


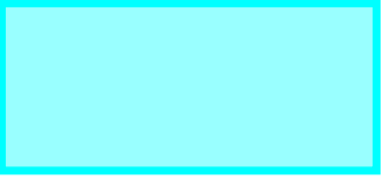

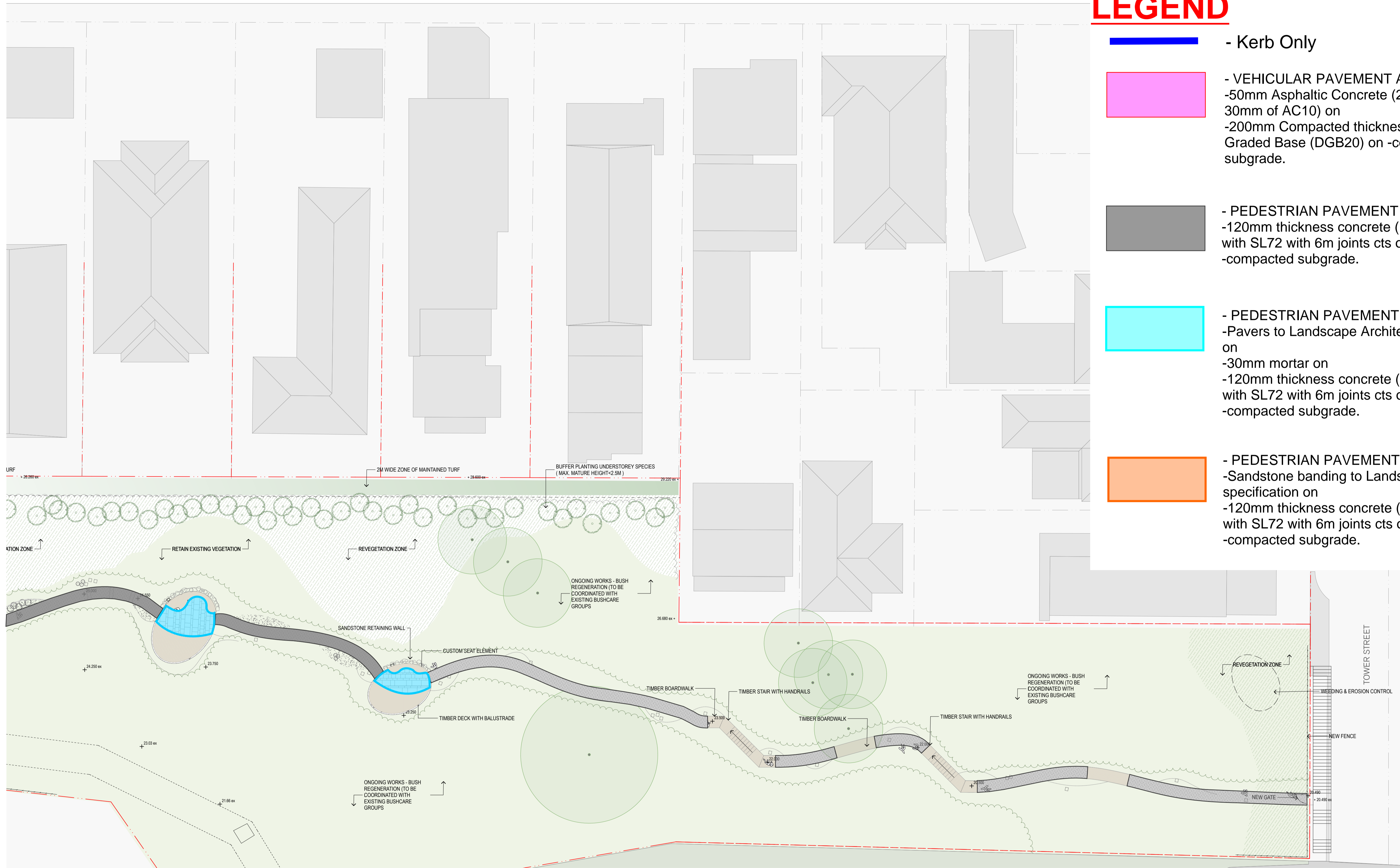


BATTERY STREET

LEGEND

-  - Kerb Only
-  - VEHICULAR PAVEMENT AS FOLLOWS:
 -50mm Asphaltic Concrete (20mm of AC7 on 30mm of AC10) on
 -200mm Compacted thickness of Densely Graded Base (DGB20) on -compacted subgrade.
-  - PEDESTRIAN PAVEMENT AS FOLLOWS:
 -120mm thickness concrete (F'c = 20MPa) with SL72 with 6m joints cts on -compacted subgrade.
-  - PEDESTRIAN PAVEMENT AS FOLLOWS:
 -Pavers to Landscape Architects specification on
 -30mm mortar on
 -120mm thickness concrete (F'c = 20MPa) with SL72 with 6m joints cts on -compacted subgrade.
-  - PEDESTRIAN PAVEMENT AS FOLLOWS:
 -Sandstone banding to Landscape Architects specification on
 -120mm thickness concrete (F'c = 20MPa) with SL72 with 6m joints cts on -compacted subgrade.



SKC203 - P1: Civil Engineering Pavement and Kerbing Concept Plan 2 of 2

Appendix B

Stormwater Management and Site Works Plans

UNSW CLIFFBROOK CAMPUS COOGEE

This drawing is copyright and is the property of TAYLOR THOMSON WHITTING (NSW) Pty Ltd and must not be used without authorisation. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING S0001

GENERAL NOTES

- Contractor must verify all dimensions and existing levels on site prior to commencement of works. Any discrepancies to be reported to the Engineer.
- Strip all topsoil from the construction area. All stripped topsoil shall be disposed of off-site unless directed otherwise.
- Make smooth connection with all existing works.
- Compact subgrade under buildings and pavements to minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1. Compaction under buildings to extend 2m minimum beyond building footprint.
- All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority, the Contractor is to ensure that the drawings used for construction have been approved by all relevant authorities prior to commencement site.
- All work on public property, property which is to become public property, or any work which is to come under the control of the Statutory Authority is to be carried out in accordance with the requirements of the relevant Authority. Where the requirements of the Authority are different to the drawings and specifications, the requirements of the Authority shall be applicable.
- For all temporary batters refer to geotechnical recommendations.

REFERENCE DRAWINGS

- These drawings have been based from, and to be read in conjunction with the following Consultants drawings. Any conflict to the drawings must be notified immediately to the Engineer.

Consultant	Dwg Title	Dwg No	Rev Date

BOUNDARY AND EASEMENT NOTE

The property boundary and easement locations shown on Taylor Thomson Whitting drawing's have been based from information received from : **No boundary information received.**
Refer architect for boundary information and locations
Taylor Thomson Whitting makes no guarantees that the boundary or easement information shown is correct.
Taylor Thomson Whitting will accept no liabilities for boundary inaccuracies. The contractor/builder is advised to check/confirm all boundaries in relation to all proposed work prior to the commencement of construction. Boundary inaccuracies found are to be reported to the superintendent prior to construction starting.

SITWORKS LEGEND

	Finished surface level
	Finished contour
	Stormwater pit, flow direction and line with
	Invert level upstream
	Pipe size and class
	Pipe grade
	Flow (Litres per second)
	Invert level downstream
	Intermediate riser with subsol drainage line (100 dia)
	Flushing point with subsol drainage line (100 dia)
	Swale drain
	Dowelled expansion joint
	Sawn joint
	Keyed construction joint
	Weakened plane joint
	Expansion joint
	Tied key joint
	Grass catch drain

SURVEY AND SERVICES INFORMATION

SURVEY
Origin of levels :
Datum of levels : A.H.D. AUSTRALIAN HEIGHT DATUM
Coordinate system : ISG OR MGA OR LOCAL
Survey prepared by :
Setout Points : CONTACT THE SURVEYOR

Taylor Thomson Whitting does not guarantee that the survey information shown on these drawings is accurate and will accept no liability for any inaccuracies in the survey information provided to us from any cause whatsoever.

UNDERGROUND SERVICES - WARNING
The locations of underground services shown on Taylor Thomson Whittings drawings have been plotted from diagrams provided by service authorities. This information has been prepared solely for the authorities own use and may not necessarily be updated or accurate.

The position of services as recorded by the authority at the time of installation may not reflect changes in the physical environment subsequent to installation.

Taylor Thomson Whitting does not guarantee that the services information shown on these drawings shows more than the presence or absence of services, and will accept no liability for inaccuracies in the services information shown from any cause whatsoever.

The Contractor must confirm the exact location and extent of services prior to construction and notify any conflict with the drawings immediately to the Engineer/Superintendent.

The contractor is to get approval from the relevant state survey department, to remove/adjust any survey mark. This includes but is not limited to; State Survey Marks (SSM), Permanent Marks (PM), cadastral reference marks or any other survey mark which is to be removed or adjusted in any way.
Taylor Thomson Whitting plans do not indicate the presence of any survey mark. The contractor is to undertake their own search.

STORMWATER DRAINAGE NOTES

- Stormwater Design Criteria :
(A) Average recurrence interval -
1:100 years for roof drainage to first external pit
1:20 years for paved and landscaped areas
(B) Rainfall intensities -
Time of concentration: 6 minutes
1:100 years = mm/hr
1:20 years = mm/hr
(C) Runoff coefficients -
Roof areas: C_{ra} =
Landscaped areas: C_{la} =
- Pipes 300 dia and larger to be reinforced concrete Class " " approved spigot and socket with rubber ring joints U.N.O. 2
- Pipes up to 300 dia shall be sewer grade uPVC with solvent welded joints.
- Equivalent strength VCP or FRP pipes may be used subject to approval.
- Precast pits may be used external to the building subject to approval by
- Enlargers, connections and junctions to be manufactured fittings where pipes are less than 300 dia.
- Where subsol drains pass under floor slabs and vehicular pavements, unslotted uPVC sewer grade pipe is to be used.
- Grates and covers shall conform with AS 3996-2006, and AS 1428.1 for access requirements.
- Pipes are to be installed in accordance with AS 3725. All bedding to be type H2 U.N.O.
- Care is to be taken with levels of stormwater lines. Grades shown are not to be reduced without approval.
- All stormwater pipes to be 150 dia at 1.0% min fall U.N.O.
- Subsoil drains to be slotted flexible uPVC U.N.O.
- Adopt invert levels for pipe installation (grades shown are only nominal).

TENDER NOTES

- These drawings are preliminary drawings issued for tender as an indication of the extent of works only. They are not a complete construction set of drawings.
- To determine the full extent of work, these drawings shall be read in conjunction with the architectural drawings and other contract documents.
Allow for all items shown on architectural and other drawings as not all items are shown on the structural/civil works drawings.
- Should any ambiguity, error, omissions, discrepancy, inconsistency or other fault exist or seem to exist in the documents, immediately notify in writing to the Superintendent.
- Rates shown on the drawings are for the final structure/civil works in place and do not allow for any wastage, rolling margins, over supply or fabrication requirements etc.

SAFETY IN DESIGN

Contractor to refer to Appendix B of the Civil Specification for the Civil Risk and Solutions Register.

EXISTING SERVICES
Contractor to be aware existing services are located within the site. Location of all services to be verified by the Contractor prior to commencing works. Contractor to confirm with relevant authority regarding measures to be taken to ensure services are protected or procedures are in place to demolish and/or relocate.

EXISTING STRUCTURES
Contractor to be aware existing structures may exist within the site. To prevent damage to existing structure(s) and/or personnel, site works to be carried out as far as practicable possible from existing structure(s).

EXISTING TREES
Contractor to be aware existing trees exist within the site which need to be protected. To prevent damage to trees and/or personnel, site works to be carried out as far as practicable possible from existing trees. Advice needs to be sought from Arborist and/or Landscape Architect on measures required to protect trees.

GROUNDWATER
Contractor to be aware ground water levels are close to existing surface level. Temporary de-watering may be required during construction works.

EXCAVATIONS
Deep excavations due to stormwater drainage works is required. Contractor to ensure safe working procedures are in place for works. All excavations to be fenced off and batters adequately supported to approval of Geotechnical Engineer.

GROUND CONDITIONS
Contractor to be aware of the site geotechnical conditions.

HAZARDOUS MATERIALS

Existing asbestos products & contaminated material may be present on site. Contractor to ensure all hazardous materials are identified prior to commencing works. Safe working practises as per relevant authority to be adopted and appropriate PPE to be used when handling all hazardous materials.

CONFINED SPACES

Contractor to be aware of potential hazards due to working in confined spaces such as stormwater pits, trenches and/or tanks. Contractor to provide safe working methods and use appropriate PPE when entering confined spaces.

MANUAL HANDLING

Contractor to be aware manual handling may be required during construction. Contractor to take appropriate measures to ensure manual handling procedures and assessments are in place prior to commencing works.

WATER POLLUTION

Contractor to ensure appropriate measures are taken to prevent pollutants from construction works contaminating the surrounding environment.

SITE ACCESS/EGRESS

Contractor to be aware site works occur in close proximity to footpaths and roadways. Contractor to erect appropriate barriers and signage to protect site personnel and public.

VEHICLE MOVEMENT

Contractor to supply and comply with traffic management plan and provide adequate site traffic control including a certified traffic marshal to supervise vehicle movements where necessary.

RETAINING WALLS

- Drainage shall be provided as shown on the drainage drawings and the Engineering design in Landscape Architects drawings.
- Backfilling shall be carried out after grout or concrete has reached a minimum strength of 0.85 f_c. Backfilling shall be approved granular material compacted in layers not exceeding 200mm to 95% Standard compaction unless noted otherwise.
- Provide waterproofing to back of walls as specified or noted.
- Where retaining walls rely on connecting structural elements for stability, do not backfill against the wall unless it is adequately propped or the elements have been constructed and have sufficient strength to withstand the loads.
- For all temporary batters obtain geotechnical engineers recommendations.

STORMWATER DRAINAGE NOTES

- Stormwater Design Criteria :
(A) Average recurrence interval -
1:100 years for roof drainage to first external pit
1:20 years for paved and landscaped areas
(B) Rainfall intensities -
Time of concentration: 6 minutes
1:100 years = 207 mm/hr
1:20 years = 158 mm/hr
(C) Runoff coefficients -
Roof areas: C_{ra} = 1.00
Landscaped areas: C_{la} = 0.45
- Pipes 300 dia and larger to be reinforced concrete Class " " approved spigot and socket with rubber ring joints U.N.O. 2
- Pipes up to 300 dia shall be sewer grade uPVC with solvent welded joints.
- Equivalent strength VCP or FRP pipes may be used subject to approval.
- Precast pits may be used external to the building subject to approval by
- Enlargers, connections and junctions to be manufactured fittings where pipes are less than 300 dia.
- Where subsol drains pass under floor slabs and vehicular pavements, unslotted uPVC sewer grade pipe is to be used.
- Grates and covers shall conform with AS 3996-2006, and AS 1428.1 for access requirements.
- Pipes are to be installed in accordance with AS 3725. All bedding to be type H2 U.N.O.
- Care is to be taken with levels of stormwater lines. Grades shown are not to be reduced without approval.
- All stormwater pipes to be 150 dia at 1.0% min fall U.N.O.
- Subsoil drains to be slotted flexible uPVC U.N.O.
- Adopt invert levels for pipe installation (grades shown are only nominal).

JOINTING NOTES

- Vehicular Pavement Jointing**
- All vehicular pavements to be jointed as shown on drawings.
 - Keyed construction joints should generally be located at a maximum of 6m centres.
 - Sawn joints should generally be located at a maximum of 6m centres or 1.5 x the spacing of keyed joints, where key joint spacing is less than 4m, with dowelled expansion joints at maximum of 30m centres.
 - Provide 10mm wide full depth expansion joints between buildings and all concrete or unit pavers.
 - The timing of the saw cut is to be confirmed by the contractor on site. Site conditions will determine how many hours after the concrete pour before the saw cuts are commenced. Refer to the specification for weather conditions and temperatures required.
 - Vehicular pavement jointing as follows.

F A C E O F K E R B	
DEJA	DEJA
DEJA	DEJA
DEJA	DEJA
EJ	F A C E O F B U I L D I N G

Pedestrian Footpath Jointing

- Expansion joints are to be located where possible at tangent points of curves and elsewhere at max 6.0m centres.
- Weakened plane joints are to be located at a max 1.5 x width of the pavement.
- Where possible joints should be located to match kerbing and / or adjacent pavement joints.
- All pedestrian footpath jointings as follows.

F A C E O F K E R B	
DEJA	DEJA
DEJA	DEJA
DEJA	DEJA
EJ	F A C E O F B U I L D I N G

SITWORKS NOTES

- All basecourse material to comply with RTA specification No 3051 and compacted to minimum 98% modified standard dry density in accordance with AS 1289 5.2.1.
- All trench backfill material shall be compacted to the same density as the adjacent material.
- All service trenches under vehicular pavements shall be backfilled with an approved select material and compacted to a minimum 98% standard maximum dry density in accordance with AS 1289 5.1.1

CONCRETE NOTES

EXPOSURE CLASSIFICATION : External :B1
Internal :A1

CONCRETE

Place concrete of the following characteristic compressive strength f_c as defined in AS 1379.

Location	AS 1379 f _c MPa at 28 days	Specified Slump	Nominal Agg. Size
FOOTING	S32	80	20
SLAB ON GROUND	S32	80	20
RETAINING WALL	Refer to Engineering design in Landscape Architects drawings.		

- Use Type 'GP' cement, unless otherwise specified.
- All concrete shall be subject to project assessment and testing to AS 1379.
- Consolidate by mechanical vibration. Cure all concrete surfaces as directed in the Specification.
- For all falls in slab, drip grooves, regets, chamfers etc. refer to Architects drawings and specifications.
- Unless shown on the drawings, the location of all construction joints shall be submitted to Engineer for review.
- No holes or chases shall be made in the slab without the approval of the Engineer.
- Conduits and pipes are to be fixed to the underside of the top reinforcement layer.
- Slurry used to lubricate concrete pump lines is not to be used in any structural members.
- All slabs cast on ground require sand blinding with a Concrete Underlay.

FORMWORK

- The design, certification, construction and performance of the formwork, falsework and backpropping shall be the responsibility of the contractor. Proposed method of installation and removal of formwork is to be submitted to the superintendent for comment prior to work being carried out.

REINFORCEMENT NOTES

- Fix reinforcement as shown on drawings. The type and grade is indicated by a symbol as shown below. On the drawings this is followed by a numeral which indicates the size in millimetres of the reinforcement.
N. Hot rolled ribbed bar grade D500N
R. Plain round bar grade R250N
SL. Square mesh grade 500L
RL. Rectangular mesh grade 500L
- Cover bar supports or spacers to give the following concrete cover to all reinforcement unless otherwise noted on drawings.
Footings - 50 top, 50 bottom, 50 sides.
Walls - 50 generally,
- 50 when cast in forms but later exposed to weather or ground.
- 50 when cast directly in contact with ground.
- Cover to reinforcement ends to be 50 mm u.n.o.
- Provide N12-450 support bars to top reinforcement as required, Lap 500 U.N.O.
- Maintain cover to all pipes, conduits, regets, drip grooves etc.
- All cogs to be standard cogs unless noted otherwise.
- Fabric end and side laps are to be placed strictly in accordance with the manufacturers requirements to achieve a full tensile lap. Fabric shall be laid so that there is a maximum of 3 layers at any location.

F A C E O F K E R B	
DEJA	DEJA
DEJA	DEJA
DEJA	DEJA
EJ	F A C E O F B U I L D I N G

FABRIC LAPS

- Laps in reinforcement shall be made only where shown on the drawings unless otherwise approved. Lap lengths as per table below.

SURVEY LEGEND

	Surface level
	Contour
	Kerb line
	Batter
	Retaining wall
	Stormwater drainage line
	Telecommunications line
	Gas line
	Water main
	Sewer line
	Electrical line
	Easement
	Fence
	Tree to be removed/be retained
	Boundary
	Sign
	Hydrant
	Manhole
	Gas
	Stop Valve
	Water
	Telecommunications
	Trap
	Gully
	Grate
	Sewer Manhole
	Electricity
	Electric Light Pole
	Traffic Light
	Traffic Light Lid
	Traffic Light Box
	Telephone Box
	Parking Meter
	Permanent Mark
	Bench Mark
	Borehole
	Test Pit
	Fuel Cock
	Flood Light
	Lamp Hole
	Bubbler
	Letter Box
	Flag Pole
	Flag Pole Box
	Bollard
	Seat
	Bin
	Kerb Outlet

DRAWING SCHEDULE

No	Drawing Title
C00	NOTES AND LEGEND SHEET
C01	EROSION & SEDIMENT CONTROL PLAN AND DETAILS
C02	STORMWATER MANAGEMENT AND SITE WORKS PLAN
C10	DETAILS SHEET

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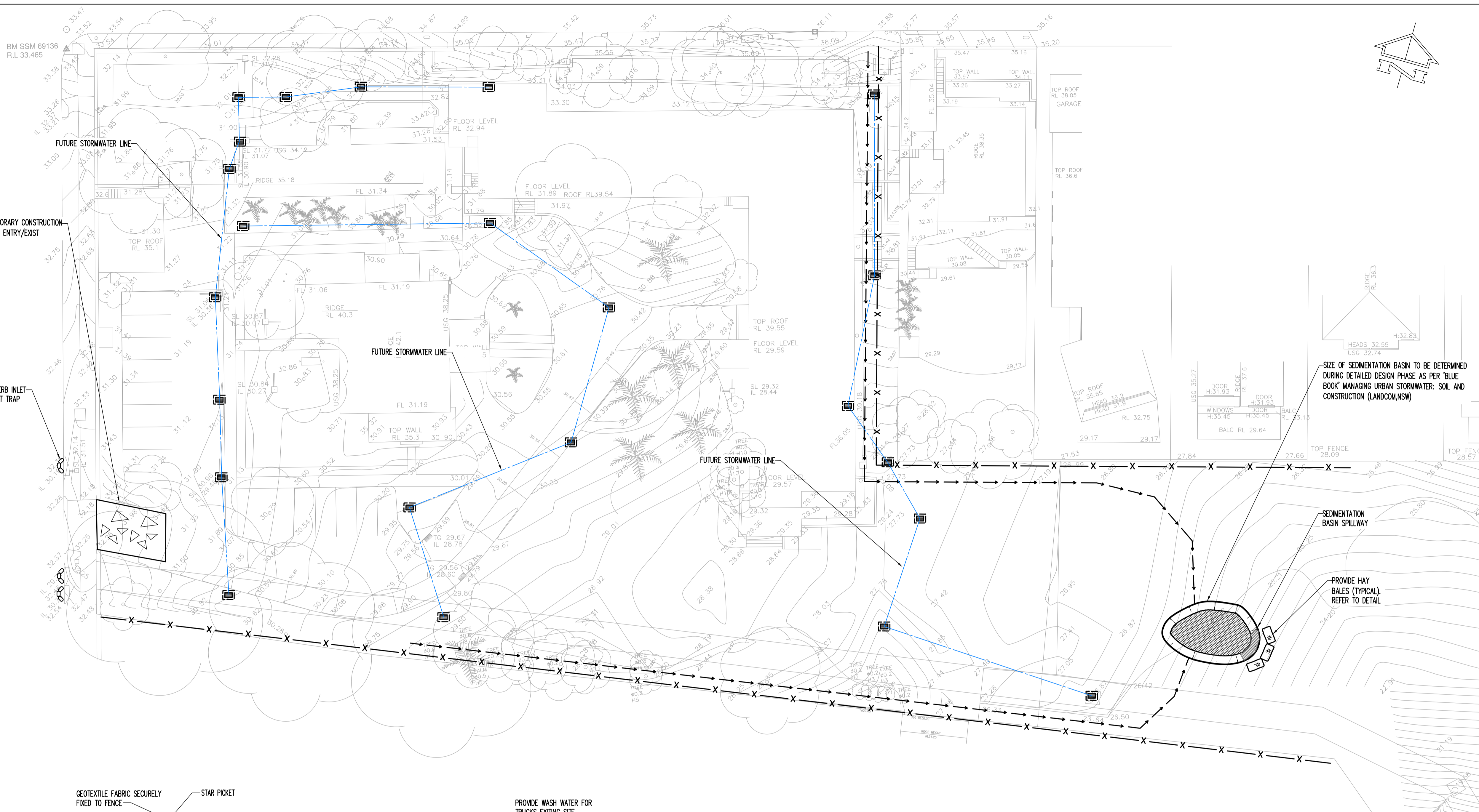
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STREET

BEACH

INSTALL TEMPORARY CONSTRUCTION VEHICLE ONLY ENTRY/EXIT

SANDBAG KERB INLET PIT SEDIMENT TRAP



SIZE OF SEDIMENTATION BASIN TO BE DETERMINED DURING DETAILED DESIGN PHASE AS PER 'BLUE BOOK MANAGING URBAN STORMWATER: SOIL AND CONSTRUCTION (LANDCOM/NSW)

PROVIDE HAY BALES (TYPICAL) REFER TO DETAIL

EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with
 - Local authority requirements,
 - EPA - Pollution control manual for urban stormwater, and
 - LANDCOM NSW - Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

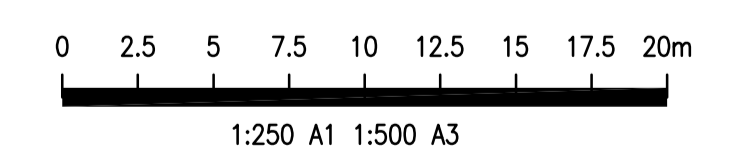
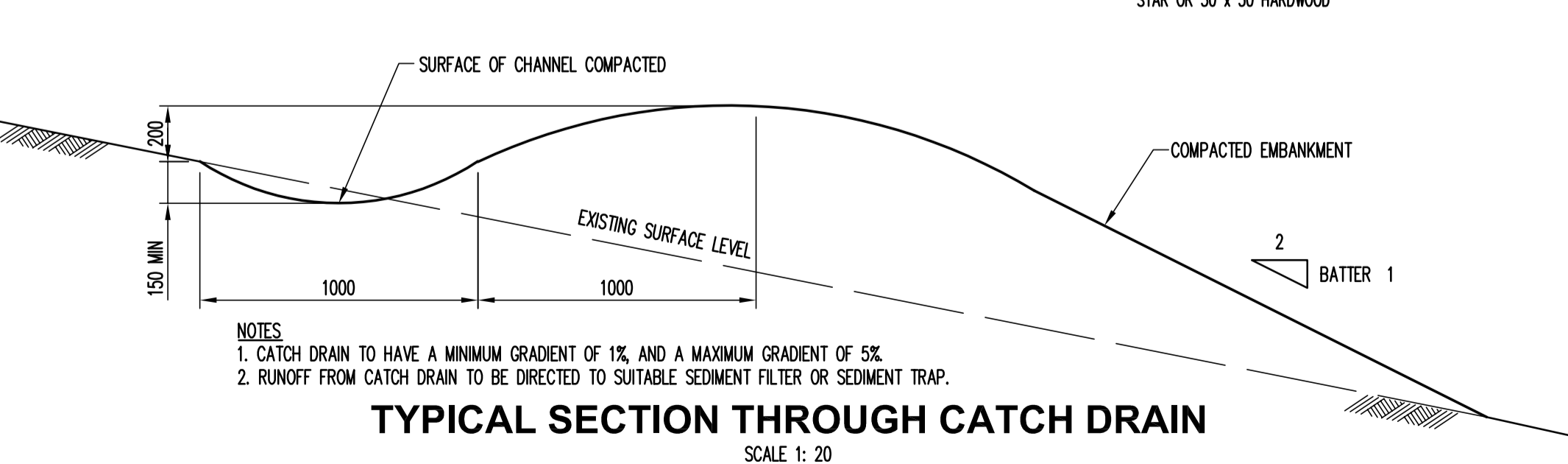
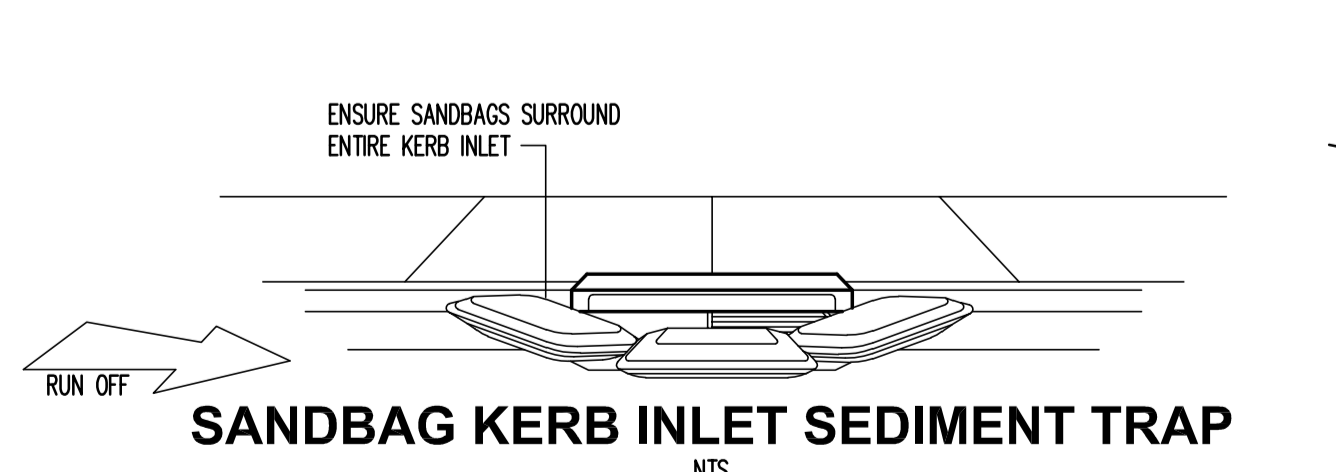
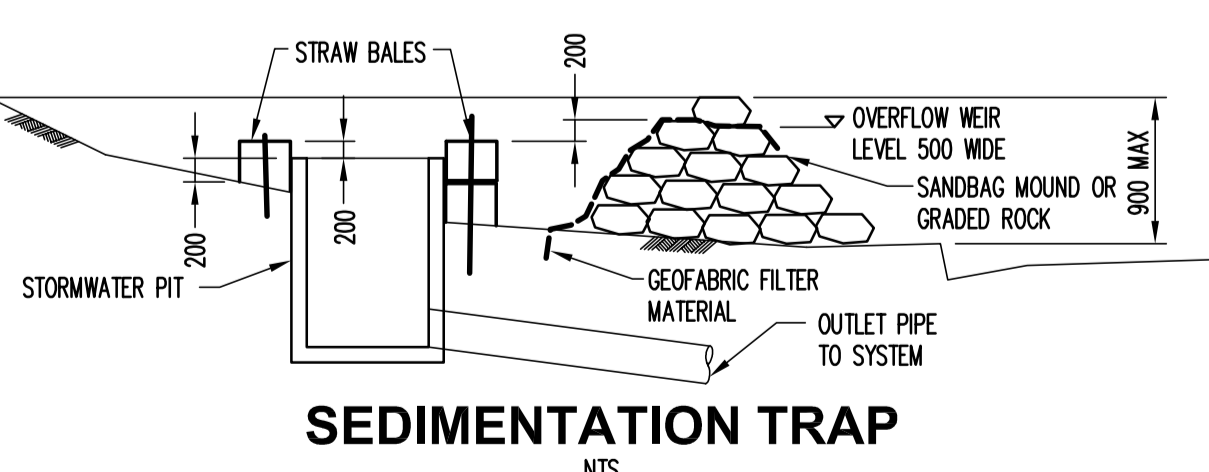
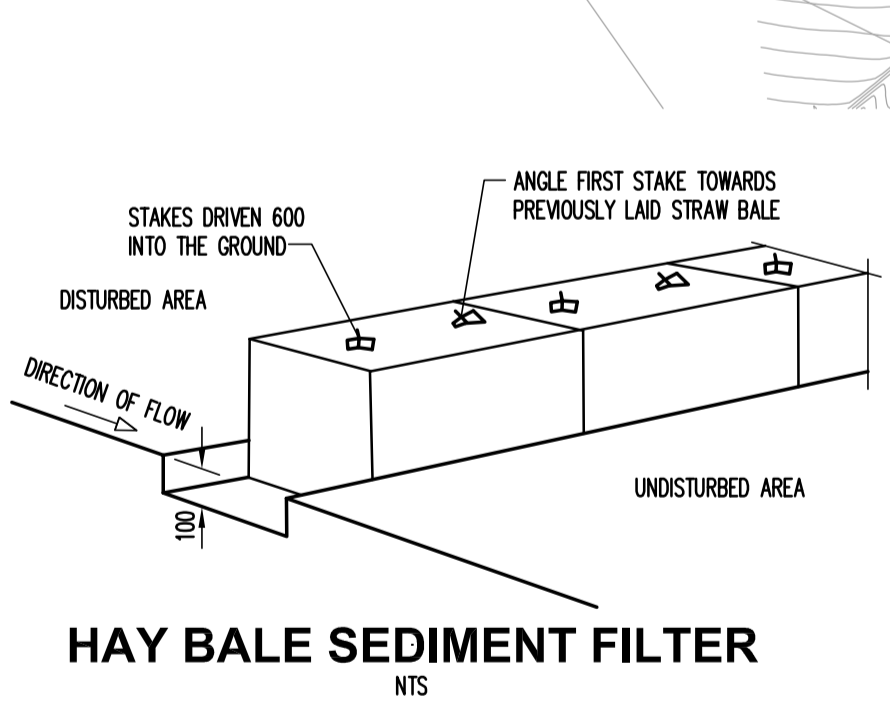
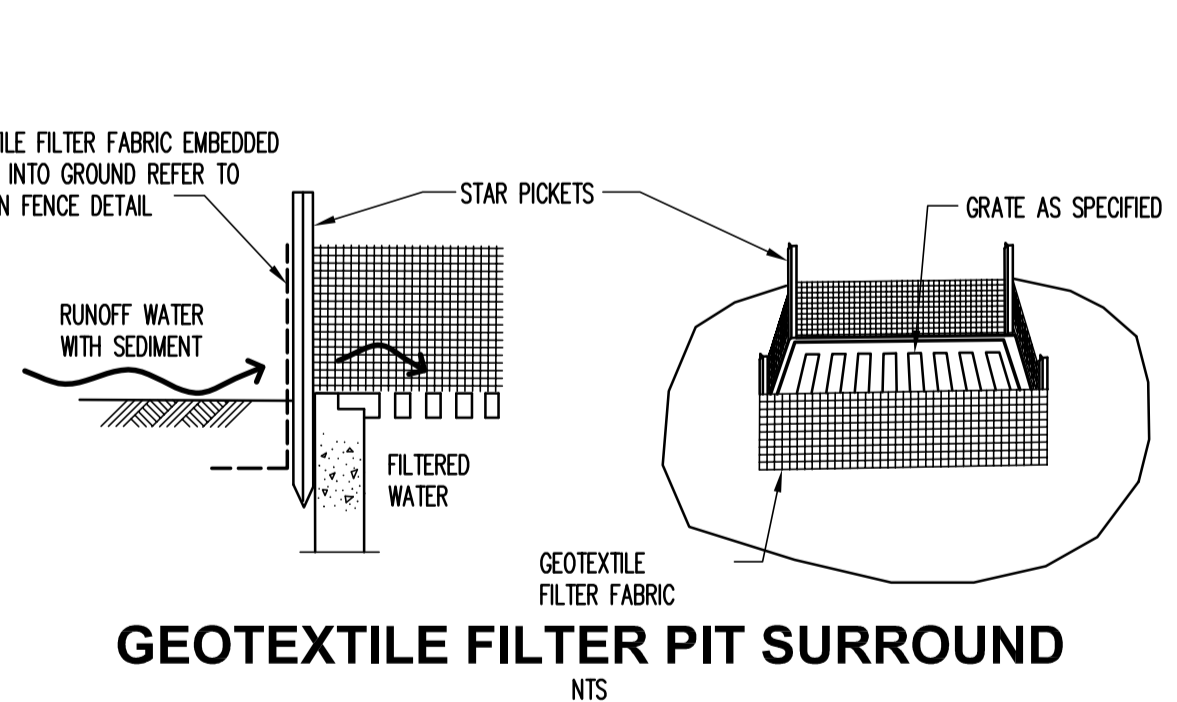
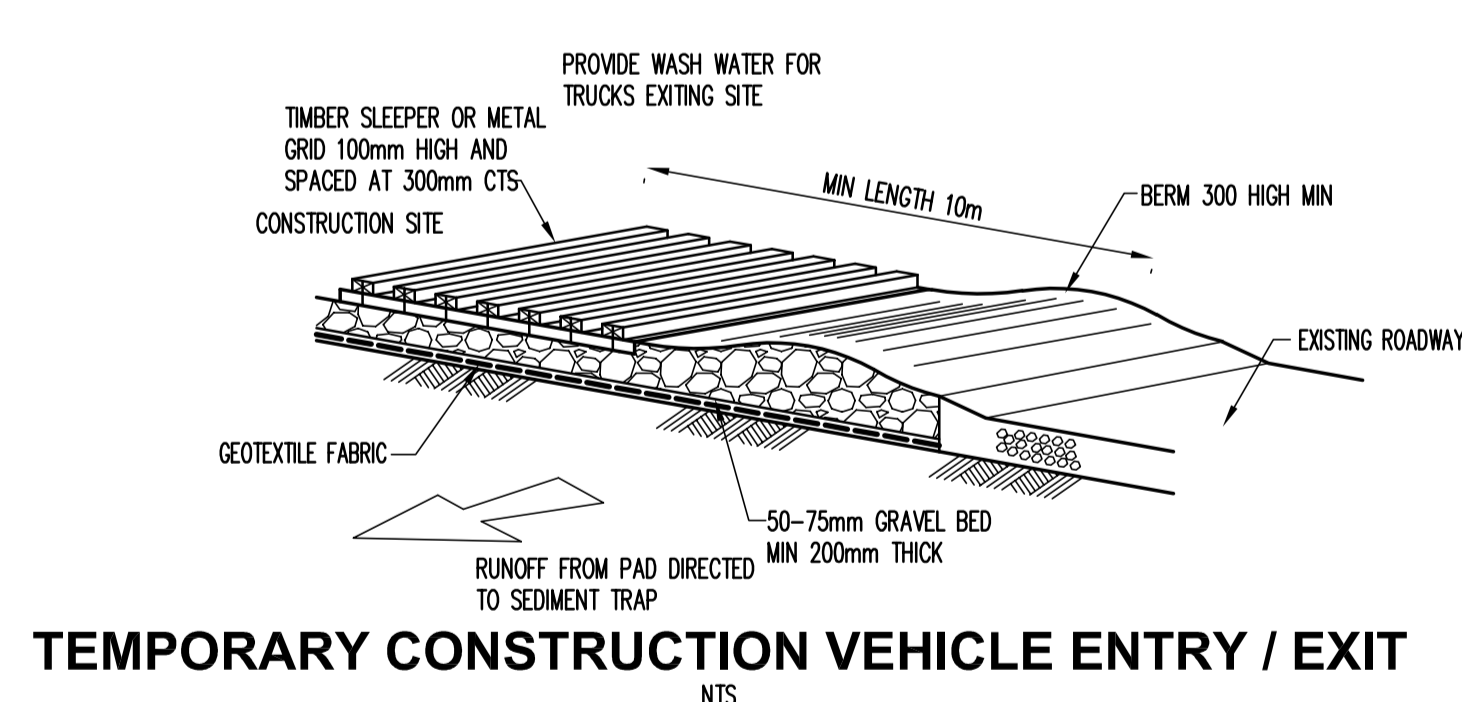
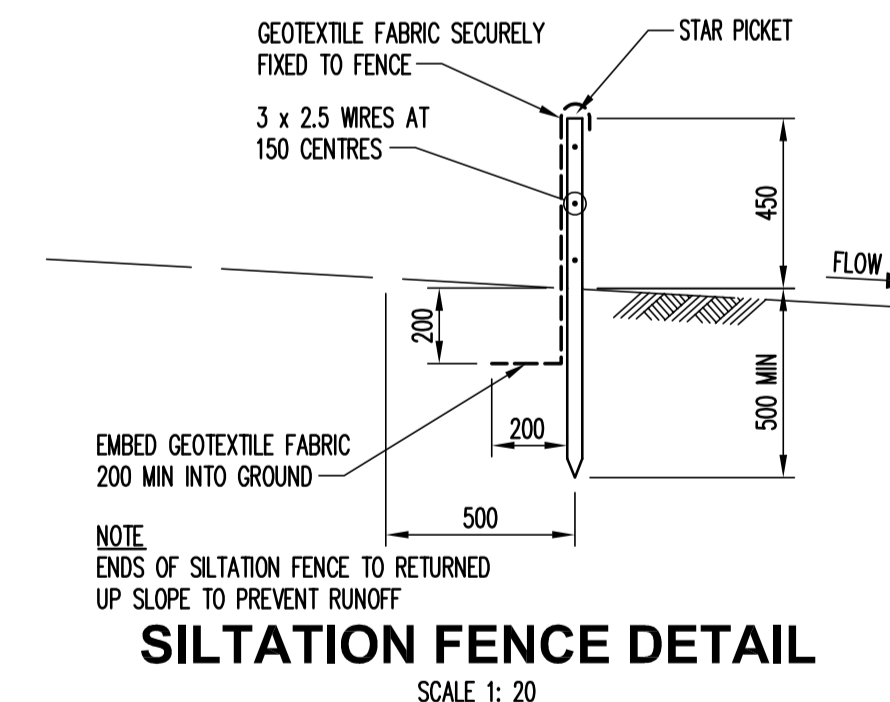
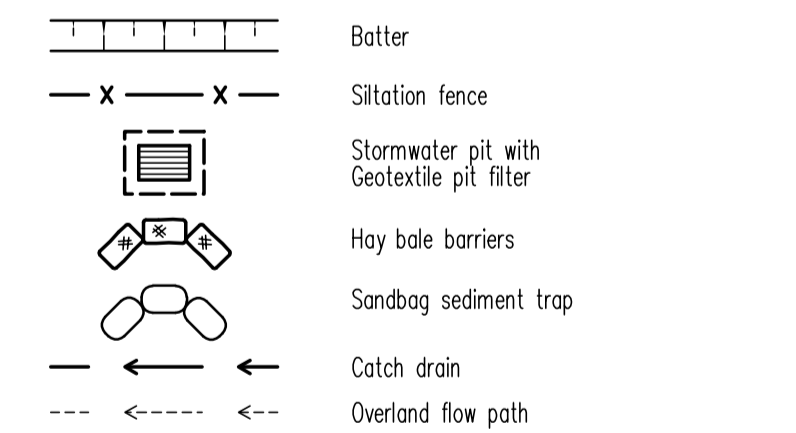
- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct silt fences below the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Provide sandbag sediment traps upstream of existing pits.
 - Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environmental consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL LEGEND



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Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
A	ISSUE FOR SSD APPLICATION	WW	RG	13.04.17										

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Project
UNSW CLIFFBROOK CAMPUS REDEVELOPMENT, COOGEE

Sheet Subject
EROSION & SEDIMENT CONTROL PLAN AND DETAILS

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Authorised:
Job No: 161031
Drawing No: C01
Revision: A
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