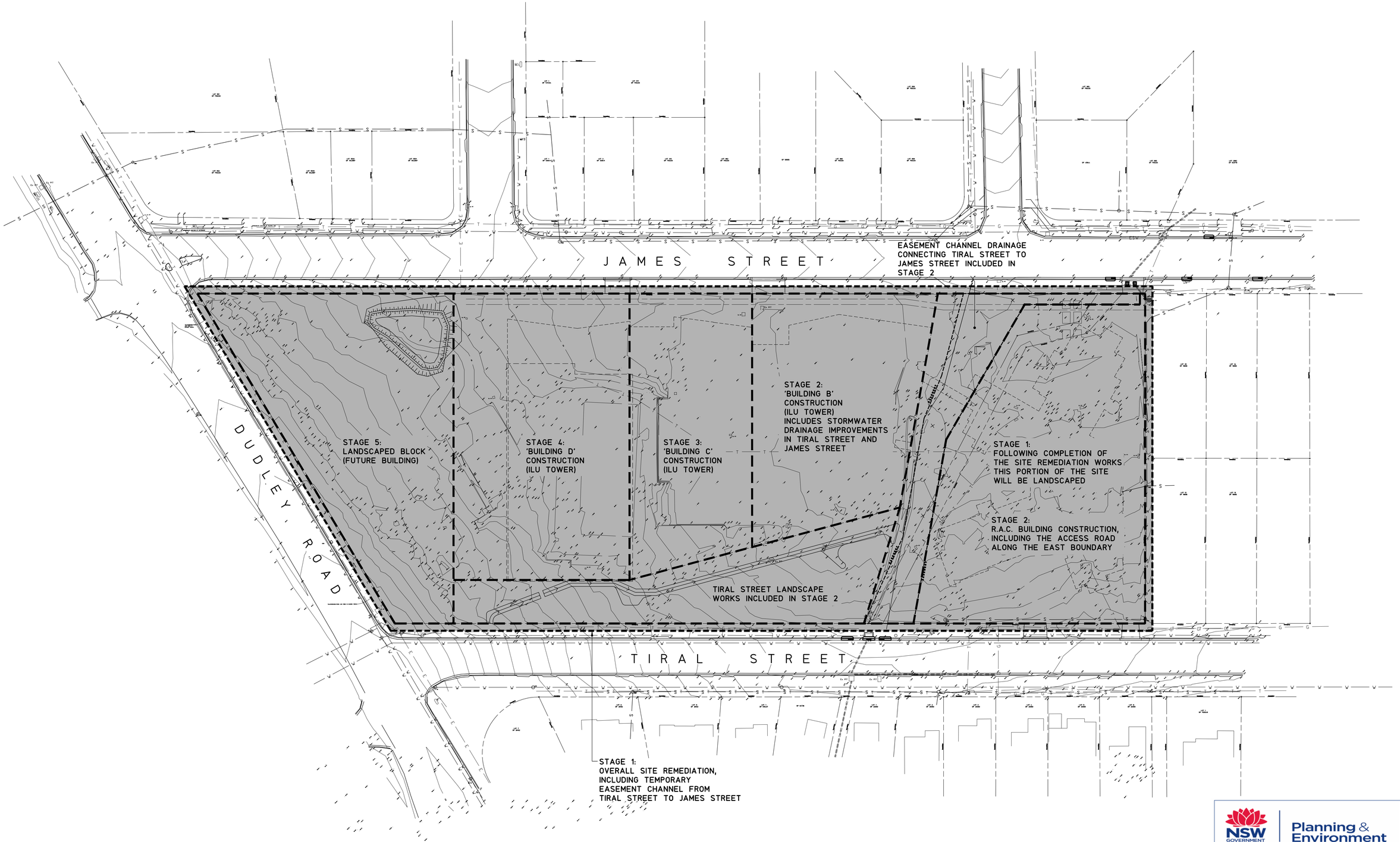

SOIL AND WATER MANAGEMENT OVERALL STAGING PLAN

SCALE 1:500

NOT FOR CONSTRUCTION

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment Act

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 1 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DEVELOPMENT APPLICATION	19.11.21

mpc consulting engineers civil+structural

Level 1,
16 Telford Street,
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THE JUNCTION, NSW 2291
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Fax: (02) 4927 5577
Email: admin@mpceng.com.au
Web: www.mpceng.com.au
A.C.N. 098 542 575

CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT OVERALL STAGING PLAN

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00100	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN STAGE 1
REMEDIATION ACTION PLAN WORKS

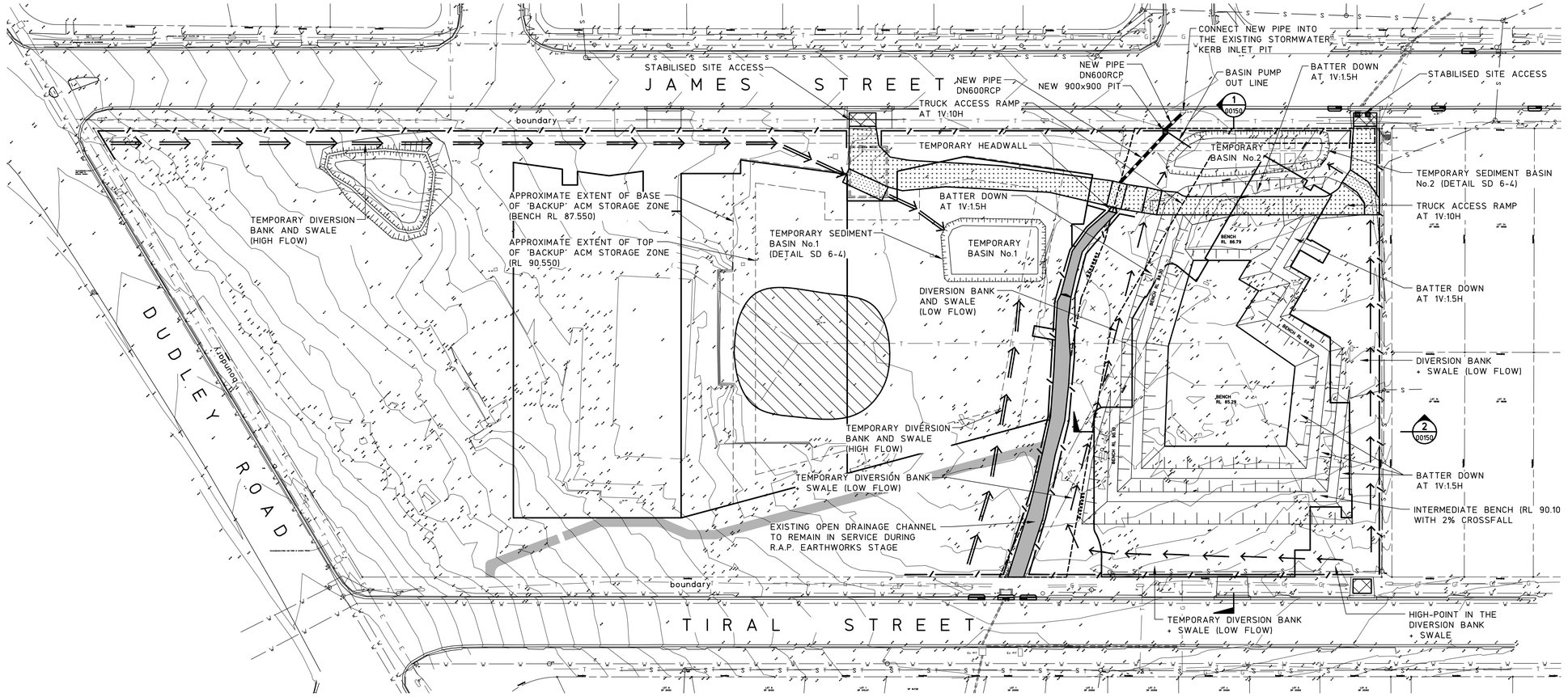
SCALE 1:500

SEDIMENTATION, EROSION CONTROL AND STORMWATER MANAGEMENT NOTES

1. SELECTIVE CLEARING OF VEGETATION TO BE RESTRICTED TO NOMINATED AREAS WITH CLEARED VEGETATION WIND ROWED ON THE CONTOUR.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
3. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE.
4. NO MORE THAN 150m OF TRENCH TO BE OPEN AT ANY ONE TIME.
5. CUT AND FILL BATTER GRADIENTS OF 1:2 (MAXIMUM).
6. A STRIP OF TURF 450mm WIDE IS TO BE PLACED IMMEDIATELY BEHIND THE KERB ON ALL NEW ROAD TO ACT AS A FILTER TRAP. REFER TO DETAIL SD6-13.
7. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED BY SITE SUPERVISOR AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED STOCKPILE SITE.
8. THE PROJECT MANAGER TO INFORM ALL CONTRACTORS AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE STORMWATER MANAGEMENT PLAN.
9. NO DISTURBED AREA IS TO REMAIN DENUDED LONGER THAN 14 DAYS, UNLESS MANAGED BY THE CONTRACTOR TO ENSURE NO RUNOFF OCCURS.
10. ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S OPERATION.
11. THE CONTRACTOR MUST ENSURE THE SUITABILITY AND INTEGRITY OF ALL WORKS AT THE END OF EACH DAY'S WORK AND CONSIDER HOLD OR INSPECTION POINTS AS STAGES OF WORKS PROGRESS.
12. ORANGE BARRIER TAPE TO BE AFFIXED TO TOP OF SEDIMENT CONTROL BARRIER TO IDENTIFY WORK AREA.
13. ALL SEDIMENTATION & EROSION CONTROL AND STORMWATER MANAGEMENT MEASURES ARE TO STRICTLY COMPLY WITH THE GUIDELINES DETAILED IN THE DEPARTMENT OF HOUSING PUBLICATION, "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", 4TH EDITION.
14. WATER TRUCKS TO BE USED AS REQUIRED TO PREVENT WIND EROSION.
15. SUBGRADE MATERIAL TO BE CONSTRUCTED IMMEDIATELY FOLLOWING FILL.

LEGEND

- DENOTES CATCHMENT ZONES
- DENOTES SURFACE FLOW DIRECTION
- DENOTES ALLOWABLE AREA FOR TEMPORARY STOCKPILING OF CUT SOIL MATERIAL, REFER TO DETAIL SD4-1
- DENOTES ROCK CHECK DAM, REFER TO DETAIL SD5-4
- DENOTES TEMPORARY WATERWAY CROSSING, REFER TO DETAIL SD5-1
- DENOTES TEMPORARY HAUL ROAD FOR EARTHWORKS PLANT MOVEMENTS
- DENOTES EARTH BANK (LOW FLOW), REFER TO DETAIL SD5-5
- DENOTES EARTHBANK (HIGH FLOW), REFER TO DETAIL SD5-6
- DENOTES SEDIMENT FENCE, REFER TO DETAIL SD6-8
- DENOTES MESH AND GRAVEL INLET FILTER, REFER TO DETAIL SD6-11
- DENOTES GEOTEXTILE INLET FILTER, REFER TO DETAIL SD6-12
- DENOTES STABILISED SITE ACCESS, REFER TO DETAIL SD6-14
- DENOTES LEVEL SPREADER



NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 2 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
6	REVISED DEVELOPMENT APPLICATION	25.8.22
5	DEVELOPMENT APPLICATION	19.8.22
4	PRELIMINARY DEVELOPMENT APPLICATION	18.8.22
3	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
2	CLIENT REVIEW	6.7.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

mpc consulting engineers civil+structural

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Web: www.mpceng.com.au
A.C.N. 098 542 575

CLIENT: UNITING

TITLE: SOIL AND WATER MANAGEMENT PLAN STAGE 1

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00101	6

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN STAGE 2
BUILDING B WORKS SHEET 1

SCALE 1:500

SEDIMENTATION, EROSION CONTROL AND STORMWATER MANAGEMENT NOTES

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2. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
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15. SUBGRADE MATERIAL TO BE CONSTRUCTED IMMEDIATELY FOLLOWING FILL.

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- DENOTES ROCK CHECK DAM, REFER TO DETAIL SD5-4
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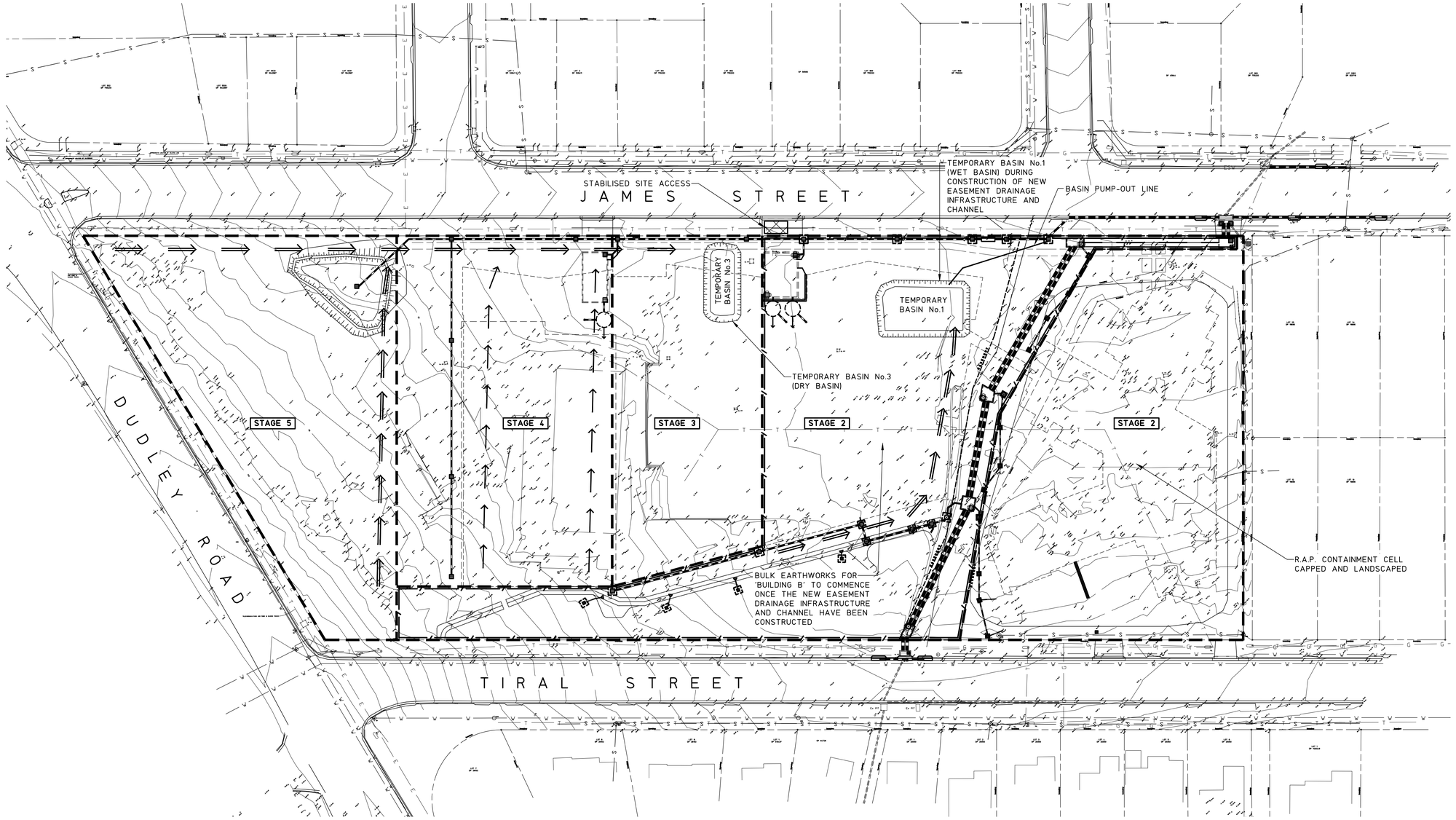
- DENOTES MESH AND GRAVEL INLET FILTER, REFER TO DETAIL SD6-11
- DENOTES GEOTEXTILE INLET FILTER, REFER TO DETAIL SD6-12
- DENOTES STABILISED SITE ACCESS, REFER TO DETAIL SD6-14
- DENOTES LEVEL SPREADER



NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 3 of 35 Signed:

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

mpc civil+structural

CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 1

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00102	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 4 of 35 Signed:

EASEMENT

EASEMENT

Ex PIT

Ex PIT

Ex PIT

SSMH

SSMH

SV

TEL

TEL

TEL

TEL

TEL

PP

PP

boundary

boundary

boundary

boundary

boundary

boundary

boundary

boundary

boundary

boundary

boundary

boundary

SP 84726

LOT 1
DP 20350

LOT 2
DP 20350

LOT 3
DP 20350

LOT 4
DP 20350

LOT 5
DP 203

TIRAL STREET

SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 2

SCALE 1:100

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

mpc civil+structural

CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 2

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

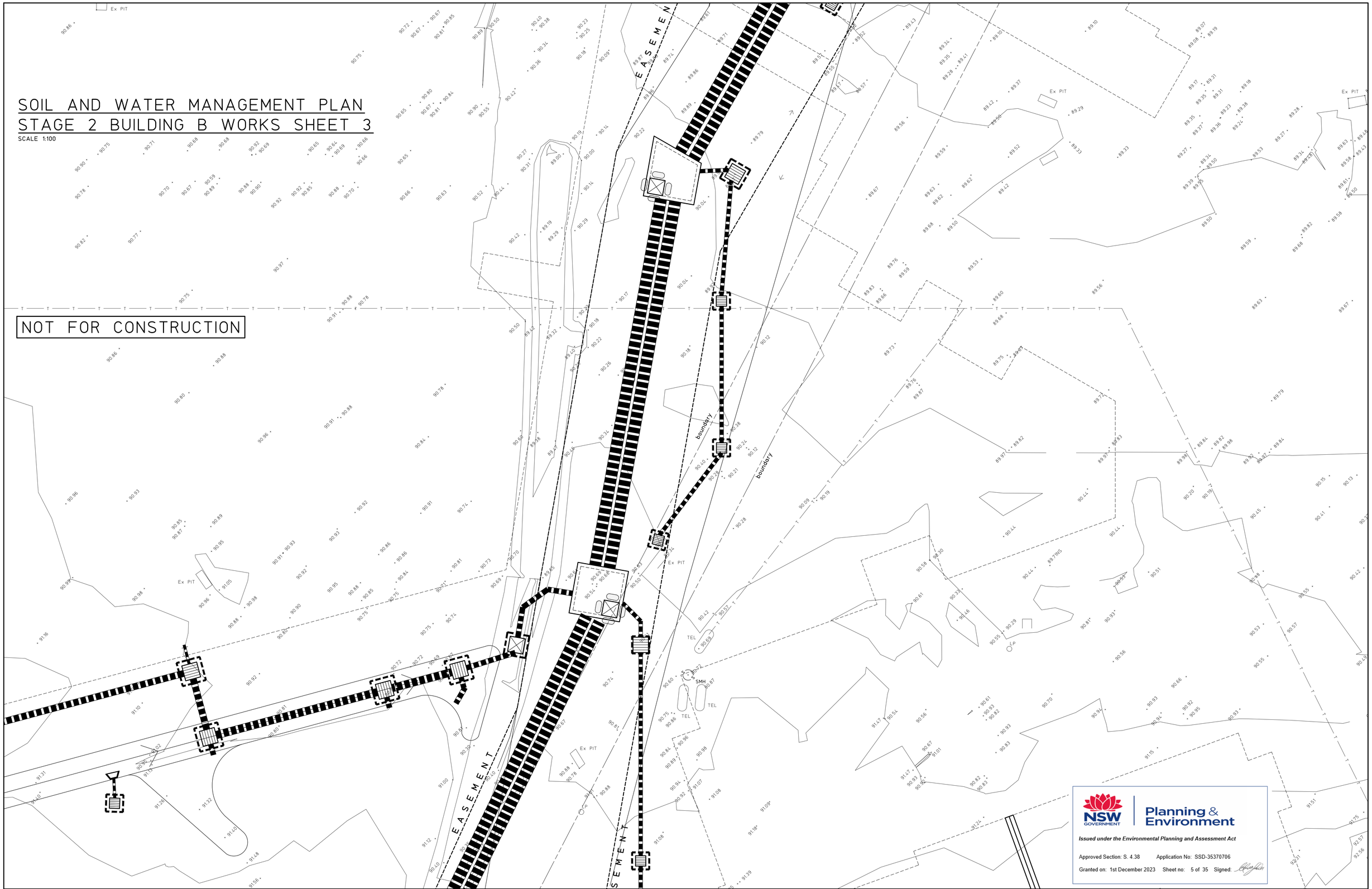
DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00103	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 3

SCALE 1:100

NOT FOR CONSTRUCTION



Issued under the Environmental Planning and Assessment Act

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 5 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

mpc civil+structural

CLIENT
UNITING

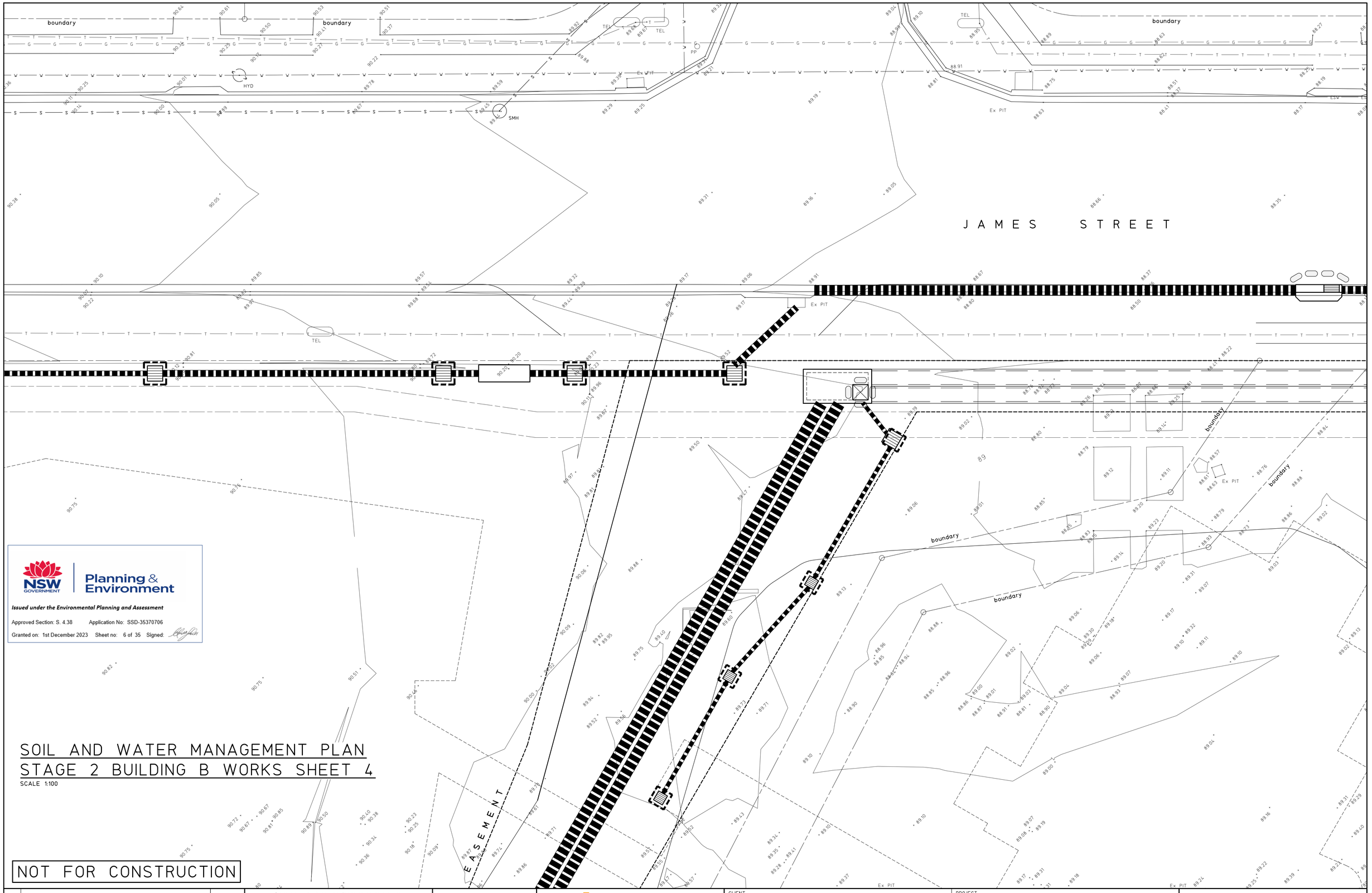
TITLE
SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 3

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00104	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 4

SCALE 1:100

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
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2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

mpc civil+structural

CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 4

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

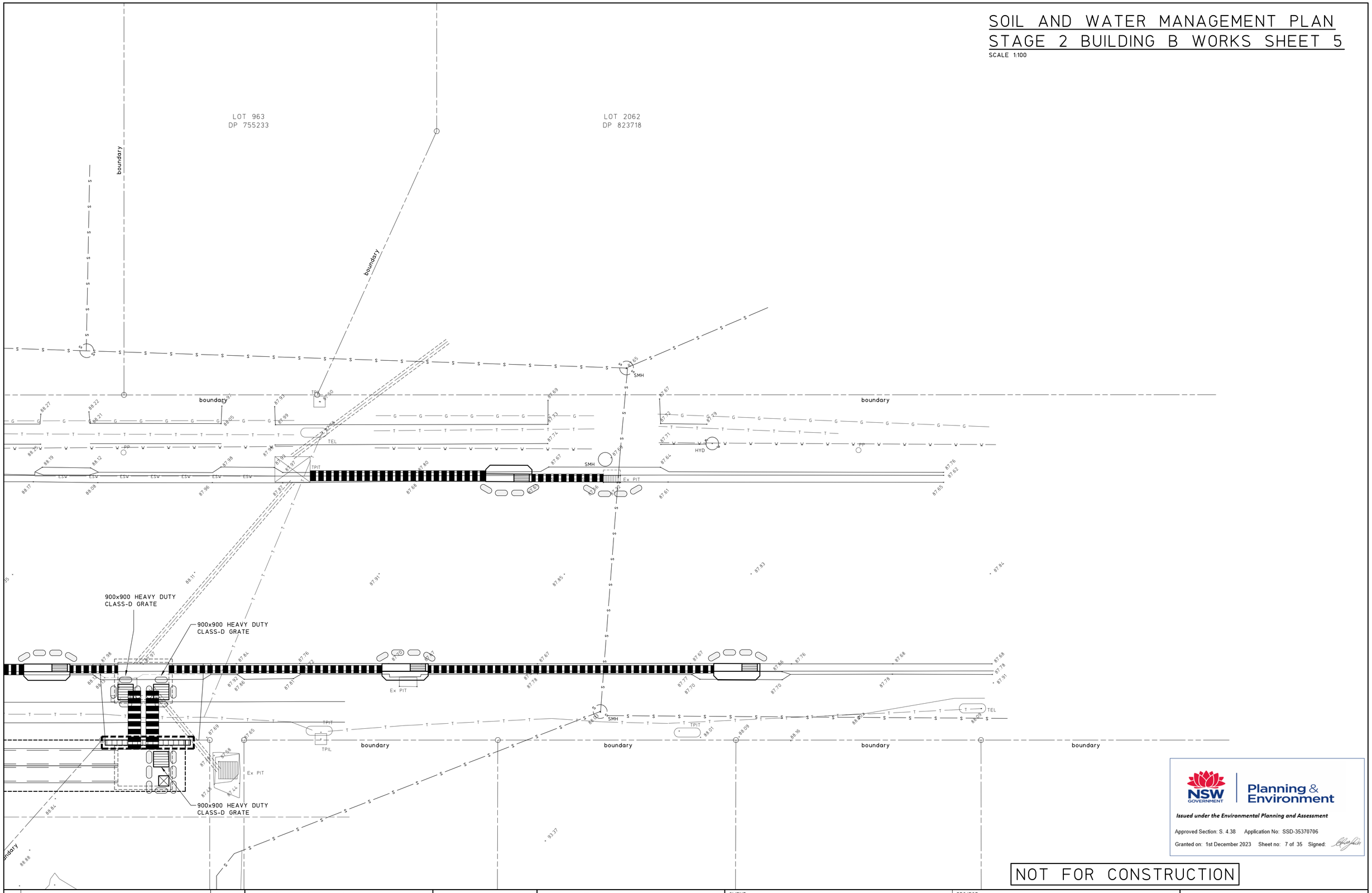
DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00105	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 5

SCALE 1:100



NOT FOR CONSTRUCTION

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 7 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
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0	80% DA - CLIENT REVIEW	19.11.21

mpc civil+structural

CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT PLAN
STAGE 2 BUILDING B WORKS SHEET 5

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00106	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN
RAC BUILDING WORKS STAGE 2D

SCALE 1:500

SEDIMENTATION, EROSION CONTROL AND STORMWATER MANAGEMENT NOTES

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15. SUBGRADE MATERIAL TO BE CONSTRUCTED IMMEDIATELY FOLLOWING FILL.

LEGEND

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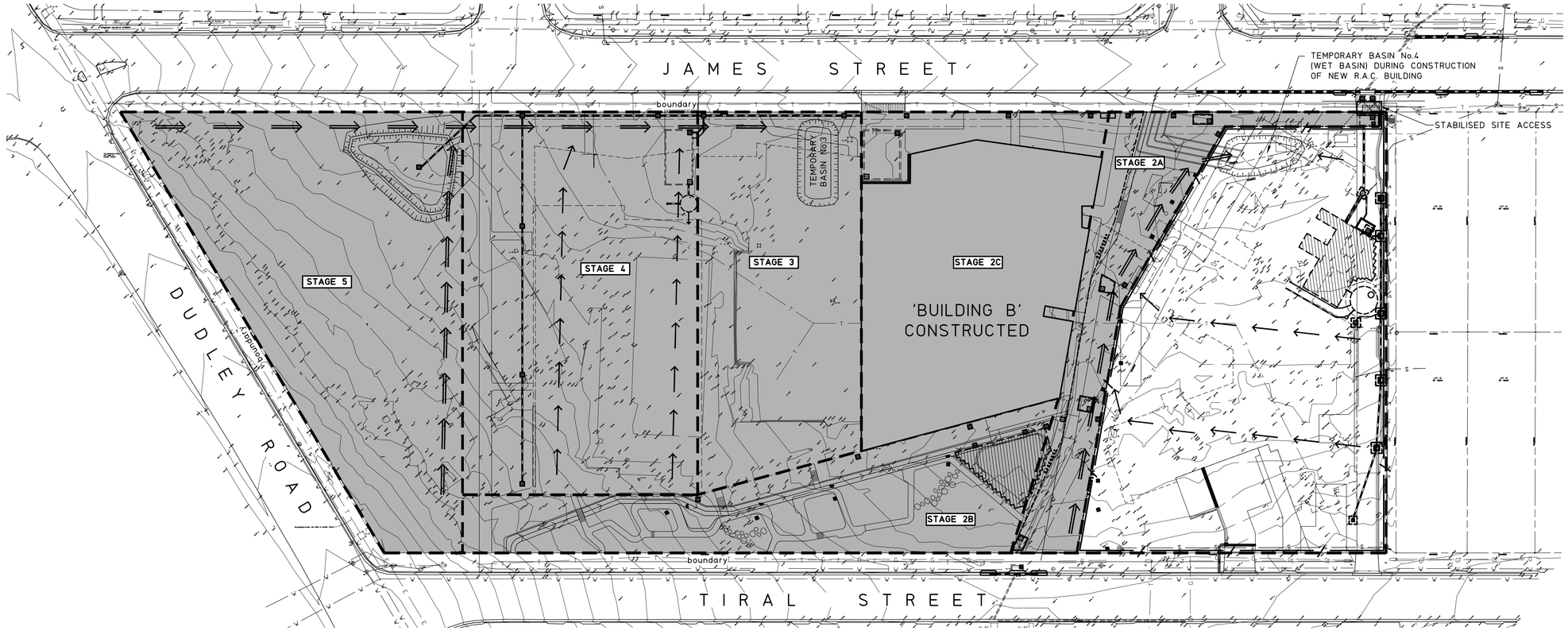

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 8 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
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Web: www.mpceng.com.au
A.C.N. 098 542 575

CLIENT: UNITING

TITLE: SOIL AND WATER MANAGEMENT PLAN RAC BUILDING WORKS STAGE 2D

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00107	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN
BUILDING C WORKS STAGE 3

SCALE 1:500

SEDIMENTATION, EROSION CONTROL AND STORMWATER MANAGEMENT NOTES

1. SELECTIVE CLEARING OF VEGETATION TO BE RESTRICTED TO NOMINATED AREAS WITH CLEARED VEGETATION WIND ROWED ON THE CONTOUR.
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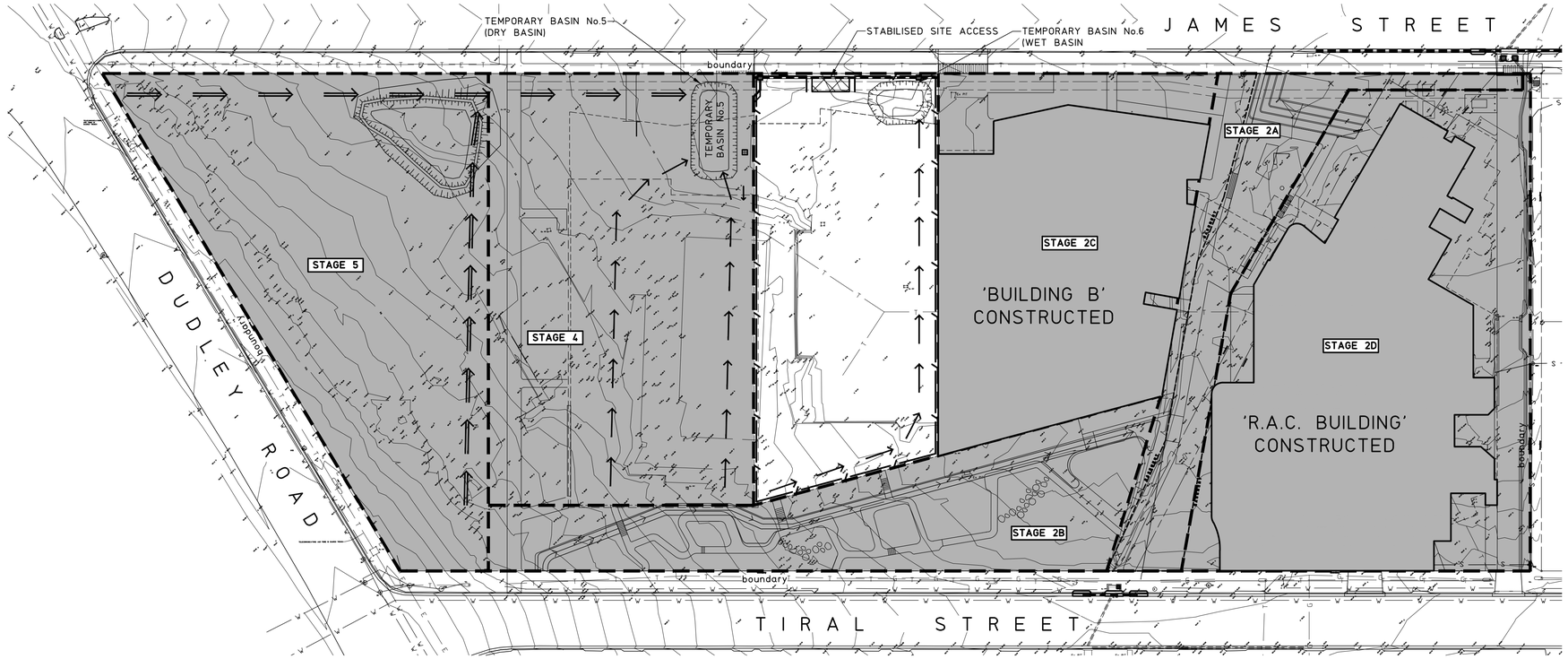
- DENOTES ALLOWABLE AREA FOR TEMPORARY STOCKPILING OF CUT SOIL MATERIAL, REFER TO DETAIL SD4-1
- DENOTES ROCK CHECK DAM, REFER TO DETAIL SD5-4
- DENOTES EARTH BANK (LOW FLOW), REFER TO DETAIL SD5-5
- DENOTES EARTHBANK (HIGH FLOW), REFER TO DETAIL SD5-6
- DENOTES SEDIMENT FENCE, REFER TO DETAIL SD6-8
- DENOTES MESH AND GRAVEL INLET FILTER, REFER TO DETAIL SD6-11
- DENOTES GEOTEXTILE INLET FILTER, REFER TO DETAIL SD6-12
- DENOTES STABILISED SITE ACCESS, REFER TO DETAIL SD6-14
- DENOTES LEVEL SPREADER



NOT FOR CONSTRUCTION

Planning & Environment

Issued under the Environmental Planning and Assessment Act

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 9 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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Web: www.mpceng.com.au
A.C.N. 098 542 575

CLIENT: UNITING

TITLE: SOIL AND WATER MANAGEMENT PLAN BUILDING C WORKS STAGE 3

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00108	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN
BUILDING D WORKS STAGE 4

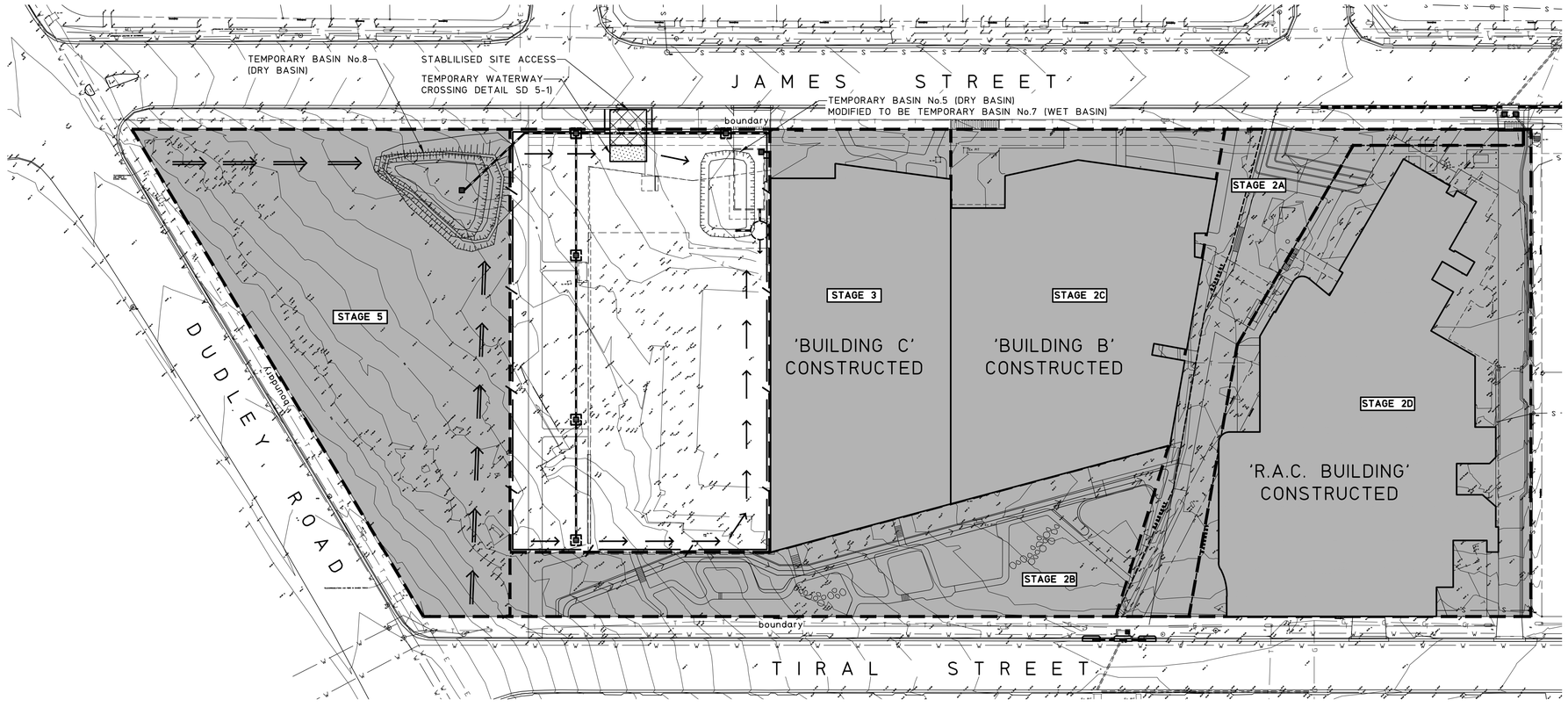
SCALE 1:500

SEDIMENTATION, EROSION CONTROL AND STORMWATER MANAGEMENT NOTES

1. SELECTIVE CLEARING OF VEGETATION TO BE RESTRICTED TO NOMINATED AREAS WITH CLEARED VEGETATION WIND ROWED ON THE CONTOUR.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
3. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE.
4. NO MORE THAN 150m OF TRENCH TO BE OPEN AT ANY ONE TIME.
5. CUT AND FILL BATTER GRADIENTS OF 1:2 (MAXIMUM).
6. A STRIP OF TURF 450mm WIDE IS TO BE PLACED IMMEDIATELY BEHIND THE KERB ON ALL NEW ROAD TO ACT AS A FILTER TRAP. REFER TO DETAIL SD6-13.
7. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED BY SITE SUPERVISOR AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED STOCKPILE SITE.
8. THE PROJECT MANAGER TO INFORM ALL CONTRACTORS AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE STORMWATER MANAGEMENT PLAN.
9. NO DISTURBED AREA IS TO REMAIN DENUDED LONGER THAN 14 DAYS, UNLESS MANAGED BY THE CONTRACTOR TO ENSURE NO RUNOFF OCCURS.
10. ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S OPERATION.
11. THE CONTRACTOR MUST ENSURE THE SUITABILITY AND INTEGRITY OF ALL WORKS AT THE END OF EACH DAY'S WORK AND CONSIDER HOLD OR INSPECTION POINTS AS STAGES OF WORKS PROGRESS.
12. ORANGE BARRIER TAPE TO BE AFFIXED TO TOP OF SEDIMENT CONTROL BARRIER TO IDENTIFY WORK AREA.
13. ALL SEDIMENTATION & EROSION CONTROL AND STORMWATER MANAGEMENT MEASURES ARE TO STRICTLY COMPLY WITH THE GUIDELINES DETAILED IN THE DEPARTMENT OF HOUSING PUBLICATION, "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION", 4TH EDITION.
14. WATER TRUCKS TO BE USED AS REQUIRED TO PREVENT WIND EROSION.
15. SUBGRADE MATERIAL TO BE CONSTRUCTED IMMEDIATELY FOLLOWING FILL.

LEGEND

- DENOTES CATCHMENT ZONES
- DENOTES SURFACE FLOW DIRECTION
- DENOTES ALLOWABLE AREA FOR TEMPORARY STOCKPILING OF CUT SOIL MATERIAL, REFER TO DETAIL SD4-1
- DENOTES ROCK CHECK DAM, REFER TO DETAIL SD5-4
- DENOTES TEMPORARY WATERWAY CROSSING, REFER TO DETAIL SD5-1
- DENOTES EARTH BANK (LOW FLOW), REFER TO DETAIL SD5-5
- DENOTES EARTHBANK (HIGH FLOW), REFER TO DETAIL SD5-6
- DENOTES SEDIMENT FENCE, REFER TO DETAIL SD6-8
- DENOTES MESH AND GRAVEL INLET FILTER, REFER TO DETAIL SD6-11
- DENOTES GEOTEXTILE INLET FILTER, REFER TO DETAIL SD6-12
- DENOTES STABILISED SITE ACCESS, REFER TO DETAIL SD6-14
- DENOTES LEVEL SPREADER



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Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 10 of 35 Signed:

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A.C.N. 098 542 575

CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT PLAN
BUILDING D WORKS STAGE 4

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00109	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SOIL AND WATER MANAGEMENT PLAN STAGE 5

SCALE 1:500

SEDIMENTATION, EROSION CONTROL AND STORMWATER MANAGEMENT NOTES

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2. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO SITE DISTURBANCE.
3. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE.
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LEGEND

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- DENOTES SURFACE FLOW DIRECTION
- DENOTES ALLOWABLE AREA FOR TEMPORARY STOCKPILING OF CUT SOIL MATERIAL, REFER TO DETAIL SD4-1
- DENOTES ROCK CHECK DAM, REFER TO DETAIL SD5-4
- DENOTES EARTH BANK (LOW FLOW), REFER TO DETAIL SD5-5
- DENOTES EARTHBANK (HIGH FLOW), REFER TO DETAIL SD5-6
- DENOTES SEDIMENT FENCE, REFER TO DETAIL SD6-8
- DENOTES MESH AND GRAVEL INLET FILTER, REFER TO DETAIL SD6-11
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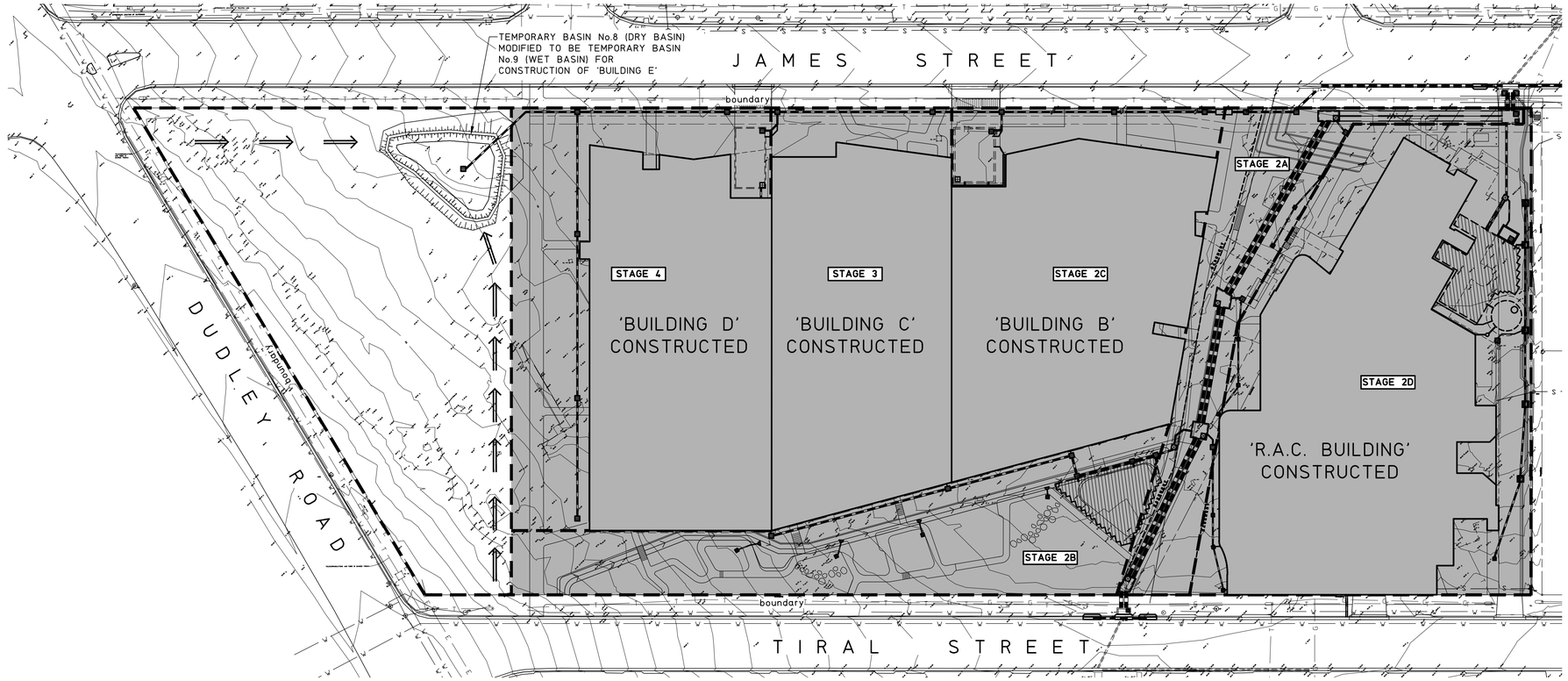

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Planning & Environment

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Granted on: 1st December 2023 Sheet no: 11 of 35 Signed:

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A.C.N. 098 542 575

CLIENT
UNITING

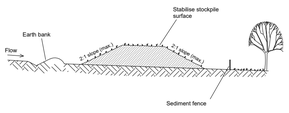
TITLE
SOIL AND WATER MANAGEMENT PLAN STAGE 5

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00110	4

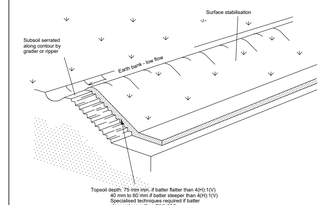
FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

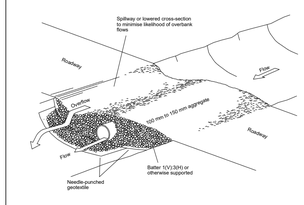
STOCKPILES SD 4-1



Construction Notes

1. Scarify the ground surface along the line of the contour to a depth of 50 mm to 100 mm to break up any hardsetting surfaces and to provide a good bond between the respread material and subsoil.
2. Add soil ameliorants as required by the ESCP or SWMP.
3. Rip to a depth of 300 mm if compacted layers occur.
4. Where possible, replace topsoil to a depth of 40 to 60 mm on lands where the slope exceeds 4(H):1(V) and to at least 75 mm on lower gradients.

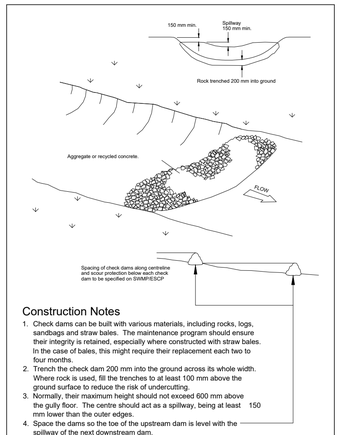
REPLACING TOPSOIL SD 4-2



Construction Notes

1. Prohibit all traffic until the access way is constructed.
2. Strip any topsoil and place a needle-punched textile over the base of the crossing.
3. Place clean, rigid, non polluting aggregate or gravel in the size class over the fabric to a minimum depth of 200 mm. 100 mm to 150 mm
4. Provide a 3-metre wide carriageway with sufficient length of culvert pipe to allow less than a 3(H): 1 (V) slope on side batters.
5. Install a lower section to act as an emergency spillway in greater than
6. Ensure that culvert outlets extend beyond the toe of fill embankments.

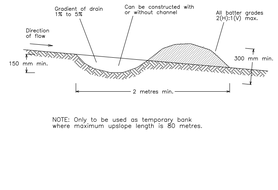
TEMPORARY WATERWAY CROSSING SD 5-1



Construction Notes

1. Check dams can be built with various materials, including rocks, logs, sandbags and straw bales. The maintenance program should ensure their integrity is retained, especially where constructed with straw bales. In the case of bales, this might require their replacement each two to four months.
2. Trench the check dam 200 mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100 mm above the ground surface to reduce the risk of undercutting.
3. Normally, their maximum height should not exceed 600 mm above the gully floor. The centre should act as a spillway, being at least 150 mm lower than the outer edges.
4. Space the dams so the toe of the upstream dam is level with the spillway of the next downstream dam.

ROCK CHECK DAM SD 5-4

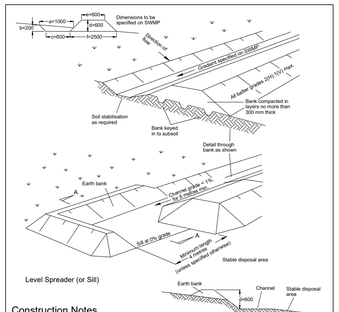


NOTE: Only to be used as temporary bank where maximum upslope length is 80 metres.

Construction Notes

1. Build with gradients between 1 percent and 5 percent.
2. Avoid removing trees and shrubs if possible - work around them.
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction.

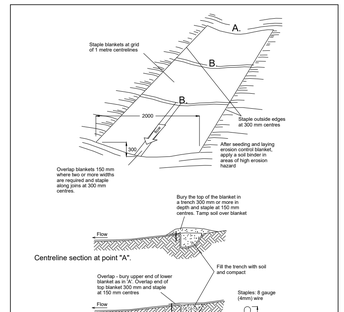
EARTH BANK (LOW FLOW) SD 5-5



Construction Notes

1. Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
2. Avoid removing trees and shrubs if possible - work around them. Section AA
3. Ensure the structures are free of projections or other irregularities that could impede water flow.
4. Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
5. Ensure the banks are properly compacted to prevent failure.
6. Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
7. Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
8. Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
9. Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

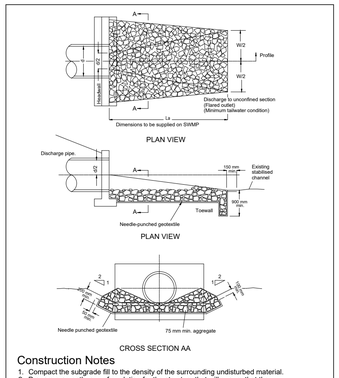
EARTH BANK (HIGH FLOWS) SD 5-6



Construction Notes

1. Remove any rocks, clods, sticks or grass from the surface before laying matting
2. Ensure that topsoil is at least 75 mm deep.
3. Complete fertilising and seeding before laying the matting.
4. Ensure fabric will be continuously in contact with the soil by grading the surface carefully first.
5. Lay the fabric in "shingle-fashion", with the end of each upstream roll overlapping those downstream. Ensure each roll is anchored properly at its upslope end.
6. Ensure that the full width of flow in the channel is covered by the matting up to the design storm event, usually in the 10-year ARI time of concentration storm event.
7. Divert water from the structure until vegetation is stabilised properly.

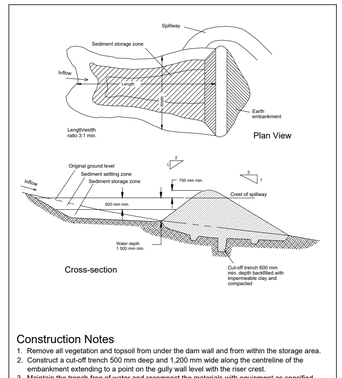
RECP : CONCENTRATED FLOW SD 5-7



Construction Notes

1. Compact the subgrade fill to the density of the surrounding undisturbed material.
2. Prepare a smooth, even foundation for the structure that will ensure that the needle-punched geotextile does not sustain serious damage when covered with rock.
3. Should any minor damage to the geotextile occur, repair it before spreading any aggregate. For repairs, patch one piece of fabric over the damage, making sure that all joints and patches overlap more than 300 mm.
4. Lay rock following the drawing, according to Table 5.2 of Landcom (2004) and with a minimum diameter of 75 mm.
5. Ensure that any concrete or riprap used for the energy dissipater or the outlet protection conforms to the grading limits specified on the SWMP.

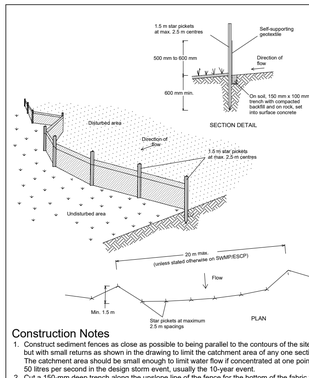
ENERGY DISSIPATER SD 5-8



Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.
2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.
3. Maintain the trench free of water and recompact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.
4. Select fill following the SWMP that is free of rods, wood, rock, large stone or foreign material.
5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.
6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.
7. Construct the emergency spillway.
8. Rehabilitate the structure following the SWMP.

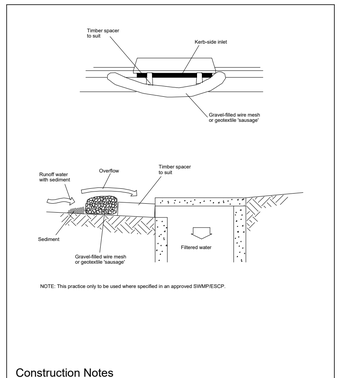
EARTH BASIN - WET SD 6-4
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE SD 6-8

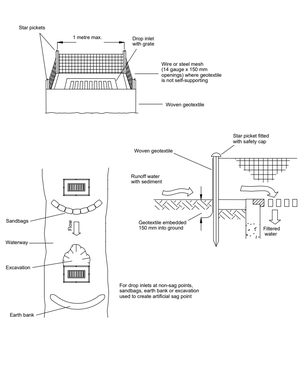


NOTE: This practice only to be used where specified in an approved SWMP/ESCP.

Construction Notes

1. Install filters to kerb inlets only at sag points.
2. Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
3. Form an elliptical cross-section about 150 mm high x 400 mm wide.
4. Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
5. Form a seal with the kerb to prevent sediment bypassing the filter.
6. Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

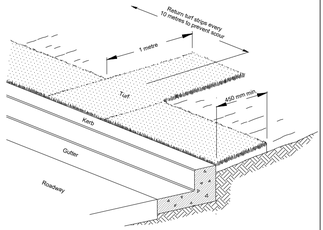
MESH AND GRAVEL INLET FILTER SD 6-11



Construction Notes

1. Fabricate a sediment barrier made from geotextile or straw bales.
2. Follow Standard Drawing 6-8 for installation procedures for the straw bales or geofabric. Reduce the picket spacing to 1 metre centres.
3. In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
4. Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

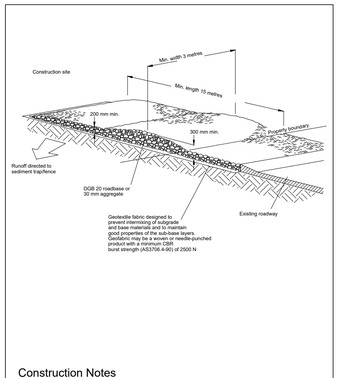
GEOTEXTILE INLET FILTER SD 6-12



Construction Notes

1. Install a 450 mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
2. Lay 1.4 metre long turf strips normal to the kerb every 10 metres.
3. Rehabilitate disturbed soil behind the turf strip following the ESCP/SWMP.

KERBSIDE TURF STRIP SD 6-13



Construction Notes

1. Strip the topsoil, level the site and compact the subgrade.
2. Cover the area with needle-punched geotextile.
3. Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
4. Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
5. Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS SD 6-14

SOIL AND WATER MANAGEMENT DETAILS

EROSION AND SEDIMENTATION CONTROL NOTES:
The following notes may not be relevant to each development.

GENERAL

1 ESCP refers to Erosion and Sediment Control Plan or a Soil and Water Management Plan (SWMP).
2 ESC refers to erosion and sediment control.
3 Sediment, includes, but is not limited to, clay, silt, sand, gravel, soil, mud, cement, and ceramic waste.
4 Any reference to the Blue Book refers to Managing Urban Stormwater – Soils and Construction. Landcom, 2004.
5 Any reference to the IECA White Books (2008) refers to IECA 2008. Best Practice Erosion and Sediment Control. Books 1–6.International Erosion Control Association (Australasia). Picton NSW.
6 Any material deposited in any conservation area from works associated with the development shall be removed immediately by measures involving minimal ground and/or vegetation disturbance and no machinery, or following directions by Council and/or within a timeframe advised by Council.

THE ESCP

7 The ESCP and its associated ESC measures shall be constantly monitored, reviewed, and modified as required to correct deficiencies. Council has the right to direct changes if, in its opinion, the measures that are proposed or have been installed are inadequate to prevent pollution.
8 Prior to any activities onsite, the responsible person(s) is to be nominated. The responsible person(s) shall be responsible for the ESC measures onsite. The name, address and 24 hour contact details of the person(s) shall be provided to Council in writing. Council shall be advised within 48 hours of any changes to the responsible person(s), or their contact details, in writing.
9 At least 14 days before the natural surface is disturbed in any new stage, the contractor shall submit to the Certifier, a plan showing ESC measures for that Stage. The degree of design detail shall be based on the disturbed area.
10 At any time during construction, the ESC measures onsite shall be appropriate for the area of disturbance and its characteristics including soils (in accordance with those required for the site as per DCP).
11 The implementation of the ESCP shall be supervised by personnel with appropriate qualifications and/or experience in ESC on construction sites.
12 The approved ESCP shall be available on-site for inspection by Council officers while work activities are occurring.
13 The approved ESCP shall be up to date and show a timeline of installation, maintenance and removal of ESC measures.
14 All ESC measures shall be appropriate for the Sediment Type(s) of the soils onsite, in accordance with the Blue Book, IECA White Books or other current recognised industry standard for ESC for Australian conditions.
15 Adequate site data, including soil data from a NATA approved Laboratory, shall be obtained to allow the preparation of an appropriate ESCP, and allow the selection, design and specification of required ESC measures.
16 All works shall be carried out in accordance with the approved ESCP (as amended from time to time) unless circumstances arise where:
   a) compliance with the ESCP would increase the potential for environmental harm; or
   b) circumstances change during construction and those circumstances could not have been foreseen; or
   c) Council determines that unacceptable off-site sedimentation is occurring as a result of a land-disturbing activity. In either case, the person(s) responsible may be required to take additional, or alternative protective action, and/or undertake reasonable restoration works within the timeframe specified by the Council.
17 Additional ESC measures shall be implemented, and a revised ESCP submitted for approval to the certifier (within five business days of any such amendments) in the event that:
   a) there is a high probability that serious or material environmental harm may occur as a result of sediment leaving the site; or
   b) the implemented works fail to achieve Council's water quality objectives specified in these conditions; or
   c) site conditions significantly change; or
   d) site inspections indicate that the implemented works are failing to achieve the 'objective' of the ESCP.
18 A copy of any amended ESCP shall be forwarded to an appropriate Council Officer, within five business days of any such amendments.

SITE ESTABLISHMENT INCLUDING CLEARING AND MULCHING

19 No land clearing shall be undertaken unless preceded by the installation of adequate drainage and sediment control measures, unless such clearing is required for the purpose of installing such measures, in which case, only the minimum clearing required to install such measures shall occur.
20 Bulk tree clearing and grubbing of the site shall be immediately followed by specified temporary erosion control measures (e.g. temporary grassing or mulching) prior to commencement of each stage of construction works.
21 Trees and vegetation cleared from the site shall be mulched onsite within 7 days of clearing.
22 Appropriate measures shall be undertaken to control any dust originating due to the mulching of vegetation onsite.
23 All office facilities and operational activities shall be located such that any effluent, including wash-down water, can be totally contained and treated within the site.
24 All reasonable and practicable measures shall be taken to ensure stormwater runoff from access roads and stabilised entry/exit systems, drains to an appropriate sediment control device.
25 Site exit points shall be appropriately managed to minimise the risk of sediment being tracked onto sealed, public roadways.
26 Stormwater runoff from access roads and stabilised entry/exit points shall drain to an appropriate sediment control device.
27 The Applicant shall ensure an adequate supply of ESC, and appropriate pollution clean-up materials are available on-site at all times.
28 All temporary earth banks, flow diversion systems, and sediment basin embankments shall be machine-compacted, seeded and mulched within ten (10) days of formation for the purpose of establishing a vegetative cover, or lined appropriately.
29 Sediment deposited off site as a result of on-site activities shall be collected and the area cleaned/rehabilitated as soon as reasonable and practicable.
30 Concrete waste and chemical products, including petroleum and oil–based products, shall be prevented from entering any internal or external water body, or any external drainage system, excluding those on-site water bodies specifically designed to contain and/or treat such material. Appropriate measures shall be installed to trap these materials onsite.
31 Brick, tile or masonry cutting shall be carried out on a pervious surface (e.g. grass or open soil) and in such a manner that any resulting sediment-laden runoff is prevented from discharging into a gutter, drain or water. Appropriate measures shall be installed to trap these materials onsite.
32 Newly sealed hard-stand areas (e.g. roads, driveways and car parks) shall be swept thoroughly as soon as practicable after sealing/surfacing to minimise the risk of components of the surfacing compound entering stormwater drains.
33 Stockpiles of erodible material shall be provided with an appropriate protective cover (synthetic or organic) if the materials are likely to be stockpiled for more than 10 days.
34 Stockpiles, temporary or permanent, shall not be located in areas identified as no–go zones (including, but not limited to, restricted access areas, buffer zones, or areas of non–disturbance) on the ESCP.
35 No more than 150m of a stormwater, sewer line or other service trench shall to be open at any one time.
36 Site spoil shall be lawfully disposed of in a manner that does not result in ongoing soil erosion or environmental harm.
37 Wherever reasonable and practicable, stormwater runoff entering the site from external areas, and non–sediment laden (clean) stormwater runoff entering a work area or area of soil disturbance, shall be diverted around or through that area in a manner that minimises soil erosion and the contamination of that water for all discharges up to the specified design storm discharge.

SITE MANAGEMENT INCLUDING DUST

38 Priority shall be given to the prevention, or at least the minimisation, of soil erosion, rather than the trapping of displaced sediment. Such a clause shall not reduce the responsibility to apply and maintain, at all times, all necessary ESC measures.
39 Measures used to control wind erosion shall be appropriate for the location and prevent soil erosion at all times, including working hours, out of hours, weekends, public holidays, and during any other shutdown periods.
40 The application of liquid or chemical–based dust suppression measures shall ensure that sediment–laden runoff resulting from such measures does not create a traffic or environmental hazard.
41 All cut and fill earth batters less than 3m in elevation shall be topsoiled, and grass seeded/hydromulched within 10 days of completion of grading in consultation with Council.
42 Once cut/fill operations have been finalised in a section, all disturbed areas that are not being worked on shall be stabilised in accordance with time lines in the Blue Book.
43 All reasonable and practicable measures shall be taken to prevent, or at least minimise, the release of sediment from the site.
44 Suitable all–weather maintenance access shall be provided to all sediment control devices.
45 Sediment control devices, other than sediment basins, shall be de–silted and made fully operational as soon as reasonable and practicable after a sediment–producing event, whether natural or artificial, if the device's sediment retention capacity falls below 75% of its design retention capacity.
46 All erosion and sediment control measures, including drainage control measures, shall be maintained in proper working order at all times during their operational lives.
47 Washing/flushing of sealed roadways shall only occur where sweeping has failed to remove sufficient sediment and there is a compelling need to remove the remaining sediment (e.g. for safety reasons). In such circumstances, all reasonable and practicable sediment control measures shall be used to prevent, or at least minimise, the release of sediment into receiving waters. Only those measures that will not cause safety and property flooding issues shall be employed. Sediment removed from roadways shall be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.
48 Sediment removed from sediment traps and places of sediment deposition shall be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.

SEDIMENT BASINS – INSTALLATION, MAINTENANCE AND REMOVAL INCLUDING SEDIMENT TRAPS

49 As–Constructed plans shall be prepared for all constructed Sediment Basins and associated emergency spillways. Such plans shall verify the basin's dimensions, levels and volumes comply with the approved design drawings. These plans may be requested by the Certifier or Council.
50 Sediment basins shall be constructed and fully operational prior to any other soil disturbance in their catchment.
51 Install an internal gated valve, or similar, in any outlet pipe once pipes installed, or install a sacrificial pipe from basin through wall to external outlet point. The valve shall be connected to a riser made from slotted pipe in the basin. The valve may be opened once captured water meets water quality requirements. The final setup for temporary internal outlet structures to be confirmed prior to construction with Council. This setup will enable discharge of treated water from site without need for pumping.
52 A sediment storage level marker post shall be with a cross member set just below the top of the sediment storage zone (as specified on the approved ESCP). At least a 75mm wide post shall be firmly set into the basin floor.
53 The Site Manager shall obtain the relevant approvals from the relevant organisations to discharge treated water from any existing basins. Organisations may include, but not be limited to, Hunter Water, and Council.
54 Where more than one stage is to be developed at one time, or before the preceding stage is complete, the sediment basin(s) for these stages shall have sufficient capacity to cater for all area directed to the basin(s).
55 Prior to any forecast weather event likely to result in runoff, any basins/traps shall be dewatered to provide sufficient capacity to capture sediment laden water from the site.
56 Sufficient quantities of chemicals/agents to treat captured water shall be placed such that water entering the basin mixes with the chemical/agents and is carried into the basin to speed up clarification.
57 Any basin shall be dewatered within the X–day rainfall depth used to calculate the capacity of the basin, after a rainfall event.
58 Sufficient quantities of chemicals/agents to treat turbid water shall be securely stored on–site to provide for at least three complete treatments of all basins requiring chemically treatment onsite.

SEDIMENT BASINS – INSTALLATION, MAINTENANCE AND REMOVAL INCLUDING SEDIMENT TRAPS CONT'D

59 Prior to the controlled discharge (e.g. de–watering activities) from excavations and/or sediment basins, the following water quality objectives shall be achieved:
   a) Total Suspended Solids (TSS) to a maximum 50mg/L;
   b) water pH between 6.5 and 8.5, unless otherwise required by the Council;
   c) Turbidity (measured in NTUs) to a maximum of 60 NTU); and
   d) EC levels no greater than background levels.
60 The Development Approval may require testing of additional water quality elements prior to discharge. E.g. heavy metals.
61 A sample of the released treated water shall be kept onsite in a clear container with the sample date recorded on it.
62 Water quality samples shall be taken at a depth no less than 200mm below the water surface of the basin.
63 No Aluminium based products may be used treat captured water onsite without the prior written permission from an appropriate Council Officer. The applicant shall have a demonstrated ability to use such products correctly and without any environmental harm prior to any approval.
64 The chemical/agent used in Type D and Type F basins to treat captured water captured in the basin shall be applied in concentrations sufficient to achieve Council's water quality objectives within the X–day rainfall depth used to calculate the capacity of the basin, after a rainfall event.
65 All Manufacturers' Instructions shall be followed for any chemicals/agents used onsite, except where approved by the Responsible Person or an appropriate Council Officer.
66 The Applicant shall ensure that on each occasion a Type F or Type D basin was not de–watered prior to being surcharged by a following rainfall event, a report is presented to an appropriate Council officer within 5 days identifying the circumstances and proposed amendments, if any, to the basin's operating procedures.
67 Settled sediment shall be removed as soon as reasonable and practicable from any sediment basin if:
   a) it is anticipated that the next storm event is likely to cause sediment to settle above the basin's sediment storage zone; or
   b) the elevation of settled sediment is above the top of the basin's sediment storage zone; or
   c) the elevation of settled sediment is above the basins sediment marker line.
68 Scour protection measures placed on sediment basin emergency spillways shall appropriately protect the spillway chute and its side batters from scour, and shall extend a minimum of 3m beyond the downstream toe of the basin's embankment.
69 Suitable all–weather maintenance access shall be provided to all sediment control devices.
70 Materials, whether liquid or solid, removed from any ESC measures during maintenance or decommissioning, shall be disposed of in a manner that does not cause ongoing soil erosion or environmental harm.
71 All sediment basins shall remain fully operational at all times until the basin's design catchment achieves 70% ground cover or surface stabilisation acceptable to Council.
72 The ESC measures installed during the decommissioning and rehabilitation of a sediment basin shall comply with same standards specified for the normal construction works.
73 A sediment basin shall not be decommissioned until all up–slope site stabilisation measures have been implemented and are appropriately working to control soil erosion and sediment runoff..
74 Immediately prior to the construction of the permanent stormwater treatment device, appropriate flow bypass conditions shall be established to prevent sediment–laden water entering the device.

REVEGETATION/STABILISATION

75 Temporary Stabilisation may be attained using vegetation, non rewettable soil polymers, or pneumatically applied erosion controls.
76 All cut and fill earth batters less than 3m in elevation shall be topsoiled, and grass seeded/hydromulched within 10 days of completion of grading in consultation with Council.
77 Once cut/fill operations have been finalised in a section, all disturbed areas that are not being worked on shall be stabilised in accordance with time lines in the Blue Book.
78 The LMCC Seed mix shall be used unless stated on the ESCP/SWMP.
79 The pH level of topsoil shall be appropriate to enable establishment and growth of specified vegetation prior to initiating the establishment of vegetation.
80 Non rewettable binder shall be used in all hydromulch/hydroseed/polymer mixes on slopes or works adjacent to a water course.
81 Soil ameliorants shall be added to the soil in accordance with an approved Landscape Plan, Vegetation Management Plan, and/or soil analysis.
82 Surface soil density, compaction and surface roughness shall be adjusted prior to seeding/planting in accordance with an approved Landscape Plan, Vegetation Management Plan, and/or soil analysis.
83 Procedures for initiating a site shutdown, whether programmed or un–programmed, shall incorporate revegetation of all soil disturbances unless otherwise approved by Council. The stabilisation works shall not rely upon the longevity of non–vegetated erosion control blankets, or temporary soil binders.

SITE MONITORING AND MAINTENANCE

84 The Applicant shall ensure that appropriate procedures and suitably qualified personnel are engaged to plan and conduct site inspections and water quality monitoring throughout the construction and maintenance phase.
85 All ESC measures shall be inspected and any maintenance undertaken immediately:
   a) at least daily (when work is occurring on–site); and
   b) at least weekly (when work is not occurring on–site); and
   c) within 24hrs of expected rainfall; and
   d) within 18hrs of a rainfall event that causes runoff on the site.
86 Written records shall be kept onsite of ESC monitoring and maintenance activities conducted during the construction and maintenance periods, and be available to Council officers on request.
87 All environmentally relevant incidents shall be recorded in a field regulatory authorities.
88 All water quality data, including dates of rainfall, dates of test shall be kept in an on–site register. The register is to be a approved works and be available on–site for inspection by [insert
89 An nominated instream water monitoring sites, a minimum of 3 the average result used to determine quality.

INSTREAM WORKS

90 All instream works (including in or adjacent to watercourses natu out in accordance with the IECA White Books.

NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 12 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT DETAILS

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
N.T.S.	200243	00150	4

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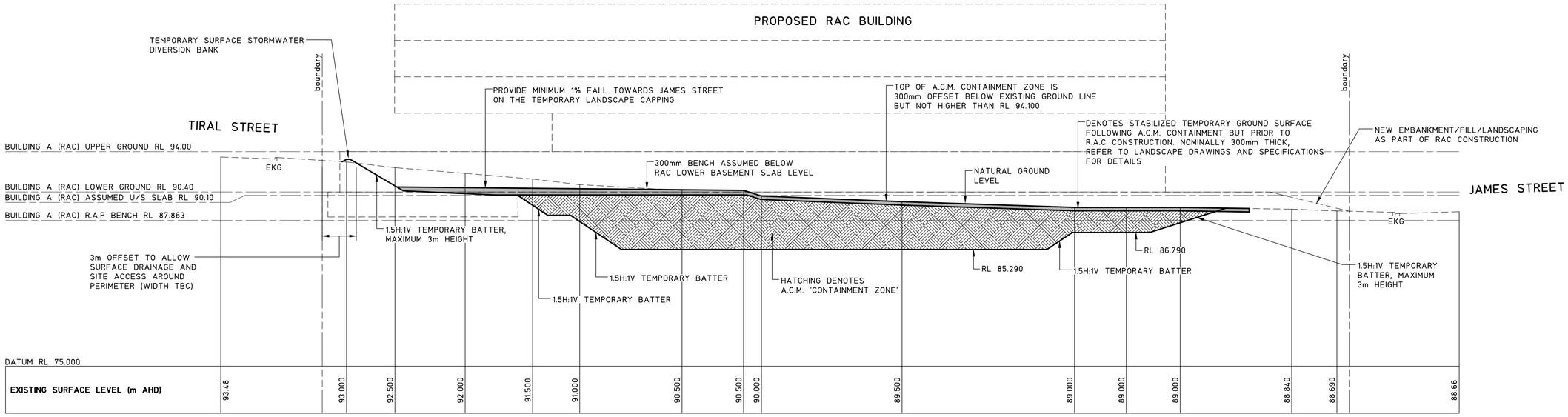

SECTION 1 / 00101
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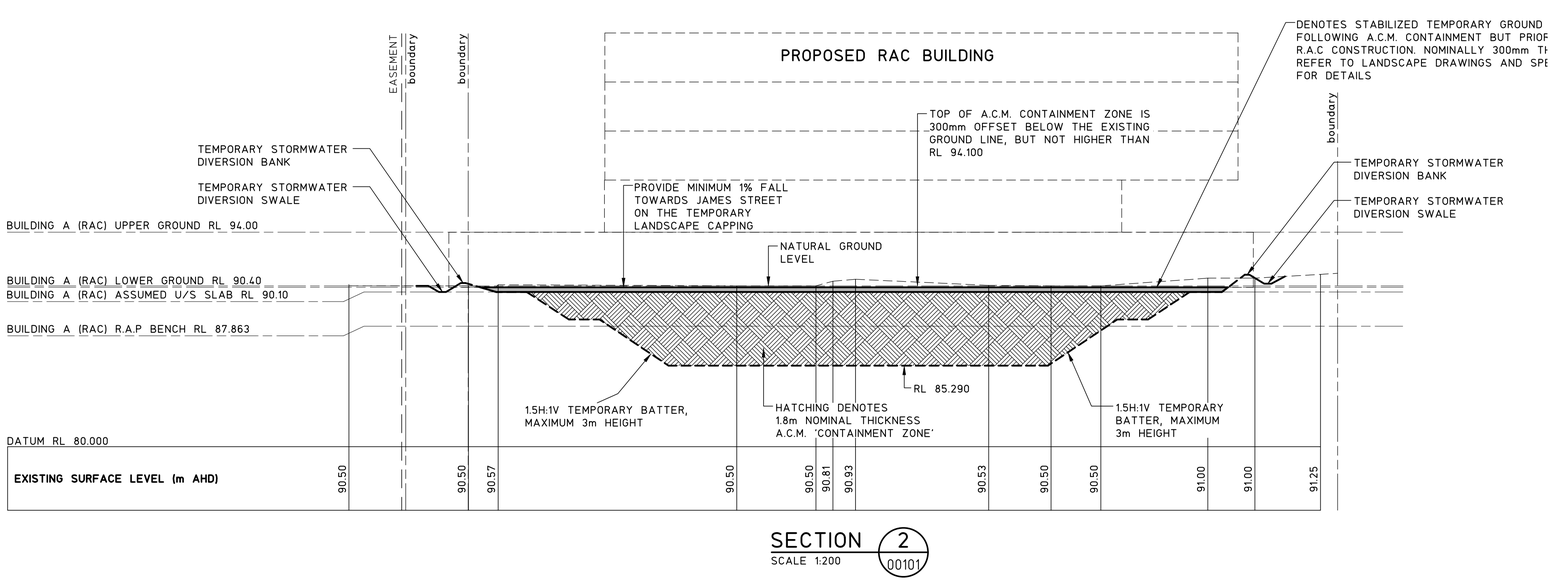

SECTION 2 / 00101
SCALE 1:200

NOT FOR CONSTRUCTION

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment Act

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 13 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
2	REVISED DEVELOPMENT APPLICATION	25.8.22
1	DEVELOPMENT APPLICATION	19.8.22
0	PRELIMINARY DEVELOPMENT APPLICATION	18.8.22

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CLIENT
UNITING

TITLE
SOIL AND WATER MANAGEMENT SECTIONS

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
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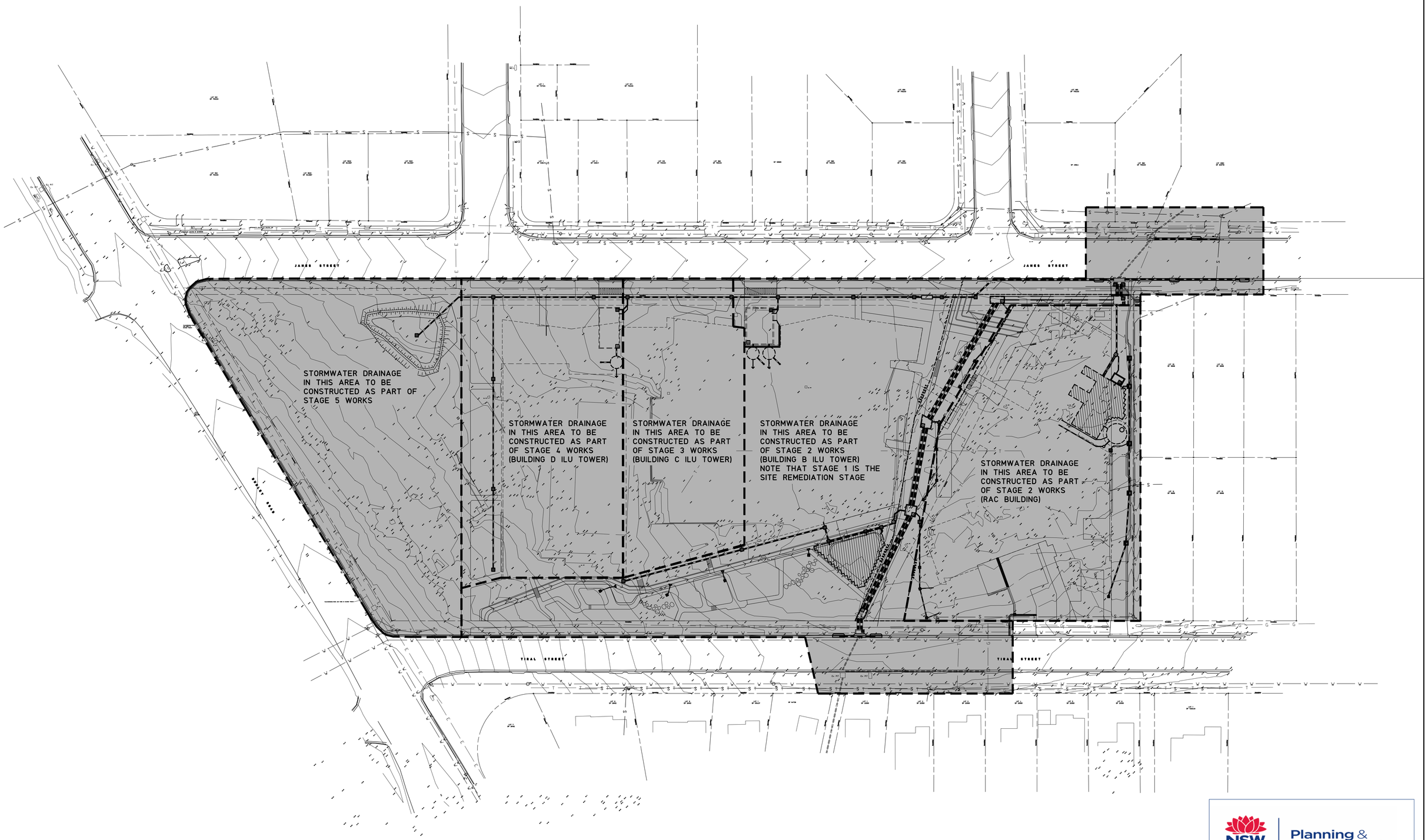

STORMWATER OVERALL STAGING PLAN

SCALE 1:500

NOT FOR CONSTRUCTION

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 14 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
6	REVISED DEVELOPMENT APPLICATION	25.8.22
5	DEVELOPMENT APPLICATION	19.8.22
4	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
3	COORDINATION	1.7.22
2	80% DA - CLIENT REVIEW	19.11.21
1	50% DA - CLIENT REVIEW	11.8.21
0	PRELIMINARY CONCEPTS	5.6.20

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CLIENT
UNITING

TITLE
STORMWATER OVERALL STAGING PLAN

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:500	200243	00200	6

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

STORMWATER PLAN SHEET 1

SCALE 1:100

NOT FOR CONSTRUCTION

STORMWATER NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AS3500.3.
2. ALL PIPES TO HAVE A 1% MINIMUM FALL U.N.O.
3. ALL DOWNPIPES (DP) TO BE SPECIFIED BY ARCHITECT. FOR EXACT LOCATION OF DOWNPIPES, REFER TO ARCHITECTURAL DRAWINGS.
4. ALL PIPES TO BE UPVC U.N.O
5. ALL UPVC PIPES TO BE SEWER GRADE AND TO AS1260.
6. ALL REINFORCED CONCRETE PIPES (RCP) TO BE SPIGOT AND SOCKET TYPE WITH RUBBER RINGS CLASS 2 TO AS4058.
7. PITS TO BE CI&D REINFORCED PRE-CAST CONCRETE PITS OR EQUIVALENT PROPRIETARY PITS.
8. ALL LIDS AND GRATES TO BE PROPRIETARY HEAVY DUTY IN AREAS OF VEHICULAR TRAFFIC, LIGHT DUTY ELSEWHERE, IN ACCORDANCE WITH AS3996.
9. MINIMUM COVER TO STORMWATER PIPES TO BE AS FOLLOW U.N.O:
   TRAFFICABLE AREAS - 450mm, LANDSCAPED AREAS - 300mm.
   PIPES TO BE CONCRETE ENCASED IF MINIMUM COVERS CANNOT BE OBTAINED IN TRAFFICABLE AREAS, REFER TO CLAUSE 3.8 AS3500.3. ALTERNATIVELY USE UPVC SEWER GRADE PIPES UNDER ROAD AND BUILDINGS.
10. PROVIDE 100ø AG DRAINS IN FILTER SOCKS TO ALL LANDSCAPED AREAS, PLANTER BEDS AND STORMWATER PIPE TRENCHES.
    ALL AG DRAINS TO BE BEDDED IN COARSE AGGREGATE AND TO BE CONNECTED TO STORMWATER SYSTEM.
11. ALL PITS, DETENTION TANKS AND PROPRIETARY POLLUTION CONTROL DEVICES TO BE CLEANED OF SEDIMENT AT 3 MONTH MAXIMUM INTERVALS.
12. ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF WORK.
13. ANY FOOTPATHS, KERB AND GUTTER OR ROADWAY DISTURBED BY WORKS TO BE REINSTATED TO CURRENT COUNCIL REQUIREMENTS.
14. PROVIDE ACCESS LADDER TO TANK AS REQUIRED, REFER TO AS1657.
15. REFER TO DRAWING 00212 FOR PIT SCHEDULE.

LEGEND

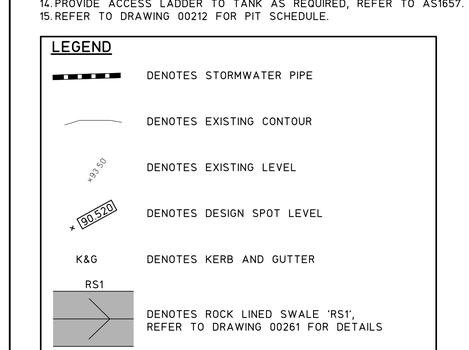
- DENOTES STORMWATER PIPE
- DENOTES EXISTING CONTOUR
- ×93.50 DENOTES EXISTING LEVEL
- 90.520 DENOTES DESIGN SPOT LEVEL
- K&G DENOTES KERB AND GUTTER
- RS1 DENOTES ROCK LINED SWALE 'RS1', REFER TO DRAWING 00261 FOR DETAILS
- DENOTES LOW-FLOW ROCK LINED SWALE 'RS2', REFER TO DRAWING 00261 FOR DETAILS
- DENOTES OVERLAND FLOW DIRECTION IN MAJOR STORM EVENT
- DENOTES DIRECTION OF SURFACE FLOWS
- △ DENOTES NON-RETURN VALVE REQUIRED TO PIPE AT THE PIT CONNECTION

NOTE
SETOUT AND ALIGNMENT OF WALLS TO BOUNDARY TO ARCHITECTS DETAILS TYPICAL

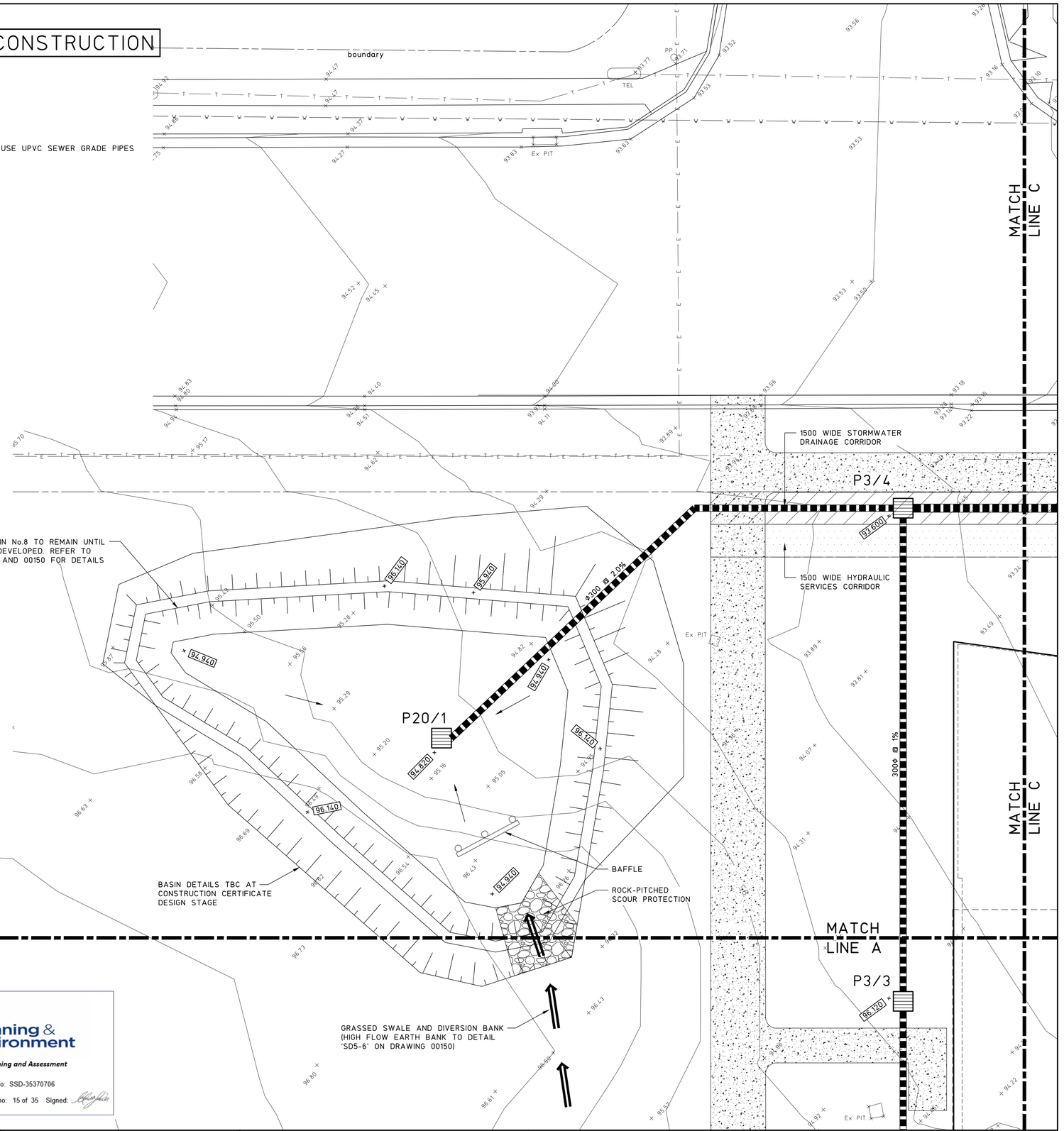
NOTE
ALL SETOUT, DIMENSIONS AND RL's TO ARCHITECTS SPECIFICATION & DETAILS

NOTE
BUILDER TO PROVIDE ADEQUATE SHORING IN ORDER TO MAINTAIN STABILITY OF EXISTING NEIGHBOURING STRUCTURES AND FENCES DURING EXCAVATION WORKS TYPICAL

NOTE
DRIVEWAY GRADES TO CURRENT COUNCIL REQUIREMENTS. BUILDER TO CONFIRM GRADES PRIOR TO CONSTRUCTION OF DRIVEWAY



KEY PLAN



NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 15 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
6	REVISED DEVELOPMENT APPLICATION	25.8.22
5	DEVELOPMENT APPLICATION	19.8.22
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3	COORDINATION	1.7.22
2	80% DA - CLIENT REVIEW	19.11.21
1	50% DA - CLIENT REVIEW	11.8.21
0	PRELIMINARY CONCEPTS	5.6.20

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CLIENT
UNITING

TITLE
STORMWATER PLAN
SHEET 1

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

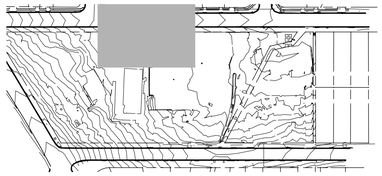
DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00201	6

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

NOT FOR CONSTRUCTION

STORMWATER PLAN SHEET 2

SCALE 1:100



KEY PLAN

MATCH LINE C

MATCH LINE D

MATCH LINE A

ON-SITE DETENTION (OSD TANK) 11.0m x 5.4m x 2.0m DEEP (INTERNAL DIMENSIONS)
- 118m³ OSD STORAGE. ASSUME 250 THICK BONDEK ROOF SLAB
HOWEVER THE FINAL CONSTRUCTED FORM IS YET TO BE DETERMINED.
OSD STORAGE CAPACITY IS FOR 100% OF THE MAJOR STORM FLOW
FROM THE ROOF OF BUILDING D, ASSUMING THE HARVESTING TANK IS FULL
WHEN THE MAJOR STORM COMMENCES.

1500 WIDE STORMWATER DRAINAGE CORRIDOR

1500 WIDE STORMWATER DRAINAGE CORRIDOR

ON-SITE DETENTION (OSD TANK) 9.8m x 8.0m x 1.39m DEEP (INTERNAL DIMENSIONS).
- 109m³ OSD STORAGE. ASSUME 250 THICK BONDEK ROOF SLAB HOWEVER
THE FINAL CONSTRUCTED FORM IS YET TO BE DETERMINED.
OSD STORAGE CAPACITY IS FOR 100% OF THE MAJOR STORM FLOW
FROM THE ROOF OF BUILDING C, ASSUMING THE HARVESTING TANK IS FULL
WHEN THE MAJOR STORM COMMENCES.

EXTERNAL STORMWATER DRAINAGE PITS AND PIPES (LOCAL SITE DRAINAGE)

P3/5 P3/6 P3/7 P3/8

375ø RCP @ 3.7% (CLASS 2)

375ø RCP @ 4.7% (CLASS 2)

375ø RCP @ 2.1% (CLASS 2)

375ø RCP @ 2.9% (CLASS 2)

boundary

1500 WIDE HYDRAULIC SERVICES CORRIDOR

ø300 OVERFLOW PIPE

ø150 OUTLET PIPE

OSDT3
IL 90.950

OSDT1
IL 89.180

HIGH-LEVEL OVERLFOW PIPE FROM THE HARVESTING TANK TO THE OSD TANK. OVERFLOW CAPACITY NOT TO BE LESS THAN THE INLET FLOW RATE TYPICAL

22500L PRECAST CONCRETE UNDERGROUND RAINWATER HARVESTING TANK
3.45m EXTERNAL DIAMETER
2.9m EXTERNAL HEIGHT
TYPICAL

RWT4

RWT2 RWT1

22500L PRECAST CONCRETE UNDERGROUND RAINWATER HARVESTING TANK
3.45m EXTERNAL DIAMETER
2.9m EXTERNAL HEIGHT
TYPICAL

PUMP AND RETICULATION TO SUPPLY HARVESTED TANK WATER TO COMMON PROPERTY TOILETS AND FOR LOCALISED IRRIGATION TYPICAL

CHARGED INLET PIPES FROM BUILDING D (NORTH) ROOF DRAINAGE, WITH A FIRST-FLUSH SYSTEM DESIGNED BY A HYDRAULIC ENGINEER TYPICAL

PUMP AND RETICULATION TO SUPPLY HARVESTED TANK WATER TO COMMON PROPERTY TOILETS AND FOR LOCALISED IRRIGATION TYPICAL

CHARGED INLET PIPES FROM BUILDING C (NORTH) ROOF DRAINAGE, WITH A FIRST-FLUSH SYSTEM DESIGNED BY A HYDRAULIC ENGINEER

Ex Pit

2.5%

1.0%

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 16 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
6	REVISED DEVELOPMENT APPLICATION	25.8.22
5	DEVELOPMENT APPLICATION	19.8.22
4	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
3	COORDINATION	1.7.22
2	80% DA - CLIENT REVIEW	19.11.21
1	50% DA - CLIENT REVIEW	11.8.21
0	PRELIMINARY CONCEPTS	5.6.20

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CLIENT
UNITING

TITLE
STORMWATER PLAN
SHEET 2

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00202	6

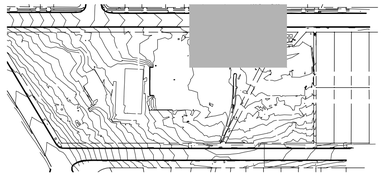
FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

NOT FOR CONSTRUCTION

STORMWATER PLAN SHEET 3

SCALE 1:100

KEY PLAN



MATCH LINE D

MATCH LINE E

MATCH LINE A

JAMES ST

1500 WIDE STORMWATER DRAINAGE CORRIDOR

3000 WIDE STORMWATER DRAINAGE CORRIDOR

4 / 00250

CONTROLLED HIGH-LEVEL (MAJOR STORM) OUTFLOW PIPE FROM THE OSD TANK TYPICAL

HUMECEPTOR GROSS POLLUTANT TRAP

EXISTING KIP RE-BUILT

NEW 600Φ RCP (CLASS 4) @ 3.0%

EXISTING KIP (PIT No.25608)

Ex PIT

3000 WIDE STORMWATER DRAINAGE CORRIDOR

P3/8 P3/9 P3/10 GPT1 P3/11 P3/12 P3/13 P1/6

375Φ RCP @ 1.1% (CLASS 2)

375Φ RCP @ 1.0% (CLASS 2)

375Φ RCP @ 1.0% (CLASS 3)

2.5%

1.0%

Φ300 OVERFLOW PIPE

Φ150 OUTLET PIPE

1500 WIDE HYDRAULIC SERVICES CORRIDOR

GARDEN BED TO LANDSCAPE ARCH DETAILS

RWT1

GRATED DRAIN

CHARGED INLET PIPES FROM BUILDING B (NORTH) ROOF DRAINAGE, WITH A FIRST-FLUSH SYSTEM DESIGNED BY A HYDRAULIC ENGINEER TYPICAL

PROPOSED NEW EASEMENT BOUNDARY

P15/1 P15/2 P15/3 P15/4

225Φ @ 1.0%

2/DN675RCP CLASS 3 AT 1.0%

2/675Φ RCP @ 1.0% (CLASS 2)

EASEMENT

boundary

HYD

SMH

SV

TEL

PP

Ex PIT

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 17 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
6	REVISED DEVELOPMENT APPLICATION	25.8.22
5	DEVELOPMENT APPLICATION	19.8.22
4	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
3	COORDINATION	1.7.22
2	80% DA - CLIENT REVIEW	19.11.21
1	50% DA - CLIENT REVIEW	11.8.21
0	PRELIMINARY CONCEPTS	5.6.20

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CLIENT: UNITING

TITLE: STORMWATER PLAN SHEET 3

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00203	6

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

STORMWATER PLAN SHEET 4

SCALE 1:100

EXISTING BLIND PIT (PIT No.25670) UPGRADED TO ENABLE EXTRA PIPE CONNECTION FULL DETAILS TO BE CONFIRMED AT CONSTRUCTION CERTIFICATE DESIGN STAGE

EXISTING PIPE TOWARDS FLAGGY CREEK

NEW STANDARD LMCC GRATED GULLY PIT WITH EXTENDED KERB INLET 3m NOMINAL LINTEL, TO LMCC DRAWING EGSD-401

EXISTING RCP TO REMAIN CONNECT INTO NEW PIT 9/2 AND MAKE GOOD

600Φ RCP (CLASS 4) @ 1.0%

P1/9 P9/2 P9/1

450Φ RCP (CLASS 4) @ 1.0%

EXISTING KIP (PIT No.TBC) TO BE UPGRADED. CURRENTLY A GRATE IN THE DRIVEWAY LAYBACK. PROVIDE NEW HEAVY DUTY CLASS-D GRATE 900x400 AND MAKE GOOD TO THE PIT WALLS. FULL DETAILS TBC AT CONSTRUCTION CERTIFICATE DESIGN STAGE.

EXISTING RCP CROSSING JAMES STREET TO REMAIN

EXISTING KERB INLET PIT TO BE DEMOLISHED AND REPLACED WITH A NEW REINFORCED CONCRETE JUNCTION PIT. EXISTING PIPES TO BE CONNECTED INTO NEW PIT AS SHOWN

MATCH LINE E

3000 WIDE STORMWATER DRAINAGE CORRIDOR

E S S T R E E T

NEW 'ON-GRADE' GRATED GULLY PIT TO LMCC STANDARD DRAWING EGSD-401 WITH 4.3m LINTEL

900x900 HEAVY DUTY CLASS-D GRATED

NEW CONCRETE DRIVEWAY LAYBACK TO LMCC STANDARD DRAWING EGSD-104

5 / 00250

P10/1 450Φ RCP CLASS 4 @ 1.0% P1/8 P8/2 P8/1

NEW 600Φ RCP (CLASS 4) @ 3.0%

450Φ RCP (CLASS 4) @ 1.35%

450Φ RCP (CLASS 4) @ 1.0%

HIGH-VOLTAGE CONDUITS TO PASS OVER THE TWIN RCBC STORMWATER CULVERTS. FULL DETAILS TBC AT CONSTRUCTION CERTIFICATE STAGE

2/750Φ RCP @ 2.0% (CLASS 4)

2m @ 2.5%

TWIN 1200x300 PRECAST RCBC @ 1.0%

3m @ 12.5%

NEW CONCRETE DRIVEWAY CROSSING TO LMCC STANDARD DRAWING EGSD-104

EXISTING STORMWATER PIPE TO REMAIN

EXISTING KIP (PIT No.25672 TBC) UPGRADED TO STANDARD LMCC GRATED GULLY PIT WITH EXTENDED KERB INLET, 4.3m NOMINAL LINTEL, TO LMCC DRAWING EGSD-401

VERGE IN FRONT OF No.28 JAMES STREET TO BE REGRADED TO SLOPE TOWARDS JAMES STREET, TO PREVENT STORM PONDING IN THE JAMES STREET SAG POINT FROM EXTENDING INTO THE PRIVATE PROPERTY. DETAILS TO BE CONFIRMED AT CONSTRUCTION CERTIFICATE STAGE

NEW STANDARD LMCC GRATED GULLY PIT WITH EXTENDED KERB INLET, 4.3m NOMINAL LINTEL, TO LMCC DRAWING EGSD-401

P1/7

PROPOSED NEW EASEMENT BOUNDARY

GRATED DRAIN

EXISTING STORMWATER PIT TO REMAIN

900x900 HEAVY DUTY CLASS-D GRATED

NEW 'CLASS D' SEALED CONCRETE LID FOR MAINTENANCE ACCESS TO PIT

ACCESS ROAD CONTROL LINE

DN375 RCP

EXISTING PITS AND PIPES TO BE DECOMMISSIONED

HIGH VOLTAGE ELECTRICITY SUBSTATION KIOSK LOCATION

EXISTING EASEMENT BOUNDARIES TO BE REMOVED

3.0% SINGLE CROSSFALL TYPICAL

P6/1 P5/1

SAND FILTER CHAMBER, REINFORCED CONCRETE BASE, WALLS AND ROOF SLAB, 3m x 2m INTERNAL DIMENSIONS. 400mm SAND DEPTH BELOW INVERT LEVEL OF THE OSD TANK

OUTLET PIPE FROM SAND FILTER CHAMBER

SFT1

MATCH LINE A

LOT 25 DP 19696

LOT 24 DP 19696

MATCH LINE A

2/Φ300 UPVC HIGH-LEVEL OVERFLOW PIPES FROM OSD TANK TO BYPASS SAND FILTER CHAMBER

900x900 ACCESS AND SURCHARGE GRATE TO THE SAND FILTER CHAMBER

LOW-LEVEL FLOW CONTROL PIPE FROM OSD TANK TO SAND FILTER CHAMBER

900x900 GRATED SURCHARGE PIT WITH TRASH SCREEN FOR THE OSD TANK INLET

P4/5

OVERLAND FLOW PATH FROM PIT P4/4 SAG POINT DURING MAJOR STORM EVENT

300Φ @ 2.0%

boundary

Ex PIT

TPIT

TPIL

SMH

HYD

TEL

K&G

NSW GOVERNMENT Planning & Environment

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 18 of 35 Signed:

NOT FOR CONSTRUCTION

KEY PLAN

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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CLIENT: UNITING

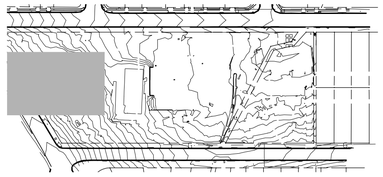
TITLE: STORMWATER PLAN SHEET 4

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00204	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



KEY PLAN

STORMWATER PLAN SHEET 5

SCALE 1:100

BASIN DETAILS TBC AT CONSTRUCTION CERTIFICATE DESIGN STAGE

BAFFLE

ROCK-PITCHED SCOUR PROTECTION

GRASSED SWALE AND DIVERSION BANK (HIGH FLOW EARTH BANK TO DETAIL 'SD5-6' ON DRAWING 00150)

MATCH LINE A

MATCH LINE B

MATCH LINE C

P3/3

P3/2

Ex PIT

300ø @ 1%

DUDLEY ROAD

boundary

NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 19 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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CLIENT
UNITING

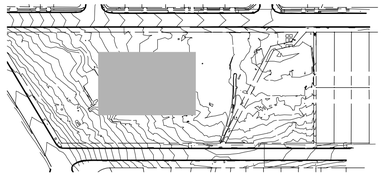
TITLE
STORMWATER PLAN
SHEET 5

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00205	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



KEY PLAN

STORMWATER PLAN SHEET 6

SCALE 1:100

RWT4

CHARGED INLET PIPES FROM BUILDING D (NORTH) ROOF DRAINAGE, WITH A FIRST-FLUSH SYSTEM DESIGNED BY A HYDRAULIC ENGINEER TYPICAL

PUMP AND RETICULATION TO SUPPLY HARVESTED TANK WATER TO COMMON PROPERTY TOILETS AND FOR LOCALISED IRRIGATION TYPICAL

22500L PRECAST CONCRETE UNDERGROUND RAINWATER HARVESTING TANK
3.45m EXTERNAL DIAMETER
2.9m EXTERNAL HEIGHT
TYPICAL

PUMP AND RETICULATION TO SUPPLY HARVESTED TANK WATER TO COMMON PROPERTY TOILETS AND FOR LOCALISED IRRIGATION TYPICAL

CHARGED INLET PIPES FROM BUILDING C (NORTH) ROOF DRAINAGE, WITH A FIRST-FLUSH SYSTEM DESIGNED BY A HYDRAULIC ENGINEER TYPICAL

MATCH LINE A

MATCH LINE C

MATCH LINE D

MATCH LINE B

Ex PIT

NOT FOR CONSTRUCTION

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 20 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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CLIENT
UNITING

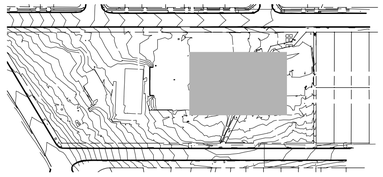
TITLE
STORMWATER PLAN
SHEET 6

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00206	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



KEY PLAN

ROM BUILDING B (NORTH)
FIRST-FLUSH SYSTEM
IC ENGINEER

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 21 of 35 Signed

STORMWATER PLAN SHEET 7

SCALE 1:100

MATCH LINE D

MATCH LINE A

MATCH LINE E

MATCH LINE B

2/DN675RCP CLASS 3 AT 1.0%

2/675ϕ RCP @ 1.0% (CLASS 2)

EASEMENT

P15/3

P15/4

P16/1

P16/2

P16/3

P16/4

P17/1

P1/5

P1/4

225ϕ @ 2.0%

225ϕ @ 1.0%

P18/1

P18/2

P18/3

RS1

450ϕ RCP @ 5.1%

450ϕ RCP @ 4.1%

300ϕ @ 2.0%

300ϕ UPVC

P21/1

CONNECTION POINT FOR DOWNPIPES FROM BUILDING B (SOUTH) WITH FIRST FLUSH SYSTEM TO HYDRAULIC ENGINEER SPECIFICATION

boundary

Ex PIT

TEL

SMH

LP

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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CLIENT: UNITING

TITLE: STORMWATER PLAN SHEET 7

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00207	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

SAND FILTER CHAMBER,
REINFORCED CONCRETE BASE,
WALLS AND ROOF SLAB.
3m x 2m INTERNAL DIMENSIONS.
400mm SAND DEPTH BELOW
INVERT LEVEL OF THE OSD TANK

MATCH
LINE A

2/Φ300 UPVC HIGH-LEVEL
OVERFLOW PIPES
FROM OSD TANK TO BYPASS
SAND FILTER CHAMBER

LOW-LEVEL FLOW
CONTROL PIPE FROM
OSD TANK TO
SAND FILTER CHAMBER

PUMP AND RAINWATER
RE-USE RETICULATION
SYSTEM TO HYDRAULIC
ENGINEERS SPECIFICATION

OSD TANK No.2
STORAGE VOLUME = 210m³
1.310m DEEP
'ATLANTIS FLO TANK' SYSTEM
450mm COVER FROM TOP OF
TANK TO FSL.
PROVIDE IMPERMEABLE LINER
TO THE TANK

CHARGED PIPES TO
HYDRAULIC ENGINEERS
DESIGN, CONVEYING ROOF
RAINWATER FROM THE RAC
BUILDING TO HARVESTING
TANK

SEALED INSPECTION RISER
TO HYDRAULIC ENGINEERS
SPECIFICATION

MATCH
LINE E

MATCH
LINE B

P6/1
P5/1
P4/5
P4/4
P4/3
P7/1
OSDT2
IL 88.000
RWT3
SFT1
SMH

OUTLET PIPE FROM
SAND FILTER CHAMBER

900x900 ACCESS AND
SURCHARGE GRATE TO THE
SAND FILTER CHAMBER

900x900 GRATED SURCHARGE PIT
WITH TRASH SCREEN FOR THE
OSD TANK INLET

OVERLAND FLOW PATH FROM PIT P4/4 SAG POINT
DURING MAJOR STORM EVENT

ATLANTIS FLO-TANK (LINED)
1310mm DEPTH +
450mm TOP COVER (PAVEMENT).
173m² SURFACE AREA,
619 ATLANTIS FLO-TANK 'TRIPLE' UNITS

HIGH-LEVEL
OVERFLOW PIPE
TO THE OSD TANK

SEALED ACCESS RISER
TO THE HARVESTING TANK

50,000L RAINWATER
HARVESTING/RE-USE TANK
5.65m EXTERNAL DIAMETER
2.35m HEIGHT,
7.5m DIAMETER EXCAVATION
FOR INSTALLATION ROOF SLAB
TO BE DESIGNED FOR 'MEDIUM RIGID
VEHICLES' PLUS PAVEMENT LOADS

WEIR CREST LEVEL RL 89.937
AT TOP OF KERB ADJACENT
TO PIT P4/4

KERB AND
GUTTER

GRATED
INLET PIT

CENTRELINE OF RAMP DOWN
TO RAC BASEMENT CARPARK

1
00250

2
00250

LOT 25
DP 19696

LOT 24
DP 19696

LOT 12
DP 19696

LOT 13
DP 19696

boundary

K&G

3.0% SINGLE
CROSSFALL
TYPICAL

3.0% CROSSFALL

300Φ @ 2.0%

300Φ @ 5.0%

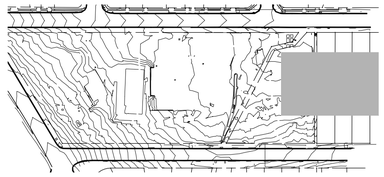
18.67m
@ 5.20%

16.0m @ 1:20
11% CROSSFALL

5%

1:20
(5.0%)

KEY PLAN



STORMWATER PLAN SHEET 8

SCALE 1:100

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Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 22 of 35 Signed:

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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CLIENT
UNITING

TITLE
STORMWATER PLAN
SHEET 8

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
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CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00208	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

MATCH LINE B

MATCH LINE B

MATCH LINE C

MATCH LINE C

HYD

NBN PITS

TELECOMMUNICATIONS AND FIBRE IN SHARED TRENCH

Ex PIT

SV

PP

TEL

GRASSED SWALE AND DIVERSION BANK (HIGH FLOW EARTH BANK TO DETAIL 'SD5-6' ON DRAWING 00150)

RS1

300Ø

P3/1

68.700

boundary

NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

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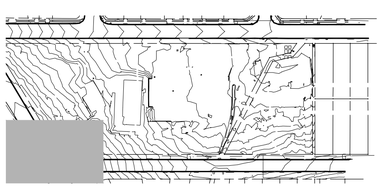
Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 23 of 35 Signed:

STORMWATER PLAN SHEET 9

SCALE 1:100



KEY PLAN

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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A.C.N. 098 542 575

CLIENT
UNITING

TITLE
STORMWATER PLAN
SHEET 9

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00209	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

STORMWATER PLAN SHEET 10

SCALE 1:100

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
2	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
1	COORDINATION	1.7.22
0	80% DA - CLIENT REVIEW	19.11.21

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DATE OF RELEASE	RESPONSIBLE PRINCIPAL SIGNATURE	ISSUE

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CLIENT
UNITING

TITLE
STORMWATER PLAN
SHEET 10

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	**JOB No**	**DRAWING No**	**ISSUE**
1:100	200243	00210	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

CONNECTION POINT FOR DOWNPIPES FROM BUILDING B (SOUTH) WITH FIRST FLUSH SYSTEM TO HYDRAULIC ENGINEER SPECIFICATION

MATCH LINE B

MATCH LINE D

MATCH LINE E

P21/1 90.840

P18/2 90.300

P18/3 90.060

P18/4 90.540

P17/1

P17/2

P17/3

P17/4

P19/1 91.300

P1/3 92.200

P2/1 92.720

P1/2 92.710

P1/1 92.720

P14/1 93.570

RS1

150Φ RCP @ 5.1%

450Φ RCP @ 4.1%

300Φ UPVC

300Φ UPVC

300Φ UPVC

150Φ @ 2.0%

RS1 91.100

HW19

OSDT4

Ex PIT

92.890

92.140

608 ATLANTIS FLO-TANK
'DOUBLE' UNITS
170m² SURFACE AREA
142m³ OSD STORAGE

2/675Φ RCP
CLASS 3
AT 5.0%

EASEMENT

2/675Φ RCP
@ 10.2%
(CLASS 2)

PROPOSED
NEW EASEMENT
BOUNDARY

OVERLAND FLOW PATH
FOR MAJOR STORM

Φ225 @ 4.0%

225Φ @ 7.8%

225Φ @ 11.8%

CONCRETE 'V' DRAIN

CONNECTION POINTS FOR
SUBSOIL DRAINAGE OVER
RAC CARPARK. DETAILS TBC
AT CONSTRUCTION CERTIFICATE
DESIGN STAGE

K&G

2/Φ675RCP @ 5.19%
(CLASS 3)

375Φ RCP @ 2.0%
(CLASS 3)

375Φ RCP @ 2.0%
(CLASS 3)

EXISTING SAG KIP (PIT No.31790)
TO BE UPGRADED TO SUIT
NEW TWIN EASEMENT PIPES,
PLUS INCREASED INLET CAPACITY.
PIT AND GRATE DETAILS TO BE
PROVIDED AT CONSTRUCTION
CERTIFICATE STAGE

6
00250

EXISTING KIP
(PIT No.31791)
TO REMAIN

EXISTING KIP
(PIT No.31792)
TO REMAIN

RCP FROM EXISTING KIP
(PIT No.31793)
TO REMAIN

RCP IN THE EASEMENT
FROM DUDLEY ROAD

boundary

300 WIDE
GRATED DRAIN

2/DN100 PVC

KERB ADAPTORS TO LMCC
STANDARD DRAWING EGSD404
TYPICAL

PIPE
IL 93.200

TIRAL STREET

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment Act

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 25 of 35 Signed

STORMWATER PLAN SHEET 11

SCALE 1:100

SP 84726

LOT 1 DP 20350

LOT 2 DP 20350

LOT 3 DP 20350

NOT FOR CONSTRUCTION

KEY PLAN

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
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CLIENT
UNITING

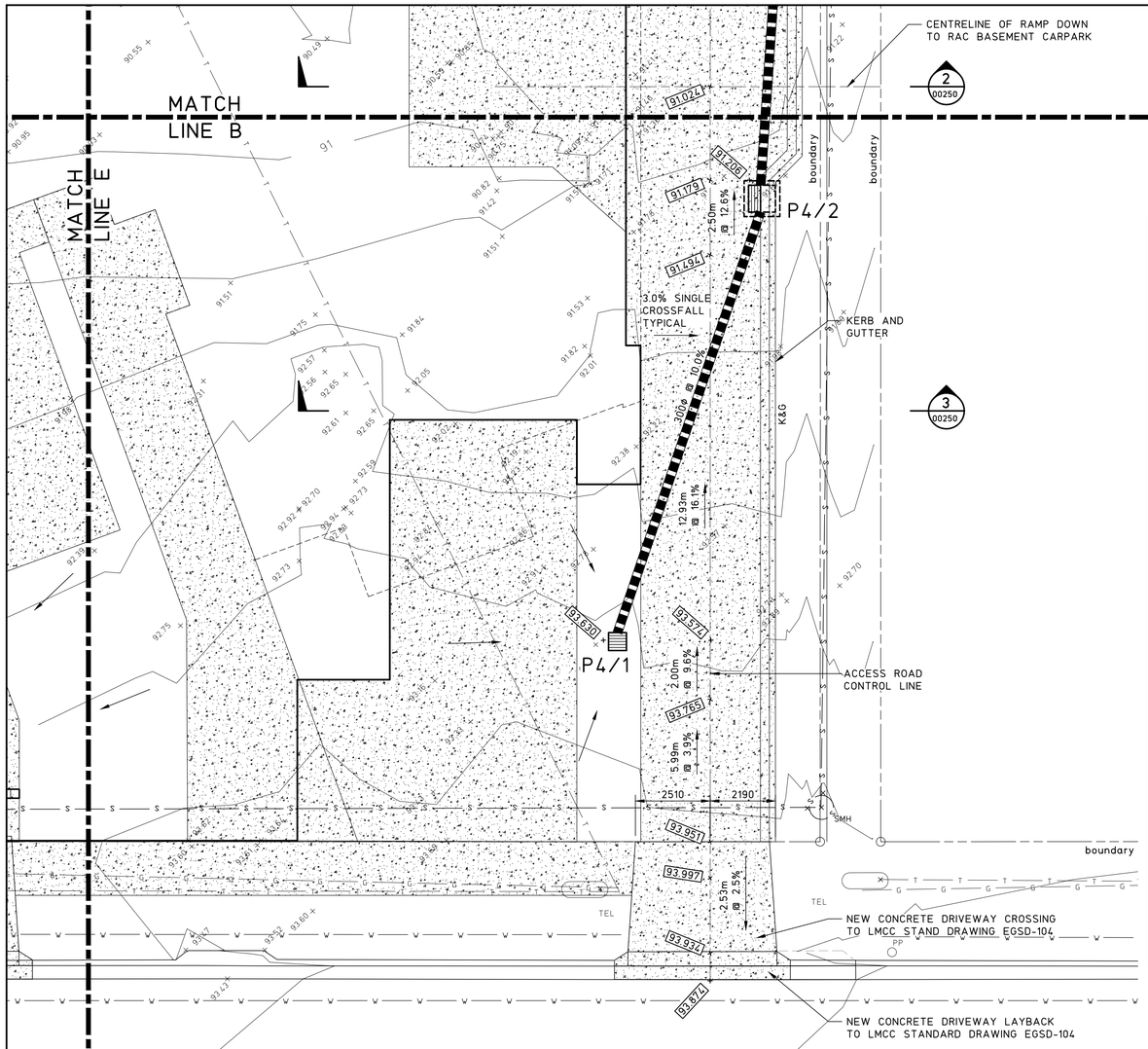
TITLE
STORMWATER PLAN
SHEET 11

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00211	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

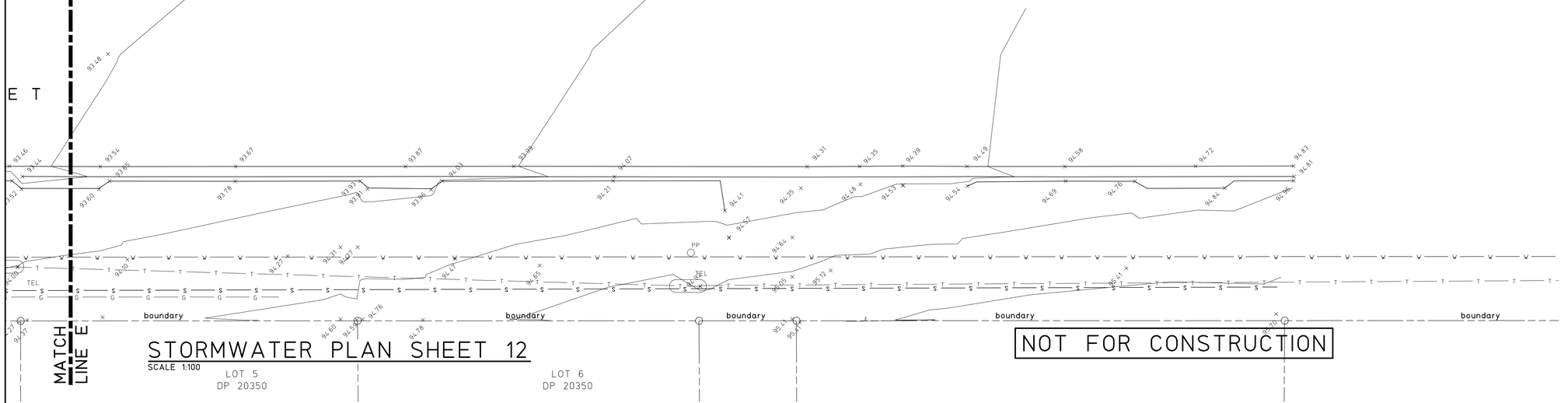


PIT SCHEDULE

LINE	PIT No.	SIZE	TYPE	SURFACE LEVEL S.L.	INVERT LEVEL I.L.	LINE	PIT No.	SIZE	TYPE	SURFACE LEVEL S.L.	INVERT LEVEL I.L.
LINE 1	P1/1	3000 LINTEL	KERB INLET PIT	92.720	91.310	LINE 9	P9/1	900x900	GRATED PIT ✡	87.550	86.324
	P1/2	3000 LINTEL ✱	KERB INLET PIT	92.710	91.210		P9/2	3700 LINTEL	KERB INLET PIT	87.610	86.290
	P1/3	3000x2000	JUNCTION PIT ✡	92.200	90.410	LINE 10	P10/1	4300 LINTEL	KERB INLET PIT	87.990	86.900
	P1/4	3000x3000	JUNCTION PIT ✡	89.800	87.471	LINE 11	P11/1	450x450	GRATED PIT	93.000	92.550
	P1/5	3000x3000	JUNCTION PIT ✡	89.550	87.203		HW11	DN100	ROCK PITCHED	92.750	92.450
	P1/6	4000x2000	JUNCTION PIT ✡	89.200	86.820	LINE 12	P12/1	600x600	GRATED PIT	94.100	93.550
	P1/7	3000x2200	GRATED PIT ✡	88.405	86.490		HW12	DN100	ROCK PITCHED	93.750	93.450
	P1/8	3000x2200	SURCHARGE PIT ✡	87.920	86.420	LINE 13	P13/1	450x450	GRATED PIT	95.400	95.000
	P1/9	2000x1500	JUNCTION PIT ✡	87.841	86.120		HW13	DN100	ROCK PITCHED	94.850	94.550
LINE 2	P2/1	3000 LINTEL	KERB INLET PIT	92.720	91.310	LINE 14	P14/1	450x450	GRATED PIT	93.570	93.270
LINE 3	P3/1	900x900	GRATED PIT	98.700	96.595	LINE 15	P15/1	900x900	GRATED PIT	89.200	88.360
	P3/2	900x900	GRATED PIT	97.580	95.225		P15/2	600x600	GRATED PIT	90.100	88.500
	P3/3	900x900	GRATED PIT	96.120	92.627		P15/3	600x600	GRATED PIT	90.100	88.620
	P3/4	900x900	GRATED PIT	93.600	92.350		P15/4	600x600	GRATED PIT	90.100	88.745
	P3/5	900x900	GRATED PIT	92.500	91.300	LINE 16	P16/1	900x900	GRATED PIT	90.100	88.690
	P3/6	900x900	GRATED PIT	92.050	90.750		P16/2	600x600	GRATED PIT	90.100	88.760
	P3/7	900x900	GRATED PIT	91.300	90.100		P16/3	600x600	GRATED PIT	90.100	88.890
	P3/8	900x900	GRATED PIT	90.760	89.100		P16/4	600x600	GRATED PIT	90.100	89.000
	P3/9	900x900	GRATED PIT	90.700	88.830	LINE 17	P17/1	900x900	GRATED PIT	90.600	87.971
	P3/10	900x900	GRATED PIT	90.300	88.460		P17/2	600x600	GRATED PIT	91.200	90.180
	P3/11	900x900	GRATED PIT	90.000	88.220		P17/3	600x600	GRATED PIT	91.600	90.650
	P3/12	900x900	GRATED PIT	89.265	88.000		P17/4	600x600	GRATED PIT	92.500	91.600
	P3/13	4300 LINTEL	KERB INLET PIT	88.890	87.850	LINE 18	P18/1	900x900	JUNCTION PIT	90.300	88.380
LINE 4	P4/1	900x900	GRATED PIT	93.630	91.850		P18/2	900x900	GRATED PIT	89.850	88.580
	P4/2	900x900	GRATED PIT	91.206	90.300		P18/3	900x900	GRATED PIT	90.060	88.860
	P4/3	900x900	GRATED PIT	90.422	89.600		P18/4	900x900	GRATED PIT	90.540	89.340
	P4/4	900x900	GRATED PIT	89.787	88.900	LINE 19	P19/1	600x600	GRATED PIT	91.300	90.850
	P4/5	900x900	GRATED PIT	89.799	88.200		HW19	DN150	ROCK PITCHED	91.100	90.800
LINE 5	P5/1	900x900	GRATED PIT	89.936	88.740	LINE 20	P20/1	900x900	GRATED PIT	94.820	92.850
LINE 6	P6/1	900x900	JUNCTION PIT	90.092	87.300	LINE 21	P21/1	900x900	GRATED PIT	90.840	89.590
LINE 7	P7/1	900x900	GRATED PIT	89.924	86.490		P21/2	900x900	GRATED PIT	92.100	90.360
LINE 8	P8/1	4300 LINTEL	KERB INLET PIT	87.670	86.780		P21/3	900x900	GRATED PIT	94.500	91.810
	P8/2	3000 LINTEL	KERB INLET PIT	87.700	86.630						

✱ DENOTES 1800x450 GRATE FOR P1/2, 900x450 GRATED FOR ALL OTHER KERB INLET PITS

✡ DENOTES 'NON-STANDARD' INSITU PIT. DETAILS TBC AT CONSTRUCTION CERTIFICATE STAGE



NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

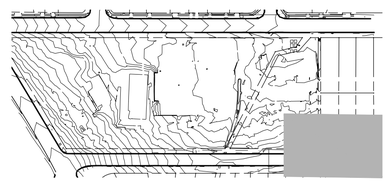
Granted on: 1st December 2023 Sheet no: 26 of 35 Signed:

STORMWATER PLAN SHEET 12

SCALE 1:100

LOT 5 DP 20350 LOT 6 DP 20350

NOT FOR CONSTRUCTION



KEY PLAN

ISSUE	REASON FOR ISSUE	DATE
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CLIENT
UNITING

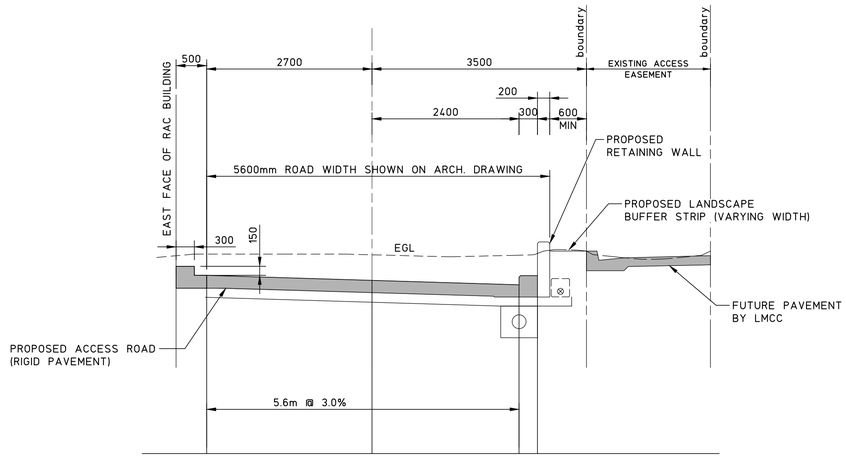
TITLE
STORMWATER PLAN
SHEET 12

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

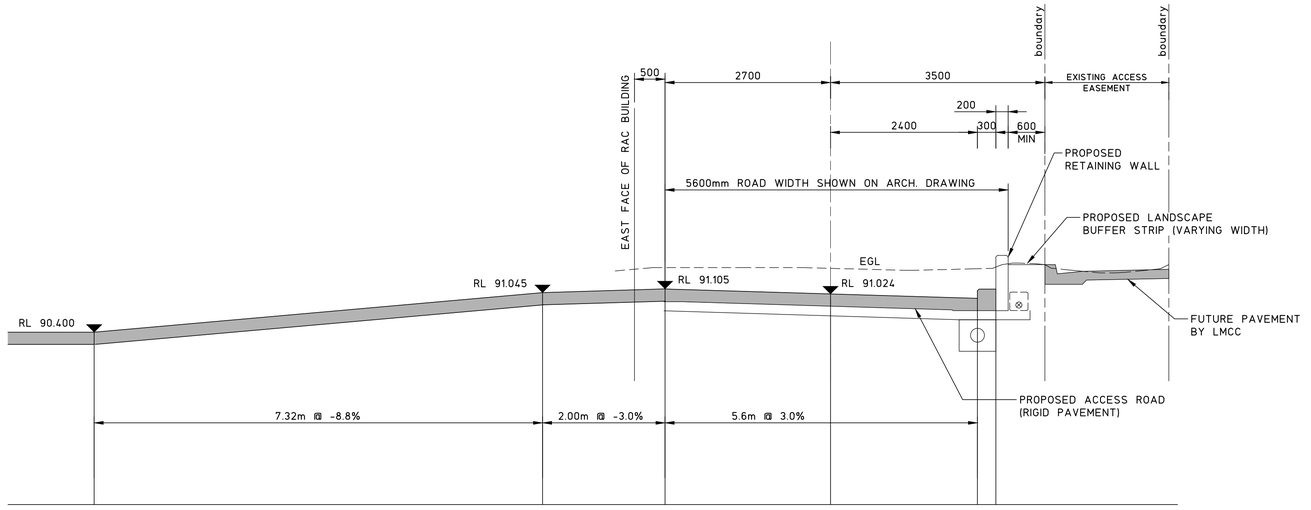
DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00212	4

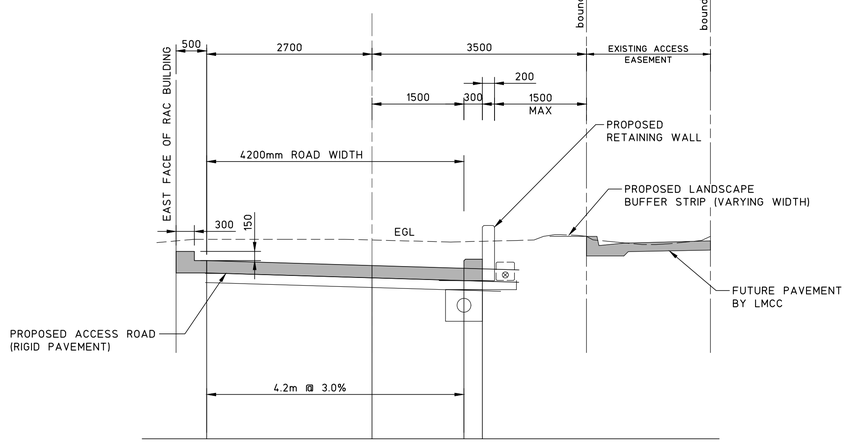
FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



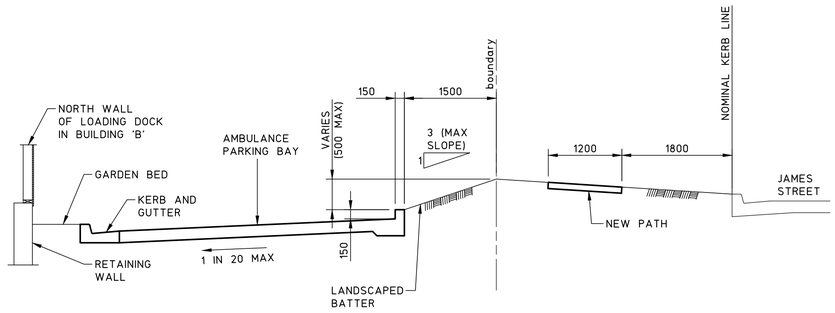
SECTION 1
SCALE 1:50
00207



SECTION 2
SCALE 1:50
00207



SECTION 3
SCALE 1:50
00211



SECTION 4
SCALE 1:50
00203

NOT FOR CONSTRUCTION

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 27 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
3	DEVELOPMENT APPLICATION	19.8.22
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CLIENT
UNITING

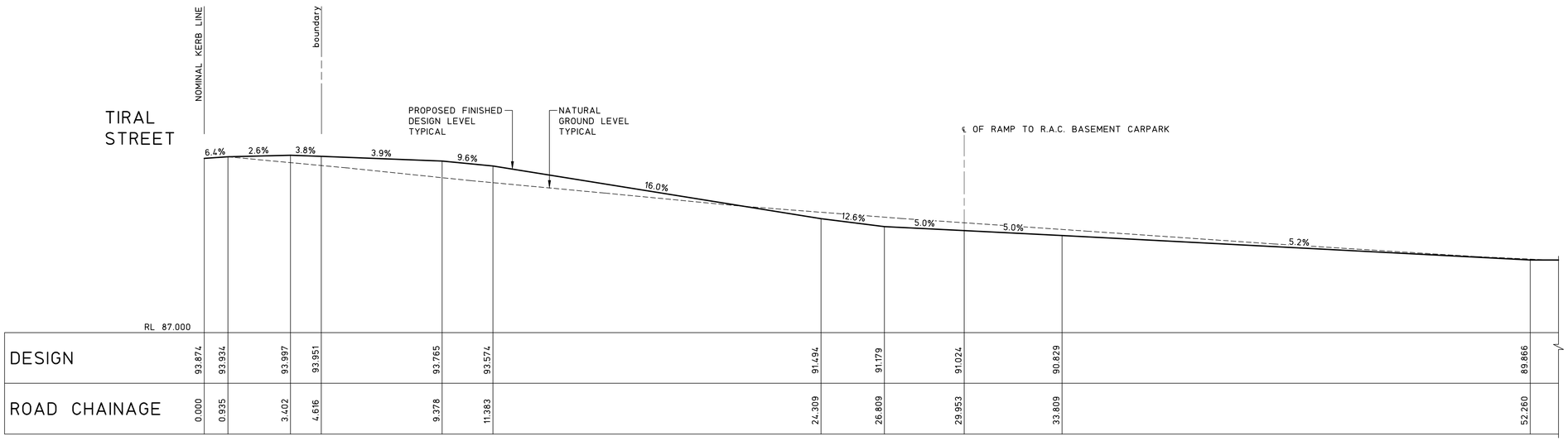
TITLE
STORMWATER SECTIONS
SHEET 1

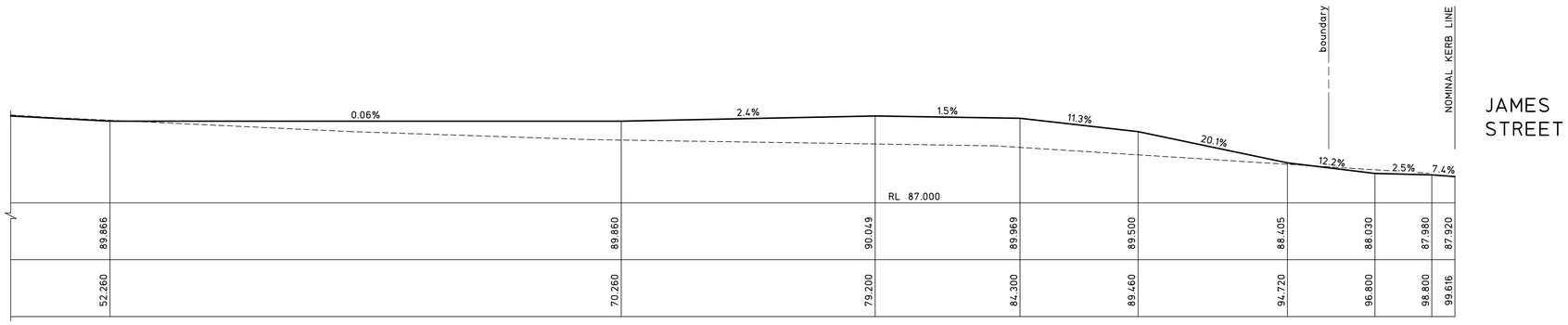
PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:50	200243	00250	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm





LONGITUDINAL SECTION EASTERN ACCESS ROAD

SCALE HORIZONTAL 1:100, VERTICAL 1:100

NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 28 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
4	REVISED DEVELOPMENT APPLICATION	25.8.22
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CLIENT: UNITING

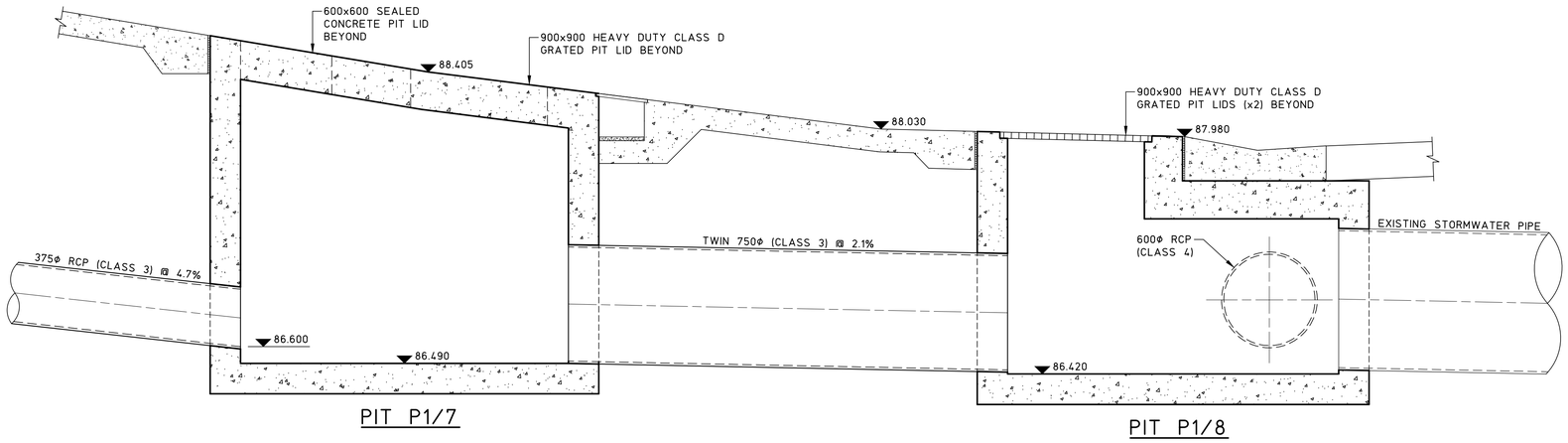
TITLE: STORMWATER SECTIONS SHEET 2

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

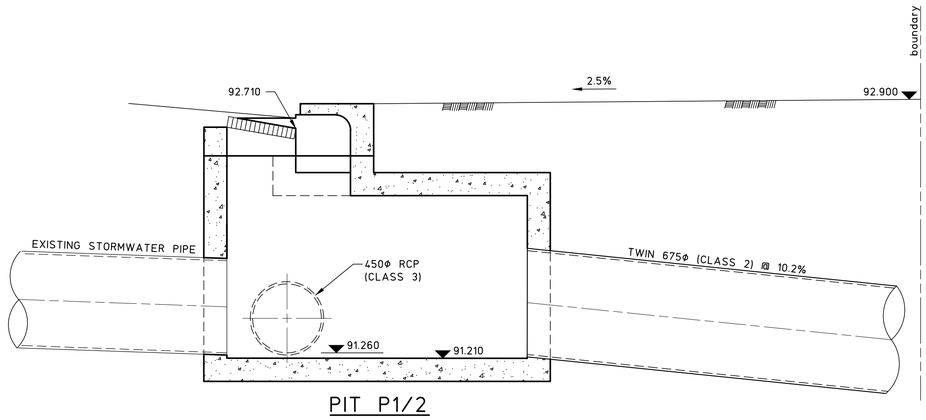
DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00251	4

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

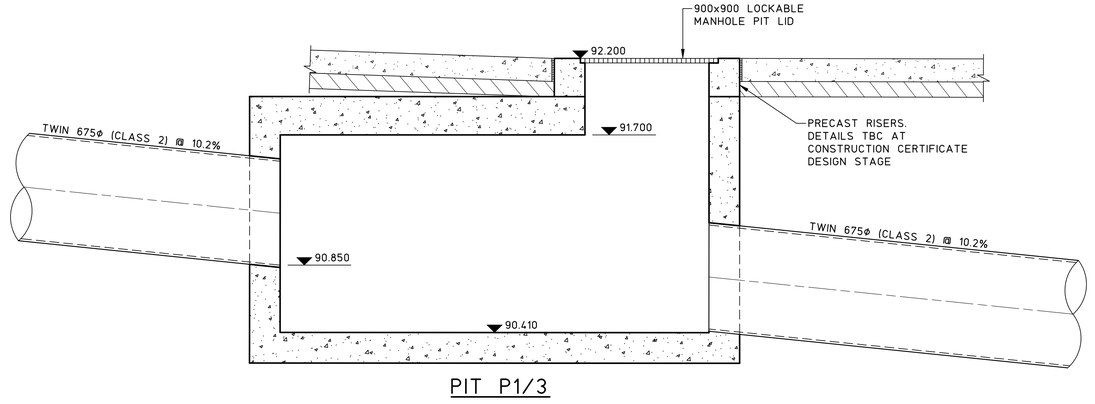


SECTION 5
SCALE 1:20
00204

NOTE
PIT DETAILS TBC AT CONSTRUCTION CERTIFICATE STAGE
TYPICAL



SECTION 6
SCALE 1:20
00211



NOT FOR CONSTRUCTION

Planning & Environment
NSW GOVERNMENT
Issued under the Environmental Planning and Assessment Act
Approved Section: S. 4.38 Application No: SSD-35370706
Granted on: 1st December 2023 Sheet no: 29 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
2	REVISED DEVELOPMENT APPLICATION	25.8.22
1	DEVELOPMENT APPLICATION	19.8.22
0	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22

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CLIENT
UNITING

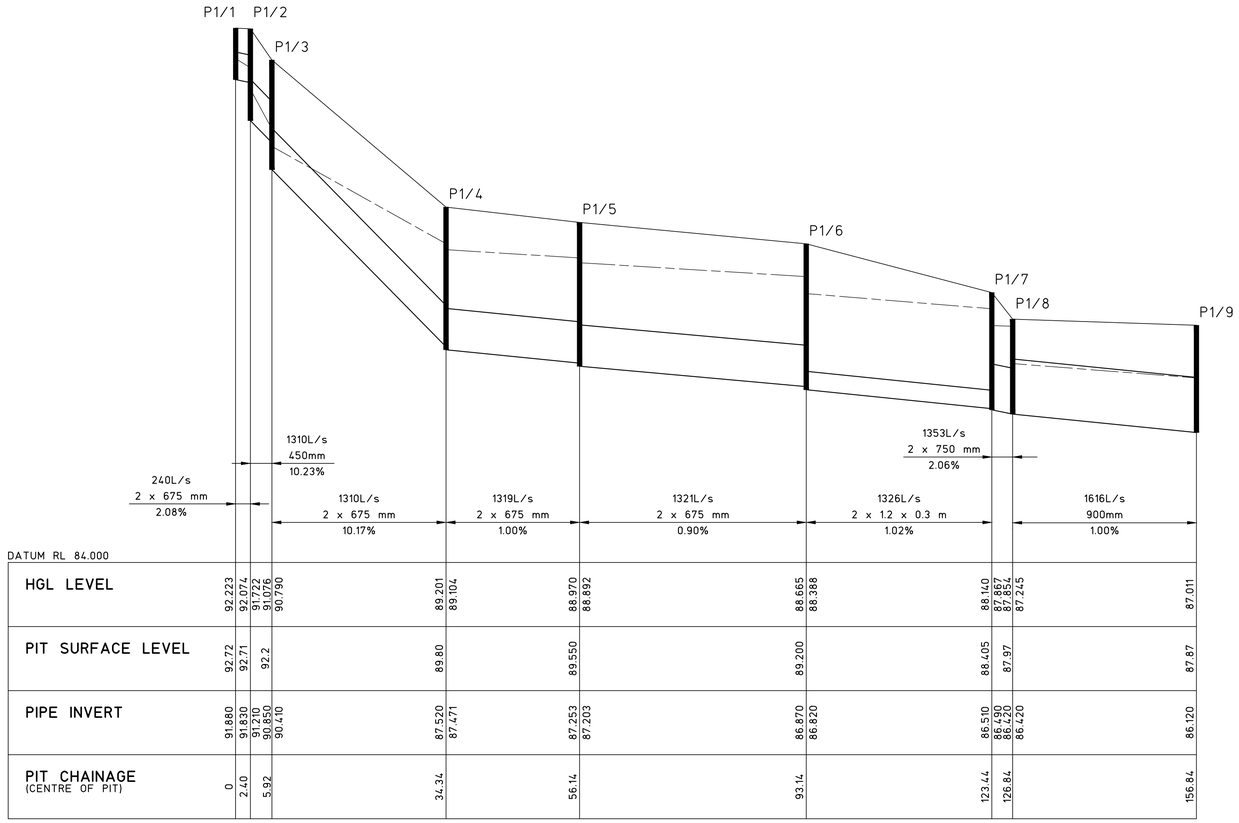
TITLE
STORMWATER SECTIONS
SHEET 3

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:100	200243	00252	2

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



DATUM RL 84.000

HGL LEVEL	92.223 92.074	91.722 91.076	90.790	89.201 89.104	88.970 88.892	88.665 88.388	88.140 87.867	87.854 87.245	87.011
PIT SURFACE LEVEL	92.72	92.71	92.2	89.80	89.550	89.200	88.405	87.97	87.87
PIPE INVERT	91.880 91.830	91.210 90.850	90.410	87.520 87.471	87.253 87.203	86.870 86.820	86.510 86.490	86.420 86.420	86.120
PIT CHAINAGE (CENTRE OF PIT)	0	2.40	5.92	34.34	56.14	93.14	123.44	126.84	156.84

P1/1 TO P1/9 LONGITUDINAL DRAINAGE PROFILE

SCALE HORIZONTAL 1:500, VERTICAL 1:50

DATUM RL 76.000

HGL LEVEL	92.054	92.196
PIT SURFACE LEVEL	92.72	92.71
PIPE INVERT	91.830	91.880
PIT CHAINAGE (CENTRE OF PIT)	0	2.40

P2/1 TO P1/2 LONGITUDINAL DRAINAGE PROFILE

SCALE HORIZONTAL 1:500, VERTICAL 1:50

NSW GOVERNMENT | Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 30 of 35 Signed:

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
0	REVISED DEVELOPMENT APPLICATION	25.8.22

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS ENDORSED BELOW

DATE OF RELEASE	RESPONSIBLE PRINCIPAL SIGNATURE	ISSUE

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A.C.N. 098 542 575

CLIENT
UNITING

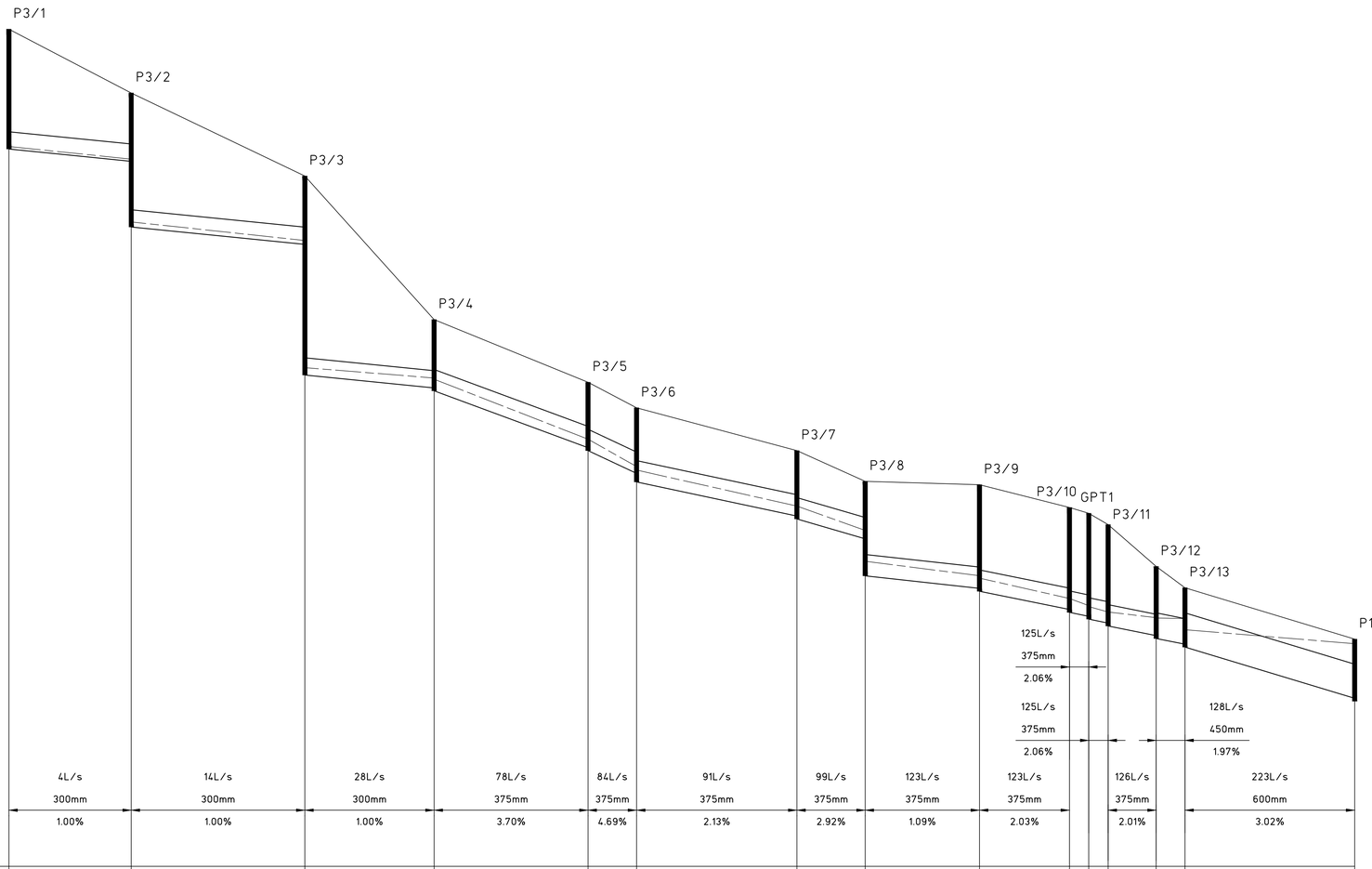
TITLE
STORMWATER LINES LONGITUDINAL
DRAINAGE PROFILES SHEET 1

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
LOT 223, DP 551260,
No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	**JOB No**	**DRAWING No**	**ISSUE**
AS SHOWN	200243	00253	0

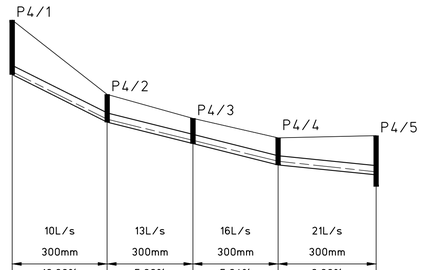
FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



	4L/s 300mm 1.00%	14L/s 300mm 1.00%	28L/s 300mm 1.00%	78L/s 375mm 3.70%	84L/s 375mm 4.69%	91L/s 375mm 2.13%	99L/s 375mm 2.92%	123L/s 375mm 1.09%	123L/s 375mm 2.03%	126L/s 375mm 2.01%	223L/s 600mm 3.02%			
DATUM RL 84.000														
HGL LEVEL	96.640	96.417 95.315	94.989 92.756	92.575 92.553	91.501 91.501	91.019 90.958	90.326 90.326	89.899 89.356	89.102 89.061	88.703 88.477	88.703 88.466	88.561 88.466	88.366 88.360	88.351 88.155	87.909
PIT SURFACE LEVEL	98.70	97.58	96.12	93.600	92.5	92.05	91.3	90.76	90.7	90.3	90.20	90	89.265	88.89	87.99
PIPE INVERT	96.595	96.380 95.225	94.920 92.627	92.400 92.350	91.350 91.300	90.900 90.750	90.150 90.100	89.750 89.100	88.880 88.830	88.510 88.360	88.460 88.270	88.340 88.220	88.050 88.000	87.900 87.850	86.950
PIT CHAINAGE (CENTRE OF PIT)	0	21.50	52.02	74.72	101.77	110.30	138.47	150.47	170.57	186.37	189.77	193.17	201.61	206.68	226.49

P3/1 TO P10/1 LONGITUDINAL DRAINAGE PROFILE

SCALE HORIZONTAL 1:500, VERTICAL 1:50



DATUM RL 84.000					
HGL LEVEL	91.943	90.394 90.394	89.704 89.704	89.023 89.023	88.678
PIT SURFACE LEVEL	93.63	91.206	90.422	89.787	89.860
PIPE INVERT	91.850	90.300 90.300	89.600 89.600	88.900 88.900	88.580
PIT CHAINAGE (CENTRE OF PIT)	0	15.50	29.50	43.40	59.40

P4/1 TO P4/5 LONGITUDINAL DRAINAGE PROFILE

SCALE HORIZONTAL 1:500, VERTICAL 1:100

NOT FOR CONSTRUCTION

ISSUE	REASON FOR ISSUE	DATE
0	REVISED DEVELOPMENT APPLICATION	25.8.22

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CLIENT
UNITING

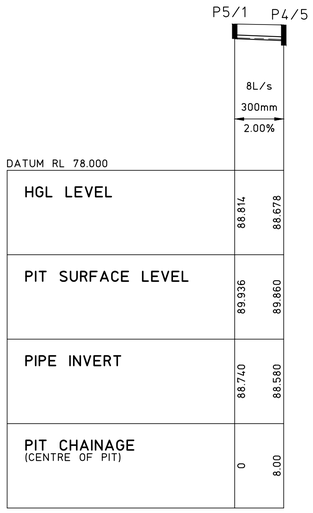
TITLE
STORMWATER LINES LONGITUDINAL DRAINAGE PROFILES SHEET 2

PROJECT
PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
AS SHOWN	200243	00254	0

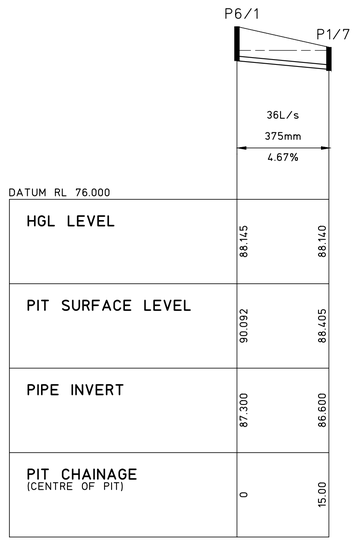
FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



DATUM RL 78.000		
HGL LEVEL	88.814	88.678
PIT SURFACE LEVEL	89.936	89.860
PIPE INVERT	88.740	88.580
PIT CHAINAGE (CENTRE OF PIT)	0	8.00

P5/1 TO P4/5 LONGITUDINAL DRAINAGE PROFILE

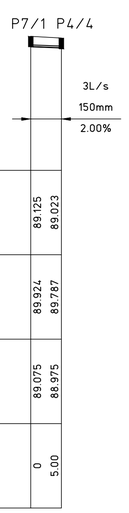
SCALE HORIZONTAL 1:500, VERTICAL 1:250



DATUM RL 76.000		
HGL LEVEL	88.145	88.140
PIT SURFACE LEVEL	90.092	88.405
PIPE INVERT	87.300	86.600
PIT CHAINAGE (CENTRE OF PIT)	0	15.00

P6/1 TO P1/7 LONGITUDINAL DRAINAGE PROFILE

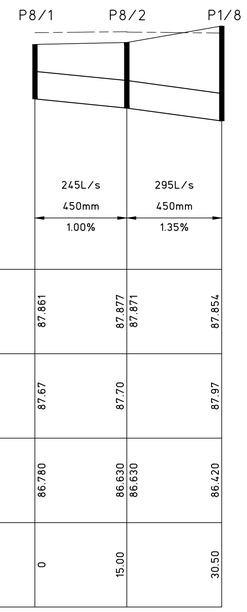
SCALE HORIZONTAL 1:500, VERTICAL 1:250



DATUM RL 79.000		
HGL LEVEL	89.125	89.023
PIT SURFACE LEVEL	89.924	89.787
PIPE INVERT	89.075	88.975
PIT CHAINAGE (CENTRE OF PIT)	0	5.00

P7/1 TO P4/4 LONGITUDINAL DRAINAGE PROFILE

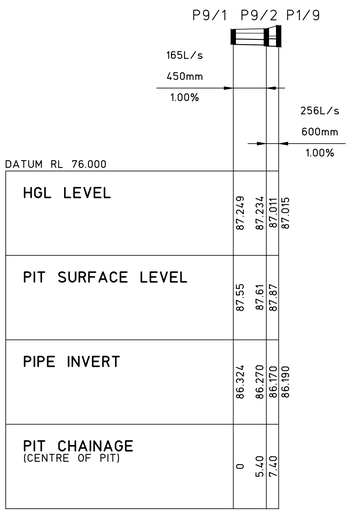
SCALE HORIZONTAL 1:500, VERTICAL 1:250



DATUM RL 84.000			
HGL LEVEL	87.861	87.877 87.871	87.854
PIT SURFACE LEVEL	87.67	87.70	87.97
PIPE INVERT	86.780	86.630 86.630	86.420
PIT CHAINAGE (CENTRE OF PIT)	0	15.00	30.50

P8/1 TO P1/8 LONGITUDINAL DRAINAGE PROFILE

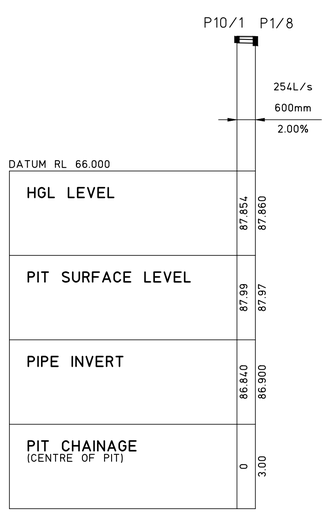
SCALE HORIZONTAL 1:500, VERTICAL 1:50



DATUM RL 76.000			
HGL LEVEL	87.249	87.234 87.011	87.015
PIT SURFACE LEVEL	87.55	87.61 87.87	
PIPE INVERT	86.324	86.270 86.170	86.190
PIT CHAINAGE (CENTRE OF PIT)	0	5.40 7.40	

P9/1 TO P1/9 LONGITUDINAL DRAINAGE PROFILE

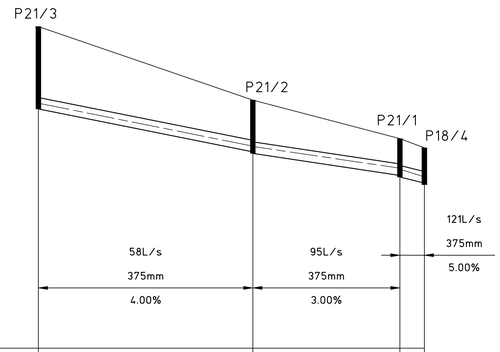
SCALE HORIZONTAL 1:500, VERTICAL 1:250



DATUM RL 66.000		
HGL LEVEL	87.854	87.860
PIT SURFACE LEVEL	87.99	87.97
PIPE INVERT	86.840	86.900
PIT CHAINAGE (CENTRE OF PIT)	0	3.00

P10/1 TO P1/8 LONGITUDINAL DRAINAGE PROFILE

SCALE HORIZONTAL 1:500, VERTICAL 1:500



DATUM RL 84.000				
HGL LEVEL	91.997	90.597 90.586	89.877	89.593 89.844
PIT SURFACE LEVEL	94.5	92.10	90.84	90.54
PIPE INVERT	91.810	90.410 90.360	89.640	89.390 89.590
PIT CHAINAGE (CENTRE OF PIT)	0	35.00	59.00	63.00

P21/3 TO P18/4 LONGITUDINAL DRAINAGE PROFILE

SCALE HORIZONTAL 1:500, VERTICAL 1:100

NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 32 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
0	REVISED DEVELOPMENT APPLICATION	25.8.22

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CLIENT: UNITING

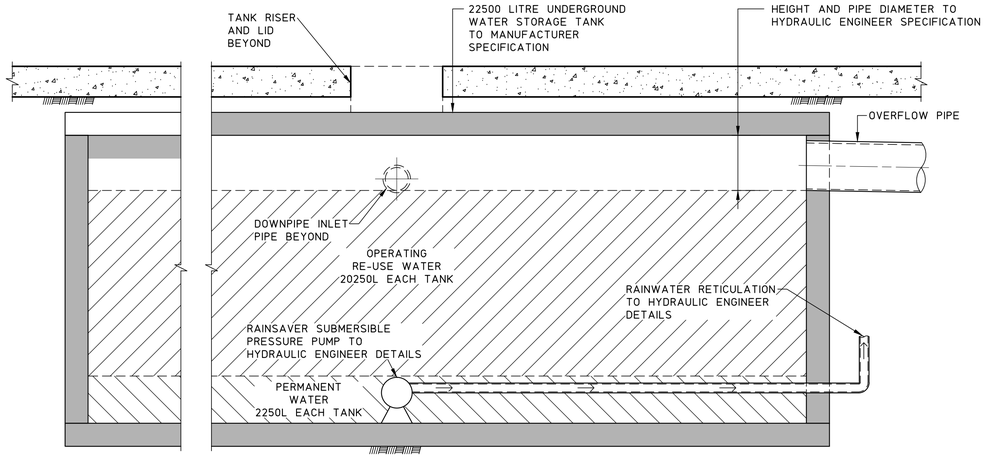
TITLE: STORMWATER LINES LONGITUDINAL DRAINAGE PROFILES SHEET 3

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

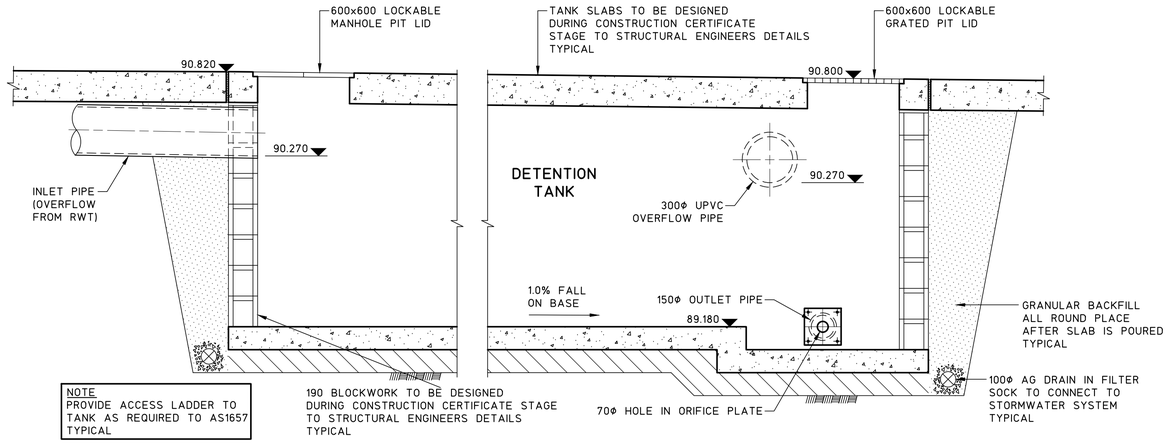
DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
AS SHOWN	200243	00255	0

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



RAINWATER TANKS RWT1 AND RWT2

RAINWATER TANK RWT4 SIMILAR

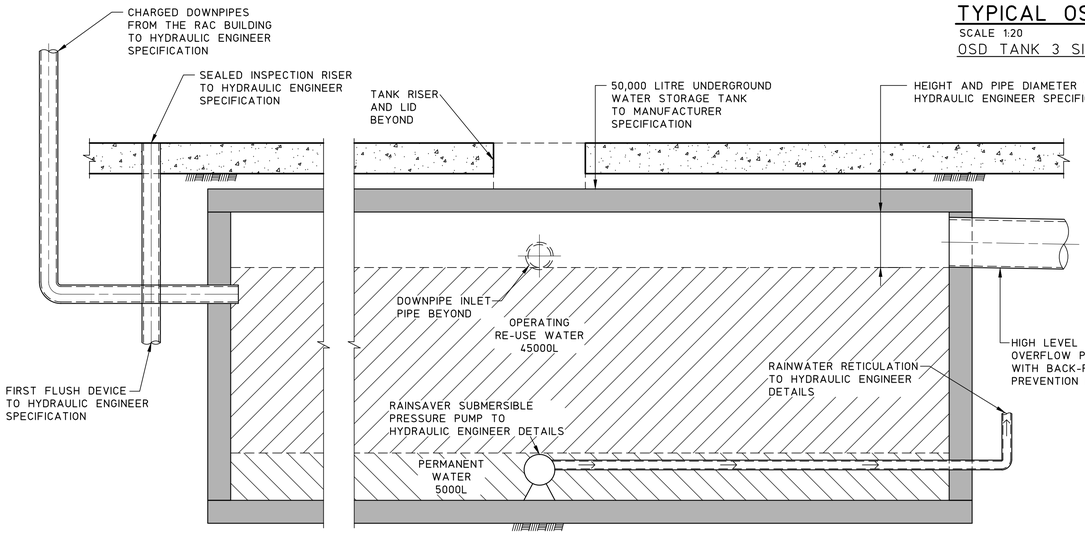


OSD TANK 1

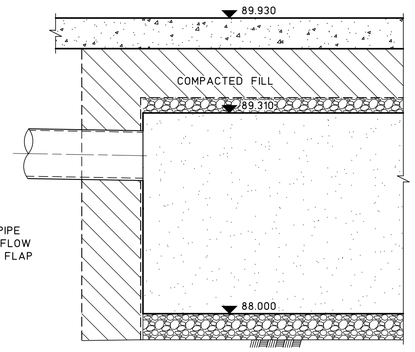
TYPICAL OSD TANK 1 SECTION

SCALE 1:20

OSD TANK 3 SIMILAR

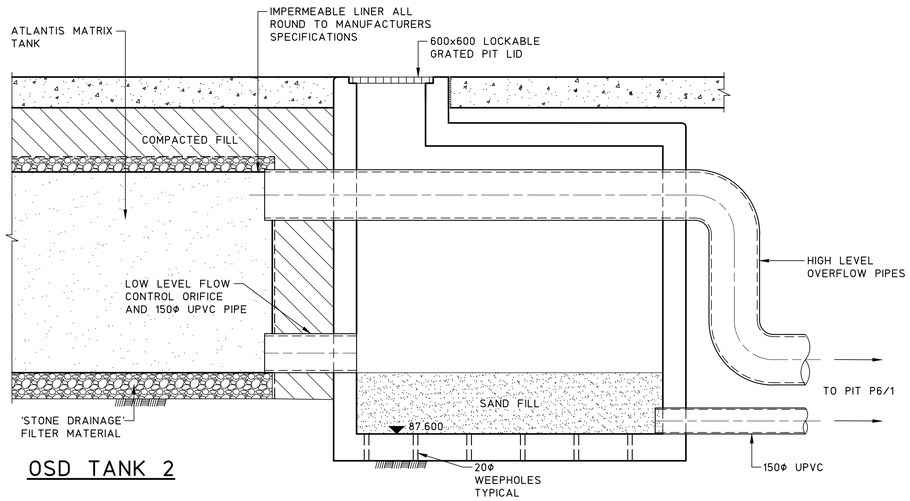


RAINWATER TANK RWT3



OSD TANK 2 SCHEMATIC

SCALE 1:20

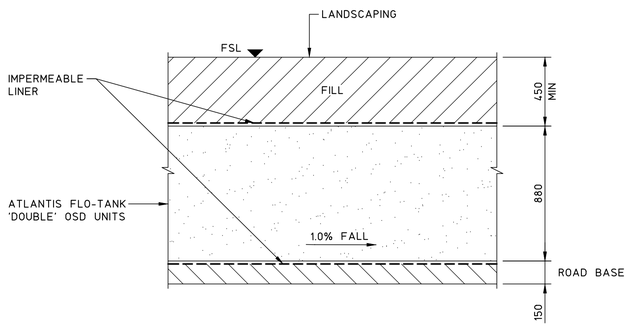


OSD TANK 2

NOTE
PROVIDE 500 MIN OF COMPACTED FILL AROUND ATLANTIS MATRIX TANK TYPICAL

ATLANTIS MATRIX TANK NOTES

1. TRENCHING SHALL BE CLEAR OF STRUCTURAL FOUNDATIONS WITHIN THE RANGE OF 1m (MIN.) IN CLEAN SAND AND 5m (MIN.) IN CLAY.
2. THE TRENCHING SHALL BE PLACED LEVEL ALONG THE CONTOUR OF THE NATURAL OR FINISHED SURFACE.
3. THE TRENCHING SHALL BE PLACED WITHIN THE PROPERTY TO ACHIEVE MAX. AREA, SLOPING AWAY FROM THE TRENCH, FOR DISPOSAL OF WATER.
4. IT IS THE OWNERS RESPONSIBILITY TO REGULARLY CLEAN THE PIT AND MAINTAIN THE SYSTEM.
5. PROVIDE 150Φ INSPECTION POINTS IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION



OSD TANK 4 SCHEMATIC

SCALE 1:20

NOT FOR CONSTRUCTION

Issued under the Environmental Planning and Assessment Act

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 33 of 35 Signed

ISSUE	REASON FOR ISSUE	DATE
3	REVISED DEVELOPMENT APPLICATION	25.8.22
2	DEVELOPMENT APPLICATION	19.8.22
1	PRELIMINARY DEVELOPMENT APPLICATION	12.8.22
0	COORDINATION	1.7.22

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CLIENT: UNITING

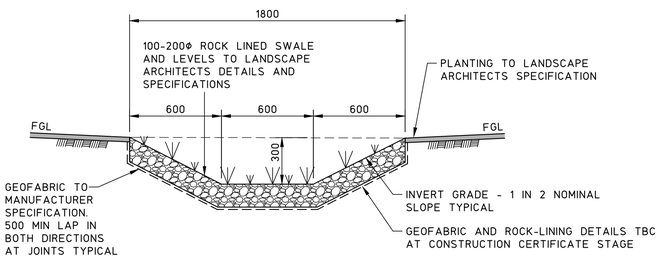
TITLE: STORMWATER DETAILS SHEET 1

PROJECT: PROPOSED UNITING DEVELOPMENT AT; LOT 223, DP 551260, No.27 TIRAL STREET, CHARLESTOWN

DO NOT SCALE DRAWING

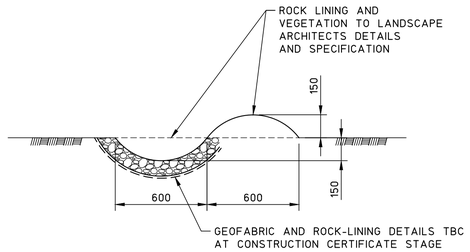
DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:20	200243	00260	3

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm



ROCK LINED SWALE - RS1

SCALE 1:20



LOW-FLOW ROCK LINED SWALE - RS2

SCALE 1:20

NOT FOR CONSTRUCTION

NSW GOVERNMENT Planning & Environment

Issued under the Environmental Planning and Assessment

Approved Section: S. 4.38 Application No: SSD-35370706

Granted on: 1st December 2023 Sheet no: 34 of 35 Signed:

ISSUE	REASON FOR ISSUE	DATE
3	REVISED DEVELOPMENT APPLICATION	25.8.22
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0	COORDINATION	1.7.22

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CLIENT
UNITING

TITLE
STORMWATER DETAILS
SHEET 2

PROJECT
PROPOSED UNITING DEVELOPMENT AT;
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No.27 TIRAL STREET,
CHARLESTOWN

DO NOT SCALE DRAWING

DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:20	200243	00261	3

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

BULK EARTHWORKS PLAN

SCALE 1:250

SITE PREPARATION NOTES
1. REMOVE TOPSOIL AND ALL OTHER DELETERIOUS MATERIALS.
2. FOOTINGS TO BE FOUNDED ON FIRM NATURAL CUT GROUND, NOT FILL.
3. ANY SOFT AREAS ENCOUNTERED TO BE REMOVED AND REPLACED WITH COMPACTED FILL.
4. ANY FILL MUST BE PLACED IN 150mm MAXIMUM LAYERS AND COMPACTED TO A RELATIVE DRY DENSITY OF 98% TO AS 1289.5.1.1. BUILDING CONTRACTOR TO PROVIDE COMPACTION TEST RESULTS TO MPC FOR REVIEW PRIOR TO POURING CONCRETE.

SUB-GRADE PREPARATION
1. REMOVE TOPSOIL AND ALL OTHER DELETERIOUS MATERIALS.
2. PROOF ROLL NATURAL SURFACE WITH A ROLLER OF AT LEAST 10 TONNE STATIC WEIGHT.
3. REMOVE ANY SOFT AREAS.
4. BUILDING PLATFORM AND EXTERNAL PAVING AREAS COMPACTION IS TO BE CARRIED OUT BY ROLLING AT OPTIMUM MOISTURE CONTENT TO OBTAIN A DENSITY EQUIVALENT OF 100% DRY DENSITY STANDARD IN ACCORDANCE WITH AS1289 E1.1.
5. TESTING OF THE SUBGRADE SHALL BE CARRIED OUT BY AN APPROVED NATA REGISTERED LABORATORY.

NOT FOR CONSTRUCTION

LEGEND
- ×91.87 — DENOTES EXISTING LEVELS
- 91 — DENOTES EXISTING CONTOURS
- DENOTES APPROXIMATE PLAN EXTENT OF CUT FOR BUILDINGS AND OSD TANKS
- DENOTES APPROXIMATE PLAN EXTENT OF FILL FOR BUILDINGS

NOTE
ALL EXISTING TOPSOIL, UNCONTROLLED FILL, VEGETATION OR OTHER POTENTIALLY DELETERIOUS MATERIAL SHOULD BE REMOVED TO SPOIL OR STOCKPILED FOR REUSE AS LANDSCAPING MATERIALS ONLY.
ANY UNDERLYING VERY STIFF CLAYS AND WEATHERED ROCK SHOULD BE CAREFULLY STRIPPED AS NECESSARY AND STOCKPILED FOR REUSE AS GENERAL SITE FILL TYPICAL

NSW GOVERNMENT Planning & Environment
Issued under the Environmental Planning and Assessment
Approved Section: S. 4.38 Application No: SSD-35370706
Granted on: 1st December 2023 Sheet no: 35 of 35 Signed:

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1	REVISED DEVELOPMENT APPLICATION	25.8.22
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BULK EARTHWORKS PLAN

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DRAWN	ENGINEER	No in SET	SHEET
J.D.L.	B.C.	-	A1
SCALES	JOB No	DRAWING No	ISSUE
1:250	200243	00300	1

FULL SIZE ON ORIGINAL 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm