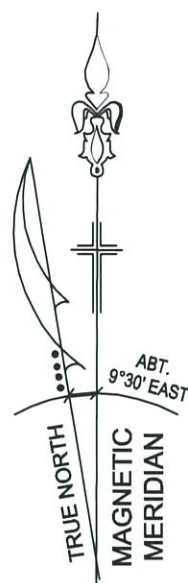
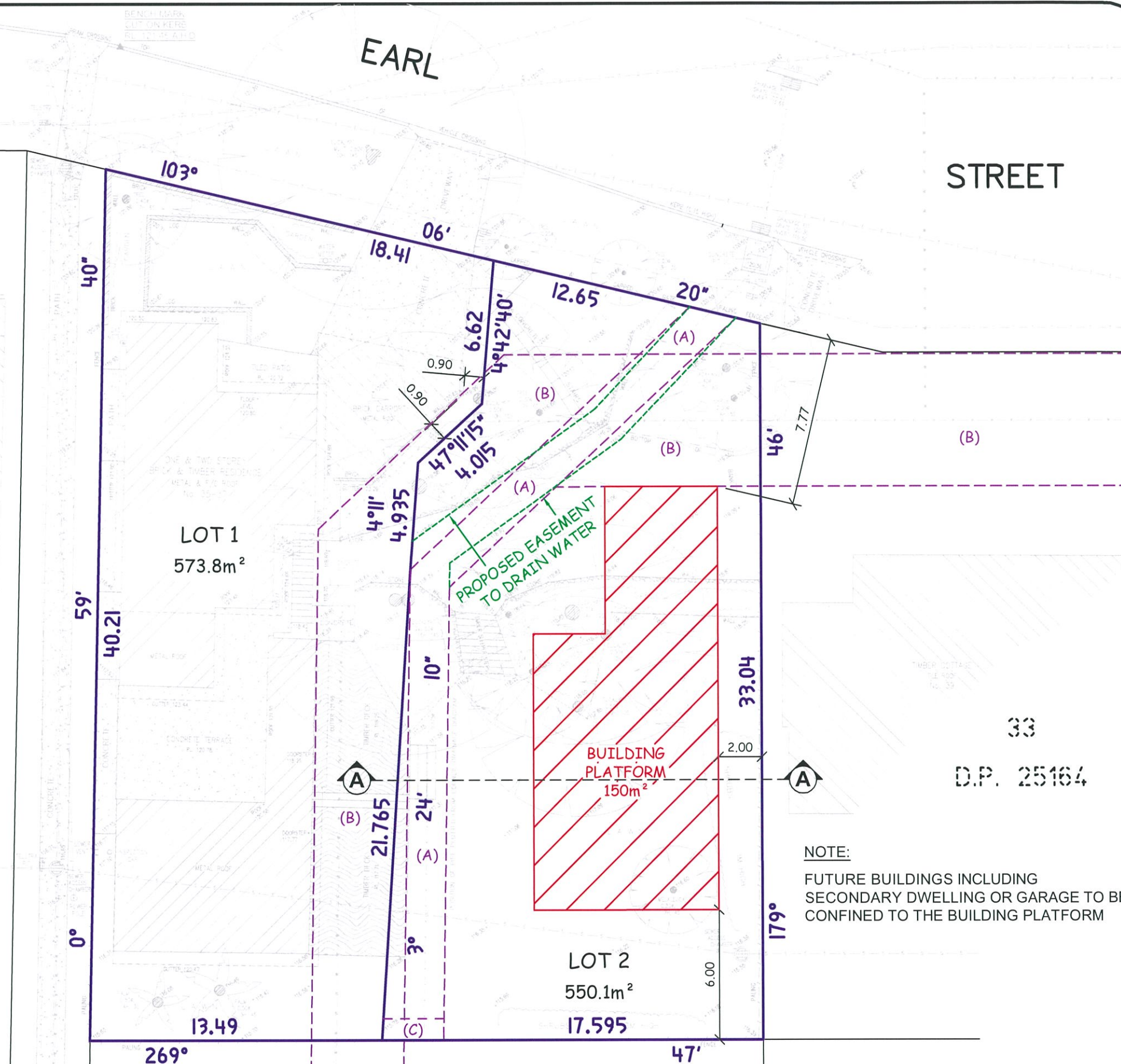
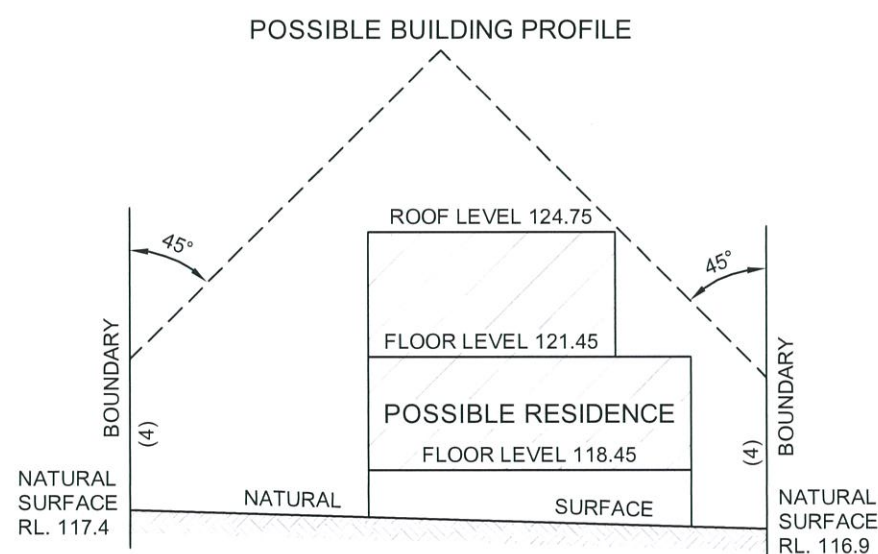


- (A) DRAINAGE EASEMENT 1.83 WIDE (G16150)
 (B) DRAINAGE EASEMENT 6.095 WIDE (D.P. 25164)
 (C) PROPOSED EASEMENT TO DRAIN WATER 1 WIDE



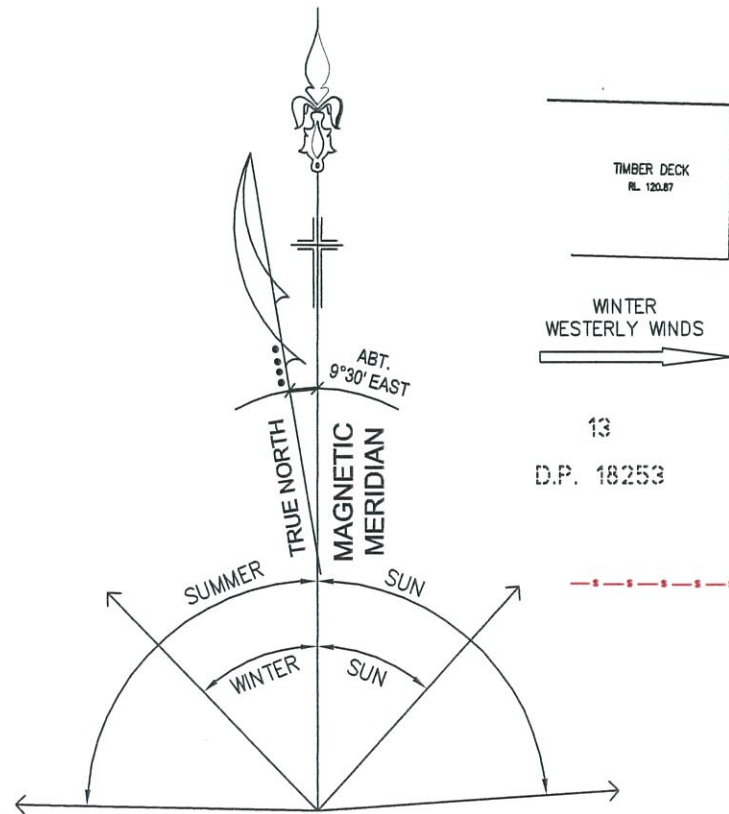
13
 D.P. 18253

SECTION A-A



DISTANCES TO AMENITIES

PUBLIC TRANSPORT - 300m
PARKS & RESERVES - 400m
PRIMARY SCHOOL - 500m
HIGH SCHOOL - 2.4km
WARRINGAH MALL - 2.3km



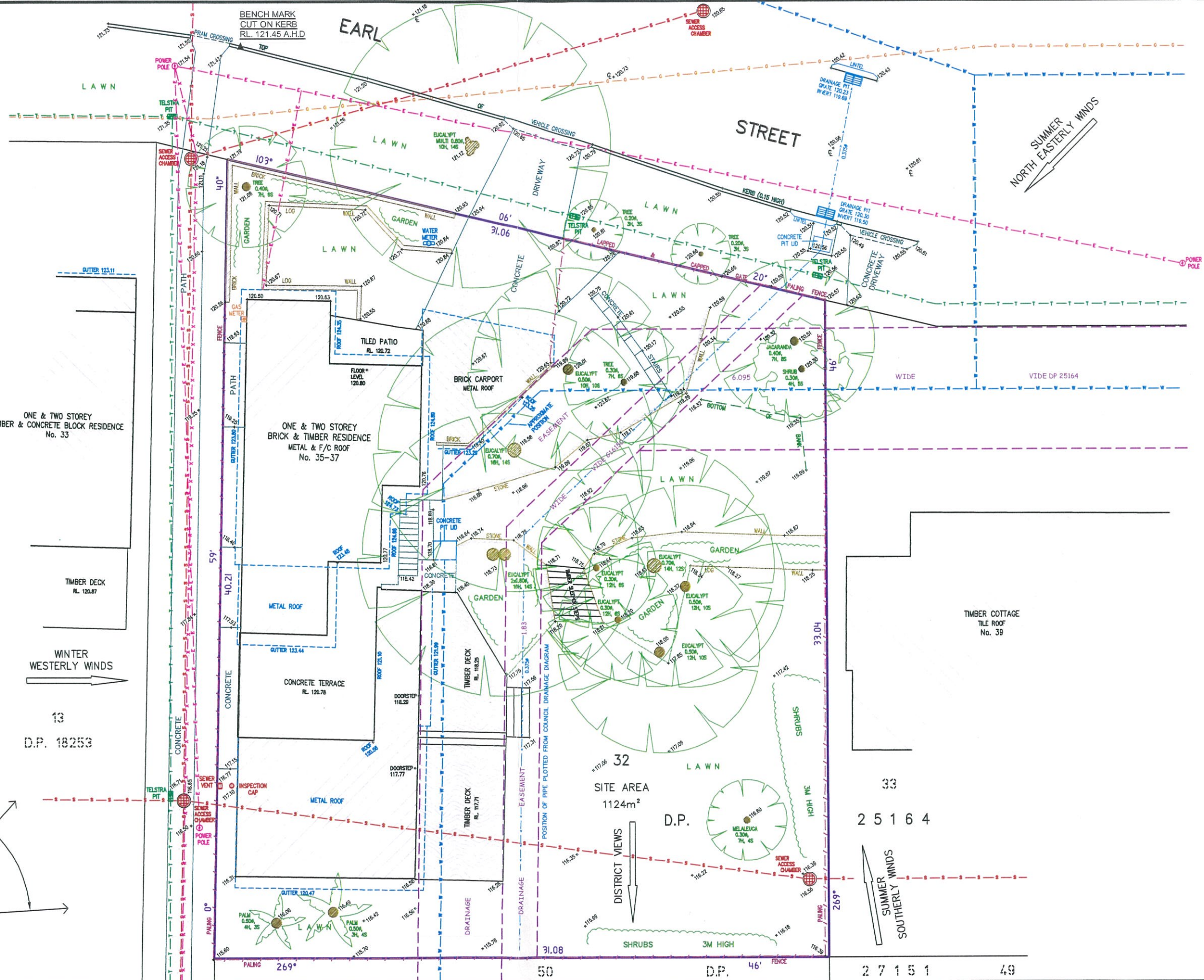
ONE & TWO STOREY
TIMBER & CONCRETE BLOCK RESIDENCE
No. 33

TIMBER DECK
RL 120.87

WINTER
WESTERLY WINDS

13

D.P. 18253



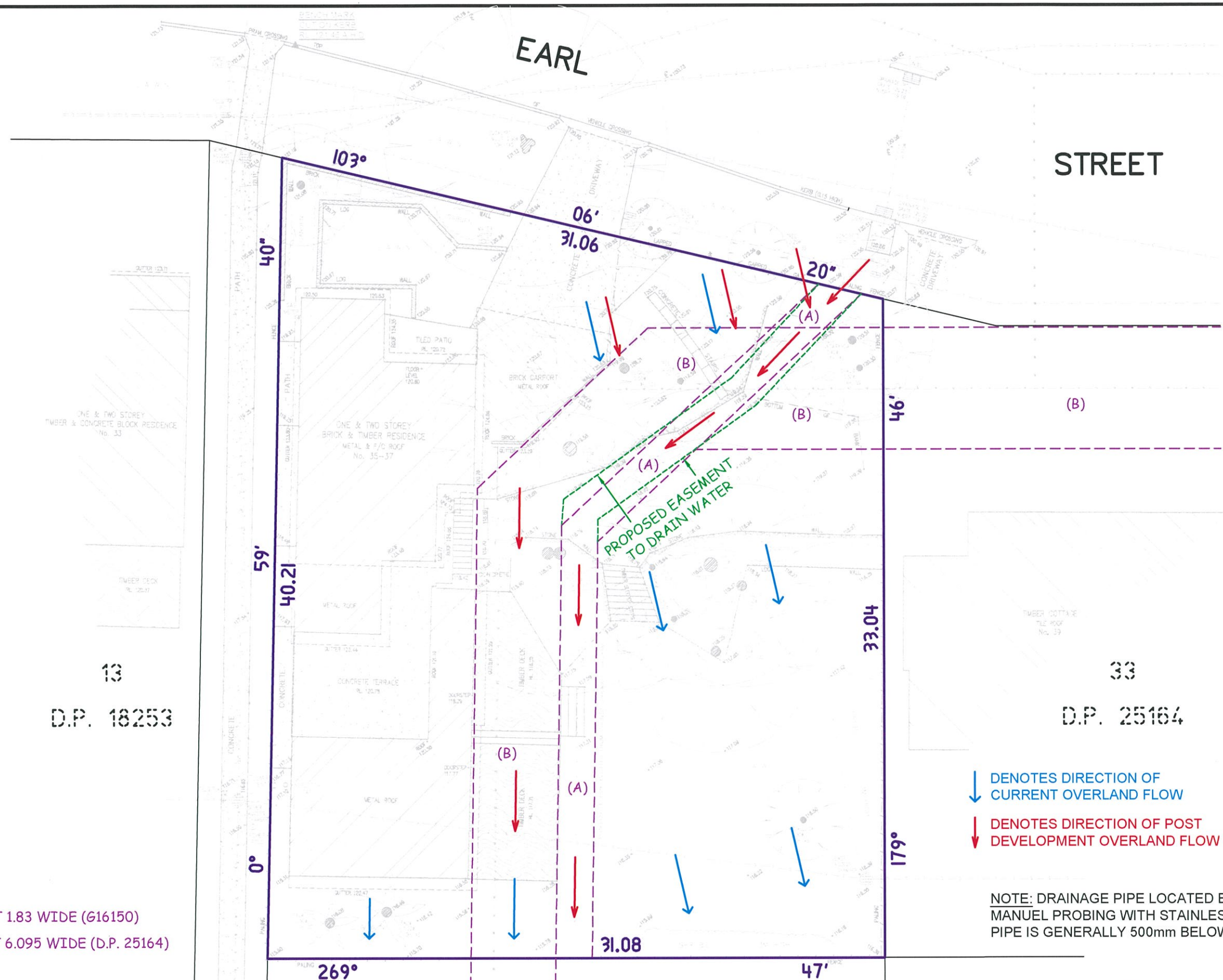
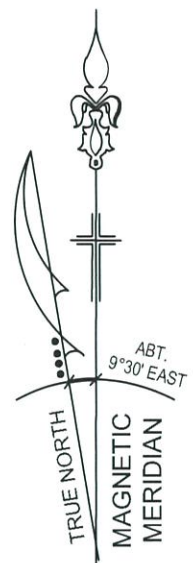
TIMBER COTTAGE
TILE ROOF
No. 39

SUMMER
NORTH EASTERLY WINDS

SUMMER
SOUTHERLY WINDS

SITE ANALYSIS PLAN

CLIENT	KIMBAL BURKE	REF No.	19519
PROPERTY	No. 35 EARL STREET, BEACON HILL	SHEET No.	1 of 1
DATUM	A.H.D.	SCALE	1:200 @ A3
SURVEYED	M.R.	DATE	22/11/2017
		DRAWN	R.M.
		DWG No.	19519-SA
		REV No.	00



(A) DRAINAGE EASEMENT 1.83 WIDE (G16150)
(B) DRAINAGE EASEMENT 6.095 WIDE (D.P. 25164)

↓ DENOTES DIRECTION OF
CURRENT OVERLAND FLOW
↓ DENOTES DIRECTION OF POST
DEVELOPMENT OVERLAND FLOW

NOTE: DRAINAGE PIPE LOCATED BY CCTV &
MANUEL PROBING WITH STAINLESS STEEL SPIKE.
PIPE IS GENERALLY 500mm BELOW THE SURFACE



Bee & Lethbridge Pty Ltd
Suite 2, 14 Starkey Street,
PO Box. 330, Forestville, NSW 2087
Phone: 9451 6757 Fax: 9975 3535
Email: survey@beeeth.com.au
ABN: 13 003 194 447
www.beeeth.com.au

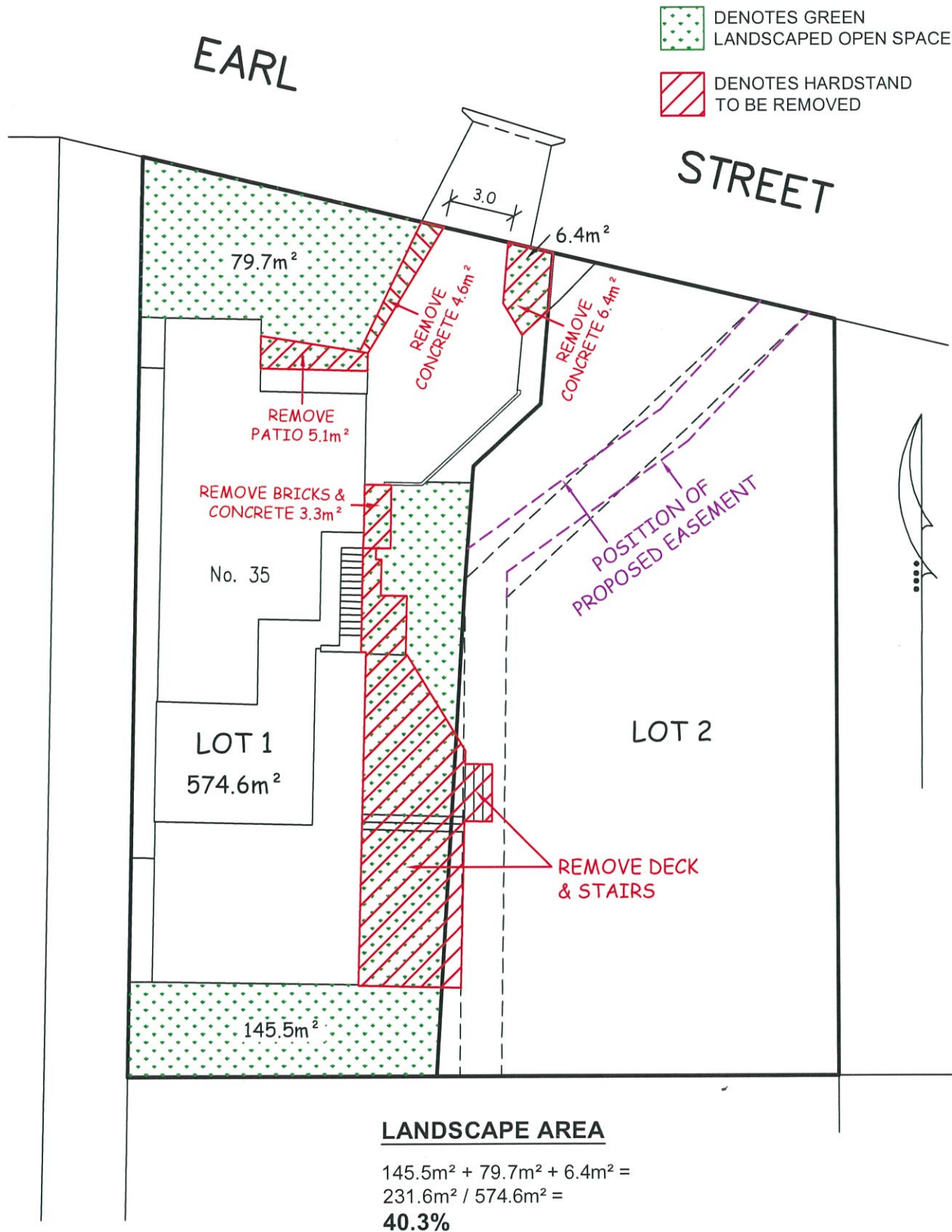
PLAN OF PROPOSED EASEMENT & OVERLAND FLOW WITHIN LOT 32
IN D.P. 25164, KNOWN AS No. 35 EARL STREET, BEACON HILL.

L.G.A.: NORTHERN BEACHES

CLIENT	KIMBAL BURKE	REF No.	19519
PROPERTY	No. 35 EARL STREET, BEACON HILL		
DATUM	A.H.D.	SCALE	1:200 @ A3
SURVEYED	M.R.	DRAWN	R.M.
		DATE	25/06/2018
		DWG No.	19519I
		SHEET No.	1 of 1
		REV No.	00

Sketch

SHOWING STRUCTURES TO BE REMOVED TO OBTAIN 40% LANDSCAPED OPEN SPACE
& POSITION OF PROPOSED EASEMENT AT No. 35 EARL STREET, BEACON HILL
L.G.A: NORTHERN BEACHES



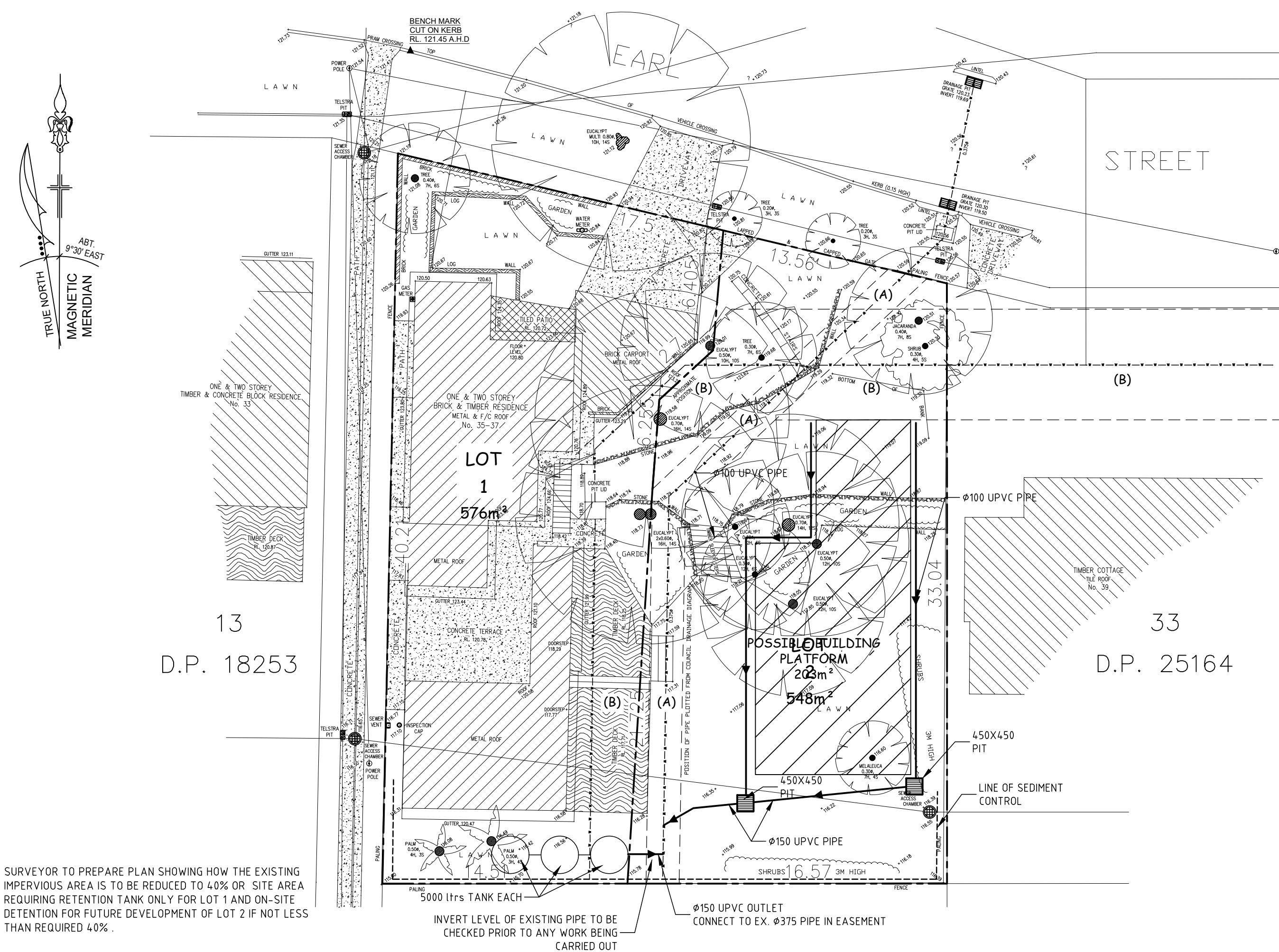
Bee & Lethbridge
Quality Surveying & Development Solutions

Bee & Lethbridge Pty Ltd
Suite 2, 14 Starkey Street,
PO Box. 330, Forestville, NSW 2087
Phone: 9451 6757 Fax: 9975 3535
Email: survey@beeeth.com.au
ABN: 13 003 194 447
www.beeeth.com.au

DATE: 30/04/2018
REF No: 19519
DWG No. 19519H
SURVEYED: W.B.
DRAWN: R.M.

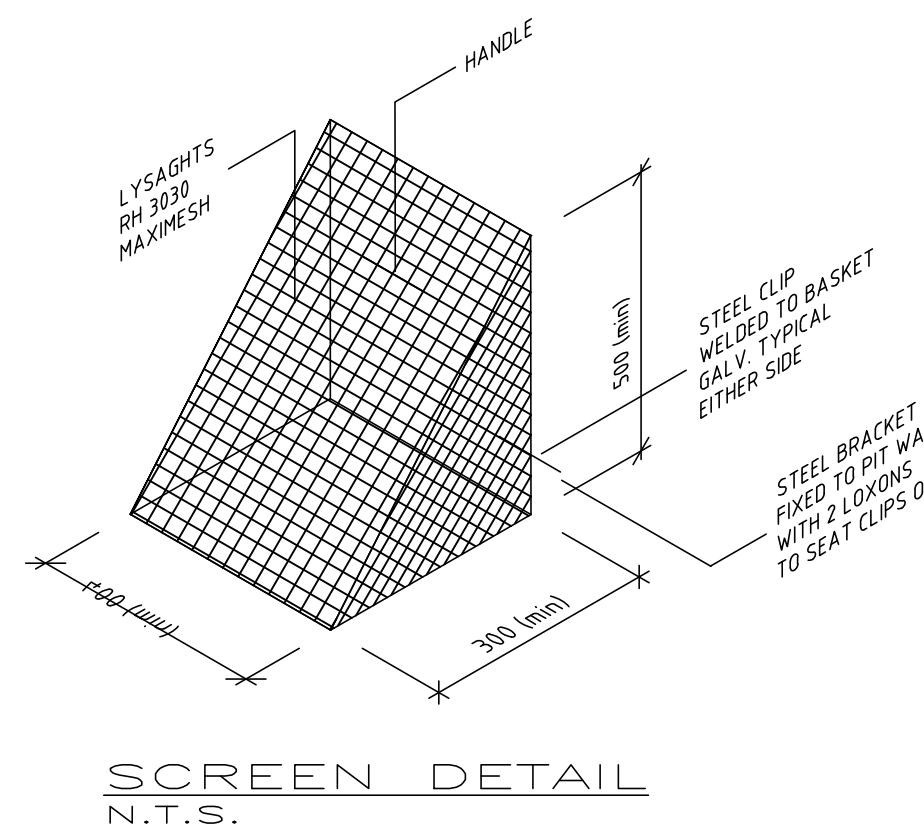


**DIAL 1100
BEFORE YOU DIG**

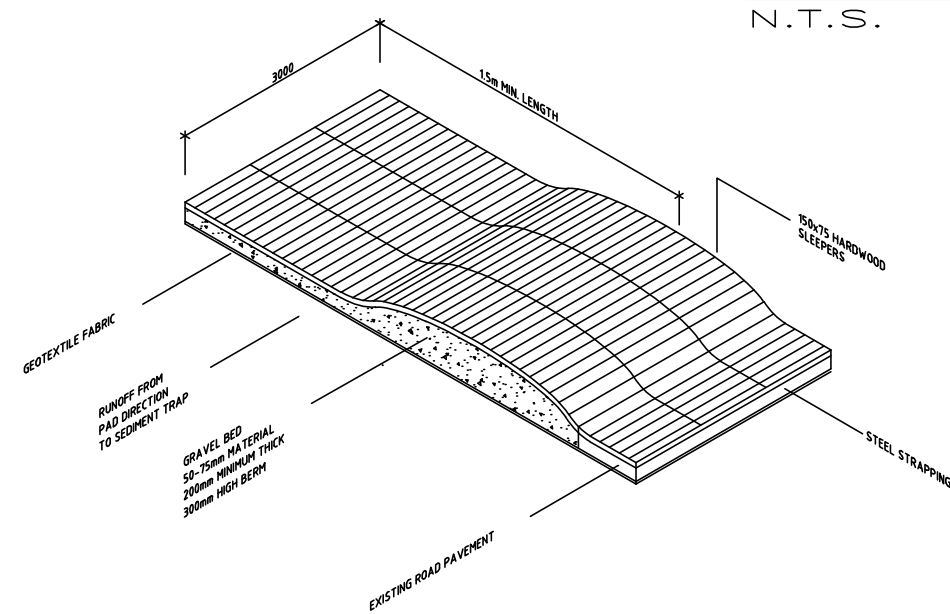


SURVEYOR TO PREPARE PLAN SHOWING HOW THE EXISTING IMPERVIOUS AREA IS TO BE REDUCED TO 40% OR SITE AREA REQUIRING RETENTION TANK ONLY FOR LOT 1 AND ON-SITE DETENTION FOR FUTURE DEVELOPMENT OF LOT 2 IF NOT LESS THAN REQUIRED 40%.

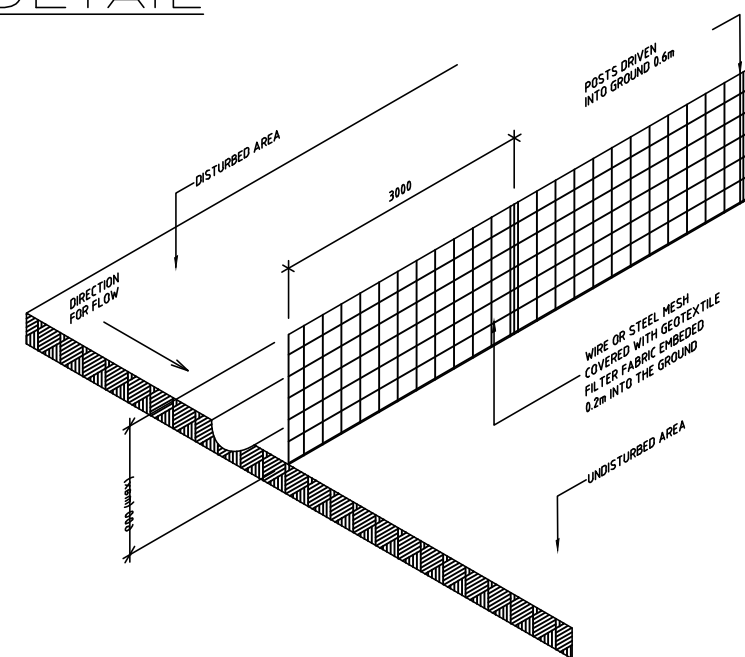
**SITE PLAN
1:200**



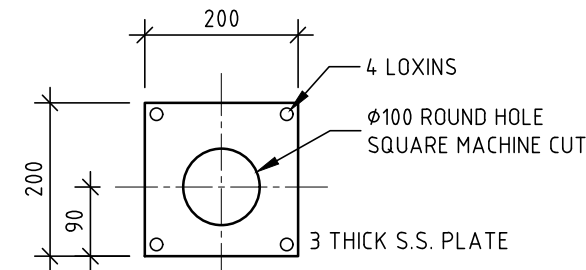
**SCREEN DETAIL
N.T.S.**



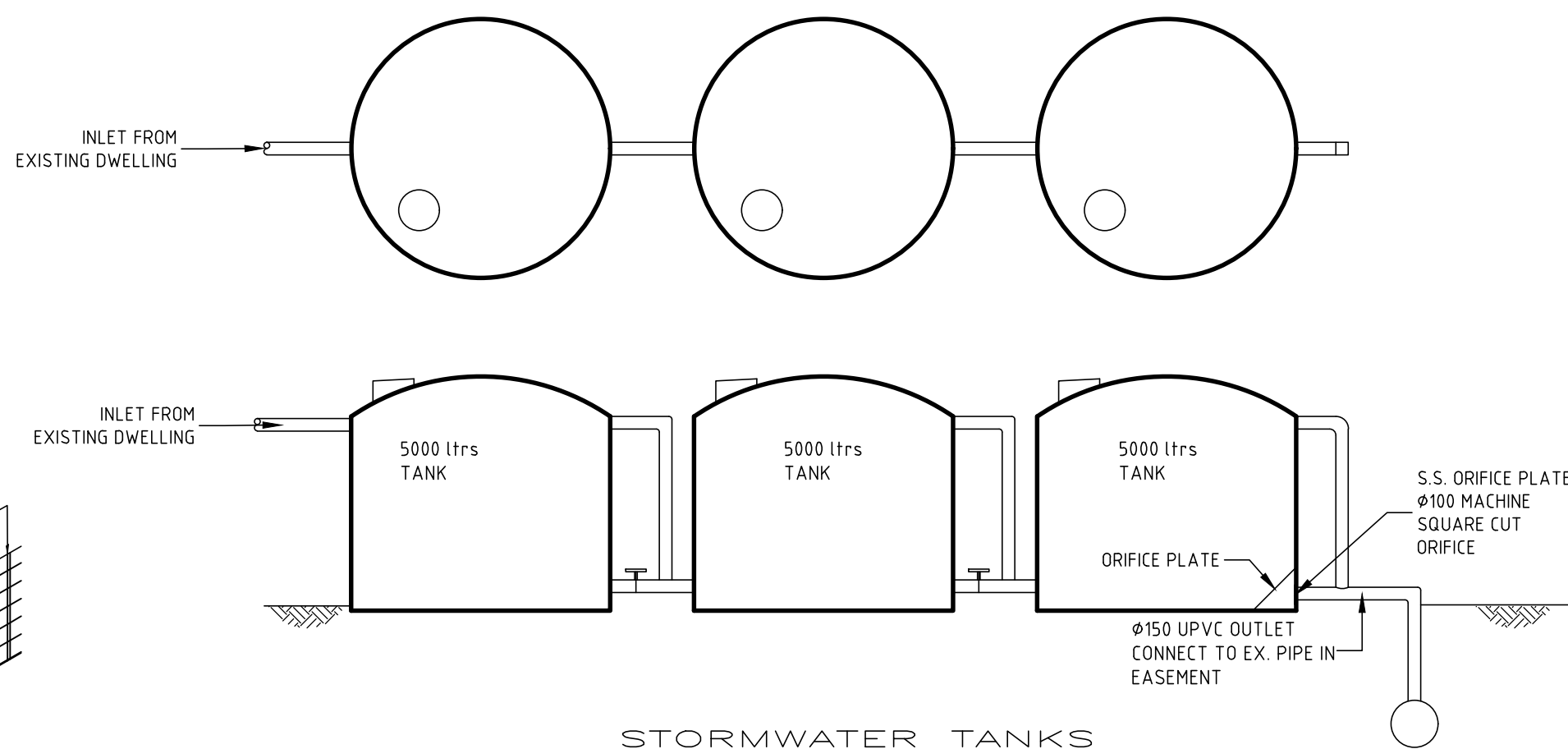
**TEMPORARY CONSTRUCTION EXIT
N.T.S.**



**SEDIMENT FENCE DETAIL
N.T.S.**



**ORIFICE PLATE DETAIL
1:10**



**STORMWATER TANKS
1:50**

HYDRAULIC NOTES

- H.1 ALL SERVICES ARE TO BE LOCATED IN THE FIELD IN CONJUNCTION WITH A RESPONSIBLE OFFICER OF EACH RELEVANT AUTHORITY PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- H.2 DRAINAGE PITS ARE TO BE 450 mm SQUARE OR LARGER AND FITTED WITH A GALVANISED GRATE.
- H.3 DRAINAGE PIPE SIZES ARE Ø100 mm UNLESS NOTED.
- H.4 DRAINAGE PIPES SHALL BE SEWER GRADE PVC UNLESS NOTED.
- H.5 ALL BARE SOIL AREAS ARE TO BE PROTECTED FROM EROSION BY TEMPORARY MEASURES AND RE-VEGETATED AT CESSATION OF CONSTRUCTION.
- H.6 A SEDIMENT CATCHMENT POND IS TO BE PROVIDED AT THE RATE OF 120 m³ CAPACITY PER HECTARE DRAINED. THE DETENTION TANKS MAY BE USED FOR THIS PURPOSE, PROVIDED SUFFICIENT WATER IS RETAINED AS A POOL DURING CONSTRUCTION & ADEQUATE SAFETY FENCING IS PROVIDED.
- H.7 THE DOWNHILL BOUNDARY OF THE SITE IS TO BE PROTECTED BY HAY BALE OR FILTER FABRIC FENCE DURING CONSTRUCTION AS SHOWN IN ATTACHED DETAIL.
- H.8 THE STREET DRAINAGE PIT LOCATED DOWNHILL OF THE SITE SHALL BE PROTECTED FROM SEDIMENT WITH HAY BALES.
- H.9 A SINGLE CONSTRUCTION ENTRANCE SHALL BE ESTABLISHED IN THE MANNER SHOWN IN ATTACHED DETAIL.
- H.10 ALL EROSION PROTECTION MEASURES TO MEET THE REQUIREMENTS OF THE DEPT. OF CONSERVATION AND LAND MANAGEMENT AS OUTLINED IN 'URBAN EROSION & SEDIMENT CONTROL', SCS TECH HANDBOOK No 2 1978 UNLESS SPECIFIED BY COUNCIL.

PIPE MAXIMUM FLOW TABLE (BASED ON Q = 0.065ETA & MANNINGS n = 0.012)

FRICTION SLOPE (%)	100 mm PVC			150 mm PVC			225 mm PVC		
	Q (l/s)	EIA (m²)	Q (l/s)	EIA (m²)	Q (l/s)	EIA (m²)	Q (l/s)	EIA (m²)	Q (l/s)
1	5.6	85	16.5	260	48.6	750			
2	7.9	120	23.3	360	68.7	1060			
3	9.7	150	28.6	440	84.2	1300			
4	11.2	175	33.0	510	97.2	1500			
5	12.5	190	36.9	570	109	1680			
10	17.7	240	52.2	810	154	2380			

EIA = EQUIVALENT IMPERVIOUS AREA

SPECIAL NOTES

1. ALL PIPES TO BE LAID ON 75 mm SAND BED WITH THE BARRELS FULLY SUPPORTED ("B" CLASS BEDDING) PROVIDE "CLEANING EYES" TO ALL DOWN PIPES NOT DIRECTLY CONNECTED TO PITS.
2. "HEAVY DUTY" GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS.
3. THE SUMP IN THE DETENTION TANK SHALL BE DELETED.
4. ORIFICE PLATES USED TO RESTRICT THE OUTFLOW MUST BE MACHINED TO THE EXACT DIMENSION AS CALCULATED FROM MINIMUM 3 mm THICK STAINLESS STEEL OR 3 mm THICK GALVANISED STEEL AFTER MACHINING. THEY MUST BE CAST IN THE PIT WALLS OR PERMANENTLY FIXED IN THE PIT BY SOME APPROVED METHOD SO THEY CANNOT BE EASILY REMOVED.
5. A PLAQUE MEASURING NO LESS THAN 400 mm X 200 mm SHALL BE IN SOME WAY PERMANENTLY ATTACHED AND PROMINENTLY DISPLAYED WITHIN THE IMMEDIATE VICINITY OF THE OSD DEVICE AND ALSO THAT THE DEVICE IS NOT IN ANY WAY TO BE TAMPERED WITH OR CHANGED WITHOUT PRIOR WRITTEN CONSENT OF COUNCIL.
6. THE CONSTRUCTED OSD INSTALLATION MUST BE APPROPRIATELY CERTIFIED BY A SUITABLY QUALIFIED AND EXPERIENCED CONSULTING ENGINEER (GENERALLY CP ENG. QUALIFICATION) WHO MUST STATE THAT IT COMPLIES WITH COUNCIL'S OSD POLICY. ALL RELEVANT CODES AND STANDARDS AND ALSO THAT IT IS GENERALLY IN ACCORDANCE WITH APPROVED PLANS.
7. UPON COMPLETION OF THE OSD WORKS, WORK-AS-EXECUTED (WAE) PLANS SHALL BE SUBMITTED TO THE COUNCIL BY THE CONSULTING ENGINEER/REGISTERED SURVEYOR TO VERIFY THAT THE VOLUME OF STORAGE HAS BEEN ATTAINED AND THAT CRITICAL WATER AND FLOOR LEVELS ARE IN ACCORDANCE WITH DESIGN REQUIREMENTS. ANY CHANGES OR VARIATIONS TO THE APPROVED PLANS SHALL BE HIGHLIGHTED IN RED.
8. CERTIFICATION ON THE STANDARD FORM FOR ON-SITE DETENTION RECORD OF INSTALLATION ISSUED BY COUNCIL AND WAE PLANS SHALL BE SUBMITTED TOGETHER WITH THE COMPLIANCE CERTIFICATE.

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O.S.D. SITE PARAMETERS

SITE AREA (LOT 1)	548 m²
% OF IMPERVIOUS AREA	>40%
SITE STORAGE REQUIREMENT (S.S.R.)	200 m³/ha
	13.066 m³
RETENTION VOLUME PROVIDED	15.00m³
PERMISSIBLE SITE DISCHARGE (P.S.D.)	400 l/sec/ha
	219 l/sec
ORIFICE DIAMETER	100 mm
ACHIEVED MAX. DISCHARGE	19.0 l/sec

- NOTES:**
- STREAMLINED METHOD USED AS PER WARRINGAH COUNCIL OSD TECHNICAL SPECIFICATIONS (REV. AUG 2012)
 - CALCULATIONS FOR LOT 1 ONLY (ASSUMING THE IMPERVIOUS AREA OF THE EXISTING PROPERTY WILL BE REDUCED TO 40% OF TOTAL AREA)

GENERAL NOTES

- G.1 THESE NOTES SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTION AS ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT OR ENGINEER BEFORE PROCEEDING WITH THE WORK.
- G.2 DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.
- G.3 SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY ON-SITE MEASUREMENT.
- G.4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
- G.5 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE SAA CODE AND THE BY-LAWS AND ORDINANCES OF THE RELATIVE BUILDING AUTHORITY.
- G.6 EXCAVATIONS SHALL NOT BE PERMITTED WITHIN 2 METRES OF AN EXISTING STRUCTURE WITHOUT PRIOR APPROVAL OR RECOMMENDATIONS FOR SHORING OR UNDERPINNING PROVIDED BY ENGINEER.
- FOUNDATIONS AND FOOTINGS
- F.1 FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE INTENSITY OF BEARING PRESSURE OF 150kPa. THE BUILDER SHALL OBTAIN APPROVAL OF THE FOUNDATION MATERIAL BEFORE PLACING CONCRETE.
- F.2 FOOTINGS SHALL BE PLACED UNDER WALLS AND COLUMNS UNLESS OTHERWISE NOTED.
- SUB-GRADE
- SG.1 UNDER ALL SLABS ON GRADE, WHETHER ON CUT OR FILL, REMOVE SOFT SPOTS AND RE-FILL BY COMPACTING CUT SURFACES OR FILL SURFACES IN LAYERS NOT EXCEEDING 200 mm TO 95% DRY DENSITY, ENSURING MINIMUM SETTLEMENT TO SLABS.

CONCRETE WORK

- C.1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C.2 CONCRETE QUALITY SHALL BE AS TABULATED AND SHALL BE VERIFIED BY TESTS.

ELEMENT	SLUMP	MAX AGG. SIZE	CEMENT TYPE	ADMIXTURE	mPa CONCRETE GRADE
ALL	80	20	A	NIL	32

- C.3 CLEAR CONCRETE COVERS TO REINFORCEMENT SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN.

ELEMENT	CAST IN FORMS COMPLYING WITH AS 1509		
	CONDITION 1 NOT TO BE EXPOSED TO WEATHER GROUND WATER OR FRESH WATER	CONDITION 2 TO BE EXPOSED TO WEATHER GROUND WATER OR FRESH WATER	CONDITION 3 CAST AGAINST OTHER FORMWORK OR THE GROUND
PAD FOOTINGS & PILE CAPS	-	65	75
STRIP FOOTINGS	-	50	65
SOME OR ALL PERS.	-	50	75
COLUMNS	40	50	75
WALLS, INCLUDING RETAINING WALLS	20	30	65
BEAMS	25	40	65
SLABS, INCLUDING JOISTS, AND ALL BLOCK CONSTRUCTION	20	30	65
REINFORCEMENT ADJACENT TO HOLLOW BLOCKS INTEGRAL WITH STRUCTURE	5	-	-

- NOTE:**
- SLABS POURED OVER A MEMBRANE ON THE GROUND ARE INCLUDED AS CONDITION 2.
 - SLABS EXPOSED TO CORROSIVE VAPOURS, CORROSIVE GROUND WATER, SEA WATER OR SPRAY ARE TO HAVE REINFORCEMENT COVER AS NOTED OR NOT LESS THAN AS REQUIRED FOR CONDITION 3.
- C.4 SIZES OF ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
 - C.5 CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER.
 - C.6 BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY, UNDO.
 - C.7 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
 - C.8 REINFORCEMENT IS REPRESENTED DIAGMATICALLY. IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
 - C.9 SPLICES IN REINFORCEMENT MADE IN POSITIONS OTHER THAN SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.
 - C.10 WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
 - C.11 PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
 - C.12 ALL REINFORCING BARS SHALL COMPLY WITH AS 1302. ALL FABRIC SHALL COMPLY WITH AS 1303 AND AS 1304 AND SHALL BE SUPPLIED IN FLAT SHEETS.
 - C.13 REINFORCING SYMBOLS
S GRADE 230S DEFORMED BAR
C GRADE 410C COLD WORKED DEFORMED BAR
Y GRADE 410R DEFORMED BAR
R GRADE 230R PLAIN BAR
F GRADE 450 WELDED WIRE FABRIC
N GRADE 500 DEFORMED BAR
THE NUMBER IMMEDIATELY FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN MILLIMETRES
 - C.14 FABRIC REINFORCEMENT TO BE LAPPED 300 MINIMUM AT ENDS AND SIDES UNDO. LAPS IN POSITION OF MAXIMUM MOMENT ARE NOT PERMITTED.
 - C.15 ALL REINFORCEMENT SHALL BE FULLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS SPACED AT 900 AND 750 CENTRES BOTH WAYS UNDER ROAD AND FABRIC REINFORCEMENT RESPECTIVELY. RODS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
 - C.16 MINIMUM STRIPPING TIMES FOR FORMWORK SHALL BE AS RECOMMENDED IN AS 1509 OR AS DIRECTED BY ENGINEER.

CIVIL & STRUCTURAL ENGINEERING DESIGN SERVICES PTY. LTD.

CONSULTING STRUCTURAL, CIVIL, GEOTECHNICAL & ENVIRONMENTAL ENGINEERS
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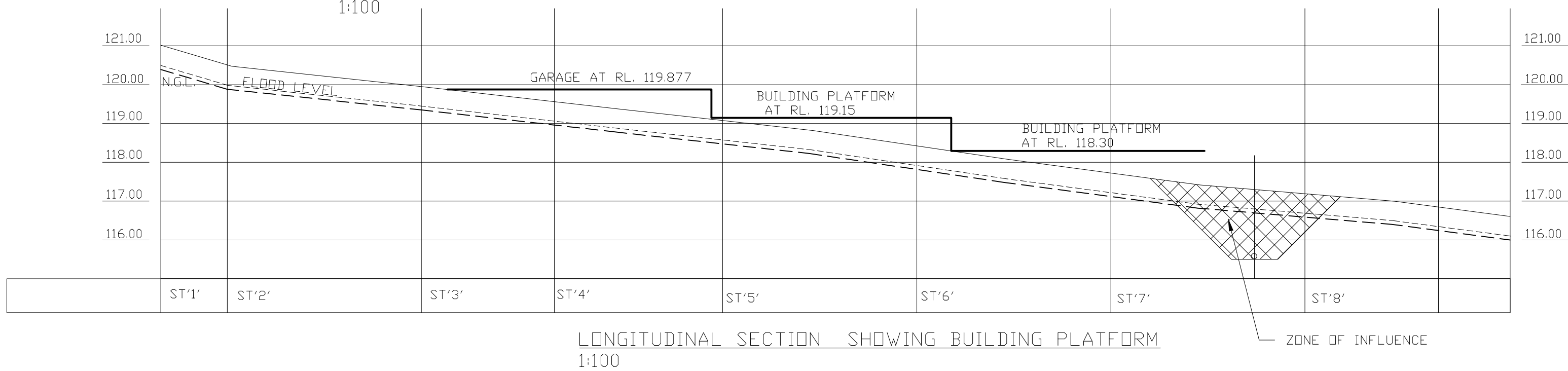
CLIENT: BEE & LETHBRIDGE
PROJECT: PROPOSED STORMWATER MANAGEMENT
PLAN FOR SUBDIVISION AT 35 EARL
STREET, BEACON HILL

Drawn By:	BG	Scale:	AS SHOWN
Checked By:	E. A. BENNETT M.I.E. Aust.	Drawing No.:	B-11-264297-1D
Date:	28/07/2016	Amendment:	'D'-18/05/2018

Registered Professional Engineer 19823+
Mr Edward A. Bennett
MIEAust CPEng

Signature: Date 28/07/2016

Register on the NPES in the Category of
Civil/Environmental/Structural/Geotechnical
National Professional Engineers Register



GENERAL NOTES

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- G6 EXCAVATIONS SHALL NOT BE PERMITTED WITHIN 2 METRES OF AN EXISTING STRUCTURE WITHOUT PRIOR APPROVAL OR RECOMMENDATIONS FOR SHORING OR UNDERPINNING PROVIDED BY ENGINEER.
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- CONCRETE WORK
- C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C2 CONCRETE QUALITY SHALL BE AS TABULATED AND SHALL BE VERIFIED BY TESTS.

ELEMENT	SLUMP	MAX SIZE AGG	CEMENT TYPE	ADMIXTURE	MPa CONCRETE GRADE
ALL	80	20	A	NIL	32

- C3 CLEAR CONCRETE COVERS TO REINFORCEMENT SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN.

CAST IN FORMS COMPLYING WITH AS 1599			
ELEMENT	CONDITION 1 NOT TO BE EXPOSED TO WEATHER GROUND WATER OR FRESH WATER	CONDITION 2 TO BE EXPOSED TO WEATHER GROUND WATER OR FRESH WATER	CONDITION 3 CAST AGAINST OTHER FORMWORK OR THE GROUND
PAD FOOTINGS & PILE CAPS	-	65	75
STRIP FOOTINGS	-	50	65
SOME OR ALL PIERS	-	50	75
COLUMNS	40	50	75
WALLS, INCLUDING RETAINING WALLS	20	30	65
BEAMS	25	40	65
SLABS, INCLUDING JOISTS & BELOW BLOCK CONSTRUCTION	20	30	65
REINFORCEMENT ADJACENT TO HOLLOW BLOCKS INTEGRAL WITH STRUCTURE	5	-	-

- NOTE:
- SLABS POURED OVER A MEMBRANE ON THE GROUND ARE INCLUDED AS CONDITION 2.
 - SLABS EXPOSED TO CORROSIVE VARIOUS CORROSIVE GROUND WATER, SEA WATER OR SPRAY ARE TO HAVE REINFORCEMENT COVER AS NOTED OR NOT LESS THAN AS REQUIRED FOR CONDITION 3.
- C4 SIZES OF ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
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- C13 REINFORCING SYMBOLS
- | | | |
|---|------------|--------------------------|
| S | GRADE 230S | DEFORMED BAR |
| C | GRADE 410C | COLD WORKED DEFORMED BAR |
| Y | GRADE 410R | DEFORMED BAR |
| R | GRADE 230R | PLAIN BAR |
| F | GRADE 450 | WELDED WIRE FABRIC |
| N | GRADE 500 | DEFORMED BAR |
- THE NUMBER IMMEDIATELY FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN MILLIMETRES.
- C14 FABRIC REINFORCEMENT TO BE LAPPED 300 MINIMUM AT ENDS AND SIDES UNO. LAPS IN POSITION OF MAXIMUM MOMENT ARE NOT PERMITTED.
- C15 ALL REINFORCEMENT SHALL BE FULLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS SPACED AT 900 AND 750 CENTRES BOTH WAYS UNDER ROOF AND FABRIC REINFORCEMENT RESPECTIVELY. RODS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
- C16 MINIMUM STRIPPING TIMES FOR FORMWORK SHALL BE AS RECOMMENDED IN AS 1599 OR AS DIRECTED BY ENGINEER.

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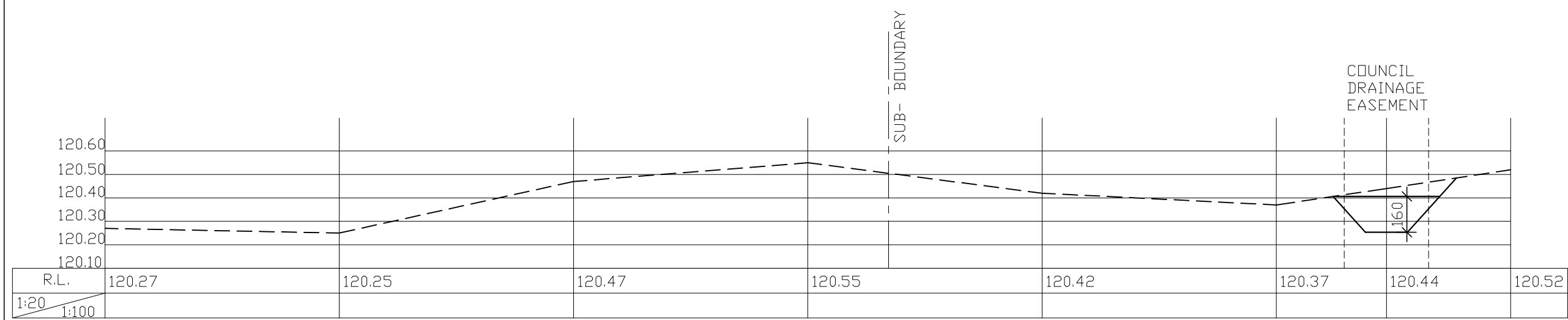
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PHONE 61-02 9975 3899
FAX 61-02 9975 1943
MOBILE 04-07 753 899
EMAIL hited@bigpond.net.au

CLIENT: BEE & LETHBRIDGE
PROJECT: FLOOD STUDY
34 EARL STREET
BEACON HILL, NSW

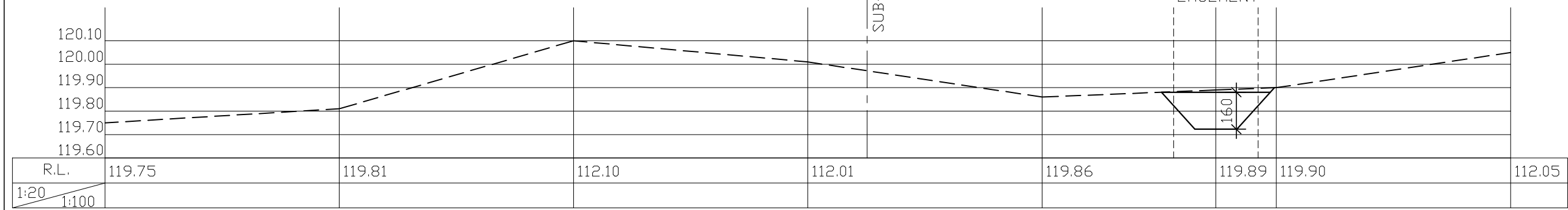
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Date:	28/07/2016	Amendment:	C-04/05/2018

Registered Professional Engineer 198230
Mr Edward A. Bennett
MIEAust CPEng

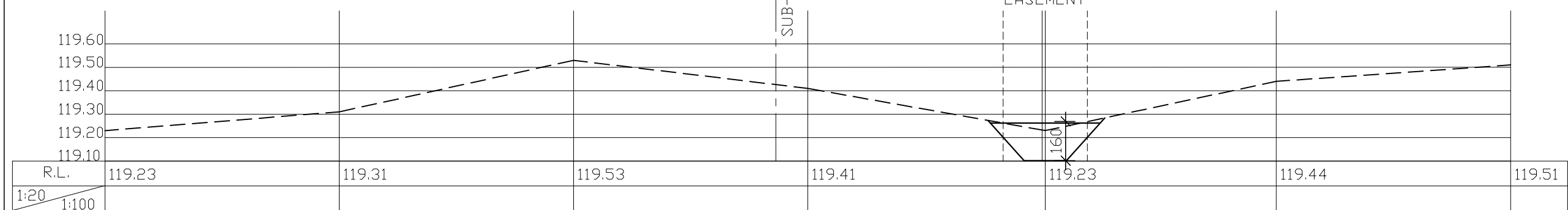
Signature: *Edward A. Bennett* Date 28/07/2016
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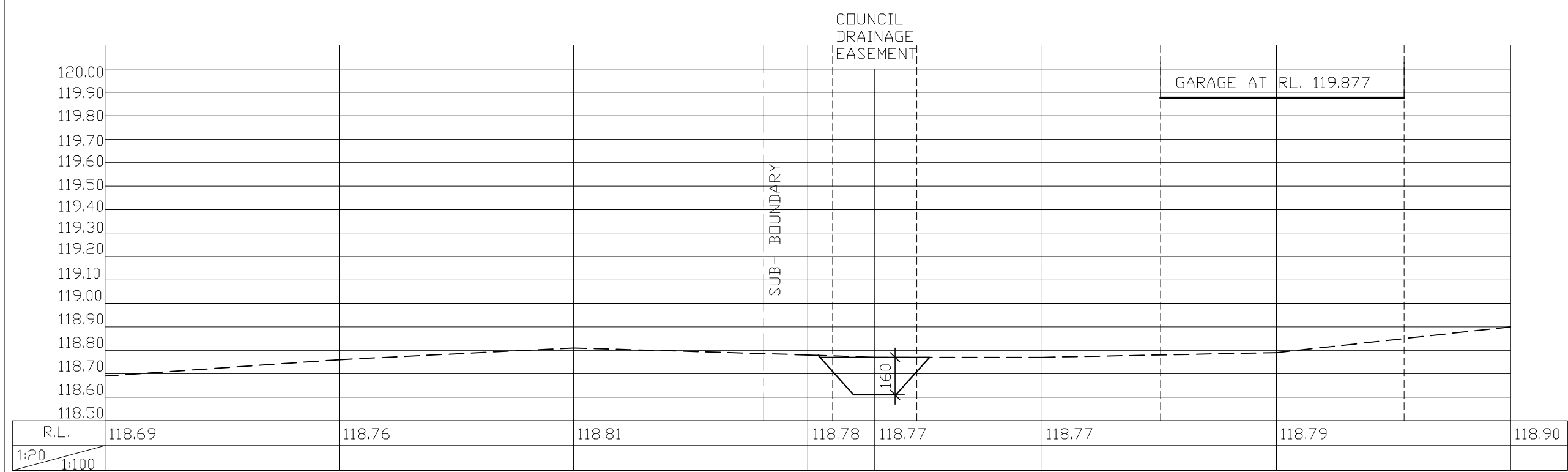
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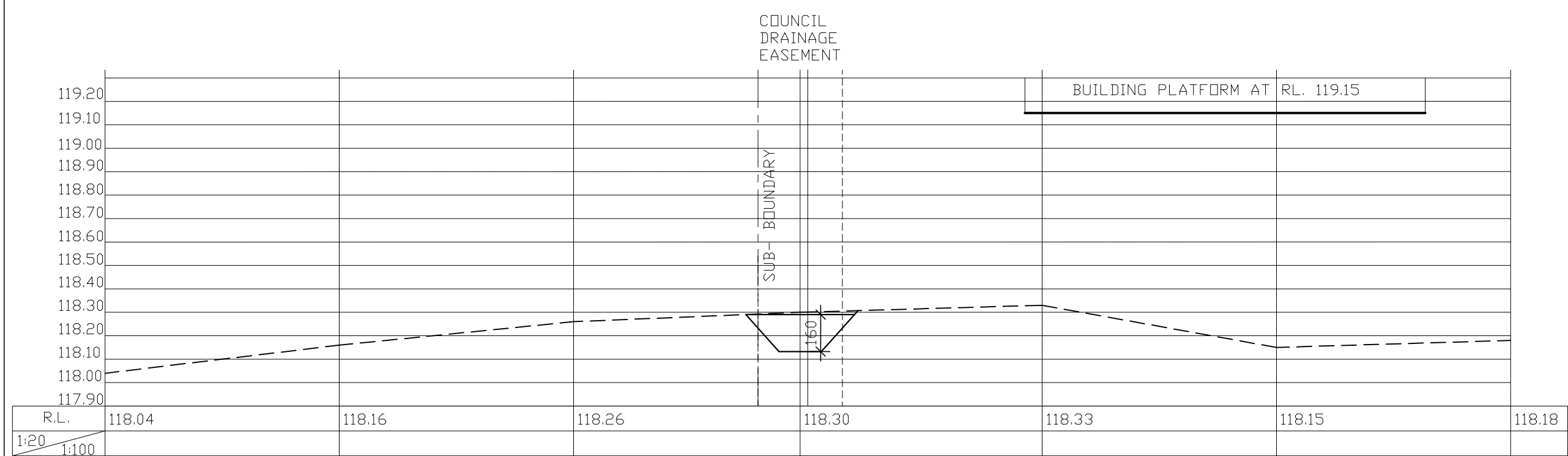
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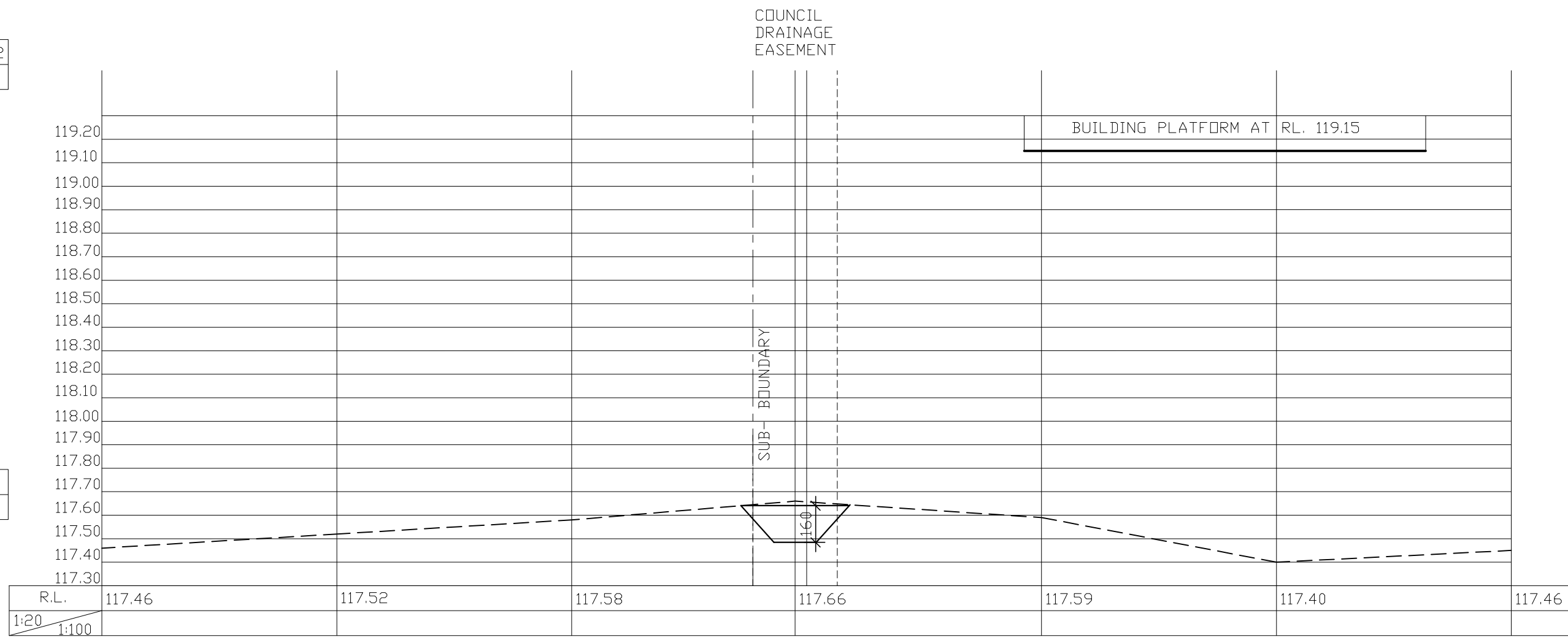
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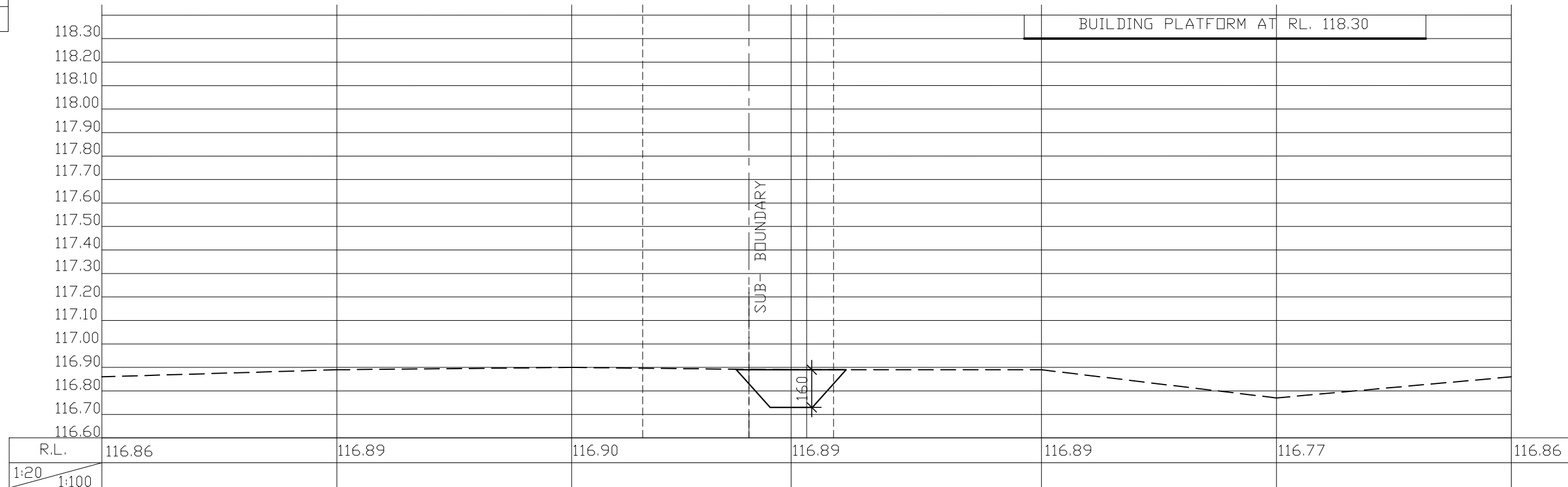
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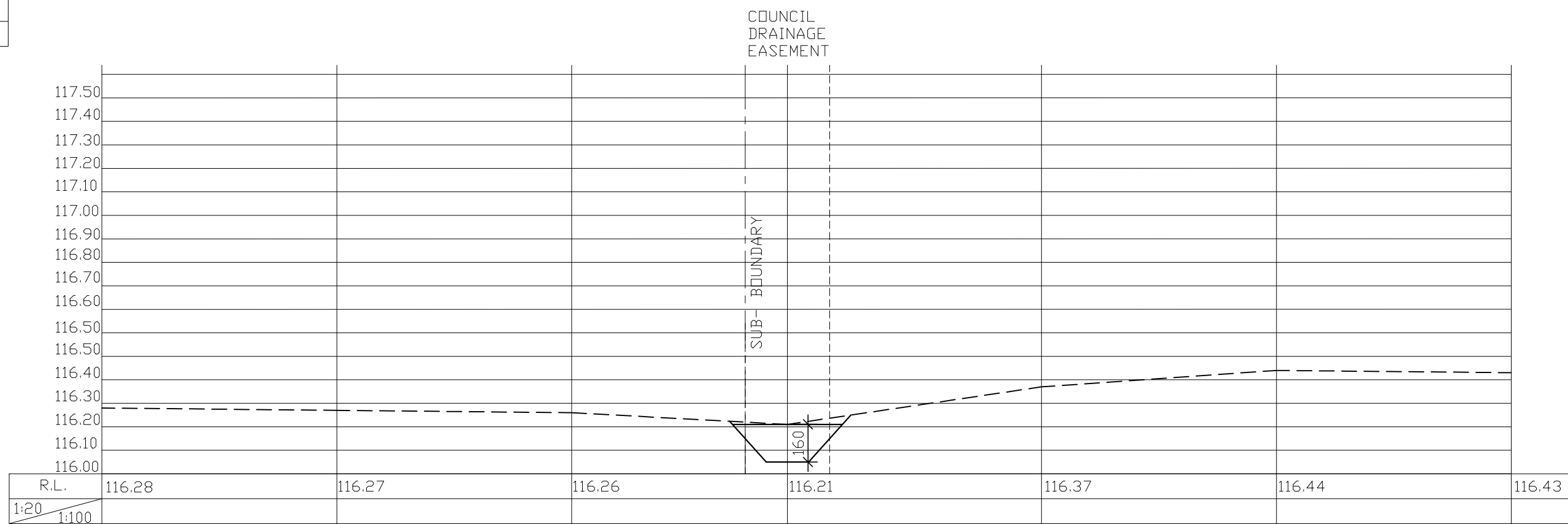
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CROSS SECTION STATION '6'
H-1:100, V-1:20



CROSS SECTION STATION '7'
H-1:100, V-1:20



CROSS SECTION STATION '8'
H-1:100, V-1:20
PLEASE NOTE EXAGGERATED SCALES

GENERAL NOTES

- G1 THESE NOTES SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTION AS ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT OR ENGINEER BEFORE PROCEEDING WITH THE WORK.
- G2 DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.
- G3 SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY ON-SITE MEASUREMENT.
- G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
- G5 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE SAA CODE AND THE BY-LAWS AND ORDINANCES OF THE RELATIVE BUILDING AUTHORITY.
- G6 EXCAVATIONS SHALL NOT BE PERMITTED WITHIN 2 METRES OF AN EXISTING STRUCTURE WITHOUT PRIOR APPROVAL OR RECOMMENDATIONS FOR SHORING OR UNDERPINNING PROVIDED BY ENGINEER.
- FOUNDATIONS AND FOOTINGS
- F1 FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE INTENSITY OF BEARING PRESSURE OF 150kPa. THE BUILDER SHALL OBTAIN APPROVAL OF THE FOUNDATION MATERIAL BEFORE PLACING CONCRETE.
- F2 FOOTINGS SHALL BE PLACED UNDER WALLS AND COLUMNS UNLESS OTHERWISE NOTED.
- SUB-GRADE
- SG1 UNDER ALL SLABS ON GRADE, WHETHER ON CUT OR FILL, REMOVE SOFT SPOTS AND REFILL BY COMPACTING CUT SURFACES OR FILL SURFACES IN LAYERS NOT EXCEEDING 200 mm TO 95% DRY DENSITY, ENSURING MINIMUM SETTLEMENT TO SLABS.

- CONCRETE WORK
- C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C2 CONCRETE QUALITY SHALL BE AS TABULATED AND SHALL BE VERIFIED BY TESTS.

ELEMENT	SLUMP	MAX SIZE AGG	CEMENT TYPE	ADMIXTURE	MPa CONCRETE GRADE
ALL	80	20	A	NIL	32

CAST IN FORMS COMPLYING WITH AS 1599			
ELEMENT	CONDITION 1 NOT TO BE EXPOSED TO WEATHER GROUND WATER OR FRESH WATER	CONDITION 2 TO BE EXPOSED TO WEATHER GROUND WATER OR FRESH WATER	CONDITION 3 CAST AGAINST OTHER FORMWORK OR THE GROUND
PAD FOOTINGS & PILE CAPS	-	65	75
STRIP FOOTINGS	-	50	65
SORE OR CAST PIERS	-	50	75
COLUMNS	40	50	75
WALLS, INCLUDING RETAINING WALLS	20	30	65
BEAMS	25	40	65
SLABS, INCLUDING JOBS & HOLLOW BLOCK CONSTRUCTION	20	30	65
REINFORCEMENT ADJACENT TO HOLLOW BLOCKS INTEGRAL WITH STRUCTURE	5	-	-

- NOTE:
- SLABS POURED OVER A MEMBRANE ON THE GROUND ARE INCLUDED AS CONDITION 2.
 - SLABS EXPOSED TO CORROSIVE VARIOUS CORROSIVE GROUND WATER, SEA WATER OR SPRAY ARE TO HAVE REINFORCEMENT COVER AS NOTED OR NOT LESS THAN AS REQUIRED FOR CONDITION 3.
- C4 SIZES OF ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
- C5 CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER.
- C6 BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY, UNO.
- C7 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- C8 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY. IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- C9 SPLICES IN REINFORCEMENT MADE IN POSITIONS OTHER THAN SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.
- C10 WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
- C11 PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
- C12 ALL REINFORCING BARS SHALL COMPLY WITH AS 1302. ALL FABRIC SHALL COMPLY WITH AS 1303 AND AS 1304 AND SHALL BE SUPPLIED IN FLAT SHEETS.
- C13 REINFORCING SYMBOLS
- | | |
|--------------|--------------------------|
| S GRADE 230S | DEFORMED BAR |
| C GRADE 410C | COLD WORKED DEFORMED BAR |
| Y GRADE 410R | DEFORMED BAR |
| R GRADE 230R | PLAIN BAR |
| F GRADE 450 | WELDED WIRE FABRIC |
| N GRADE 500 | DEFORMED BAR |
- THE NUMBER IMMEDIATELY FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN MILLIMETRES.
- C14 FABRIC REINFORCEMENT TO BE LAPPED 300 MINIMUM AT ENDS AND SIDES UNO. LAPS IN POSITION OF MAXIMUM MOMENT ARE NOT PERMITTED.
- C15 ALL REINFORCEMENT SHALL BE FULLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS SPACED AT 900 AND 750 CENTRES BOTH WAYS UNDER ROOF AND FABRIC REINFORCEMENT RESPECTIVELY. RODS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
- C16 MINIMUM STRIPPING TIMES FOR FORMWORK SHALL BE AS RECOMMENDED IN AS 1599 OR AS DIRECTED BY ENGINEER.

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CLIENT: BEE & LETHBRIDGE
PROJECT: FLOOD STUDY CROSS SECTIONS.
34 EARL STREET
BEACON HILL, NSW

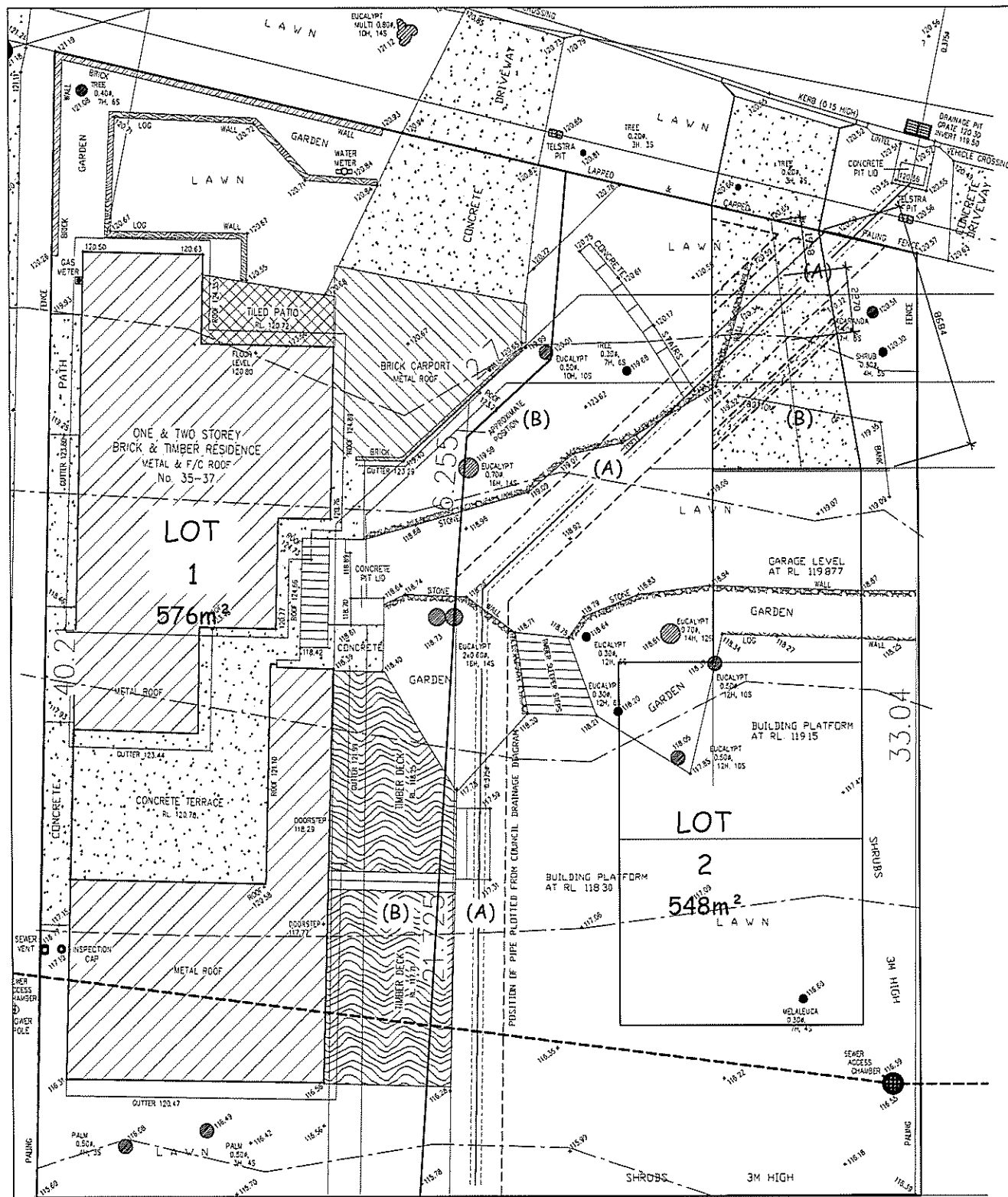
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Date: 28/07/2016	Amendment: B' 18/05/2018

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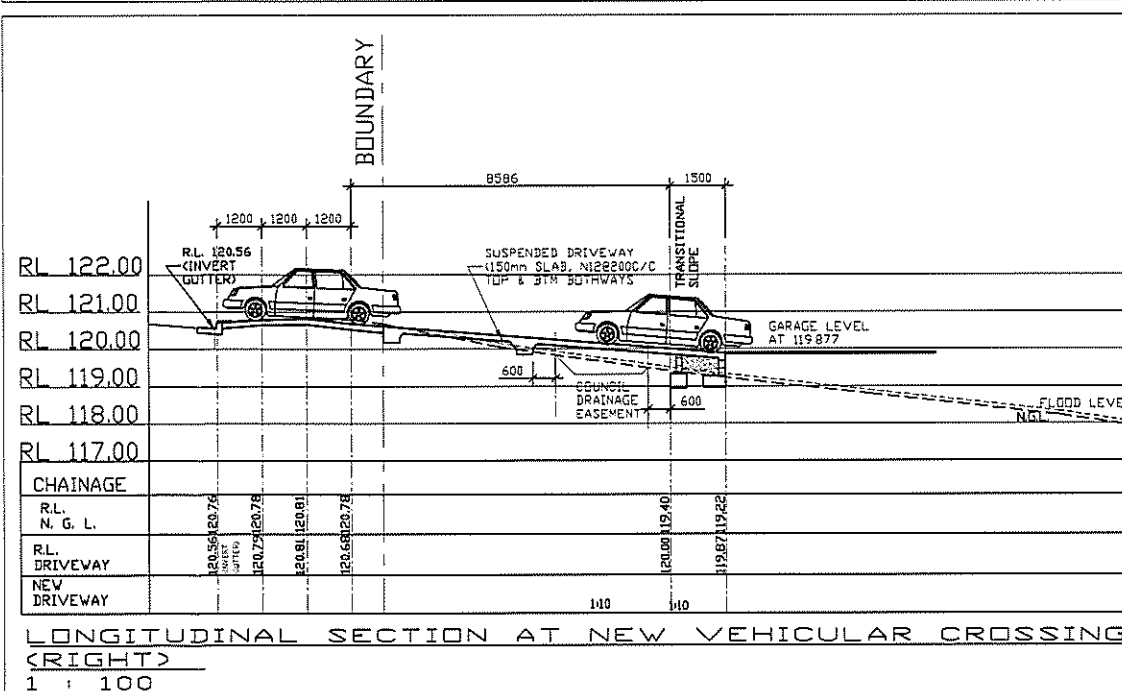
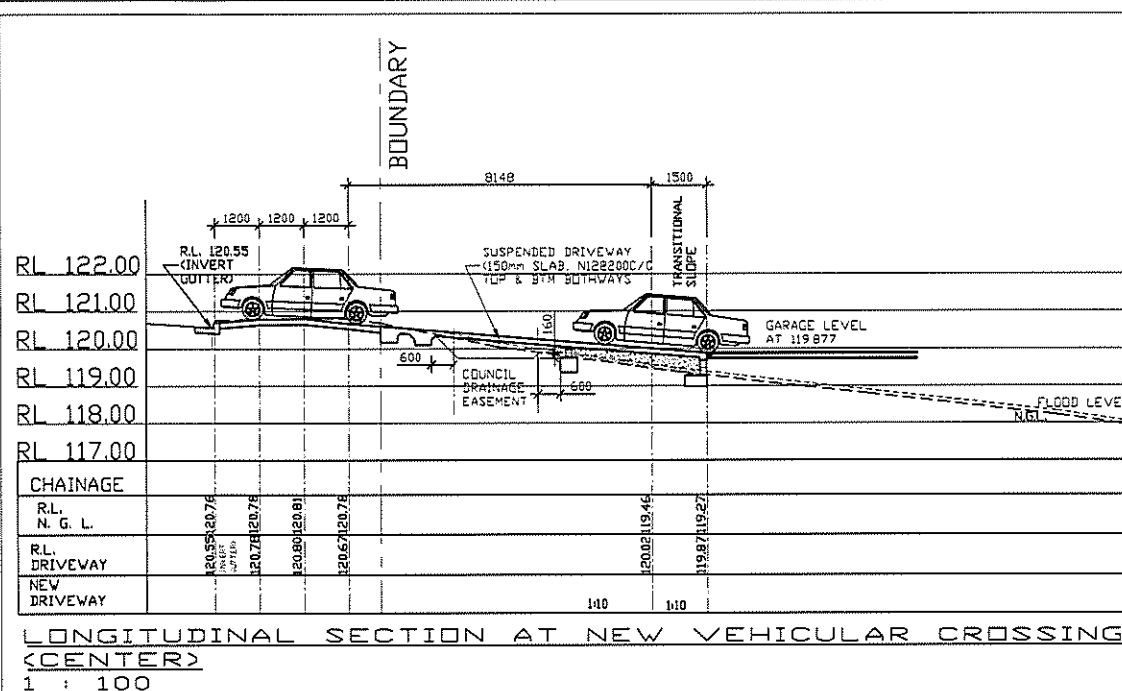
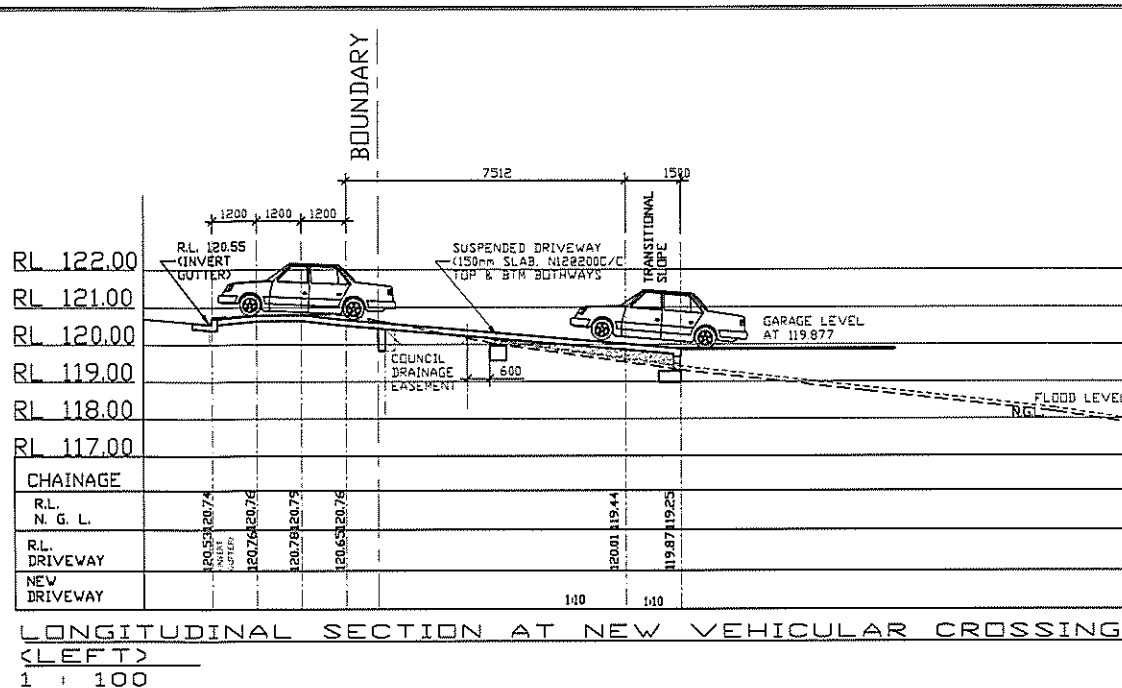
Mr Edward A. Bennett
MIEAust CPEng

Signature.....Date 28/07/2016

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PLAN VIEW ON DRIVE WAY
1 : 100



GENERAL NOTES

- THESE NOTES SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT OR ENGINEER BEFORE PROCEEDING WITH THE WORK.
 - DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.
 - SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY ON-SITE MEASUREMENT.
 - DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
 - ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE SAA CODE AND THE BY-LAWS AND ORDINANCES OF THE RELATIVE BUILDING AUTHORITY.
 - ELEVATIONS SHALL NOT BE PERMITTED WITHIN 2 METRES OF AN EXISTING STRUCTURE WITHOUT PRIOR APPROVAL OR RECOMMENDATIONS FOR SHORING OR UNDERPINNING PROVIDED BY ENGINEER.
 - FOUNDATIONS AND FOOTINGS
 - FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE INTENSITY OF BEARING PRESSURE OF 150 kPa. THE BUILDER SHALL OBTAIN APPROVAL OF THE FOUNDATION MATERIAL BEFORE PLACING CONCRETE.
 - FOOTINGS SHALL BE PLACED UNDER WALLS AND COLUMNS UNLESS OTHERWISE NOTED.
 - SUB-GRADE
 - UNDER ALL SLABS ON GRADE, WHETHER ON CUT OR FILL, REMOVE SOFT SPOTS AND REPAIR BY COMPACTING CUT SURFACES OR FILL SURFACES IN LAYERS NOT EXCEEDING 200 mm TO FIRM DRY DENSITY, ENSURING PROPER SETTLEMENT TO SLABS.
 - CONCRETE WORK
 - ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
 - CONCRETE QUALITY SHALL BE AS TABULATED AND SHALL BE VERIFIED BY TESTS.
- | ELEMENT | SUMP | MAX. SIZE AGG. | CONCRETE TYPE | ADHESURE | MPa CONCRETE GRADE |
|---------|------|----------------|---------------|----------|--------------------|
| ALL | NO | 20 | A | NL | 32 |
- CLEAR CONCRETE COVERS TO REINFORCEMENT SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN:

ELEMENT	CONDITION 1: NOT TO BE EXPOSED TO WEATHER OR FRESH WATER	CONDITION 2: TO BE EXPOSED TO WEATHER OR FRESH WATER	CONDITION 3: CAST AGAINST OTHER FORMWORK OR THE GROUND
PAD FOOTINGS & PILE CAPS	-	65	75
STEP FOOTINGS	-	50	65
SORE OR LAST PIER	-	50	75
COLUMNS	10	50	75
WALLS, INCLUDING RETAINING WALLS	20	30	45
BEAMS	25	40	65
SLABS, INCLUDING JOISTS & HOLLOW BLOCK CONSTRUCTION	20	30	65
REINFORCEMENT ADJACENT TO HOLLOW BLOCK CONSTRUCTION WITH STRUCTURE	5	-	-
- NOTE: 1. SLABS POURED OVER A MEMBRANE ON THE GROUND ARE INCLUDED AS CONDITION 2.
2. SLABS EXPOSED TO CORROSIVE VAPOURS, CORROSIVE GROUND WATER, SEA WATER OR SPRAY ARE TO HAVE REINFORCEMENT COVER AS NOTED OR NOT LESS THAN AS REQUIRED FOR CONDITION 3.
- SIZES OF ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
 - CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER.
 - BEAR DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY, LAST.
 - NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
 - REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY. IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
 - SPICES IN REINFORCEMENT MADE IN PORTIONS OTHER THAN SHOWN SHALL BE TO THE APPROVAL OF THE ENGINEER WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT.
 - WEELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
 - PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
 - ALL REINFORCING BARS SHALL COMPLY WITH AS 1082. ALL FABRIC SHALL COMPLY WITH AS 1013 AND AS 1014 AND SHALL BE SUPPLIED IN PLAT SHEETS.
 - REINFORCING SYMBOLS

GRADE	SYMBOL	DESCRIPTION
S GRADE 235	DEFORMED BAR	DEFORMED BAR
C GRADE 415	COLD WORKED DEFORMED BAR	COLD WORKED DEFORMED BAR
V GRADE 410M	DEFORMED BAR	DEFORMED BAR
R GRADE 230R	PLAIN BAR	PLAIN BAR
F GRADE 435	WELDED WIRE FABRIC	WELDED WIRE FABRIC
M GRADE 500	DEFORMED BAR	DEFORMED BAR

 THE NUMBER IMMEDIATELY FOLLOWING THESE SYMBOLS IS THE BAR DIAMETER IN MILLIMETRES.
 - FABRIC REINFORCEMENT TO BE LAPPED 300 MM MIN AT ENDS AND SIDES UNLESS LAPS IN POSITION OF MAXIMUM MOMENT ARE NOT PERMITTED.
 - ALL REINFORCEMENT SHALL BE FULLY SUPPORTED ON INSULATED STEEL, PLASTIC OR CONCRETE CHAIRS SPACED AT 900 AND 750 CENTRES BOTH WAYS UNDER ROAD AND FABRIC REINFORCEMENT RESPECTIVELY. RODS SHALL BE TIED AT ALTERNATE INTERSECTIONS.
 - MINIMUM STOPPING TIMES FOR FORMWORK SHALL BE AS RECOMMENDED IN AS 1599 OR AS DIRECTED BY ENGINEER.

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Drawn By: BG	Scale: AS SHOWN
Checked By: E. A. BENNETT M.I.E. Aust.	Drawing No.: B-11-264297-2D
Date: 28/07/2016	Assessment: D-04/05/2018

Registered Professional Engineer 199230
Mr Edward A. Bennett
MIEAust CPENG

Signature: *Ed Bennett* Date 28/07/2016

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