To AS 1672.1.

Sand: Fine aggregate with a low clay content selected for grading, sharp and free from efflorescing salts.

Measurement of volume: Measure binders and sand by volume using buckets or boxes. Do not allow sand to bulk by absorption of water.

Bedding mortar

Mix proportion (cement:sand), by volume: Select proportions from the range 1:3 to 1:4 for satisfactory adhesion. Provide minimum water.

Terracotta tiles: Use proprietary polymer modified mortar.

Mixing: To AS 3958.1 clause 2.15.

Water

General: Clean and free from any deleterious matter.

2.4 GROUT

Type

Cement based proprietary grout: Mix with water. Fine sand may be added as a filler in wider joints.

General purpose cement based grout: Mix with fine sand. Provide minimum water consistent with workability.

Mix proportions (cement:sand), by volume:

- For joints < 3 mm: 1:2.
- For joints ≥ 3 mm: 1:3.

Pigments

Pigments for coloured grout: Provide colourfast fillers compatible with the grout material. For cement-based grouts, provide lime-proof natural or synthetic metallic oxides compatible with cement.

2.5 CONTROL JOINTS

Control joint materials

Control joint strip: A proprietary control joint consisting of a neoprene core sandwiched between metal plates with lugs or ribs for mechanical keying. Set flush with the finished surface.

Proprietary slide plate divider strip: An arrangement of interlocking metal plates grouted into pockets formed in the concrete joint edges.

Sealant: One-part self-levelling non-hardening mould resistant, silicone or polyurethane sealant applied over a backing rod. Finish flush with the finished surface.

- Floors: Trafficable, shore hardness greater than 35.

Backing rod: Compressible closed cell polyethylene foam with a bond-breaking surface.

3 EXECUTION

3.1 SUBSTRATES

Drying and shrinkage

General: Before tiling, allow at least the following times to elapse (for initial drying out and shrinkage) for these substrates:

- Concrete slabs: 42 days.

3.2 PREPARATION

Standard

Preparation: To the recommendations of AS 3958.1 Section 4.

Ambient temperature

General: If the ambient temperature is less than 5°C or greater than 35°C, do not lay tiles.

Substrates with wet area membranes

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion or location of tiles.
- Compatible with all components of the floor system.

Trial set-out

General: Prepare a trial tile set-out of each area as follows to:

- Maximise the size of equal margins of cut tiles.
- Locate control joints.
- Note minor variations in joint widths to eliminate cut tiles at margins.
- Locate fittings on walls.

3.3 TILING GENERALLY

Cutting and laying

Cutting: Cut tiles neatly to fit around fixtures and fittings and at margins where necessary. Drill holes without damaging tile faces. Cut recesses for fittings such as soap holders. Rub edges smooth without chipping.

Laying: Return tiles into sills, reveals and openings. Butt up to returns, frames, fittings, and other finishes. Strike and point up beds where exposed. Remove tile spacers before grouting.

Variations

General: Distribute variations in hue, colour, or pattern uniformly, by mixing tiles or tile batches before laying.

Protection

Floor tiles: Keep traffic off floor tiles until the bedding has set and attained its working strength.

Cleaning: Keep the work clean as it proceeds and protect finished work from damage.

3.4 SETTING OUT

Tile joints

Joint widths: Set out tiles to give uniform joint widths within the following limits:

- Floors:
  - . Dry pressed tiles: 3 mm.
  - . Extruded tiles: 6 mm.
  - . Vitrified: 3 to 5 mm.
  - . Quarry tiles: 6 to 12 mm.
  - . Chemical resistant epoxy jointed tiling: 5 to 6 mm.
- Large and/or irregular floor tiles: 6 to 12 mm.
- Walls:
  - . Dry pressed tile: 1.5 mm.
  - . Extruded tile: 6 mm.

Joint alignment: Set out tiling with joints accurately aligned in both directions and wall tiling joints level and plumb.

Joint position: Set out tiles from the centre of the floor or wall to be tiled.

Margins

General: Provide whole or purpose-made tiles at margins where practicable, otherwise, set out to give equal margins of cut tiles. If margins less than half a tile width are unavoidable, locate the cut tiles where they are least conspicuous.

Fixtures

General: If possible, position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or on the centre lines of tiles. Continue tiling fully behind fixtures which are not built in to the tiling surface. Before tiling make sure fixtures interrupting the tile surfaces are accurately positioned in their designed or optimum locations relative to the tile layout.

3.5 FALLS AND LEVELS

Grading

General: Grade floor tiling to even and correct falls to floor wastes and elsewhere as required. Make level junctions with walls. Where falls are not required, lay level.

Fall, general: 1:100 minimum.

Fall, in shower areas: 1:60 minimum.

Change of finish: Maintain finished floor level across changes of floor finish including carpet.

3.6 BEDDING

Standard

Cement mortar: To AS 3958.1 clause 5.5.

Adhesive: To AS 3958.1 clause 5.6.

Preparation of tiles

Adhesive bedding: Fix tiles dry; do not soak.

Mortar bedding: Soak porous tiles in water for half an hour and then drain until the surface water has disappeared.

Bedding

General: Use bedding methods and materials which are appropriate to the tile, the substrate, the conditions of service, and which leave the tile firmly and solidly bedded in the bedding material and adhered to the substrate. Form falls integral with the substrate.

Thin adhesive beds

General: Provide only if the substrate deviation is less than 3 mm, tested with a 3 m straightedge. Cover the entire tile back with adhesive when the tile is bedded.

Thickness: 1.5 to 3 mm.

Thick adhesive beds

General: Provide on substrates with deviations up to 6 mm, tested with a 3 m straightedge, and with tiles having deep keys or frogs.

Nominal thickness: 6 mm.

Adhesive bedding application

General: Apply adhesive by notched trowel to walls and floors and direct to tiles if required, to provide evenly distributed coverage after laying as follows:

- Domestic internal walls: > 65%.
- Domestic internal floors: > 80%.
- Other wall and floors: > 90%.
- Wet areas and bench tops: 100%.

Pattern of distribution of adhesive: To the recommendations of AS 3958.1 clause 5.6.4.3. Verify by examining one tile in ten as work proceeds.

Wall tile spacers: Do not use spacer types that inhibit the distribution of adhesive.

Curing: Allow the adhesive to cure for the period nominated by the manufacturer before grouting or allowing foot traffic.

Mortar beds

For floor tiles: Either lightly dust the screeded bed surface with dry cement and trowel level until the cement is damp, or spread a thin slurry of neat cement, or cement-based thin bed adhesive, on to the tile back. Do not use mortar after initial set has occurred.

- Nominal thickness: 20 to 40 mm.

3.7 CONTROL OF MOVEMENT

General

Requirement: Provide control joints carried through the tile and the bedding to the recommendations of AS 3958.1 clause 5.4.5 and as follows:

- Floor location:
  - . Over structural control joints.
  - . To divide complex room plans into rectangles.
  - . Around the perimeter of the floor.

  . At junctions between different substrates.
  . To divide large tiled areas into bays.
  . At abutments with the building structural frame and over supporting walls or beams where flexing of the substrate is anticipated.
- Wall location:
  . Over structural control joints.
  . At junctions with different substrate materials when the tiling is continuous.
  . At vertical corners in shower compartments.
- Depth of joint: Right through to the substrate.
- Sealant width: 6 to 25 mm.
- Depth of elastomeric sealant: One half the joint width, or 6 mm, whichever is the greater.

3.8 GROUTED AND SEALANT JOINTS

Grouted joints

General: Commence grouting as soon as practicable after bedding has set. Clean out joints as necessary before grouting.

Face grouting: Fill the joints solid and tool flush. Clean off surplus grout. Wash down when the grout has set. When grout is dry, polish the tiled surface with grout film remover and a clean cloth.

Edges of tiles: Grout exposed edge joints.

Epoxy grouted joints: Make sure tile edge surfaces are free of extraneous matter such as cement films or wax, before grouting.

Sealant joints

General: Provide joints filled with sealant and finished flush with the tile surface as follows:

- Where tiling is cut around sanitary fixtures.
- Around fixtures interrupting the tile surface, for example pipes, brackets, bolts and nibs.
- At junctions with elements such as window and door frames and built-in cupboards.

Material: Anti-fungal modified silicone.

Width: 5 mm.

Depth: Equal to the tile thickness.

3.9 JOINT ACCESSORIES

Floor finish dividers

General: Finish tiled floors at junctions with differing floor finishes with a corrosion-resistant metal dividing strip fixed to the substrate using mechanical fixings, with top edge flush with the finished floor. If changes of floor finish occur at doorways, make the junction directly below the closed door. Grout up underneath to provide continuous support.

Stepping: Less than 5 mm.

Adjustments

Requirement: Check that the height of the floor finish divider is sufficient for the topping and tile thickness. Adjust as required with a matching flat bar adhesive fixed to the divider angle.

3.10 TESTING

Completion tests

Slip resistance of completed installation: To AS 4663.

3.11 COMPLETION

Cleaning

General: Clean tiled surfaces using an appropriate tile cleaning agent, and polish.

Spare tiles

General: Supply spare matching tiles and accessories of each type for future replacement purposes. Store the spare materials on site.

Quantity: At least 1% of the quantity installed.

Storage location: Provide spare tiles in boxes to Services Room

4 SELECTIONS

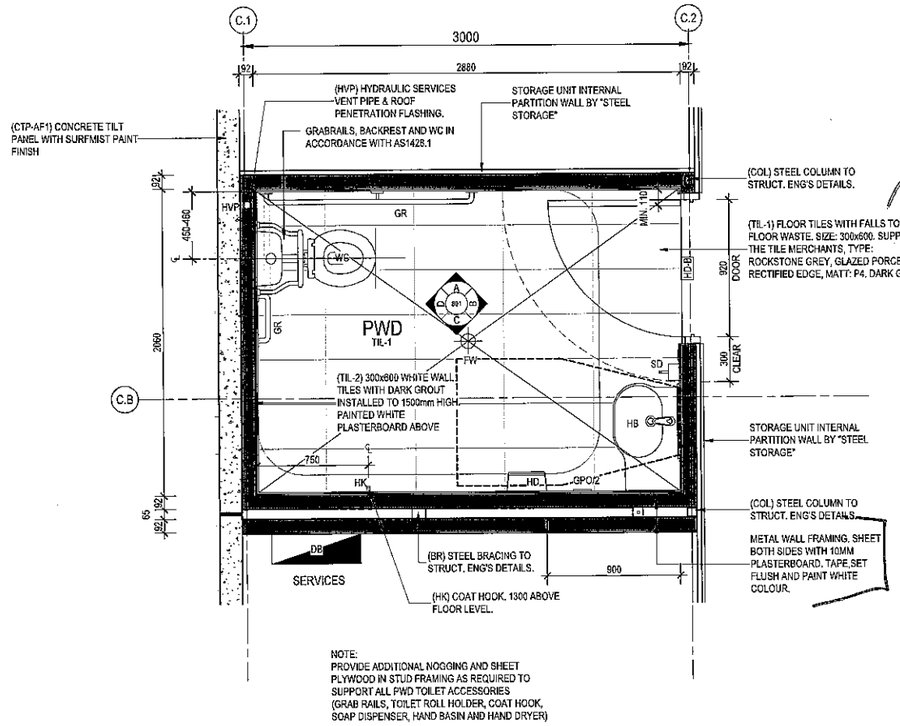
4.1 SCHEDULES

Floor tiling schedule

Property	TIL-1
Tile: Type	The Tile Merchants Rockstone Grey Glazed Porcelain Rectified Edge
Tile: Size (mm)	300 x 600
Tile: Surface	Matt
Slip resistance classification	P4
Mortar bedding: Thickness (mm)	Provide falls to floor waste
Adhesive bedding: Type	Ardex Optima two part tile adhesive
Adhesive bedding: Thickness	To manufacturers requirements.
Tile pattern	Stack
Grout: Type	Kemgrout (with primer bond)
Grout: Colour	Dark Grey, colour match tiles

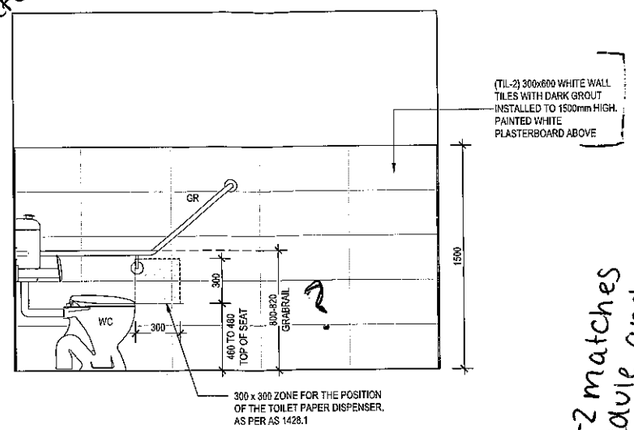
Wall tiling schedule

Property	TIL-2
Tile: Type	Gloss white wall tile. Rectified Edge
Tile: Size (mm)	300 x 600
Tile: Surface	Gloss
Adhesive bedding: Thickness	Thin bed
Tile pattern	Stack
Grout: Type	Kemgrout (with primer bond)
Grout: Colour	Dark Grey
Tile Accessories.	Wall tiles to 1500 high. Provide white powdercoat tile trim to edge of tiles.



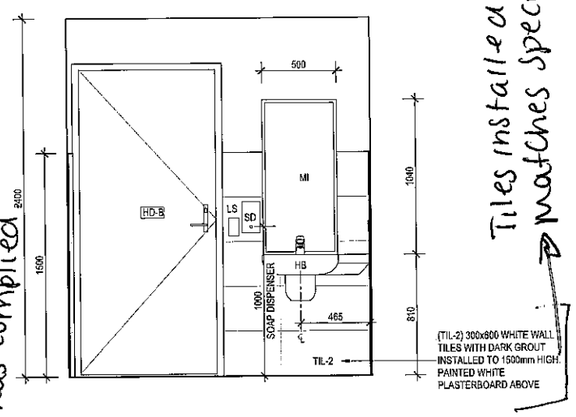
1 401 PWD TOILET DETAIL PLAN
1 : 20 @ A1

fall in the shower matches specifications



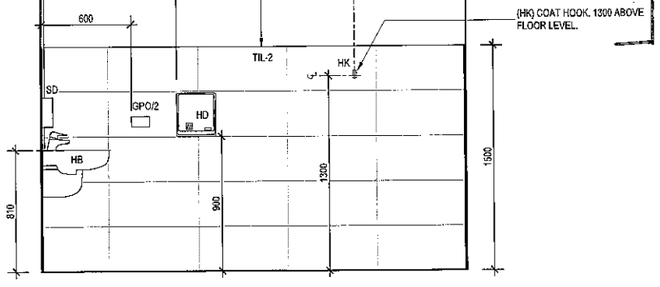
A 801 PWD ELEVATION A
1 : 20 @ A1

TIL-2 matches Schedule and Specifications. This has complied

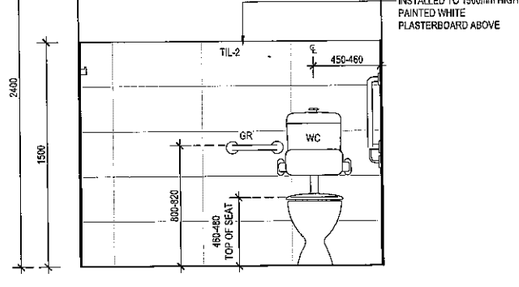


B 801 PWD ELEVATION B
1 : 20 @ A1

Tiles installed to 1500mm matches specifications



C 801 PWD ELEVATION C
1 : 20 @ A1



D 801 PWD ELEVATION D
1 : 20 @ A1

GENERAL NOTES

- CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK.
- ALL WORKS TO BE CARRIED OUT TO LOCAL AUTHORITY REQUIREMENTS.
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SPECIFICATION AND ASSOCIATED NOTES.
- DO NOT SCALE THIS DRAWING. IF IN DOUBT, ASK.

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LEGEND

(E) DENOTES EXISTING

DB	DISTRIBUTION BOARD, REFER ELEC DWGS	TIL-2	TILE TYPE 2 - WALL TILE AS SPECIFIED.
FW	GRATED FLOOR WASTE	WC	TOILET SUITE, REFER 0802 HYDR. DESIGN AND INSTALL
GPO/2	GENERAL POWER OUTLET/ DOUBLE		
GR	GRAB RAIL		
HB	HAND BASIN		
HD	HAND DRYER, REFER 0191 SUNDRY ITEMS.		
HK	HOOK		
HVP	HYDRAULICS VENT PIPE, REFER HYDRA DWGS		
LS	LIGHT SWITCH		
MI	MIRROR, REFER 0191 SUNDRY ITEMS		
SD	SOAP DISPENSER		
TIL-1	TILE TYPE 1- FLOOR TILE AS SPECIFIED.		

scale @A1: 1 : 20
scale @A3: 1:40
0 1m 1:20

TENDER ISSUE

REV.	DESCRIPTION	ISSUED BY	DATE
P1	PRELIMINARY ISSUE	KR	28/06/2022
P2	PRELIMINARY ISSUE	KR	21/07/2022
P3	PRELIMINARY ISSUE	KR	03/08/2022
T1	TENDER ISSUE	KR	18/08/2022

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client: SS PROPERTY TRUST

project: SWIFT STORAGE - FARM STREET KAWANA ROCKHAMPTON

drawing title: PWD TOILET DETAILS

location: 146 - 152 FARM STREET KAWANA QLD 4701

job no: 2256

drawing no: 801

rev: T1

2 PRODUCTS

2.1 GENERAL

Storage and handling

Storage: To the manufacturer's recommendations and the following:

- Metal roofing materials: Store away from uncured concrete and masonry, on a level base and not in contact with other materials that cause staining, denting or other surface damage.

Handling metal roofing materials: As follows:

- Use gloves when handling precoated metal roofing material.
- Use soft soled shoes when fixing or working on roofs.
- Protect edges and surfaces from damage. Do not drag sheets across each other or over other materials.

Safety mesh

Standard: To AS/NZS 4389.

2.2 FIRE PERFORMANCE

Combustibility

Roofing: Tested to AS 1530.1.

Fire hazard properties

Insulation materials: Conform to the following, tested to AS/NZS 1530.3.

- Spread-of-Flame index: ≤ 9.
- Smoke-Developed Index: ≤ 8 if spread of flame index > 5.

2.3 PROFILED SHEET METAL ROOFING

Standards

Design and materials: To AS 1562.1.

Fasteners

Prefinished exposed fasteners: Finish with an oven baked polymer coating to match the roofing material.

Fastenings to timber battens: Fastenings long enough to penetrate the thickness of the batten without piercing the underside.

Profiled fillers

Type: Purpose-made closed cell polyethylene foam profiled to match the roofing profile.

Location: Provide profiled fillers under flashings to the following:

- Ridges.
- Eaves.
- Lapped joints in roof sheeting.

2.4 ROOF PLUMBING

General

Description: Flashings, cappings, gutters, rainheads, outlets, downpipes and accessories necessary to complete the roofing system.

Flashing and capping: Notched to match profile of roof sheeting.

Matching fascia/barge capping: If the selected eaves gutter is a proprietary high front pattern forming part of a combined system of gutter, fascia and barge, provide matching proprietary fascias and barge cappings to roof verges and edges.

Standards

Roof drainage: To AS/NZS 3500.3.

Metal rainwater goods: To AS/NZS 2179.1.

Flashings and cappings: To AS/NZS 2904.

2.5 ROOF VENTILATORS

General

Description: A proprietary roof ventilator system including framing, fixing, trim, seals, accessories and flashings.

3 EXECUTION

3.1 INSTALLATION

Protection
General: Keep the roofing and rainwater system free of debris and loose material during construction.

Thermal movement
Requirement: Allow for thermal movement in the roof installation and the structure, including movement in joints and fastenings.

Metal separation
Requirement: Prevent direct contact between incompatible metals, and between green hardwood or chemically treated timber and aluminium or coated steel, by one of the following methods:

- Applying an anti-corrosion, low moisture transmission coating to contact surfaces.
- Inserting a separation layer.

3.2 PROFILED SHEET METAL ROOFING

Installation
Standard: To AS 1562.1.

Set-out point: fixing to proceed from leeward to windward of prevailing winds

Swarf: Remove swarf and other debris as soon as it is deposited.

Accessories: Provide accessories with the same finish as roofing sheets to complete the roofing installation.

Pan type sheets
Removal: Install sheets so that individual sheets can be removed without damage.

Ridges and eaves
Sheet ends: Treat as follows:

- Project sheets 50 mm into gutters.
- Close off ribs at bottom of sheets using mechanical means or with purpose-made fillers or end caps.
- Turn pans of sheets up at tops and down into gutters by mechanical means.
- Provide pre-cut notched eaves flashing and bird proofing if required.
- Close off ridges with purpose-made ridge fillers of closed cell polyethylene foam.

Ridge and barge
Capping: Finish off along ridge and verge lines with purpose-made ridge capping or barge rolls.

3.3 ROOF PLUMBING

Jointing sheet metal rainwater goods
Butt joints: Make joints over a backing strip of the same material.

Soldered joints: Do not solder aluminium or aluminium/zinc-coated steel.

Sealing: Seal fasteners and mechanically fastened joints. Fill the holes of blind rivets with silicone sealant.

Jointing system: blind rivet and seal

Flashings
Installation: Flash roof junctions, upstands, abutments and projections through the roof. Preform to required shapes if possible. Notch, scribe, flute or dress down as necessary to follow the profile of adjacent surfaces. Mitre angles and lap joints 150 mm in running lengths. Provide matching expansion joints at 6 m maximum intervals.

Upstands: Flash projections above or through the roof with two part flashings, consisting of a base flashing and a cover flashing, with at least 100 mm vertical overlap. Provide for independent movement between the roof and the projection.

Large penetrations in low pitch roofs: Extend the base flashing over the roofing ribs to the ridge to prevent ponding behind the penetrating element.

Wall abutments: Where a roof abuts a wall, provide as follows:

- In masonry walls, planked cladding or concrete: Step in courses to the roof slope. Interleave with damp proof course, if any.

- Raking in masonry: Build into the full width of the outer leaf. Turn up within cavity, slope inward across the cavity and fix to or build into the inner leaf at least 75 mm above the roofing line.
- Raking in concrete: Turn 25 mm into joints or grooves, wedge at 200 mm centres with compatible material and point up.

Fixing to pipes: Solder or seal with neutral cured silicone rubber and secure with either of the following:

- Clamping ring.
- Proprietary flexible clamping shoe with attached metal surround flashing.

Gutters

Expansion joints in guttering longer than 30 m:

Leaf guard location: All gutter outlets.

External downpipes

General: Prefabricate downpipes to the required section and shape where possible. Connect heads to gutter outlets and, if applicable, connect feet to rainwater drains.

Downpipe support: Provide supports and fixings for downpipes.

Rainwater disposal

System: Refer to hydraulic services and civil engineering drawings.

3.4 ROOF VENTILATORS

Roof ventilators

Product: Solar Whiz SW-AU-R-15

3.5 TESTING

Site tests

Internal downpipes: Test each stack hydrostatically in stages, each test to run over two storeys high for two hours. Remedy defects and retest if necessary.

3.6 COMPLETION

Reinstatement

Extent: Repair or replace damage to the roofing and rainwater system. If the work cannot be repaired satisfactorily, replace the whole area affected.

Damage to pre-painted finish: Replace panels with scratches in the pre-painted finish greater than 2 mm in width visible from the ground.

Fasteners: Make sure weather tight and external panel facings are not distorted.

Cleaning

Roofing and rainwater drainage system: Remove debris, metal swarf, solder, sealants and unused materials.

Exposed metal surfaces: Clean surfaces of substances that interfere with uniform weathering or oxidisation.

Roof plumbing: Clean out spoutings, gutters and rainwater pipes after completion of roof installation.

Protection: After completion, remove protective coatings using methods to the manufacturer's recommendations.

Warranties

Requirement: Provide warranties for materials and workmanship warranties in the form of interlocking warranties as follows:

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier/manufacturer.

4 SELECTIONS

4.1 PROFILED SHEET METAL ROOFING

Profiled sheet metal roofing schedule

Property	MRS
Type	Metal Roof Sheeting
Product	Stramit Monoclad
Profile	trapezoidal
Material	steel
Base metal thickness (BMT) (mm)	0.42
Finish	Zincalume
Colour	unpainted
Fasteners	Pierced
Insulation spacer type	none
End Laps	No end laps. Roofs to be installed in one continuous length

4.2 ROOF PLUMBING

Flashing and capping schedule

Property	MAF	MBC	MRC
Type	Metal Apron Flashing	Metal Barge Capping	Metal Ridge Capping
Material	Steel	Steel	Steel
Thickness and grade	0.55 (BMT)	0.55 (BMT)	0.55 (BMT)
Colour	Surfmist	Surfmist	Surfmist

Property	MF2	MPC	MPF
Type	Metal Fascia Type 2. Profiled colorbond fascia capping, over steel folded fascia to structural engineers drawings.	Metal Parapet Capping	Metal Pressure Flashing
Material	steel	steel	steel
Thickness and grade	0.55 (BMT)	0.55 (BMT)	0.55 (BMT)
Colour	Surfmist	Colour varies. Refer to drawings.	Surfmist

Roof plumbing schedule

Item	Product	Material	Colour/Shape/Size
MF1 Metal Fascia Type 1	Lysaght Novaline Fascia	Steel	Colorbond Surmist
MG Metal Gutter	Lysaght Slotted Emline Gutter	Steel	Colorbond Basalt
DP Downpipe	100dia Round. Also refer hydraulics plans	PVC	Paint Surfmist

Wall flashing and capping schedule

Note: Refer also to drawings and to the 0431 Cladding specifications.

Property	**Metal Wall capping's**
Type	Wall and mullion capping's generally
Material	steel
Thickness and grade	0.55 (BMT)
Colour	Colour varies. Refer to drawings. Typically Surfmist unless noted otherwise.

Roof ventilator schedule

Property	**RV**
Product	Solar Whiz SW-AU-R-15
Size (mm)	560mm × 360mm × 330mm
Material/ Finish	Standard
Capacity	333 Litres per Second (L/s)
Other Notes.	Provide vermin proof mesh to throat of opening

0671B PAINTING

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide coating systems to substrates, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements.*

1.3 STANDARDS

Painting

General: To the recommendations of those parts of AS/NZS 2311 referenced in this worksection.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Store materials not in use in tightly covered containers in well-ventilated areas with temperatures maintained at the manufacturer's recommendations.

Delivery: Deliver paints to the site in the manufacturer's labelled and unopened containers.

2.2 PAINTING MATERIALS

Standards

Paint types: To AS/NZS 2311 Table 4.2 and the following:

- Metal primer - general purpose for iron and steel: To AS/NZS 3750.19.
- Metal primer - latex for metallic zinc surfaces: To AS 3730.15.
- Metal primer - solvent borne for ferrous metallic surfaces: To AS 3730.21.
- Metal primer - zinc-rich organic for iron and steel: To AS/NZS 3750.9.

Combinations

General: Do not combine products from different manufacturers in a paint system.

Clear timber finish systems: Provide only the combinations of putty, stain and sealer recommended by the manufacturer of the topcoat.

Putty and fillers

Material: To the recommendations of the paint system manufacturer, suitable for the substrate and compatible with the primer.

Tinting

General: Provide only products which are colour tinted by the manufacturer or supplier.

Toxic ingredients

General: To the *Poisons Standard (SUSMP)* Part 2 Section 7.

3 EXECUTION

3.1 PREPARATION

Order of work

Other trades: Before painting, complete the work of other trades as far as practicable within the area to be painted, except for the installation of fittings, floor sanding and laying flooring materials.

Clear finishes: Complete clear timber finishes before commencing opaque paint finishes in the same area.

Protection

General: Before painting, clean the area and protect it from dust contamination. Use drop sheets and masking agents to protect surfaces, including finished surfaces and adjacent finishes, during painting.

Fixtures and furniture: Remove door furniture, switch plates, light fittings and other fixtures before painting, and conform to the following:

- Labelling and storage: Attach labels or mark fixtures using a non-permanent method, identifying location and refixing instructions, if required. Store and protect against damage.

Difficult to remove fixtures: Where removal is impractical or difficult, apply surface protection before substrate preparation and painting.

Substrate preparation – generally

General: Prepare substrates to receive the documented paint system.

Cleaning: Clean down the substrate surface. Do not cause damage to the substrate or the surroundings.

Filling: Fill cracks and holes with fillers, sealants, putties or grouting cements as appropriate for the finishing system and substrate, and sand smooth:

- Clear finish: Provide filler tinted to match the substrate.

Clear timber finish systems: Prepare the surface so that its attributes will show through the clear finish without blemishes, using methods including the following:

- Removal of bruises.
- Removal of discolourations, including staining by oil, grease and nailheads.
- Bleaching where necessary to match the timber colour sample.
- Puttying.
- Fine sanding, with the last abrasive no coarser than 220 grit, so that there are no scratches across the grain.

Treated surfaces: If surfaces have been treated with preservatives or fire retardants, make sure the paint system is compatible with the treatment and does not adversely affect its performance.

Unpainted surfaces

Standard: To AS/NZS 2311 Section 3.

Previously painted surfaces

Preparation of a substrate in good condition: To AS/NZS 2311 clause 7.4.

Preparation of a substrate in poor condition: To AS/NZS 2311 clause 7.5.

Preparation of steel substrates with protective coatings: To AS 2312.1 Section 8 and AS 1627.1.

PVC-U: Clean with methylated spirit and a nylon scouring pad.

Wallcovering: Remove wallcovering and residual paste with clean water. Patch and repair substrate to a uniform surface before painting.

Lime wash paints: Remove by brushing with warm water.

Reconditioned damaged surfaces in galvanized steel: To AS/NZS 4680 clause 8.

3.2 PAINTING SYSTEMS

General

Number of coats: Except where one or two coat systems are documented, each paint system consists of at least 3 coats.

Low VOC emitting paints

General: Provide the VOC limits as documented.

New unpainted interior surfaces

Standard: To AS/NZS 2311 Table 5.1.

New unpainted exterior surfaces

Standard: To AS/NZS 2311 Table 5.2.

Previously painted surfaces

Interior surfaces: To AS/NZS 2311 Table 8.2.

Exterior surfaces: To AS/NZS 2311 Table 8.3.

Specialised painting systems

Standard: To AS/NZS 2311 clause 5.2. Provide the following final coats:

- High build textured or membrane finishes for concrete and masonry: Paint reference number B38 using products conforming to the AS 4548 series.
- Two-pack gloss pigmented polyurethane: Paint reference number B44.
- Two-pack epoxy: Paint reference number B29.
- Two-pack water based epoxy: Paint reference number B29A.

3.3 APPLICATION

Light levels

General: ≥ 400 lux.

Substrate moisture content

Requirement: Use a moisture meter to demonstrate that the moisture content of the substrate is at or below the recommended maximum level for the type of paint and the substrate material.

Paint application

Standard: To AS/NZS 2311 Section 6.

Timing: Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Apply subsequent coats after the manufacturer's recommended drying period has elapsed.

Painting conditions

General: Unless the paint is recommended for such conditions, do not paint under the following conditions:

- Dusty conditions.
- Relative humidity: > 85%.
- Surface temperature: < 10°C or > 35°C.

Priming timber before fixing

General: Apply one coat of wood primer, and 2 coats to end grain, to the back of the following before fixing in position:

- Timber door and window frames.
- Bottoms of external doors.
- Associated trims and glazing beads.

Spraying

General: If the paint application is by spraying, use conventional or airless equipment which conforms to the following:

- Satisfactorily atomises paint being applied.
- Does not require paint to be thinned beyond the maximum amount recommended by the manufacturer.
- Does not introduce oil, water or other contaminants into the applied paint.

Paint with known health hazards: Provide personal protection, masking, ventilating and screening facilities to AS/NZS 4114.

Sanding

Clear finishes: Sand the sealer using abrasives no coarser than 320 grit without cutting through the colour. Take special care with round surfaces and edges.

Repair

Requirement: Clean off marks, paint spots and stains progressively and restore damaged surfaces to their original condition.

Maintenance painting: To AS/NZS 2311 Section 8.

Repair of galvanizing

Cleaning: For galvanized surfaces which have been subsequently welded, power tool grind to remove all surface contaminants, including rust and weld splatter. Prime affected area immediately after cleaning.

Primer: Type 2 organic zinc-rich coating for the protection of steel to AS/NZS 3750.9.

Tinting

General: Tint each coat of an opaque coating system so that each has a noticeably different tint from the preceding coat, except for top coats in systems with more than one top coat.

Interior painting schedule

ITEM		NOTES
Ceiling	- 1 coat sealer - 2 coats wash and wear Matt	
Woodwork and Trim (incl. Doors)	- Dulux professional Enviro2 acrylic seal - 2 coats Dulux Aquanamel Gloss	Note all timber is LOSP treated. Provide primer recommended for LOSP treated timber
Villaboard	- 1 coat sealer - 2 coats wash and wear – low sheen	
Plasterboard	- 1 coat sealer - 2 coats wash and wear – low sheen	
Metalwork (incl. metal clad doors & door frames)	- Dulux Metalshield all surface primer - 2 coats Aquanamel semi-gloss acrylic	
Structural steel (incl. steel columns behind aluminium roller door guides)	Primer Dulux Zincanode 402 , 75 micron DFT - 2nd coat - Duremax GPE – Min. 150micron DFT - 3rd coat – Weathermax HBR – Min. 100micron DFT	All visible steelwork to be painted. Total minimum DFT 325 micron. NOTE: paint thickness will be measured on site to ensure the required corrosion protection coating is achieved.
Internal concrete floors	Markham Aquron 1000 spray applied concrete sealant. Apply in accordance with manufacturers requirements. Aquron 1000 shall be applied as soon as the concrete can be walked on after trowelling, or no later than 12 hours after pour. After internal storage unit installation, apply Markham Cretepolish to the hallways/ corridors and lightly buff. Markham technical data sheets are attached.	.

Exterior painting schedule

ITEM		NOTES
PVC Downpipes, ventpipes, downpipe spreaders etc. (including above roof)	- 1 coat etch primer - 2 coats gloss acrylic	
FC Soffits	- 1 coat Dulux professional primer - Minimum 3 coats: Dulux Weathershield Low Sheen	
Structural steel work metal work / posts brackets, beams etc	Primer Dulux Zincanode 402, 75 micron DFT - 2nd coat - Duremax GPE – Min. 150micron DFT - 3rd coat – Weathermax HBR – Min. 100micron	All visible steelwork to be painted. Total minimum DFT 325 micron. NOTE: paint thickness will be measured on site to ensure the required corrosion protection coating is achieved.
External concrete tilt panel	In accordance with the attached Dulux DuSpec Specification sheet AU_SD11558 Prep Coat: Dulux AcraTex Tiltwash Cleaner Primer: Dulux AcraTex Acraprime Solvent Based Clear 1st Coat: Dulux Weathershield Semi Gloss 2nd Coat: Dulux Weathershield Semi Gloss	
External Concrete road pavement & concrete path sealant	- 2 coats CCS Streetscape penetrative sealer. Applied wet on wet within 20-30mins of first coat. Technical data sheet attached.	
External road and car park line marking	- two coats Dulux Roadmaster WB2, applied by conventional or airless sprayer. - Apply broadcast coarse grit between coats to achieve R10 (45 BPN) slip resistance.	-White lines generally. -yellow, blue and white to the accessible car parking bay and shared zone. - yellow line markings outside exit hinged doors to identify clear zones for escape.

Services

General: Paint all new services and equipment, including those in plant rooms, if not embedded, except chromium, anodised aluminium, GRP, PVC-U, stainless steel, non-metallic flexible materials and normally lubricated machined surfaces.

Proprietary items: Repaint only if damaged.

Doors

Drying: Maintain door leaf in the open position during drying. Do not allow door hardware or accessories to damage the door finish during the drying process.

Wet paint warning

Notices: Place in a conspicuous location and do not remove until the paint is dry.

3.4 COMPLETION

General

Protection and masking: Remove masking and protection coverings before paint has dried.

Cleaning: On completion of painting, remove splatters from adjacent finished surfaces by washing, scraping or other methods which do not scratch or damage the surface.

Reinstatement: Repair, replace or refinish any damage, including works of other trades. Touch up new damaged paintwork or misses only with the paint batch used in the original application.

Fixtures: Refix removed and undamaged fixture in the original location, make sure they are properly fitted and in proper working order.

Disposal of paint and waste materials

Requirement: Conform to requirements of the local government authority.

4 SELECTIONS

4.1 PAINTING SCHEDULES

Paint colours schedule

Substrate	Number of colours
Internal Plasterboard Walls	• White
Internal Plasterboard Ceiling	• White
Internal PWD Bathroom Door and Steel door frame	• Door Frame- Basalt • Door Leaf- Basalt
Internal concrete sealing	Refer schedule
Internal steel columns prior to installation of aluminium roller door guides.	• Surfmist
External FC Soffit	• White
External PVC Downpipes & Ventpipes	• Surfmist
External metal clad hinged doors and Steel door frame	• Internal door face – Paint Red (colour TBC) • External door face and edge capping – prefinished colorbond Basalt (not painted) • Door Frame- Paint basalt
External Concrete Tilt Panels	Three colours; • AF1- Surfmist • AF2- Basalt • AF3- Red (colour TBC)
External road and pavement line markings	Refer schedule
External concrete sealing	Refer schedule

HINGED DOOR- DOOR SCHEDULE

TYPE	DESCRIPTION	QTY	DOOR TYPE	DOOR FINISH - EXTERNAL	DOOR FINISH - INTERNAL	FRAME	FRAME FINISH	SEALS	LOCK	HARDWARE
HD-A	HINGED DOOR TYPE A - 2040 x 920/470 - EXTERNAL	8	METAL CLAD- HINGED SOLID CORE DOUBLE DOOR	PREFINISHED COLORBOND BASALT METAL FACING AND EDGE CAPPING	STANDARD ZINC METAL FACING- PAINT - COLOUR RED	STEEL DOOR FRAME	PAINT- COLORBOND BASALT	RAVEN RP99S DOOR BOTTOM SEAL, RAVEN RP37 MEETING STILE SEAL	ELECTRONIC LOCK WITH, WIRED SMART ACCESS "NOKE VOLT" ELECTRONIC DOOR CONTROL BY QUE ACCESS. LEVER HANDLE BOTH SIDES. ALWAYS FREE TO EXIT, PROVIDE A REQUEST TO EXIT PUSH BUTTON (MIN. 500mm CLEAR FROM AN INTERNAL CORNER)	2x DOOR CLOSERS, primary leaf- STRIKE SHIELD, WIRED SMART ACCESS "NOKE VOLT" ELECTRONIC DOOR CONTROL WITH CABLE TRANSFER DEVICE AND A SMART ACCESS ELECTRONIC MAGNETIC DOOR HOLD OPEN DEVICE secondary leaf 1x DOOR STOP, TOP BOLT AND BOTTOM BOLT WITH FLOOR FERRULE TUBES.
HD-B	HINGED DOOR TYPE B - 2040 x 920 - INTERNAL	11	FLUSH PANEL- HINGED SOLID CORE SINGLE DOOR	PAINT- COLORBOND BASALT	PAINT- COLORBOND BASALT	STEEL DOOR FRAME	PAINT- COLORBOND BASALT	NONE	LEVER HANDLE, PRIVACY LATCH WITH INDICATOR BOLT	DOOR CLOSER, DOOR STOP, (BRAILLE & TACTILE SIGNAGE REFER TO SPEC.)

HINGED GATE SCHEDULE

TYPE	DESCRIPTION	QTY	DOOR TYPE	DOOR FINISH	FRAME	FRAME FINISH	SEALS	LOCK	HARDWARE
HG-01	HINGED GATE 01 - FARM STREET	1	50 SHS ALUM. FRAMED GATE WITH PALISADE STYLE BATTENS, LOCK BOX AND INTERNAL LEVER HANDLE STRIKE PROTECTION. REFER TO ELEVATION DETAIL.	BLACK POWDERCOAT	75 SHS POWDERCOATED STEEL POSTS. ALL ENDS CAPPED.	BLACK POWDERCOAT	NONE	LEVER HANDLE BOTH SIDES - FREE TO EXIT, WITH WIRELESS NOKE SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	DOOR CLOSER, STRIKE SHIELD
HG-02	HINGED GATE 02 - ALEXANDRA STREET	1	50 SHS ALUM. FRAMED GATE WITH PALISADE STYLE BATTENS, LOCK BOX AND INTERNAL LEVER HANDLE STRIKE PROTECTION. REFER TO ELEVATION DETAIL.	BLACK POWDERCOAT	75 SHS POWDERCOATED STEEL POSTS. ALL ENDS CAPPED.	BLACK POWDERCOAT	NONE	LEVER HANDLE BOTH SIDES - FREE TO EXIT, WITH WIRELESS NOKE SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	DOOR CLOSER, STRIKE SHIELD

ROLLER DOOR SCHEDULE

TYPE	DESCRIPTION	QTY	ROLLER DOOR TYPE	DOOR FINISH	SEALS	LOCK	HARDWARE
RD-A	ROLLER DOOR TYPE A - 2800 WIDE X 2400 HIGH - EXTERNAL	63	B&D ROLL-A-DOOR SERIES 1 HIGH WIND DOOR WITH REGION C WINDLOCK GUIDE	COLORBOND BASALT	ALUMINIUM BOTTOM RAIL WITH WEATHER SEAL	ELECTRONIC LOCK WITH, WIRED "NOKE VOLT" SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	"D" HANDLE TO BOTTOM RAIL, PULL CHORD WITH BALL SUSPENDED TO 2m
RD-B	ROLLER DOOR TYPE B - 5000 WIDE X 2700 HIGH - EXTERNAL	17	B&D ROLL-A-DOOR SERIES 1 HIGH WIND DOOR WITH REGION C WINDLOCK GUIDE	COLORBOND BASALT	ALUMINIUM BOTTOM RAIL WITH WEATHER SEAL	ELECTRONIC LOCK WITH, WIRED "NOKE VOLT" SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	"D" HANDLE TO BOTTOM RAIL, PULL CHORD WITH BALL SUSPENDED TO 2m
RD-C	ROLLER DOOR TYPE C - 1000 WIDE X 2400 HIGH - INTERNAL	26	B&D ROLL-A-DOOR SERIES 1 WITH STANDARD GUIDE (INTERNAL ROLLER DOOR)	COLORBOND BASALT	ALUMINIUM BOTTOM RAIL WITH WEATHER SEAL	ELECTRONIC LOCK WITH, WIRED "NOKE VOLT" SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	"D" HANDLE TO BOTTOM RAIL, PULL CHORD WITH BALL SUSPENDED TO 2m
RD-D	ROLLER DOOR TYPE D - 2500 WIDE X 2400 HIGH - INTERNAL	7	B&D ROLL-A-DOOR SERIES 1 WITH STANDARD GUIDE (INTERNAL ROLLER DOOR)	COLORBOND BASALT	ALUMINIUM BOTTOM RAIL WITH WEATHER SEAL	ELECTRONIC LOCK WITH, WIRED "NOKE VOLT" SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	"D" HANDLE TO BOTTOM RAIL, PULL CHORD WITH BALL SUSPENDED TO 2m
RD-E	ROLLER DOOR TYPE E - 2600 WIDE X 2480 HIGH - EXTERNAL	5	B&D ROLL-A-DOOR SERIES 1 HIGH WIND DOOR WITH REGION C WINDLOCK GUIDE	COLORBOND BASALT	ALUMINIUM BOTTOM RAIL WITH WEATHER SEAL	ELECTRONIC LOCK WITH, WIRED "NOKE VOLT" SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	"D" HANDLE TO BOTTOM RAIL, PULL CHORD WITH BALL SUSPENDED TO 2m
RD-F	ROLLER DOOR TYPE F - 2500 WIDE X 2480 HIGH - EXTERNAL	1	B&D ROLL-A-DOOR SERIES 1 HIGH WIND DOOR WITH REGION C WINDLOCK GUIDE	COLORBOND BASALT	ALUMINIUM BOTTOM RAIL WITH WEATHER SEAL	ELECTRONIC LOCK WITH, WIRED "NOKE VOLT" SMART DOOR ACCESS SYSTEM, BY QUE ACCESS	"D" HANDLE TO BOTTOM RAIL, PULL CHORD WITH BALL SUSPENDED TO 2m

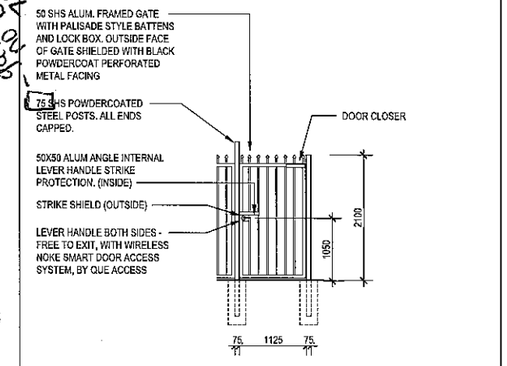
NOTE:
- SCHEDULED ROLLER DOOR WIDTHS EQUALS OPENING WIDTH.
- SCHEDULED ROLLER DOOR HEIGHTS ARE MEASURED FROM FLOOR LEVEL AND DOES NOT INCLUDE THE ADDITIONAL EXTERNAL DOOR THRESHOLD SETDOWN HEIGHT.

match paint specifications (basalt)

These are all the items

specific sizes of each item

standard door thickness applies - in specifications 0453 doors and access panels



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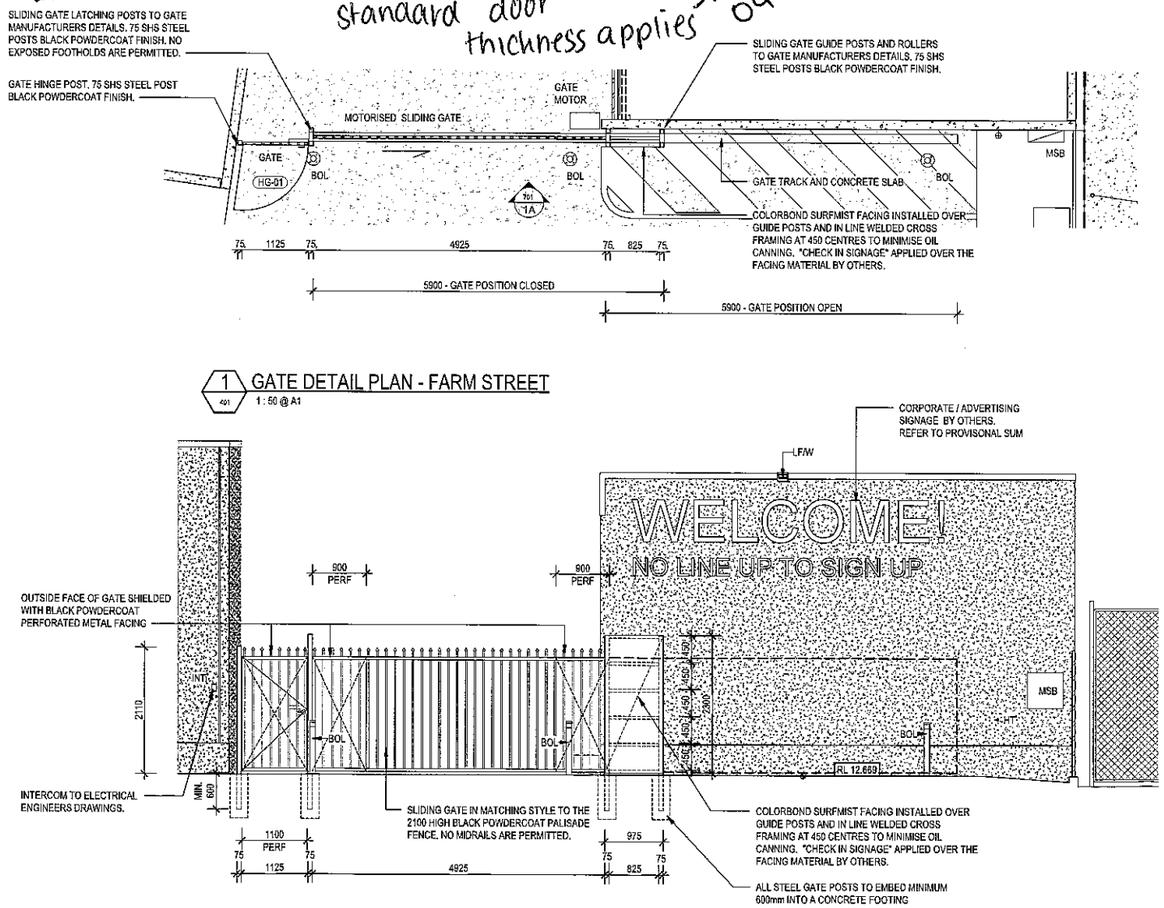

1 (401) GATE DETAIL PLAN - FARM STREET
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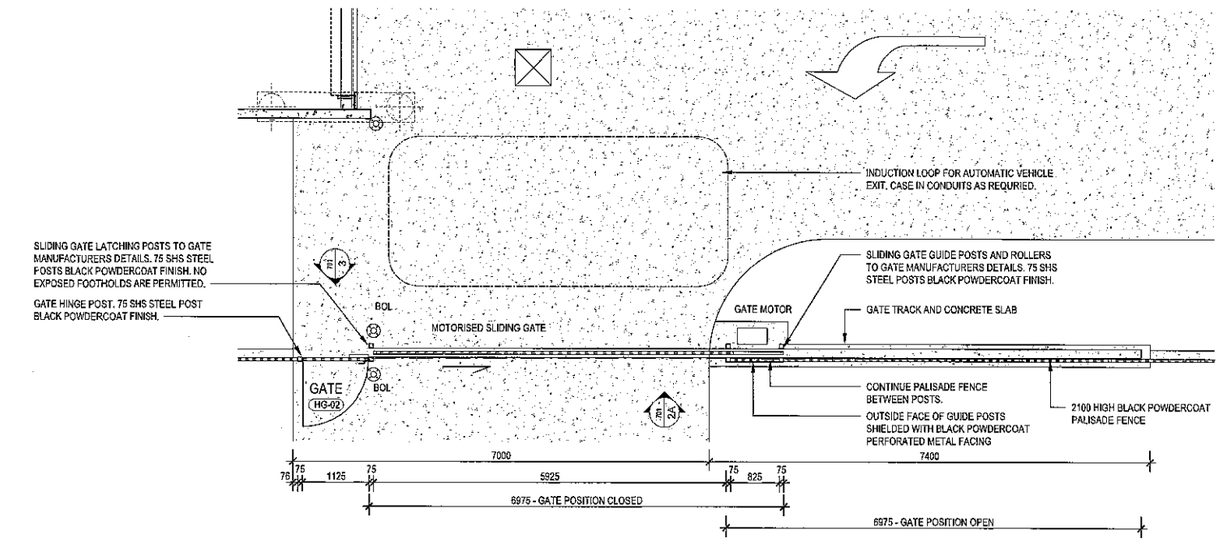

1A (401) GATE ELEVATION - FARM STREET
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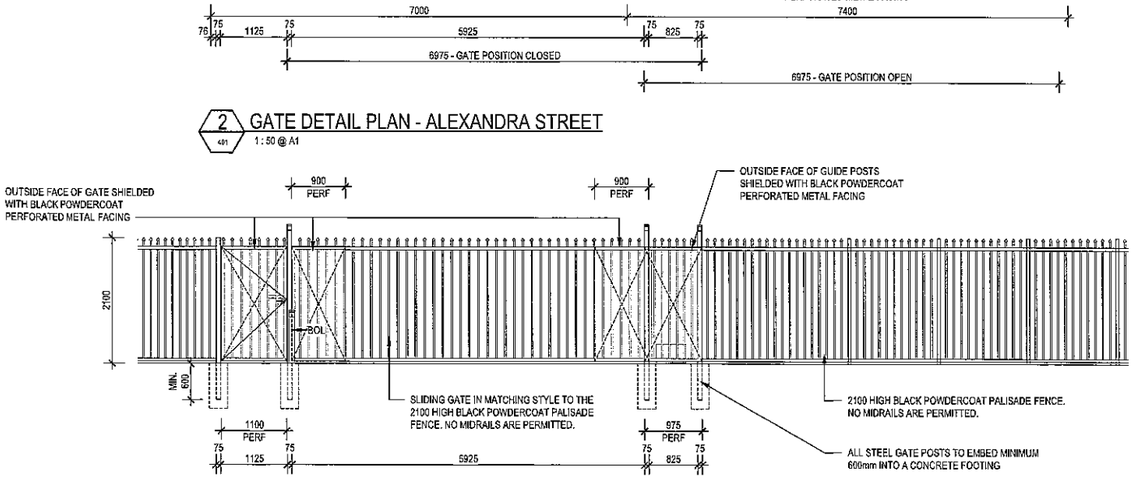

2 (401) GATE DETAIL PLAN - ALEXANDRA STREET
1 : 50 @ A1

2A (701) GATE ELEVATION - ALEXANDRA STREET
1 : 50 @ A1

GENERAL NOTES

- CONTRACTOR TO CONFIRM ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK.
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LEGEND

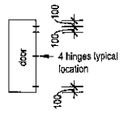
(E)	DENOTES EXISTING
BOL	BOLLARD, REFER 0191 SUNDRY ITEMS.
HT	HOSE TAP
INT	INTERCOM
LFW	LIGHT FITTING/ WALL MOUNTED, REFER ELEC DWGS
MSB	MAIN SWITCHBOARD, REFER ELEC DWGS

DOOR NOTES:

- REFER TO PLANS FOR DOOR SWING DIRECTION
- ALL LEVER HANDLE DOOR FURNITURE TO BE 1050mm AFL

HINGES:

- ALL HINGED DOORS TO HAVE 4No. 100mm HINGES.



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TENDER ISSUE

REV.	DESCRIPTION	ISSUED BY	DATE
P1	PRELIMINARY ISSUE	KR	28/06/2022
P2	PRELIMINARY ISSUE	KR	21/07/2022
P3	PRELIMINARY ISSUE	KR	03/08/2022
T1	TENDER ISSUE	KR	18/08/2022

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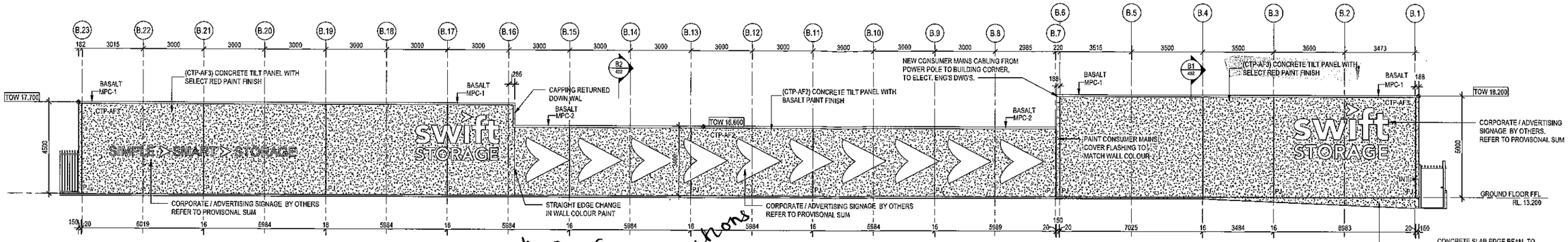
client: SS PROPERTY TRUST

project: SWIFT STORAGE - FARM STREET KAWANA ROCKHAMPTON

drawing title: DOOR & GATE SCHEDULE

location: 146 - 152 FARM STREET KAWANA QLD 4701

job no: 2256 | drawing no: 701 | rev: T1



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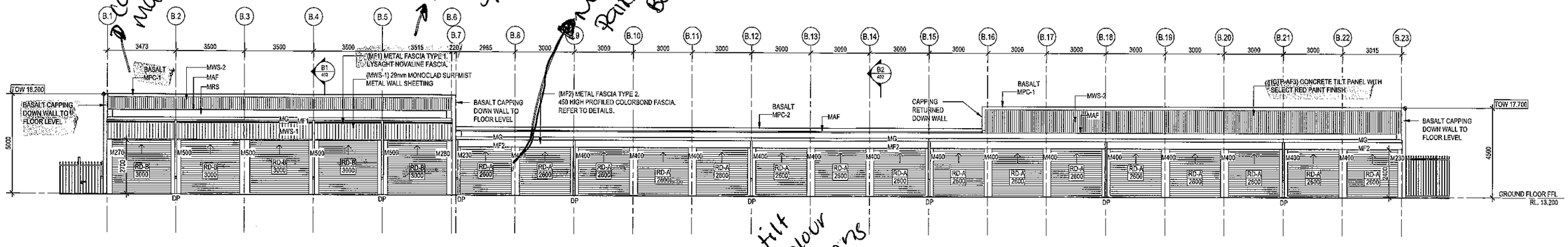

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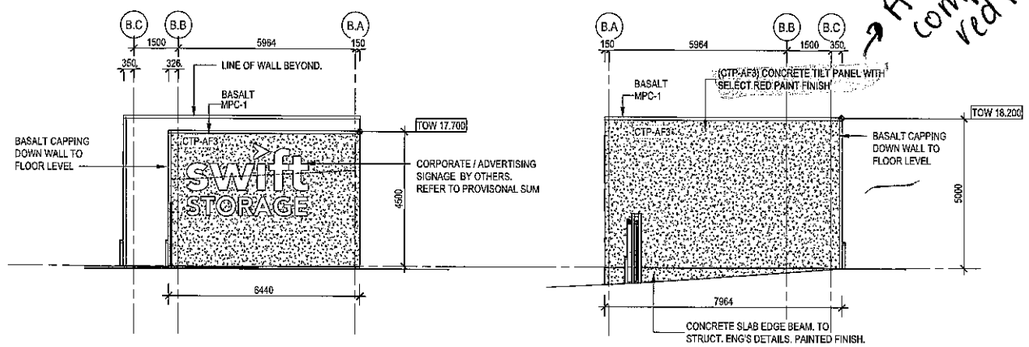

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4 BUILDING B - WEST ELEVATION
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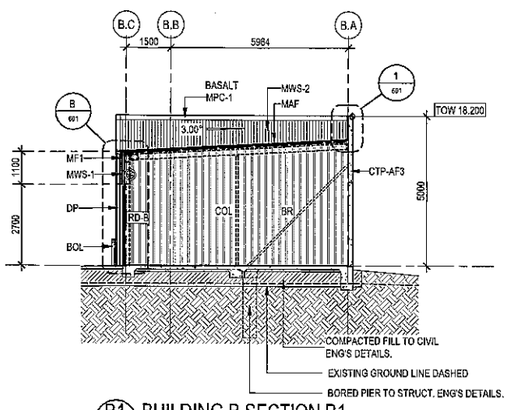

B1 BUILDING B SECTION B1
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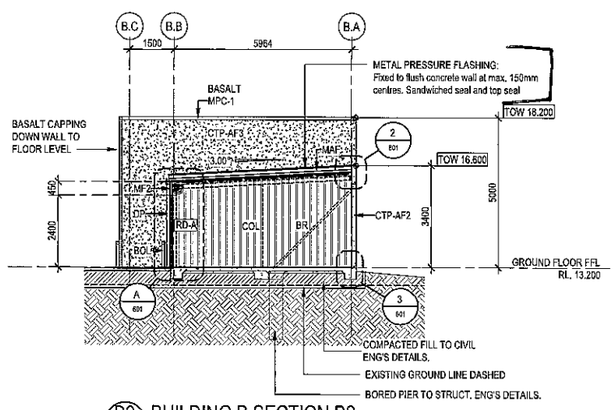

B2 BUILDING B SECTION B2
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LEGEND
(E) DENOTES EXISTING

BOL	BOLLARD, REFER 0191 SUNDRY ITEMS.
BR	STEEL BRACING. TO STRUCT. ENG'S DETAILS
COL	COLUMN- TO ENGINEERS DWG'S
CTP-AF2	CONCRETE TILT-UP PANEL- TO ENGINEERS DWG'S. APPLIED BASALT PAINT FINISH.
CTP-AF3	CONCRETE TILT-UP PANEL- TO ENGINEERS DWG'S. APPLIED RED PAINT FINISH.
DP	DOWNPIPE, REFER HYDRA DRAWINGS.
INT	INTERCOM
M230	230 MULLION- TO ENGINEERS DWG'S
M270	270 MULLION- TO ENGINEERS DWG'S
M280	280 MULLION- TO ENGINEERS DWG'S
M400	400 MULLION- TO ENGINEERS DWG'S
M500	500 MULLION- TO ENGINEERS DWG'S
MAF	METAL APRON FLASHING, REFER 0421 ROOFING
MF1	METAL FASCIA TYPE 1- LYSAGHT NOVALINE
MF2	METAL FASCIA TYPE 2- 450 HIGH PROFILED COLORBOND
MG	METAL GUTTER- SLOTTED LYSAGHT EMLINE
MPC-1	METAL PARAPET CAPPING-TYPE 1, REFER 0421 ROOFING
MPC-2	METAL PARAPET CAPPING-TYPE 2, REFER 0421 ROOFING
MRS	METAL ROOF SHEETING - MONOCLAD
MWS-1	METAL WALL SHEETING- TYPE 1-29mm MONOCLAD SURFMIST
MWS-2	METAL WALL SHEETING- TYPE 2-16mm CORRUGATED SURFMIST
PJ	TILT PANEL JOINT- TO ENGINEERS DWG'S

scale @A1: 1 : 100 scale @A3: 1:200
0 5m
1:100

TENDER ISSUE

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client: SS PROPERTY TRUST

project: SWIFT STORAGE - FARM STREET KAWANA ROCKHAMPTON

drawing title: ELEVATIONS & SECTIONS - BUILDING B

location: 146 - 152 FARM STREET KAWANA QLD 4701

job no: 2256 | drawing no: 402 | rev: T1

0802 HYDRAULIC DESIGN AND INSTALL

1 HYDRAULIC SYSTEMS

1.1 RESPONSIBILITIES

General

Requirement: Design systems and provide hydraulic services, as documented.

1.2 DESIGN

Design for durability and maintainability

Design for durability: Develop the design so the systems achieve the documented performance, reliability, service life, energy efficiency and safety requirements, and are easily maintainable.

Access for maintenance: Develop the design so the systems conform to **ACCESS FOR MAINTENANCE** in *0171 General requirements*.

Operating environment

Requirement: Provide equipment suitable for the environment in which it operates.

Hydraulic system design

Requirement: Provide engineering design that:

- Maximises the functionality, performance, safety, flexibility and reliability of the hydraulic services.
- Is technically sound.
- Can be constructed using currently accepted methods.
- That provide the lowest combined owning and operating cost over the design life of the systems.

Water heaters: Size water heaters to adequately and efficiently serve the functions documented.

Authority submissions: Make submissions (including notices) to authorities relating to the works.

Design life

Requirement: To *0171 General requirements*.

Design life:

- All other components and systems: 25 years.

Energy efficiency

Requirement: To BCA J5.

Seismic restraint

Requirement: To *0171 General requirements*, **SEISMIC RESTRAINT OF NON-STRUCTURAL COMPONENTS**.

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.
- *0223 Service trenching*.
- *042 Roofing* subgroup of worksections for roof plumbing.

1.4 STANDARDS

General

Plumbing and drainage: To AS/NZS 3500.0, AS/NZS 3500.1, AS/NZS 3500.2, AS/NZS 3500.3, AS/NZS 3500.4 and the PCA.

Copper pipe and fittings-installation and commissioning: To AS 4809.

Gas: To AS/NZS 5601.1.

Microbial control: To AS/NZS 3666.1, AS/NZS 3666.2 and the recommendations of SA/SNZ HB 32.

Authorised products

Authorised products: Listed in the WaterMark Product Database, unless otherwise required by the Network Utility Operator.

Labelling
Water efficiency labelling: Provide products conforming to and labelled to the Water Efficiency Labelling Scheme (WELS).

1.5 INTERPRETATION

Definitions
General: For the purposes of this worksection the following definitions apply:

- Hot-dip galvanized: Zinc coated to AS/NZS 4680 after fabrication with coating thickness and mass to AS/NZS 4680 Table 1.
- Network Utility Operator: The entity undertaking the piped distribution of drinking water or natural gas for supply or is the operator of a sewerage system or external stormwater drainage system.

1.6 SUBMISSIONS

Authority approvals
Authority submissions: Submit evidence of approval (including notices) from authorities relating to the works.

Certification
Completion: Submit certificate as verification that the design and installation conforms to all contractual and statutory requirements.

Operation and maintenance manuals
Requirement: Conform to *0171 General requirements*, **OPERATION AND MAINTENANCE MANUALS.**

Products and materials
Data: Submit technical data for all items of plant and equipment, including the following:

- Assumptions.
- Calculations.
- Model name, designation and number.
- Capacity of all system elements.
- Country of origin and manufacture.
- Materials used in the construction.
- Size, including required clearances for installation.
- Certification of conformance to the applicable code or standard.
- Technical data schedules corresponding to the equipment schedules in the contract documents. If there is a discrepancy between the two, substantiate the change.
- Manufacturers' technical literature.
- Type test reports.

Subcontractors
General: Submit names, contact details, licence numbers and type of licence of proposed suppliers and installers.

1.7 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:

- Excavated surfaces.
- Concealed or underground services.

1.8 INSTALLATION

Connections to Network Utility Operator mains
General: Excavate to locate and expose the connection points and connect to the Network Utility Operator mains. On completion, backfill and compact the excavation and reinstate surfaces and elements which have been disturbed such as roads, pavements, kerbs, footpaths and nature strips to *0223 Service trenching*.

Service trenching
Requirement: To *0223 Service trenching*.

Accessories

General: Provide the accessories and fittings necessary for the proper functioning of the systems, including taps, valves, outlets, pressure and temperature control devices, strainers, gauges and pumps.

Isolating valves: In addition to valves required to meet statutory requirements, provide valves to allow safe isolation of parts of the system, with minimum inconvenience to the building occupants, in event of leaks or maintenance.

Movement compensation

Compensation: Arrange piping and wiring crossing building expansion joints so that moment in the joint does not cause damage.

1.9 PIPING

Finishes

Exposed piping: Finish exposed piping, including fittings and supports, as follows:

- In internal locations such as toilet and kitchen areas: Chrome plate copper piping to AS 1192 service condition 2, bright.
- Externally and steel piping and iron fittings internally: Paint.
- In concealed but accessible spaces (including cupboards and non-habitable enclosed spaces): Leave copper and plastic unpainted except for identification marking. Prime steel piping and iron fittings.

Valves: Finish valves to match connected piping.

2 SANITARY FIXTURES

2.1 STANDARDS

General

Design for access and mobility: To AS 1428.1 and AS 1428.2.

3 TAPWARE

3.1 STANDARDS

General

Design for access and mobility: To AS 1428.1 and AS 1428.2.

3.2 TAPS

General

Material: Brass or bronze.

Taps other than hose taps: Provide anti-splash aerator nozzles.

Construction: Provide the following:

- Ceramic disk valve.
- O-ring seals.
- Vandal resistant handle.
- Vandal resistant aerator nozzles.

Hose taps

Construction: Provide hose taps as follows:

- Type: DN20 diameter brass finish hose tap.
- Riser: DN20 diameter copper riser with a back plated elbow.
- Heads: Provide anti-vandal heads where documented.

Backflow prevention: Provide vacuum breaker backflow prevention device and isolation valve.

Installation: Conform to the following:

- Fix hose tap 450 mm above the floor.
- Install against a masonry or concrete wall. Fix the back plated elbow to the wall with 3, 20 mm brass screws, screwed into 20 x 6 mm expanding plastic plugs.

Taps and valve heads

Metal heads and handles: Provide brass fittings or a suitable bush to prevent electrolysis and growth.

Plastic heads and handles: Provide compact fittings designed to prevent fracture and exposure of jagged or rough edges.

Vandal-proof heads: Provide vandal-proof or anti-tampering devices for the designated types.

4 STORMWATER – BUILDINGS

4.1 DESIGN

General

Requirement: Design the roof drainage system, including sumps, rainwater outlets, overflow outlets and downpipes.

Roof drainage system design, application and calculations

Standards: Conform to the following:

- AS/NZS 3500.3.
- National Construction Code Series Volume 3: Plumbing Code of Australia (PCA).

Handbooks: Conform to the recommendations of:

- SA HB 39.

Rainfall intensity for design:

- Eaves gutters: 1 in 20 years storm.

Methods of calculation

Requirement: Manual or software that employs the data and methods in the applicable standard.

Design documentation

Drawings: Show the following on the drawings:

- General layout of the system.
- Calculated capacities.
- Details of components including internal and external metal gutters, downpipes, sumps and rainheads.
- Spatial relationship to other services and building structure.
- Means of accommodating thermal and building movement.
- Details of penetrations.
- Coordination and interfaces with other trades.
- Connection points to site stormwater system.

4.2 STORMWATER DRAINS

Location

General: Provide stormwater drains to connect downpipes, surface drains, subsoil drains and drainage pits to the outlet point or point of connection. Make sure location of piping will not interfere with other services and building elements not yet installed or built. Subject to the preceding and documented layouts, follow the most direct route with the least number of changes in direction.

Downpipe connections

Termination: Select from the following:

- Termination over pit: Stop downpipe 100 mm above the ground level and discharged into grated pit. Do not connect directly into stormwater pipes.
- Direct connection: Bring downpipes out from the building at a suitable angle and level so the downpipe enters the underground drain at the finished level of the surrounding area. Turn up branch pipelines with bends to meet the downpipe, finishing horizontally 50 mm (nominal) above finished ground or pavement level. Seal joints between downpipes and drains.

Laying

General: Lay in straight lines between changes in direction or grade with sockets pointing up hill. If other pipes are adjacent, set each pipe true to line and complete each joint before laying the next pipe. If work is not continuous, cap open ends to prevent entry of foreign matter.

Pipe underlay (bedding)

General: Bed piping on a continuous underlay of bedding material, minimum 75 mm and maximum 150 mm thick after compaction. Grade the underlay evenly to the gradient of the pipeline.

Chases: If required, form chases to prevent projections such as sockets and flanges from bearing on the trench bottom or underlay.

Pipe surrounds

General: Place the material in the pipe surround in layers, maximum 200 mm loose thickness, and compact without damaging or displacing the piping.

Anchor blocks

General: If required to restrain lateral and axial movement of the stormwater pipes, provide reinforced concrete anchor blocks at junctions and changes of grade or direction conforming to AS/NZS 3500.3 clause 7.9.

Thermal movement

General: Arrange piping to accommodate thermal expansion. Provide proprietary expansion joints in copper and plastic pipes where pipe flexibility does not allow movement. Make sure movement does not strain branch connections.

4.3 SUBSOIL DRAINS

General

Requirement: Provide subsoil drains to intercept groundwater seepage and prevent water build-up behind walls and under floors and pavements. Connect subsoil drains to surface drains or to the stormwater drainage system as applicable.

Trench width: Minimum 450 mm.

Trench floor: Grade the trench floor evenly to the gradient of the pipeline. If the trench floor is rock, correct any irregularities with compacted bedding material.

Pipe depth: Provide the following minimum clear depths, measured to the crown of the pipe, below the following elements:

- Formation level of the pavement, kerb or channel: 100 mm.
- Average gradient of the bottom of footings: 100 mm.
- Finished surface of unpaved ground: 450 mm.

Jointing

General: At junctions of subsoil pipes provide tees, couplings or adaptors to AS 2439.1.

Pipe underlay (bedding)

General: Bed piping on a continuous underlay of bedding material, at least 75 mm thick after compaction. Lay the pipe with one line of perforations at the bottom.

Bedding thickness: Minimum 75 mm, maximum 150 mm, after compaction.

Chases: If necessary, form chases to prevent projections such as sockets and flanges from bearing on the trench bottom or underlay.

Pipe surrounds

General: Place the material in the pipe surround in layers, of a maximum 200 mm loose thickness, and compact without damaging or displacing the piping.

Depth of overlay:

- To the underside of the bases of overlying structures such as pavements, slabs and channels.
- To within 150 mm of the finished surface of unpaved or landscaped areas.

Geotextile

Requirement: Provide polymeric fabric formed from plastic yarn composed of at least 85% by weight propylene, ethylene amide or vinylidene chloride and containing stabilisers or inhibitors which provide resistance to deterioration due to ultraviolet light.

Marking: To AS 3705.

Protection: Provide heavy duty protective covering. Store clear of the ground and out of direct sunlight. During installation, do not expose the filter fabric to sunlight for more than 14 days.

Filter socks

General: Provide permeable polyester socks, capable of retaining particles 0.25 mm and greater. Securely fit or join the sock at each joint.

4.4 PITS

Finish to in situ exposed surfaces
General: Provide a smooth, seamless finish, using steel trowelled render or concrete cast in steel forms.

Location: At junctions, changes of gradient and changes of direction of stormwater drains.

Metal access covers and grates
Standard: To AS 3996.

Cover levels: Top of cover or grate, including frame:

- In paved areas: Flush with the paving surface.
- In landscaped areas: 25 mm above finished surface.
- Gratings taking surface water runoff: Locate to receive runoff without ponding.

4.5 TESTING

Pre-completion tests
General: Before backfilling or concealing, carry out the following tests to AS/NZS 3500.3 Section 9:

- Downpipes within buildings: Air or water pressure test.
- Site stormwater drains and main internal drains: Air or water pressure test.
- Rising mains from pumped discharge: Water pressure test .

Leaks: If leaks are found, rectify and re-test.

4.6 COMPLETION

Cleaning
General: Clean and flush the whole installation.

5 WASTEWATER

5.1 PRODUCTS

Material selection
Environmental conditions: Provide materials capable of withstanding the operational environmental conditions. Select and install to manufacturers' recommendations.

Dissimilar materials: Connect dissimilar materials using adapters to Network Utility Operator requirements and manufacturer's recommendations.

Rubber banded sleeves: Do not provide.

5.2 FLOOR WASTES

General
Requirement: Provide each floor waste with a trap constructed of the material specified for the sanitary plumbing system. Fit off each riser with a chromium plated brass grating finished flush with the surrounding floor finish. If the floor surfaces are vinyl, provide gratings and outlets designed to permit the vinyl to be turned down into the outlet and the grating clamped down onto the surface.

Waterproofing: Make sure all penetrations through floors and finishes up to the edge of grates are fully waterproof.

Priming: Provide priming of floor wastes. If floor wastes cannot be primed via fixture, provide priming valves to maintain the water seal to AS/NZS 3500.2.

5.3 SANITARY PLUMBING

Location
General: Verify location and invert level of piping before commencing installation.

Layout: Arrange piping in conformance with the following:

- Avoid interference with other services and building elements.
- Follow the most direct route with the least number of changes of direction.

Ducts: If installed in ducts, locate and fix stacks, wastes and pipes independently of other services. Arrange so they are easily accessible and removable throughout their entire length.

Order of work

Requirement: Start drain laying at the downstream end of the drainage system (at the connection point to site infrastructure), not the upstream end. Confirm invert levels with building elements before starting to lay drains.

Discharge from air handling systems

Trays, sumps and plumbing: To AS/NZS 3666.1.

Expansion joints

Location: Provide expansion joints where pipes cross seismic or movement joints in the building, and from the building to below ground outside the building.

Inspection openings

Location: Provide inspection openings at each upstream end of branch and main drains, change of direction, entry to stacks and to AS/NZS 3500.2. Provide inspection openings complete with access riser brought up to finished floor levels. If access risers are located in tiled floor areas or surfaces with similar finishes, provide anti-slip inspection covers with neoprene gas tight sealing rings.

Size: Provide inspection openings that allow full access to the waste pipe.

Vertical stacks: Provide a removable access gate opening of size equal to the diameter of the pipe approximately 600 mm above finished floor level. If the stack is concealed behind a wall or duct, provide a hinged access panel in the wall or duct with finish to match the surface in which it is installed.

Thermal movement

General: Arrange piping to accommodate thermal expansion. Provide proprietary expansion joints in copper and plastic pipes where pipe flexibility does not allow for movement. Make sure that movement does not strain branch connections.

Vent pipes

Requirement: Provide upstream and downstream vents to AS/NZS 3500.2.

Location: Locate vents at least 6 m from any air intake or grille and at least 3 m from exhaust discharges.

Staying to roof: If fixings for stays penetrate the roof covering, seal the penetrations and make watertight.

Terminations: Provide vent cowls of the same material as the vent pipe.

Wet area floors

General: Where drainage connections pass through wet area floors, terminate 4 mm below the substrate surface.

5.4 SANITARY DRAINAGE

Laying

General: Lay in straight lines between changes in direction or grade with sockets pointing up hill. If other pipes are adjacent, set each pipe true to line and complete each joint before laying the next pipe. If work is not continuous, cap open ends to prevent entry of foreign matter.

5.5 PIPING

Supports

Adverse soil conditions under structures: If soil under structures is unable to support piping without movement, suspend piping from the structure above on type 316 stainless steel hangers, fasteners and saddles at 600 mm maximum centres. Backfill with non-compacted light weight material and size supports to carry the load of the piping and backfill and conform to the **Pipeline tolerances table.** Cover metal components with petroleum based mastic then wrap with petroleum based tape to provide a continuous barrier to prevent ingress of water. Provide 50% minimum overlap of tape.

Differential movement: If the geotechnical site investigation report predicts differential movements between buildings and the ground, conform to **Differential movement** in *0171 General requirements.*

Pipeline tolerances table

	Permissible angular deviation from alignment	**Permissible displacement from alignment**
Horizontal	1:300	15 mm
Vertical	1:500	5 mm

5.6 PITS

Installation
General: Prepare foundation, install pit and connect pipes, to manufacturer's recommendations.
Location: At junctions, changes of gradient and changes of direction of stormwater drains.
Metal access covers and grates
Standard: To AS 3996.
Cover levels: Top of cover or grate, including frame:
- In paved areas: Flush with the paving surface.
- In landscaped areas: 25 mm above finished surface.
- Gratings taking surface water runoff: Locate to receive runoff without ponding.

5.7 TESTING

Pre-completion tests
Requirement: Test to AS/NZS 3500.2 Section 15, before backfilling or concealing.
Leaks: If leaks are found, rectify and re-test.

5.8 COMPLETION

Cleaning
General: On completion clean and flush the whole installation.

6 COLD WATER

6.1 DESIGN

General
Requirement: Design the cold water systems.
Design parameters
Standards: Conform to the following:
- AS/NZS 3500.1.
- National Construction Code Series Volume 3: Plumbing Code of Australia (PCA).
- Pressure and velocity: Design drinking water and recycled water systems to achieve the following:
  - Minimum outlet pressure at any point: 250 kPa.
  - Maximum outlet pressure at any point: 500 kPa.
  - Maximum velocity at any point: 1.6 m/s.

6.2 PRODUCTS

Backflow prevention devices
Standard: To AS/NZS 2845.1 and AS 2845.2.
Pressure drop: Select for lowest pressure drop compatible with the required functions.
Water meters
Standard: To AS 3565.4.
Installation: To the requirements of the Network Utility Operator.

6.3 PIPING

Mains connection
Requirement: Connect the cold water supply system to the Network Utility Operator's main through a stop valve and meter.
Cold water system: Provide the cold water supply system, installed from the meter to the draw-off points or connections to other services.
Heated water system: Provide the heated water system, installed from the cold water connection points to the draw-off points or connections to other services.
Fittings and accessories
General: Provide the fittings required for the proper functioning of the water supply system, including taps, valves, backflow prevention devices, pressure and temperature control devices, strainers, gauges and automatic controls and alarms.

Provision for dismantling: Arrange piping by the provision of unions or similar so that valves, taps and other maintainable components can be removed for maintenance without disturbing or cutting adjacent piping.

Press-fit fittings

Type: Permanent and inseparable after pressing.

Fitting material: Copper, stainless steel or gunmetal.

Leak path: Incorporate a positive leak path in the form of a channel in the metallic body of the fitting that indicates leakage when dry pressure tested is over the range 2.2 kPa to 300 kPa or wet pressure tested is over the range 100 kPa to 650 kPa.

Seals: EPDM suitable for solar applications and incorporating a cylindrical pipe guide in the front of the seal.

Pipes under pressure embedded in concrete

Prohibition: Do not embed or cast water service pipes into concrete structures.

Sleeves

Requirement: Provide sleeves at penetrations to *0171 General requirements*.

Provision for expansion

Requirement: Provide for thermal expansion of piping to AS/NZS 3500.4 clause 4.12.3 using either:

- Inherent flexibility of the piping.
- Proprietary expansion compensators consisting of a corrugated stainless flexible hose inside a reinforced metallic braid and fitted with stainless steel flanges. Install in bending mode and provide guides and anchors to manufacturer's recommendations.

Expansion loops: If expansion loops are used, install isolation valves either side of the expansion loops within ceiling spaces and riser ducts.

Venting

Location: Provide 15 mm minimum size air release vents at the following locations:

- High points of the system.
- Sections of the piping in which air may collect.
- Upstream from each item of heat exchange equipment.

Risers: Provide a 150 mm high riser set vertically from the pipe and fabricated from the same diameter and material as the pipe. Provide an automatic air vent at the top of the riser.

6.4 BACKFLOW PREVENTION

Location

Requirement: Provide backflow prevention devices in the following locations:

- On main incoming domestic cold water supplies, downstream of meters.
- On all mechanical plant, upstream of the plant.
- On all irrigation systems.

In other locations required by the Network Utility Operator and AS/NZS 3500.1.

Installation

Location: Arrange to be readily accessible and easily removal.

External valve locations: Protect from damage and vandalism.

Arrangement: Provide each backflow prevention device with the following:

- Provide unions if ≤ DN50, flanges for larger sizes.
- Isolating valves upstream and downstream of each backflow prevention devices.
- Dual check valves to AS/NZS 3500.1 clause 4.6.2.3.
- Line strainer upstream of the each backflow prevention device.
- Tundish and drain with connection to waste drain to AS/NZS 3500.1.

Registration: Register valves to Network Utility Operator requirements.

In-wall mounted backflow prevention valves

Arrangement: Provide pre-plumbed proprietary high hazard valve assemblies as follows:

- Dual hot and cold valve trains.
- Flush mount, lockable, recessed Type 304 stainless steel cabinet.
- Slide-in front panel.

- DN50 waste connection.

Vacuum breaker valves

Requirement: Provide vacuum breaker valves where required to prevent cross-connection of the cold water service.

6.5 PIPING INSULATION

General

Requirement: Insulate the following:

- Non-chrome plated heated water piping, fittings and valves.
- Non-chrome plated cold water piping in spaces subject to condensation.
- Cold water piping subject to freezing.

Application: Fit insulation tightly to piping surfaces without gaps. Close butt ends of insulation sections. Minimise number of joints. If the insulation is in half-sections, make only half-circumferential joints at any one place. Seal longitudinal seams in foil laminate and fix insulation at maximum 500 mm centres with polypropylene, zinc-coated steel or aluminium straps.

Unions and other items requiring service: Install the insulation so that it is readily removable.

Fittings: Provide insulation with insulation R-Value at least equal to that of the adjacent piping insulation.

6.6 MARKING

Notice plate

General: Provide a notice plate containing condensed emergency instructions, legibly printed or engraved on durable material resistant to defacement, at least 3 mm thick or mounted on board at least 3 mm thick, permanently fixed in a convenient position at the control valves.

Buried services

Requirement: Provide a detectable marker tape with trace wire to identify the route of buried piping.

Marker tape: Provide a minimum 100 mm durable plastic in colour to AS 1345 continuously printed with the words DANGER – BURIED DRINKING WATER SERVICE BELOW.

Location: Lay in backfill 150 mm above the pipe.

Trace wire: Terminate with 1000 mm coil in a readily accessible location. Tag to match the record drawings.

6.7 PLANTER IRRIGATION

General

Location: Where documented, provide a DN20 hose tap within each planter area. Also provide a capped DN20 diameter point for future connection of irrigation system adjacent to each hose tap.

Backflow prevention: Provide backflow prevention devices to AS/NZS 3500.1.

6.8 TESTING

Pre-completion tests

Pressure tests: Before insulation is applied to joints, pressure test piping to AS/NZS 3500.1 and AS/NZS 3500.4 as appropriate.

Equipment: Before testing, disconnect any equipment not rated for the test pressure.

Leaks: If found, rectify and re-test.

Cross connections: Isolate systems individually and check for cross connections.

Backflow prevention: To AS/NZS 3500.1.

Tapware: Check for leaks.

Completion test

General: Provide a full operational test to verify conformance.

6.9 COMPLETION

Commissioning

Strainers: Remove, clean and replace strainer baskets.

Cleaning and disinfection: To AS/NZS 3500.1 Appendix I.

Cold water systems: Test and commission to AS/NZS 3500.1 Section 18.

Heated water systems: Test and commission to AS/NZS 3500.4 Section 9.

Testable backflow prevention devices: Test and commission to AS/NZS 2845.3 by a licensed plumber with backflow device accreditation. Tag and certify to the requirements of the Network Utility Operator.

Charging

Completion: On completion of installation, commissioning, testing and disinfection, fill the system with water, turn on control and isolating valves and the energy supply and leave the water supply system in full operational condition.

7 HYDRAULIC MAINTENANCE

7.1 GENERAL

Objective

Requirement: Maintain the hydraulic systems for the documented maintenance period so that the performance, reliability, service life, energy efficiency and safety of the system is equal to or better than that at the beginning of the maintenance period, in parallel with and including:

- Periodic and statutory maintenance, cleaning and replacement of consumables.
- Emergency repairs.

Maintenance period: To *0171 General requirements.*

7.2 MAINTENANCE

Cold and heated water

Maintenance of tanks and piping for drinking water: To AS/NZS 3500.1 and AS/NZS 3500.4.

Ball float valves: Check and adjust for no overflow.

Leaks: Inspect cold and heated water systems at least annually for the following:

- Leaks, including leaks from cisterns.
- Other defects.
- Safe condition.
- Conformance to the PCA and Network Utility Operator requirements.

Leaks and defects: Report if found and rectify.

Strainers: Inspect and clean at least annually.

8 SELECTIONS

Sanitary fixtures schedule

Note: Refer also to hydraulic drawings for other fixtures such as water valves and hose cocks.

Fixture code	Fixture type	Selection	Accessories & Tapware	Location	Qty.
HB	Hand Basin	Caroma Opal 720 wall basin right hand shelf with shroud and one tap hole	-Caroma Skandic care mixer - Cold water only. - matching shroud (code 632601) to completely conceal pipe fittings	PWD	1
WC	WC	Caroma Cosmo Care Toilet suite with Caravelle care seat (sorrento blue) and Caroma Backrest	Cistern cock Grab rails: refer sundry items in specification.	PWD	1

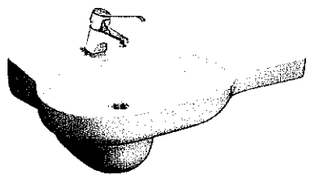
Caroma

Date	December 2017	**17.18**

Opal 720

Ceramic Wall Basin
Basin Size: 720mm x 450mm (nominal)

Vitreous China Shroud



Right hand shelf pictured

Tapware and shroud shown for photographic purposes only

The Opal 720 wall basin is part of an extensive range of co-ordinated basins that allows continuity of design throughout the project where basins of matching design for different applications are required. The design offers smooth rounded contours and clean lines. Available with optional shroud, this basin is suitable for domestic, commercial and accessible applications ♿ complying to AS 1428.1-2009 Amd. 1 using standard Caroma plastic traps.*

Tap Holes: Basin available in: **Left Hand Shelf,** no tapholes Code No.632200, one taphole – centre option Code No.632210 and three taphole option Code No.632230. **Right Hand Shelf**, no tapholes Code No.632100, one taphole – centre option Code No.632110 and three taphole option Code No.632130

Tapware - other than sole occupancy unit: All electronic and basin care mixers referred to in section 19 comply to AS1428.1-2009 Amd. 1 installations other than sole occupancy unit when matched with this basin.

Tapware - sole occupancy unit: Recommended tapware for sole occupancy unit for compliance to AS1428.1-2009 Amd. 1; **Electronic Tapware:** Designo and Designo Solar. See section 19 for further details.

Waste Outlet: Chrome grate waste and white plug supplied, suitable for a 40mm trap connection. Alternative waste options are available — Flush fitting Chrome Waste Code No. 687327C, Vandal Resistant Flush Fitting Chrome Waste Code No.687141, Covered Chrome Plug and Waste Code No.687142 and Vandal Resistant Covered Chrome Plug and Waste Code No.687143

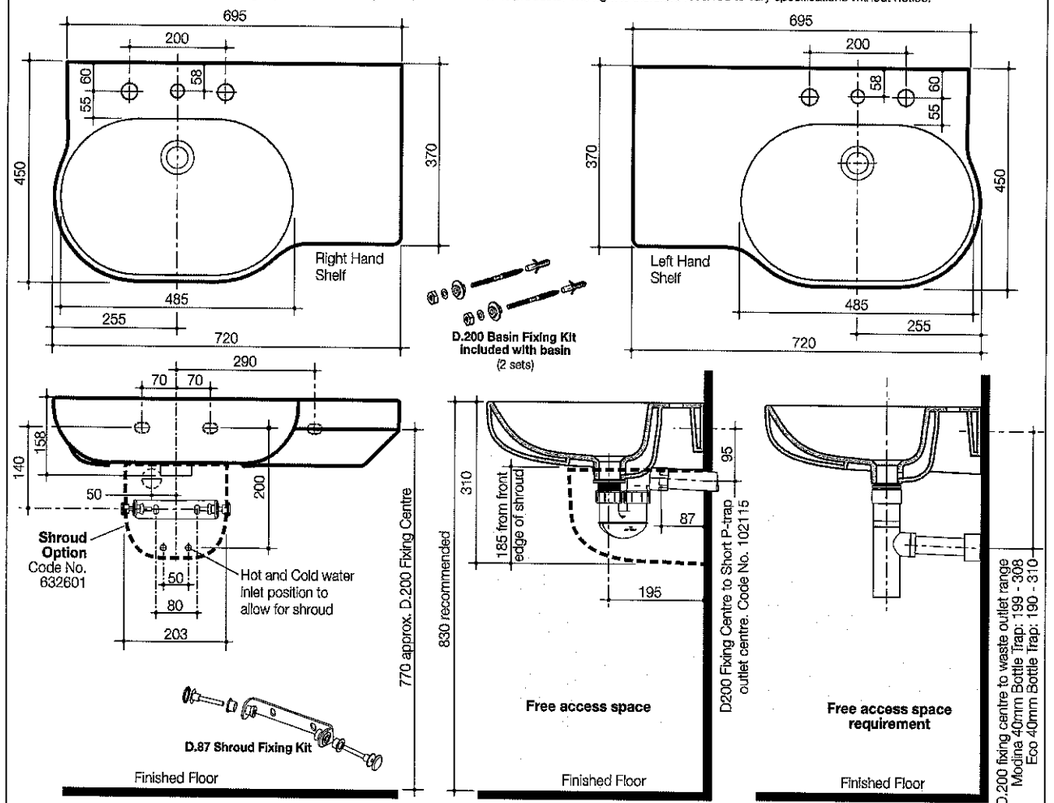
Shroud: Optional Opal Shroud, Code No.632601 completely conceals P-trap waste pipe fittings, concealed fixing bracket supplied. 40mm Caroma short plastic P-trap is required for correct installation Code No.102115.
Note: It is essential for the installation of the shroud to the basin that clearance is provided for the shroud in the plumbing setout from water inlet pipes and connections.

Bowl Capacity: 9.5 litres.

Overflow: Overflow not available.

Colours: White only.
**Basin not designed to be installed against a side wall.*

* Reference must be made to the AS 1428.1-2009 Amd. 1 to confirm installation requirements. All dimensions are in millimetres and are subject to normal manufacturing variations. Caroma pursues a policy of continuing improvement in design and performance of its products. The right is therefore reserved to vary specifications without notice.



♿ Suitable for installation to comply to Australian Standard AS 1428.1-2009 Amendment No.1 Design for access and mobility

Caroma® SKANDIC - CARE BASIN MIXER

WATER EFFICIENT TAPWARE

PLUMBERS INSTALLATION INSTRUCTIONS

Important Information

* **Not suitable for gravity feed systems.**
* **Mixer is fitted with a flow regulated aerator insert. Low flow rates may not be suitable for connection to some Instantaneous Gas Water Heaters, some Tempering Valves, some Solar Water Heaters & some Thermostatic Mixing Valves. Check with the manufacturers of these products. Note:-An aerator insert kit (Part No. SP2001), is available if required.**
* **Isolating stop taps must be fitted to the hot & cold water supply connections. (Part No. 842018C - Mini cistern 1/4T)**
* **All pipework must be thoroughly flushed prior to installation, as foreign materials may block the flow regulating device and reduce the flow of water. Note: Aerator insert housing must be retightened to prevent removal by hand.**

Installation (Fig.1)

1) Fit seal (12) into groove in base of mixer body (11), as shown. Insert the clips of the fixing nut (15) into the hole in the fixing plate (14), with flat face 'up'.
2) *Flexible Tail Mixer Connections*: Apply suitable lubricant to 'O'rings (19). Fit flexible tail (18) (with red indication) into inlet hole marked as 'H' in underside of mixer body (11). Hand tighten the tail, ensuring the 'O'ring (19) has fully entered the sealing bore to provide a watertight joint. Fit other flexible tail (with blue indication) into remaining hole in a similar manner.
3) Insert the inlet connection end (17) of each flexible tail (18) through the hole in the deck. Place mixer over deck hole, ensuring base seal (12) is located in the hole. Screw the fixing nut (15) together with fixing plate (14) onto stud (13). Position mixer as required then tighten fixing nut (15) using a suitable spanner.
4) *Flexible Tail Inlet Connections:* Place a fibre washer (16) into the inlet connection end (17) of each flexible tail (18) then connect the tails to the hot and cold isolating stop taps. Hand tighten the connecting nut (17) until fibre washer (16) contacts the sealing face of the connection end, then tighten firmly using a suitable spanner to provide a watertight joint. **Important**: Flexible tails must not be kinked, twisted or in tension when installed. (Minimum Bend Radius:- 50mm) Do not install flexible tails where subject to ultra violet light.

IMPORTANT

Pressure & Temperature Requirements.

- Hot and cold water inlet pressures should be equal.
- Static inlet pressure range : 150-1000 kPa
  New Regulation:- 500 kPa maximum static pressure at any outlet within a building. (Ref. AS/NZS 3500.1)
- Maximum hot water temperature : 70°C. (In accordance with AS 3499)

Deck Requirements

- Deck thickness : 50mm maximum
- Tap body hole (in deck) : Ø34-36mm

Replacing Cartridge

1) Turn off hot and cold water supplies.
2) Carefully remove plug (1) before using a 2.5mm allen key (2) to loosen grub screw (3) and remove handle (4). By using the spanner (5) provided, unscrew the sleeve (6) taking care not to damage the decorative finish. Remove the old cartridge (10).
3) Ensure inside face of mixer body (11) is clean. Check that seal is in position in base of new cartridge (10). Fit new cartridge (10) into mixer body (11), taking care that two lugs on base of cartridge (10) fit into mating holes in mixer body (11).
4) Fit the threaded sleeve (6) over the cartridge (10), then screw and tighten firmly using spanner (5) to ensure a watertight connection between the cartridge (10) and the mixer body (11).
5) Locate and hold the handle (4) onto the cartridge (10), then tighten grub screw (3). Replace plug (1), taking care that the red indication is to the left.
6) Turn on water supplies and check operation.

Replacing Aerator Insert

1) Carefully remove aerator housing (20) from mixer body (11), taking care not to damage the decorative finish.
2) Remove washer (22) & aerator insert (21) from aerator housing (20). Check that aerator housing (20) is clean. Deposits of lime can be removed by washing in a vinegar solution.
3) Fit new aerator insert (21) into aerator housing (20) followed by washer (22) then screw assembly into mixer body (11) and tighten securely (to prevent removal by hand).

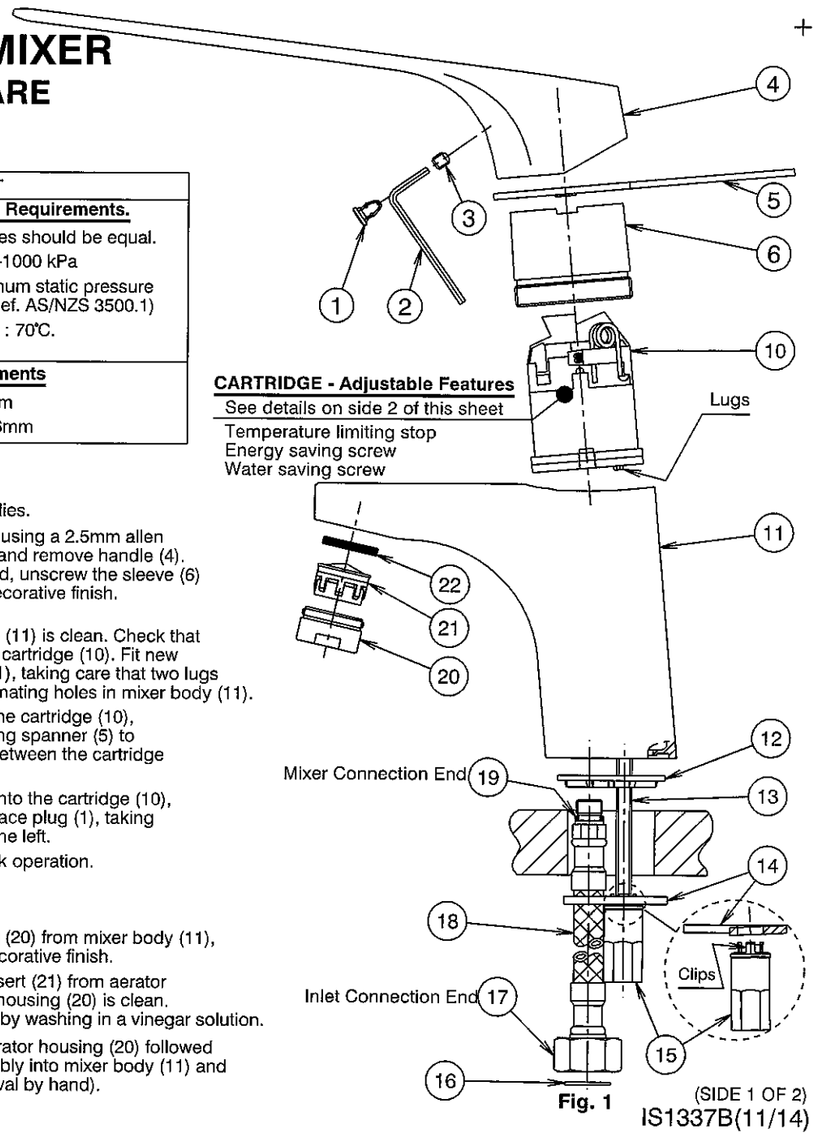


Fig. 1

(SIDE 1 OF 2)

IS1337B(11/14)

Caroma®

SKANDIC - CARE BASIN MIXER

WATER EFFICIENT TAPWARE

PLUMBERS ADJUSTMENT INSTRUCTIONS

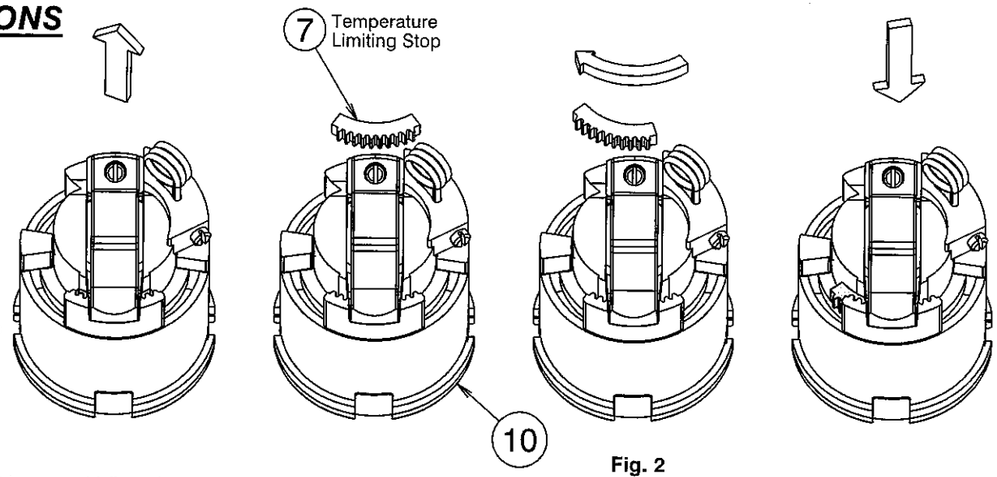


Fig. 2

Adjusting the TEMPERATURE LIMITING STOP (Fig.2)
The cartridge fitted in this mixer has been factory pre-set to deliver the maximum available hot water temperature. To use the Temperature Limit feature adjust the cartridge as follows:-

Carefully remove plug (1) before using a 2.5mm allen key (2) to loosen grub screw (3) and remove handle (4). (See details on side 1 of this sheet.)

To remove the Hot Limit Stop segment (7) from the cartridge (10), use a flat bladed screwdriver and carefully lever the segment in an upwards direction.

Rotate the segment (7) in a clockwise direction to reduce the maximum hot water temperature then refit the segment (7) onto the cartridge (10).
Note:- Start by rotating the segment (7) in small increments, then check the hot water temperature with the mixer handle in the fully open maximum hot water position. The segment (7) can be removed & repositioned until the desired maximum hot water temperature is achieved.

Ensure the segment (7) is pushed fully down onto the cartridge (10). Locate and hold the handle (4) onto the cartridge (10), then tighten grub screw (3). Replace plug (1), taking care that the red indication is to the left.

Adjusting the ENERGY SAVING SCREW (Fig.3)
To select maximum hot water temperature the handle lever of this mixer must be moved fully to the left until the temperature stop segment is contacted (see above). The cartridge is also fitted with an energy saving feature. When the handle lever is released from this maximum hot position, it will automatically return to the factory pre-set comfort water temperature of 38-40°C (approx.). This energy saving feature can be adjusted or disabled as follows:-

Carefully remove plug (1) before using a 2.5mm allen key (2) to loosen grub screw (3) and remove handle (4). (See details on side 1 of this sheet.)

Using a small thin flat bladed screwdriver, adjust screw (9) in an clockwise direction to increase the comfort temperature. Adjusting the screw (9) fully until bottomed will disable the energy saving feature.

Locate and hold the handle (4) onto the cartridge (10), then tighten grub screw (3). Replace plug (1), taking care that the red indication is to the left.

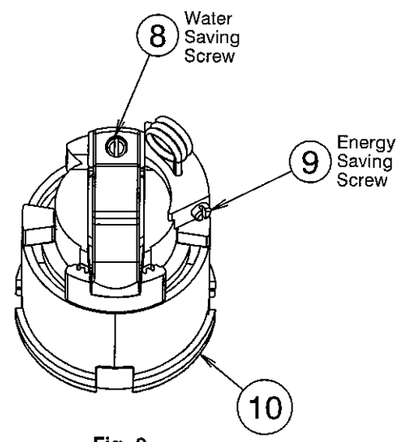


Fig. 3

Adjusting the WATER SAVING SCREW (Fig.3)
To select maximum water flow the handle lever of this mixer must be lifted to its highest position. The cartridge is also fitted with a water saving feature. When the handle lever is released from this maximum flow position, it will automatically return to the factory pre-set comfort flow position, which is sufficient for hand washing etc. **Important Note**:- This Mixer is already fitted with a flow regulated aerator insert. Low flow rates may not be suitable for connection to some installations. (See Important Information details on side 1 of this sheet).
This water saving feature can be adjusted or disabled by adjusting the cartridge as follows:-

Carefully remove plug (1) before using a 2.5mm allen key (2) to loosen grub screw (3) and remove handle (4). (See details on side 1 of this sheet.)

Using a small thin flat bladed screwdriver, adjust screw (8) in a clockwise direction to further reduce the comfort flow when the handle lever is released. Adjusting the screw (8) anti-clockwise will increase the comfort flow until maximum flow is achieved and comfort flow is disabled.

Note:- Start by rotating the Screw (8) in small amounts then check the flow of water with the handle lever in the fully up released position. Readjust the screw until the desired water flow is achieved.

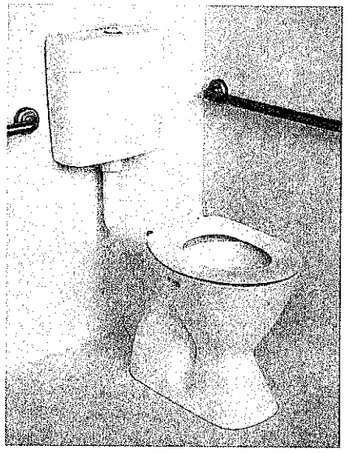
Locate and hold the handle (4) onto the cartridge (10), then tighten grub screw (3). Replace plug (1), taking care that the red indication is to the left.

piperita
CAROMA

Date	July 2018	1.16

Cosmo Care

4.5/3 litre Dual Flush Toilet Suite for People with Accessible Applications ♿



A contemporary designed 4.5/3 litre dual flush **Cosmo Care** toilet suite installation designed to provide a raised seat height of between 460-480mm for accessbile applications ♿. The pan features a concealed trap which facilitates easy cleaning. The versatility of the **Cosmo Care Pan Concealed Trap** makes it ideal for use by both the ambulant person with disabilities and wheel-chair users including wheeled commode chairs.

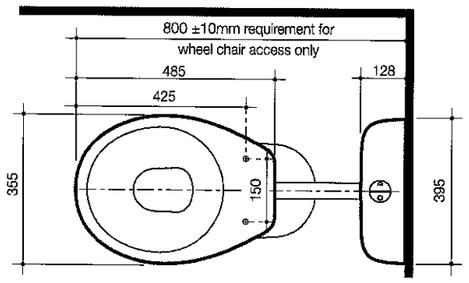
Important:	**Further reference must be made to A.S.1428.1-2009 with current amendments to determine circulation space, grab rail and installation requirements. The dimensions in this sheet may change with amendments to the standard.**
Pan:	**Cosmo Care Pan Concealed Trap** pan 4.5 litre full flush washdown type.
Traps:	S trap (WELS 4 star rated) or P trap (WELS 4 star rated). Unvented only.
Inlet:	50mm back inlet.
Cistern:	**Cosmo Care II** 4 Star Cistern – A one piece injection moulded tank with a removable lid. The inlet valve is the Quietflow 2 inlet valve which reduces noise during the filling cycle. **Important: Working pressure minimum 30kPa to maximum 1000kPa flow pressure. Rain water tank compliant.**
Buttons:	Round Care Button - Plastic (supplied). Other button options sold separately. See section 4.01 for further details.
Inlet and Overflow:	Inlet is in the RH position and is located on the underside of the cistern and is interchangeable. Overflow is internal as standard, an external overflow kit is available.
Seats:	**Caravelle Care** seat supplied, available in Caroma White (W), Sorrento Blue (SB) and Anthracite Grey (AG). See Section 3 SEATS for further details.
Position of the Pan:	For wheel chair access the installed pan must be a minimum of 800 ± 10mm from the front of the pan to the finished wall and provide a seat height of 460 to 480mm. The projection requirements for people with ambulant disabilities is 610 to 660mm.
Position of the Cistern:	The underside of the cistern must be 600mm minimum from the finished floor. The push button height should be no greater than 1100mm from the finished floor.
Colours:	White only.
Installation:	The installation of the toilet suite shall be in accordance with the normal minimum drainline grade requirements in AS/NZS 3500.2.
Dimensions:	All dimensions are in millimetres and are subject to normal manufacturing variations. Caroma pursues a policy of continuing improvement in design and performance of its products. The right is therefore reserved to vary specifications without notice.

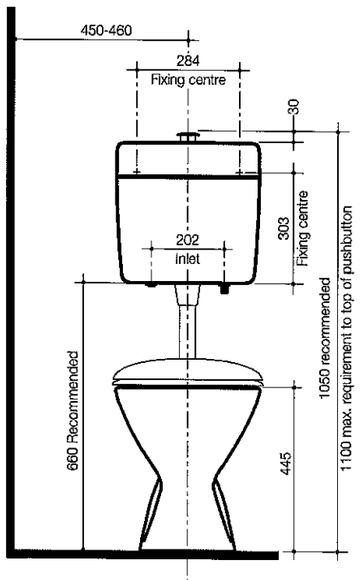
Note: The projection requirements detail on this illustration are for wheel chair access only. The projection requirements for people with ambulant disabilities is 610 to 660mm.

All height dimensions to underside of pan, make allowance for mortar bedding.

Mortar bedding: The pan should be fixed to the floor with a sand cement mixture of 3:1 to a depth of 60mm. When bedded the back of the foot of the pan should be approximately 10mm above the finished floor.

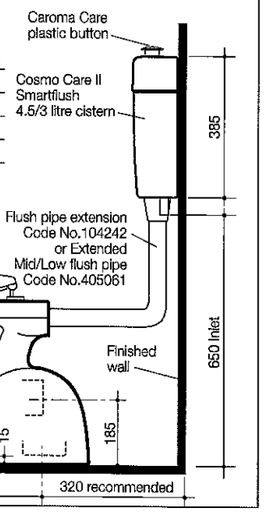
Screw fixing: The pan should be bedded with an acetic cured silicone sealant and fixed with corrosion resistant screws and pan guard washers. Use Caroma pan fixing kit. Code No.601150.





Cosmo Care Toilet Suites:

With Caravelle Care Seat —		Code No.	Seat colour:
Single Flap	S trap	982920	W, SB or AG
	P trap	982930	W, SB or AG
Double Flap	S trap	982918	W or SB
	P trap	982928	W or SB



Note: The lid on a double flap toilet seat is not suitable to be used as a support for users.

♿ Suitable for installation to comply to Australian Standard AS 1428.1-2009 Design for access and mobility

SWIFT STORAGE, KAWANA

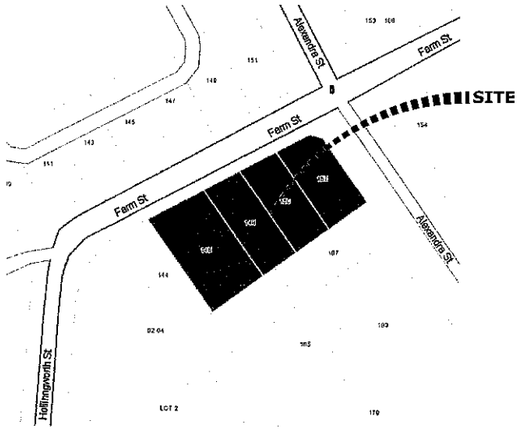
HYDRAULIC SERVICES

RPD: LOT 2, 3, 4 & 5 ON RP605715

SITE SOIL CLASSIFICATION TO AS2870

SOIL CLASS 'H2'

- REFER SITE AND SOIL INVESTIGATION REPORT FOR SITE AND SOIL CLASSIFICATION, FINDINGS AND FURTHER INFORMATION.
- ALL SANITARY DRAINAGE PIPE AND FITTINGS EXTERNAL OF BUILDING PERIMETERS TO HAVE RUBBER RING JOINTS
- DRAINS PASSING THROUGH STRUCTURAL FOOTINGS TO BE WRAPPED WITH 25mm CLOSED CELL POLYETHYLENE.
- TRENCHING PASSING BELOW EDGE OF BUILDING SLAB TO BE PLUGGED WITH COMPACTED CLAY TO PREVENT INGRESS OF WATER THROUGH TRENCHING.



LOCALITY PLAN

NOT TO SCALE

DRAWING SCHEDULE

DRAWING No.	LEVEL	SERVICES
22072-H-01	LEGEND, NOTES & LOCALITY PLAN	ALL SERVICES
22072-H-02	SITE PLAN & INSET	ALL SERVICES
22072-H-03	ROOF PLAN	PLUMBING & DRAINAGE

EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE BASED ON EXISTING RECORDS, ACTUAL INSTALLED SERVICES WILL VARY.

PRIOR TO COMMENCING WORK

CONTRACTOR IS TO CONFIRM LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS AND THAT CONNECTION AT GRADE IS ACHIEVABLE FROM ALL NEW WORKS.

DIAL BEFORE YOU DIG www.1100.com.au

IMPORTANT !!!!

EXISTING SERVICES HAVE BEEN PLOTTED FROM SUPPLIED DATA AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. THE CONTRACTOR SHALL VERIFY THE LOCATION AND INVERT LEVELS FOR ALL SERVICES WITHIN THE VICINITY OF THE PROPOSED EXTENTS OF THE WORKS, BOTH WITHIN THE SITE AND ROAD RESERVE, AND PROTECT THESE SERVICES PRIOR TO COMMENCING CONSTRUCTION. ANY DIFFERENCES WITH REGARDS TO THE LOCATION, AND OR, INVERT LEVELS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE TO THE EXISTING SERVICES WHETHER SHOWN ON THE ENGINEERING PLANS OR NOT. SUCH REPAIR OR REINSTATEMENT TO BE CARRIED OUT IMMEDIATELY TO THE SATISFACTION OF THE SERVICE AUTHORITY AT THE CONTRACTORS EXPENSE.

GENERAL NOTES

1. ALL FIXTURES, APPLIANCES AND APPARATUS CONNECTED TO THE PLUMBING SYSTEM ARE TO HAVE 'WATERMARK' CERTIFICATION OR COMPLY WITH THE PLUMBING CODE OF AUSTRALIA PART A2.
2. ALL PRODUCTS AND MATERIALS PROVIDED ON THIS SITE SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS.
3. OBTAIN ALL NECESSARY APPROVALS FROM ALL AUTHORITIES HAVING JURISDICTION AND PAY ALL FEES DUE.
4. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION AND THE REQUIREMENTS OF ALL RELEVANT AUSTRALIAN STANDARDS.
5. ENSURE INVERT LEVELS AND SUFFICIENT COVER TO ALL SERVICES ARE OBTAINABLE PRIOR TO COMMENCEMENT.
6. THESE DRAWINGS ARE A DIAGRAMMATIC REPRESENTATION OF A PROPOSED PLUMBING AND DRAINAGE INSTALLATION. USE DIMENSIONED ARCHITECTURAL DRAWINGS FOR SET OUT OF PENETRATIONS RELATING TO PLUMBING FIXTURES. IT IS THE RESPONSIBILITY OF THE INSTALLER TO COORDINATE THE ON-SITE INSTALLATION WITH OTHER SERVICES INSTALLATIONS AND THE LIKE.
7. THE CONTRACTOR SHALL CONFER WITH THE LOCAL AUTHORITY AND PUBLIC UTILITIES TO ASCERTAIN THE LOCATION AND THE DEPTH OF ANY AND ALL EXISTING SERVICES WITHIN AND EXTERNAL TO THE PROPERTY WHETHER DOCUMENTED OR OTHERWISE.
8. 'AS-CONSTRUCTED' DRAWINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL RECORD ALL CHANGES TO THE ORIGINAL DESIGN AND ALLOW ALL COSTS FOR THE PREPARATION OF 'AS-CONSTRUCTED' DRAWINGS INCLUDING A SUBMETER TABLE TO THE LOCAL SERVICE PROVIDERS REQUIREMENTS.
9. AS A CONDITION OF TENDERING, THE CONTRACTOR SHALL VISIT THE SITE AND SHALL BE DEEMED TO BE FULLY AWARE OF THE SITE CONDITIONS. ANY CLAIM FOR VARIATION ON THE BASIS OF LACK OF KNOWLEDGE OF THE SITE CONDITIONS SHALL NOT BE ACCEPTED.
10. ALL HOT AND COLD WATER SERVICES WITHIN A CONCRETE SLAB OR CONCRETE FILLED WALL SHALL BE ONE OF THE FOLLOWING MATERIALS. TYPE 'B' COPPER, TYPE 'B' COPPER ALLOY, STAINLESS STEEL, POLYBUTYLENE, CROSS-LINKED POLYTHYLENE OR POLYETHYLENE AND SHALL BE FULLY RETRIEVABLE ENCASED IN CONDUIT FOR THE FULL DISTANCE.
11. JOINTS IN PRESSURED WATER SERVICE PIPES UNDER FLOOR SLABS ARE NOT RECOMMENDED.
12. ALL IN-GROUND VALVES SHALL BE ENCLOSED IN APPROVED PATH BOXES.
13. ARRANGE WITH LOCAL AUTHORITY FOR A 100Ø SEWER CONNECTION AND PAY ALL FEES DUE.
14. ALL PLUMBING SERVICES THAT PENETRATE BUILDING ELEMENTS REQUIRED TO HAVE A FIRE RESISTANCE LEVEL, MUST BE INSTALLED SO THAT THE FIRE RESISTING PERFORMANCE OF THE BUILDING ELEMENT IS NOT IMPAIRED.
15. ALL STORMWATER DRAINAGE SHALL BE MINIMUM 100Ø @ 1% FALL UNLESS NOTED OTHERWISE.
16. DIMENSIONED ARCHITECTURAL DRAWINGS TAKE PRECEDENCE OVER SCALED HYDRAULICS DRAWINGS.
17. THE HYDRAULIC SERVICES CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE MECHANICAL, ELECTRICAL AND AIR-CONDITIONING SERVICES ON SITE.
18. PROTECT ALL PIPEWORK SUBJECT TO VEHICULAR DAMAGE WITH PIPE GUARDS OR BOLLARDS AS APPROPRIATE.
19. ALL PIPEWORK SHALL BE IDENTIFIED IN ACCORDANCE WITH AS1345. IDENTIFICATION MARKINGS SHALL BE INSTALLED AT DISTANCES NOT EXCEEDING 3.0 METRES AND SHALL BE ON BOTH SIDES OF WALLS ETC. TO ENABLE INSTANT RECOGNITION.
20. COORDINATE AND PROVIDE ALL PIPE PENETRATIONS AND RECESSES WITHIN THE STRUCTURE (WHETHER DOCUMENTED OR OTHERWISE) TO ENSURE MINIMUM CLEARANCES ARE AVAILABLE.
21. COORDINATE INSTALLATION OF ALL INTERNAL SERVICES WITH ARCHITECTURAL 'REFLECTED CEILING PLANS'
22. ALL PIPES SHALL BE ADEQUATELY SUPPORTED AND SECURED TO ADJACENT WALLS OR SLABS.
23. SUPPORTS SHALL BE GALVANIZED MILD STEEL 'UNISTRUT' CHANNEL COMPLETE WITH PURPOSE MADE GALVANIZED SPRING NUTS, FRAMING, FITTING & PIPE CLAMPS FOR EACH PIPE.
24. ALL COPPER PIPES SHALL BE SEPARATED FROM SUPPORTS BY 2mm MINIMUM THICK PVC STRIP OR SIMILAR APPROVED MATERIAL.
25. THE CONTRACTOR SHALL SUPPLY & INSTALL ALL SANITARY FIXTURES SHOWN ON THE DRAWING OR NECESSARY FOR THE COMPLETION OF THE PROJECT. ALLOW FOR THE SUPPLY & FIXING OF ALL FIXTURES, BOLTS, BRACKETS, PUTTY, MASTIC, SILICON FILLERS, CEMENT & SUNDRY MATERIALS NECESSARY FOR EACH INSTALLATION INCLUDING ALL CONNECTIONS TO DRAINS, WATER SERVICES ETC. GENERALLY IN ACCORDANCE WITH THE MANUFACTURES DIRECTIONS.
26. ALLOW FOR THE COMPLETE SUPPLY & INSTALLATION OF TAPS & SUNDRY MATERIALS NECESSARY FOR THE INSTALLATION & CONNECTION IN ACCORDANCE WITH THE MANUFACTURES INSTRUCTIONS.
27. CONTRACTOR TO SUPPLY TO THE BUILDER/TENANT OR OWNER ON COMPLETION OF ALL WORKS, ALL WARRANTIES, TECHNICAL DATA, TESTING CERTIFICATES ETC. PRIOR TO HANDOVER.
28. IF ANY DOUBT EXIST AS TO WHETHER A SECTION OF THE DESIGN IS ABLE TO COMPLY WITH THE RELEVANT AUTHORITY'S REGULATIONS, THE SUPERINTENDENT SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF ANY WORKS. NO CONSIDERATION OF CLAIM FOR REDUNDANT WORK SHALL BE GIVEN IF THE SUPERINTENDENT IS NOT NOTIFIED.

MATERIALS

HOT & COLD WATER:	MATERIALS AND PRODUCTS USED IN THE INSTALLATION OF HOT & COLD WATER SUPPLY SYSTEMS FOR THIS PROJECT SHALL COMPLY WITH AS/NZS 3500.1:2018 (SECTION 2) AND ALL RELEVANT STATUTORY REQUIREMENTS.
SANITARY DRAINAGE:	PVC CLASS DWV (DRAINAGE WASTE VENT)
DOWNPIPES:	PVC CLASS DWV (DRAINAGE WASTE VENT) (UNO - REFER ARCHITECTURAL SPECIFICATION)
STORMWATER:	PVC CLASS DWV (DRAINAGE WASTE VENT)

WATER SUPPLY NOTES

1. ALL WATER SUPPLY IS TO BE INSTALLED, TESTED AND LABELED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLUMBING AND DRAINAGE REGULATION 2019, QUEENSLAND PLUMBING AND WASTEWATER CODE 2019, PLUMBING CODE OF AUSTRALIA AND AUSTRALIAN STANDARD (INC. AS/NZS3500.1:2018 & AS/NZS3500.4:2018).
2. COLD WATER TO MORE THAN ONE POINT SHALL BE 20Ø OR GREATER.
3. IN NO CASE SHALL A 15Ø COLD BRANCH EXCEED 3 METRES IN LENGTH.
4. POSITION SERVICES IN CEILING SPACES AND WALL FRAMING UNLESS NOTED OTHERWISE.
5. WATER SUPPLY PIPE SIZES SPECIFIED ON THESE DRAWINGS ARE BASED ON CALCULATIONS FOR PIPES HAVING EQUIVALENT DIMENSIONAL AND FLOW CHARACTERISTICS TO THAT OF TYPE B COPPER TUBE. WHERE ALTERNATIVE MATERIALS ARE USED, AN EQUIVALENT PIPE SIZE APPROPRIATE TO THE MATERIAL BEING USED SHALL BE SELECTED. IN NO CASE SHALL THE INTERNAL DIAMETER OF ANY ALTERNATE PIPE MATERIAL BE LESS THAN THE MINIMUM BORE SPECIFIED IN AS/NZS 3500.1:2018 APPENDIX B.
6. CONTRACTOR TO ALLOW TO SUPPLY AND INSTALL PRESSURE REDUCTION VALVES WITH UNIONS TO ALLOW REMOVAL FOR MAINTENANCE. THE MAXIMUM STATIC PRESSURE AT ANY OUTLET, OTHER THAN FOR FIRE SERVICES, WITHIN A BUILDING SHALL NOT EXCEED 500kPA.
7. EXTERNAL HOSE COCKS SHALL BE FITTED WITH APPROVED BACKFLOW PREVENTING VACUUM BREAKERS AND INDIVIDUAL STOP TAPS.

PLUMBING AND DRAINAGE

1. ALL SANITARY DRAINAGE & PLUMBING IS TO BE INSTALLED, TESTED AND LABELED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLUMBING AND DRAINAGE REGULATION 2019, QUEENSLAND PLUMBING AND WASTEWATER CODE 2019, PLUMBING CODE OF AUSTRALIA 2019 AND AUSTRALIAN STANDARD (INC. AS/NZS3500.2:2018).
2. ALL SANITARY AND TRADE WASTE DRAINAGE SHALL BE 100Ø @ 1.65% FALL UNLESS NOTED OTHERWISE.
3. ALL VENT PIPES SHALL TERMINATE ABOVE ROOF IN ACCORDANCE WITH AS/NZS 3500.2:2018.

STORMWATER

1. THE WHOLE OF THE STORMWATER DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH THE NATIONAL CONSTRUCTION CODE 2011 (PLUMBING CODE OF AUSTRALIA), AS/NZS 3500.3:2018, AND THE LOCAL GOVERNMENT WORKS DEPARTMENT GUIDELINES & REGULATIONS, AND THE QUEENSLAND DEVELOPMENT CODE.
2. ALL DOWNPIPES AND STORMWATER DRAINAGE SHALL BE FREE OF LEAKS WHEN TESTED IN ACCORDANCE WITH AS/NZS 3500.3:2003 (SECTION 10).

SEISMIC RESTRAINT OF NON-STRUCTURAL COMPONENTS

1. ARRANGE ALL COMPONENTS, OTHER THAN SERVICE ITEMS EXEMPT IN AS 1170.04 TO RESIST SEISMIC LOADS DETERMINED IN ACCORDANCE WITH AS 1170.4. CALCULATIONS SHALL BE COMPLETED BY A STRUCTURAL ENGINEER UNDER DESIGN AND CONSTRUCT SCOPE BY HYDRAULICS CONTRACTOR AND SHALL BE SPECIFIC TO THE ELEMENT BEING CONSIDERED. SECURELY FIX ALL PLANT AND EQUIPMENT TO THE BUILDING STRUCTURE. DO NOT RELY ON GRAVITY AND/OR FRICTION TO RESIST SEISMIC FORCES.
2. THE SPACING OF LATERAL AND VERTICAL BRACES SHALL BE DETERMINED FOR EACH SERVICE, HOWEVER, A MAXIMUM SPACING OF 2M BETWEEN SUPPORTS SHALL BE PROVIDED.
3. LOCATION OF ALL BRACES SHALL BE COORDINATED WITH ALL SERVICES TO AVOID CLASHES.
4. SEISMIC RESTRAINTS CALCULATED IN ACCORDANCE WITH AS 1170.4. ARE THE MINIMUM REQUIREMENT AND SHALL BE PROVIDED IN ADDITION TO SPECIFIC VIBRATION ISOLATION AND SUPPORTS NOMINATED ELSEWHERE HEREIN.

LEGEND

- COLD WATER
- SANITARY
- VENT
- STORMWATER
- CS — CIVIL SEWER
- CSW — CIVIL STORMWATER
- CW — CIVIL WATER
- eS — EXISTING SEWER
- eSW — EXISTING STORMWATER
- eW — EXISTING WATER

SYMBOLS

- PIPE DROPS
- PIPE RISES
- FIXTURE TRAP
- SWIVEL JOINT
- OVERFLOW RELIEF GULLY
- ISOLATION VALVE
- PRESSURE REDUCTION VALVE
- HOSE TAP
- WATER FIXTURE/TAPS
- STOP TAP
- WATER METER
- PIPE CONTINUES

SERVICE LABELS

DENOTES SERVICE — ## / ## — DENOTES SIZE

ABBREVIATIONS

B	BASIN
COS	CLEAR OUT TO SURFACE
d	ASSISTED
DP	DOWNPIPE
DWG	DRAWING
e	EXISTING
FH	FIRE HYDRANT
HCB	HOUSE CONNECTION BRANCH
HT	HOSE TAP
IL	INVERT LEVEL
IO	INSPECTION OPENING
IOS	INSPECTION OPENING TO SURFACE
ISS	INSPECTION SHAFT TO SURFACE
IV	ISOLATION VALVE
IVP	ISOLATION VALVE IN PATH BOX
ORG	OVERFLOW RELIEF GULLY
PRV	PRESSURE REDUCTION VALVE
RPD	REAL PROPERTY DESCRIPTION
SEJ	SWIVEL EXPANSION JOINT
SMH	SEWER MANHOLE
SW	STORMWATER
TBC	TO BE CONFIRMED
VB	VACUUM BREAKER
VP	VENT PIPE
WC	WATER CLOSET
WM	WATER METER

Issue	Date	Amendment	Int.	App.
1	22.04.22	PRELIMINARY ISSUE	SS	MDL
A	27.05.22	ISSUE FOR APPROVAL	SS	MDL
B	25.07.22	TENDER ISSUE	JT	MDL

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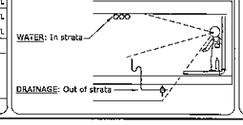

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Owners Name:
SS PROPERTY TRUST

Design: Scott Szucko | Checked: Mark Laverick | Plot by: JKate

Note: symbols are drawn in the correct position but are not to scale. Drawing has been prepared for colour printing.

Project:
SWIFT STORAGE
146- 152 FARM STREET
KAWANA QLD 4701

Drawing Title:
HYDRAULIC SERVICES
NOTES, LEGEND, ABBREVIATIONS AND LOCALITY PLAN

North Point: N

TENDER

Project Date:	Scale:	Sheet:
April, 2022	(A1) 1:100 (A3) 1:200	1 OF 3
Job No:	Disc: Dwg No:	Stage: Issue:
22072 - H - 01		TD B

0 1 2 3 4 5

ORIGINAL SIZE: A1

Plot date: 25 Jul, 2022 - 11:03am

FILE PATH: P:\22072 Rock Storage Ltd - 152 Farm Street Kawana\Hydraulics\Drawings\22072-H-01.dwg

cold water connected to meter to draw off point to other services

Pipes are installed correctly and similarly so it does not obstruct the dismantle of tap. Hose tap

Stormwater does not interfere with other building services and elements

The hose tap has a VB vaccum breaker attached to it. Complies with specifications

Hose taps installed against concrete wall complied with specifications

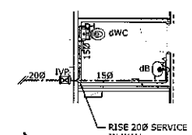
NOTE

ALL FIXTURES, APPLIANCES AND APPARATUS CONNECTED TO THE PLUMBING SYSTEM ARE TO HAVE 'WATERMARK' CERTIFICATION OR COMPLY WITH THE PLUMBING CODE OF AUSTRALIA PART A2.

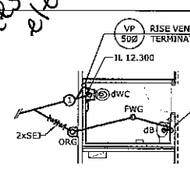
NOTES

1. INSPECTION OPENINGS (IOS or COS) AND ISOLATION VALVES (IV or IVP) IN DRIVEWAYS AND PARKING BAYS ARE TO BE FITTED WITH CAST IRON COVERS INSTALLED SO NO LOAD IS TRANSMITTED TO PIPEWORK.
2. CIVIL SERVICES SHOWN ARE INDICATIVE ONLY. REFER CIVIL PLANS FOR DETAILS.
3. ALL WORKS ON EXISTING WATER MAINS TO BE CARRIED OUT BY ROCKHAMPTON REGIONAL COUNCIL AT THE DEVELOPER'S EXPENSE.
4. SERVICES FIXED AT HIGH LEVEL AND DROP IN WALLS UNLESS NOTED OTHERWISE.
5. BASIN WASTE TO DROP IN WALL.

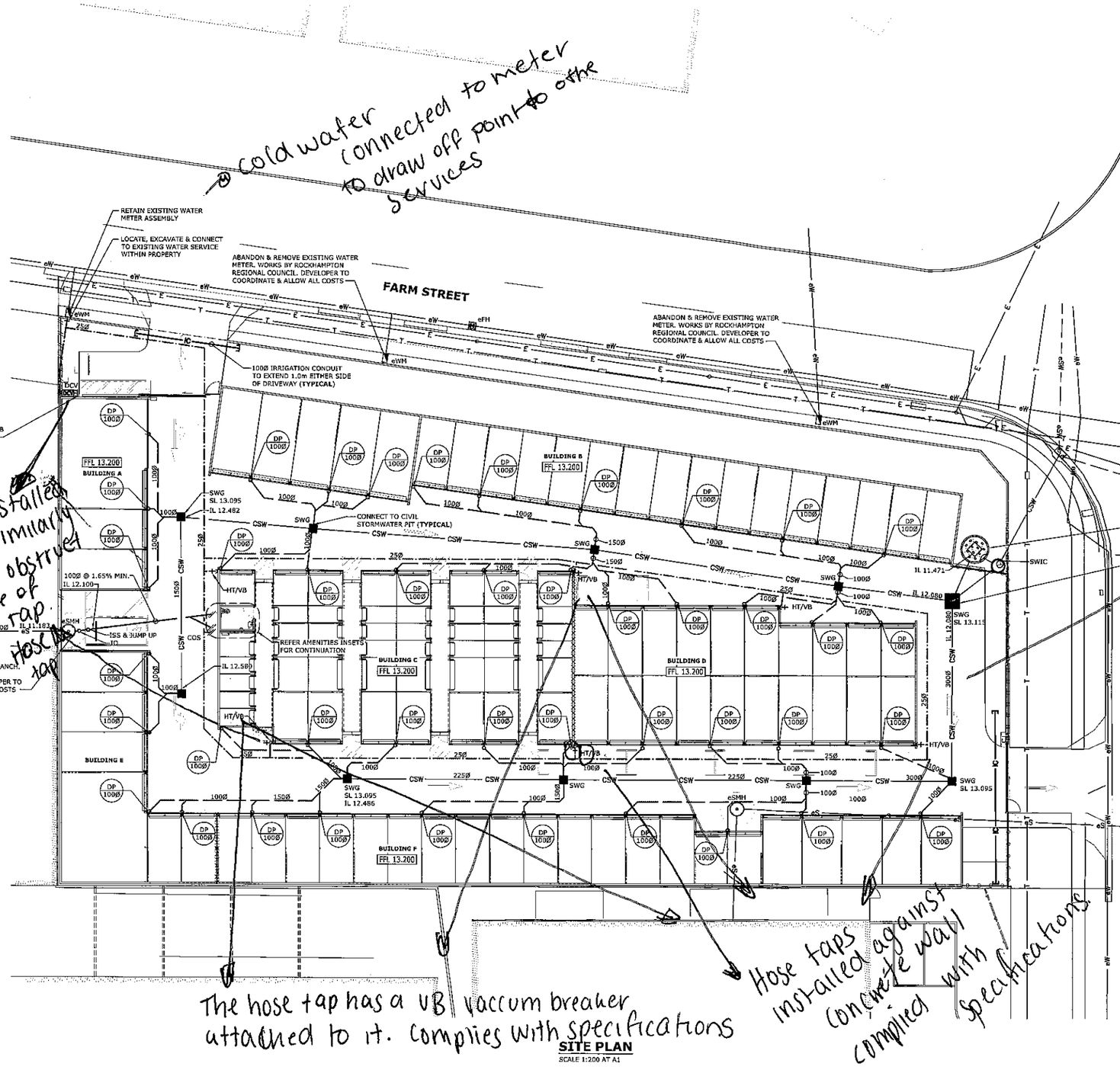
CIVIL SERVICES SHOWN ARE INDICATIVE ONLY. REFER CIVIL PLANS FOR DETAILS.



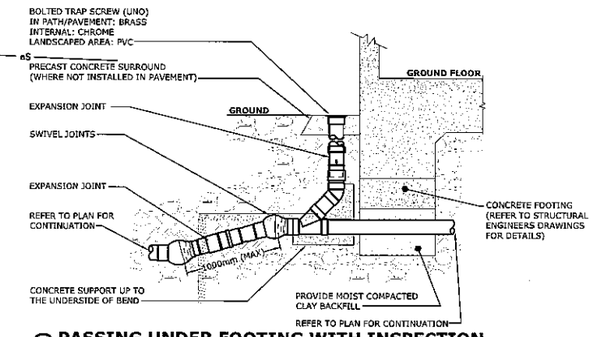
AMENITIES INSET WATER LAYOUT
SCALE 1:100 AT A1



AMENITIES INSET PLUMBING & DRAINAGE LAYOUT
SCALE 1:100 AT A1



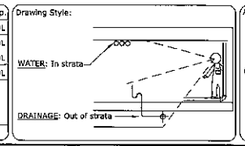
SITE PLAN
SCALE 1:200 AT A1



1 PASSING UNDER FOOTING WITH INSPECTION OPENING TO SURFACE
NOT TO SCALE

Issue	Date	Amendment	Int.	App.
I	22.04.22	PRELIMINARY ISSUE	SS	MDL
A	27.05.22	ISSUE FOR APPROVAL	SS	MDL
B	14.07.22	ADDED IRRIGATION DCV & CONDUITS	SS	MDL
C	25.07.22	TENDER ISSUE	JT	MDL

Drawing Style:



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ALL SERVICES LAYOUT

North Point: N

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April, 2022	(A1) 1:200 (A3) 1:400	2 OF 3
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22072 - H - 02	TD	C

0 2 4 6 8 10
ORIGINAL SIZE: A1

Plot date: 25 Jul, 2022 - 11:03am

FILE NAME & PATH: W:\22072 - South Stanmore 146-152 Farm Street Kawana\Civil sections\Sheet drawings\22072-H-02.dwg