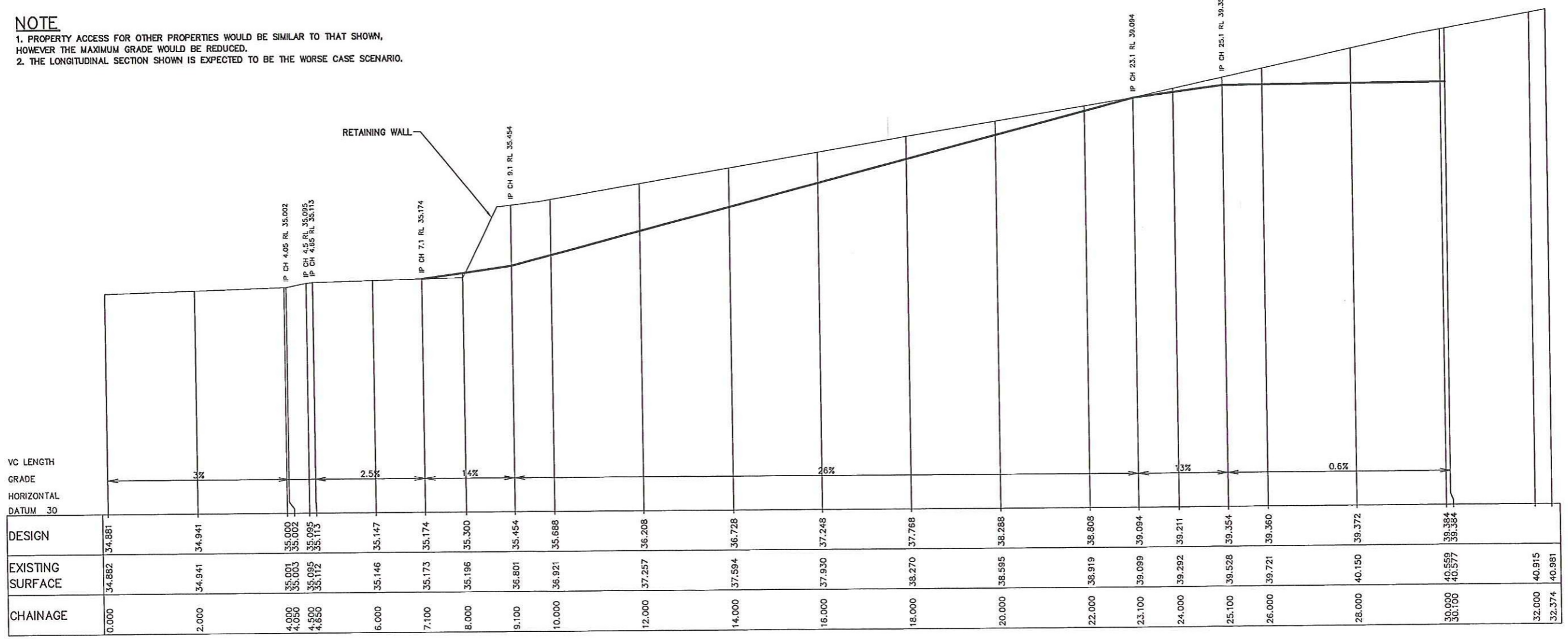
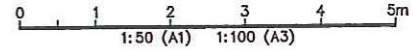


NOTE

1. PROPERTY ACCESS FOR OTHER PROPERTIES WOULD BE SIMILAR TO THAT SHOWN, HOWEVER THE MAXIMUM GRADE WOULD BE REDUCED.
2. THE LONGITUDINAL SECTION SHOWN IS EXPECTED TO BE THE WORSE CASE SCENARIO.



TYPICAL ROAD 2 PROPERTY ACCESS LONGITUDINAL SECTION
 SCALE HORIZONTAL 1:50
 SCALE VERTICAL 1:50



DRG STATUS : PRELIMINARY, NOT FOR CONSTRUCTION

Issue	Details of Issue	Des'd	Drrn	Chk'd	Approved	Date
A	ISSUED FOR EA	RB	PBC			21.07.06

INITIALS SHOWN IN THE ADJACENT ISSUE RECORDS INDICATE THE STAGES UNDERTAKEN IN THE DRAWING APPROVAL PROCESS. DRAWINGS ARE ONLY TO BE USED WHEN APPROVED BY PATTERSON BRITTON & PARTNERS AND THEN ONLY AS NOTED FOR DRG STATUS. THE ORIGINAL SIGNATURES CAN BE FOUND ON THE REVERSE SIDE OF THE ORIGINAL OF THE DRG REGISTER/TRANSMITTAL FORM No.5.2.2. HELD BY PATTERSON BRITTON & PARTNERS

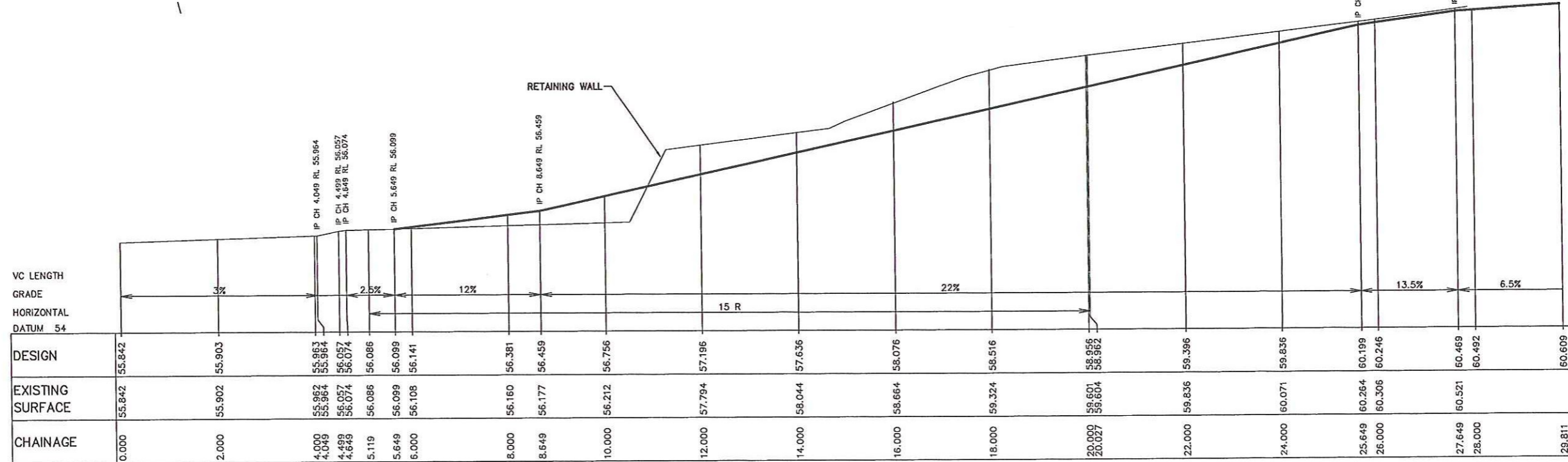
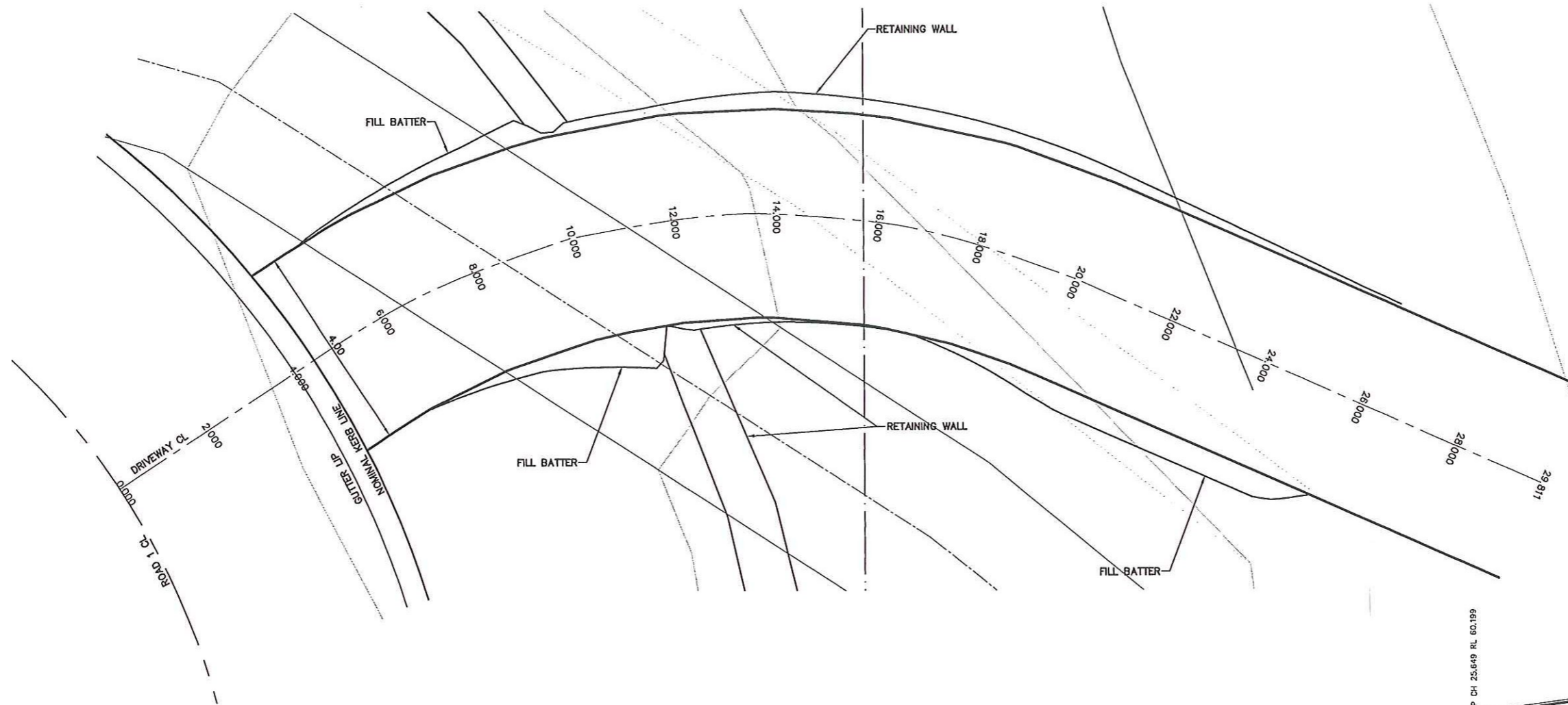
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 consulting engineers

Client
SAKE DEVELOPMENT PTY LTD
 Project
**COASTAL GROVE
 1 SURVEY STREET, LENNOX HEAD**

Title
TYPICAL ROAD 2 PROPERTY ACCESS THROUGH RETAINING WALL

Drawing No.
6324-02-12
 Issue
A
 Cad File No.
6324-02-12
 Xref.(s)



NEWTON'S PROPERTY ACCESS LONGITUDINAL SECTION
 SCALE HORIZONTAL 1:50
 SCALE VERTICAL 1:50

DRG STATUS : PRELIMINARY, NOT FOR CONSTRUCTION

Issue	Details of Issue	Des'd	Drn	Chk'd	Approved	Date
A	ISSUED FOR EA	RB	PBC			21.07.06

INITIALS SHOWN IN THE ADJACENT ISSUE RECORDS INDICATE THE STAGES UNDERTAKEN IN THE DRAWING APPROVAL PROCESS. DRAWINGS ARE ONLY TO BE USED WHEN APPROVED BY PATTERSON BRITTON & PARTNERS AND THEN ONLY AS NOTED FOR DRG STATUS. THE ORIGINAL SIGNATURES CAN BE FOUND ON THE REVERSE SIDE OF THE ORIGINAL OF THE DRG REGISTER/TRANSMITTAL FORM No.5.2.2. HELD BY PATTERSON BRITTON & PARTNERS

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 Project
 COASTAL GROVE
 1 SURVEY STREET, LENNOX HEAD

Title
 NEWTON'S PROPERTY ACCESS THROUGH RETAINING WALL

Drawing No.
 6324-02-13
 Issue
 A
 Cad File No.
 6324-02-12
 Xref.(s)

APPENDIX A
SEDIMENT BASIN CALCULATIONS

Lennox Head - Basin 1**Site Information**

Total Site Area	45000 sq.m	(Estimation of half the site disturbed during construction)
Roof Area	0 sq.m	(by Autocad)
Basin Catchment Area	45000 sq.m	
Percentage Impervious	0 %	(estimated)
1year ARI Intensity (tc=5min)	130 mm/hr	(from AUS-IFD)
C'(10)	0.61	(by ARR '87 Methodology, p.307)
C(10)	0.61	
C(1)	0.49	
1year ARI Flow	0.79 cu.m/s	
3 month ARI Flow	0.198 cu.m/s	

RUSLE Soil Loss

R	5500	(using the equation in the Blue Book)
K	0.003	silty clay type soils
LS	2.04	(80m @ 1%)
P	1.3	(compacted and smooth)
C	1	(no cover)
Annual Soil Loss	33.7 cu.m/ha/yr	
3 month Soil Loss	37.9 cu.m	

Type C Sizing

Adopted Particle Size	0.02 mm	(recommended in the Blue Book)
Particle Settling Velocity	0.00029 m/s	(from the Blue Book)
Basin Surface Area	684 sq.m	
Basin Dimensions	15.1 m	x 45.3 m
Settling Zone Depth	0.6 m	(recommended in the Blue Book)
Settling Zone Volume	410.2 cu.m	
Storage Zone Volume	410.2 cu.m	(equals the settling zone volume, as recommended in the Blue Book)
Total Volume	820 cu.m	

Type D Sizing

Cv	0.5	(adopting 0.9 for impervious areas)
R	83 mm	(adopting 90th percentile for Ballina)
Settling Zone Volume (90%)	1868 cu.m	
Storage Zone Volume (90%)	560 cu.m	(30% of the settling zone capacity)
Total Volume (90%)	2428 cu.m	
R	49 mm	(adopting 80th percentile for Ballina)
Settling Zone Volume (80%)	1103 cu.m	
Storage Zone Volume (80%)	331 cu.m	(30% of the settling zone capacity)
Total Volume (80%)	1433 cu.m	
R	40 mm	(adopting 75th percentile for Ballina)
Settling Zone Volume (75%)	900 cu.m	
Storage Zone Volume (75%)	270 cu.m	(30% of the settling zone capacity)
Total Volume (75%)	1170 cu.m	

Lennox Head -Basin 2**Site Information**

Total Site Area	5000 sq.m	(Estimation of half the site disturbed during construction)
Roof Area	0 sq.m	(by Autocad)
Basin Catchment Area	5000 sq.m	
Percentage Impervious	0 %	(estimated)
1year ARI Intensity (tc=5min)	130 mm/hr	(from AUS-IFD)
C'(10)	0.61	(by ARR '87 Methodology, p.307)
C(10)	0.61	
C(1)	0.49	
1year ARI Flow	0.09 cu.m/s	
3 month ARI Flow	0.022 cu.m/s	

RUSLE Soil Loss

R	5500	(using the equation in the Blue Book)
K	0.003	silty clay type soils
LS	2.04	(80m @ 1%)
P	1.3	(compacted and smooth)
C	1	(no cover)
Annual Soil Loss	33.7 cu.m/ha/yr	
3 month Soil Loss	4.2 cu.m	

Type C Sizing

Adopted Particle Size	0.02 mm	(recommended in the Blue Book)
Particle Settling Velocity	0.00029 m/s	(from the Blue Book)
Basin Surface Area	76 sq.m	
Basin Dimensions	5.0 m	x 15.1 m
Settling Zone Depth	0.6 m	(recommended in the Blue Book)
Settling Zone Volume	45.6 cu.m	
Storage Zone Volume	45.6 cu.m	(equals the settling zone volume, as recommended in the Blue Book)
Total Volume	91 cu.m	

Type D Sizing

Cv	0.5	(adopting 0.9 for impervious areas)
R	83 mm	(adopting 90th percentile for Ballina)
Settling Zone Volume (90%)	208 cu.m	
Storage Zone Volume (90%)	62 cu.m	(30% of the settling zone capacity)
Total Volume (90%)	270 cu.m	
R	49 mm	(adopting 80th percentile for Ballina)
Settling Zone Volume (80%)	123 cu.m	
Storage Zone Volume (80%)	37 cu.m	(30% of the settling zone capacity)
Total Volume (80%)	159 cu.m	
R	40 mm	(adopting 75th percentile for Ballina)
Settling Zone Volume (75%)	100 cu.m	
Storage Zone Volume (75%)	30 cu.m	(30% of the settling zone capacity)
Total Volume (75%)	130 cu.m	