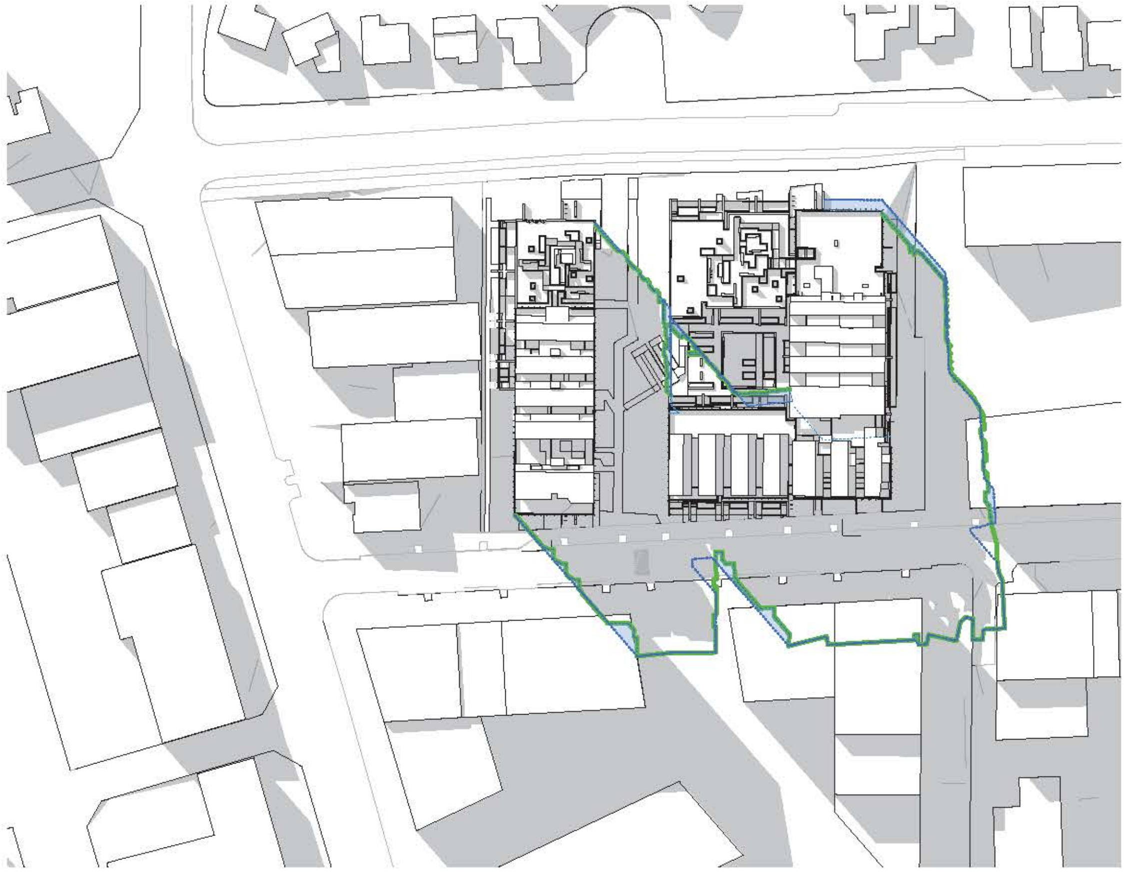
Shadow

REDUCTION in shadow from approved building envelope

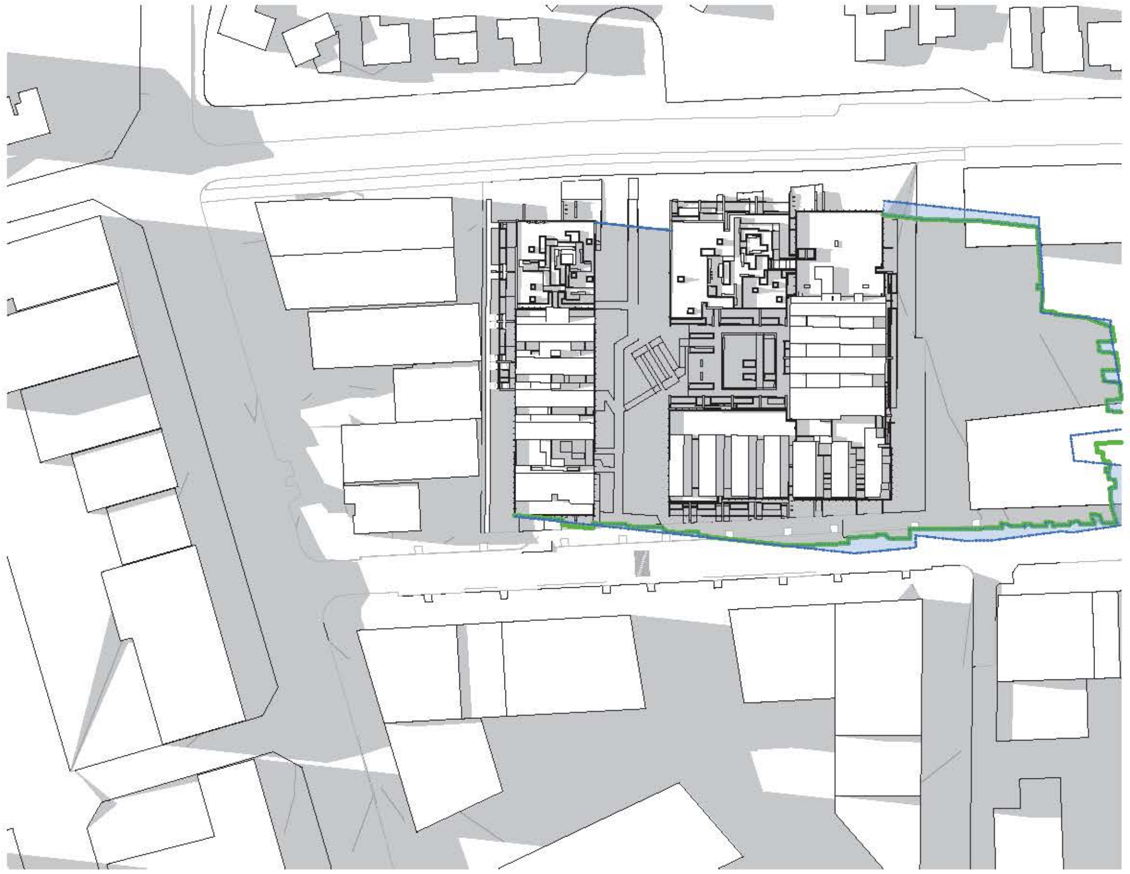
Outline of shadow cast by Stage 6+7

Outline of shadow cast by approved building envelope

1 June 21st 9am
1:1000



2 June 21st 12pm
1:1000



3 June 21st 3pm
1:1000

NOTES

DLCS Quality Endorsed Company ISO [illegible], Licence Number [illegible]
Nominated Architect: Nicholas Turner [illegible], ABN [illegible]

CLIENT
ROTHESAY AVENUE DEVELOPMENTS P/L

DESIGN INTENT NOTES
Internal layouts shown are indicative only for information purposes and are subject to further design development and change
Window mullions, if shown, are indicative only
Louvre panels, if shown, are indicative only
All dimensions and levels shown are approximate
Any finishes nominated are indicative only and subject to change
Articulations shown on the façade are indicative only and are subject to further design development and change
Storage allocations and areas are not necessarily shown on the drawings and are subject to change

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Shadow Diagrams
Winter Shadow Diagrams

Rev.	Date	Approved by	Revision Notes
C	05/01/15	JF	DA-Council

Scale: 1:1000 @A1, 50%@A3
Status:
Project No. 14005
Dwg No. A-DA-720-010
Drawn by: AC, JF, CM
Rev: C
North

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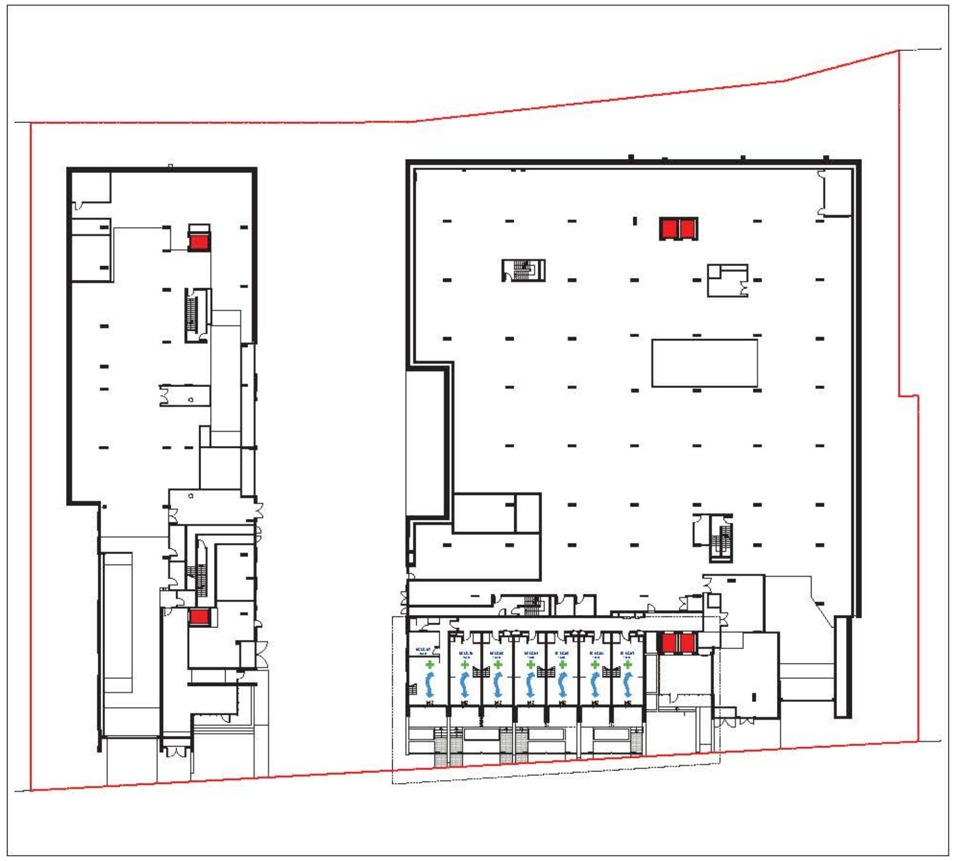


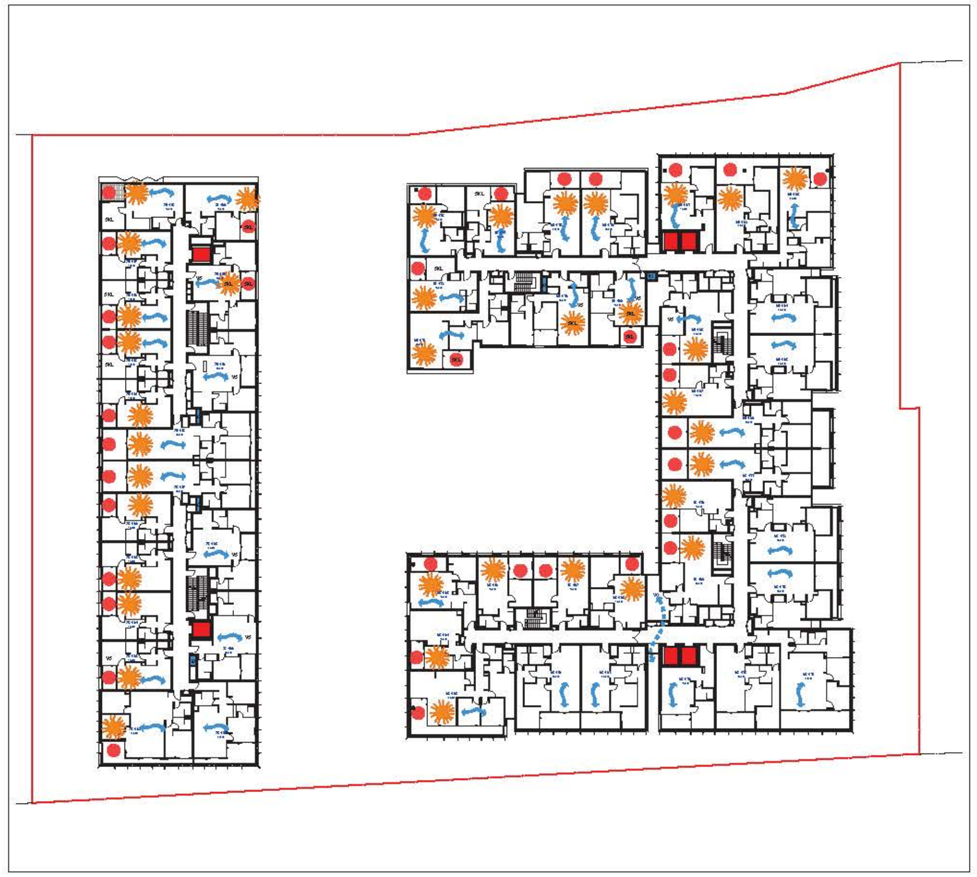
1 Lower Ground

2 Ground

3 Level 01

4 Level 02

5 Level 03



6 Level 04

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LEGEND - APARTMENT AMENITY
- NATURAL CROSS VENTILATION
- VS NATURAL VENTILATION - VERTICAL SHAFT
- VC NATURAL VENTILATION - CROSS OVER HORIZONTAL SHAFT
- IMPROVED AMENITY IN ACCORDANCE WITH S75W Condition 21(c)
- SOLAR ACCESS TO LIVING AREA MINIMUM OF 2 HOURS BETWEEN 9am - 3pm
- SOLAR ACCESS TO BALCONY MINIMUM OF 2 HOURS BETWEEN 9am - 3pm
- SKL SKYLIGHT

Rev.	Date	Approved by	Revision Notes
H	05/01/15	JF	DA-Council

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Ammenity Diagrams
Apartment Amenity 01

Scale: 1:500 @A1, 50%@A3
Status: _
Project No.: 14005
Dwg No.: A-DA-730-010
Drawn by: AC, JF, CM
Rev: H
North

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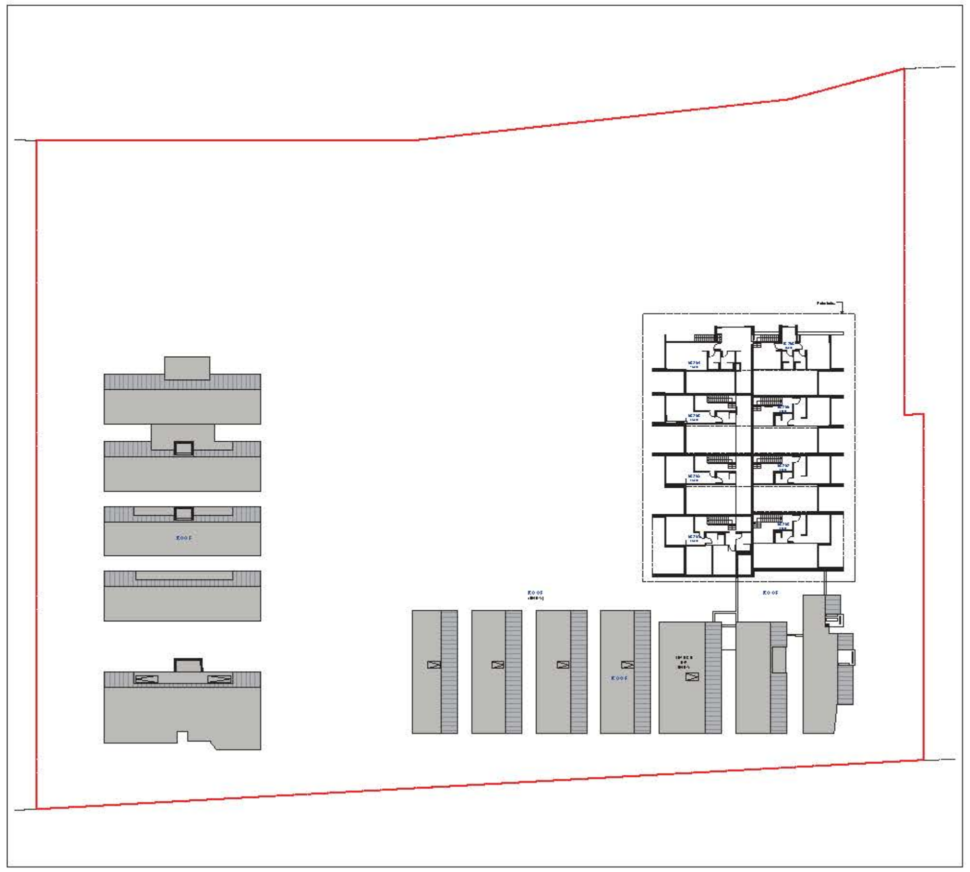
1 Level 05

2 Level 06

3 Level 07



4 Level 08 (Mezzanine)

NOTES

DLCS Quality Endorsed Company ISO [illegible], Licence Number [illegible]
Nominated Architect: Nicholas Turner [illegible], ABN [illegible]

CLIENT

ROTHESAY AVENUE DEVELOPMENTS P/L

LEGEND - APARTMENT AMENITY

Symbol	Meaning
(blue arrow)	NATURAL CROSS VENTILATION
VS	NATURAL VENTILATION - VERTICAL SHAFT
VC	NATURAL VENTILATION - CROSS OVER HORIZONTAL SHAFT
(green cross)	IMPROVED AMENITY IN ACCORDANCE WITH S75W Condition 21(c)
(orange sun)	SOLAR ACCESS TO LIVING AREA MINIMUM OF 2 HOURS BETWEEN 9am - 3pm
(red dot)	SOLAR ACCESS TO BALCONY MINIMUM OF 2 HOURS BETWEEN 9am - 3pm
SKL	SKYLIGHT

Rev.	Date	Approved by	Revision Notes
H	05/01/15	JF	DA-Council

Project Title

SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title

Ammenity Diagrams
Apartment Amenity 02

Scale: 1:500 @A1, 50%@A3
Status:
Project No. 14005
Dwg No. A-DA-730-020
Drawn by: AC, JF, CM
Rev: H
North

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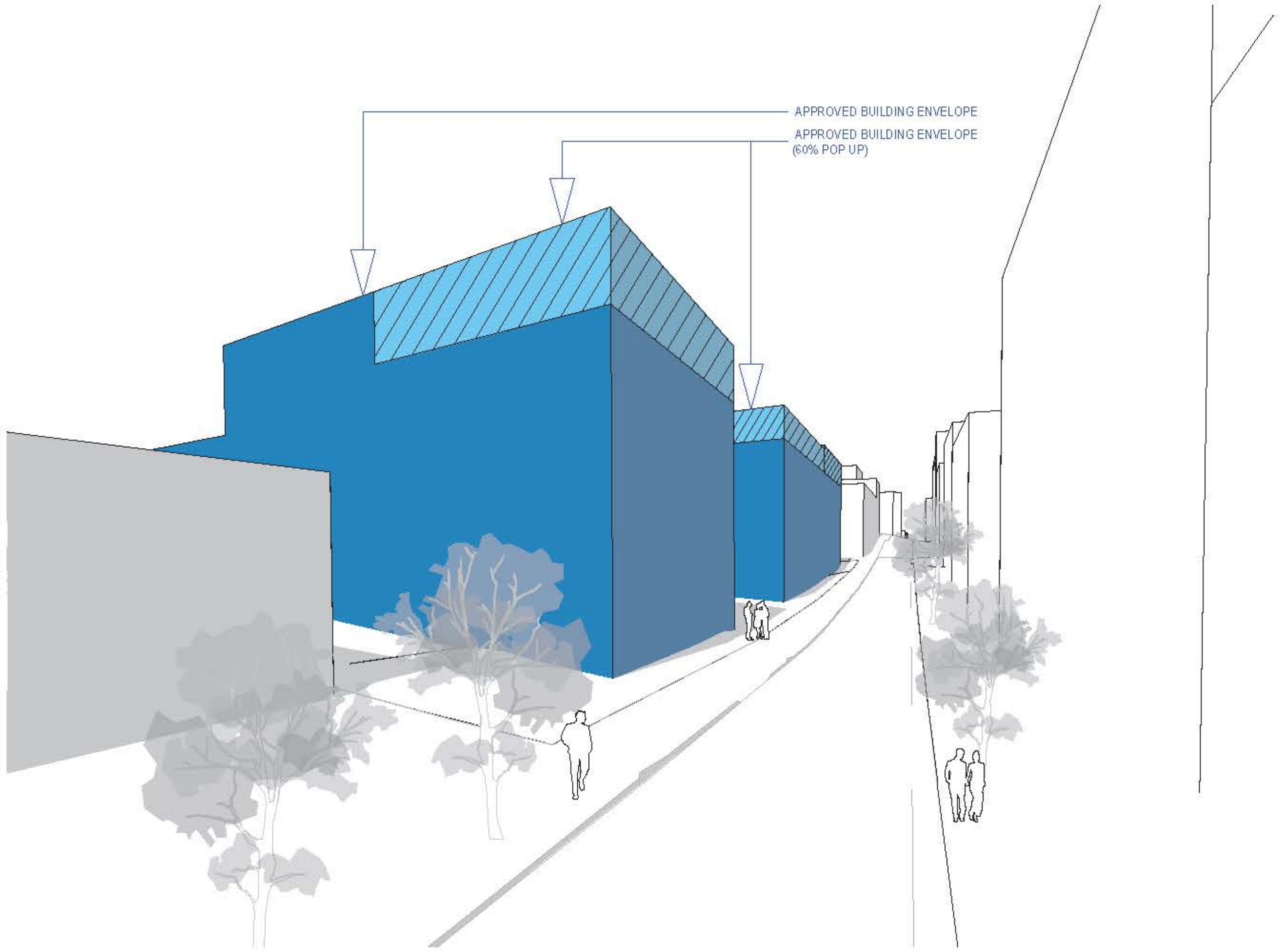
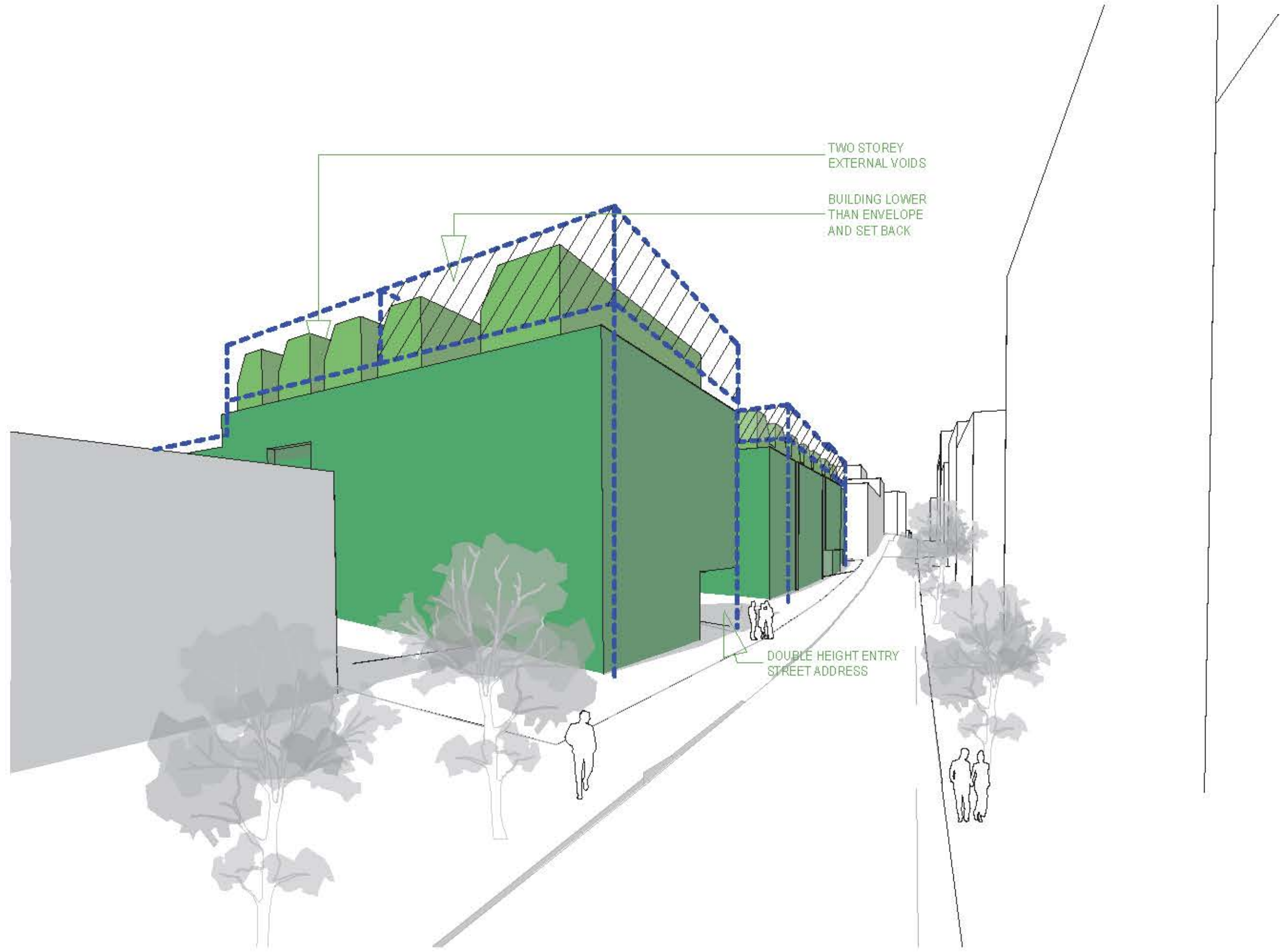


1 Approved Concept Plan Envelope- Nancarrow Avenue



2 Proposed Envelope- Nancarrow Avenue

LEGEND:

- Extent of Approved Building Envelope
- Extent of Approved Building Envelope Popups (60% of Footprint)
- Extent of Proposed Building Envelope
- Extent of Proposed Building Envelope Popups (60% of Footprint)
- Approved Building Envelope

*** Proposed Building Envelope excludes Facade articulation & roof overhangs

CLIENT
ROTHESAY AVENUE DEVELOPMENTS P/L

Rev.	Date	Approved by	Revision Notes
D	23/12/14	JF	DA-Council

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Envelope Comparison Diagrams
Stage 7 Pop Up Zone

Scale: 1:500 @A1, 50%@A3
Status:
Project No. 14005
Dwg No. A-DA-740-010
Drawn by: AC. JF. CM
Rev: E
North

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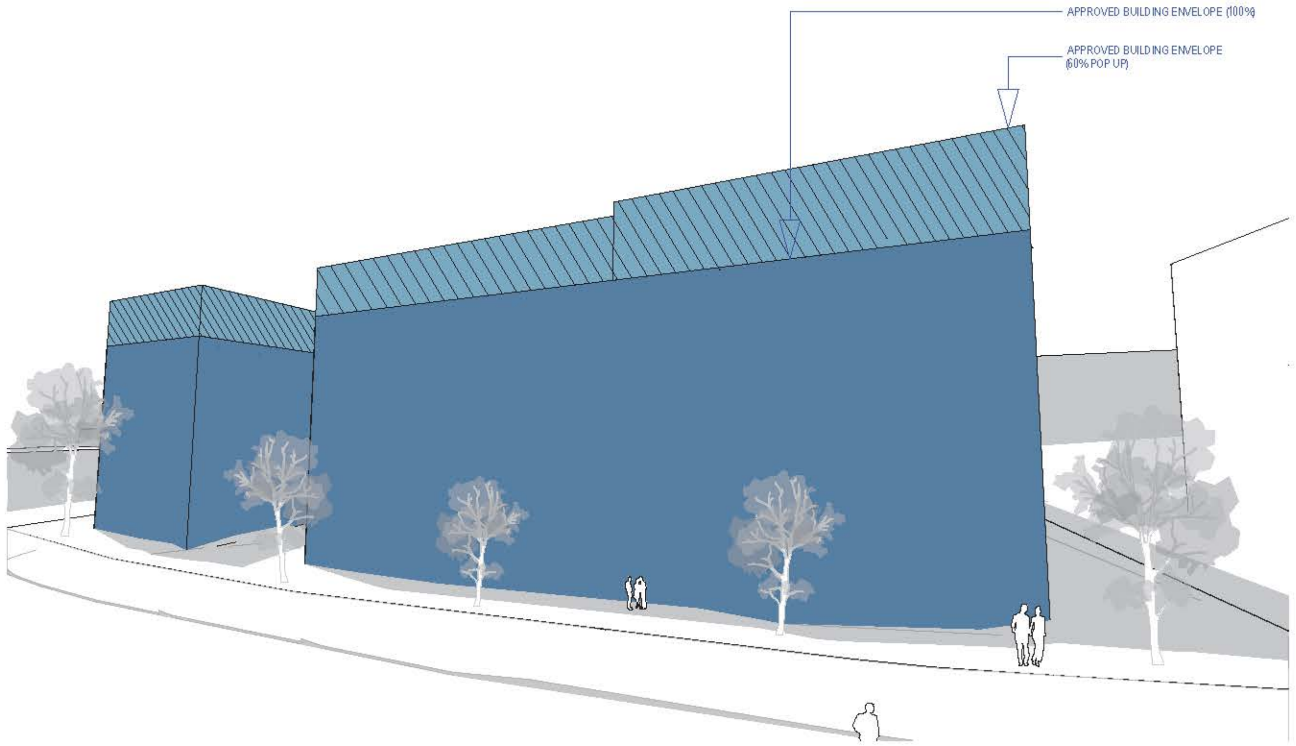

1 Approved Concept Plan Envelope- Nancarrow Avenue

2 Proposed Envelope- Nancarrow Avenue

LEGEND:

- Extent of Approved Building Envelope
- Extent of Approved Building Envelope Popups (60% of Footprint)
- Extent of Proposed Building Envelope
- Extent of Proposed Building Envelope Popups (60% of Footprint)
- Approved Building Envelope

*** Proposed Building Envelope excludes Facade articulation & roof overhangs

NOTES

Nominated Architect: Nicholas Turner

CLIENT
ROTHESAY AVENUE DEVELOPMENTS P/L

Rev.	Date	Approved by	Revision Notes
E	05/01/15	JF	DA-Council

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Envelope Comparison Diagrams
Stage 6 Pop Up Zone

Scale: 1:500 @A1, 50%@A3
Status:
Project No. 14005
Dwg No. A-DA-740-030
Drawn by: AC. JF. CM
Rev: E
North

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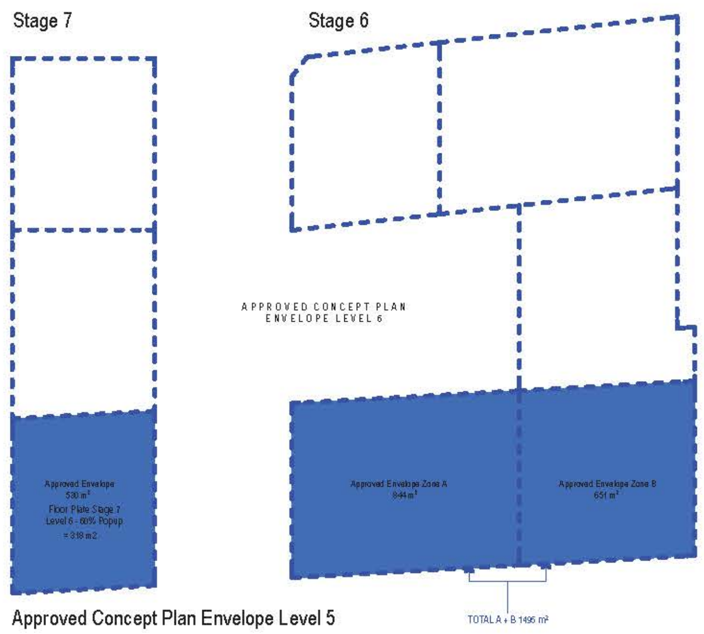
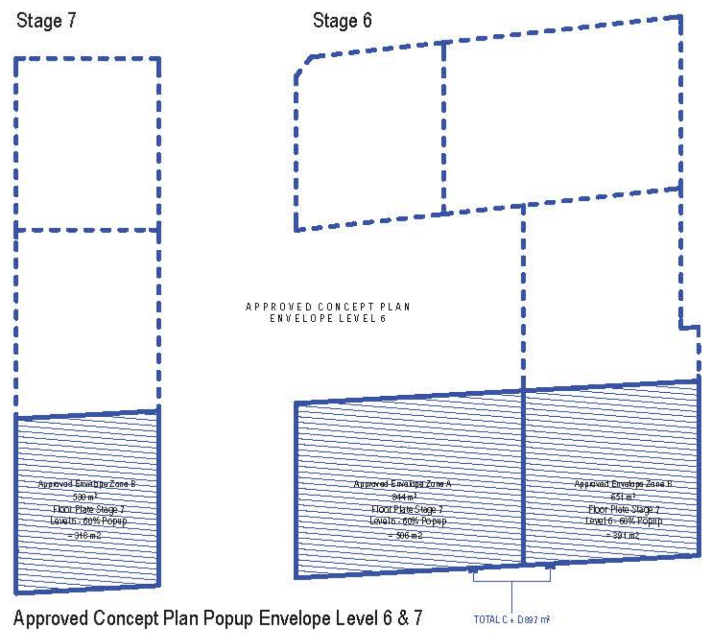


Approved Concept Plan Envelope Level 5



Approved Concept Plan Popup Envelope Level 6 & 7

LEGEND

- Approved Building Envelope
- Proposed Building Footprint Zone — Proposed footprint
- Proposed Building Footprint Zone — Proposed footprint for Popup - 60% of footprint of Typical floor below.
- Approved Building Footprint Zone — Approved footprint
- Approved Building Footprint Zone — Approved footprint for Popup - 60% of footprint of Typical floor below.

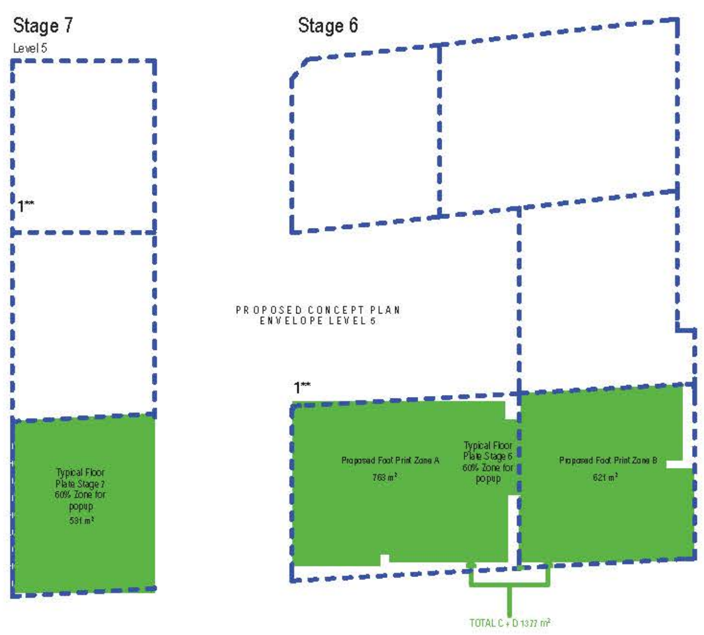
*1. Typical Floor plate below Popup Levels 6 & 7 for 60 % Footprint Calculation

Stage 6 Areas (m²)	
Approved Building Envelope L5	1495m²
Proposed Building Footprint L5	1377m²
Subtotal	-92m²
Stage 7 Areas (m²)	
Approved Building Envelope L5	530m²
Proposed Building Footprint at L5	531m²
Subtotal	+1m²
Total Stages 6&7	-91m²

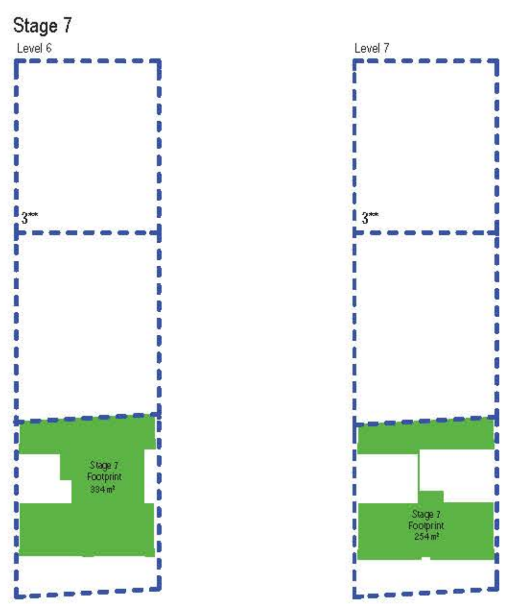
** 2. Stage 6 & 7 - Proposed Footprints combined to achieve 60% of floor plate below.

Stage 6 areas (m²)	
L6 Proposed Footprint	965m²
L7 Proposed Footprint	980m²
TOTAL	1645m²
% OF L5 Approved Envelope (2 x 1495)	55%
% OF L5 Proposed Footprint (2 x 1377)	60%
Stage 7 areas (m²)	
L6 Proposed Footprint	334m²
L7 Proposed Footprint	254m²
TOTAL	588m²
% OF L5 Approved Envelope (2 x 530)	55%
[% OF L5 Proposed Footprint (2 x 531)	55%

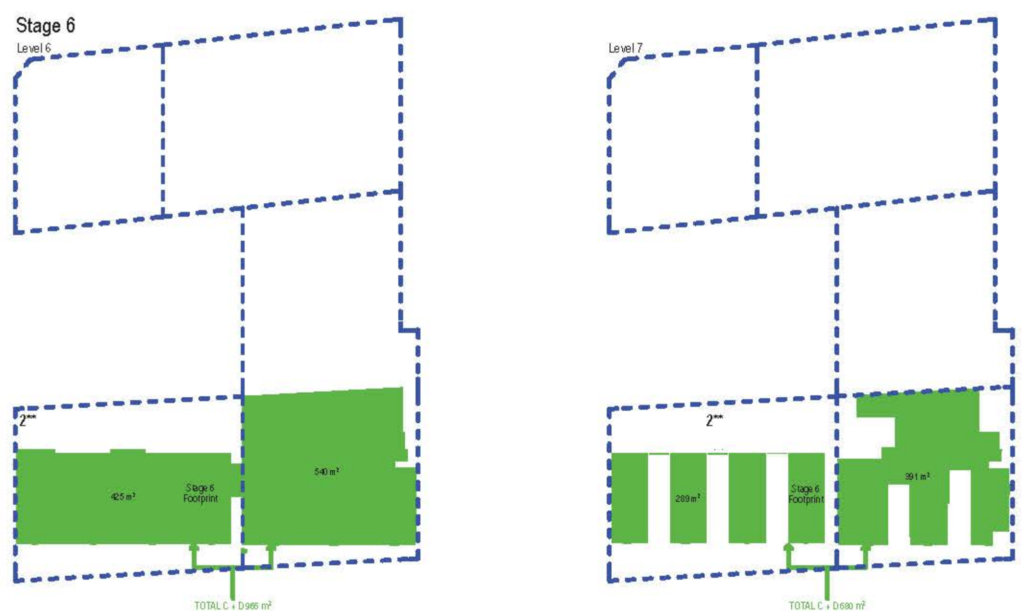
Method of calculation:
Measured at 1.4m AFFL
Includes: External enclosing walls, plant rooms, service risers, lift shafts, internal voids and stairs.
Excludes: Roof overhangs, External privacy /sunshading devices and screens, terraces that are at the top(roof level) of floors below, i.e. no GFA or terrace on the floor above.



Proposed Concept Plan Footprint Level 5



Stage 7 Proposed Popup Footprint for Levels 6 & 7



Stage 6 Proposed Popup Footprint for Levels 6 & 7

NOTES

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ROTHESAY AVENUE DEVELOPMENTS P/L

E	05/01/15	JF	DA-Council
Rev.	Date	Approved by	Revision Notes

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Envelope Comparison Diagrams
Pop Up Analysis

Scale: 1:550 @A1, 50%@A3
Status:
Project No. 14005
Dwg No. A-DA-740-050
Drawn by: AC. JF. CM
Rev: E
North

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Perspective View 4 Nancarrow Ave Main Site Link

Perspective View 2 Nancarrow Ave Stage 6 Entry

Perspective View 3 Nancarrow Ave Stage 6 Entry

NOTES

DLCS Quality Endorsed Company ISO [illegible], Licence Number [illegible]
Nominated Architect: Nicholas Turner [illegible], ABN [illegible]

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ROTHESAY AVENUE DEVELOPMENTS P/L

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Perspectives
Perspective 01

Rev.	Date	Approved by	Revision Notes
C	05/01/15	JF	DA-Council

Scale: NTS @A1, 50% @A3
Status:
Project No. 14005
Dwg No. A-DA-810-010
Drawn by: AC, JF, CM
Rev: C
North

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Perspective View 1 Nancarrow Ave

Perspective View 3 Constitution Road Entry Building 7

Perspective View 3 Constitution Road Main Site Link

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ROTHESAY AVENUE DEVELOPMENTS P/L

Rev.	Date	Approved by	Revision Notes
C	05/01/15	JF	DA-Council

Project Title
SHEPHERDS BAY - STAGE 6 & 7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Perspectives
Perspective 02

Scale: NTS @A1, 50% @A3
Status
Project No. 14005
Dwg No. A-DA-810-020
Drawn by: AC. JF. CM
Rev: C
North

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NOTES

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ROTHESAY AVENUE DEVELOPMENTS P/L

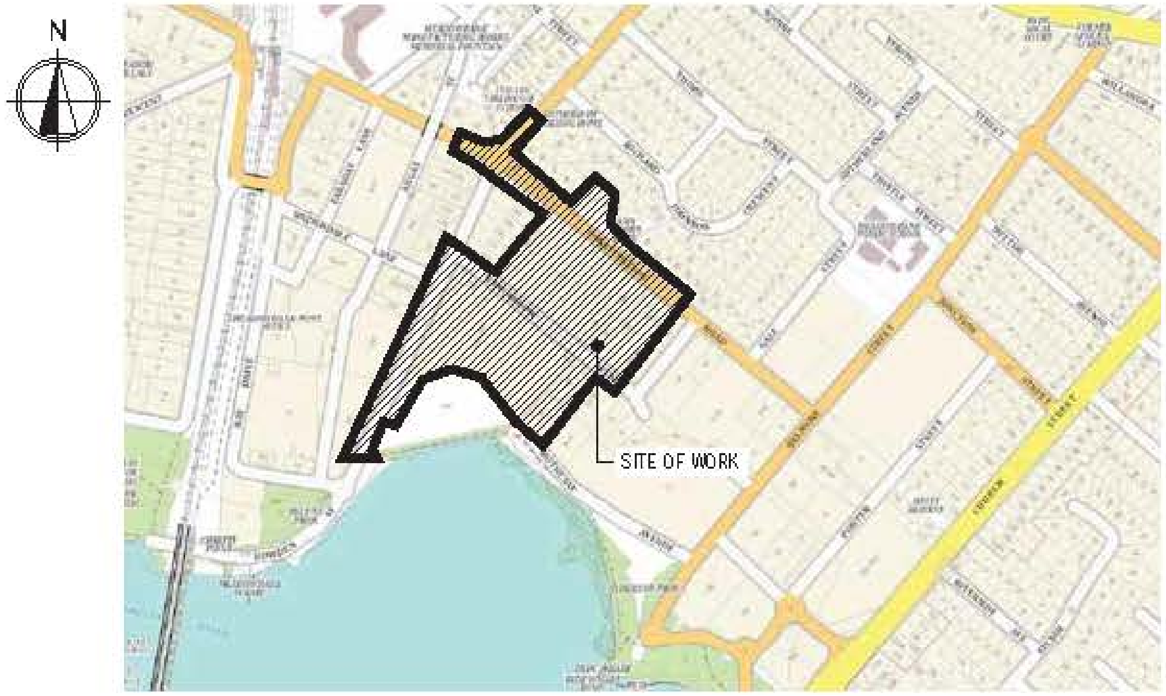
Project Title
SHEPHERDS BAY - STAGE 6 &7
Nancarrow Ave, Meadowbank NSW 2114 Australia

Drawing Title
Perspectives
Perspective 03

C		JF	DA Council
Rev	Date	Approved by	Revision Notes
Scale	NTS @A1, 50%@A3	Project No. 14005	Drawn by JC JF.CM
		Dwg No. A-DA-810-030	Rev C

turner.

SHEPHERDS BAY, MEADOWBANK
CIVIL WORKS



LOCALITY PLAN

DRAWING INDEX

DRG No.	DESCRIPTION	DRG No.	DESCRIPTION
C-0200	COVER SHEET	C-0260	STORMWATER LONGITUDINAL SECTIONS - SHEET 1
C-0201	NOTES SHEET	C-0261	STORMWATER LONGITUDINAL SECTIONS - SHEET 2
C-0202	KEY PLAN	C-0262	STORMWATER LONGITUDINAL SECTIONS - SHEET 3
C-0210	SITEWORKS PLAN - SHEET 1	C-0263	STORMWATER LONGITUDINAL SECTIONS - SHEET 4
C-0211	SITEWORKS PLAN - SHEET 2	C-0264	STORMWATER PIT SCHEDULE
C-0212	SITEWORKS PLAN - SHEET 3	C-0265	CATCHMENT PLAN
C-0213	SITEWORKS PLAN - SHEET 4	C-0270	SIGNAGE AND LINEMARKING PLAN - SHEET 1
C-0214	SITEWORKS PLAN - SHEET 5	C-0271	SIGNAGE AND LINEMARKING PLAN - SHEET 2
C-0215	SITEWORKS PLAN - SHEET 6	C-0272	SIGNAGE AND LINEMARKING PLAN - SHEET 3
C-0230	TYPICAL ROAD SECTIONS	C-0273	SIGNAGE AND LINEMARKING PLAN - SHEET 4
C-0240	CONSTITUTION ROAD LONGITUDINAL SECTIONS	C-0280	DETAILS SHEET 1
C-0245	CONSTITUTION ROAD CROSS SECTIONS - SHEET 1	C-0281	DETAILS SHEET 2
C-0246	CONSTITUTION ROAD CROSS SECTIONS - SHEET 2	C-0282	DETAILS SHEET 3
C-0247	CONSTITUTION ROAD CROSS SECTIONS - SHEET 3	C-0290	TURNING PATH PLAN - SHEET 1
C-0250	INTERSECTION PLAN CONSTITUTION ROAD/BOWDEN STREET	C-0291	TURNING PATH PLAN - SHEET 2

REV	DATE	DESCRIPTION	RVD
X	23.12.16	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 OFFWOOK AVENUE, MACQUARIE PARK NSW 2113

PROJECT
SHEPHERDS BAY
MEADOWBANK

STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DESIGNED	DRAFTED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD		NTS AT A1 SIZE

TITLE
COVER SHEET AND DRAWING INDEX

PROJECT No.	DRAWING No.	REV.
S10076	C-0200	A

GENERAL NOTES

1. TECHNICAL SPECIFICATIONS OR SPECIFIC INSTRUCTIONS ON DRAWINGS TAKE PRECEDENCE OVER THESE NOTES.
2. DO NOT DEPART FROM THE DESIGN UNLESS AUTHORISED IN WRITING BY THE DESIGN ENGINEER
3. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH ANY OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. CONSTRUCTION FROM THESE DRAWINGS, AND THEIR ASSOCIATED CONSULTANTS' DRAWINGS IS NOT TO COMMENCE UNTIL APPROVED BY THE RELEVANT AUTHORITIES.
4. REFER TO ALL NOTES ON THESE DRAWINGS AND PREVIOUSLY MENTIONED DOCUMENTATION BEFORE BEGINNING CIVIL WORKS.
5. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT SPECIFIED STANDARDS AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT APPROVAL AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION AND/OR DRAWINGS.
6. THE RELEVANT AUTHORITIES OCCUPATIONAL HEALTH AND SAFETY PRACTICES MUST BE COMPLIED WITH.
7. ALL DIMENSIONS AND LEVELS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR ON SITE. CIVIL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND SETOUT. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
8. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN METRES (m) AND ALL LEVELS ARE IN METRES (m) TO AUSTRALIAN HEIGHT DATUM (AHD).
9. GRADES TO PAVEMENTS TO BE AS IMPLIED BY RL'S ON CIVIL GRADING PLAN DRAWINGS. GRADE EVENLY BETWEEN NOMINATED RL'S. AREAS EXHIBITING PONDING GREATER THAN 5mm DEPTH WILL NOT BE ACCEPTED/ UNLESS IN A DESIGNATED SAG POINT.
10. IF THERE IS DOUBT REGARDING THE CIVIL DESIGN, CONTACT THE ENGINEER FOR CLARIFICATION.
11. ALL ABBREVIATIONS ARE AS FOLLOWS:

EGL	EXISTING GROUND LEVEL
FFL	FINISHED FLOOR LEVEL
RL	REDUCED LEVEL
E.	EASTING COORDINATE
N.	NORTHING COORDINATE
AHD	AUSTRALIAN HEIGHT DATUM
U.N.O.	UNLESS NOTED OTHERWISE
uPVC	UNPLASTICISED POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
VCP	VITRIFIED CLAY PIPE
FRC	FIBRE REINFORCED COMPOSITE
F#.##	FINISHED SURFACE LEVEL
K&G	KERB AND GUTTER
KO	KERB ONLY
NFK	NOMINAL FACE OF KERB
FK	FLUSH KERB
TOK	TOP OF KERB
BOK	BACK OF KERB
DD	DISH DRAIN
MK	MOUNTABLE KERB
MIK	MOUNTABLE INTEGRAL KERB
IK	INTEGRAL KERB
IL	INVERT LEVEL
OL	OBVERT LEVEL
GD	GRATED DRAIN
TWL	TOP WATER LEVEL
GALV.	GALVANISED
TE	THICKENED EDGE
FP	FLUSHING POINT
DP	DOWN PIPE
RW#	RETAINING WALL
IJ	ISOLATION JOINT
DEJ	DOWELLED EXPANSION JOINT
SJ	SAWN JOINT
KJ	KEYED JOINT
WPJ	TROWELED WEAKENED PLANE JOINT
EJ	EXPANSION JOINT
TW	TOP OF WALL LEVEL
BW	BOTTOM OF WALL LEVEL
MGA	MAP GRID OF AUSTRALIA

BULK EARTHWORKS NOTES

* 6.1. REFER TO GEOTECHNICAL INVESTIGATION REPORT FOR INFORMATION RELATING TO EXISTING GROUND CONDITIONS, GROUND WATER LEVELS, SITE TREATMENT AND SUPERVISION.

* 6.2. REFER TO 'EXISTING SERVICES AND FEATURES' NOTES BEFORE COMMENCING BULK EARTHWORKS.

6.3. TECHNICAL SPECIFICATIONS OR SPECIFIC INSTRUCTIONS CONTAINED IN THE GEOTECHNICAL REPORT TAKE PRECEDENCE OVER THESE NOTES.

6.4. ALL TOP SOIL, ORGANIC MATTER AND FILL MATERIAL SHALL BE REMOVED FROM ALL AREAS UNDER PROPOSED WORK LOCATIONS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. AREAS TO BE FULLY STRIPPED OF EXISTING FILL AND DARK BROWN BLACK UPPER ORGANIC ALLUVIUM.

6.5. CONTRACTOR SHALL PLACE SAFETY BARRIERS AROUND EXCAVATIONS IN ACCORDANCE WITH RELEVANT AUTHORITY SAFETY REGULATIONS

6.6. BULK EARTHWORKS DRAWINGS ARE NOT TO BE USED FOR DETAIL EXCAVATION.

SURVEY NOTES

1. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN DERIVED FROM SURVEY INFORMATION SUPPLIED FROM H RAMSAY & COMPANY PTY LIMITED
2. THE FOLLOWING SURVEY INFORMATION HAS BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

   ORIGIN OF LEVELS — SSM 1044
   DATUM — RL 2.55 (AHD)
3. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. BG&E PTY LTD DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
4. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT BG&E PTY LTD.
5. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
6. BENCH MARK, SURVEY PEGS, LEVEL PEGS OR SUPPLEMENTARY REFERENCE MARKS SHALL NOT BE ADJUSTED OR MOVED WITHOUT WRITTEN APPROVAL FROM THE SUPERINTENDENT. THE CONTRACTOR SHALL TRANSFER ANY PEGS AFFECTED BY THE PROPOSED WORKS TO SIDE POSITIONS CLEAR OF OPERATIONS AND SHALL NOTE THE EXTENT OF THE MOVEMENT IN DISTANCE AND LEVEL.

EXISTING SERVICES AND FEATURES NOTES

1. THE CONTRACTOR MUST CONFIRM THE EXACT LOCATION AND EXTENT OF EXISTING SERVICES PRIOR TO CONSTRUCTION AND NOTIFY ANY CONFLICT WITH THE DRAWINGS IMMEDIATELY TO THE ENGINEER/SUPERINTENDENT.
2. EXISTING SERVICES UNLESS SHOWN ON SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE A 'DIAL BEFORE YOU DIG' SEARCH AND TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER/SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
4. THE CONTRACTOR HAS A DUTY OF CARE WHEN EXCAVATING NEAR SERVICES. DO NOT ASSUME DEPTHS OR ALIGNMENTS OF CABLES OR PLANT AS THESE MAY VARY SIGNIFICANTLY. THE CONTRACTOR MUST ACCEPT ALL RESPONSIBILITY TO DAMAGES TO EXISTING SERVICES AS SERVICE AUTHORITIES MAY SEEK COMPENSATION FOR DAMAGES CAUSED TO THEIR PROPERTY AND SUBSEQUENT LOSSES CAUSED.
5. THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL OR RELOCATION (IF REQUIRED) TO RELEVANT AUTHORITIES GUIDELINES OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA OR AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE ENGINEER/SUPERINTENDENT.
6. INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO SURROUNDING ALLOTMENTS. CONTRACTOR TO GAIN APPROVAL FROM THE RELEVANT AUTHORITIES FOR TIME OF INTERRUPTION.
7. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF ANY RELEVANT AUTHORITIES. ONCE DIVERSION IS COMPLETE AND COMMISSIONED, THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE RELEVANT AUTHORITY/SUPERINTENDENT.
8. EXISTING SERVICES, BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE EXISTING FEATURES PRIOR TO ANY DEMOLITION WORKS.
9. ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS, BRICK PAVING AND CONSTRUCTION TRAFFIC MANEUVERING AREAS SHALL BE PROTECTED TO RELEVANT AUTHORITIES GUIDELINES.
10. ALL EXISTING SERVICE UTILITIES COVERS AND GRATES ARE TO BE ADJUSTED (TO RELEVANT AUTHORITY GUIDELINES) TO SUIT NEW FINISHED SURFACE LEVELS WHERE APPLICABLE.
11. IF EXISTING SERVICE UTILITY COVERS AND GRATES OR SURROUNDING SURFACE LEVELS ARE TO BE LOWERED, THE CONTRACTOR IS TO MAKE CERTAIN THAT MINIMUM COVERS (TO RELEVANT SERVICE AUTHORITY GUIDELINES) TO SERVICES ARE MAINTAINED. IF MINIMUM COVERS AREN'T MAINTAINED THE CONTRACTOR IS TO LOWER OR PROTECT SERVICES TO THE SATISFACTION OF THE RELEVANT SERVICE AUTHORITY/SUPERINTENDENT.

SUBSOIL DRAINAGE NOTES

1. PROVIDE SUBSOIL DRAINS TO INTERCEPT GROUNDWATER SEEPAGE AND PREVENT WATER BUILD-UP BEHIND WALLS AND UNDER FLOORS AND PAVEMENTS. CONNECT SUBSOIL TO SURFACE DRAINS OR TO THE STORMWATER DRAINAGE SYSTEM AS APPLICABLE.
2. ALL SUBSOIL PIPES SHALL BE 100mm SLOTTED CORRUGATED uPVC IN A FILTER SOCK U.N.O.
3. FILTER SOCKS ARE TO BE POLYESTER PERMEABLE SOCKS CAPABLE OF RETAINING PARTICLES GREATER THAN 0.25mm IN SIZE. SECURELY FIT OR JOIN THE SOCK AT EACH JOINT.
4. WHERE SUBSOIL DRAINS PASS UNDER EXTERNAL SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
5. SUBSOIL DRAINAGE TRENCHES ARE TO BE WRAPPED WITH PERMEABLE TEXTILE FABRIC 'BIDIM A12' OR EQUIVALENT.
6. TO REDUCE GROUND WATER TRACKING WITHIN STORMWATER TRENCHES INSTALL A 3m LENGTH OF SUBSOIL PIPE IN PIPE TRENCHES DRAINING IN DIRECTION OF FALL OF PIPE AND CONNECT TO DOWNSTREAM STORMWATER DRAINAGE PIT.
7. SUBSOIL MINIMUM CLEARANCE DEPTHS, MEASURED TO THE CROWN OF THE PIPE, WHERE THE PIPE PASSES BELOW THE FOLLOWING ELEMENTS:
   - 100mm BELOW FORMATION LEVEL OF THE PAVEMENT, KERB OR CHANNEL.
   - AT THE AVERAGE GRADIENT OF THE BOTTOM OF FOOTINGS.
8. AT JUNCTIONS OF SUBSOIL PIPES PROVIDE TEES, COUPLINGS OR ADAPTORS IN ACCORDANCE WITH AS2439.1.
9. SUBSOIL DRAINAGE TRENCHES SHALL BE A MINIMUM 300mm WIDE.
10. GRADE THE TRENCH FLOOR EVENLY TO THE GRADIENT OF THE PIPELINE. IF THE TRENCH FLOOR IS ROCK, CORRECT ANY IRREGULARITIES WITH COMPACTED BEDDING MATERIAL. BED PIPING ON A CONTINUOUS UNDERLAY OF BEDDING MATERIAL, AT LEAST 75mm THICK AFTER COMPACTION. LAY THE PIPE WITH ONE LINE OF PERFORATIONS AT THE BOTTOM.
11. PLACE THE MATERIAL IN THE PIPE SURROUND IN LAYERS SMALLER THAN OR EQUAL TO 200mm LOOSE THICKNESS, AND COMPACT WITHOUT DAMAGING OR DISPLACING PIPING.

SUBGRADE COMPACTION NOTES

1. THE EXPOSED SUBGRADE (I.E. THE LOWER COURSE OF PAVEMENT BELOW THE SUB-BASE) AFTER STRIPPING AND/OR EXCAVATION SHALL BE PROOF ROLLED USING NOT FEWER THAN 5 PASSES WITH A 10 TONNE DEAD WEIGHT STEEL SMOOTH-DRUM ROLLER UNDER THE SUPERVISION OF AN EXPERIENCED GEOTECHNICAL ENGINEER. ANY AREAS EXHIBITING EXCESSIVE DEFLECTION/MOVEMENT UNDER ROLLER SHALL BE REMOVED TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER TO A MINIMUM DEPTH OF 500mm AND THEN BACKFILLED WITH APPROVED ENGINEERED FILL TO MEET THE DESIGN SUBGRADE LEVEL.
2. ENGINEERED FILL TO TO BE PLACED IN LAYERS NOT EXCEEDING 250mm LOOSE THICKNESS AND COMPACTED TO 98% OF STANDARD MAXIMUM DRY DENSITY (SMDD) AND TO WITHIN 2% OF STANDARD OPTIMUM MOISTURE CONTENT (SOMC) IN ACCORDANCE WITH AS 1289 5.1.1. APPROVED BACKFILL MATERIAL MAY BE CRUSHED ROCK OR SANDY LOAM WITH A PLASTICITY INDEX LESS THAN 15%.
3. TESTING OF THE SUBGRADE SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY.
4. ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE SUPERINTENDENT AND SHALL COMPLY WITH THE FOLLOWING.
   - FREE FROM ORGANIC AND PERISHABLE MATTER
   - MAXIMUM PARTICLE SIZE = 75mm
   - MAXIMUM PLASTICITY INDEX = 15%

SUB-BASE COURSE COMPACTION NOTES

1. PAVEMENT "SUB-BASE" (I.E THE INTERMEDIATE OR LOWER COURSE OF THE PAVEMENT BELOW THE BASE) SHALL BE CONSTRUCTED FROM MATERIAL AS SPECIFIED ON DRAWINGS AND COMPACTED TO 98% OF THE STANDARD MAXIMUM DRY DENSITY (SMDD) AND WITHIN 2% OF STANDARD OPTIMUM MOISTURE CONTENT (SOMC) IN ACCORDANCE WITH AS 1289 5.1.1.
2. ALL SUB-BASE MATERIAL SHALL BE HARD, DURABLE AND THE MATERIALS SHALL BE FREE OF CLAY LUMPS, ORGANIC MATTER AND OBJECTIONABLE QUANTITIES OF DELETERIOUS SUBSTANCES.
3. ALL MATERIAL REQUIREMENTS APPLY BOTH PRIOR TO AND AFTER PLACEMENT OF THE PAVEMENT.

BASE COURSE COMPACTION NOTES

1. PAVEMENT "BASE" (I.E THE HIGHEST COURSE OF THE PAVEMENT BELOW THE SURFACING) SHALL BE CONSTRUCTED FROM MATERIAL AS SPECIFIED ON DRAWINGS AND COMPACTED TO 98% OF THE STANDARD MAXIMUM DRY DENSITY (SMDD) AND WITHIN 2% OF STANDARD OPTIMUM MOISTURE CONTENT (SOMC) IN ACCORDANCE WITH AS 1289 5.1.1 (EXCEPT CONCRETE PAVEMENT, WHERE THE CONCRETE IS THE BASE).
2. ALL BASE MATERIAL SHALL BE HARD, DURABLE AND THE MATERIALS SHALL BE FREE OF CLAY LUMPS, ORGANIC MATTER AND OBJECTIONABLE QUANTITIES OF DELETERIOUS SUBSTANCES.
3. ALL MATERIAL REQUIREMENTS APPLY BOTH PRIOR TO AND AFTER PLACEMENT OF THE PAVEMENT

GENERAL PAVEMENT NOTES

1. TECHNICAL SPECIFICATIONS CONTAINED WITHIN THE GEOTECHNICAL REPORT TAKE PRECEDENCE OVER THESE NOTES.
2. PRIOR TO DELIVERY OF ANY MATERIAL TO THE SITE, THE SOURCE OF ALL MATERIALS AND ANY RELEVANT CERTIFICATES STATING THAT THE MATERIAL SATISFIES THE SPECIFIED REQUIREMENTS SHALL BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL.
3. TESTING OF PAVEMENT MATERIALS WILL NORMALLY BE PERFORMED ON SAMPLES TAKEN AT THE SOURCE SITE PRIOR TO DELIVERY TO THE SITE AND IN THEIR FINAL CONDITIONS AFTER PLACEMENT AND COMPACTION. HOWEVER, THE PROPERTIES SPECIFIED AND FINAL ACCEPTANCE ARE APPLICABLE TO THE MATERIALS IN THEIR FINAL CONDITION IN THE PAVEMENT.
4. FINAL ACCEPTANCE WILL BE CONDITIONAL ON NO SIGNIFICANT CHANGE IN PROPERTIES DUE TO SEGREGATION OR CONTAMINATION DURING SUBSEQUENT PAVEMENT WORKS.

STORMWATER DRAINAGE NOTES

1. THE STORMWATER DESIGN SHOWN ON THESE DRAWINGS HAS BEEN CARRIED OUT IN ACCORDANCE WITH CITY OF RYDE COUNCIL'S REQUIREMENTS, AUSTRALIAN RAINFALL AND RUNOFF (AR&R) GUIDELINES AND RELEVANT AUTHORITIES GUIDELINES.
2. FINISHED SURFACE LEVELS SHOWN ON CIVIL GRADING PLAN DRAWINGS TAKE PRECEDENCE OVER DRAINAGE LONGSECTION SURFACE LEVELS.
3. ALL STORMWATER WORK IS TO COMPLY WITH AS3500 PART 3.
4. PROTECTION OF PIPES EXPOSED TO LOADS EXCEEDING THE W7 WHEEL LOAD OF 70kN SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
5. NO CONSTRUCTION LOADS SHALL BE APPLIED TO uPVC PIPES.
6. EXISTING STORMWATER PIPE LOCATIONS AND INVERT LEVELS TO BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7. FOR ALL STORMWATER DRAINAGE PITS REFER TO TYPICAL PIT CHAMBER DETAILS ON THESE DRAWINGS. IF PIT LID SIZE IS SMALLER THAN THE PIT CHAMBER SIZE THEN THE PIT LID IS TO BE CONSTRUCTED ON THE CORNER OF THE PIT CHAMBER WITH THE STEP IRONS DIRECTLY BELOW. ALTERNATIVELY THE PIT LID TO BE USED, IS TO BE THE SAME SIZE AS THE PIT CHAMBER.
8. GALVANIZED STEP IRONS SHALL BE PROVIDED AT 300 CTRS FOR PITS HAVING A DEPTH EXCEEDING 1200mm
9. PIPES 300 DIA. AND LARGER TO BE REINFORCED CONCRETE PIPES (RCP) CLASS '4' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O.
10. PIPES UP TO 300 DIA. SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.
11. EQUIVALENT STRENGTH VCP OR FRC PIPES MAY BE USED IF RELEVANT APPROVAL AUTHORITY AND SUPERINTENDENT PERMITS.
12. BEDDING TYPE SHALL BE TYPE HS2 FOR RCP CONFORMING TO AS4058. WHERE NECESSARY THE OVERLAY ZONE SHALL BE REDUCED TO ACCOMMODATE PAVEMENT REQUIREMENTS.
13. PIPES SHALL BE LAID ON A 75mm THICK SAND BED. IN ALL CASES BACKFILL TRENCH WITH SAND TO 200mm ABOVE THE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 (OR A DENSITY INDEX OF NOT LESS THAN 75).
14. WHERE TRENCHES ARE IN ROCK THE PIPE SHALL BE BEDDED ON A MINIMUM OF 50mm CONCRETE BED (OR 75mm BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE.
15. ENLARGERS, CONNECTORS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
16. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
17. GRATES AND COVERS SHALL CONFORM TO AS3996 AND AS1428.1 AT ALL TIMES DURING CONSTRUCTION OF THE STORMWATER PITS.
18. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT AND ENGINEER FOR FURTHER DIRECTIONS.

KERBING NOTES

INCLUDES ALL KERBS, GUTTERS, DISH DRAINS, CROSSINGS AND EDGES.

1. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MINIMUM 75mm GRANULAR BASE COURSE MATERIAL COMPACTED TO A MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
2. EXPANSION JOINTS (EJ) TO BE FORMED FROM 10MM COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN SLABS.
3. WEAKENED PLANE JOINTS (WPJ) ARE TO BE LOCATED AT A MAX 1.5 x WIDTH OF THE PAVEMENT. WEAKENED PLANE JOINTS (WPJ) ARE TO BE A MINIMUM 3mm WIDE WITH A JOINT DEPTH TO BE A MINIMUM OF 1/4 THE TOTAL DEPTH OF THE SECTION.
4. ALL KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
5. WHEN CONSTRUCTING NEW KERB TO EXISTING AND IN THE REPLACEMENT OF KERBS, EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm FROM LIP OF GUTTER. UPON COMPLETION OF NEW KERBS, NEW BASE COURSE AND SURFACE IS TO BE LAID 900mm WIDE TO MATCH EXISTING MATERIALS AND THICKNESS.
6. EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB WITH A 125 x 75 GALVANISED RHS.
7. EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

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PROJECT
SHEPHERDS BAY
MEADOWBANK

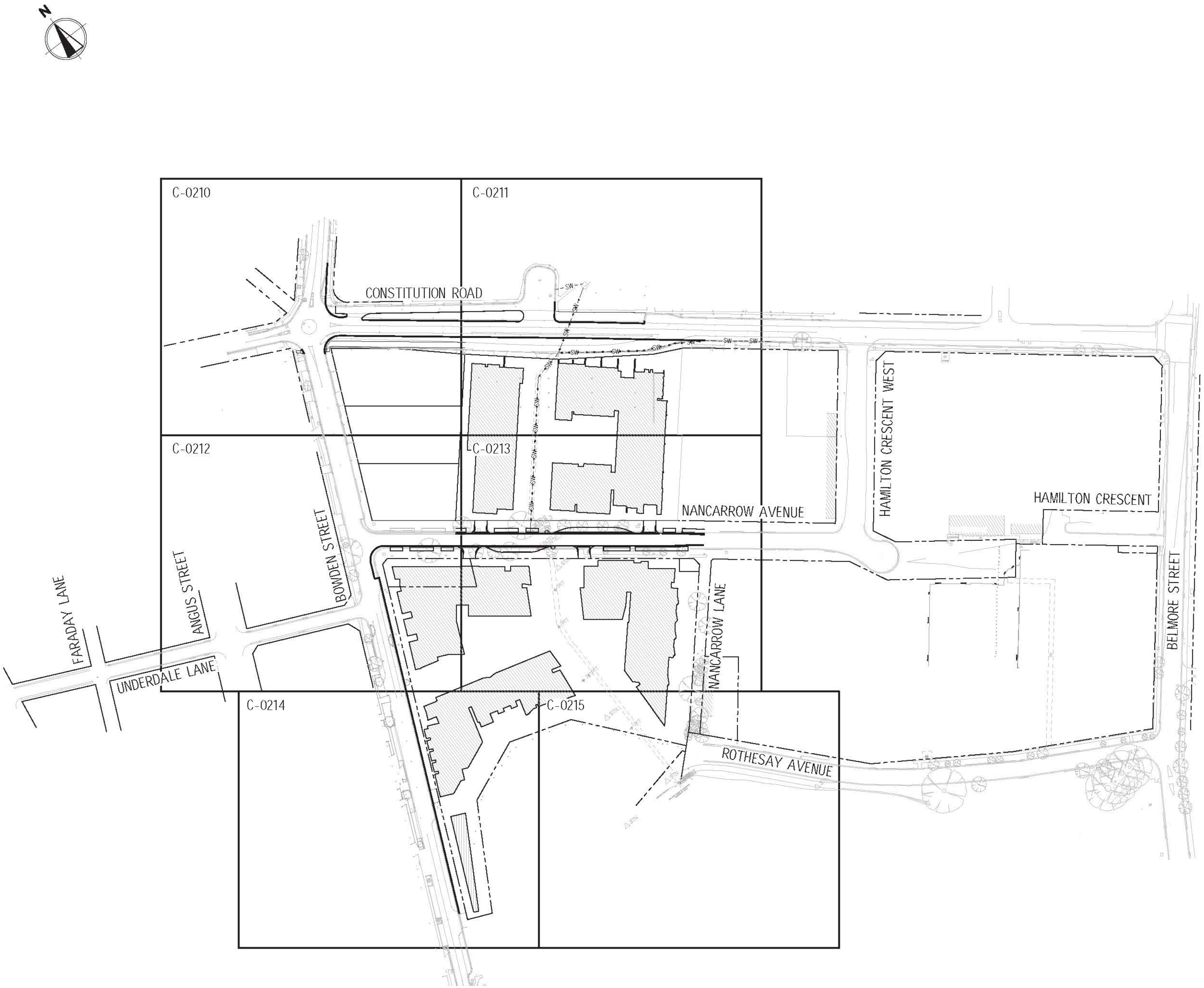
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD		AT A1 SIZE

TITLE
NOTES SHEET

PROJECT No.	DRAWING No.	REV.
S10076	C-0201	A



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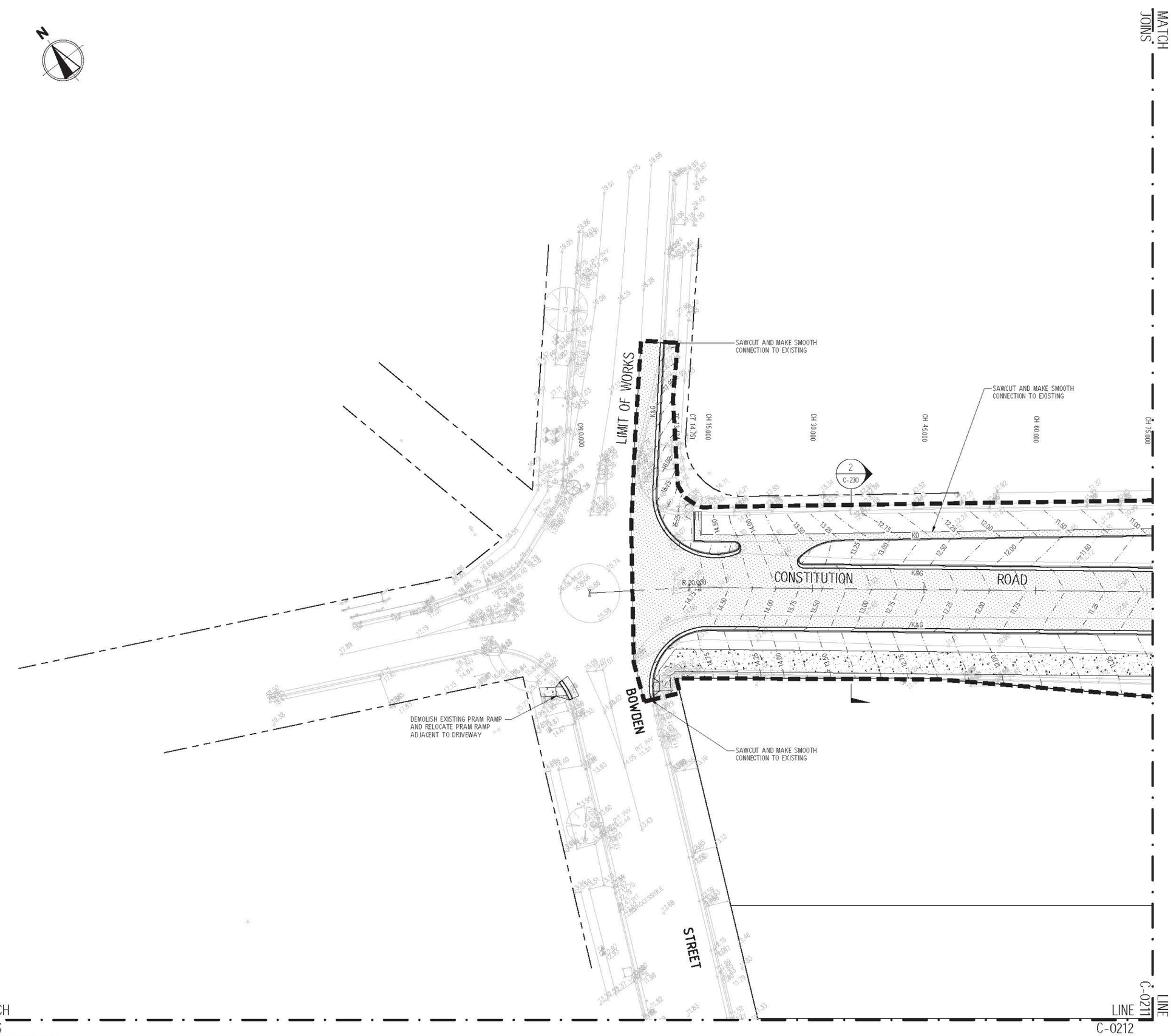
AHD	MGA	1:1000 AT A1 SIZE

TITLE
KEY PLAN

PROJECT No.	DRAWING No.	REV.
S10076	C-0202	A



LEGEND

- LIMIT OF WORKS
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- K&G — PROPOSED KERB AND GUTTER
- MK — PROPOSED MOUNTABLE KERB
- KO — PROPOSED KERB ONLY
- DD — PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- SW — EXISTING STORMWATER LINE
- SW — EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SSD — SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHEET 30mm AC10
- BIO-RETENTION AREA
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION WITH SURFACE FINISH TO LANDSCAPE ARCHITECTS SPECIFICATION

NOTE:
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2. THE ORIGINAL OF THIS DRAWING WAS PRODUCED USING COLOUR SEPARATION FOR GREATER CLARITY. WORKING WITH BLACK AND WHITE COPY MAY CAUSE ERRORS
3. WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING 600283-SK001

WARNING

BEWARE OF UNDERGROUND SERVICES.
The location of underground cables are approximate only and their exact position should be checked on site. No guarantee is given that all existing cables and services are shown. Locate all underground cables and services before commencement of work. Refer to Worksafe Regulation 3.21.

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AHD	MGA	1:250	AT A1 SIZE

TITLE
SITEWORKS PLAN
SHEET 1

PROJECT No.	DRAWING No.	REV.
S10076	C-0210	A

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23/12/2014 10:55:00 AM

MATCH JOINS

LINE C-0210

MATCH JOINS

LINE C-0213

CH 90.000 CH 105.000 CH 120.000 CH 135.000 CH 150.000 CH 165.000 CH 180.000 CH 195.000 CH 210.000

CONSTRUCT PROPOSED PIT ADJACENT TO EXISTING PIT AND CONNECT VIA ϕ2250 STUB PIPE

SAWCUT AND MAKE SMOOTH CONNECTION TO EXISTING

SAWCUT AND MAKE SMOOTH CONNECTION TO EXISTING

PROVIDE NEW VEHICULAR CROSSING TO REALIGNED KERB

CONSTITUTION ROAD

CONNECT PROPOSED PIPE TO EXISTING PIT

SAWCUT AND MAKE SMOOTH CONNECTION TO EXISTING

RECONNECT PROPERTY DRAINAGE TO PIT OA.2

REFER LANDSCAPE ARCHITECT DRAWINGS FOR FOOTPATH CONNECTION DETAILS.

EXISTING STORMWATER EASEMENT TO BE EXTINGUISHED

PROPOSED 4.0m WIDE EASEMENT

CONCRETE CHANNEL

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PROJECT
SHEPHERDS BAY
MEADOWBANK

STATUS
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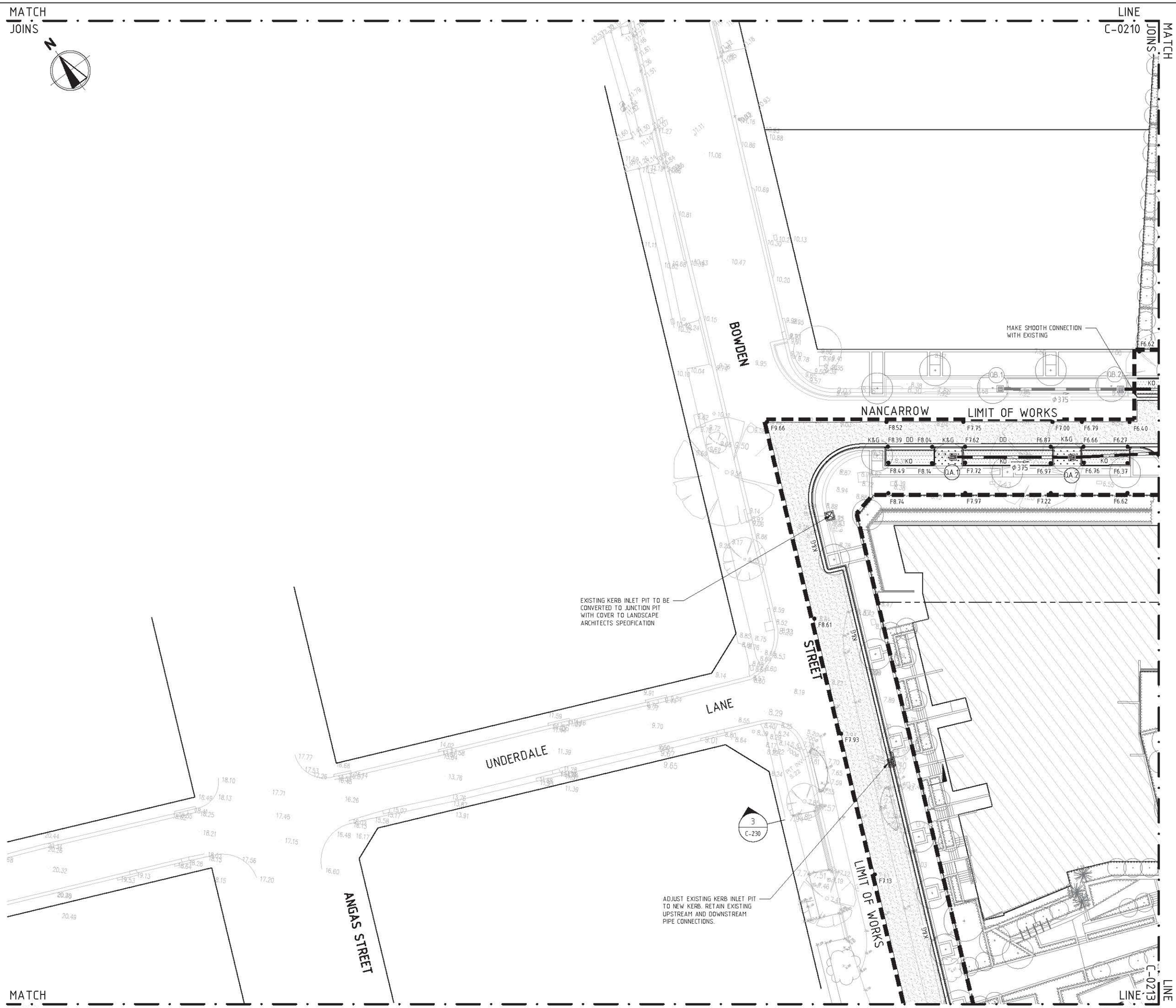
TB	NK		
DATUM	GRID	SCALE	
AHD	MGA	1:250 AT A1 SIZE	

TITLE
SITEWORKS PLAN
SHEET 2

PROJECT No.	DRAWING No.	REV.
S10076	C-0211	A



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- LIMIT OF WORKS

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DATUM	GRID	SCALE	
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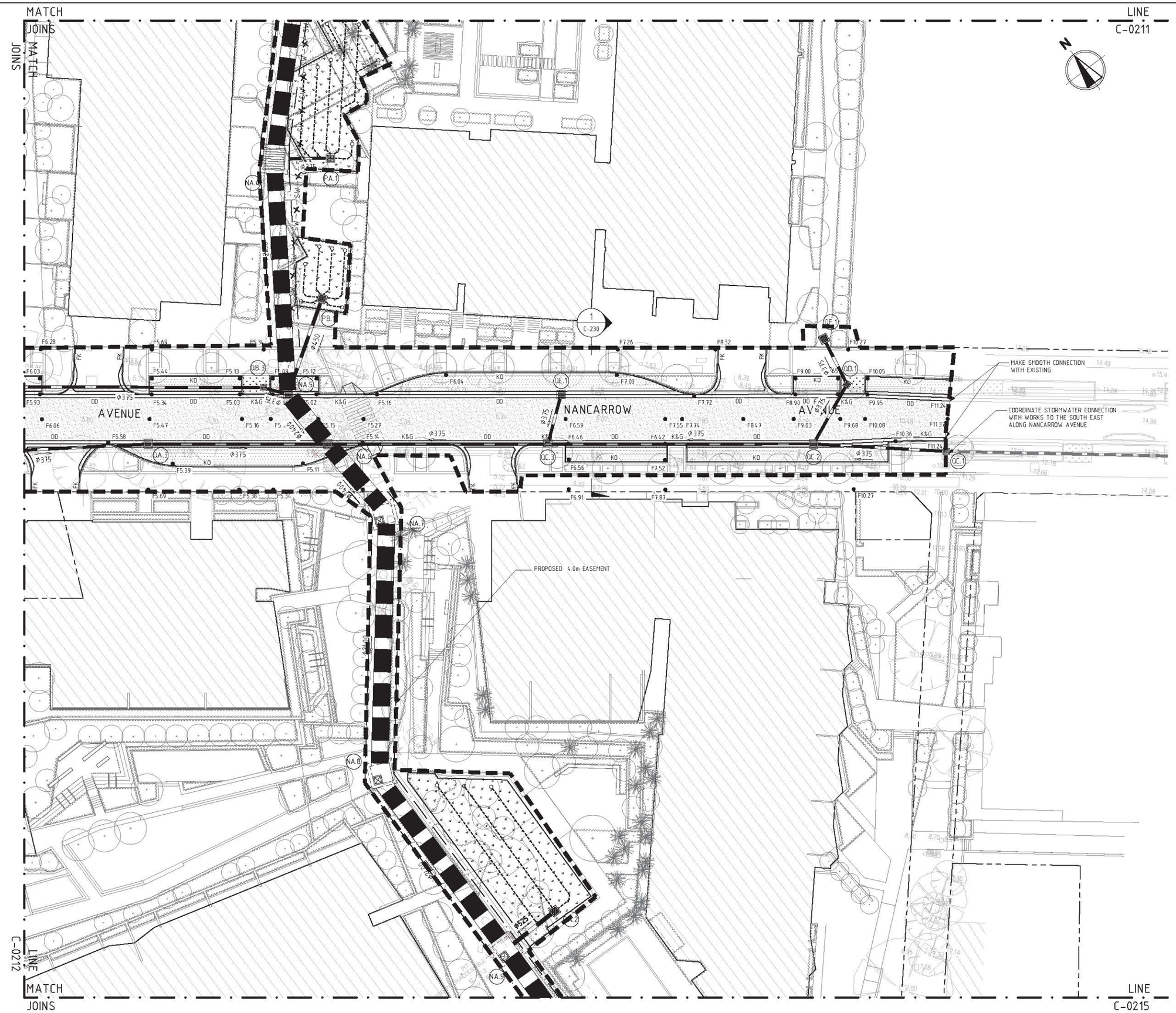
TITLE
SITEWORKS PLAN
SHEET 3

PROJECT No.	DRAWING No.	REV.
S10076	C-0212	A



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PROJECT

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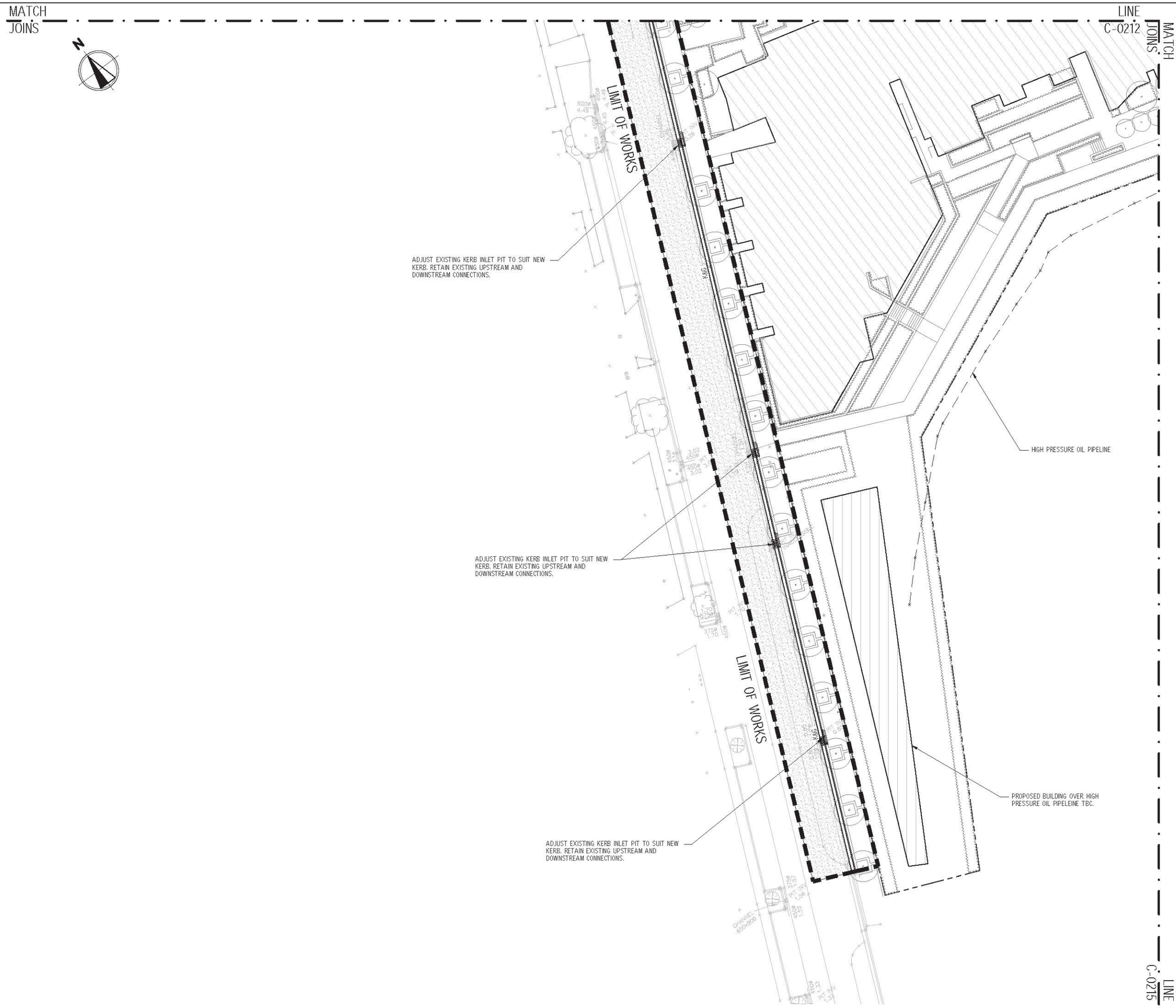
TITLE

SITEWORKS PLAN
SHEET 4

PROJECT No.	DRAWING No.	REV.
S10076	C-0213	A



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- BIO-RETENTION AREA

NOTE:
1. FOR SURFACE LEVELS AND FINISHES REFER TO LANDSCAPE ARCHITECTS PLANS.
2. THE ORIGINAL OF THIS DRAWING WAS PRODUCED USING COLOUR SEPARATION FOR GREATER CLARITY. WORKING WITH BLACK AND WHITE COPY MAY CAUSE ERRORS
3. WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING -

WARNING

BEWARE OF UNDERGROUND SERVICES:
The location of underground cables are approximate only and their exact position should be checked on site. No guarantee is given that all existing cables and services are shown. Locate all underground cables and services before commencement of work. Refer to Worksafe Regulation 3.21.

DIAL1100 BEFORE YOU DIG

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

Sydney Office—
L2 8 Windmill St Sydney NSW 2000
P/-61 2 9770 3300
E/info@bgeeng.com
bgeeng.com—
BG&E

PROJECT
SHEPHERDS BAY
MEADOWBANK

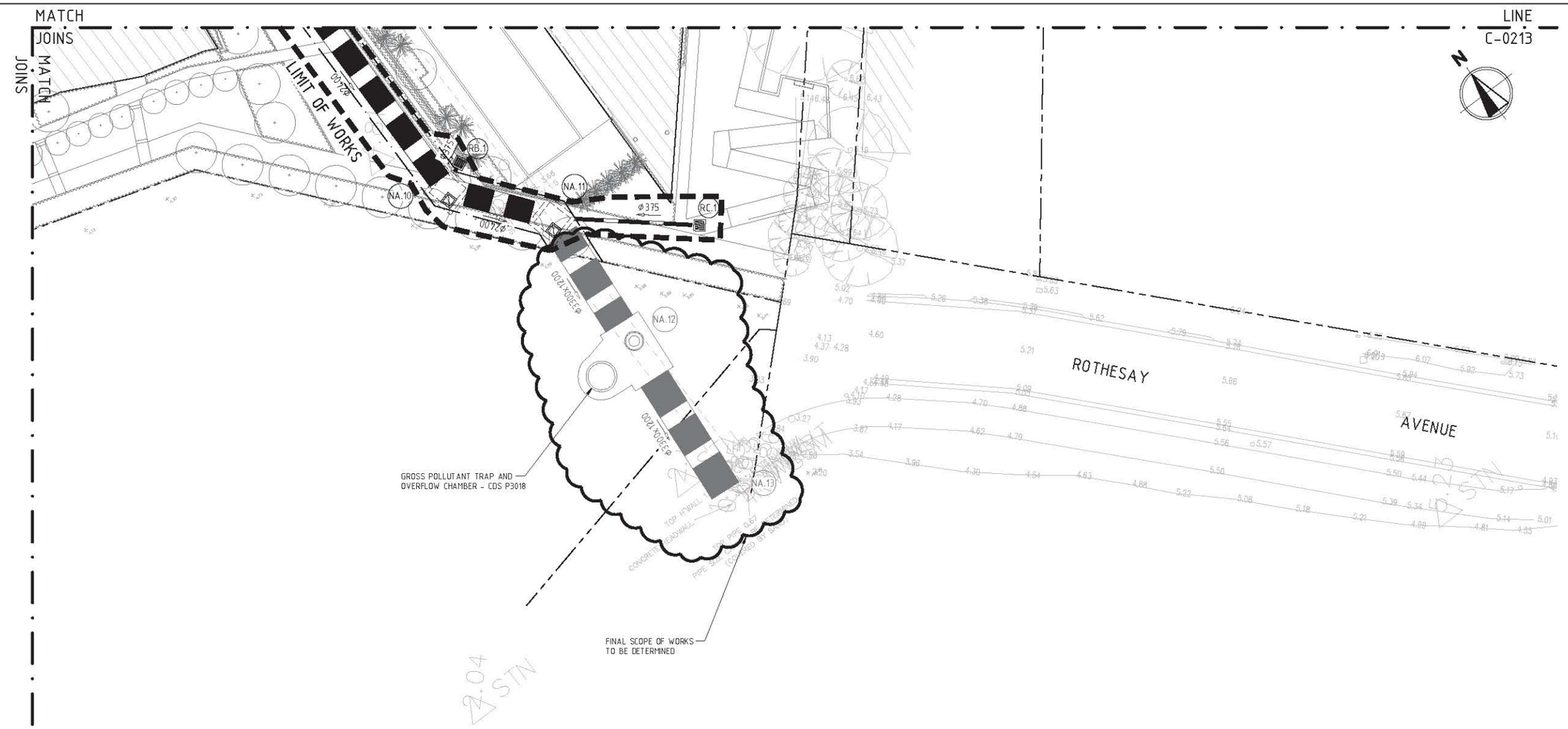
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE	
AHD	MGA	1:250	AT A1 SIZE

TITLE
SITEWORKS PLAN
SHEET 5

PROJECT No.	DRAWING No.	REV.
S10076	C-0214	A



LEGEND

- LIMIT OF WORKS
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- K&G — PROPOSED KERB AND GUTTER
- MK — PROPOSED MOUNTABLE KERB
- KO — PROPOSED KERB ONLY
- DD — PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- SW — SW — EXISTING STORMWATER LINE
- SW — X — SW — EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SSD — SSD — SSD — SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHEET 30mm AC10
- BIO-RETENTION AREA

NOTE:

1. FOR SURFACE LEVELS AND FINISHES REFER TO LANDSCAPE ARCHITECTS PLANS.
2. THE ORIGINAL OF THIS DRAWING WAS PRODUCED USING COLOUR SEPARATION FOR GREATER CLARITY. WORKING WITH BLACK AND WHITE COPY MAY CAUSE ERRORS
3. WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING -

WARNING

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DIAL1100 BEFORE YOU DIG

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT

HOLDMARK

2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

Sydney Office—
L2 8 Windmill St Sydney NSW 2000
P/+61 2 9770 3300
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PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

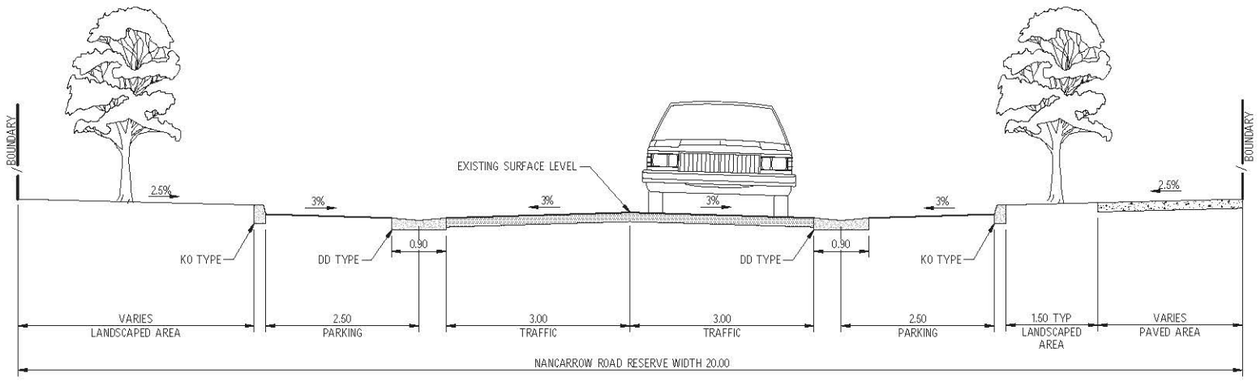
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE	
AHD	MGA	1:250	AT A1 SIZE

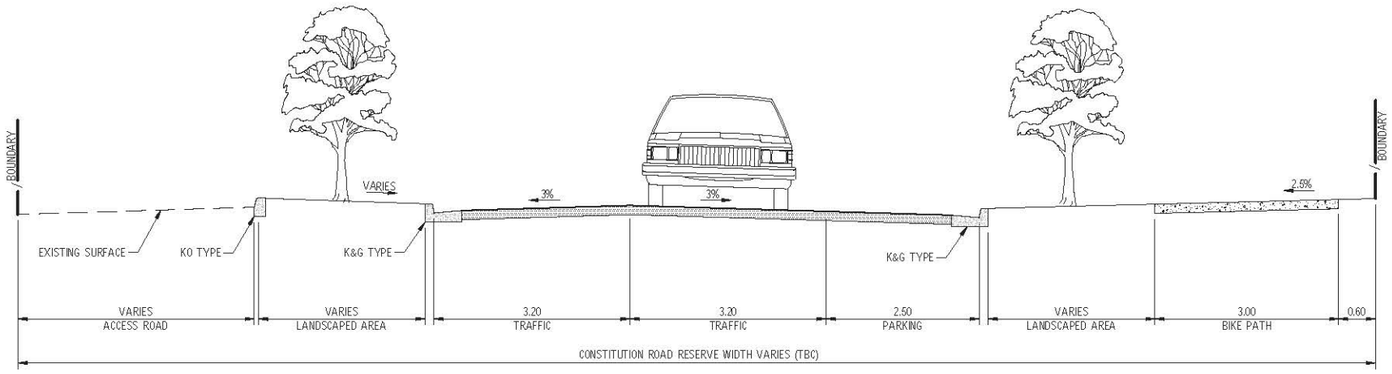
TITLE

SITEWORKS PLAN
SHEET 6

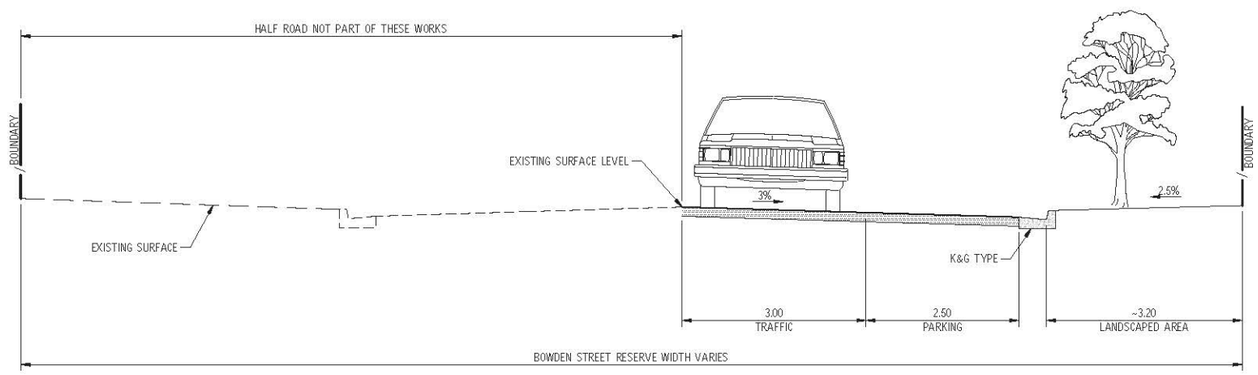
PROJECT No.	DRAWING No.	REV.
S10076	C-0215	A



SECTION 1
SCALE 1:50
C-0213
C-0212



SECTION 2
SCALE 1:50
C-0210



SECTION 3
SCALE 1:50
C-0212

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

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PROJECT
SHEPHERDS BAY
MEADOWBANK

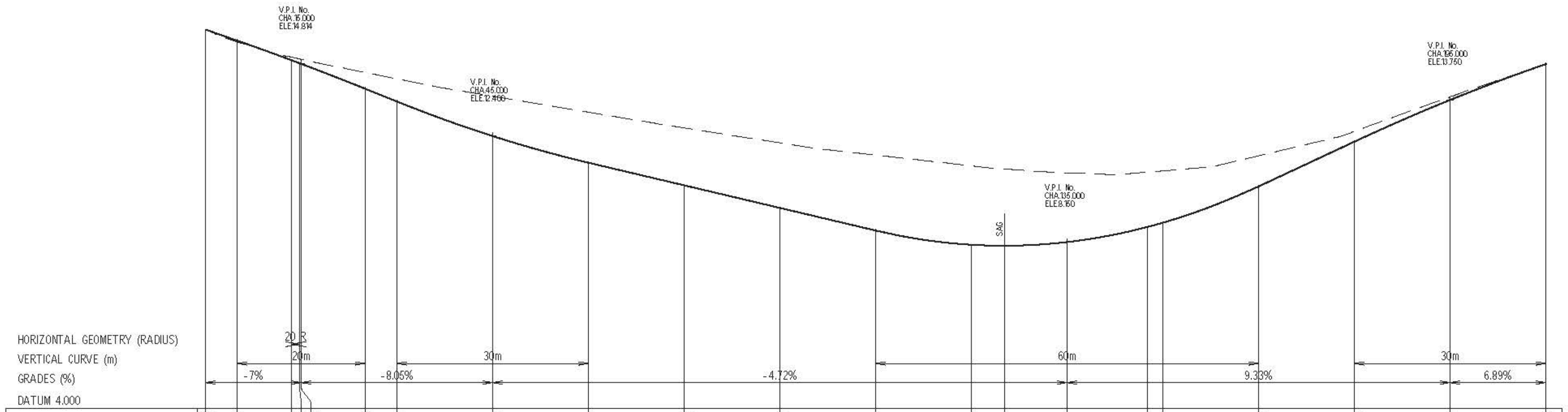
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD		1:50 AT A1 SIZE

TITLE
TYPICAL ROAD SECTIONS

PROJECT No.	DRAWING No.	REV.
S14053	C-0230	A



DESIGN SURFACE	15.864	15.514	14.906	14.807	14.788	14.009	13.607	12.525	11.692	10.983	10.275	9.567	9.122	9.091	9.204	9.682	9.814	10.950	12.350	13.658	14.783
EXISTING SURFACE	15.864	15.476	15.001	14.942	14.931	14.521	14.321	13.775	13.274	12.781	12.315	11.930	11.593	11.494	11.371	11.395	11.434	11.906	12.675	13.755	14.781
CHAINAGE	0.00	5.00	13.42	14.75	15.00	25.00	30.00	45.00	60.00	75.00	90.00	105.00	120.00	125.16	135.00	147.62	150.00	165.00	180.00	195.00	210.00

PROFILE - CONSTITUTION ROAD (MC10)

SCALE 1:500H, 1:100V

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT

HOLDMARK

2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

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bgeeng.com—

PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD		1:250H, 1:50V AT A1 SIZE

TITLE

CONSTITUTION ROAD
LONGITUDINAL SECTIONS

PROJECT No.	DRAWING No.	REV.
S14053	C-0240	A

P:\BGE\SYD\S10076\100 DRAW\100.2 CIVIL\AUTOCAD\S10076-DRG-C-0240.DWG
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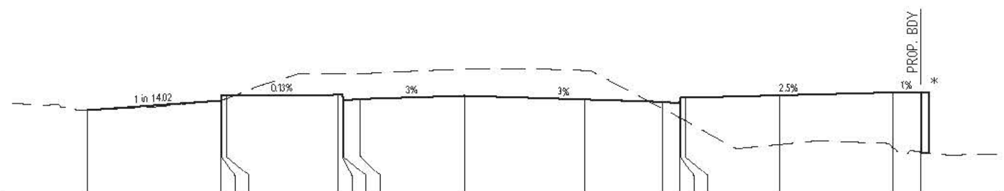
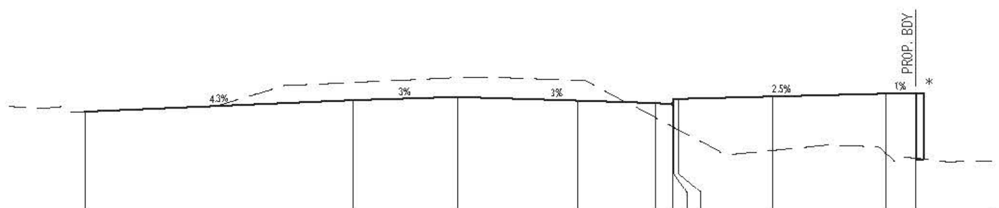


DATUM 11.000

PROPOSED	13.229	13.481	13.631	13.631	13.635	13.635	13.485	13.525	13.607	13.511	13.450	13.410	13.560	13.560	13.622	13.697	13.705
EXISTING	13.229	13.480	13.490	13.537	14.192	14.192	14.192	14.193	14.321	14.278	13.272	13.028	13.014	12.946	12.318	12.234	12.117
OFFSET	-9.975	-6.448	-6.423	-6.298	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	12.099

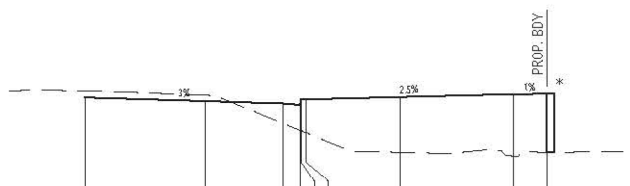
CHAINAGE 30



DATUM 11.000

PROPOSED	13.621	13.927	14.009	13.913	13.852	13.812	13.962	13.962	14.024	14.099	14.107
EXISTING	13.621	14.393	14.521	14.451	13.466	13.229	13.216	13.150	12.598	12.513	12.389
OFFSET	-9.859	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	12.148

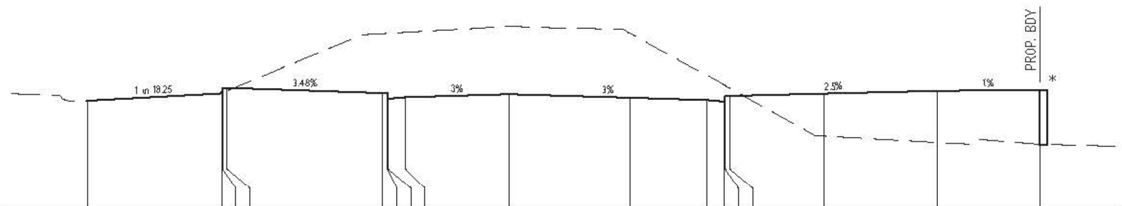
CHAINAGE 25



DATUM 12.000

PROPOSED	14.698	14.602	14.541	14.501	14.651	14.651	14.713	14.788	14.797
EXISTING	14.879	14.759	14.017	13.833	13.823	13.772	13.248	13.152	13.246
OFFSET	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	12.236

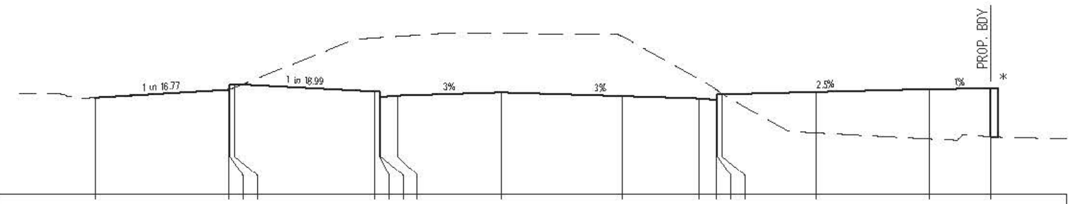
CHAINAGE 16.19



DATUM 8.000

PROPOSED	10.809	11.004	11.154	11.154	11.011	11.011	10.861	10.901	10.983	10.887	10.826	10.786	10.936	10.936	10.998	11.073	11.100
EXISTING	10.809	11.004	11.014	11.067	12.586	12.593	12.595	12.620	12.781	12.595	11.476	11.226	11.212	11.143	9.871	9.704	9.657
OFFSET	-11.168	-7.610	-7.585	-7.460	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	14.055

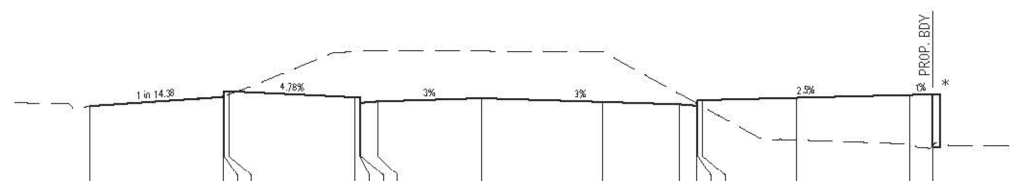
CHAINAGE 75



DATUM 9.000

PROPOSED	11.554	11.765	11.915	11.915	11.719	11.719	11.569	11.609	11.692	11.596	11.534	11.494	11.644	11.644	11.707	11.782	11.798
EXISTING	11.554	11.765	11.775	11.824	13.139	13.147	13.149	13.180	13.274	13.182	12.049	11.765	11.749	11.669	10.618	10.458	10.519
OFFSET	-10.760	-7.217	-7.192	-7.067	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	12.970

CHAINAGE 60



DATUM 10.000

PROPOSED	12.318	12.562	12.712	12.712	12.552	12.552	12.402	12.442	12.525	12.429	12.367	12.327	12.477	12.477	12.540	12.615	12.621
EXISTING	12.318	12.562	12.571	12.619	13.764	13.772	13.774	13.778	13.775	13.752	12.638	12.389	12.376	12.306	11.420	11.313	11.267
OFFSET	-10.359	-6.844	-6.819	-6.694	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	11.949

CHAINAGE 45

NOTE
* - RETAINING WALL BY OTHERS

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
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bgeeng.com

PROJECT
SHEPHERDS BAY
MEADOWBANK

STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD		1:100 AT A1 SIZE

TITLE
CONSTITUTION ROAD
CROSS SECTIONS
SHEET 1

PROJECT No.	DRAWING No.	REV.
S14053	C-0245	A

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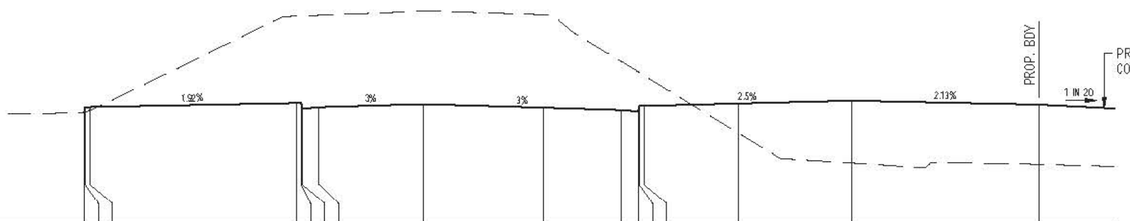
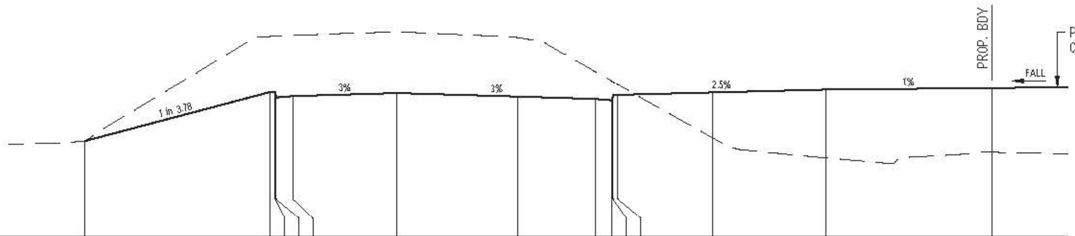


DATUM 6.000

PROPOSED	8.894	9.044	9.044	9.149	9.149	8.999	9.039	9.122	9.026	8.964	8.924	9.074	9.074	9.137	9.212	9.107
EXISTING	8.895	8.905	8.960	11.453	11.457	11.458	11.476	11.593	11.488	10.251	9.977	9.962	9.886	8.363	7.561	7.525
OFFSET	-8.967	-8.942	-8.817	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	16.303

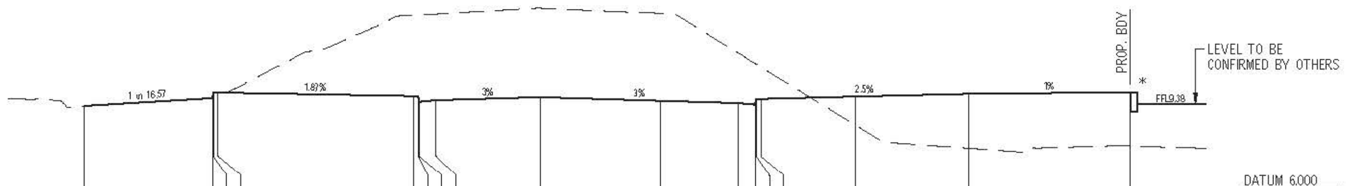
CHAINAGE 120



DATUM 6.000

PROPOSED	8.539	9.841	9.841	9.691	9.731	9.814	9.718	9.656	9.616	9.766	9.766	9.829	9.904	9.948
EXISTING	8.539	11.314	11.319	11.320	11.339	11.434	11.287	10.375	10.119	10.105	10.035	8.636	8.093	8.239
OFFSET	-8.271	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	15.757

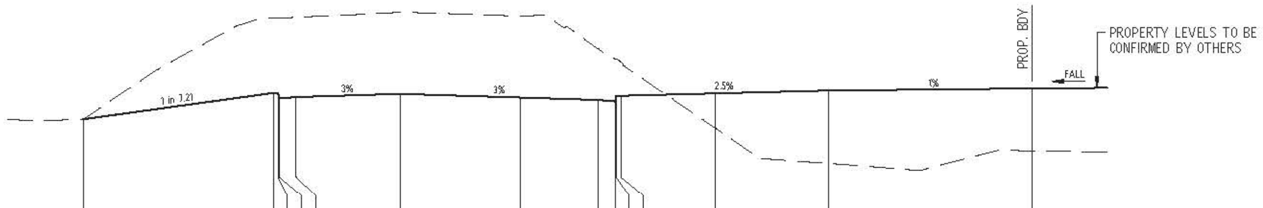
CHAINAGE 150



DATUM 7.000

PROPOSED	9.336	9.541	9.691	9.691	9.594	9.594	9.444	9.484	9.567	9.471	9.409	9.369	9.519	9.519	9.582	9.657	9.699
EXISTING	9.336	9.540	9.551	9.605	11.738	11.746	11.747	11.773	11.930	11.788	10.739	10.462	10.446	10.370	8.831	8.206	8.265
OFFSET	-12.064	-8.668	-8.643	-8.518	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	15.624

CHAINAGE 105

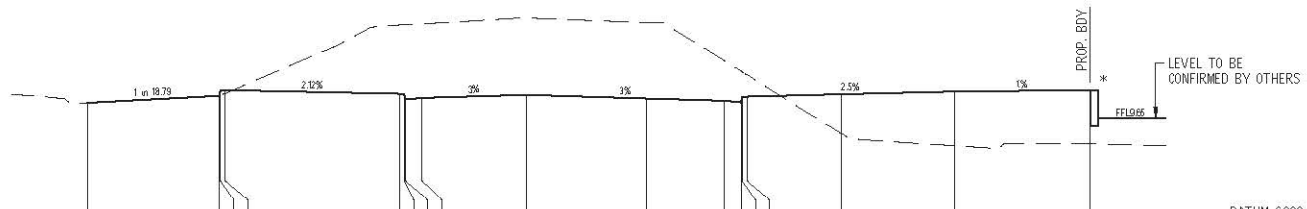


DATUM 6.000

PROPOSED	8.534	9.232	9.232	9.082	9.122	9.204	9.108	9.047	9.007	9.157	9.157	9.219	9.294	9.348
EXISTING	8.534	11.213	11.219	11.220	11.239	11.371	11.272	10.409	10.133	10.122	10.055	8.302	7.355	7.691
OFFSET	-8.386	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	16.728

CHAINAGE 135

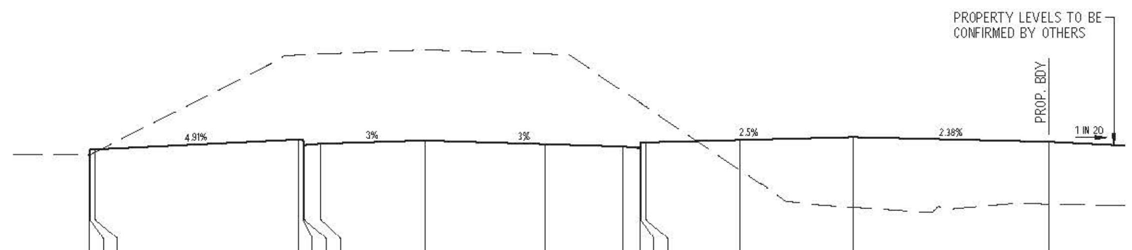
NOTE
* - RETAINING WALL BY OTHERS



DATUM 7.000

PROPOSED	10.064	10.250	10.400	10.400	10.302	10.302	10.152	10.192	10.275	10.179	10.117	10.077	10.227	10.227	10.290	10.365	10.401
EXISTING	10.064	10.250	10.261	10.314	12.126	12.132	12.134	12.157	12.315	12.195	11.181	10.900	10.885	10.807	9.248	8.928	8.981
OFFSET	-11.615	-8.117	-8.092	-7.967	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	14.945

CHAINAGE 90



DATUM 6.000

PROPOSED	8.704	8.854	8.854	9.118	9.118	8.968	9.008	9.091	8.995	8.933	8.893	9.043	9.043	9.106	9.181	9.057
EXISTING	8.704	8.716	8.779	11.358	11.363	11.364	11.382	11.494	11.392	10.399	10.097	10.080	9.996	8.316	7.322	7.408
OFFSET	-8.889	-8.864	-8.739	-3.350	-3.225	-3.200	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	16.536

CHAINAGE 125.158

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

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bgeeng.com—

PROJECT
SHEPHERDS BAY
MEADOWBANK

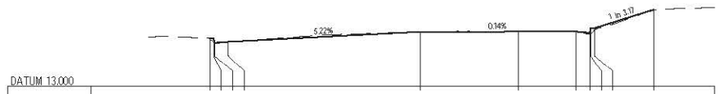
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD		1:100 AT A1 SIZE

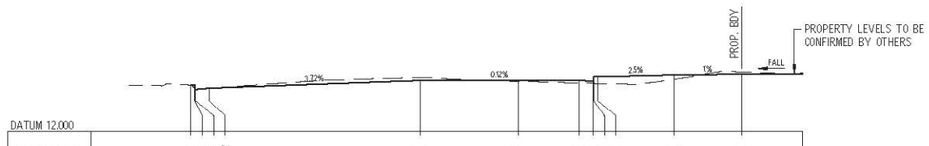
TITLE
CONSTITUTION ROAD
CROSS SECTIONS
SHEET 2

PROJECT No.	DRAWING No.	REV.
S14053	C-0246	A



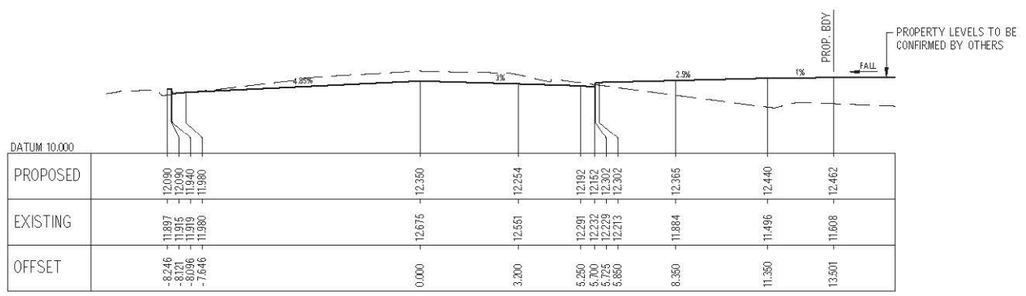
DATUM 13.000										
PROPOSED	14.566	14.566	14.486	14.466	14.783	14.788	14.790	14.750	14.900	15.609
EXISTING	14.555	14.545	14.445	14.466	14.781	14.783	14.790	14.705	14.721	14.837	15.609
OFFSET	-6.869	-6.744	-6.719	-6.269	0.000	3.200	5.092	5.542	5.567	5.692	7.621

CHAINAGE 210



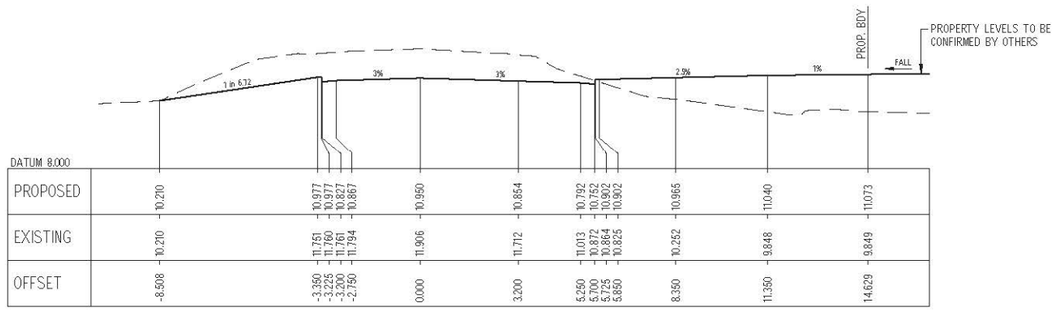
DATUM 12.000										
PROPOSED	13.512	13.612	13.362	13.402	13.658	13.662	13.665	13.625	13.775	13.775	13.837	13.859
EXISTING	13.502	13.408	13.386	13.402	13.755	13.628	13.573	13.562	13.561	13.558	13.695	13.933
OFFSET	-7.492	-7.367	-7.342	-6.892	0.000	3.200	5.197	5.647	5.672	5.797	8.297	10.492

CHAINAGE 195



DATUM 10.000										
PROPOSED	12.090	12.090	12.040	11.980	12.350	12.254	12.192	12.152	12.302	12.302	12.365	12.440	12.462
EXISTING	11.897	11.895	11.919	11.980	12.675	12.551	12.291	12.232	12.229	12.213	11.884	11.496	11.608
OFFSET	-8.246	-8.121	-8.096	-7.646	0.000	3.200	5.250	5.700	5.725	5.880	8.350	11.350	13.501

CHAINAGE 180



DATUM 8.000										
PROPOSED	10.210	10.977	10.977	10.827	10.867	10.950	10.854	10.792	10.752	10.902	10.902	10.965	11.040	11.073
EXISTING	10.210	11.751	11.760	11.761	11.794	11.906	11.712	11.013	10.872	10.864	10.825	10.252	9.848	9.849
OFFSET	-8.508	-3.350	-3.225	-3.000	-2.750	0.000	3.200	5.250	5.700	5.725	5.850	8.350	11.350	14.629

CHAINAGE 165

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT

HOLDMARK

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BG&E

PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

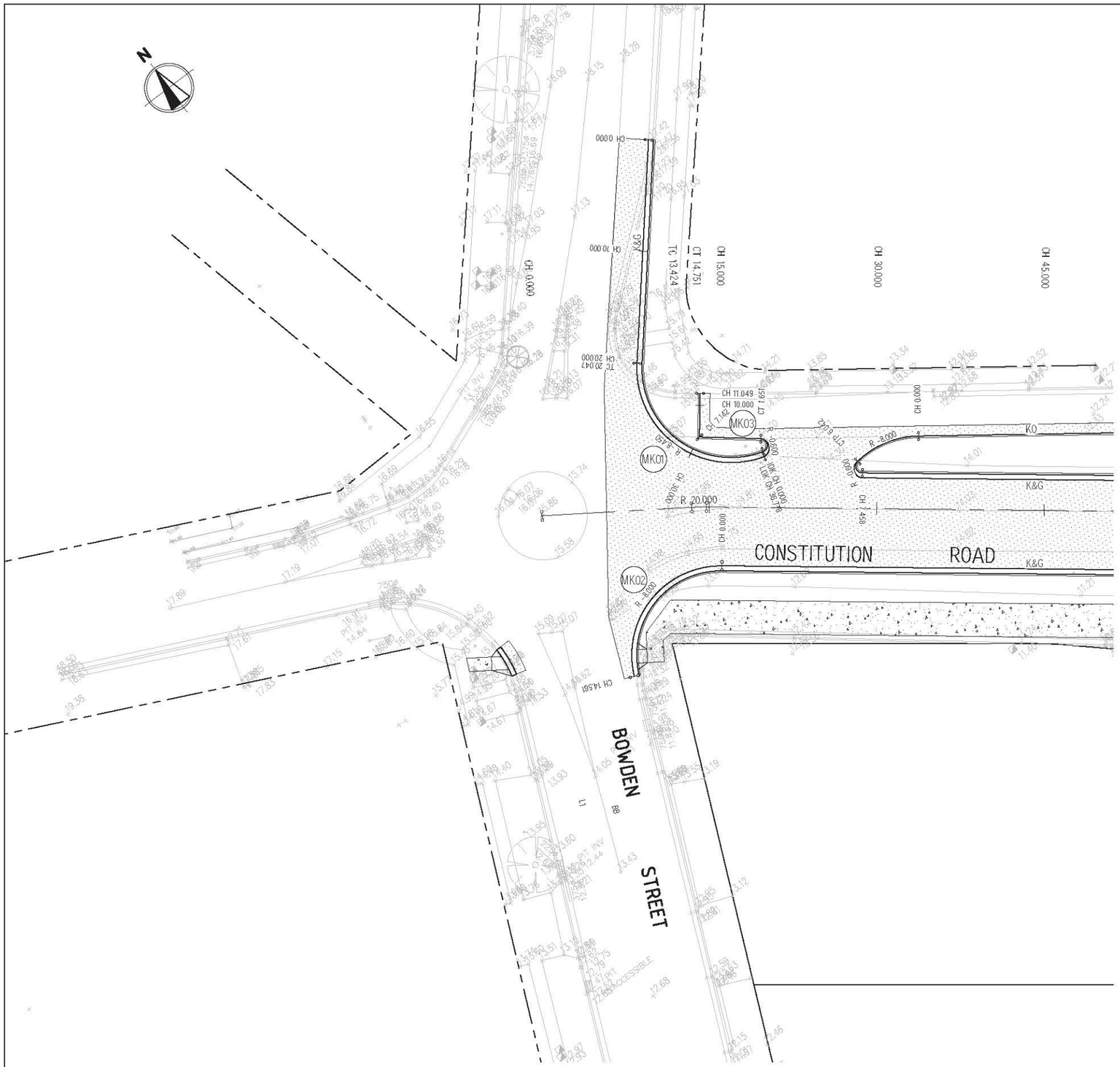
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

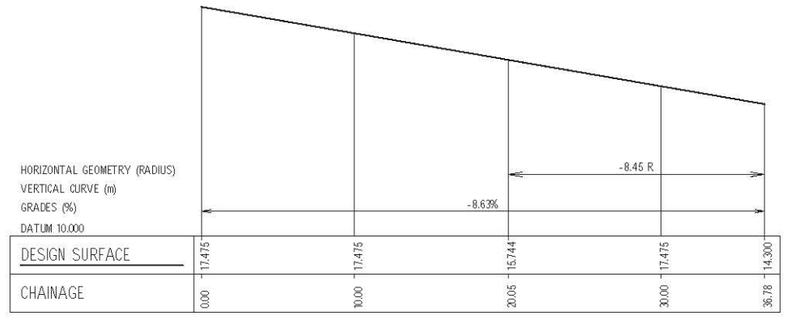
DATUM	GRID	SCALE
AHD		1:100 AT A1 SIZE

TITLE

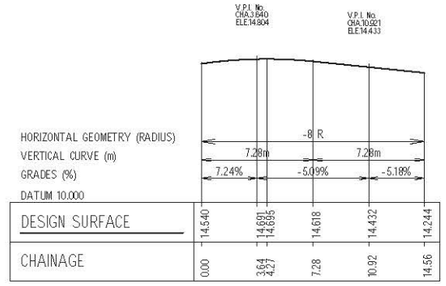
CONSTITUTION ROAD
CROSS SECTIONS
SHEET 3

PROJECT No.	DRAWING No.	REV.
S14053	C-0247	A

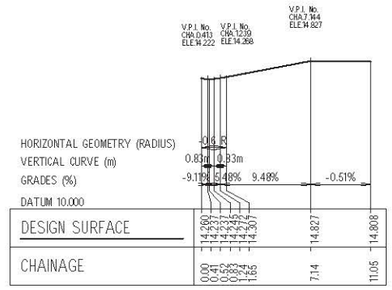




PROFILE - MK01
SCALE 1:200H, 1:100V



PROFILE - MK02
SCALE 1:200H, 1:100V



PROFILE - MK03
SCALE 1:200H, 1:100V

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
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PROJECT
SHEPHERDS BAY
MEADOWBANK

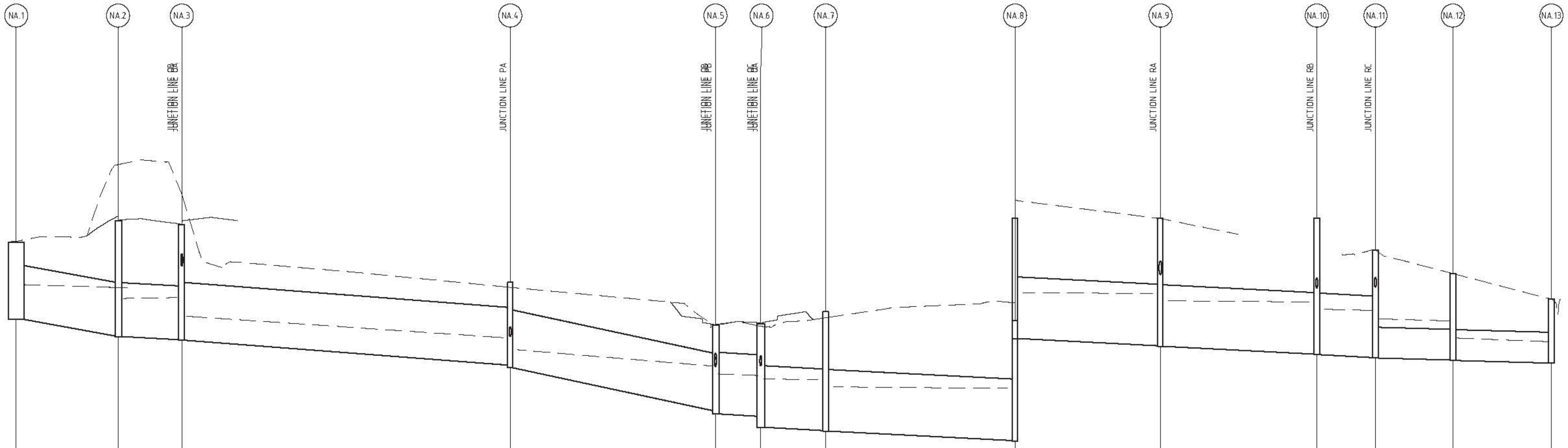
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE	
AHD	MGA	1:500	AT A1 SIZE

TITLE
INTERSECTION PLAN
CONSTITUTION ROAD/
BOWDEN STREET

PROJECT No.	DRAWING No.	REV.
S14053	C-0250	A



	NA.1–NA.2	NA.2–NA.3	NA.3–NA.4	NA.4–NA.5	NA.5–NA.6	NA.6–NA.7	NA.7–NA.8	NA.8–NA.9	NA.9–NA.10	NA.10–NA.11	NA.11–NA.12	NA.12–NA.13
PIPE DIAMETER (mm)	Φ2100	Φ2100	Φ2250	Φ2250	Φ2400	Φ2400	Φ2400	Φ2400	Φ2400	Φ2400	Φ3300x1200	Φ3300x1200
PIPE CLASS	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	Box Culverts	Box Culverts
PIPE GRADE (%)	3.26%	1%	1.51%	4.17%	1%	1%	1%	1%	1%	1%	0.5%	0.5%
PIPE LENGTH (m)	19.88m	12.45m	64.09m	40.04m	8.84m	12.66m	36.97m	28.36m	30.51m	11.44m	15.11m	19.24m
PIPE MIN COVER (m)	1.61m	2.43m	2.41m	1.1m	1.1m	1.7m	2.26m	2.3m	2.6m	1.8m	2.17m	1.29m
PIPE FLOW (L/s)	11421L/s	11371L/s	11636L/s	11692L/s	12137L/s	12332L/s	12292L/s	12320L/s	12512L/s	12591L/s	12605L/s	12599L/s
PIPE CAPACITY (L/s)												
VELOCITY (m/s)	4.82m/s	4.34m/s	7.44m/s	11.03m/s	3.91m/s	3.23m/s	3.53m/s	3.41m/s	3.49m/s	3.52m/s	3.28m/s	4.73m/s

DATUM RL (m): -7.00 (NA.1 to NA.8); -11.00 (NA.8 to NA.13)

	NA.1	NA.2	NA.3	NA.4	NA.5	NA.6	NA.7	NA.8	NA.9	NA.10	NA.11	NA.12	NA.13
DEPTH TO INVERT	3.000	4.504 / 4.524	4.485 / 4.505	3.232 / 3.338	3.329 / 3.460	3.617 / 4.050	4.635 / 4.655	4.675 / 4.695	4.979 / 4.999	5.304 / 5.324	4.202 / 4.222	3.374 / 3.394	2.486 / 2.486
H.G.L. 1 in 10 YR ARI	7.150 / 6.557	6.447 6.450 / 6.019	6.050 / 5.323	4.489 4.490 / 4.014	3.381 3.380 / 3.069	3.016 3.020 / 2.878	2.849 2.850 / 2.569	2.511 2.510 / 2.242	2.207 2.210 / 1.926	1.879 1.880 / 1.595	1.550 / 1.222	1.139 1.140 / 0.474	0.333 0.330 / 0.333
DESIGN INVERT	5.200	4.553 / 4.533	4.408 / 4.388	3.418 / 3.312	1.642 / 1.512	1.424 / 0.991	0.865 / 0.845	0.475 / 0.455	0.171 / 0.151	-0.154 / -0.174	-0.288 / -0.308	-0.384 / -0.404	-0.500 / -0.500
DESIGN SURFACE	8.200	9.057	8.893	6.650	4.972	5.041	5.500	5.150	5.150	5.150	3.913	2.990	1.986
EXISTING SURFACE	8.245	11.237	10.097	6.450	4.999	4.937	5.262	5.843	5.128	5.150	3.913	2.990	1.986
ROAD CHAINAGE													
PIPE CHAINAGE	0.000	19.880	32.325	96.420	136.461	145.303	157.962	194.929	223.294	253.803	265.245	280.350	299.591

LINE NA

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
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bgeeng.com—
BG&E

PROJECT
SHEPHERDS BAY
MEADOWBANK

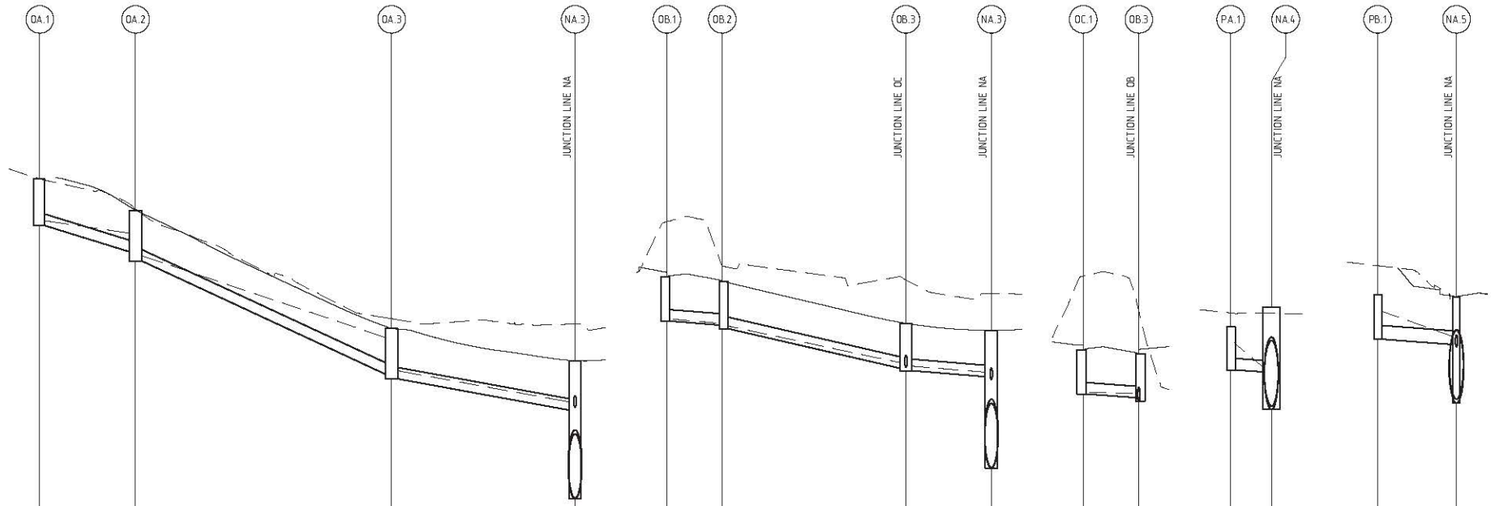
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	1:100H, 1:20V AT A1 SIZE

TITLE
STORMWATER LONGITUDINAL SECTIONS SHEET 1

PROJECT No.	DRAWING No.	REV.
S10076	C-0260	A



		LINE OA			LINE OB			LINE OC	LINE PA	LINE PB
PIPE DIAMETER (mm)		ϕ375	ϕ375	ϕ375	ϕ375	ϕ375	ϕ375	ϕ375	ϕ375	ϕ450
PIPE CLASS		RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2
PIPE GRADE (%)		5.45%	8.84%	3.4%	1.44%	4.3%	1.4%	1.34%	1%	1.35%
PIPE LENGTH (m)		15.64m	41.82m	29.96m	9.03m	30m	13.96m	9.06m	6.67m	12.88m
PIPE MIN COVER (m)		1.1m	1.1m	1.1m	1.1m	1.1m	1.1m	1.1m	1.03m	1.14m
PIPE FLOW (L/s)		178L/s	296L/s	360L/s	17L/s	53L/s	89L/s	11L/s	101L/s	294L/s
PIPE CAPACITY (L/s)										
VELOCITY (m/s)		4.21m/s	5.93m/s	4.27m/s	1.38m/s	2.83m/s	2.24m/s	1.18m/s	2.01m/s	2.95m/s
DATUM R.L (m)		-4.00			-5.00			-4.00	-8.00	-10.00
DEPTH TO INVERT		1.527	1.349 1.652	1.489 1.644	1.445	1.430 1.548	1.467 1.548	1.516 4.505	1.443	1.400 2.117	1.450	1.545 3.460
H.G.L. 1 in 10 YR ARI	13.720	13.467	13.068 13.070	12.331 9.662 9.660	9.300	9.258 9.130	9.030 7.838 7.840	7.779 7.527 6.050	5.323 7.900	7.866 7.838 7.840	7.779 5.490	4.707 4.490	4.014 3.338	4.524	3.696 3.380	3.069
DESIGN INVERT		13.314	12.461 12.158	8.460 8.305	9.194	9.064 8.945	7.655 7.573	7.378 4.388	7.813	7.691 7.573	4.600	4.533 3.312	3.600	3.426 1.512
DESIGN SURFACE	14.841		13.810	9.949	10.639	10.493	9.121	8.893	9.256	9.121	6.000	6.650	5.050	4.972
EXISTING SURFACE	14.841		13.840	10.276	12.439	10.990	10.539	10.097	11.659	10.539	6.459	6.450	6.002	4.999
ROAD CHAINAGE														
PIPE CHAINAGE	0.000		15.643	57.463	0.000	9.026	39.026	52.985	0.000	9.062	0.000	6.666	0.000	12.880

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT

HOLDMARK

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BG&E

PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

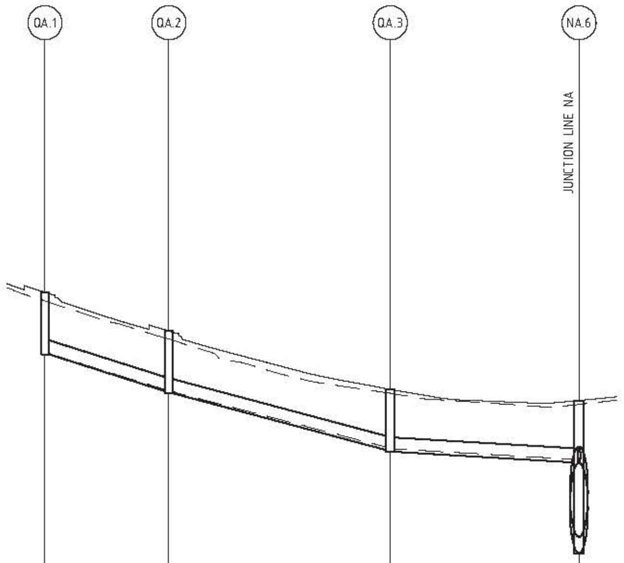
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	1:100H, 1:20V AT A1 SIZE

TITLE

STORMWATER LONGITUDINAL SECTIONS SHEET 2

PROJECT No.	DRAWING No.	REV.
S10076	C-0261	A

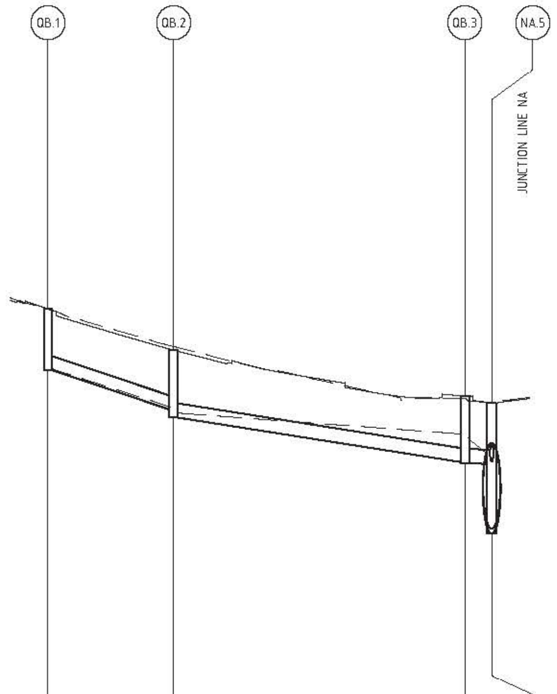


	QA.1 – QA.2	QA.2 – QA.3	QA.3 – NA.6
PIPE DIAMETER (mm)	Ø375	Ø375	Ø375
PIPE CLASS	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2
PIPE GRADE (%)	5.91%	5.12%	1.14%
PIPE LENGTH (m)	16.42m	29.3m	25m
PIPE MIN COVER (m)	1.1m	1.1m	1.1m
PIPE FLOW (L/s)	7L/s	15L/s	27L/s
PIPE CAPACITY (L/s)			
VELOCITY (m/s)	1.73m/s	2.08m/s	1.76m/s

DATUM RL (m) -9.00

	QA.1	QA.2	QA.3	NA.6
DEPTH TO INVERT	1.645	1.590 / 1.650	1.600 / 1.649	1.640 / 4.050
H.G.L. 1 in 10 YR ARI	6.330 / 6.293	5.328 / 5.330 / 5.277	3.814 / 3.810 / 3.758	3.484 / 3.020 / 2.878
DESIGN INVERT	6.264	5.293 / 5.233	3.733 / 3.685	3.400 / 0.991
DESIGN SURFACE	7.909	6.883	5.334	5.041
EXISTING SURFACE	7.680	6.670	5.237	4.937
ROAD CHAINAGE				
PIPE CHAINAGE	0.000	16.418	45.717	70.717

LINE QA

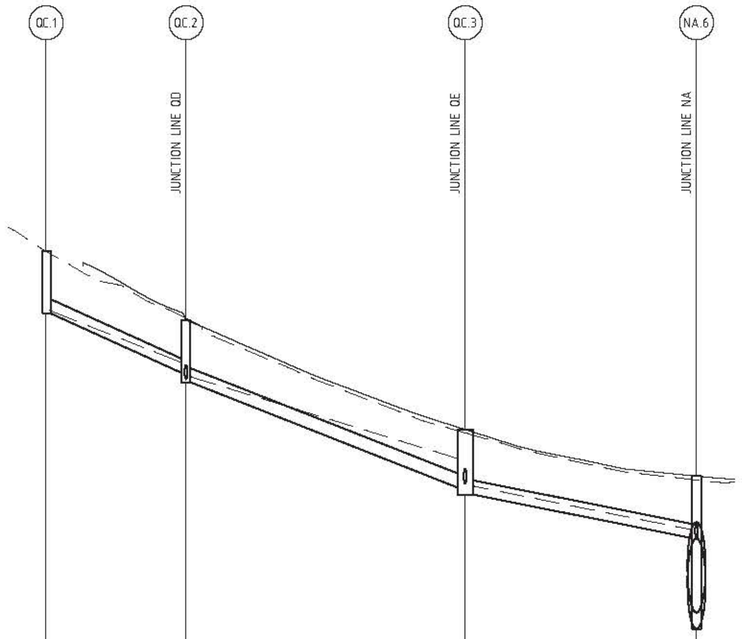


	QB.1 – QB.2	QB.2 – QB.3	QB.3 – NA.5
PIPE DIAMETER (mm)	Ø375	Ø375	Ø375
PIPE CLASS	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2
PIPE GRADE (%)	6.26%	3.06%	1%
PIPE LENGTH (m)	16.64m	38.57m	3.55m
PIPE MIN COVER (m)	1.1m	1.1m	1.26m
PIPE FLOW (L/s)	15L/s	110L/s	205L/s
PIPE CAPACITY (L/s)			
VELOCITY (m/s)	2.24m/s	3.6m/s	2.32m/s

DATUM RL (m) -9.00

	QB.1	QB.2	QB.3	NA.5
DEPTH TO INVERT	1.627	1.573 / 1.787	1.760 / 1.780	1.616 / 3.460
H.G.L. 1 in 10 YR ARI	5.940 / 5.887	4.876 / 4.880 / 4.710	4.154 / 4.150 / 4.053	3.635 / 3.380 / 3.069
DESIGN INVERT	5.845	4.803 / 4.590	3.411 / 3.391	3.355 / 1.512
DESIGN SURFACE	7.472	6.376	5.171	4.972
EXISTING SURFACE	7.455	6.472	5.090	4.999
ROAD CHAINAGE				
PIPE CHAINAGE	0.000	16.644	55.213	58.764

LINE QB



	QC.1 – QC.2	QC.2 – QC.3	QC.3 – NA.6
PIPE DIAMETER (mm)	Ø375	Ø375	Ø375
PIPE CLASS	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2
PIPE GRADE (%)	8.49%	7.54%	3.78%
PIPE LENGTH (m)	18.54m	36.98m	30.65m
PIPE MIN COVER (m)	1.19m	1.1m	1.1m
PIPE FLOW (L/s)	70L/s	213L/s	295L/s
PIPE CAPACITY (L/s)			
VELOCITY (m/s)	3.91m/s	5.12m/s	4.29m/s

DATUM RL (m) -7.00

	QC.1	QC.2	QC.3	NA.6
DEPTH TO INVERT	1.648	1.398 / 1.651	1.538 / 1.720	1.644 / 4.050
H.G.L. 1 in 10 YR ARI	9.560 / 9.432	8.052 / 8.050 / 7.674	5.508 / 5.510 / 4.778	3.621 / 3.020 / 2.878
DESIGN INVERT	9.350	7.776 / 7.523	4.736 / 4.554	3.397 / 0.991
DESIGN SURFACE	10.998	9.174	6.274	5.041
EXISTING SURFACE	10.998	9.220	6.187	4.937
ROAD CHAINAGE				
PIPE CHAINAGE	0.000	18.541	55.520	86.168

LINE QC

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT

HOLDMARK

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bgeeng.com—

PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

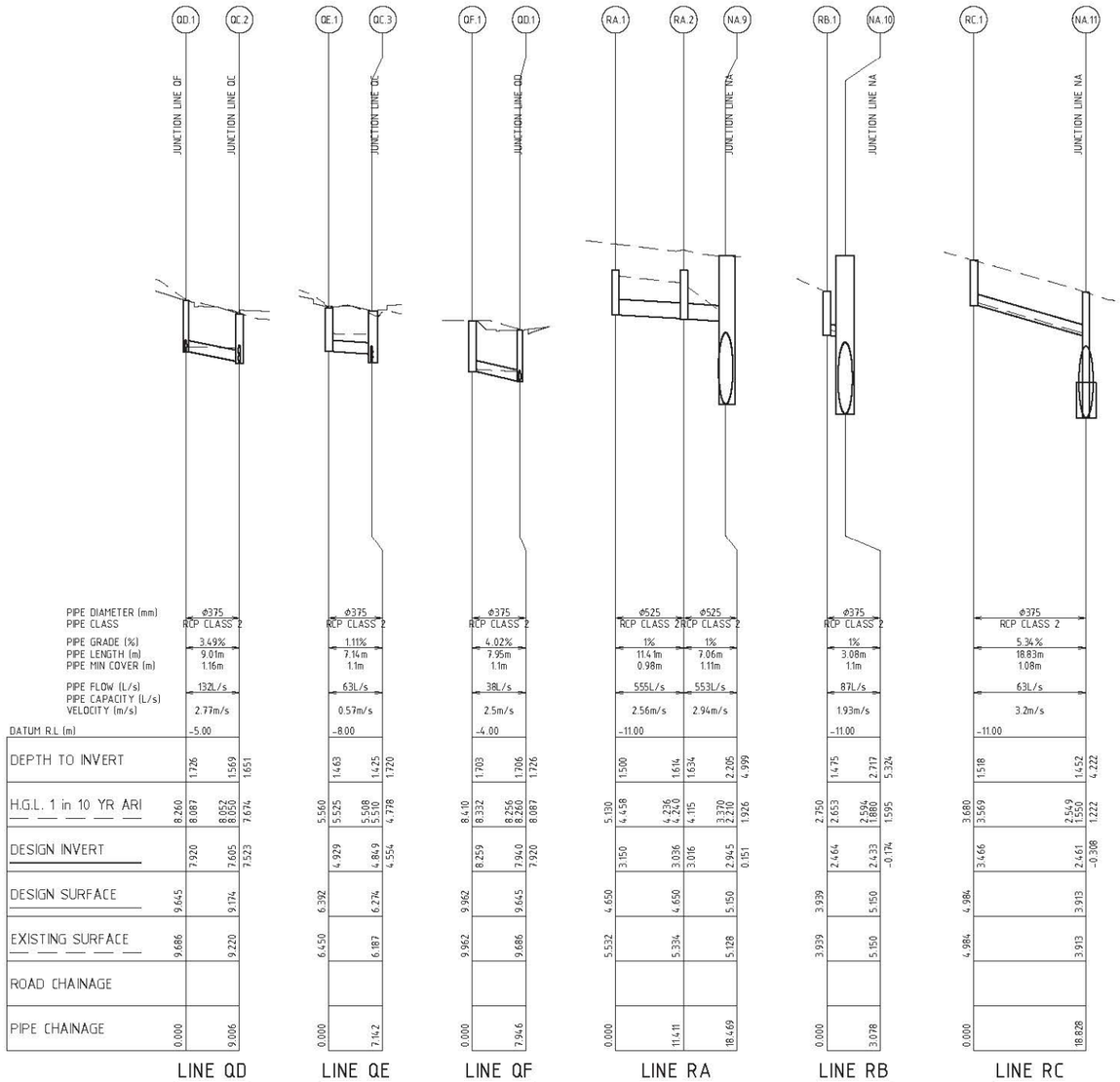
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	1:100H, 1:20V AT A1 SIZE

TITLE

STORMWATER LONGITUDINAL SECTIONS SHEET 3

PROJECT No.	DRAWING No.	REV.
S10076	C-0262	A



PIPE DIAMETER (mm)			ϕ375		ϕ375		ϕ375	ϕ525	ϕ525	ϕ375	ϕ375	
PIPE CLASS			RCP CLASS 2		RCP CLASS 2		RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	RCP CLASS 2	
PIPE GRADE (%)			3.49%		1.11%		4.02%	1%	1%	1%	5.34%	
PIPE LENGTH (m)			9.01m		7.14m		7.95m	11.41m	7.06m	3.08m	18.83m	
PIPE MIN COVER (m)			1.16m		1.1m		1.1m	0.98m	1.11m	1.1m	1.08m	
PIPE FLOW (L/s)			132L/s		63L/s		38L/s	555L/s	553L/s	87L/s	63L/s	
PIPE CAPACITY (L/s)												
VELOCITY (m/s)			2.77m/s		0.57m/s		2.5m/s	2.56m/s	2.94m/s	1.93m/s	3.2m/s	
DATUM R.L (m)			-5.00		-8.00		-4.00	-11.00		-11.00	-11.00	
DEPTH TO INVERT		1.726		1.569	1.651	1.463	1.425	1.720	1.703	1.706	1.726	1.500	1.614	1.634	2.205	4.999	1.475	2.717	5.324	1.518	1.452	4.222
H.G.L. 1 in 10 YR ARI	8.260	8.087	8.052	8.050	7.674	5.560	5.525	5.508	5.510	4.778	8.410	8.332	8.256	8.260	8.087	5.130	4.458	4.236	4.240	4.115	3.370	2.210	1.926	2.750	2.653	2.584	1.560	1.595	3.680	3.569	2.549	1.555	1.222
DESIGN INVERT		7.920		7.605	7.523		4.929		4.849	4.554		8.259		7.940	7.920		3.150		3.036	3.016		2.945	0.151		2.464		2.433	-0.174		3.466		2.461	-0.308
DESIGN SURFACE	9.645		9.174			6.392		6.274			9.962		9.645			4.650		4.650		5.150				3.939		5.150			3.913			
EXISTING SURFACE	9.686		9.220			6.450		6.187			9.962		9.686			5.532		5.334		5.128				3.939		5.150			3.913			
ROAD CHAINAGE																																	
PIPE CHAINAGE	0.000		9.006			0.000		7.142			0.000		7.946			0.000		11.411		18.469				0.000		3.078			0.000			18.828		

LINE QD LINE QE LINE QF LINE RA LINE RB LINE RC

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
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E/info@bgeeng.com
bgeeng.com—

PROJECT
SHEPHERDS BAY
MEADOWBANK

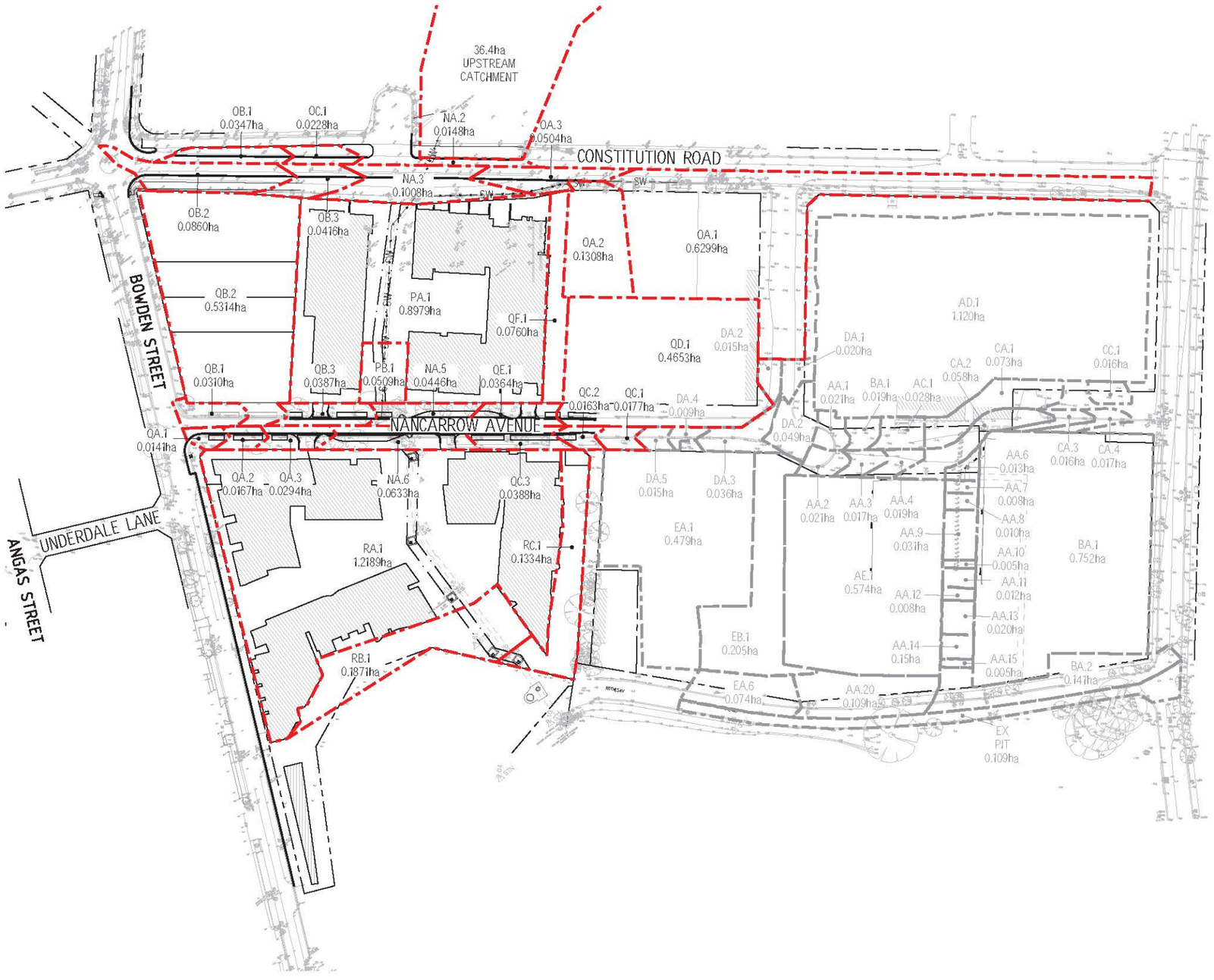
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	1:100H, 1:20V AT A1 SIZE

TITLE
STORMWATER LONGITUDINAL SECTIONS SHEET 4

PROJECT No.	DRAWING No.	REV.
S10076	C-0263	A



REV.	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

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PROJECT
SHEPHERDS BAY
MEADOWBANK

STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	AT A1 SIZE

TITLE
CATCHMENT PLAN

PROJECT No.	DRAWING No.	REV.
S10076	C-0265	A

PIT / NODE DETAILS				Version 8			
Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
NA.1	7.7900	9.0300	11.4550	0.6000	0.4100	0.0000	Inlet Capacity
NA.2	6.8600		0.0090		2.2000	0.0000	None
NA.3	6.2700	9.0400	0.0920	5.3000	2.6200	0.0000	Inlet Capacity
NA.4	4.7800		0.0000		1.8700	0.0000	None
NA.5	4.2800	5.0700	0.2400	1.7000	0.6900	0.1420	Inlet Capacity
NA.6	3.9100	5.1800	0.1710	2.1000	1.1300	0.0000	Inlet Capacity
NA.7	3.6800		0.0000		1.8200	0.0000	None
NA.8	3.2500		0.0000		1.9000	0.0000	None
NA.9	2.8500		0.0000		2.3000	0.0000	None
NA.10	2.4200		0.0000		1.1800	0.0000	None
NA.11	2.0100		0.0000		1.9000	0.0000	None
NA.12	1.3700		0.0000		1.6200		None
NA.13	0.4700		0.0000				
OA.1	13.8700		0.3680		0.9700	0.1800	Inlet Capacity
OA.2	12.8100		0.2560		1.0000	0.0960	Inlet Capacity
OA.3	8.9200		0.1230		1.0300	0.0400	Inlet Capacity
OB.1	9.3100		0.0200		1.3300	0.0000	None
OB.2	9.1400		0.0500		1.3500	0.0100	Inlet Capacity
OB.3	7.7900		0.0330		1.3300	0.0000	None
OC.1	7.9100		0.0130		1.3500	0.0000	None
QA.1	6.3300	7.9300	0.0080	0.1000	1.5800	0.0000	Inlet Capacity
QA.2	5.3400	6.9000	0.0100	0.1000	1.5500	0.0000	Inlet Capacity
QA.3	3.9400		0.0170		1.4000	0.0040	Inlet Capacity
QB.1	5.9500	7.5000	0.0180	0.2000	1.5200	0.0000	Inlet Capacity
QB.2	4.8800	6.4800	0.3080	0.9000	1.4900	0.2130	Inlet Capacity
QB.3	4.7000	5.2700	0.2350	0.9000	0.4800	0.1370	Inlet Capacity
QE.1	5.8000		0.1630		0.5900	0.0830	Inlet Capacity
QC.3	5.7200		0.0260		0.5500	0.0000	None
RA.1	4.8000	5.1800	0.6780	21.5000	0.1000	0.0000	Inlet Capacity
RB.1	2.7800	4.0200	0.1030	0.4000	1.1600	0.0000	Inlet Capacity
RC.1	3.8000		0.0740		1.1800	0.0000	None
QF.1	8.4400		0.0440		1.5000	0.0000	None
QD.1	8.4100	9.8500	0.2370	0.9000	1.3500	0.1420	Inlet Capacity
QC.2	8.1400		0.0190		1.0400	0.0040	Inlet Capacity

SUB-CATCHMENT DETAILS							
Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C NA.2	0.0090	0.0080	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C NA.3	0.0580	0.0540	0.0040	5.2400	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C NA.5	0.0250	0.0230	0.0020	5.2900	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C NA.6	0.0360	0.0340	0.0030	5.2300	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OA.1	0.3680	0.3430	0.0260	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OA.2	0.0760	0.0710	0.0050	5.0900	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OA.3	0.0290	0.0270	0.0020	5.2100	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OB.1	0.0200	0.0190	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OB.2	0.0500	0.0470	0.0030	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OB.3	0.0240	0.0220	0.0020	5.2100	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OC.1	0.0130	0.0120	0.0010	5.2100	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QA.1	0.0080	0.0080	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QA.2	0.0100	0.0090	0.0010	5.1000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QA.3	0.0170	0.0160	0.0010	5.1900	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QB.1	0.0180	0.0170	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QB.2	0.3080	0.2860	0.0220	5.1000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QB.3	0.0220	0.0200	0.0020	5.3300	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C QE.1	0.0210	0.0190	0.0010	5.2000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QC.3	0.0220	0.0210	0.0020	5.2000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C RA.1	0.6780	0.5420	0.1360	5.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C RB.1	0.1030	0.0820	0.0210	5.3500	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C RC.1	0.0740	0.0590	0.0150	5.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C QF.1	0.0440	0.0410	0.0030	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QD.1	0.2370	0.2160	0.0210	10.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C QC.2	0.0090	0.0090	0.0010	5.0900	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C PA.1	0.4480	0.3480	0.1000	10.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C PB.1	0.0290	0.0080	0.0210	5.0000	5.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1

PIPE DETAILS					
Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P NA.1	13.9080	4.4700	6.9690	6.8600	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.2	13.9140	4.2800	6.5950	6.2740	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.3	14.2580	7.6900	5.4530	4.7760	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.4	14.3430	7.1900	4.3890	4.2830	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.5	14.8650	3.2900	3.9530	3.9060	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.6	15.1660	3.3500	3.7340	3.6790	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.7	15.1780	3.3600	3.5730	3.2530	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.8	15.1740	3.3500	3.1800	2.8460	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.9	15.5160	3.4300	2.7930	2.4200	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.10	15.5800	3.5500	2.0590	2.0100	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.11	15.6020	4.0600	1.5040	1.3740	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.12	15.5920	5.0400	0.6070	0.4670	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P OA.1	0.2050	3.9500	13.5450	12.8120	AR&R 100 year, 15 minutes storm, average 154 mm/h, Zone 1
P OA.2	0.3320	6.1100	12.3430	8.9180	AR&R 100 year, 15 minutes storm, average 154 mm/h, Zone 1
P OA.3	0.4030	4.3000	8.7820	7.6180	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P OB.1	0.0200	1.4300	9.2630	9.1440	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P OB.2	0.0610	2.9400	9.0360	7.7950	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P OB.3	0.1040	2.2800	7.7350	7.5400	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1

PIPE DETAILS					
Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P OC.1	0.0130	1.2300	7.8700	7.7950	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QA.1	0.0080	1.8100	6.2960	5.3360	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QA.2	0.0180	2.1800	5.2810	3.9370	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QA.3	0.0310	0.3900	3.9350	3.9060	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QB.1	0.0180	2.3500	5.8910	4.8850	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QB.2	0.1130	3.4500	4.7160	4.6960	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QB.3	0.2080	1.8800	4.4080	4.2830	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QE.1	0.0780	0.7000	5.7480	5.7230	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QC.3	0.3320	4.4000	4.7970	3.9060	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P RA.1	0.6570	3.0900	4.2850	3.5640	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P RB.1	0.1020	2.0100	2.6530	2.6090	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P RC.1	0.1600	7.3200	3.5610	2.0100	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QF.1	0.0440	0.6900	8.4070	8.4050	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QD.1	0.1390	3.9400	8.2140	8.1360	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QC.2	0.2330	5.2500	7.6810	5.7230	AR&R 100 year, 15 minutes storm, average 154 mm/h, Zone 1
P PA.1	0.1300	1.6300	5.4890	4.7760	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P PB.1	0.3390	2.1300	5.1080	4.2830	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
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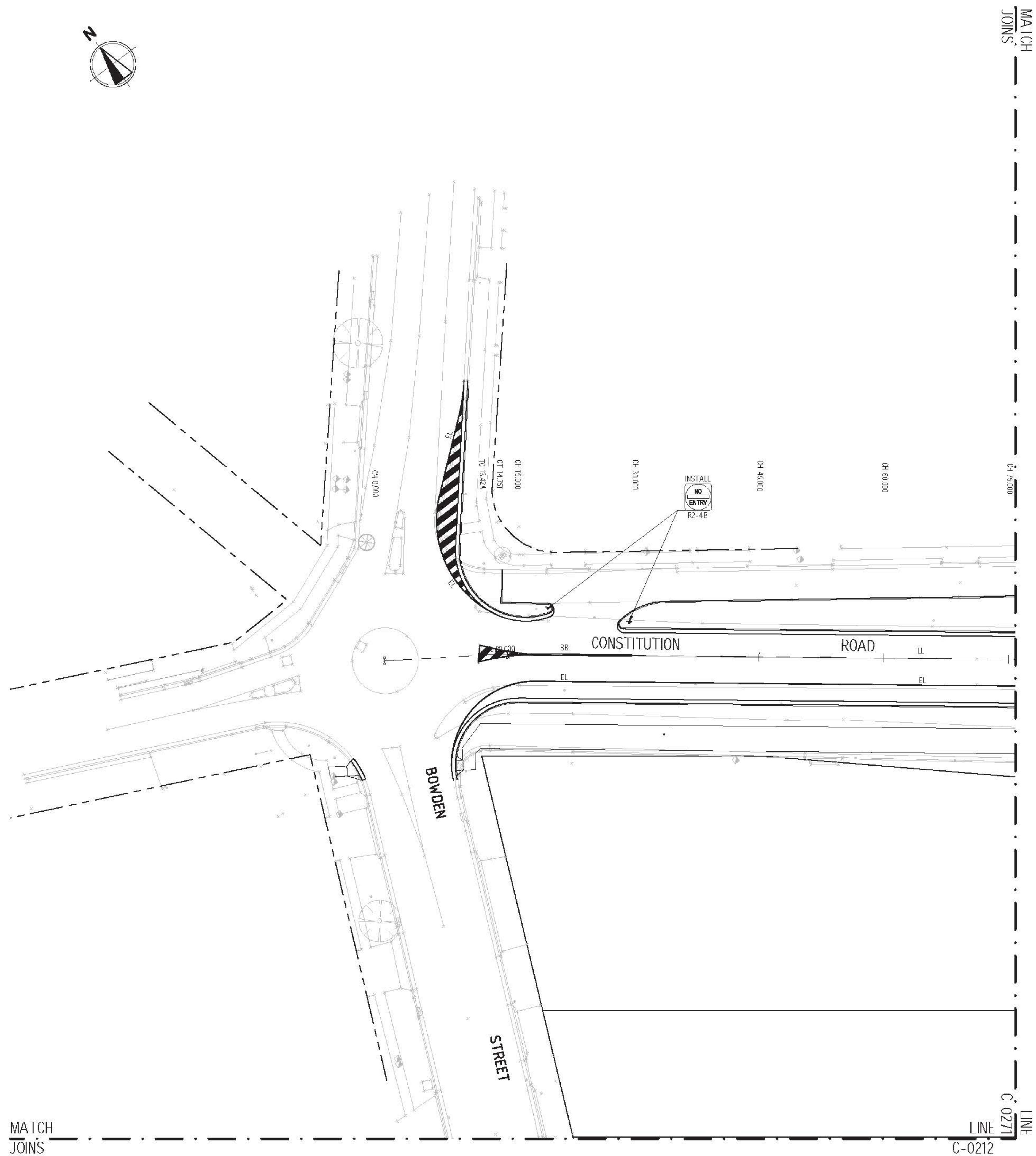
PROJECT
SHEPHERDS BAY
MEADOWBANK

STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN TB | DESIGNED NK | CHECKED | APPROVED
DATUM AHD | GRID MGA | SCALE | AT A1 SIZE

TITLE
STORMWATER CALCULATIONS TABLE

PROJECT No S10076 | DRAWING No C-0266 | REV. A



LEGEND

Code	Description
ULL	LANE LINES - 100mm WIDE UNBROKEN
LL (3.0m, 9.0m)	LANE LINES - 100mm WIDE BROKEN
GWL (0.6m, 0.6m, 0.6m)	GIVE WAY LINES - 200mm WIDE BROKEN 600mm/600mm
BB (0.08m, 0.08m)	DOUBLE TWO WAY BARRIER LINE
EL (0.12m)	EDGE LINE

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

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PROJECT
SHEPHERDS BAY
MEADOWBANK

STATUS
PRELIMINARY ONLY
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DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	1:250 AT A1 SIZE

TITLE
SIGNAGE AND LINEMARKING PLAN SHEET 1

PROJECT No	DRAWING No	REV
S10076	C-0270	A

MATCH JOINS

N

CH 90.000

INSTALL NO THROUGH ROAD G5-10

CH 105.000

CH 120.000

CH 135.000

CH 141.621

CH 150.000

CH 165.000

CH 180.000

CH 195.000

CH 210.000

INSTALL GIVE WAY R1-2B

GWL

LL

CONSTITUTION ROAD

EL

EL

C-0270 LINE MATCH JOINS

C-0213 LINE

LEGEND

ULL — LANE LINES - 100mm WIDE UNBROKEN

3.0m 9.0m LL — LANE LINES - 100mm WIDE BROKEN

GWL — GIVE WAY LINES - 200mm WIDE BROKEN 600mm/600mm

0.6m 0.6m 0.6m

0.08m 0.08m 0.08m BB — DOUBLE TWO WAY BARRIER LINE

0.12m EL — EDGE LINE

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

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PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

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DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

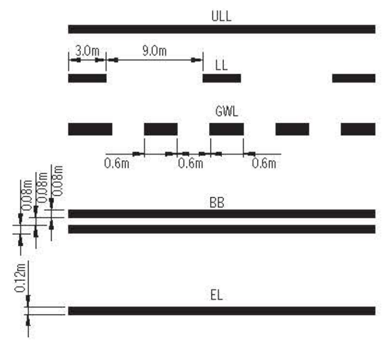
DATUM	GRID	SCALE	
AHD	MGA	1:250	AT A1 SIZE

TITLE

SIGNAGE AND LINEMARKING PLAN SHEET 2

PROJECT No.	DRAWING No.	REV.
S10076	C-0271	A

LEGEND



LANE LINES - 100mm WIDE UNBROKEN

LANE LINES - 100mm WIDE BROKEN

GIVE WAY LINES - 200mm WIDE BROKEN 600mm/600mm

DOUBLE TWO WAY BARRIER LINE

EDGE LINE

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

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PROJECT

SHEPHERDS BAY
MEADOWBANK

STATUS

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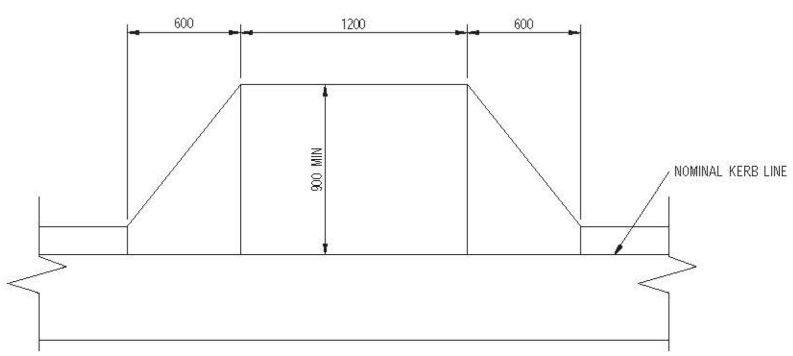
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE
AHD	MGA	1:250 AT A1 SIZE

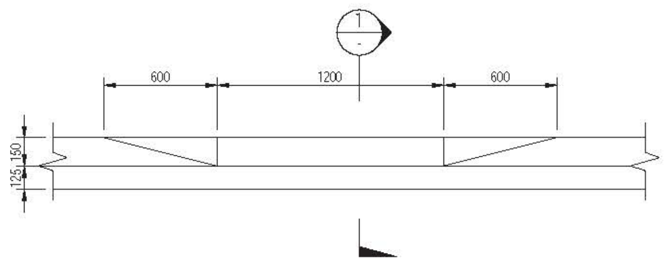
TITLE

SIGNAGE AND LINEMARKING
PLAN SHEET 3

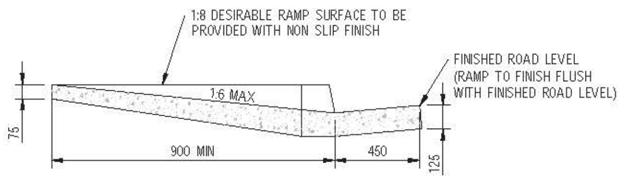
PROJECT No	DRAWING No	REV.
S10076	C-0272	A



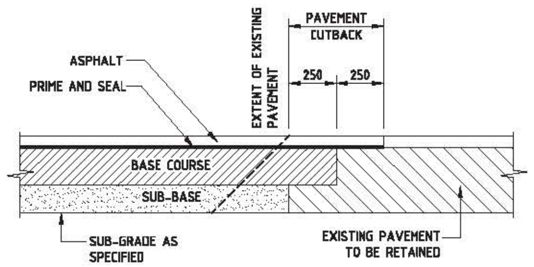
PLAN - KERB RAMP
SCALE 1:20



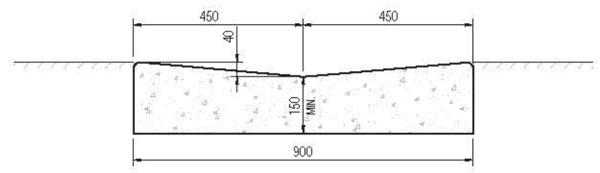
ELEVATION
SCALE 1:20



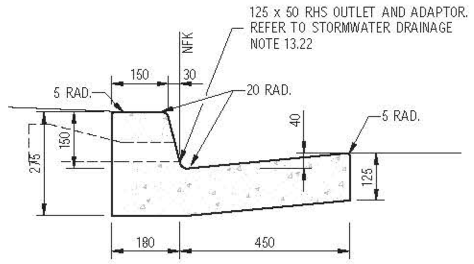
SECTION 1
SCALE 1:10



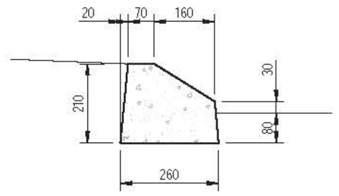
BLEND TO EXISTING PAVEMENT DETAIL
SCALE 1:20



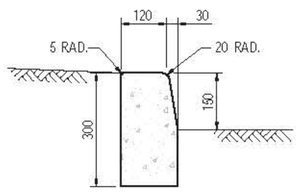
DISH DRAIN (DD)
SCALE 1:10



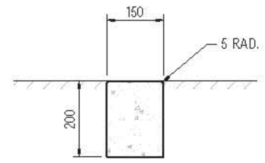
KERB AND GUTTER (K&G)
SCALE 1:10



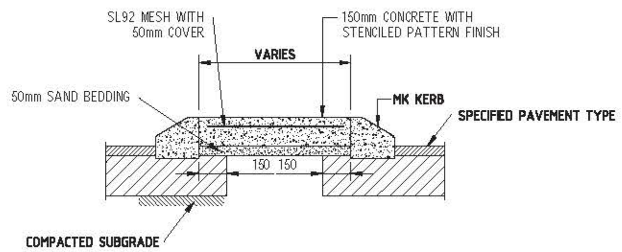
MOUNTABLE KERB (MK)
SCALE 1:10



KERB ONLY (KO)
SCALE 1:10



EDGE STRIP (ES)
SCALE 1:10



SECTION THROUGH MOUNTABLE ISLAND
SCALE 1:20

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

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BG&E

PROJECT
SHEPHERDS BAY
MEADOWBANK

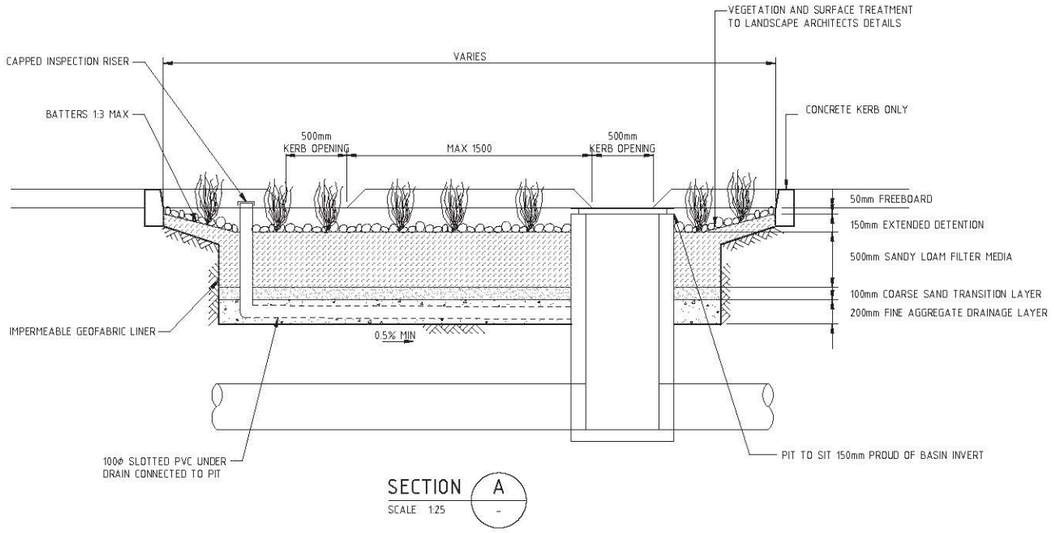
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

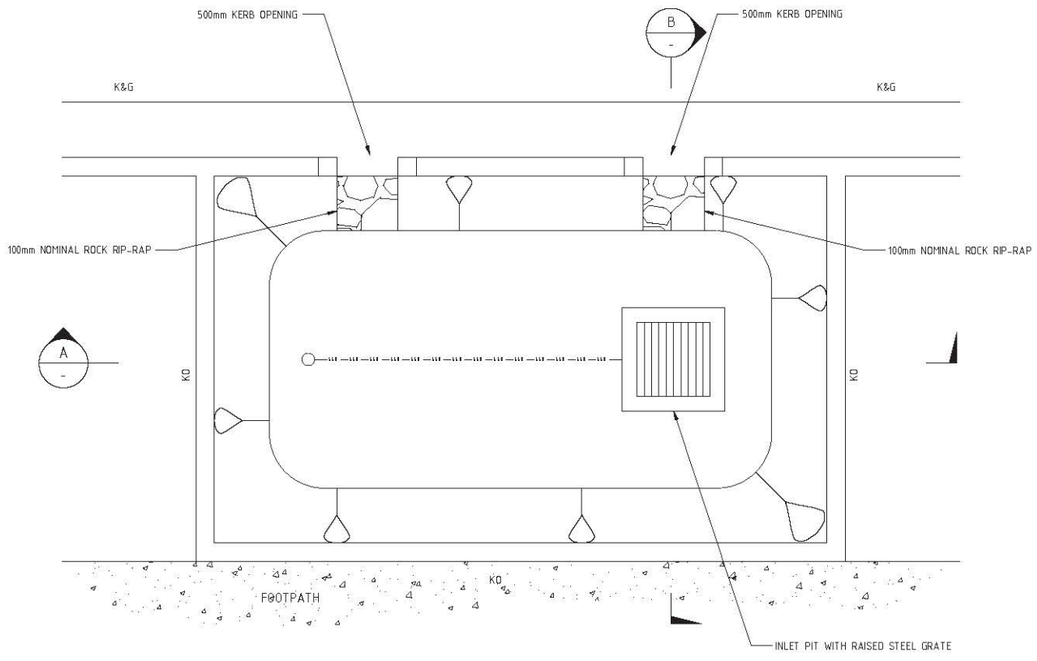
DATUM	GRID	SCALE	
AHD	MGA	1:10 1:20	AT A1 SIZE

TITLE
DETAILS SHEET 1

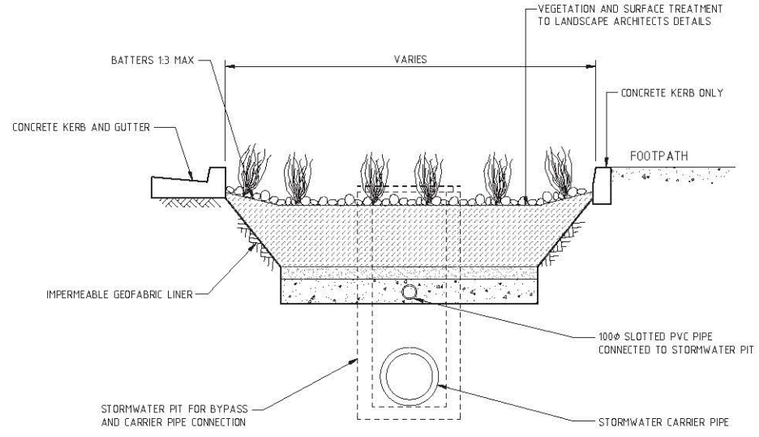
PROJECT No.	DRAWING No.	REV.
S10076	C-0280	A



SECTION A
SCALE 1:25



ROAD SIDE BIO-RETENTION
SCALE 1:25



SECTION B
SCALE 1:25

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

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PROJECT
SHEPHERDS BAY
MEADOWBANK

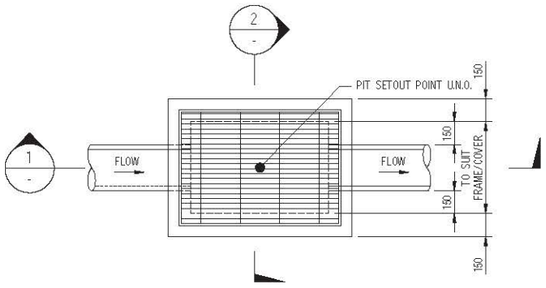
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

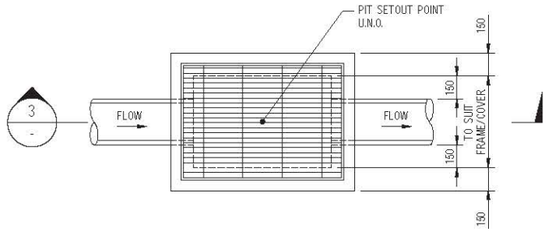
DATUM	GRID	SCALE
AHD	MGA	1:10 1:20 AT A1 SIZE

TITLE
DETAILS SHEET 2

PROJECT No.	DRAWING No.	REV.
S10076	C-0281	A



PLAN



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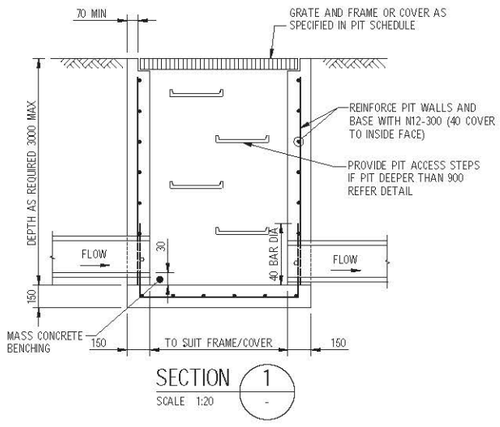
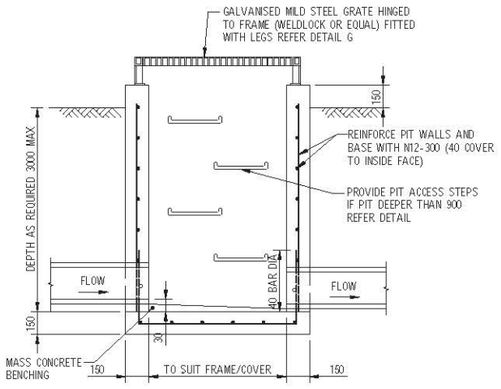
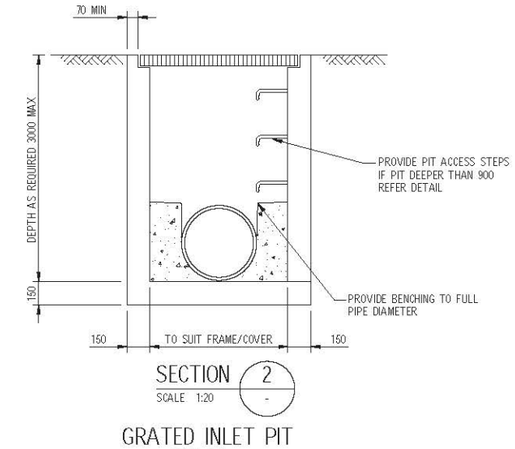


SECTION 1
SCALE 1:20



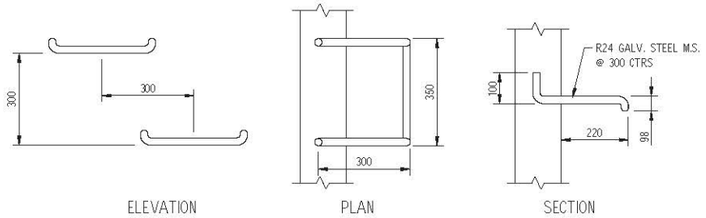
SECTION 3
SCALE 1:20

GRATED PIT WITH RAISED
STEEL GRATE DETAIL
SCALE: 1:20



SECTION 2
SCALE 1:20

GRATED INLET PIT
SCALE: 1:20



ELEVATION PLAN SECTION

TYPICAL STEP IRON DETAILS
N.T.S.

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

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PROJECT
SHEPHERDS BAY
MEADOWBANK

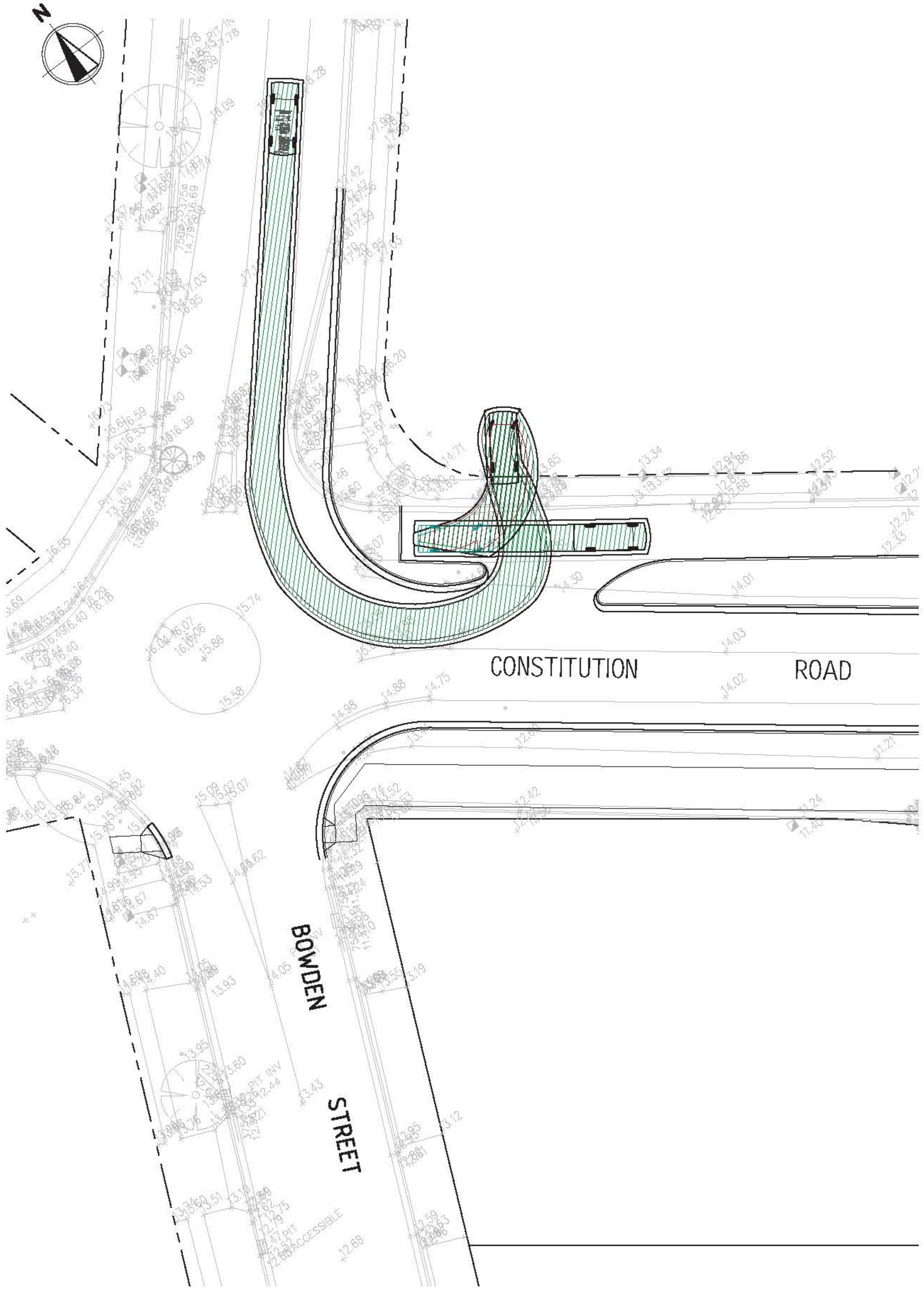
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

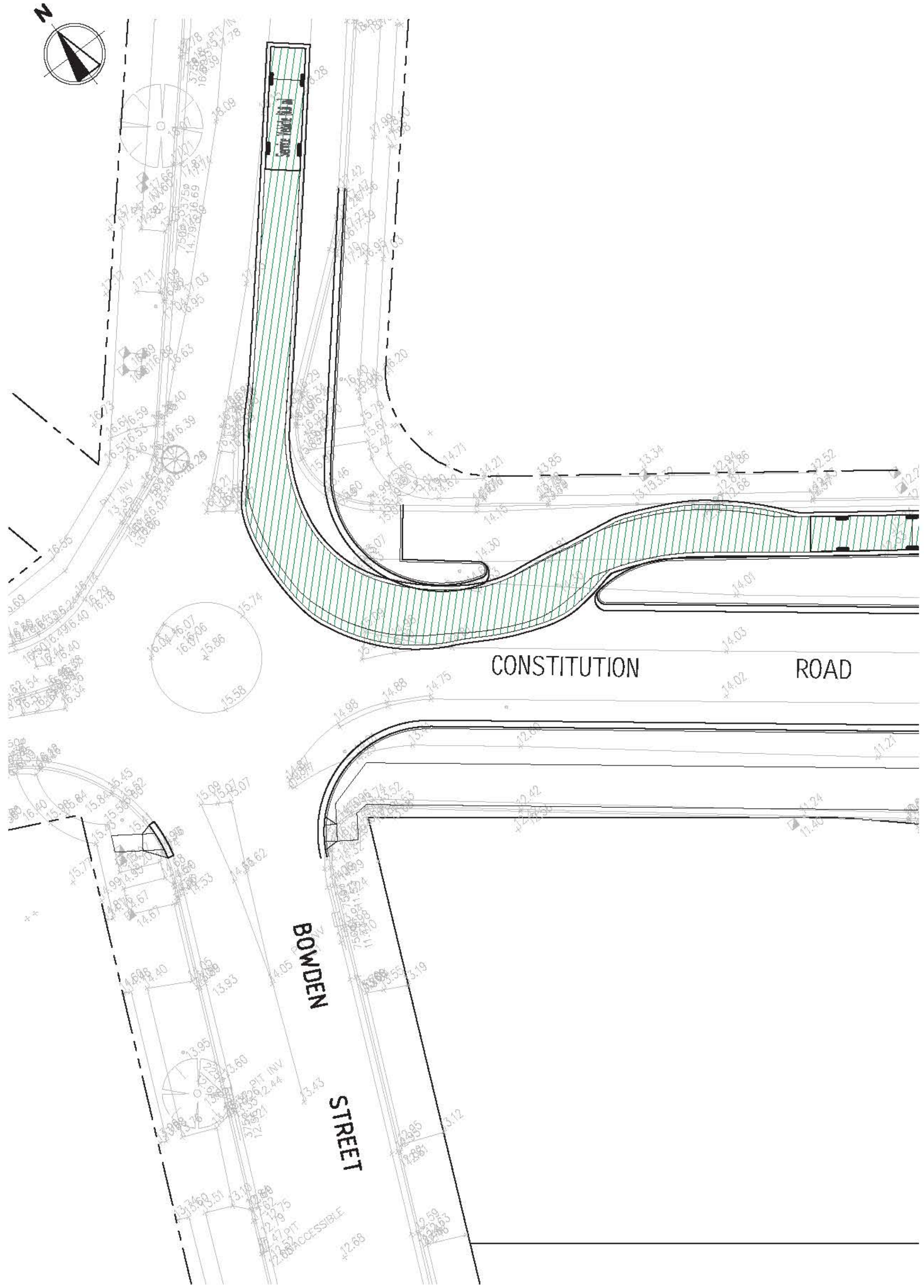
DATUM	GRID	SCALE	
AHD	MGA	1:10 1:20	AT A1 SIZE

TITLE
DETAILS SHEET 3

PROJECT No.	DRAWING No.	REV.
S10076	C-0282	A

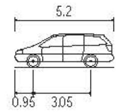


PLAN - PASSENGER VEHICLE (5.2m)
SCALE 1:200

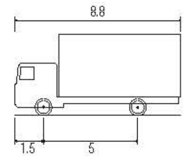


PLAN - SERVICE VEHICLE (8.8m)
SCALE 1:200

LEGEND



Passenger vehicle (5.2 m)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.804m
Min Body Ground Clearance	0.295m
Track Width	1.840m
Lock to Lock Time	4.00s
Curb to Curb Turning Radius	6.300m



Service Vehicle (8.8 m)	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock to Lock Time	4.00s
Curb to Curb Turning Radius	12.500m

REV	DATE	DESCRIPTION	RVD
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MEADOWBANK

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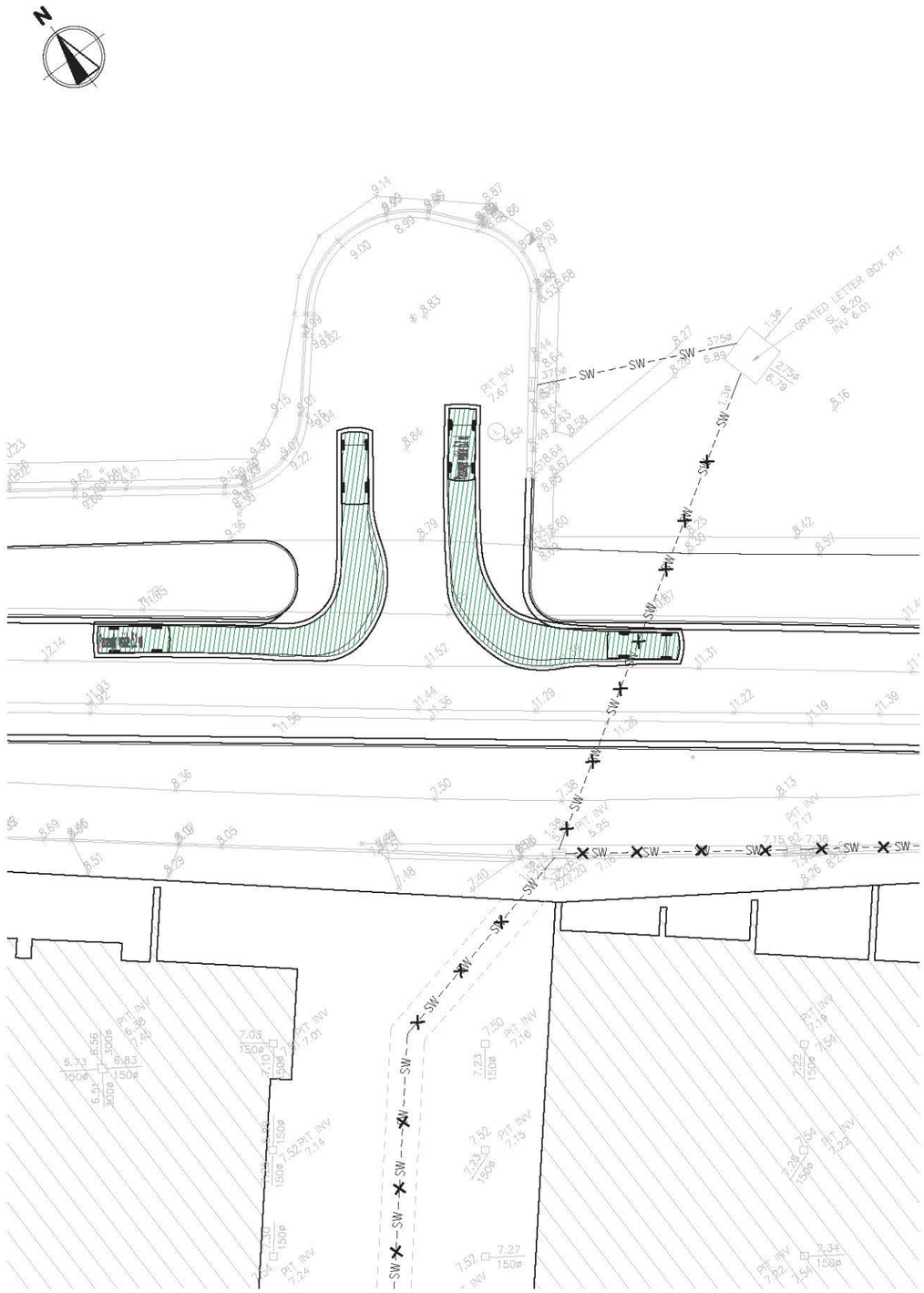
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

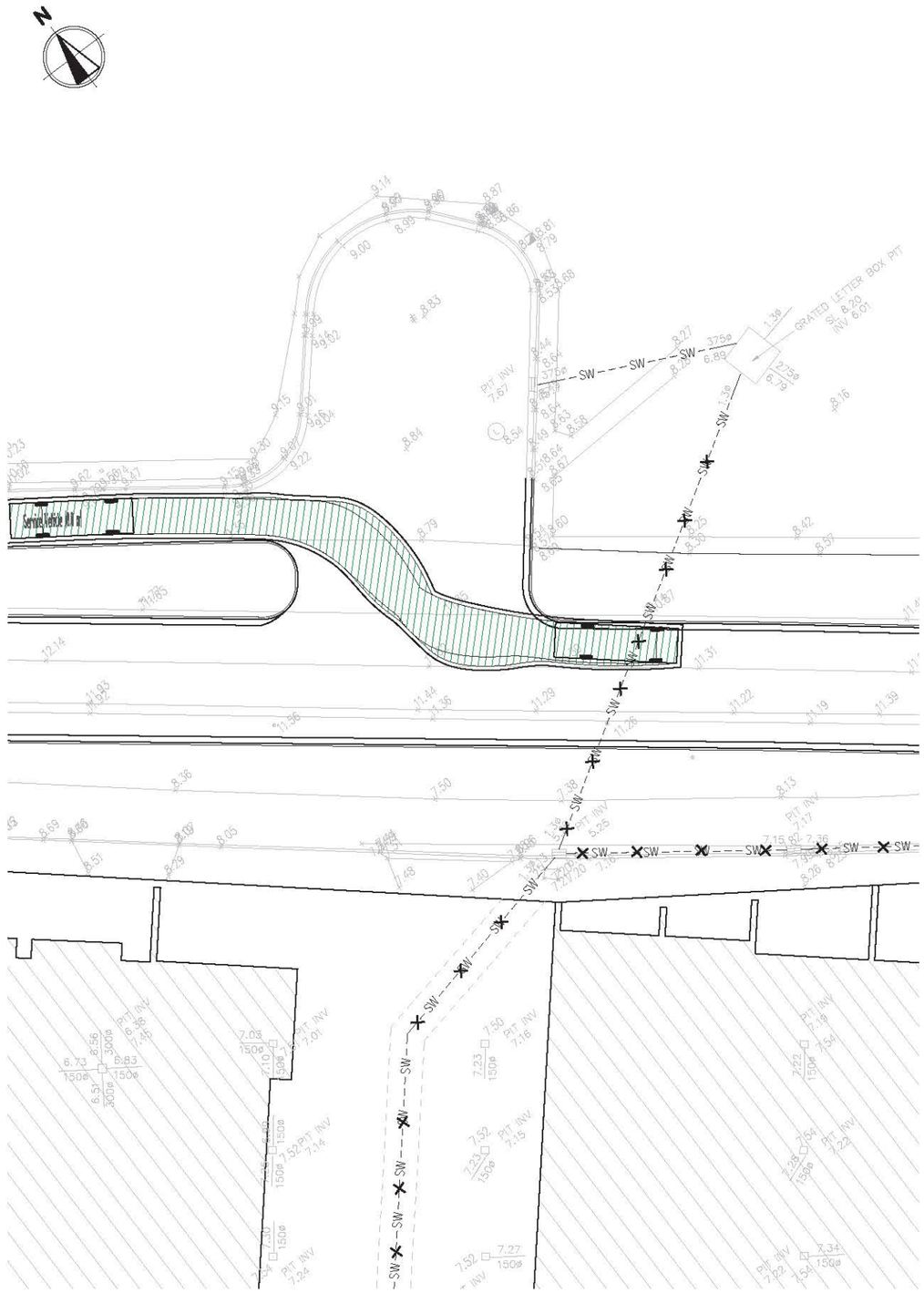
DATUM	GRID	SCALE
AHD	MGA	1:250 AT A1 SIZE

TITLE
TURNING PATH PLAN
SHEET 1

PROJECT No.	DRAWING No.	REV.
S10076	C-0290	A

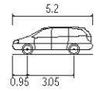


PLAN - PASSENGER VEHICLE (5.2m)
SCALE 1:200



PLAN - SERVICE VEHICLE (8.8m)
SCALE 1:200

LEGEND



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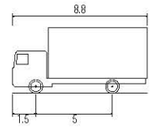
Track Width	1.840m
Lock to Lock Time	4.00s
Curb to Curb Turning Radius	6.300m



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Min Body Ground Clearance	0.427m
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TITLE
TURNING PATH PLAN
SHEET 2

PROJECT No.	DRAWING No.	REV.
S10076	C-0291	A

MEADOWBANK, SHEPHERDS BAY Stages 6-7

detailed landscape + public domain plan

Development Assessment Submission
Project Ref: HOL07

19 December 2014
Issue [C]

place
design
group.

DOCUMENT REGISTER

Document Name	For	Date	Issue
Meadowbank Stages 6-7 Detailed Landscape + Public Domain Plan	Development Assessment Submission	17.12.2014	A
Meadowbank Stages 6-7 Detailed Landscape + Public Domain Plan	Development Assessment Submission	18.12.2014	B
Meadowbank Stages 6-7 Detailed Landscape + Public Domain Plan	Development Assessment Submission	18.12.2014	C

Contents

Wider Context Plan NTS

Meadowbank, Shepherds Bay
Site and Stage Context Plan NTS

INTRODUCTION

"The project represents an opportunity to bring about positive change in current residential design trends by celebrating and bringing to life both the natural landscape and rich cultural history of the site in the landscape of the new development"

This document outlines the proposed Landscape Design Concept (DA) that fulfils the conditions of and guidelines set in the Major Project.

Concept Plan Application for the Shepherds Bay residential development.

The project represents an opportunity to bring about positive change in current residential design trends by celebrating and bringing to life both the natural landscape and rich cultural history of the site in the landscape of the new development. It will also ensure that the Shepherds Bay site Landscape Design meets both the Proponents vision for the site and Council's planning objectives, long term objectives and area specific Public Domain Manual,

The landscape design provides solutions that reflect the image and character of the Shepherds Bay Site as a fully integrated residential / parkland environment reflecting both the history and culture of the site.

Water usage, recycling and movement are a key part of this history and will be reflected throughout the landscape design. The landscape design will draw upon a rich and varied site history:- the aim to enhance and create a culturally significant landscape setting that transcends past and present. In this way the landscape will serve to educate visitors and residents whilst enhancing the sense of place and creating a unique identity for Shepherds Bay.

The enjoyable and safe interaction between visitor, resident and the Water Sensitive Urban Design initiatives used through out the development will be a key area of focus in the landscape. The retention of significant existing vegetation where possible will be combined with an innovative site wide planting strategy. Structured planting using a combined native and exotic plant palette is proposed.

The creation of view corridors to the river precinct is seen as an integral component to the landscape and urban design philosophy. There will be an increase in biodiveristy through street trees, integrated WSUD and planting to both public and private areas
The landscape design philosophy recognises the current trends in the new home owners demographic. It is accepted that there will be a strong trend of responding to an increased community expectation of a range of active and passive recreational uses. Pedestrian and cycle movement will also be addressed to the wider landscape and surrounding communities including legible connections and cycle locking facilities. This will be in accordance with the control documents and approvals to date.

A vibrant central 3000m2 contiguous open space plaza at the core of the development on the waterfront will be for passive & active recreation multi-use and adaptable for residents and public use. It is intended that this space become a place of celebration for community events, meeting people and taking advantage of the river views. A cafe integrated into the built form at this location will ensure activation so the development reaches capacity.

A Holistic approach to the landscape design combined with the careful interaction of landscape & architectural elements across the site will result in a 'big picture' design creating and reinforcing the local identity, character and sense of place.

A sensitive and appropriate standard of landscape design is to be applied to the Shepherds Bay development so that the practical, aesthetic and social needs of the residents and community are realised. Detailed design of all public domain areas are to be based on the CPTED principles for safety and security. The concept plan designs are indicative and intended as a guide to future detailed designs.

DEVELOPMENT CONTROL CONDITIONS

LANDSCAPE / PUBLIC DOMAIN RELATED

The following development control conditions have been applied to the landscape design.

1(c). Provide a public domain plan which illustrates the proposed public domain treatment including streets and setback areas, landscaping, lighting and public and communal open spaces and which is in accordance with Ryde City Council's Public Domain Technical Manual

B1(e). Provide an integrated water sensitive urban design (WSUD) strategy for the entire site.

B1(f). Include a pedestrian and cycleways plan that demonstrates that the proposed routes are both viable and integrated with Council's plans for the surrounding area.

11. Landscaping: Future DAs shall include detailed landscape plans for public and private open space areas, street setbacks areas and for the landscape treatment of all adjoining public domain areas and road reserves in accordance with the approved Public Domain Plan.

12. Public Domain: Future DAs shall provide the detailed design for the upgrade of all road reserves adjacent to the development to the centre line of the carriageway, including landscaping, street trees, accessible pedestrian pathways, street lighting, cycle ways on Constitution Road and Nancarrow Avenue, and any other necessary infrastructure in accordance with the approved Public Domain Plan. Where the detailed design necessitates an increase in the width of the road reserve, building setbacks are to be increased to retain the approved setback to the road reserve alignment. The road reserve works are to be completed by the proponent prior to occupation of each stage.

15. Open Space/Public Access: Future DAs shall include detailed landscape plans for the embellishment of publicly accessible open space areas. These areas shall include high quality landscaping and paved areas and a variety of recreation facilities which may include BBQs, seating, water features, grassed areas, paths, shade trees, bicycle racks and exercise equipment/games.

16. Open Space/Public Access: Future DAs shall include detailed landscape plans which demonstrate accessible paths of travel for all persons for at least two of the northsouth routes between Constitution Road and the Foreshore with one of the routes including the Lower Riparian linear park and a second path either along the Central Spine or the public pathway associated with Stage One.

Landscape plans will also include the detailed design of at least 1 north-south cycle path linking Constitution Road through the site to the existing foreshore cycleway.

17. Open Space/Public Access: Future DAs shall clearly set an appropriate legal mechanism for creating rights of public access to all publicly accessible areas of open space, drainage reserves and through site links, with the relevant instrument/s to be executed prior to the issue of the occupation certificate.

9.6. New Pedestrian Spine 2 (North) Publicly Accessible Open Space (Development Stage 6): This new publicly accessible open space will be delivered as part of Indicative Development Stage 6.

This through site and pedestrian connection is intended to be simple in design and character allowing ease of movement through space. The recommended main water body at the southern edge of the publicly accessible open space acts as an elevated focal point in the Concept Plan site and assists in the creation of a sense of place and provides a connection to the foreshore to the south.

Landscape Design Principles:

- Performs as formal linear open space in addition to its role as a pedestrian link
- Incorporates formal avenue tree planting as a way of screening the adjoining existing building
- Includes clear sight lines through the open space to maximise pedestrian safety
- Includes large reflection pond/water body

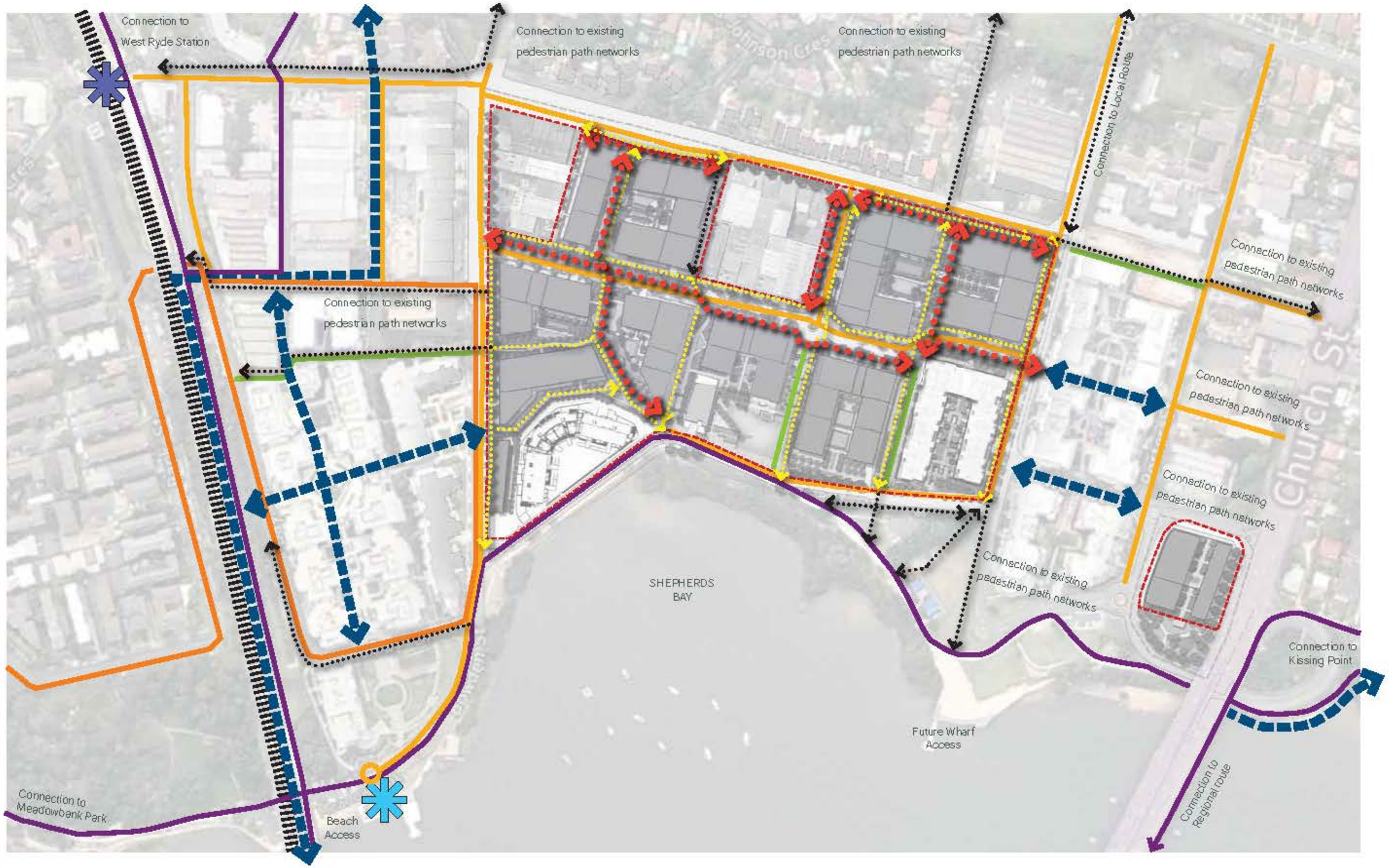
9.7. New Upper Riparian Foreshore Link Publicly Accessible Open Space (Development Stages 6 & 7): This new publicly accessible open space will be delivered as part of Indicative Development Stages 6 & 7 This new publicly accessible open space is located between Constitution Rd and Nancarrow Ave in a natural overland flow path and includes part of Council's main stormwater easement for the area.

The intent of this publicly accessible open space is to create a natural landscape with meandering 'riparian' gardens and water features. Natural water features will be designed to account for seasonal fluctuations in water volumes. Swathes of native grass and shrubs will provide interest along the pedestrian pathways which traverse this open space. It is intended that water features abut some of the buildings to accentuate the architecture within a riparian environment. Open lawns and shade trees provide space for residents and visitors to stay and enjoy the peaceful surrounds.

Landscape Design Principles:
- The provision of an easy, safe and enjoyable pedestrian connection with peaceful places to stop and relax
- Optimise ecological functionality through planting of endemic species
- Incorporate overland flow paths into water features within the publicly accessible open space
- Combined active and passive recreation spaces
- Provision of contemplative lawns with shade

13. Tree Management
Tree protection measures will be implemented for trees to be retained as recommended in the Arborist Report at Annexure 23 to the submitted EA.

PEDESTRIAN + CYCLEWAY PLAN (DEVELOPMENT- WIDE)



Rail line

Meadowbank Station

Ferry Wharf
With bicycle parking

Existing Pedestrian/Cycle Link

Upgraded Link 3 - New Pedestrian

Upgraded Link 4 - New/Improved Footpaths

Local links

Planned or existing Regional bicycle routes
Reference: Ryde Bicycle Strategy & Masterplan 2007

Proposed Bicycle Paths/Links
To be Constructed by Holdmark - Refer to Concept Plan

Proposed Pedestrian Paths/Links
To be Constructed by Holdmark - Refer to Concept Plan

Pedestrian Path / Connections by others

Site Boundary

Reference: Development Control Plan 2011

STREET TREE STRATEGY (DEVELOPMENT-WIDE)

LEGEND:

- Corymbia maculata (Spotted Gum)
- Angophora costata (Sydney Red Gum)
- Cupaniopsis anacardiodes (Tuckeroo)
- Magnolia grandiflora ('Little Gem')
- Fraxinus griffithii (Evergreen Ash)
  Fraxinus oxycarpa 'Raywoodi (Claret Ash)
- Syncarpia glomulifera (Turpentine)
- Melaleuca sp. (Paperbacks)
- Angophora floribunda (Rough-barked apple)

The plan shows the intended tree species to be used in the development. Existing street trees will be assessed on an individual basis to retain if possible. The suitability of the species listed below will also be considered at the detailed design stage and discussed with Council.

Note: All existing street trees will be assessed in light of this plan and retained if appropriate.
Ref - Ryde Public Domain Technical Manual - 5.2

LANDSCAPE DESIGN INTENT STATEMENT

journey beginning

The Central Spine is considered the beginning of the escarpment character, the journey begins at the higher end of the two sites along Constitution Road, and continues through a gradual build up in height around the main path, designed in a more softer medium and delivered through landscaped berms and terraces. An elevated walkway branches from the side of the path leading up to a higher level private communal courtyard, whilst incorporating a new story, the tree-top walk.

These elements are the beginning of a strong landscape character as well as aiding to respond to the sites level changes. They are also instrumental in the movement of water through the site, ensuring adequate depths and overland flow paths are maintained using a mixture of retaining walls, gradual falls and landscape berming, combined with water sensitive urban design features such as bio-retention basins and dry creek beds (designed to channel water in rain periods) .

nexus plazas / heritage responses

Where both stages of the development meet at Nancarrow Road, open plaza spaces have been proposed to ensure fluid movement is encouraged and easy. These central plazas are anticipated to house heritage elements significant to the site, such as an 'orange orchard' within stages 8-9 and the reuse of 1950s style fencing from the old Automatic Totalisors Factory situated on 37 Nancarrow Road on Stage 6-7 side. (See images left)

'factory fencing'
The fencing available for reuse is approximately 47m in 12 sections and is anticipated to either be further explored as part of a public art strategy or to appear as a landscape feature within the podium open space area between building 9A-9B.

'orange orchard'
The Orange Orchard is a reflective and soft landscape with bosque of Orange trees within a decomposed granite surface. Seating has been located under the orange trees and the trees themselves extend beyond the limits of the plaza, drawing the outside in and creating a 'leak' of history into the new development.

escarpment

Moving south from Nancarrow Road plazas, the landscape becomes more severe and levels adjacent the path start to rise higher through gabion and sandstone faced walls. Materials become more 'raw' and reflective of both the landscape journey and the existing / past industrial character, whilst still being modern and architectural in form.

rawness and architectural form

sandstone gabion walls being to move in closer to the path providing elevated rest areas and viewing spaces. Corten panels and steel i-beams integrated with both the gabion walls and into handrails on the upper level, provide a unique design element that adds to the character and style of both the architectural and landscape design.

The path continues to crossroad, where the user can travel west up towards Bowden Street over podium or south towards Rothesay Street.

podium building 9A-9B

the podium landscape is designed in the same nature as the escarpment, with a mixture of raw elements and tidier lines, still with a layering of levels and landscape to provide visual interest and zones for passive recreation.

the podium has also been designed to safely carry overland flow from bowden street through the site and into the bioretention basins.

bbq area (public open space)

Continuing to Rothesay Street, south along the cycle way, a WSUD bioretention basin is incorporated into a flexible public open space area. This area provides an undefined area for casual get-togethers or functions as well as a bbq area and seating.

It is surrounded by terraced planters to compensate dramatic level change, but is still lush with planting, providing ample greenery, shade and amenity. The bio-retention basin is accessible down a set of seating steps and contains a board-walk feature around and over it, making it visually accessible during rain periods and accessible during dry periods.

Residents pool

The pool area is simple in design with clean lines and architectural from + materials, whilst still ensuring a relaxing, casual zone with a high-quality 'sub-tropical' feel to it through the choice of plantings (lush hardy flowering species such as bird of paradise and gymea lily). Planting to be arranged in formal rows of minimal species. The pool is anticipated to reflect the architectural character through reconstituted stone, composite timber decking, ornate pool tiles as examples.

LANDSCAPE DESIGN DRIVERS

Performs as formal linear open space in addition to its role as a pedestrian link

- Incorporates formal avenue tree planting as a way of screening the adjoining existing building
- Includes clear sight lines through the open space to maximise pedestrian safety
- Includes large reflection pond/water body
- The provision of an easy, safe and enjoyable pedestrian connection with peaceful places to stop and relax
- Optimise ecological functionality through planting of endemic species
- Incorporate overland flow paths into water features within the publicly accessible open space
- Combined active and passive recreation spaces
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STAGES 6-7 + 8-9
COMBINED MASTERPLAN

STAGES 6-7 + 8-9 MASTERPLAN

terraced landscape to direct water flows to central spine whilst mitigating level changes

proposed subsation location

building 7 foyer, refer achitects drawings

buffer planting to landscape walls

fire door access with direct route to main path

views maintained from private residencies for casual surveillance

terraced planter wallsfrom podium level to dry creek bed

landscape bermed to basement wall.

views maintained from private residencies for casual surveillance

dry creek bed and bioretenion basins, set below main path to allow for overland flow and water capture, see engineers drawings for detail

terraces on upper level providing casual surveillance

small bridge over dry creek bed linking service rooms

secondary access to private terraces with seating pods along path

service rooms/doors access maintained

plaza area, path flared for ease of movement along cycleway between stages 6-7 + 8-9

access from builing 7 foyer to central spine

resident access to constitution road designed to direct water flows to central spine and provide softness and screening to road frontage whilst providing passive survillance of streetscape

proposed substation location, screened with landscape treatment

terraced landscape to direct water flows to central spine whilst mitigating level change

building 6 foyer refer architects drawings

landscape designed to provide access to service panels

private terraces accessible at grade

internal private terrace landscape

tree top walk over dry creek bed, access to podium private open space area.

residents private open space area with water feature, bbq area, raised turf area and shaded passive recreation areas.

private terraces accessible at grade

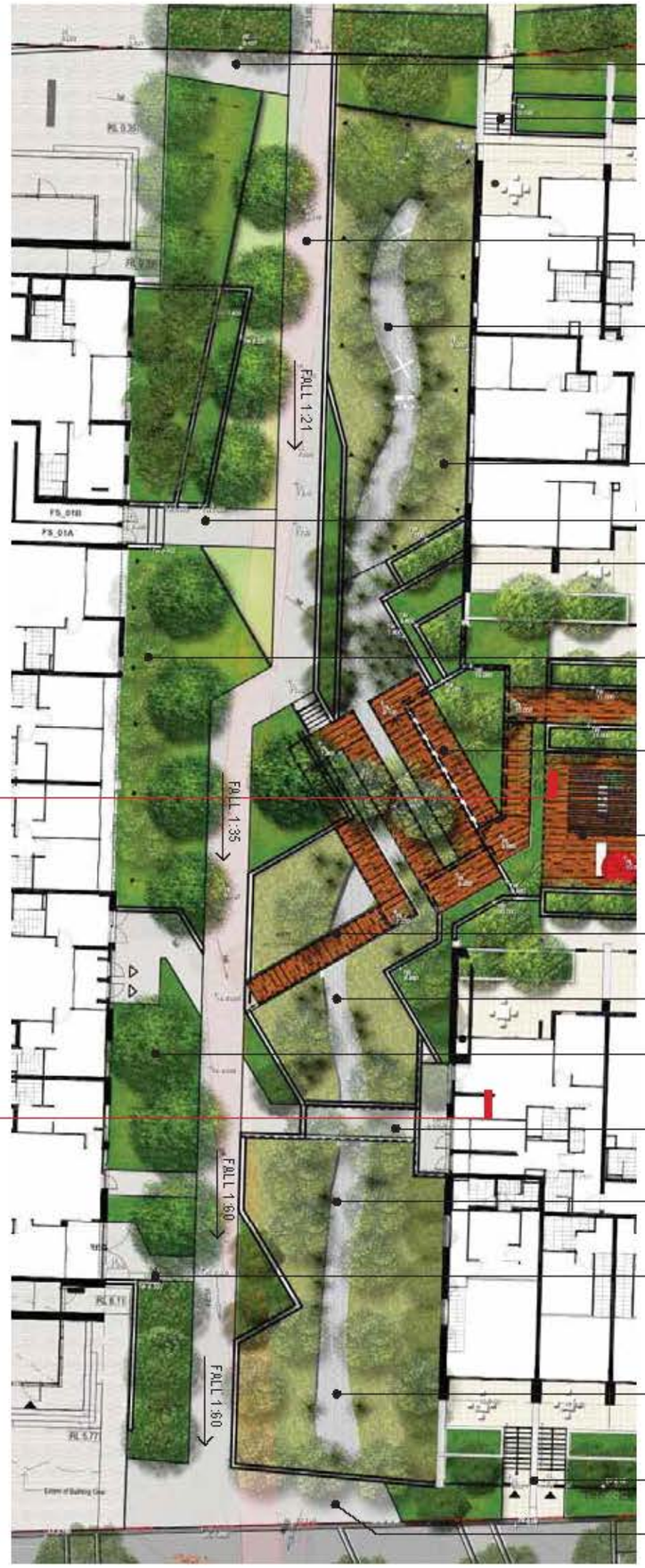
6-7 'east link' fully accessible path from Nancarrow Road to ground floor residencies.

service room access

DETAILED MASTERPLAN 6-7
SCALE 1:400 @ A3

CENTRAL SPINE + TREETOP WALK

Location Plan



connection to building 7 foyer

private resident access: constitution road

2.5m wide cycleway

dry creek bed (wsud stragtegy) see engineers drawings for detail

native landscape bermed to basement wall

fire-stair access +connection

landscape terraced to private common area

landscape bermed to building 7

'tree-top' walk: connection to private common area

gated +fenced private common area

bio-retention area 1

dry creek bed (wsud)

maintenance / services access to building 7

maintenance / services access to building 6

bio-retention area 1 (wsud stragtegy) see engineers drawings for detail

maintenance / services access to building 7

bio-retention area 2 (wsud stragtegy) see engineers drawings for detail

private resident access: nancarrow road

integration of heritage fences to plaza spaces

DETAILED LANDSCAPE PLAN: CENTRAL SPINE
SCALE 1:350 @ A3

SECTION A
SCALE 1:100 @ A3

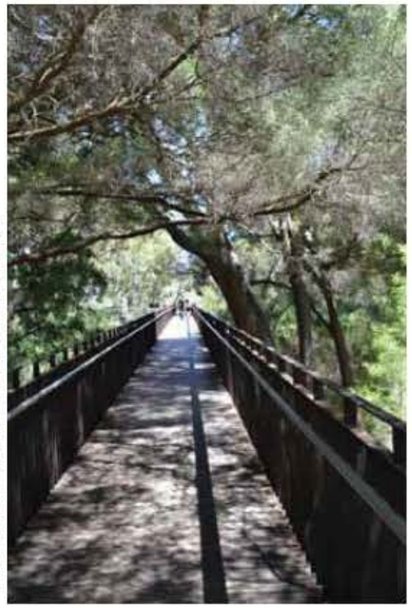
CENTRAL SPINE / TREE TOP WALK

SECTION B
SCALE 1:200 @ A3

Location Plan

INDICATIVE PERSPECTIVE OF TREE TOP WALK
Artist impression only

INDICATIVE CHARACTER IMAGES

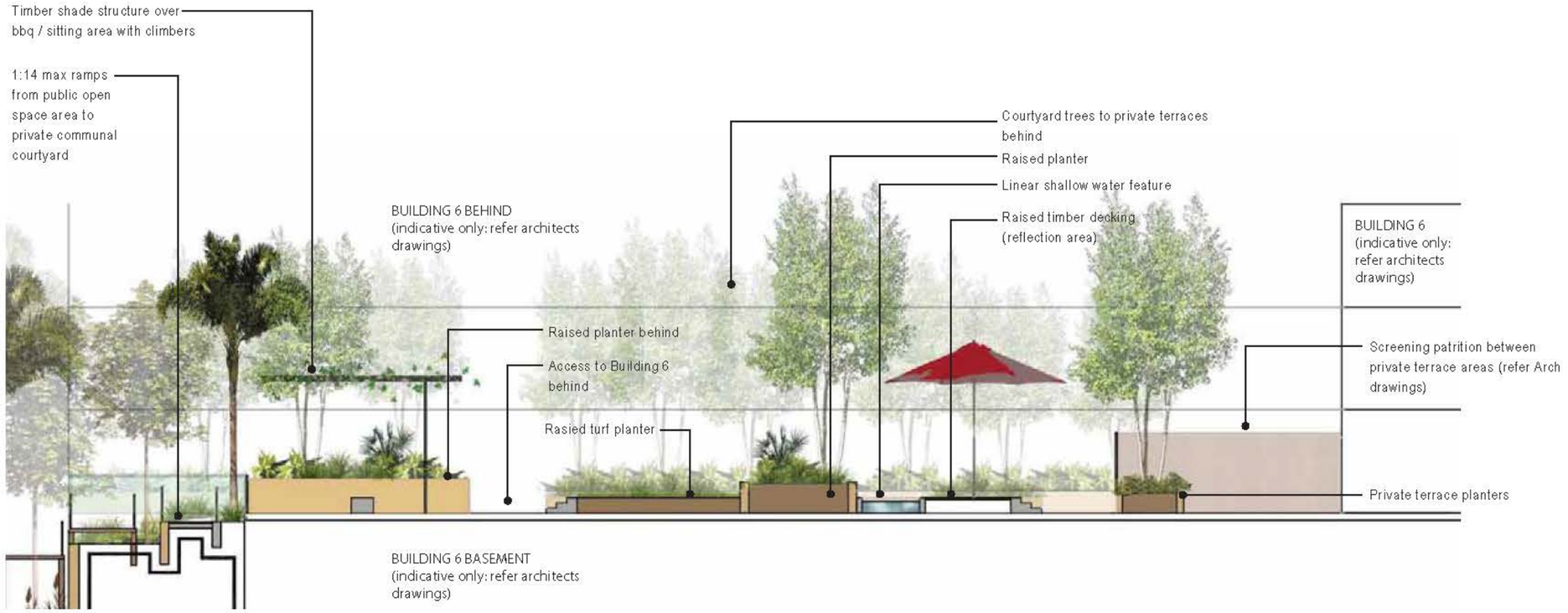


BUILDING 6 - PRIVATE COMMON AREA

INDICATIVE CHARACTER IMAGES

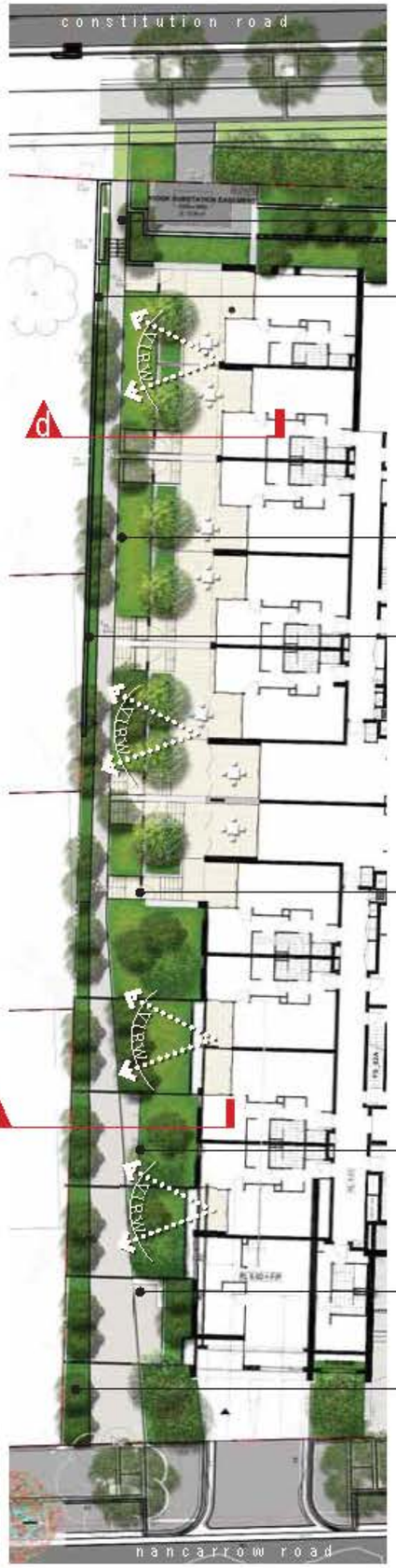
Location Plan

DETAILED LANDSCAPE PLAN: PODIUM COURTYARD / PRIVATE COMMON
SCALE 1:350 @ A3



SECTION C
SCALE 1:200 @ A3

SECONDARY SITE LINKS: WEST + EAST



connection to constitution road

1.1m high safety fence to top of retaining wall

minimum 1.2m wide pedestrian access path

buffer / screening planting to property boundary

Stairs to private terraces

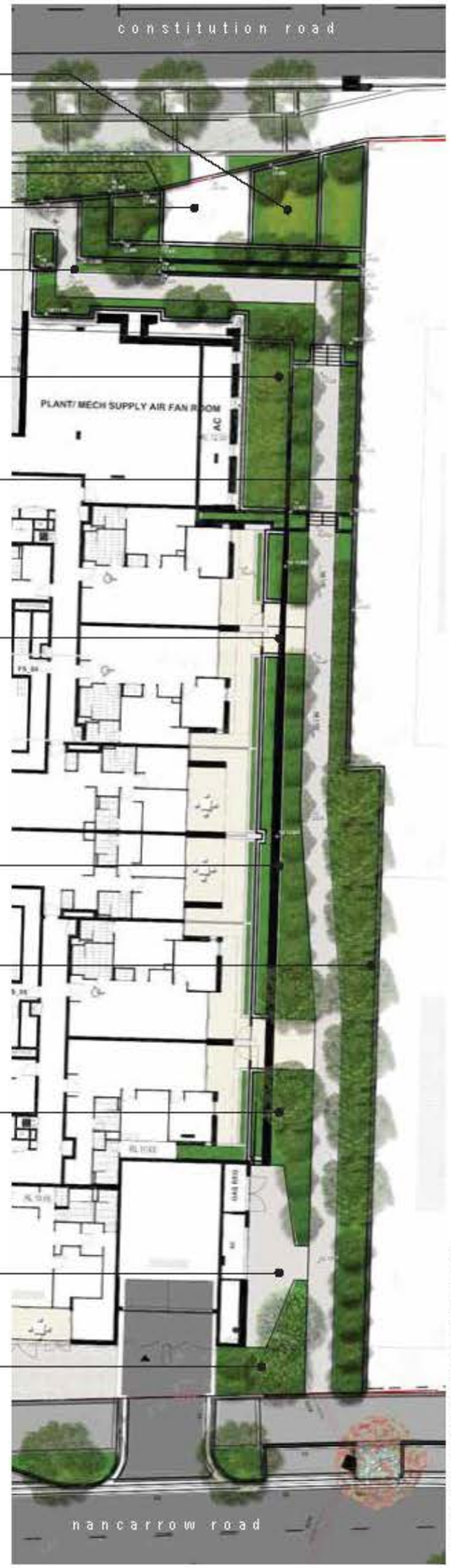
'Rest Zone' with seating to edge of access path

'Rest Zone' with seating to edge of access path

1.8m high timber paling fence to boundary

DETAILED LANDSCAPE PLAN: WEST LINK
SCALE 1:350 @ A3

Location Plan



maintain existing rock base where possible

proposed substation location at street level

connection to constitution road

lower landscape for vent and access

buffer planting and columnar trees to bounday extent

at grade access to all apartments from Nancarrow Road

buffer planting and columnar trees to bounday extent

retaining wall to boundary with timber paling fence to top

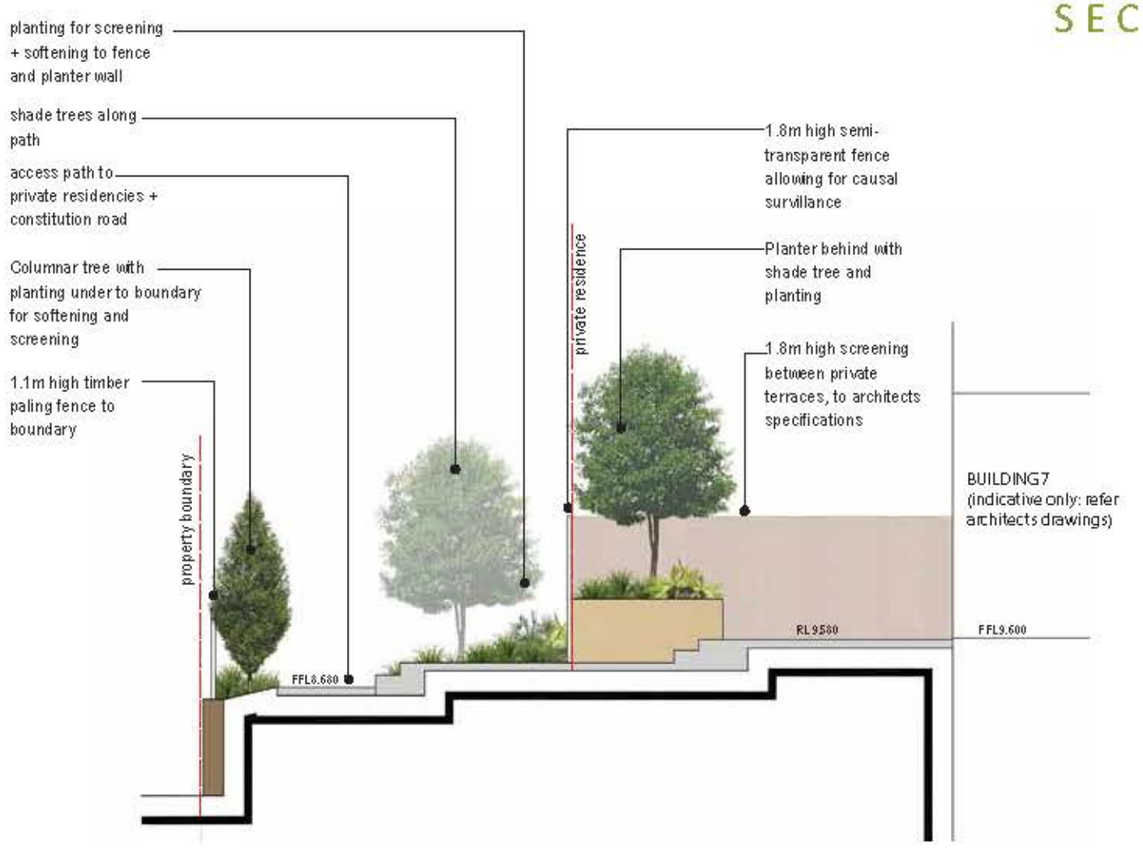
buffer planting surrounding maintenance area

maintenance / services area

buffer planting surrounding maintenance area

DETAILED LANDSCAPE PLAN: EAST LINK
SCALE 1:350 @ A3

SECONDARY SITE LINK: WEST



SECTION D
SCALE 1:50@A3

Location Plan

SECTION E
SCALE 1:50@A3

NANCARROW ROAD FRONTAGE

Streetscape Design Philopsphy

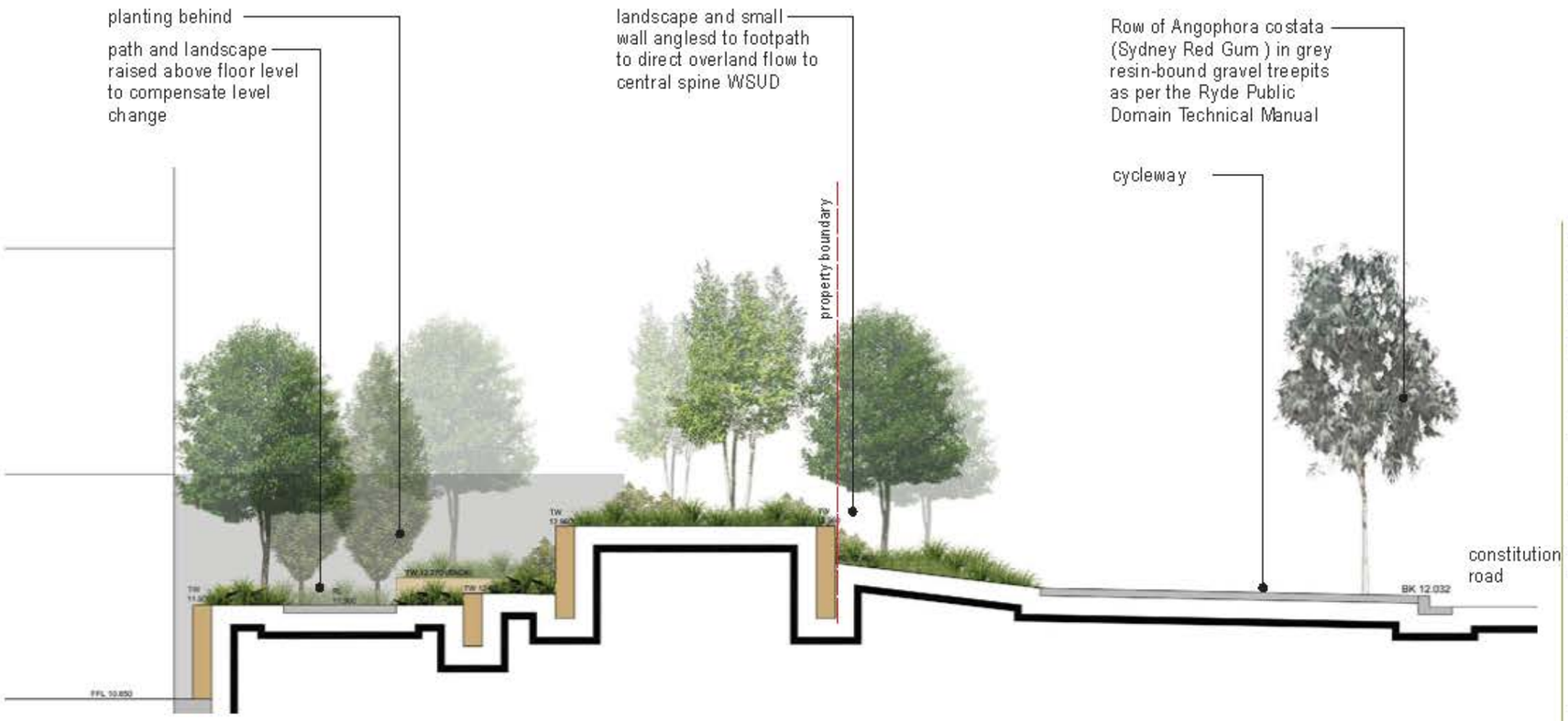
Street trees throughout the site will be reflective of the Meadowbank street tree master plan. The street tree design to the site is intended to enhance strong legible links, providing biodiversity and aesthetic consistency across the site, both in streetscapes and site through links.

The planting will reference the DCP, Council Public Domain Technical Manual and Council guidelines.

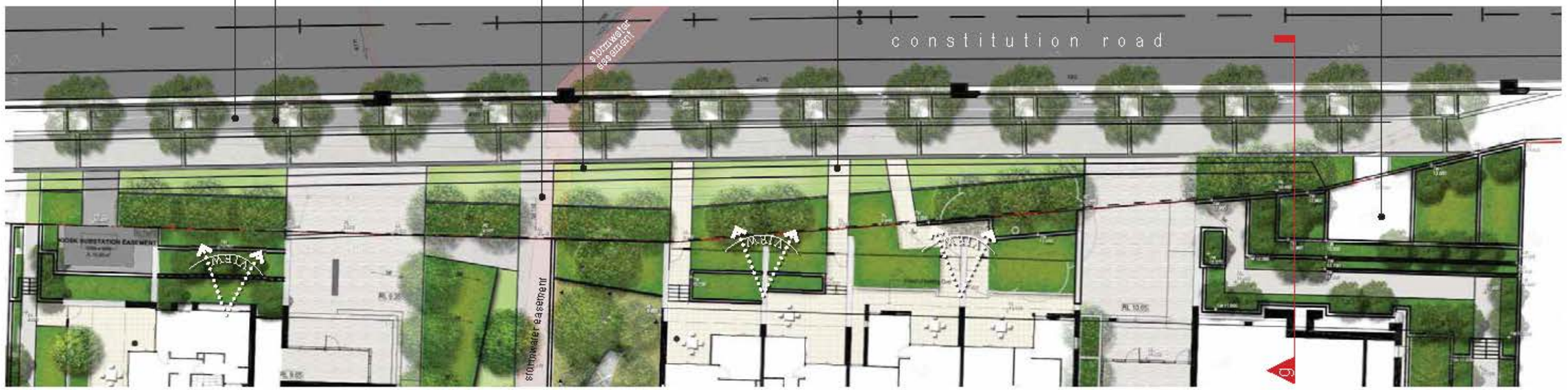
Refer to WSUD document for detail on rain gardens. The design of rain-gardens will be to Ryde city council specifications and in line with Ryde city council maintenance plan.

SECTION F
SCALE 1:50 @ A3

CONSTITUTION ROAD FRONTAGE



SECTION G
SCALE 1:50@A3



STAGE 6-7 TREE / SOFTSCAPE STRATEGY

GENERAL TREE MIX (Native + Exotic)
(Public Open Space + Residential)

Cupaniopsis anacardiodes - Tuckeroo
Elaeocarpus reticulatus - Blueberry Ash
Ficus macrophylla - Moreton Bay Fig
Fraxinus griffithii - Evergreen Ash
Fraxinus oxycarpa - 'Raywood' Claret Ash
Lagerstroemia indica - Crepe Myrtle
Lagerstroemia speciosa - Giant Crepe Myrtle
Lagerstroemia indica fauriei - Crepe Myrtle Acoma
Lophostemon confertus - Brush Box
Pistascia chinensis - Chinese Pistache
Plantus x Hybrida - Chinese Tallwood
Pyrus calleryana 'Chantideer' - Manchurian Pear
Sapium serbiferum - Chinese Tallowood
Ulmus parvifolia - Chinese Elm
Waterhousia floribunda - Weeping Lily Pily

PALMS
(Public Open Space + Residential)

Archontophoenix Cunninghamiana - Bangalow Palm
Archontophoenix alexandrae - Alexandra Palm
Livistona australis - Cabbage Tree Palm
Phoenix canariensis - Canary Palm

NATIVE TREES
(Public Open Space + WSUD)

Angophora costata - Sydney Red Gum
Angophora floribunda - Rough-Barked apple
Cupaniopsis anacardiodes - Tuckeroo
Corymbia Maculata - Spotted Gum
Elaeocarpus reticulatus - Blueberry Ash
Ficus macrophylla - Moreton Bay Fig
Lophostemon confertus - Brush Box
Melaleuca species - Paperbarks
Syncarpia glomulifera - Turpentine
Tristaniopsis laurina - Water Gum
Waterhousia floribunda - Weeping Lily Pily

FEATURE TREES
(Public Open Space)

Ficus macrophylla - Moreton Bay Fig
Magnolia grandiflora 'Little Gem' - Magnolia

STREET TREES
(Locations as indicated on plans)

Angophora costata - Sydney Red Gum
Magnolia grandiflora - 'Little Gem'
Fraxinus griffithii - Evergreen Ash
Fraxinus oxycarpa - 'Raywood' Claret Ash
Syncarpia glomulifera - Turpentine
Angophora floribunda - Rough-Barked apple

HERITAGE TREES

Citrus x sinensis - Orange Tree

TURF

GENERAL PLANTING MIX
Exotic + Native (see indicate planting schedule)

WSUD PLANTING MIX
Native Species Only (see indicative planting schedule)

RETAINED TREES

See aborist report

STAGE 6-7 PLANTING STRATEGY

The Planting palette to be used throughout the site has been selected for it's suitability to fulfill the following criteria:

- Enhance the local character of Meadowbank
- Create a new defined precinct
- Remain in line with the City of Ryde's environmental policies
- Soften and visually reduce bulk/scale of built forms
- Provide buffering/screening to residential areas
- Contribute to habitats of the local fauna
- Minimise potable water use in the landscape

A wide selection of trees, both native and exotic, have been selected for the sites streetscapes and landscaped areas. Where possible local natives will be used to remain consistent with the vegetation communities found within the City of Ryde. Specific areas will see exotic species used for accent planting and foliage interest

Shrubs have been chosen not only for their aesthetic attributes but also functionality in terms of providing buffering and screening to residential precincts. Lush foliage and dense growing habits have been favoured.

Grasses and groundcovers have been selected from a predominantly native palette and will be aimed at softening edges and large areas of hardscape.

STAGE 6-7 INDICATIVE PLANTING SCHEDULE

Streetscape Trees

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
Angophora costata	Sydney Red Gum	20.0m x 8.0m	75L	As Shown
Magnolia grandiflora	'Little Gem'	4.0m x 3.0m	75L	As Shown
Fraxinus griffithii	Evergreen Ash	6.0m x 4.0m	75L	As Shown
Fraxinus oxycarpa	'Raywood' Claret Ash	12.0m x 12.0m	75L	As Shown
Syncarpia glomulifera	Turpentine	20.0m x 8.0m	75L	As Shown
Angophora floribunda	Rough-Barked apple	20.0m x 8.0m	75L	As Shown

General Planting

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
TREES				
EVERGREEN				
Angophora costata	Smooth Barked Apple	20.0m x 8.0m	75L	As Shown
Corymbia maculata	Spotted Gum	30.0m x 15.0m	75L	As Shown
Cupaniopsis anacardioides	Tuckeroo	8.0m x 8.0m	75L	As Shown
Elaeocarpus reticulatus	Blueberry Ash	10.0 x 7.0m	75L	As Shown
Ficus macrophylla	Moreton Bay Fig	30.0m x 20.0m	75L	As Shown
Fraxinus ornus	Meczek	20.0m x 10.0m	75L	As Shown
Lophostemon confertus	Brush Box	10.0m x 12.0m	75L	As Shown
Tristaniopsis laurina 'Luscuious'	Water Gum	12.0m x 8.0m	75L	As Shown
Waterhousia floribunda	Weeping Lily Pily	12.0m x 8.0m	75L	As Shown
PALMS				
Archontophoenix cunninghamiana	Bangalow Palm	25.0m x 3.0m	200L	As Shown
Archontophoenix alexandrae	Alexandra Palm	30.0m x 2.0m	200L	As Shown
Livistona australis	Cabbage Tree Palm	25.0m x 3.0m	400L	As Shown
Phoenix canariensis	Canary Palm	18.0m x 8.0m	400L	As Shown
DECIDUOUS				
Acer platanoides	Designer Maple 'Globosum'		200L	As Shown
Acer palmatra	Osakazuki		200L	As Shown
Lagerstroemia indica' Lipan'	Crepe Myrtle	4.0m x 3.0m	200L	As Shown
Lagerstroemia speciosa	Giant Crepe Myrtle	3.0m x 3.0m	200L	As Shown
Lagerstroemia indica fauriei	Acoma	8.0m x 6.0m	400L	As Shown
Pistascia chinensis	Chinese Pistache	10.0m x 4.0m	75L	As Shown
Plantus x Hybrida	Plane Tree	20.0m x 9.0m	75L	As Shown
Pyrus calleryana 'Chanticleer'	Manchurian Pear	11.0m x 6.0m	75L	As Shown
Sapium sebiferum	Chinese Tallowood	8.0m x 4.0m	75L	As Shown
Ulmus parvifolia	Chinese Elm	14.0m x 10.0m	75L	As Shown
FEATURE TREES				
Citrus x sinensis	Orange	9.0m x 6.0m	400L	As Shown
Ficus macrophylla	Moreton Bay Fig	35.0 x 25.0m	400L	As Shown
Magnolia grandiflora 'Little Gem'	Magnolia	4.0m x 3.0m	400L	As Shown
SHRUBS + ACCENT				
Acacia parramattensis	Sydney Green Wattle	4.0m x 3.0m	25L	As Shown
Acacia falcata	Sickle-shaped Acacia	4.0m x 1.5m	25L	As Shown
Banksia serrata	Dwarf Bottlebrush	2.0m x 2.0m	5L	4/m2
Cordyline australis	Sunrise	3.0m x 1.0m	25L	As Shown
Cordyline sp	Cordyline	3.0m x 1.0m	25L	As Shown
Dodonaea triquetra	Hop Bush	3.0m x 2.0m	300mm	4/m2
Dodonaea viscosa 'Purpurea'	Hop Bush	3.0m x 1.5m	300mm	4/m2
Doryanthes excelsa	Gymea Lily	1.5m x 1.5m	25L	1/m2
Gardenia augusta 'Florida'	Gardenia	1.2m 1.0m	25L	4/m2
Kunzea ambigua	Tick Bush	5.0m x 5.0m	300mm	As Shown
Murraya paniculata	Orange Jessamine	3.0m x 3.0m	25L	As Shown
Philodendron 'Xanadu'	Xanadu	1.5m x 1.5m	200mm	5/m2
Strelitzia reginae	Bird of Paradise	1.5m x 1.0m	300mm	3/m2
Syzygium sp.	Lilly Pilly	Varies	25L	2/m2
Viburnum odoratissimum	Sweet viburnum	4.0m x 4.0m	25L	1/m2
Westringia fruticosa 'Zena'	Costal Rosemary	1.0m x 1.3m	300mm	4/m2

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
GROUNDCOVERS / GRASSES				
Altenanthera dentata	Blood Leaf Irisene	40mm x 90mm	200mm	5/m2
Dichondra repens	Kidney Weed	150mm x 500mm	200mm	3/m2
Dianella 'Breeze'	Paroo Lily	300mm x 300mm	200mm	4/m2
Dianella 'Little Jess'	Paroo Lily	400mm x 600mm	140mm	4/m2
Dianella 'Silver Streak'	Paroo Lily	500mm x 400mm	140mm	4/m2
Gazania hybrida	Gazania Double Gold	300mm x 300mm	200mm	5/m2
Hardenbergia 'Purple Spray'	Native Violet	1.5m x 2.0m	200mm	2/m2
Hibbertia scandens	Snake Vine	3.0m x 3.0m	200mm	2/m2
Isolepis nodosa	Club Rush	500mm x 300mm	140mm	4/m2
Juncus usitatus	Common Rush	500mm x 300mm	140mm	4/m2
Liriope 'El Marco'	Turf Lily	150mm x 400mm	140mm	4/m2
Lomandra hystrix	Mat Rush	0.6m x 1.0m	140mm	4/m2
Lomandra longifolia 'Tanika'	Mat Rush	600mm x 650mm	200mm	4/m2
Poa labillardieri 'Eskdale'	Tussock Grass	800mm x 400mm	200mm	4/m2
Scaevola aemula	Fairy Fan-flower	0.2m x 1.5m	200mm	4/m2
Trachelospermum jasminoides	Star Jasmine	0.4m x 1.5m	200mm	4/m2

WSUD (Dry Creek Bed + Bio-retention)

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
TREES / PALMS				
Ficus macrophylla	Moreton Bay Fig	30.0m x 20.0m	75L	As Shown
Corymbia maculata	Spotted Gum	30.0m x 15.0m	75L	As Shown
Lophostemon confertus	Brush Box	10.0m x 12.0m	75L	As Shown
Tristaniopsis laurina 'Luscuious'	Water Gum	12.0m x 8.0m	75L	As Shown
Livistona australis	Cabbage Tree Palm	25.0m x 3.0m	400L	As Shown
Waterhousia floribunda	Weeping Lily Pily	12.0m x 8.0m	75L	As Shown
GROUNDCOVERS / GRASSES				
Dianella 'Breeze'	Paroo Lily	300mm x 300mm	200mm	4/m2
Dianella 'Little Jess'	Paroo Lily	400mm x 600mm	140mm	4/m2
Dianella 'Silver Streak'	Paroo Lily	500mm x 400mm	140mm	4/m2
Isolepis nodosa	Club Rush	500mm x 300mm	140mm	4/m2
Juncus usitatus	Common Rush	500mm x 300mm	140mm	4/m2
Liriope 'El Marco'	Turf Lily	150mm x 400mm	140mm	4/m2
Lomandra hystrix	Mat Rush	0.6m x 1.0m	140mm	4/m2
Lomandra longifolia 'Tanika'	Mat Rush	600mm x 650mm	200mm	4/m2

Note: The term 'as shown' denotes need to place individual plant species for desired landscape outcomes

STAGE 6-7 STREETSCAPE STRATEGY

NOTE: STREETSCAPES WILL BE DESIGNED EXACTLY IN ACCORDANCE WITH THE RYDE CITY COUNCIL PUBLIC DOMAIN MANUAL

Design Intent

The Shepherds Bay Streetscape Character and Tree Species will reflect the character of the site whilst accommodating for the requirements of Council. The functional needs of pedestrians, cyclists and vehicular movements will also be paramount in the design of vehicular carriage ways.

The streetscape character will generally reinforce and enhance the road hierarchy to create subtle but distinctive streetscape precincts. The formal planting of mid to large size trees on Primary Local Roads (Dependant on Council approval) and the introduction of smaller native species on Secondary Local Roads will occur. A combination of both native and hybrid indigenous trees must dominate the selection of street trees to the internal roads.

Streets are to be designed to provide an appropriate level of on street parking with priority given to pedestrians and cyclists to provide a pleasant environment to promote walking and social activity.

Some key points are listed below;

Aspect and Views
- Strong visual associations with existing vegetation communities both native and cultural.
- Use of Landmark species to clearly identify entry points into the development
- Strong emphasis to avenue planting with spacings of trees to enable canopies to touch when trees are mature.

Accessibility
- Continuity of streetscape character and connectivity to local and recreational paths linking the entire site.

Materials:
- Pathways will predominantly be robust contemporary materials such as exposed aggregate concrete. All driveway cross overs are to be of the same material in order to ensure visual continuity.

Plantings:
- Maximise landscaping in all streets while tailoring species selection to that of the local and site context.
- Preservation of plantings of culturally significant species to enhance the historic 'sense of place'
- Canopy trees to provide shade and visual amenity.
- Low shrub and groundcover planting using a mix of low maintenance plant species

Safety:
- All street trees will be carefully selected so that the pedestrian sight lines are well maintained.
- Street lighting and feature lighting will also be carefully designed to meet the safety criteria for
pedestrian/cycle and car links.

Indicative Materials + Elements

CONSTITUTION ROAD

Carriageway Thresholds
100 x 100 x 60mm Australian Porphyry Stone

Tree Pits
Minimum 1500mm x 1500mm resin bound gravel (grey colour)

Banding
300 x 300 x 60mm Grey Granite Banding

Paving
600 x 300 x 60mm Grey Granite Paving and
300 x 300 x 60mm Grey Granite Paving

Lighitng
Smart Poles at 9.6m spacings (between trees)

Trees
8m Spacings

Tree Species
Verge (6-7 Frontage) Angophora costata)

NANCARROW ROAD

Carriageway Thresholds
100 x 100 x 60mm Australian Porphyry Stone

Tree Pits
1500mm x 1500mm resin bound gravel (grey colour)

Banding
300 x 300 x 60mm Grey Granite Banding

Paving
600 x 300 x 60mm Grey Granite Paving and
300 x 300 x 60mm Grey Granite Paving

Lighitng
Smart Poles at 9.6m spacings (between trees)

Rain Gardens
To council specifications

Trees
8m Spacings

Tree Species
Northern Verge (6-7 Frontage) Angophora floribunda (Rough-barked Apple)
Southern Verge (8-9 Frontage) Magnolia grandiflora ('Little Gem')

Indicative Tree Palette + Planting Character

Constitution Road Northern Verge (6-7 Frontage) Angophora costata

Indicative character where additional planting is proposed

STAGE 6-7 TREE RETENTION / REMOVAL STRATEGY

Trees along Constitution Road (Trees 142 - 157) will need to be removed due to roadworks and removal of current embankment.

STAGES 6+7

Trees along Nancarrow Road (Trees 84 - 90) will need to be removed due to roadworks and Ryde Public Domain Technical Manual design requirements.

STAGES 8+9

(See Landscape Package 8+9)

KEY

Tree within site boundary to be removed

Tree within road reserve to be removed

NOTE: REFER ABORIST REPORT FOR SPECIES AND DETAILED TREE INFORMATION

STAGE 6-7 LANDSCAPE MATERIALITY

Indicative Materials Palette: Streetscape

Selected images from Ryde Public Domain Technical Manual + Place Design Group







Indicative Materials Palette: Site










STAGE 6-7 MATERIALS STRATEGY

Indicative Pavement Schedule

P1 - Standard concrete to shared 2.5m wide cycleway (as per Ryde Public Domain Plan) + general pedestrian paths

P2 - Precast high quality concrete/limestone pavers with sandstone porphry banding and header course

P3 - Decomposed Granite (not used in this stage)

P4 - Mixed colour sandstone paving to private courtyards 600x300x60mm

P5 - Limestone (High Quality) Pool Area (not used in this stage)

P6 - Reconstituted timber deck

P7 - Streetscape: Grey granite / limestone pavers 600x300x60 + 300x300x60mm (Ryde PDTM)

P8 - Streetscape: Australian porphory stone on threshold 100x100x60mm (Ryde PDTM)

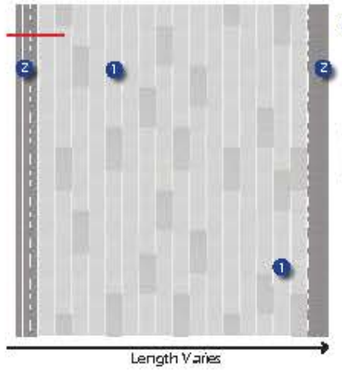
P9 - Resin bound gravel to base of trees (as per Ryde Public Domain Plan)

Indicative Walling Schedule

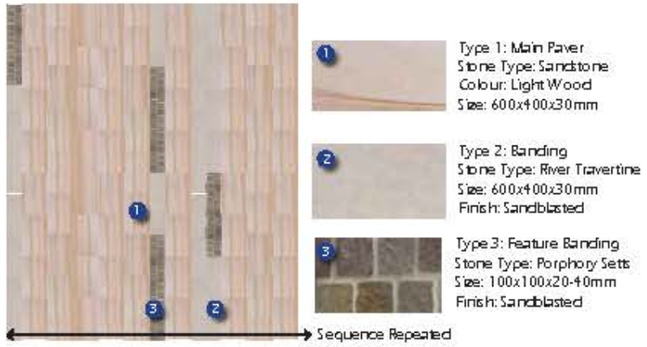
W1 - Sandstone clad walls (height varies) generally used for retaining walls + planters

W2 - Insitu/ Precast white concrete wall (generally used as seating steps to turf planters)

W3 - Sandstone Gabion Walls (not used in this stage)



Example of P2 pavement treatment: Precast high quality concrete/limestone pavers with sandstone porphry banding and header coursecourtyards



Example of P4 pavement treatment: Mixed colour sandstone paving to private courtyards

STAGE 6-7 LIGHTING STRATEGY

Pedestrian & Vehicular Lighting

Street lighting

Mounted on 9.6m multifunction poles to Council approval.
Finish on poles to match existing poles in Belmore Street.
Poles to be provided with 1.5m banner arm, Rexel Optispan Aeroscreen luminaires complete with low loss ballasts and PE cells, and metal halide lamps.

Pedestrian/park lighting

For areas such as shared bikeway/pedestrian pathways and plazas. Mounted on 4.8 m
SmartpolesTM or approved equivalent. BEGA-8081 luminaires and metal halide lamps.

Solar lighting for parks (Courtyards)*

Supplier: Solar G
Pole: galvanised utility pole
Light fittings: "Streetwalker" on 1metre outreach arm
Lamps: 2x 14W fluorescent (T5 fluorescent technology, 96 lumens per watt).
Note: Due to the lack of sunlight in some areas we will propose a different fitting/light pole

Feature columnar Lighting

Supplier: Bega
Lightstructure: 2.5 high aluminium linear element with white acrylic diffuser. IP65
Lamps: 151.2W LED

NOTE: Diagram is a strategy only, and is dependant on future detail design for specific information on products and locations

STAGE 6-7 FURNITURE STRATEGY

Bins (Bin 1)
Council's standard double bin.

Bollards (Bollard 4)
1300mm high x 150mm dia
1.6mm thick 316 stainless steel
Core drilled to depth of 400mm
Colorfen Constructions
Ph (02) 9545 4284

Seating
Bespoke seating elements (concrete benches)

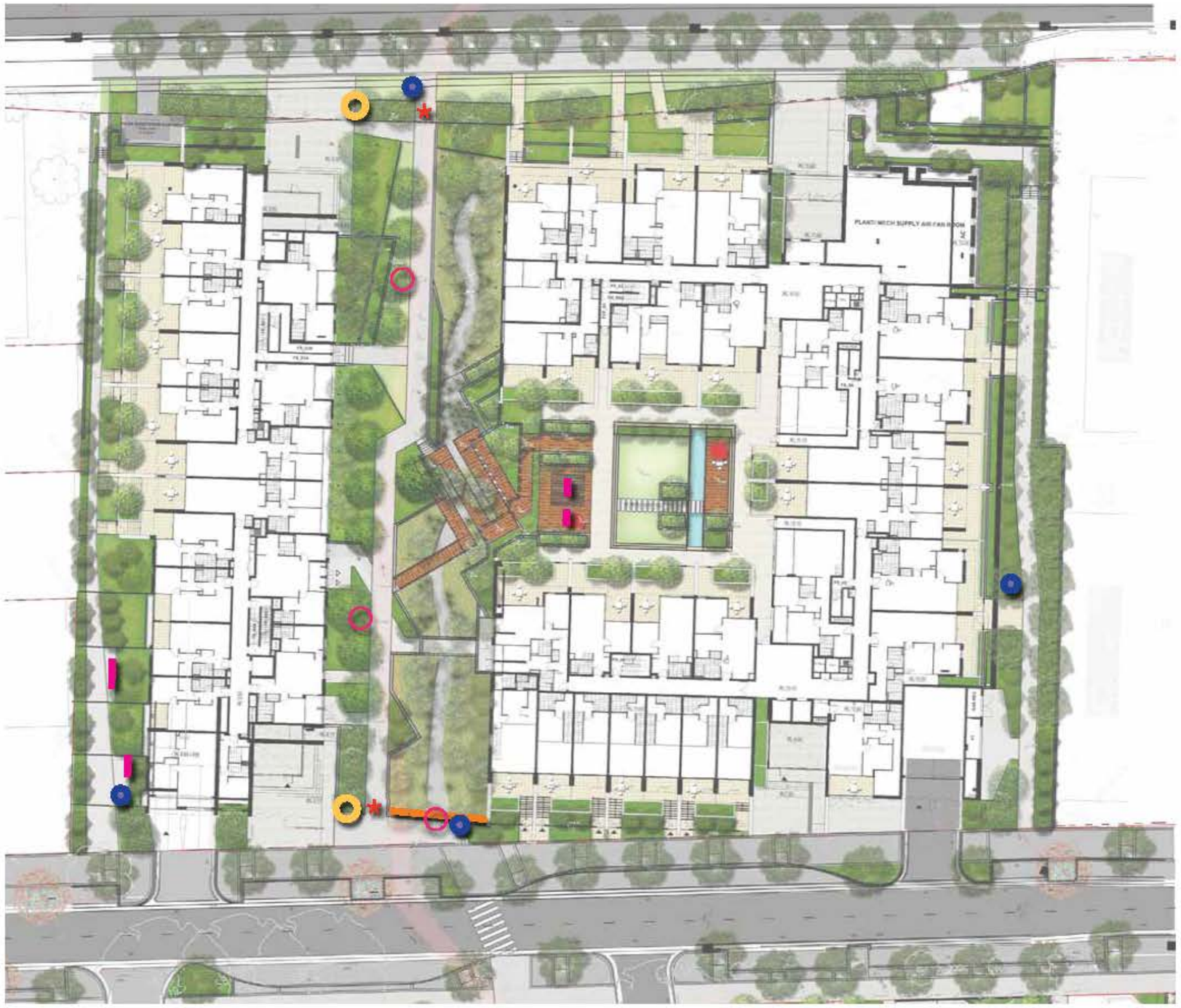
Urban Seat 11 (aluminium)
Botton and Gardiner Urban furniture
ph (02) 9667 8100

Bicycle Racks
Environ Bike Racks ENV09
Urban Art Projects

Heritage Fencing
(Resued from site)

Ref: City of Ryde Public Domain R+Technical Manual - 5.2

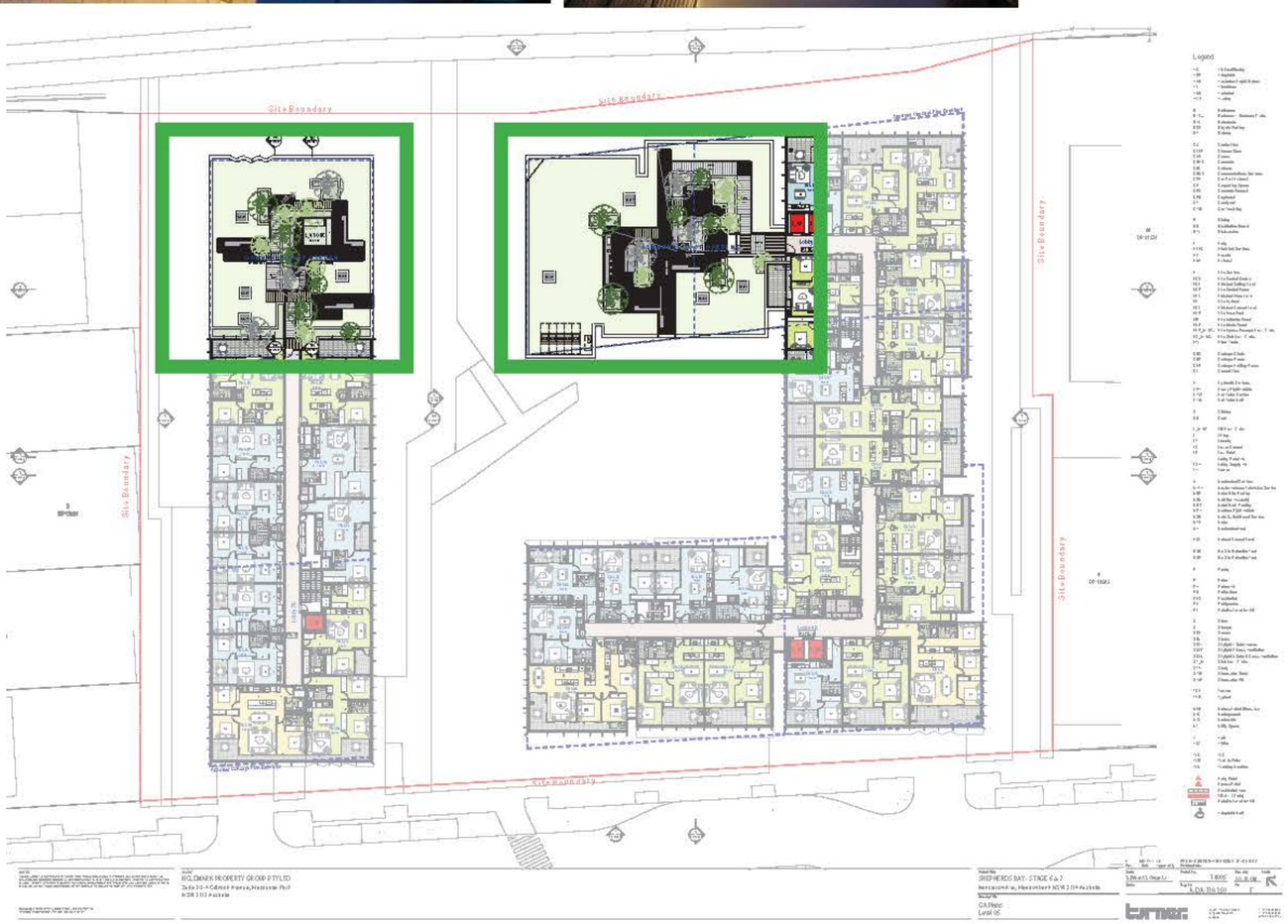
NOTE: Diagram is a strategy only, and is dependant on future detail design for specific information on products and locations



STAGE 6-7 ROOFTOP GARDEN STRATEGY

BENEFITS OF RELOCATABLE ROOFTOP PLANTERS

- containers are movable
- no set down
- suitable weight bearing structure not needed



appendices

APPENDIX A
performance specifications