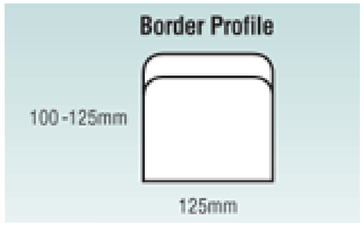

NOTES:

TOTAL = 2494.1 m2
IMPERVIOUS = 1505.9 m2 (60.4%)
PERVIOUS = 988.2m2 (39.6%)

OSD SIZING BASED ON GEORGES RIVER COUNCIL STORMWATER MANAGEMENT POLICY 2021 TABLE 3:
SSR = 51.4 m3
PSD = 45.4 L/s
CAN HAVE UP TO 20% OFFSET FOR OSD STORAGE FOR RWT RE-USE USAGE

1% AEP FLOOD LEVEL (TAILWATER) - RL 27.38

OSD 1:
TOTAL AREA = 1803.8 m2 (72.3%)
SSR = 37.2 m3
PSD = 32.8 L/s
BYPASS = 141.3 m2 (0% IMPERVIOUS)
BYPASS PSD = 5.6 L/s
REMAINING OSD 1 PSD = 27.2 L/s

OSD 2:
TOTAL AREA = 690.3 m2 (27.7%)
SSR = 14.2 m3
PSD = 12.6 L/s
BYPASS = 125.4 m2 (28.7% IMPERVIOUS)
BYPASS PSD = 4.8 L/s
REMAINING OSD 1 PSD = 7.8 L/s

HAVE 27.7% OF OSD STORAGE BELOW 1% AEP FLOOD LINE (DROWNED ORIFICE). THIS IS BELOW THE 30% AS OUTLINED IN GEORGES RIVER COUNCIL STORMWATER MANAGEMENT POLICY 2021 SECTION 4.13

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SCALE	1:200
PROJECT MGR	GC

CIVIL SKETCH

SITE STORMWATER PLAN

Proposed Seniors Housing Development
10-14 Munmurra Road and 5 Bernadotte St Riverwood NSW 2210
Custance Associates Australia Pty Ltd

N0221293
CSK01 G

NOTES:

- ALL BALCONIES TO BE PICKED UP VIA RAINWATER OUTLETS WITH AN ADEQUATE OVERFLOW SYSTEM

- ALL BALCONIES TO HAVE THRESHOLD DRAINS

- ALL RAINWATER OUTLETS TO CONNECT INTO THE MAIN STORMWATER LINE PROPOSED AT GROUND LEVEL

BERNADOTTE STREET

1 DA-007

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CIVIL SKETCH

LEVEL 1 STORMWATER PLAN

Proposed Seniors Housing Development

10-14 Munmurra Road and 5 Bernadotte St Riverwood NSW 2210

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NOTES:

- ALL GUTTERING TO BE EAVES GUTTER UNLESS SPECIFIED OTHERWISE

- DOWNPIPES AND EAVES GUTTERS TO BE SIZED DURING CC STAGE

- DOWNPIPE LOCATIONS ARE INDICATIVE AND SUBJECT TO CHANGE

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SCALE	1:100
PROJECT MGR	GC

CIVIL SKETCH

ROOF STORMWATER PLAN

Proposed Seniors Housing Development
10-14 Munmurra Road and 5 Bernadotte St Riverwood NSW 2210
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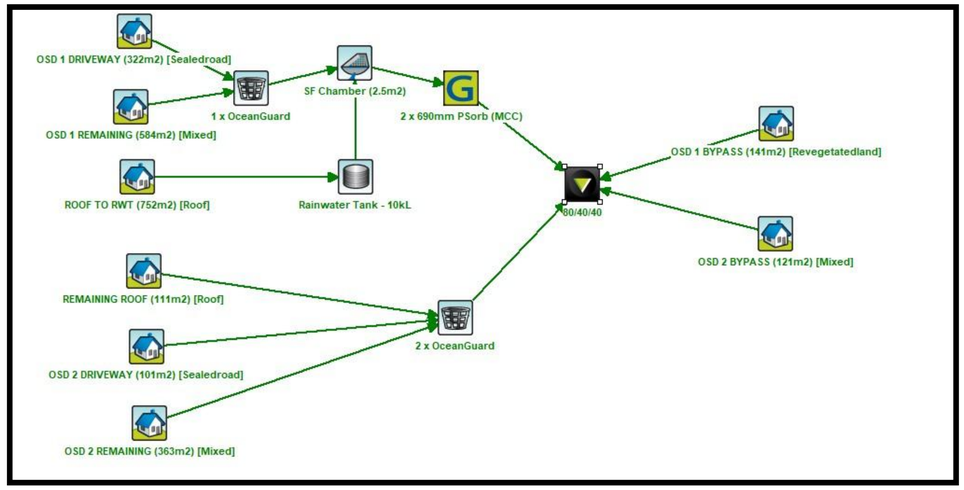
Legend

Description	Quantity	Unit
OSD 1 BYPASS	141.33	sq m
OSD 1 DRIVEWAY	322.06	sq m
OSD 1 PERVIOUS	466.31	sq m
OSD 1 REMAINING IMPERVIOUS	117.63	sq m
OSD 2 BYPASS	120.69	sq m
OSD 2 DRIVEWAY	100.61	sq m
OSD 2 PERVIOUS	277.79	sq m
OSD 2 REMAINING IMPERVIOUS	84.83	sq m
REMAINING ROOF	111.42	sq m
ROOF TO RWT	751.74	sq m



MUSIC MODEL

Treatment Train Effectiveness - 80/40/40

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.47	2.34	5.2
Total Suspended Solids (kg/yr)	339	59.1	82.6
Total Phosphorus (kg/yr)	0.763	0.345	54.8
Total Nitrogen (kg/yr)	5.8	3.47	40.2
Gross Pollutants (kg/yr)	54.4	1.44	97.4

MUSIC RESULTS

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CIVIL SKETCH

WSUD PLAN

Proposed Seniors Housing Development
10-14 Munmurra Road and 5 Bernadotte St Riverwood NSW 2210
Custance Associates Australia Pty Ltd

N0221293
CSK04 G

PROPOSED SENIORS DEVELOPMENT

10-14 Munmurra Road & 5 Bernadotte Street, Riverwood NSW 2210

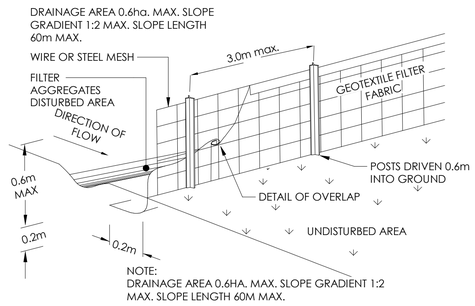
Job No. N0221293

ENVIRONMENTAL SITE MANAGEMENT

1. EROSION & SEDIMENT CONTROLS TO BE INSTALLED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION & THE NSW DEPARTMENT OF HOUSING "BLUE BOOK" - SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER, 2004. REFER TO THE BLUE BOOK FOR STANDARD DRAWINGS "SD"
2. SEDIMENT & EROSION CONTROLS MUST BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS OR DEMOLITION ACTIVITY. THE LOCATION OF SUCH DEVICES IS INDICATIVE ONLY AND FINAL POSITION SHOULD BE DETERMINED ON SITE.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MEASURES ARE TAKEN DURING THE COURSE OF CONSTRUCTION TO PREVENT SEDIMENT EROSION AND POLLUTION OF THE DOWNSTREAM SYSTEM. SUPERVISING ENGINEER SHOULD BE CONTACTED IF IN DOUBT. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED SOIL STOCKPILE SITE.
4. RETAIN ALL EXISTING GRASS COVER WHEREVER POSSIBLE. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE. A SEDIMENT FENCE TO BE PLACED DOWNHILL OF STOCKPILE.
5. AREAS OF SITE REGRADING ARE TO BE COMPLETED PROGRESSIVELY DURING THE WORKS AND STABILISED AS EARLY AS POSSIBLE. THE SUPERVISING ENGINEER MAY DIRECT THE CONTRACTOR TO HAVE AREAS OF DISTURBANCE COMPLETED AND STABILISED DURING THE COURSE OF THE WORKS.
6. ALL DISTURBED AREAS ARE TO BE SEEDED & FERTILISED WITHIN 14 DAYS OF EXPOSURE.
7. ALL EXISTING TREES TO BE RETAINED UNLESS SHOWN OTHERWISE ON APPROVED DRAWINGS. TREES RETAINED ARE TO BE PROTECTED WITH A HIGH VISIBILITY FENCE, PLUS FLAGGING TO INDIVIDUAL TREES AS NECESSARY.
8. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADEN WATER, UNTIL SURROUNDING AREAS ARE PAVED OR REGRASSED. GRAVEL OR GEOTEXTILE INLET FILTERS TO SD6-11 & SD6-12.
9. ALL SILT FENCES & BARRIERS ARE TO BE MAINTAINED IN GOOD ORDER & REGULARLY DESILTED DURING THE CONSTRUCTION PERIOD. SILT FENCES TO SD6-8 OR SD6-9.
10. STOCKPILES OF LOOSE MATERIALS SUCH AS SAND, SOIL, GRAVEL MUST BE COVERED WITH GEOTEXTILE SILT FENCE MATERIAL. PLASTIC SHEETING OR MEMBRANE MUST NOT BE USED. SAFETY BARRICADING SHOULD BE USED TO ISOLATE STOCKPILES OF SOLID MATERIALS SUCH AS STEEL REINFORCING, FORMWORK AND SCAFFOLDING.
11. WASTE MATERIALS ARE TO BE STOCKPILED OR LOADED INTO SKIP-BINS LOCATED ON SITE AS SHOWN ON PLAN.
12. NO MORE THAN 150m OF TRENCHING TO BE OPEN AT ANY ONE TIME. IMMEDIATELY AFTER TRENCH BACKFILLING, PROVIDE SANDBAGS OR SAUSAGE FILTERS ACROSS EACH TRENCH AT MAXIMUM 20m SPACINGS. FILTERS TO REMAIN IN PLACE UNTIL REVEGETATION HAS OCCURRED.
13. ALL VEHICLES LEAVING THE SITE MUST PASS OVER THE STABILISED SITE ACCESS BALLAST AREA (SIMILAR TO SD6-14) TO SHAKE OFF SITE CLAY AND SOIL. IF NECESSARY WHEELS AND AXLES ARE TO BE HOSED DOWN. BALLAST IS TO BE MAINTAINED & REPLACED AS NECESSARY DURING THE CONSTRUCTION PERIOD.
14. THE HEAD CONTRACTOR IS TO INFORM ALL SITE STAFF AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN.
15. ANY SEDIMENT DEPOSITED ON THE PUBLIC WAY, INCLUDING FOOTPATH RESERVE AND ROAD SURFACE, IS TO BE REMOVED IMMEDIATELY.
16. PROVIDE BARRIERS AROUND ALL CONSTRUCTION WORKS WITHIN THE FOOTPATH AREA TO PROVIDE SAFE ACCESS FOR PEDESTRIANS.
17. CONCRETE PUMPS AND CRANES ARE TO OPERATE FROM WITHIN THE BALLAST ENTRY DRIVEWAY AREA AND ARE NOT TO OPERATE FROM THE PUBLIC ROADWAY UNLESS SPECIFIC COUNCIL PERMISSION IS OBTAINED.
18. DELIVERY VEHICLES MUST NOT STAND WITHIN THE PUBLIC ROADWAY FOR MORE THAN 20 MINUTES AT A TIME.
19. TRUCKS REMOVING EXCAVATED / DEMOLISHED MATERIAL SHOULD TRAVEL ON STABILISED CONSTRUCTION PATHS. MATERIAL TO BE TAKEN TO THE TRUCK TO REDUCE TRUCK MOVEMENT ON SITE. TRUCKS TO BE LIMITED TO SINGLE UNIT HEAVY RIGID VEHICLES. (NO SEMITRAILERS)
20. ANY EXCAVATION WORK ADJACENT TO ADJOINING PROPERTIES OR THE PUBLIC ROADWAY IS NOT TO BE COMMENCED UNTIL THE STRUCTURAL ENGINEER IS CONSULTED AND SPECIFIC INSTRUCTIONS RECEIVED FROM THE ENGINEER.
21. TOILET FACILITIES MUST BE EITHER A FLUSHING TYPE OR APPROVED PORTABLE CHEMICAL CLOSET. CHEMICAL CLOSETS ARE TO BE MAINTAINED & SERVICED ON A REGULAR BASIS SO THAT OFFENSIVE ODOUR IS NOT EMITTED.
22. DURING TRENCH EXCAVATION ALL SPOIL SHALL BE MOUNDED ON THE UPHILL SIDE OF TRENCHES AND PLACEMENT IS TO COMPLY WITH THE SUPERINTENDENTS REQUIREMENT.
23. DIVERSION BANKS SHOULD BE CONSTRUCTED BY MOUNDING STRIPPED TOPSOIL (MIN HEIGHT 600mm) WHERE DIRECTED. MATERIAL TO BE RESPREAD ON FOOTWAYS AFTER FINAL TRIMMING.
24. UNDISTURBED BUFFER ZONE AREAS ARE CLOSED TO ALL TRAFFIC MOVEMENTS UNLESS OTHERWISE NOTED BY THE SUPERINTENDENT AND ACCESS TO THE SEWER OR C.D.L. TRENCHING WILL BE AS SHOWN, OR HEAVY PENALTIES MAY BE IMPOSED.
25. TRAFFIC MANAGEMENT MEASURES ARE REQUIRED TO BE IMPLEMENTED AND MAINTAINED DURING CONSTRUCTION. IN ACCORDANCE WITH 'R.T.A. TRAFFIC CONTROL AT WORK SITES - CURRENT EDITION' AND AS 1742 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.'
26. PEDESTRIAN CONTROL MEASURES ARE REQUIRED TO BE IMPLEMENTED AND MAINTAINED DURING CONSTRUCTION. IN ACCORDANCE WITH AS 1742 'MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.'

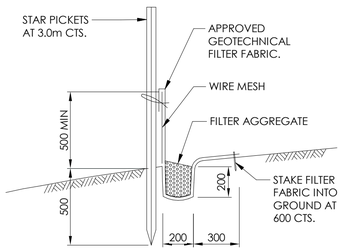
ENVIRONMENTAL SITE MANAGEMENT LEGEND

SYMBOL	DESCRIPTION
	PROPOSED BUILDING LINE
	PROPOSED BUILDING ROOF OUTLINE
	PROPRIETARY SILT FENCE
	PROVIDE TEMPORARY CHAIN WIRE FENCING (HOARDING) ALONG THE SITE BOUNDARY
	TEMPORARY STABALISED CONSTRUCTION ENTRY/EXIT. (SHAKER PAD)
	TEMPORARY FILTER TUBE WITH SAFETY BARRICADE TO KERB INLET PITS.
	TEMPORARY MASS CONCRETE FOOTPATH CROSSING.
	DIRECTION OF FLOW
	DIVERSION BANK
	SURFACE INLET DRAINAGE PIT WITH SURROUNDING FILTER FABRIC INLET SEDIMENT TRAP OR FILTER TUBES (SANDBAGS)
	TEMPORARY GEOTEXTILE WRAPPED HAY BALES/SAND BAGS
	SANDBAG SEDIMENT INLET TRAP
	SANDBAG KERB SEDIMENT TRAP



SEDIMENT FENCE

GENERAL CONSTRUCTION NOTES
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS IN GROUND 3m APART.
3. DIG A 200mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT WITH A 150m OVERLAP.



SILT FENCE DETAIL

SEDIMENT SILT FENCE DETAIL

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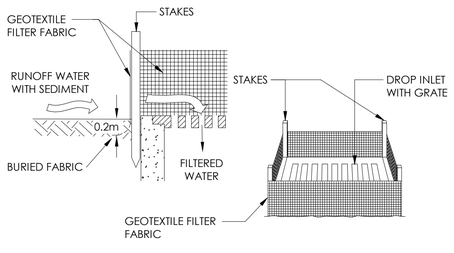
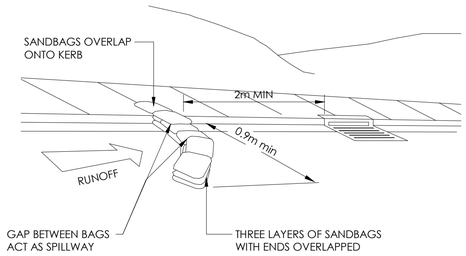


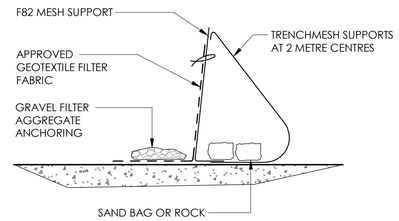
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP DETAIL

SCALE 1 : 20



SANDBAG SEDIMENT TRAP DETAIL

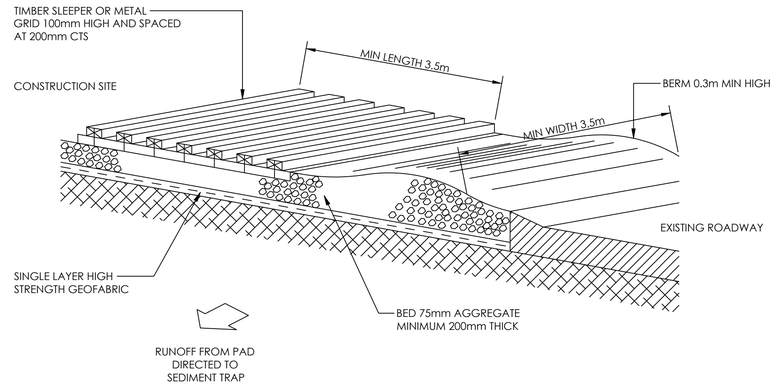
SCALE 1 : 20

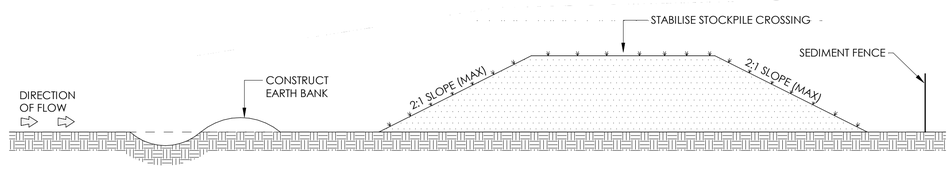


GENERAL CONSTRUCTION NOTES:
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
3. JOIN SECTIONS OF FABRIC AT A SUPPORT WITH A 150mm OVERLAP.
4. REFER TO DETAIL SD 6-9 "BLUE BOOK"

SEDIMENT FENCE - ALTERNATIVE

SCALE 1 : 20





STOCKPILES

N.T.S

GENERAL CONSTRUCTION NOTES:
1. LOCATE STOCKPILE AT LEAST 5m FROM VEGETATION, CONCENTRATED WATER FLOWS, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS A LOW FLAT ELONGATED MOUND.
3. WHERE THERE IS A SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT. (TO ALLOW AIR VENTILATION FOR FUTURE REUSE)
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE 1m TO 2m DOWNSLOPE OF STOCKPILE.

STOCKPILES

Responsive Engineering

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CIVIL SKETCH

ESM SITE PLAN

Proposed Senior Development

10-14 Munmurra Road and 5 Bernadotte St Riverwood NSW 2210

Custance Associates Australia Pty Ltd

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