Sirsi Marina Overland Flow Study

Prepared for Essex Develop

October 2023
Project Number S22042

OPPORTUNITIES THROUGH EXCELLENCE

bgeeng.com

BG&E

Contents

Document Control				
Revision	Date	Prepared	Reviewed	Approved
A	30/10/2022	SM	SH	SH

1. Introduction

1.1 Purpose of Report

BG&E have been engaged by Essex Develop to prepare an overland flow assessment along with the assessment for the proposed Council drainage diversion for the subdivision development at 122-128 Crescent Road, Newport (Site).

This report will outline the approach BG&E has adopted to evaluate the following:

- Assessment of the following:
  - Existing Council Stormwater pipe
  - Existing overland flows on-site
  - Proposed Council Drainage Diversion
  - Proposed Overland flow paths.

- And Address the following council comments:
  - The site is affected by overland stormwater flows in larger storm events predominately along the line the of the existing Council 375mm Concrete stormwater line which runs from the sag point in Crescent Road to the existing seawall .
    An overland stormwater flow study is to be prepared by a NER/RPENG qualified civil engineer to determine the extent of the overland flow path and impacts on the development including the proposed construction of dwellings. The study is to be prepared by a suitable computer hydrological/hydraulic model. Councils preferred model is DRAINS. The overland flow cross-sections are to be determined by the HEC Ras programme or similar.
    - It is noted that the design engineers BG&E propose to re divert Councils existing 375mm RCP stormwater (SW) line which runs through the current site to the southern boundary with a 3m wide stormwater drainage easement over the re diverted drainage line. This proposal is supported by Councils stormwater assets team.
    - The current proposed location of the overland flow swale is not acceptable as the overland flow path needs to be aligned with the sag pit Crescent road ie the lowest point . Any overland flow originating from this location cannot physical enter the proposed swale given its separation from the current sag point. Any over land flow path should be aligned from the current sag point in the Crescent Road and follow the alignment of the proposed re diverted Council SW line to the discharge point.

  - The following needs be addressed by the study:
    - The existing overland flow regime is to be mapped. All proposed residential housing is to be keep clear of the overland flow path.
    - The re diverted Council stormwater line running through the site is to be upgraded to have a minimum hydraulic capacity of 5/100 AEP. Flows in excess of this event are to be controlled via an above overland flow path to the 1 /100 AEP.
    - The overland flow path is to be contained with a widened 3m easement from the sag point in Crescent Road to the outlet.
    - The study is to also review velocity depth ratio in relation to pedestrian safety.
    - The overland flow study/report is to be prepared in accordance with ARR 2019 - Section Flood estimation and use the Initial/ Continuing Hydraulic Loss model.
    - The Council stormwater line upgrade works are to be designed in accordance with Councils Auspec one design guideline.
  - Construction of the Headwall outlet and upgraded pipeline requires a controlled activity permit. Comments from Councils Coast and Catchment Team will be required on the new headwall/pipe construction.

  - A Stormwater management plan will need to detail the provision of On site stormwater detention (OSD)in accordance with Councis water management policy for development. A DRAINS model is required to determine the required OSD storage volumes and post developed discharge rates to the 1/100AEP storm event. The pre developed scenario for the model is to be state of nature. Additionallly water quality treatment devices are to be provided for the proposed subdivision in

accordance Councils water management policy for development. Councils Coast and Catchment Team can be contacted for more detailed comments.

1.2 Referenced Standards

The following documents have been used as part of this report:

- Pittwater 21 Development Control Plan
- Northern Beaches Water Management for Development Policy (February 2021)
- Australian Rainfall and Runoff Guidelines (Geoscience Australia, 2019)

2. Site Context

2.1 Existing Scenario

The site is located at 122-128 Crescent Road, Newport, within the Northern Beaches Council LGA. As shown in the locality plan in **Figure 1**, the site is bordered to the north by a public reserve known as 'The Avenue', to the east by Crescent Road, and to the west by the Pittwater Waterway. The site is zoned as C4 environmental living and is part of a low-density residential neighbourhood.

Figure 1 Site Locality Plan (Sixmaps)

2.2 Existing Site Information and Description

The site currently consists of 4 residential dwellings, a commercial building, a workshop and various small structures such as storage containers and sheds. The commercial building is fronted by a large bitumen carpark. There is a large concrete slab at the back of the site, and there are three pontoons extending into Pittwater Waterway.

2.3 Existing Council Stormwater pipe

The site contains an existing 375mm drainage pipe, which belongs to the Northern Beaches Council. The drainage pipe extends from the kerb inlet pit along Crescent Road and, navigates further west between lots 112 & 126 and discharges to Pittwater through an existing headwall. Refer to Figure 2, which indicates the existing pipe size and location based on Northern Beaches Council's Planning Maps.

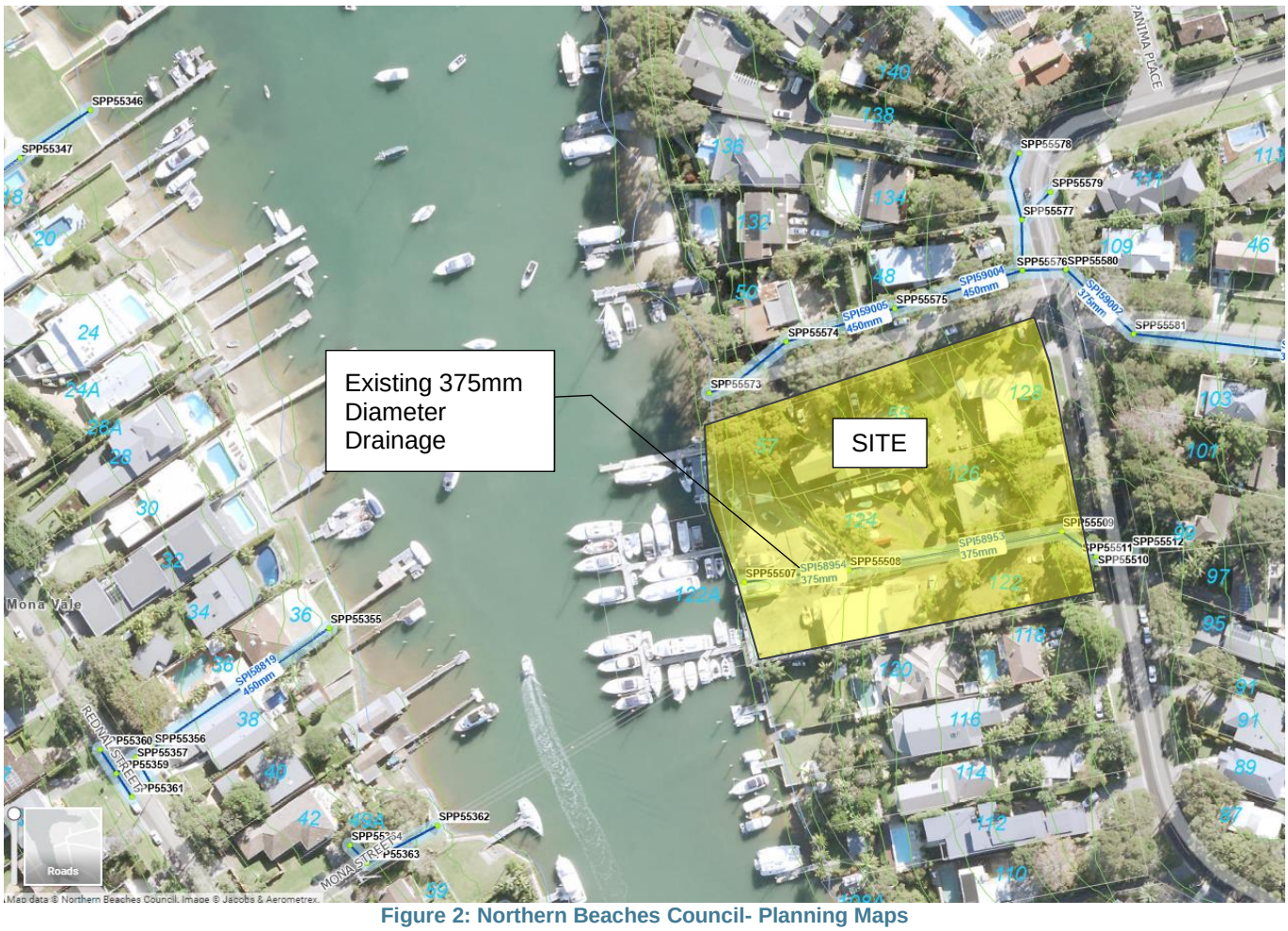

Figure 2: Northern Beaches Council- Planning Maps

2.4 Existing Overland Flow and Flooding

The entire site generally slopes from the east to the west at grades approximately 17% towards Pittwater Waterway. There is an existing kerb inlet pit adjacent to Lot 112, Crescent Road. The pit is currently located at a low sag point along Crescent Road and is currently servicing surface runoff flows from upstream catchments, including nearby residential houses. The survey provided by Boxall Surveyors, dated 20.05.22, suggests an existing overland flow path is located along the existing driveway at 122 Crescent Rd Newport. The existing overland flow path is expected to carry external site catchments and discharge into Pittwater. Refer to Figure 3 for the exiting location of the overland flow path.

The western side of the site is affected by coastal flood inundation per the Newport Flood Study (2019). The overland flow path is also picked up in council's flood maps, shown in Figure 4 below.

Figure 3: Existing Overland Flow Path

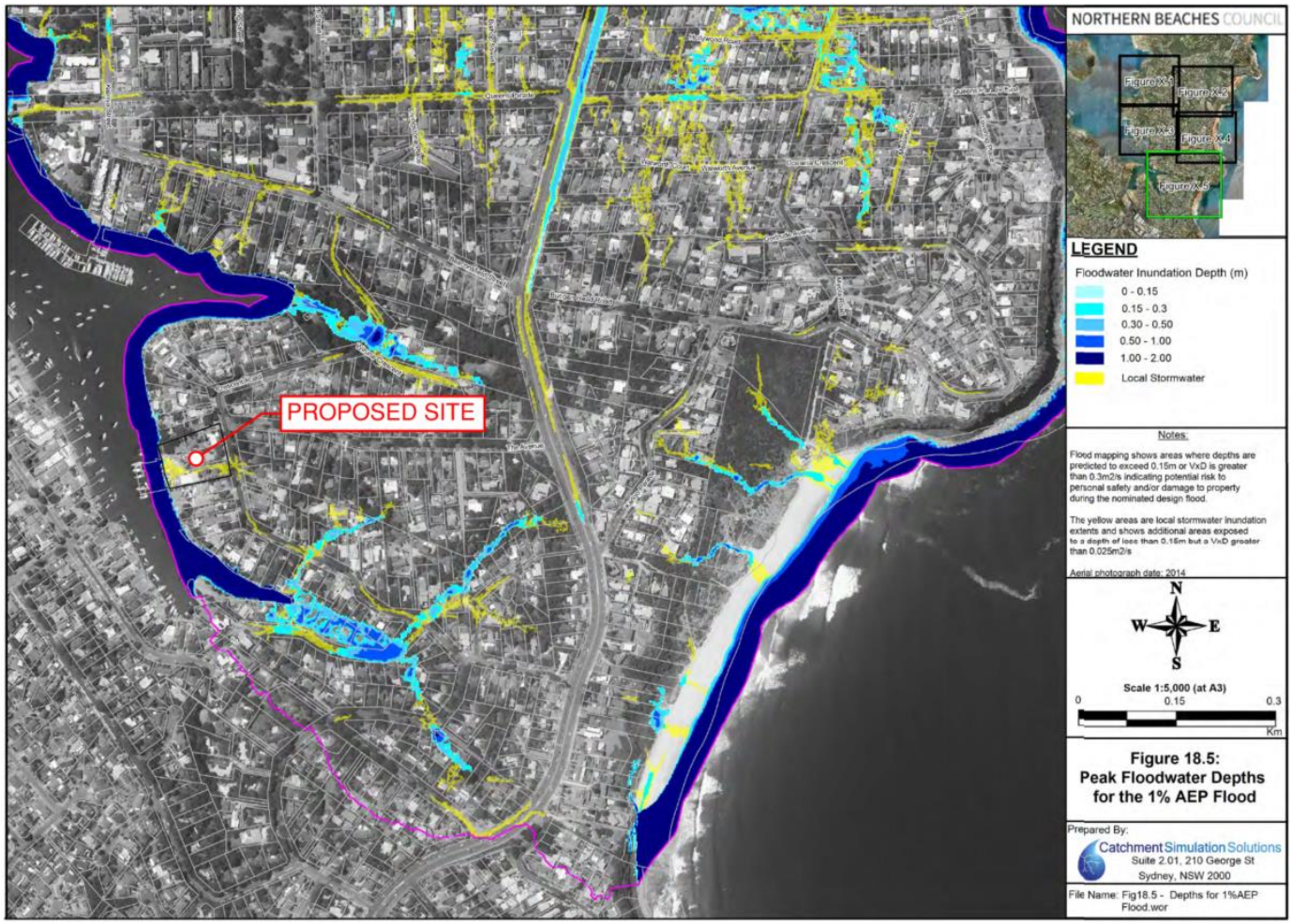

Figure 4: Existing Overland Flow Path

3. Industry standard practices

Due to the Site being in close proximity to Pittwater waterway while being within an overland flow path zone married in with council-limited guidance in technical standards around to assess this current scenario, it is worth investigating what the literature says about these individually and them coming to a reasonable conclusion.

3.1 Australian Rainfall and Runoff 2019

Australian Rainfall and Runoff 2019 (ARR2019) is the most current document Australia has on how to assess the stormwater design, modelling and theory, superseding Australian Rainfall and Runoff 1987 with the draft release in 2016 and being made the formalised documents moving forward in Australia since. ARR2019 can provide the base drainage of Site at the bottom of the catchment to assess flood-prone areas and when OSD should be used.

3.1.1 Catchment drainage

Chapter 4 of ARR2019 talks about stormwater volume management, where the aim of managing stormwater at catchment wides analysis is to think about the volume of water being moved.**Figure 5** shows the impact of implementing different stormwater volume management devices, such as OSD and retention, compared to the undeveloped and unmanaged flows.

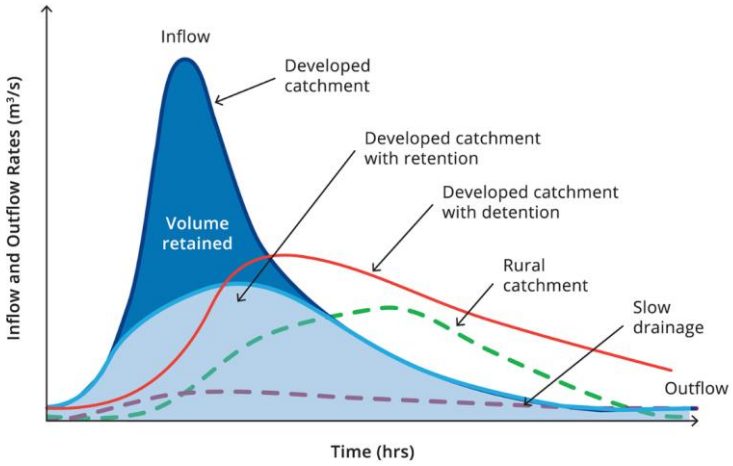

Figure 4: Developed Catchment with Retentions as compared to Detention and slow Drainage Strategies (From ARR2019 Figure 9.4.3)

The above figure communicates that the idea with the implementation of OSD is to help manage the volume of water in a rain event as to no overwhelm the existing network or to contribute to a larger catchment peak flow event which can lead to flooding event. The major aim is to reduce the peak flow discharge rate and to extend the period out over which stormwater is released into the network.

3.1.2 Flood prone hazards

The following is a section form ARR 7.2.7 General Flood Hazard Curves that is shown in **Figure 6**. “The combined flood hazard curves presented in Figure 6.7.9 set hazard thresholds that relate to the vulnerability of the community when interacting with floodwaters. The combined curves are divided into hazard classifications that relate to specific vulnerability thresholds …. provides the limits for the classifications in Table 6.7.3

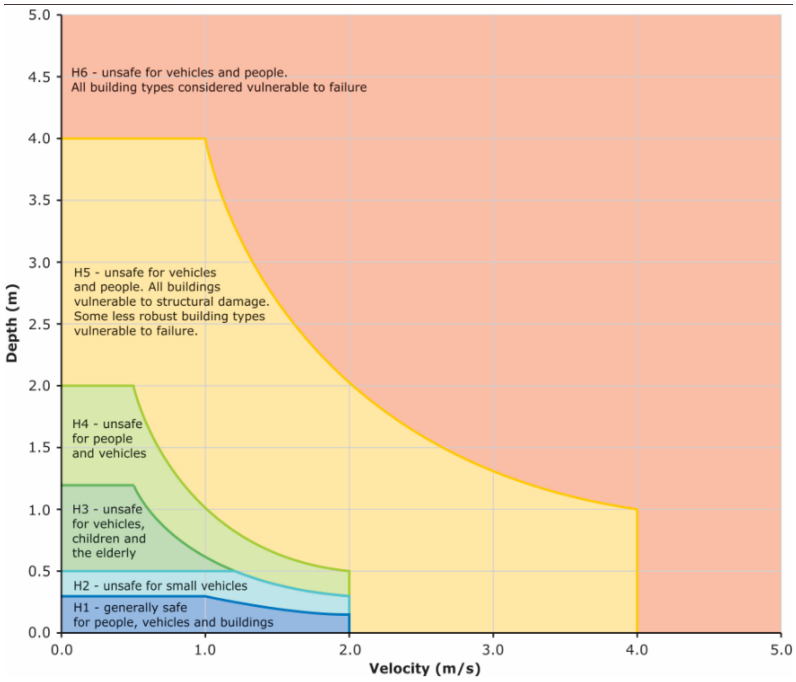

Figure 6: Combined Flood Hazard Curves (Figure 6.7.9 ARR 2019)

Table 1: Combined Hazard Curves – Vulnerability Thresholds (Table 6.7.3 ARR 2019)

Hazard Vulnerability Classification	Description
H1	Generally safe for vehicles, people and buildings.
H2	Unsafe for small vehicles.
H3	Unsafe for vehicles. children and the elderly.
H4	Unsafe for vehicles and people.
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

This information will be used to help understand any of the results from overland flow management.

3.1.3 On Site Detention

Table 9.4.1 Summary of Volume Management Design Objectives from ARR2019 say the following:

“This objective seeks to limit the peak flood flows and volumes discharging from a catchment to a pre-determined and acceptable level. Commonly, the acceptable level is set at the natural or ‘pre-development’ condition. In some cases, the acceptable level may be set below the natural condition in order to achieve a net benefit or offset an impact elsewhere. In highly developed catchments (infill development), the acceptable level may correspond to flows from the original development.

These objectives may seek to change the total volume of stormwater leaving a site (retention), or delay the volume for a short period of time (hours) (detention or retarding) which may reduce the peak of the flood hydrograph discharging from a catchment.

Careful consideration of the spectrum of design flood events needs to be given and its impact on downstream receiving systems (for example, stream forming flows and flood flows), which can result in ‘slow release’ systems. Emerging stormwater management practices seek to reduce the volume and timing of stormwater discharges from catchments. This combined approach is particularly relevant for managing stormwater runoff from increasing urban density.”

This is a good framework to help understand the objectives of when OSD should be used and where it is appropriate and should be used in lieu of the council not having any OSD design standards or requirements.

4. Proposed Development

4.1 Design Proposal

The proposed development consists of a subdivision of the site into 8 residential lots and a shared internal road for access, as shown in Figure 7. The proposed development will need to account for an overland flow location and the diversion of the existing Council's 375mm pipe crossing the site to be diverted on site to consider future developments on site.

Figure 7 Proposed Subdivision Plan (Scott Carver)

4.2 Catchment Plan

Figure 8 illustrates the upstream catchment area responsible for contributing surface stormwater runoff to the existing kerb inlet pit adjacent to Lot 122 on Crescent Road and the proposed developed catchment. The internal catchment area has been estimated based on the site's existing topography.

Figure 8: Overland Flow Catchments

The following catchment data was collected for defining the catchment areas:

- External catchment was found to be 7109sq.m with:
  - An impervious percentage of 52.60%
  - Previous percentage of 47.40%
- Internal catchment was found to be 3960sq.m with
  - An expected impervious percentage of 54.0%
  - Expected Previous percentage of 46.00%

4.3 Proposed Council Pipe Diversion

The proposed development aims to reroute an existing council stormwater 375mm diameter pipe around the site and eventually discharge through the existing headwall at Pittwater Waterway to the site's west. The site lacks any natural water courses, and the existing seawall is expected to remain in good, non-degraded condition for the purpose of re-use. Refer figure 9 for the proposed Council pipe diversion adjacent to the southern boundary of the subject site. A new kerb inlet pit is proposed south of the existing kerb pit along Crescent Road, which will form part of the pipe diversion network.

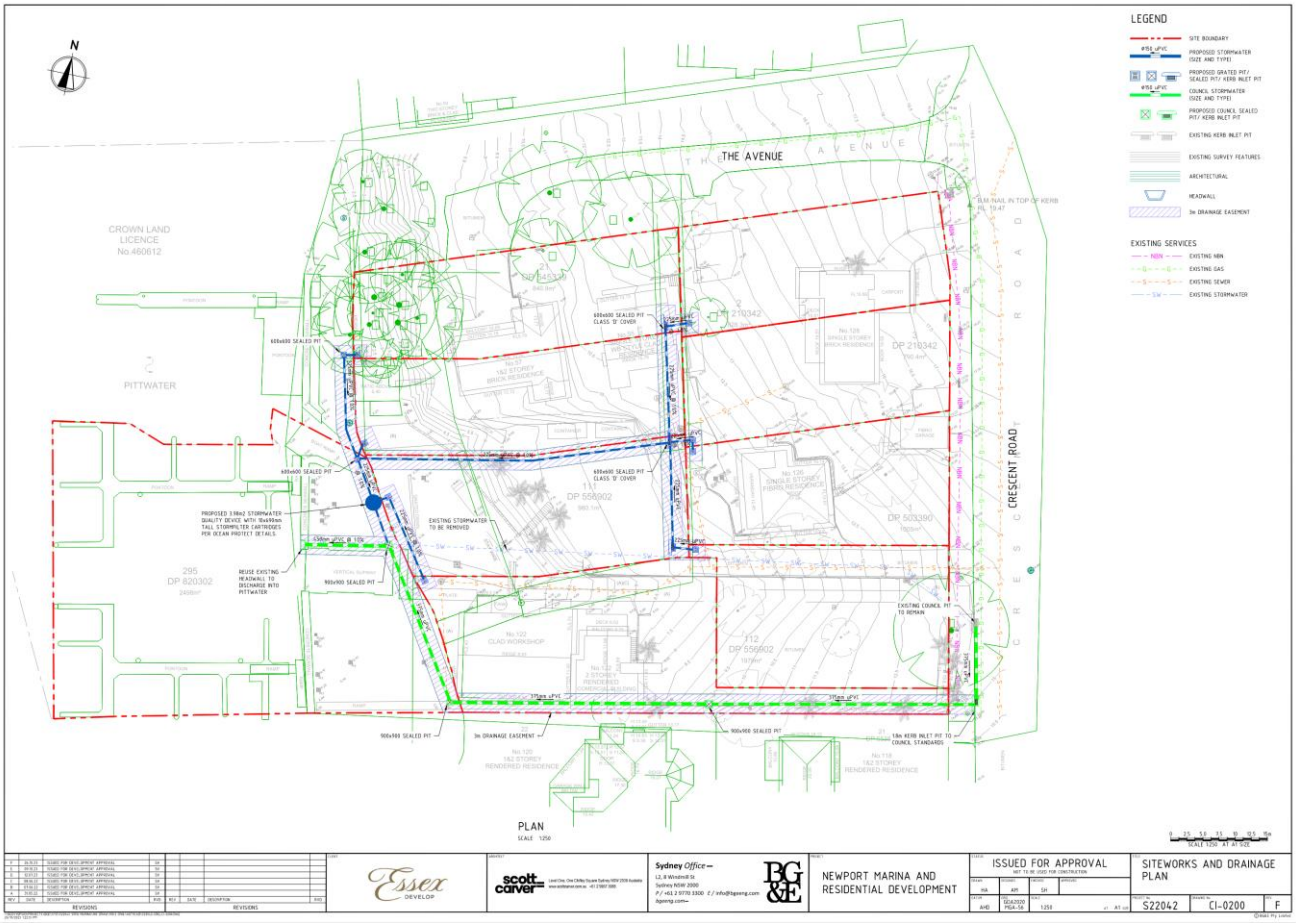

Figure 9 Proposed Council Pipe Diversion

4.4 Proposed Overland Flow Path

The Site is subjected to overland flow that needs to be managed on-site for safety and compliance with council requirements. Northern Beaches Council states in the Water Management for Development Policy that an overland flow path through the property is to be provided for all storms in excess of the 5% AEP, up to and including the 1% AEP.

The Site currently contains an overland flow path along the existing driveway at 122 Crescent Road. The overland flow path is approximately 3m South of Lot 112's Northern boundary, which is located between the carpark and driveway regions.

To manage the overland flow, a proposed grassed swales along the boundaries of the subdivision lots 3-4 & 5-6. The current route is proposed as the existing site falls in this direction from the council sag pit, as shown in the survey. This also does not clash with any of the proposed driveways in future housing developments. A bund is to be installed as part of the subdivision works until the property is developed, at which time the bund needs to be made permanent, or a wall to direct the stormwater is to be installed. This is in line with the location for the existing start of the overland flow path and will result in the smallest impact no any ponding in the roadway. See Figure 10 for the proposed layout on top of the existing survey.

If the overland flow path were to be placed in the same location as the proposed stormwater pipe, this would require the stormwater to pond to a level of RL14.7, which is more than 100mm higher than the existing and proposed overland flow route.

The Council's Water Management for Development Policy states that the width of any easement for overland flow is controlled by the minimum practical width necessary for standard machinery to carry out reconstruction of the public drainage system.

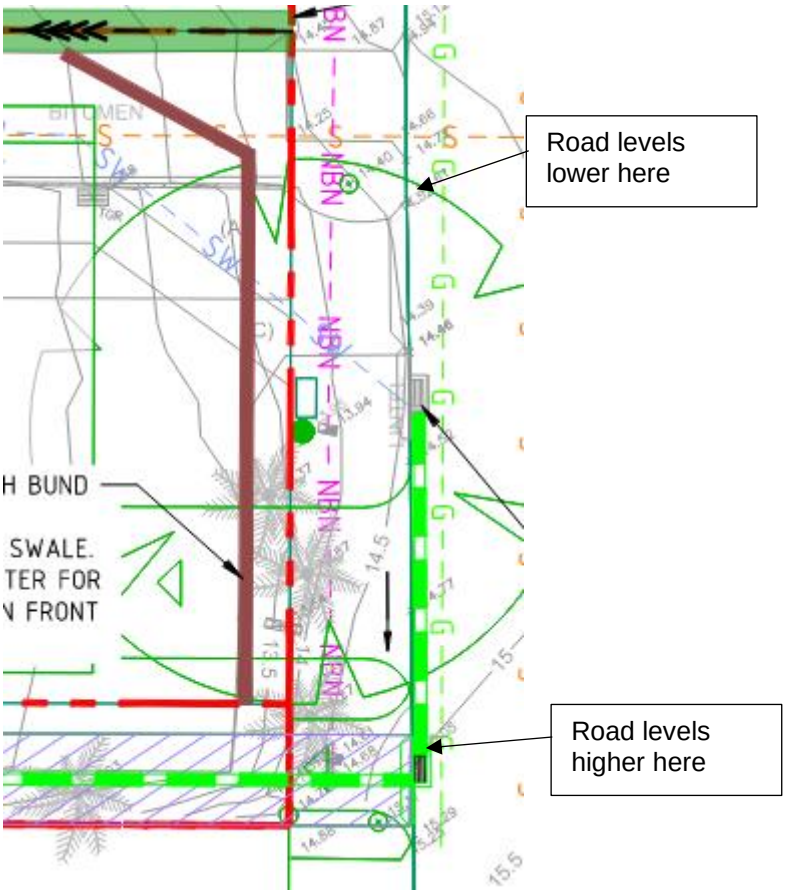

Figure 10 Close up of the Proposed Overland Flow path and Stormwater Diversion

4.5 OSD Requirement

Northern Beaches Council Water Management for Development Policy (2021) says the following:

- The proposed site is located within Council's Region 1- Northern Stormwater Region.
  - Any sites located within region 1 which are affected by the 1% AEP flood plain do not require an OSD tank.
  - The proposed site is located within Region 1 1% AEP flood plain. Refer to section 2.4 for the Council flood map.

BG&E has provided this information to council in previous letters dated 14 July 2023.

5. Hydraulics

5.1 Methodology

The DRAINS software package has been used to model the hydrologic and hydraulic characteristics of stormwater runoff and flow to and from the Site. The model has been prepared to assess the 50 Yr. ARI storm events for the pipe diversion and 1% ARI for the overland flow.

The following models have been prepared to evaluate the proposed developments of the Site on councils existing infrastructure. The pipe diversion was developed based on using council's minimum pipe size of 375 dia to start, which was incrementally increased as required.

The swale sizing was developed through initial stormwater discharge from the entire catchment and refined through an iterative process during modelling.

5.2 Assumptions & Parameters

The following assumptions and parameters were adopted from councils Water Management for Development Policy, Section 9.9:

- Soil Type = 2.5
- Antecedent moisture content, AMC = 3
- Infiltration rates: Initial paved = 1 mm, grassed = 5 mm
- Pit losses have been applied as per
- Blockage factor has been adopted from ARR 2019 of 0.5 for sag pits
- Minimum pipe size is to be 375mm except where noted otherwise
- Minimum pipe grade is to be 1%
- Ku factors from ARR 2019
- Rainfall Data from BOM IFT
- Temporal Pattern from ARR Data Hub

5.3 Pipe Diversion Results

The following shows the results from the DRAINS models based on the above information. Refer to figures 11-14 for the 5% and 1% AEP DRAINS modelling results, respectively.

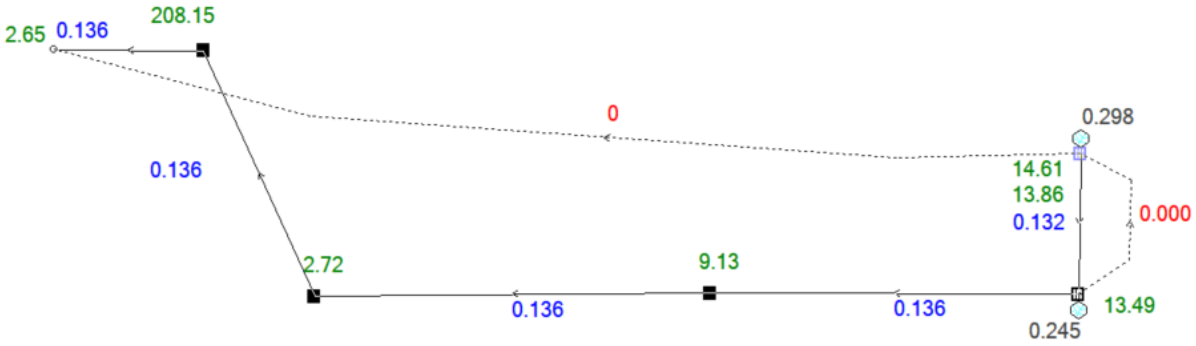

Figure 11 DRAINS Model – 5% AEP Results

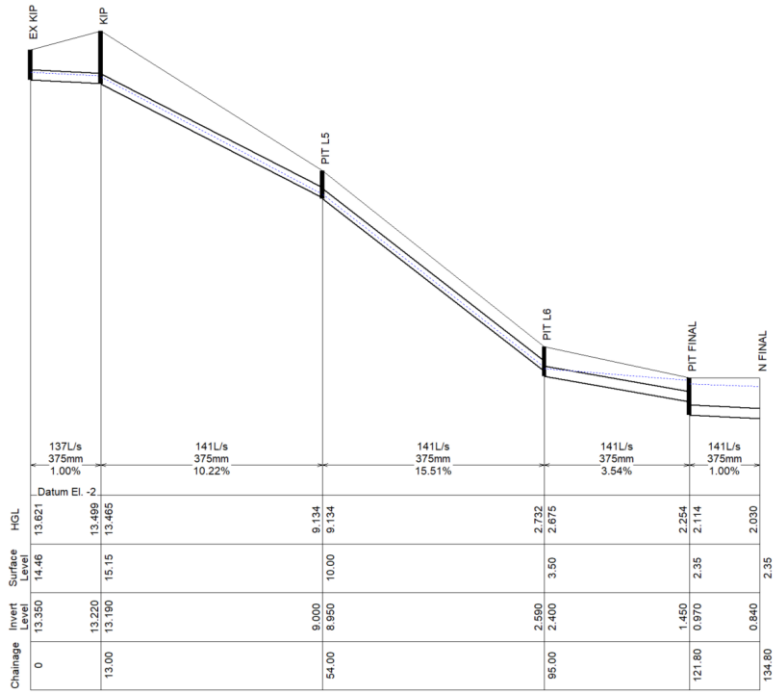

Figure 12 DRAINS Model – 5% AEP Results Longsection

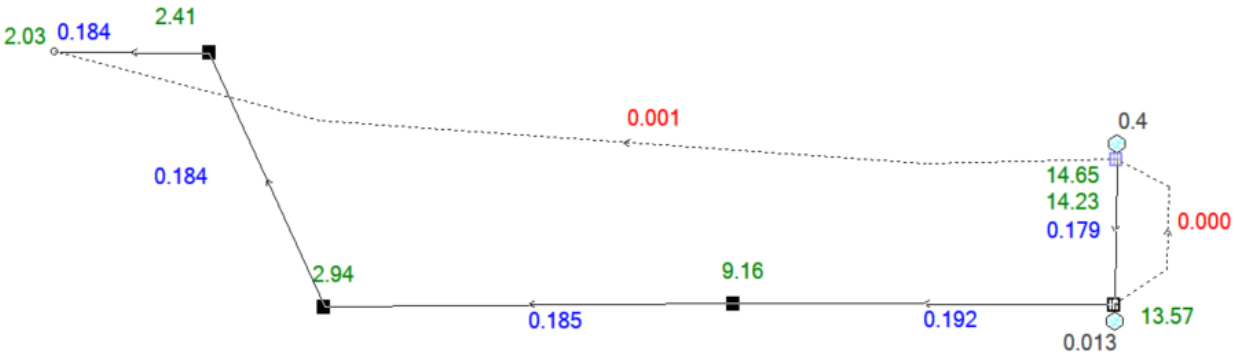

Figure 13 DRAINS Model – 1% AEP Results

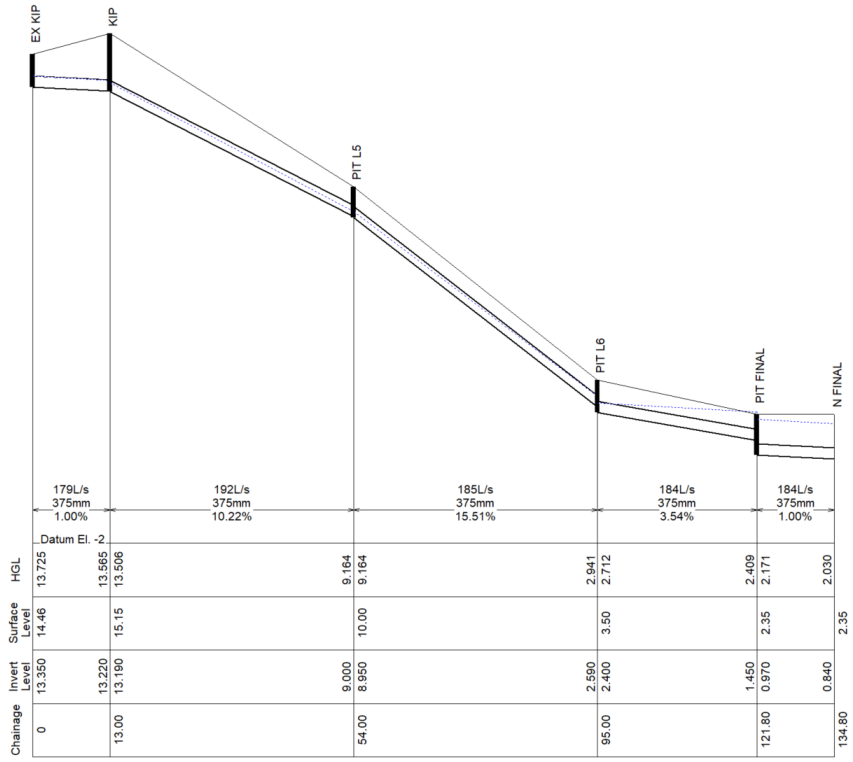

Figure 14 DRAINS Model – 1% AEP Results Longsection

5.1 Overland Flow Results

The following shows the results from the DRAINS models based on the above information. Refer to figures 15-17 for the 1% AEP DRAINS modelling results, respectively.

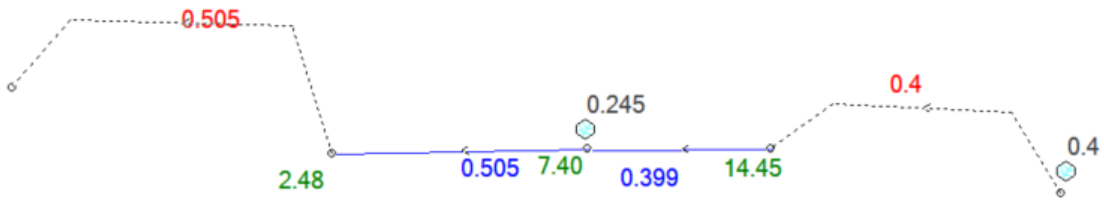

Figure 15 DRAINS Model – 1% AEP Overland Flow Result

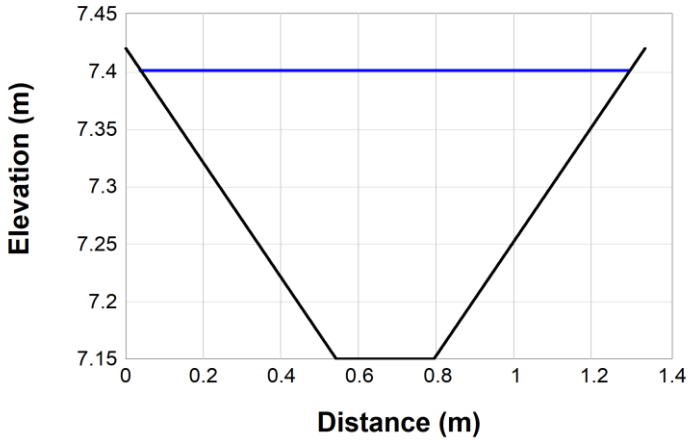

Figure 16 DRAINS Model – 1% AEP Upper Overland Flow Result

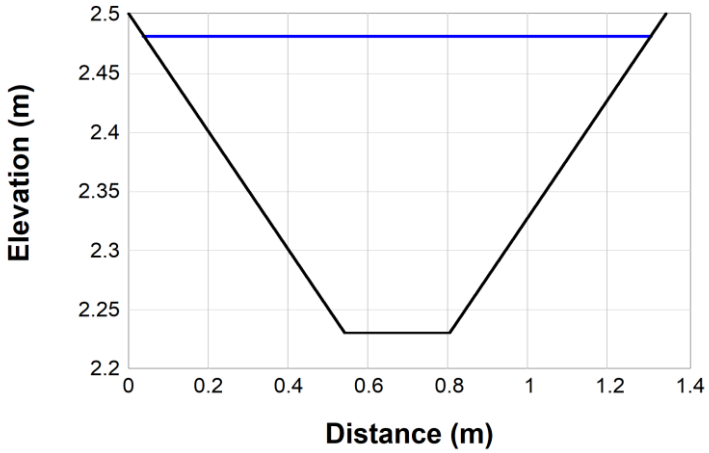

Figure 17 DRAINS Model – 1% AEP Lower Overland Flow Result

5.2 Summary of Results

5.2.1 Pipe Diversion

The DRAINS modelling shown in section 5.3 indicates that the current pipe division is adequate to meet coucnil's requirements. The modelling also showed that the pipe sizing, being council's minimum size, would also cater for the 1% AEP event being 50% blocked.

5.2.2 Overland Flow

The overland flow can be contained within 1.36m wide and 0.26m deep swales running along the boundary of lots 3-4 & 5-6. The hazard classifications are shown in Table 2 below based on Figure 6 from earlier in this report.

Table 2: Velocity/Depth Hazard Analysis

Channel Number	Velocity (m/s)	Depth (m)	Classification Limit $(D * V)$	Hazard Vulnerability Classification
Upper Swale	2.87	0.25	0.72 (<1.0)	H4 – Unsafe for vehicles & people
Lower Swale	2.65	0.25	0.66 (<1.0)	H4 - Unsafe for vehicles & people

The hazard rating for the swale through the size of H4, which, as defined in table 1, is "Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure." The location of the swale results in only property fences being in this area. This is not an access path for pedestrians or vehicles. It's located out of the way of property and driveway access.

Section 4.4 Council's Water Management for Development Policy states that the width of any easement for overland flow is controlled by the minimum practical width necessary for standard machinery to carry out reconstruction of the public drainage system. Due to this being an earthworks swale with a total width of 1.36m, it is recommended that an easement of 2m in total would be all that is required to maintain or amened any damage to the area as it does not require any extensive excavation.

5.2.3 OSD

In section 3 it outlines why an OSD tank is not required in line with council's development requirements. It is also not recommended under ARR 2019.

Chapter 4 of ARR2019 talks about stormwater volume management, where the aim of managing stormwater at catchment wide analysis is to think about the volume of water being moved. Figure 4 shows the impact of implementing different stormwater volume management devices, such as OSD and retention, compared to the undeveloped and unmanaged flows.

Figure 4 communicates that the idea with the implementation of OSD is to help manage the volume of water in a rain event so as not to overwhelm the existing network or to contribute to a larger catchment peak flow event which can lead to flooding events. The major aim is to reduce the peak flow discharge rate and to extend the period over which stormwater is released into the network.

The main issue with our site being located at the downstream extent of the catchment is if we are required to implement an OSD tank, this would have a significant impedance on the existing council network as it would slow down the discharge rate from our site and align the stormwater discharge from upper catchment.

Thus, it would result in the headwall having to deal with both peak flow rates from the catchment at the same point in time instead of letting them be naturally staggered.

As a result of both council and ARR2019 best practise we are not proposing OSD for DA2022/2152 - 122 Crescent Road.

In addition as mentioned earlier the western side of the site is affected by coastal flood inundation per the Newport Flood Study (2019). Hence, the allocation of any OSD tank at the downstream end being the western boundary, would also be within the coastal inundation zone.

6. Response to Council comments

Council comments are shown below inline with the

- And Address the following council comments:

Council Comment	BG&E Reply
1. The site is affected by overland stormwater flows in larger storm events predominately along the line the of the existing Council 375mm Concrete stormwater line which runs from the sag point in Crescent Road to the existing seawall . An overland stormwater flow study is to be prepared by a NER/RPENG qualified civil engineer to determine the extent of the overland flow path and impacts on the development including the proposed construction of dwellings. The study is to be prepared by a suitable computer hydrological/hydraulic model. Councils preferred model is DRAINS. The overland flow cross-sections are to be determined by the HEC Ras programme or similar. a. It is noted that the design engineers BG&E propose to re divert Councils existing 375mm RCP stormwater (SW) line which runs through the current site to the southern boundary with a 3m wide stormwater drainage easement over the re diverted drainage line. This proposal is supported by Councils stormwater assets team. b. The current proposed location of the overland flow swale is not acceptable as the overland flow path needs to be aligned with the sag pit Crescent road ie the lowest point . Any overland flow originating from this location cannot physical enter the proposed swale given its separation from the current sag point. Any over land flow path should be aligned from the current sag point in the Crescent Road and follow the alignment of the proposed re diverted Council SW line to the discharge point.	1.a. BG&E accepts that council accepts the location of the stormwater pipe diversion and as shown in this report meets council's standards. 1.b. The location of the overland flow path is the best location on the site due to the following discussed in this report: • Location due to low point on site and inline with where the existing overland flow path is. ◦ Moving the overland flow to the same location as the stormwater pipe diversion will force stormwater uphill and cause a large amount of ponding in the roadway • Can achieve a safe flow route ◦ No Major structures in the flow path ◦ No Pedestrian access ◦ No Vehicle access ◦ No impact on the future driveway • The overland flow is proposed to flow by a bund into the proposed swales in the temporary case and in the premiant case can be a wall or bund to control the direction of flow. Council's request that the overland flow and stormwater diversion align does not work for this site due to the existing road levels. Refer to section 4.4 of this report.
2. The following needs be addressed by the study: a. The existing overland flow regime is to be mapped. All proposed residential housing is to be keep clear of the overland flow path. b. The re diverted Council stormwater line running through the site is to be upgraded to have a minimum hydraulic capacity of 5/100 AEP. Flows in excess of this event are to be controlled via an above overland flow path to the 1 /100 AEP. c. The overland flow path is to be contained with a widened 3m easement from the sag point in Crescent Road to the outlet. d. The study is to also review velocity depth ratio in relation to pedestrian safety. e. The overland flow study/report is to be prepared in accordance with ARR 2019 - Section Flood	2. a. Council is to refer to updated drawings in the appendix of this report. b. This report shows that this requirement has met this requirement. c. This report disagrees that the overland flow path needs to be within a 3m wide easement and only requires a 2m wide easement in line with council's policy. The proposed overland flow path is located in the same location as the existing path. Localised bunds or walls are to be used to direct the water into this swale d. The report has addressed the velocity depth ratio and complies with the safety requirements of its location. e. Refer to this report.

estimation and use the Initial/ Continuing Hydraulic Loss model. f. The Council stormwater line upgrade works are to be designed in accordance with Councils Auspec one design guideline. g. Construction of the Headwall outlet and upgraded pipeline requires a controlled activity permit. Comments from Councils Coast and Catchment Team will be required on the new headwall/pipe construction.	f. This has been complied with. g. The existing headwall is not proposed to have any work done to it. This is not required as part of this project.
3. A Stormwater management plan will need to detail the provision of On site stormwater detention (OSD)in accordance with Councis water management policy for development. A DRAINS model is required to determine the required OSD storage volumes and post developed discharge rates to the 1/100AEP storm event. The pre developed scenario for the model is to be state of nature. Additionallly water quality treatment devices are to be provided for the proposed subdivision in accordance Councils water management policy for development. Councils Coast and Catchment Team can be contacted for more detailed comments.	ODS is not required on the Site based on the following information: • Northern Beaches Council Water Management for Development Policy (2021) for being within a 1% AEP floodplain • ARR does not recommend OSD to be used in downstream catchments due to putting more stain on council's infrastructure. • The Site is subject to coastal flood inundation, which would undermine any OSD use on-site as it would be subject to inundation.

7. Conclusion

BG&E has been engaged by Essex Develop to prepare an overland flow assessment along with the assessment for the proposed Council drainage diversion for the subdivision development at 122-128 Crescent Road, Newport.

This report outlined the methodology adopted and associated results of the:

- Existing Council Stormwater pipe
- Existing overland flows on-site
- Proposed Council Drainage Diversion
- Proposed Overland flow paths.

As outlined in this report, the following key items have been identified:

- The proposed Council 375mm diameter pipe diversion has sufficient capacity to meet 5% AEP per council requirements and has been checked against the 1% AEP.
- The relocation of the overland flow path is not achievable due to the existing road levels, and the proposed overland flow location matches up with the existing.
- The Overland flow path is able to safely capture and divert the stormwater from upstream catchments through the proposed development.
- The overland flow path only requires a 2m wide easement to be placed on it.
- OSD is not required on-site due to the council's requirements and is not recommended by ARR 2019

Appendices

Appendix A – Architectural Plans

NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

122-128 CRESCENT RD & 55-57 THE AVENUE

DP210342, DP503390, DP545339 & DP556902

ESSEX DEVELOP

SUBDIVISION DEVELOPMENT APPLICATION 20220005: DRAWING LIST

DRAWING LIST

NUMBER	SHEET NAME
AD-DA900	COVER PAGE
AD-DA901	LOCATION PLAN
AD-DA902	DEMOLITION PLAN
AD-DA903	ARCHITECTURAL ENVELOPE PLAN
AD-DA904	ARCHITECTURAL ENVELOPE SECTIONS
AD-DA905	SUBDIVISION PLAN
AD-DA906	OVERLAY DEMO & NEW
AD-DA910	DEMOLITION WASTE MANAGEMENT PLAN
AD-DA911	3D ENVELOPE DIAGRAM
AD-DA912	LANDSCAPE PRINCIPLES FOR LOT LAYOUTS

GENERAL NOTES

1. DO NOT SCALE FROM DRAWINGS. WRITTEN DIMENSIONS GOVERN. IF IN DOUBT OBTAIN WRITTEN ADVICE FROM SCOTT CARVER OR WHERE APPLICABLE VIA THE PRINCIPAL'S REPRESENTATIVE

2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED. ALL DIMENSIONS ARE MINIMUM SETTING OUT REQUIREMENTS

3. ALL DIMENSIONS SHOULD BE VERIFIED ON SITE PRIOR TO PROCEEDING WITH THE WORKS. NOTIFY THE PRINCIPALS REPRESENTATIVE IN WRITING OF ANY DISCREPANCIES

4. ALL ARCHITECTURAL DRAWINGS MUST BE READ IN CONJUNCTION WITH RELEVANT CONTRACTS, ARCHITECTURAL REPORTS, SCHEDULES AND SPECIFICATIONS AND ALL OTHER CONSULTANT / CONTRACT DOCUMENTATION. NOTIFY THE PRINCIPALS REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN DOCUMENTATION IN WRITING TO OBTAIN CLARIFICATION DIRECTION

5. ALL WORK TO COMPLY WITH THE NATIONAL CONSTRUCTION CODE INCLUDING RELEVANT AUSTRALIAN STANDARDS AND REQUIREMENTS OF THE BUILDING CODE OF AUSTRALIA AND AUSTRALIAN WORK HEALTH AND SAFETY LEGISLATION

6. DESIGN DRAWINGS ARE BASED ON SURVEY INFORMATION. PRIOR TO DETAILED DESIGN AND CONSTRUCTION, THE CONTRACTOR IS TO UNDERTAKE A FULL SURVEY TO VERIFY ALL DIMENSIONS AND CONFIRM LOCATION OF EXISTING STRUCTURE, SERVICES, BUILDING FABRIC AND SITE FEATURES.

7. ANY CONSULTANT DRAWING INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS ARE SUBJECT TO LATEST REQUIREMENT AND ARE TO BE USED AS A GUIDE ONLY

8. ALL WALL AND ROOF CONSTRUCTION IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET OUT IN THE ACCOMPANYING BASIX CERTIFICATION AND BCA CLASS 1A.

SURVEY PLAN:
BY BOXALL SURVEYORS

scott_carver

OCTOBER 2023

[Status] PRELIMINARY

[Nom. Architect] DOUG SOUTHWELL /7362

[File]

[Print Date] 24/10/2023 2:39:33 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
1	SUBDIVISION DA	07.06.2022
2	SUBDIVISION DA	12.07.2023
3	REVISED SUBDIVISION DA	06.10.2023
4	REVISED SUBDIVISION DA	24.10.2023

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

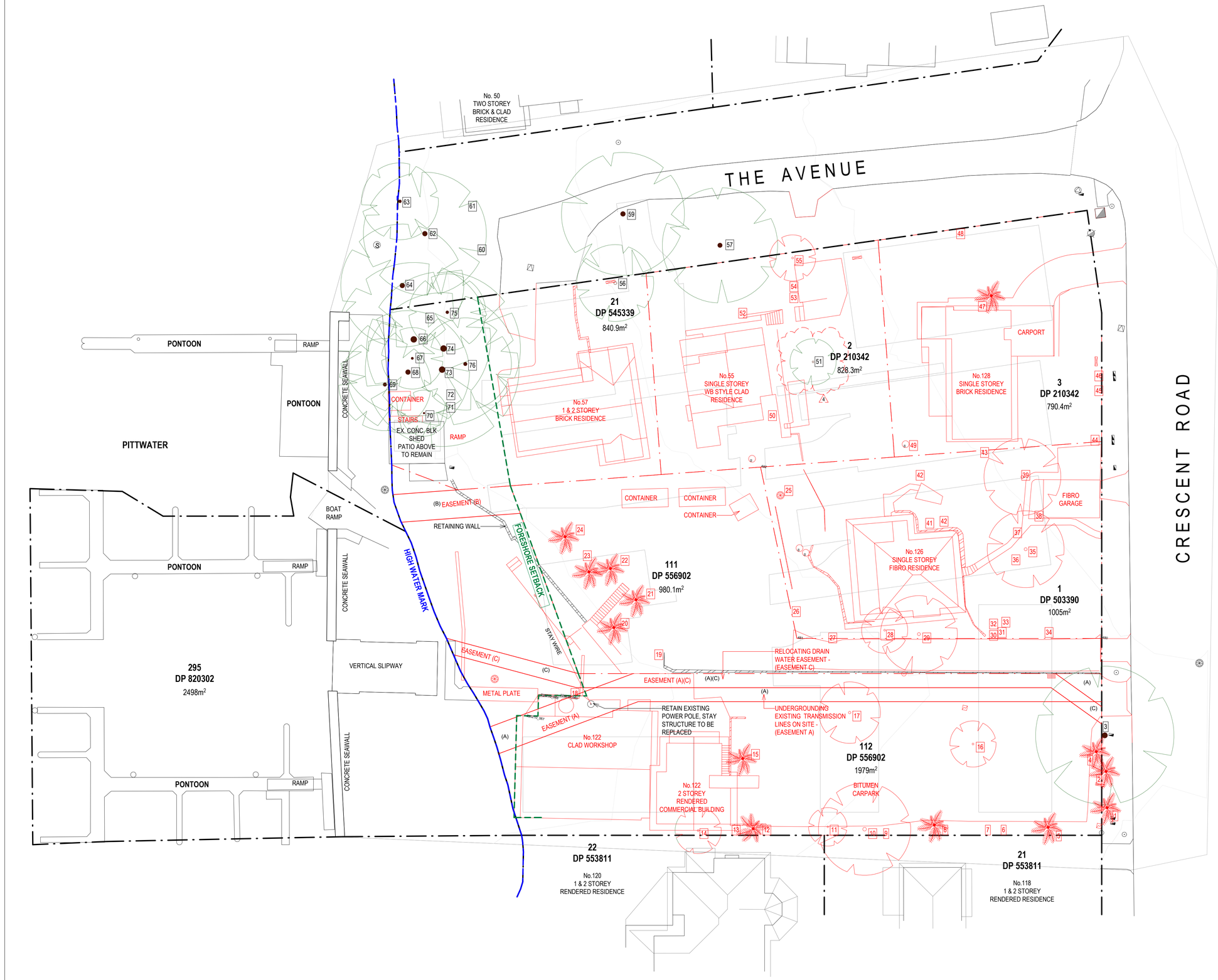
[Client] ESSEX DEVELOP

0 1 2 3 4 5 m

[Scale] 1 : 2000 @ A1

LOCATION PLAN

[Ref] 20220005 [Dwg No] AD-DA901 [Rev] 4



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[Nom. Architect] DOUG SOUTHWELL /7362

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History

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1	SUBDIVISION DA	07.06.2022
2	SUBDIVISION DA	12.07.2023
3	REVISED SUBDIVISION DA	06.10.2023
4	REVISED SUBDIVISION DA	24.10.2023

LEGEND

- BOUNDARY LINE
- DEMOLITION
- HIGH WATER MARK
- FORESHORE SETBACK
- 01 TREE TO REMAIN
- 01 TREE TO BE DEMOLISHED

FOR DETAILED ARBORIST REPORT
REFER TO REPORT 6322 BY RAINTREE
CONSULTING - DATED 25.05.2022

EXISTING EASEMENTS
A. TRANSMISSION LINE
B. RIGHT OF CARRIAGEWAY
C. DRAIN WATER (1.83M WIDE)

BASED ON SURVEY BY BOXALL DATED
05.05.2022 - DRAWING NO. 11369-001-A

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

[Client] ESSEX DEVELOP

0 1 2 3 4 5 m

[Scale] 1 : 250 @ A1

DEMOLITION PLAN

[Ref] 20220005 [Dwg No] AD-DA902 [Rev] 4

NOTE

ALL HOUSE FOOTPRINTS CAN ACHIEVE MIN BUILDING AREA OF 175M² AS PER B2.2

LEGEND

- BOUNDARY LINE
- HIGH WATER MARK
- FORESHORE SETBACK
- RIGHT OF WAY
- DRAINAGE EASEMENTS REFER TO SITEWORKS AND DRAINAGE PLAN FROM BG&E
- UNDERGROUND CABLE EASEMENT REFER TO PROPOSED UNDERGROUND SERVICES PLAN FROM IGS
- INDICATIVE BUILDING FOOTPRINT SUBJECT TO FUTURE DWELLING DA
- INDICATIVE LANDSCAPED AREA
- BUILDING SETBACK
- 01 TREE TO REMAIN

FOR DETAILED ARBORIST REPORT REFER TO REPORT 6322 BY RAINTREE CONSULTING - DATED 25.05.2022

BASED ON SURVEY BY BOXALL DATED 05.05.2022 - DRAWING NO. 11369-001-A

[Status] PRELIMINARY

[Nom. Architect] DOUG SOUTHWELL /7362

[File]

[Print Date] 24/10/2023 1:54:41 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
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2	SUBDIVISION DA	12.07.2023
3	UPDATE FOR 8 LOTS	12.09.2023
4	REVISED SUBDIVISION DA	06.10.2023
5	REVISED SUBDIVISION DA	24.10.2023

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

[Client] ESSEX DEVELOP

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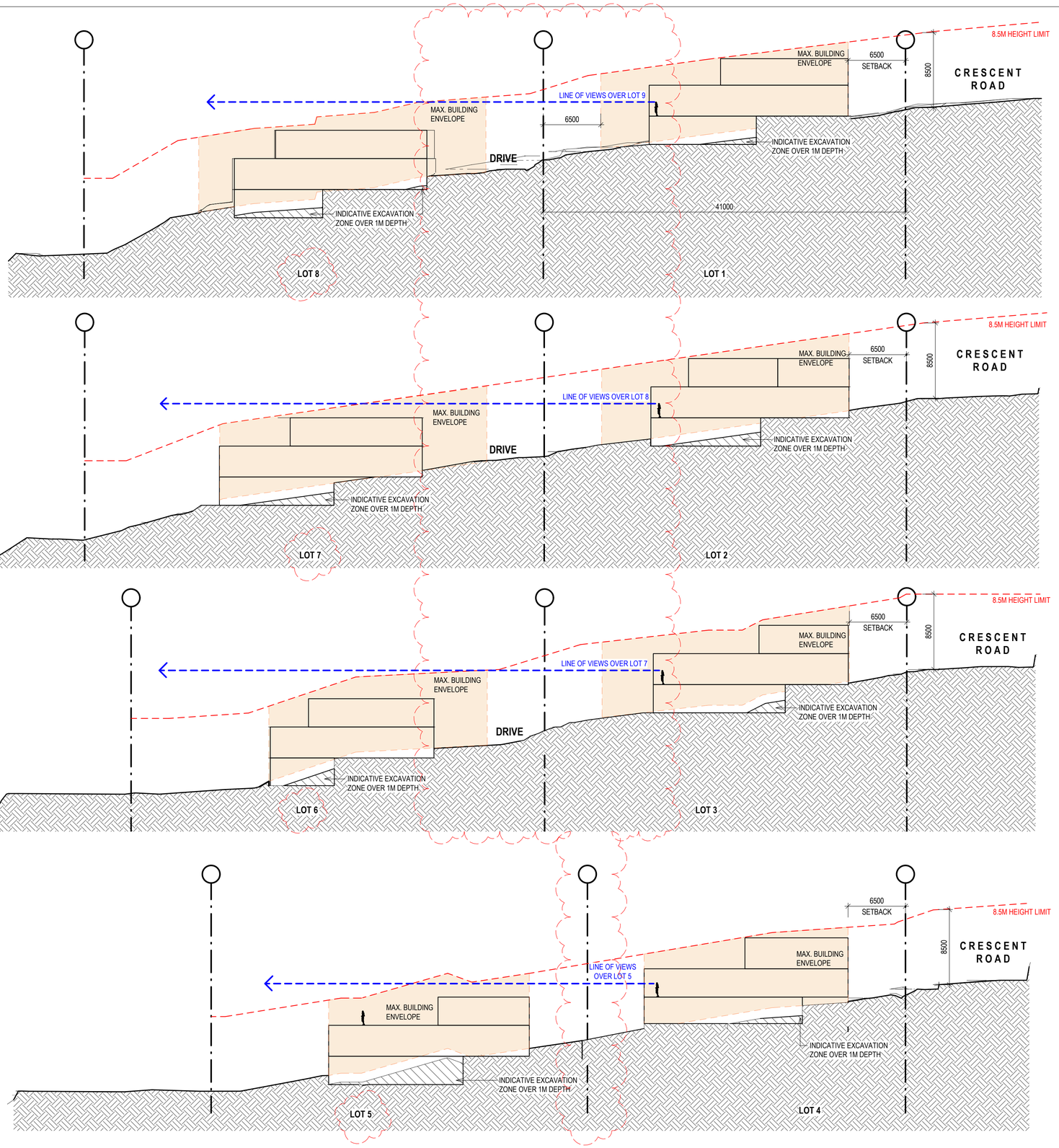
[Scale] 1 : 250 @ A1

ARCHITECTURAL ENVELOPE PLAN

[Ref] 20220005 [Dwg No] AD-DA903 [Rev] 5



4 SECTION 4
1 : 250

3 SECTION 3
1 : 250

2 SECTION 2
1 : 250

1 SECTION 1
1 : 250

LEGEND

- MAX BUILDING ENVELOPE
- PERMISSIBLE BUILDING MASS. INDICATIVE ABOVE GROUND AREA DEMONSTRATES WHAT FLOOR AREA CAN BE ACHIEVED WITH SIMPLE MASSING FLOOR PLATES. THIS DOES NOT INDICATE FINAL SIZE OF DWELLING, A DESIGN EXERCISE FOR EACH LOT WILL NEED TO BE UNDERTAKEN TO DETERMINE COMPOSITION INCLUDING POOL, INTERNAL COURTYARD ET.C
- INDICATIVE EXCAVATION ZONE OVER 1M DEPTH, PENDING FINAL HOUSE DESIGN

[Status] PRELIMINARY

[Nom. Architect] DOUG SOUTHWELL /7362

[File]

[Print Date] 24/10/2023 1:55:33 PM

History

[Rev#]	[Description]	[Date]dd.mm.yy
1	SUBDIVISION DA	07.06.2022
2	SUBDIVISION DA	12.07.2023
3	REVISED SUBDIVISION DA	06.10.2023
4	REVISED SUBDIVISION DA	24.10.2023

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

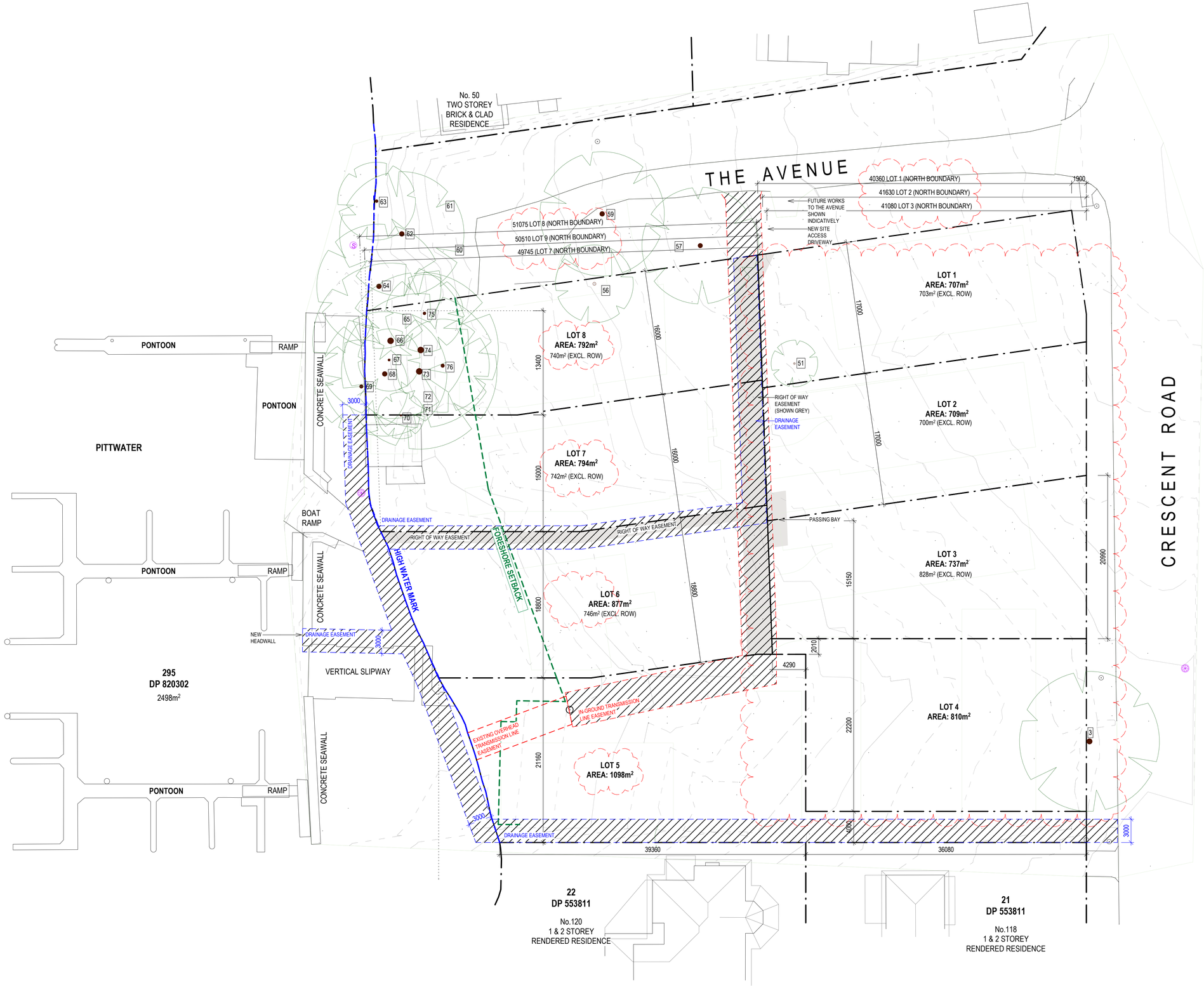
[Client] ESSEX DEVELOP

0 1 2 3 4 5 m

[Scale] As indicated @ A1

ARCHITECTURAL ENVELOPE SECTIONS

[Ref] 20220005 [Dwg No] AD-DA904 [Rev] 4



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[Nom. Architect] DOUG SOUTHWELL /7362

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2	SUBDIVISION DA	12.07.2023
3	REVISED SUBDIVISION DA	06.10.2023
4	REVISED SUBDIVISION DA	24.10.2023

LEGEND

- BOUNDARY LINE
- HIGH WATER MARK
- FORESHORE SETBACK
- RIGHT OF WAY
- DRAINAGE EASEMENTS REFER TO SITEWORKS AND DRAINAGE PLAN FROM BG&E
- UNDERGROUND CABLE EASEMENT REFER TO PROPOSED UNDERGROUND SERVICES PLAN FROM IGS

BASED ON SURVEY BY BOXALL DATED 05.05.2022 - DRAWING NO. 11369-001-A

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

[Client] ESSEX DEVELOP

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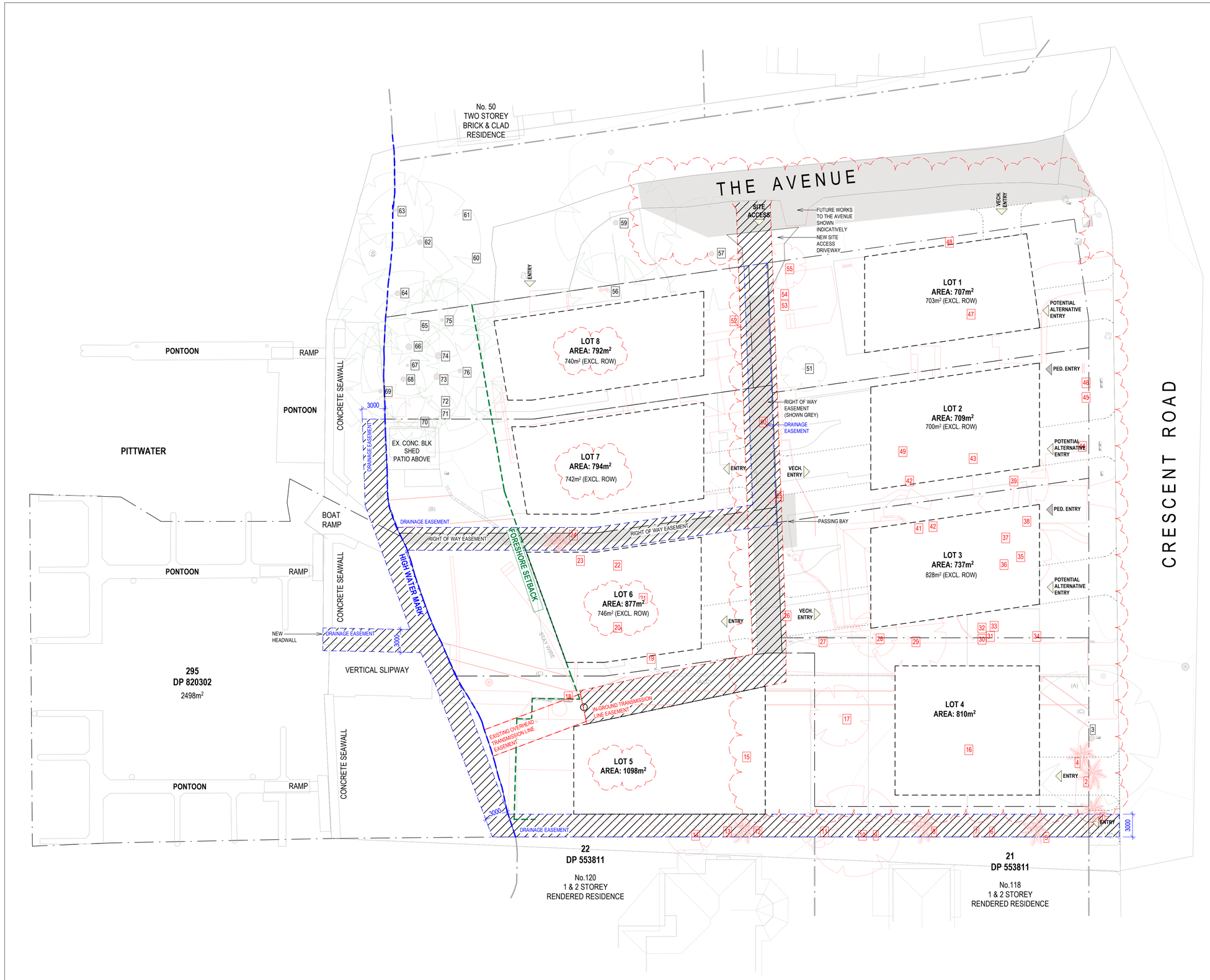
[Scale] 1 : 250 @ A1

SUBDIVISION PLAN

[Ref] 20220005 [Dwg No] AD-DA905 [Rev] 4



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[Nom. Architect] DOUG SOUTHWELL /7362

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2	SUBDIVISION DA	12.07.2023
3	REVISED SUBDIVISION DA	06.10.2023
4	REVISED SUBDIVISION DA	24.10.2023

LEGEND

- BOUNDARY LINE
- DEMOLITION
- HIGH WATER MARK
- FORESHORE SETBACK
- RIGHT OF WAY
- DRAINAGE EASEMENTS REFER TO SITEWORKS AND DRAINAGE PLAN FROM BG&E
- UNDERGROUND CABLE EASEMENT REFER TO PROPOSED UNDERGROUND SERVICES PLAN FROM IGS
- INDICATIVE BUILDING FOOTPRINT SUBJECT TO FUTURE DWELLING DA
- 01 TREE TO REMAIN
- 01 TREE TO BE DEMOLISHED

FOR DETAILED ARBORIST REPORT REFER TO REPORT 6322 BY RAINTREE CONSULTING - DATED 25.05.2022

EXISTING EASEMENTS
A. TRANSMISSION LINE
B. RIGHT OF CARRIAGEWAY
C. DRAIN WATER (1.83M WIDE)

BASED ON SURVEY BY BOXALL DATED 05.05.2022 - DRAWING NO. 11369-001-A

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

[Client] ESSEX DEVELOP

0 1 2 3 4 5 m

[Scale] 1 : 250 @ A1

OVERLAY DEMO & NEW

[Ref] 20220005 [Dwg No] AD-DA906 [Rev] 4

NOTES

- DISCONNECT POWER SUPPLY, GAS, WATER AND TELEPHONE LINE.
- PROVIDE 1.8m TEMPORARY FENCE TO SECURE DEMOLITION SITE
- PROVIDE INDICATOR AND WARNING SIGNS BEFORE WORKS BEGIN.
- BUILDER TO PROVIDE SILT FENCE TO PREVENT SEDIMENTATION RUN-OFF.
- BUILDER TO MINIMISE DUST BY SPRAYING WATER DURING DEMOLITION.
- WORKS TO BE DONE BY HAND SUCH AS: ROOF TILES, ROOF TIMBER, EXTERNAL CLADDING AND TIMBER FRAME.
- A HEAVY EXCAVATOR WILL BE USED TO DEMOLISH THE PROPERTY AND TO LOAD THE TRUKS.
- WORK SHALL BE DONE BETWEEN 7.00am. AND 5.00pm. FROM MONDAY TO FRIDAY INCLUSIVE.
- TIPPER TRUCKS WILL PARK ON DRIVEWAYS AND CROSSOVERS PROTECTED WITH TIMBER.
- LOADS SHOULD BE COVERED BEFORE LEAVING THE SITE. ADJACENT PROPERTIES AND PUBLIC RIGHT OF WAYS SHALL BE PROTECTED.
- THE ACCESS POINT FOR THE SITE WILL BE FROM EXISTING DRIVEWAYS
- THE SITE SHALL HAVE BINS TO SEGREGATE MATERIALS SUCH AS A SCRAP METAL BIN AND SPOIL STOCKPILE. THIS WILL ALLOW MATERIAL TO BE RECYCLED IN EFFECTIVELY
- NO REQUIREMENTS ON THE SITE FOR UNDER PINNING OR SHORING WILL BE UNDERTAKEN.

NOTE: ASBESTOS IF ANY SHOULD BE REMOVED MANUALLY BY WET METHOD, AS REQUIRED UNDER WORKCOVER AND SAFTY REGULATIONS TO AUSTRALIAN STANDARD 2601-1991, WRAPPED WITH PLASTIC AND PLACED IN A DEDICATED BIN.THE BIN IS SECURELY SEALED AND TIPPED AT A SUITABLY APPROVED SITE.

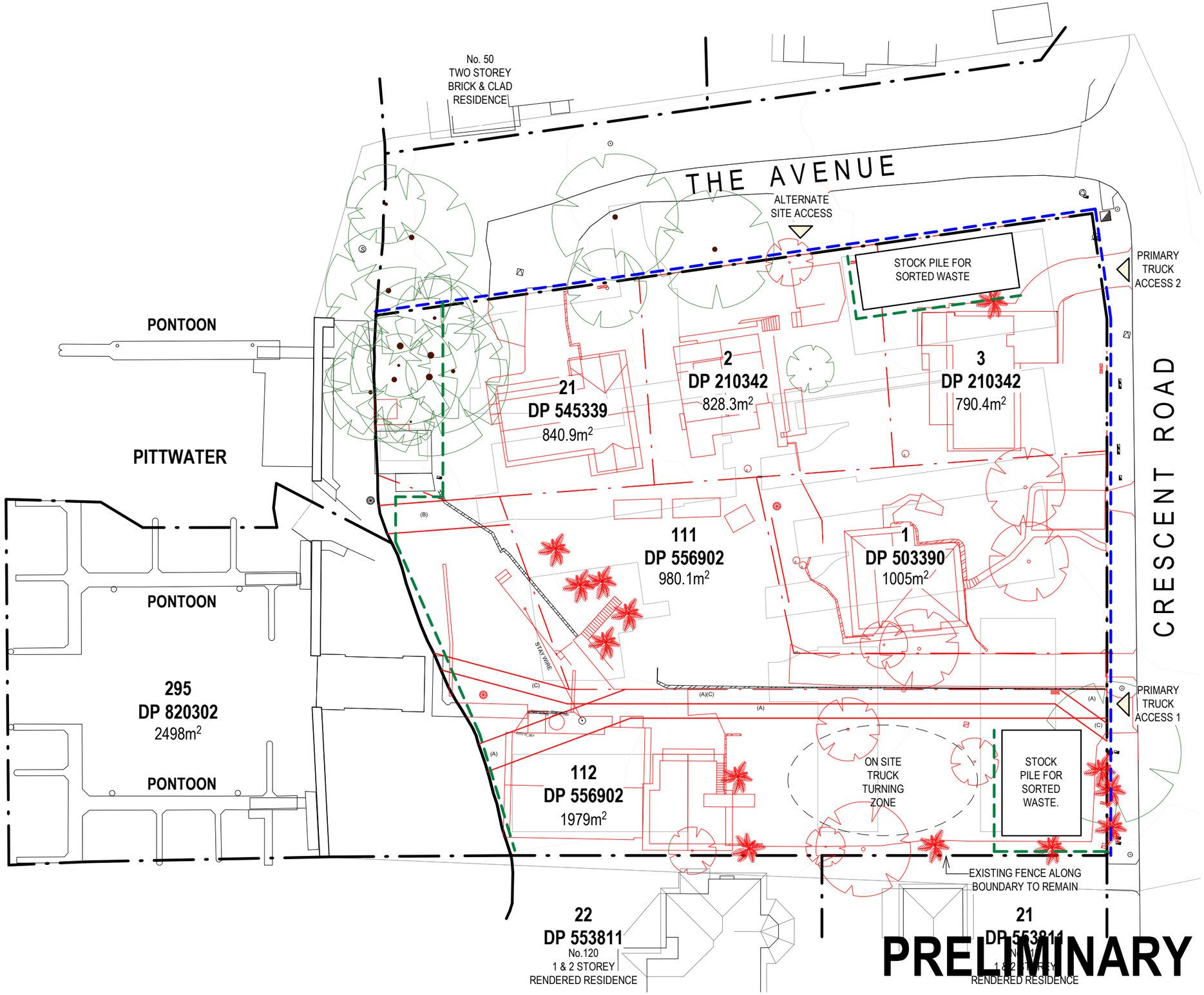
DETAIL OF EXISTING STRUCTURES
LOT 122, DP 556902 / 122 CRESCENT ROAD, 2 STOREY RENDERED COMMERCIAL BUILDING, CLAD WORKSHOP AND BITUMEN CARPARK
LOT 111, DP 556902 / 124 CRESCENT ROAD, CONCRETE DRIVEWAY ANDTHREE CONTAINERS
LOT 1, DP503390 / 126 CRESCENT ROAD, SINGLE STOREY FIBRO RESIDENCE AND FIBRO GARAGE
LOT 3, DP210342 / 128 CRESCENT ROAD, SINGLE STOREY BRICK RESIDENCE
LOT 2, DP210342 / 55 THE AVENUE, SINGLE STOREY WEATHERBOARD CLAD RESIDENCE
LOT 21, DP545339 / 57 THE AVENUE, ONE AND TWO STOREY BRICK RESIDENCE

NAME AND DETAILS OF DEMOLISHER: TO BE ADVISED.
FINAL LOCATION SUBJECT TO DEMOLITION CONTRATOR.

EROSION CONTROL NOTES

1. ALL EROSION SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 'MANAGING URBAN STORMWATER, 3rd EDITION' PRODUCED BY THE NSW DEPARTMENT OF HOUSING. STANDARD DRAWING (SD) NUMBERS REFERENCED ON THIS DRAWING CAN BE OBTAINED FROM THIS PUBLICATION.
2. ALL EROSION AND SILATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS. AND ALL SILT TRAPS ARE TO HAVE DEPOSITED SILT REMOVED REGULARLY DURING CONSTRUCTION.
3. ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THIS PLAN.
4. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADEN WATER
5. NOT WITHSTANDING DETAILS SHOWN IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT ALL SITE ACTIVITIES COMPLY WITH THE REQUIREMENTS OF THE CLEAN WATERS ACT.

LEGEND
DEMOLISHED
TEMPORARY FENCE
SEDIMENT CONTROL



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[Nom. Architect]
DOUG SOUTHWELL /7362

[Rev#]	[Description]	[Date]dd.mm.yy
1	SUBDIVISION DA	16.08.2022
2	REVISED SUBDIVISION DA	24.10.2023

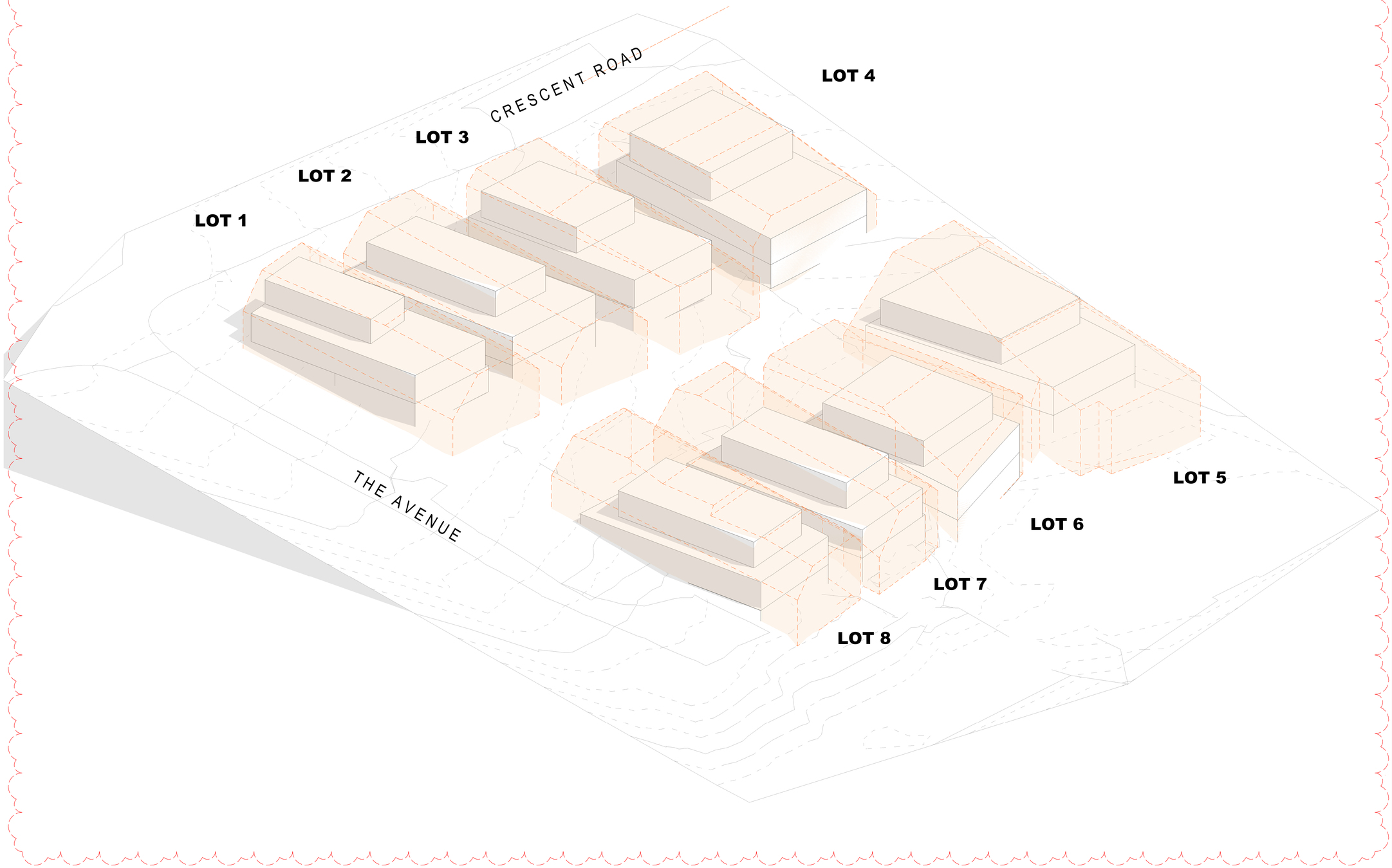
[Project]
NEWPORT MARINA AND RESIDENTIAL
122-128 CRESCENT RD & 55-57 THE AVENUE
DP210342, DP503390, DP545339 & DP556902

[Client]
ESSEX DEVELOP

[Scale] 1 : 500 @ A3

DEMOLITION WASTE MANAGEMENT PLAN

[Ref] 20220005 | [Dwg No] AD-DA910 | [Rev] 2



[Status] PRELIMINARY

[Nom. Architect] DOUG SOUTHWELL /7362

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History

[Rev#]	[Description]	[Date]dd.mm.yy
1	SUBDIVISION DA	12.07.2023
2	REVISED SUBDIVISION DA	24.10.2023

LEGEND

MAX BUILDING ENVELOPE

PERMISSIBLE BUILDING MASS. INDICATIVE ABOVE GROUND AREA DEMONSTRATES WHAT FLOOR AREA CAN BE ACHIEVED WITH SIMPLE MASSING FLOOR PLATES. THIS DOES NOT INDICATE FINAL SIZE OF DWELLING, A DESIGN EXERCISE FOR EACH LOT WILL NEED TO BE UNDERTAKEN TO DETERMINE COMPOSITION INCLUDING POOL, INTERNAL COURTYARD ET.C

INDICATIVE EXCAVATION ZONE OVER 1M DEPTH, PENDING FINAL HOUSE DESIGN

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

[Client] ESSEX DEVELOP

0 2 4 6 8 10 m

[Scale] 1 : 200 @ A1

3D ENVELOPE DIAGRAM

[Ref] 20220005 [Dwg No] AD-DA911 [Rev] 2

[Status] PRELIMINARY

[Nom. Architect] DOUG SOUTHWELL /7362

[File]

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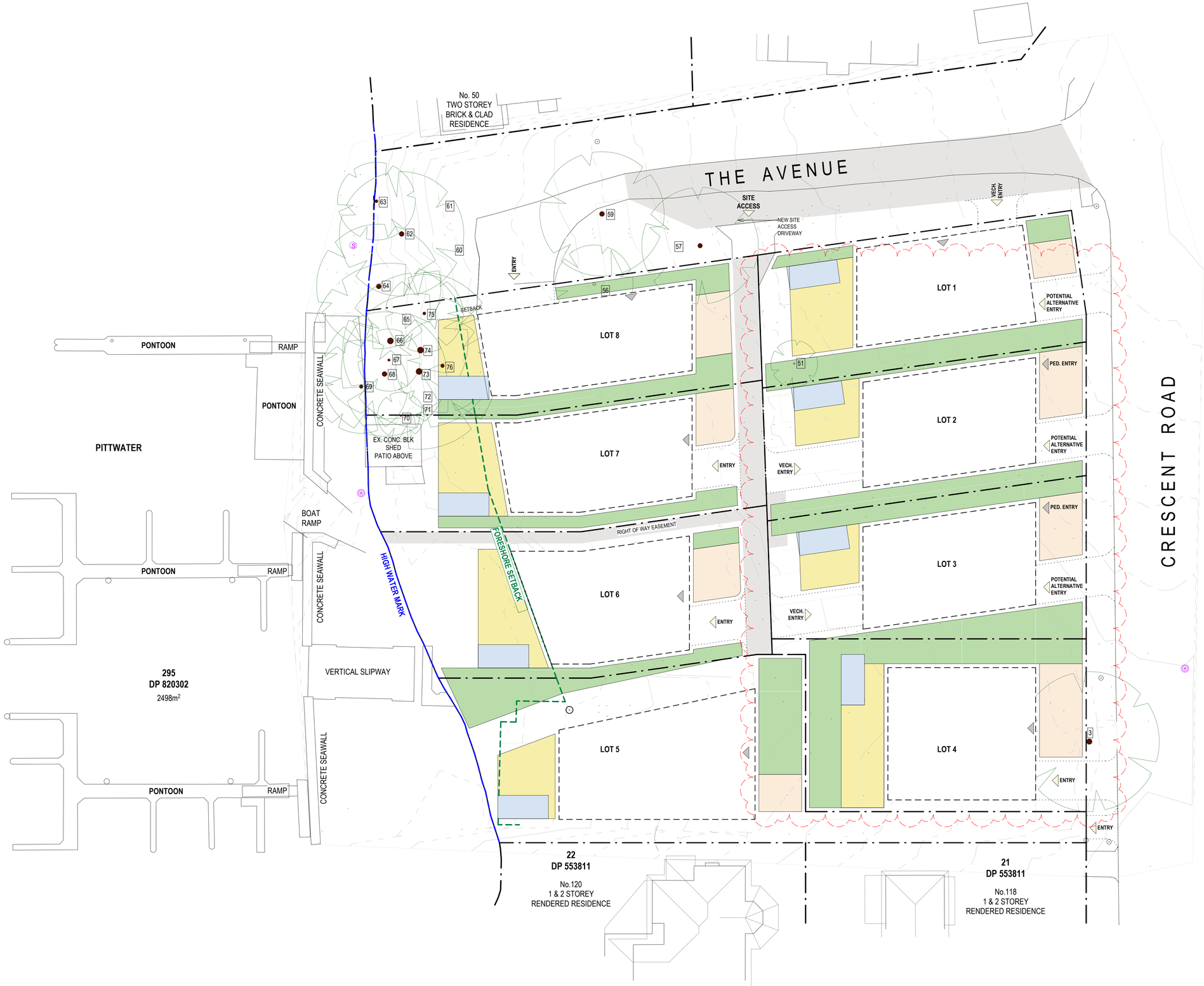
2	REVISED SUBDIVISION DA	06.10.2023
3	REVISED SUBDIVISION DA	24.10.2023



LEGEND

- BOUNDARY LINE
- HIGH WATER MARK
- FORESHORE SETBACK
- RIGHT OF WAY
- 01 EXISING TREES TO BE RETAINED. REFER TO ARBORIST REPORT
- VECH. ENTRY INDICATIVE DRIVEWAY ENTRY
- INDICATIVE RESIDENTIAL FRONT DOOR
- PRIVATE COURTYARD/GARDEN AREA
- MAIN OUTDOOR LIVING SPACE (DECK/BBQ AREA ETC.)
- INDICATIVE POOL LOCATION
- GARDEN / DEEP SOIL AREA FOR TREE PLANTING
- REMAINDER OF AREA WITHIN BOUNDARY TO BE NEW PLANTING AND LAWN AREA

TO BE READ IN CONJUNCTION WITH ARCHITECTURAL SUBDIVISION PACKAGE.

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[Project] NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

[Client] ESSEX DEVELOP

0 2.5 5 7.5 10 12.5 m

[Scale] 1 : 250 @ A1

LANDSCAPE PRINCIPLES FOR LOT LAYOUTS

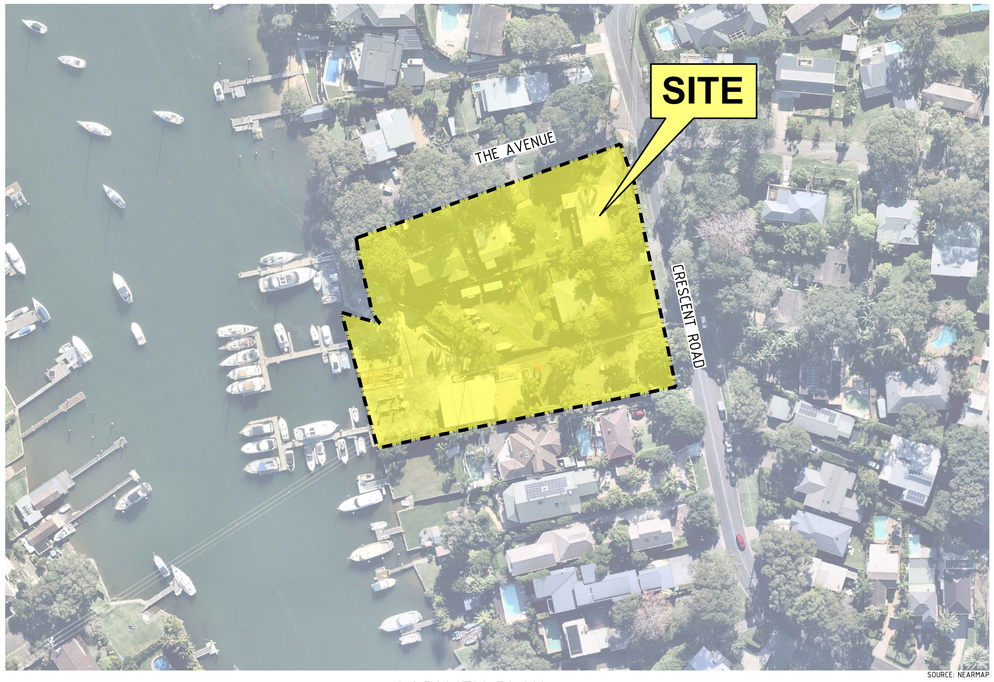
[Ref] 20220005 [Dwg No] AD-DA912 [Rev] 3

Appendix B - Civil Plans

NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

LGA: NORTHERN BEACHES COUNCIL
DEVELOPMENT APPLICATION ISSUE

N



SOURCE: NEARMAP

LOCALITY PLAN
SCALE 1:1000

DRAWING INDEX	
DRG No.	DESCRIPTION
CI-0000	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
CI-0200	SITEWORKS AND DRAINAGE PLAN
CI-0300	OVERLAND FLOW CATCHMENT PLAN
CI-0310	OVERLAND FLOW PLAN
CI-0320	PROPOSED INTERNAL ROAD PLAN
CI-0330	GENERAL ROADWORKS PLAN
CI-0340	DRAINAGE DETAILS
CI-0341	COUNCIL PIPE DIVERSION DRAINAGE LONGITUDINAL SECTION
CI-0350	INTERNAL DRIVEWAY LONGITUDINAL SECTION - CLO1
CI-0360	INTERNAL DRIVEWAY CROSS SECTIONS
CI-0370	THE AVENUE LONGITUDINAL SECTION - CLO2
CI-0371	THE AVENUE CROSS SECTIONS
CI-0380	MUSIC CATCHMENT PLAN
CI-0700	EROSION AND SEDIMENT CONTROL PLAN
CI-0710	EROSION AND SEDIMENT CONTROL DETAILS

0 10 20 30 40 50 60m
SCALE 1:1000 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
D	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
C	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	12.07.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	31.05.22	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

REVISIONS

CLIENT: Essex DEVELOP

ARCHITECT: scott carver — Level One, One Chifley Square Sydney NSW 2000 Australia, www.scottcarver.com.au +61 2 9957 3988

Sydney *Office —*
L2, 8 Windmill St
Sydney NSW 2000
P / +61 2 9770 3300 *E /* info@bgeeng.com
bgeeng.com —

PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:1000	AT A1 SIZE

TITLE: COVER SHEET, LOCALITY PLAN AND DRAWING INDEX

PROJECT No.	DRAWING No.	REV.
S22042	CI-0000	D

\\BGESYDFS03\PROJECTS\BGES\SYD\S22042 SIRSI MARINA\100 DRAW\100 2 CIVIL\AUTOCAD\S22042-DRG-CI-0000-TEMP.DWG
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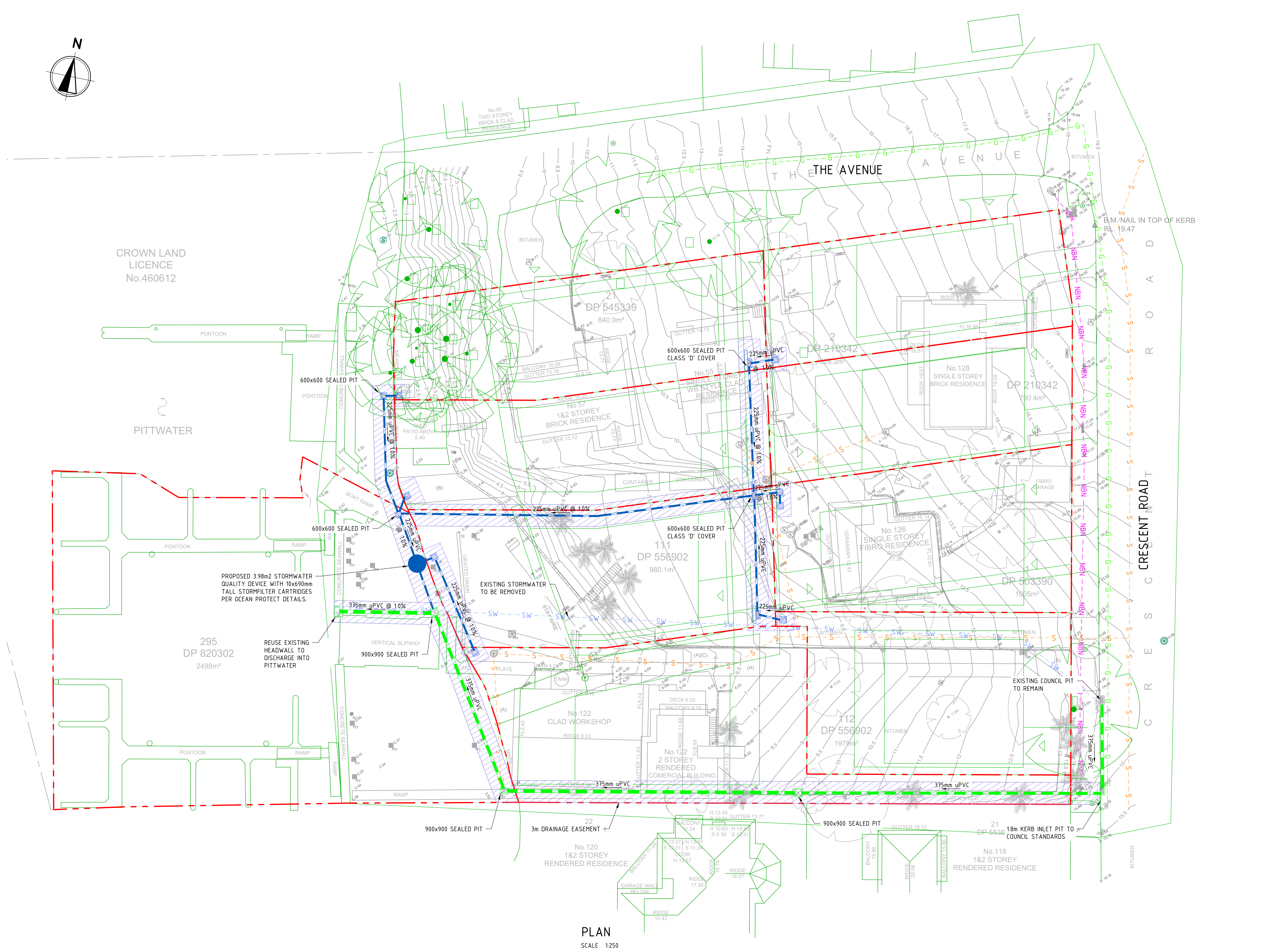

PLAN

SCALE 1:250

LEGEND

- SITE BOUNDARY
- Ø150 uPVC — PROPOSED STORMWATER (SIZE AND TYPE)
- PROPOSED GRATED PIT/ SEALED PIT/ KERB INLET PIT
- Ø150 uPVC — COUNCIL STORMWATER (SIZE AND TYPE)
- PROPOSED COUNCIL SEALED PIT/ KERB INLET PIT
- EXISTING KERB INLET PIT
- EXISTING SURVEY FEATURES
- ARCHITECTURAL
- HEADWALL
- 3m DRAINAGE EASEMENT

EXISTING SERVICES

- NBN — EXISTING NBN
- G — EXISTING GAS
- S — EXISTING SEWER
- SW — EXISTING STORMWATER

0 2.5 5.0 7.5 10 12.5 15m
SCALE 1:250 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
F	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
E	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
D	12.07.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
C	08.06.22	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	07.06.22	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	31.05.22	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

REV	DATE	DESCRIPTION	RVD

REVISIONS

CLIENT: Essex DEVELOP

ARCHITECT: scott carver — Level One, One Chifley Square Sydney NSW 2000 Australia www.scottcarver.com.au +61 2 9957 3988

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bgeeng.com—

BG&E

PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
HA	AM	SH	

DATUM	GRID	SCALE
AHD	GDA2020 MGA-56	1:250 AT A1 SIZE

TITLE: SITEWORKS AND DRAINAGE PLAN

PROJECT No.	DRAWING No.	REV.
S22042	CI-0200	F

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27/10/2023 11:26:14 AM

PLAN
SCALE 1:400

LEGEND

- SITE BOUNDARY
- CADASTRAL
- EXISTING PIT/ KERB INLET PIT
- PROPOSED PIT/ KERB INLET PIT
- EXTERNAL CATCHMENT OVERLAND FLOW TO PROPOSED GRASSED SWALE ON SITE
- INTERNAL CATCHMENT OVERLAND FLOW TO PROPOSED GRASSED SWALE ON SITE
- PROPOSED GRASSED SWALE

EXTERNAL CATCHMENT FLOWS CALCULATION:
STORM EVENT = 100 YR ARI
- TIME OF CONCENTRATION = 5 MINS
- INTENSITY= 273 mm/hr
- CATCHMENT AREA = 0.7109 Ha
- C=0.75

QOVERLAND FLOW = 0.404 m3/s

INTERNAL CATCHMENT FLOWS CALCULATION:
STORM EVENT = 100 YR ARI
- TIME OF CONCENTRATION = 5 mins
- INTENSITY= 273 mm/hr
- CATCHMENT AREA = 0.3960 Ha
- C=0.54

QOVERLAND FLOW = 0.161 m3/s
QTOTAL (INCLUDING EXTERNAL CATCHMENT FLOWS)
= 0.404+0.161 = 0.566 m3/s

0 4 8 12 16 20 24m
SCALE 1:400 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
C	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	12.07.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

CLIENT: Essex DEVELOP

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PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE

TITLE: OVERLAND FLOW CATCHMENT PLAN

PROJECT No.	DRAWING No.	REV.
S22042	CI-0300	C

\\BGES\DFS03\PROJECTS\BGES\SYD\S22042 SIRSI MARINA\100 DRAW\100.2 CIVIL\AUTOCAD\S22042-DRG-CI-0300.DWG
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N

THE AVENUE

B.M. NAIL IN TOP OF KERB
RL. 19.47

CROWN LAND
LICENCE
No.460612

PITTWATER

295
DP 820302
2498m²

21
DP 545339
840.9m²

2
DP 210342
926.9m²

3
DP 210342
790.4m²

1
DP 503390
1005m²

DP 556902
1979m²

22
DP 553811

21
DP 553811

111

No.50
TWO STOREY
BRICK & CLAD
RESIDENCE

No.55
SINGLE STOREY
WB STYLE CLAD
RESIDENCE

No.57
1&2 STOREY
BRICK RESIDENCE

No.128
SINGLE STOREY
BRICK RESIDENCE

No.126
SINGLE STOREY
FIBRO RESIDENCE

No.122
CLAD WORKSHOP

No.122
2 STOREY
RENDERED
COMERCIAL BUILDING

No.120
1&2 STOREY
RENDERED RESIDENCE

No.118
1&2 STOREY
RENDERED RESIDENCE

THE AVENUE

CRESCENT ROAD

REFER TO DRAWING CI-0300 FOR THE OVERLAND FLOW CATCHMENT PLAN LAYOUT & CALCULATIONS.

PROPOSED KERB INLET PIT IN SAG. OVERLAND FLOW ALLOWANCE HAS BEEN MADE BEHIND THE KIP THAT WOULD NAVIGATE DOWN ON LOTS 6 & 7 VIA A GRASSED SWALE AND DISCHARGE TO PITTWATER.

PROPOSED GRASSED TRAPEZOIDAL SWALE BETWEEN LOTS 3, 4 & 5 TO CATER FOR THE OVERLAND FLOW PATH FROM CRESCENT STREET. REFER SECTION 1 FOR DETAILS.

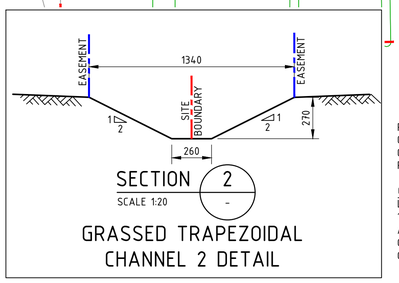
CHANNEL 1 DETAILS:
LENGTH = 40.50m
1100 WIDE x 270mm DEEP @ 17.5%
APPROX SLOPE. (MANNINGS 'N' =0.035)
QOVERLAND FLOW = 0.404 m3/s
QSWALE = 0.720 m3/s

PROPOSED TEMPORARY EARTH BUND TO EXTEND ALONG EASTERN BOUNDARY UP TO PROPOSED SWALE. FUTURE DEVELOPMENT TO CATER FOR OVERLAND FLOW DIVERSION IN FRONT OF PROPERTY.

REFER TO DRAWING CI-0300 FOR THE OVERLAND FLOW CATCHMENT PLAN LAYOUT & CALCULATIONS.

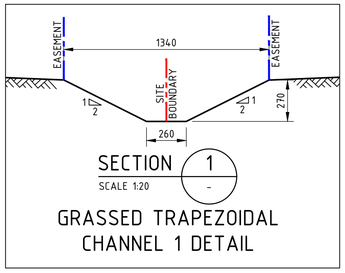
PROPOSED GRASSED TRAPEZOIDAL CHANNEL BETWEEN LOTS 5 & 6 TO CATER FOR THE OVERLAND FLOW PATH. REFER SECTION 2 FOR DETAILS.

CHANNEL 2 DETAILS:
LENGTH = 41.0m
1330mm WIDE x 270mm DEEP @12.0%
APPROX SLOPE. (MANNINGS 'N' =0.035)
QOVERLAND FLOW = 0.566 m3/s
QSWALE = 0.596m3/s



SECTION 2
SCALE 1:20

GRASSED TRAPEZOIDAL
CHANNEL 2 DETAIL



SECTION 1
SCALE 1:20

GRASSED TRAPEZOIDAL
CHANNEL 1 DETAIL

PLAN
SCALE 1:250

LEGEND

- SITE BOUNDARY
- PROPOSED STORMWATER
- PROPOSED GRATED PIT/ SEALED PIT/ KERB INLET PIT
- COUNCIL STORMWATER
- PROPOSED COUNCIL SEALED PIT/ KERB INLET PIT
- EXISTING KERB INLET PIT
- EXISTING SURVEY FEATURES
- ARCHITECTURAL
- HEADWALL
- 3m DRAINAGE EASEMENT
- PROPOSED GRASSED SWALE

EXISTING SERVICES

- NBN — EXISTING NBN
- G — G — EXISTING GAS
- S — S — EXISTING SEWER
- SW — EXISTING STORMWATER

0 0.2 0.4 0.6 0.8 1.0 1.2m
SCALE 1:20 AT A1 SIZE

0 2.5 5.0 7.5 10 12.5 15m
SCALE 1:250 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
C	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
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REVISIONS

CLIENT: Essex DEVELOP

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PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE

TITLE: OVERLAND FLOW PLAN

PROJECT No. S22042 | DRAWING No. CI-0310 | REV. C

\\BGESYDFS03\PROJECTS\BGES\STDTS\S22042 SIRSI MARINA\100 DRAW\100 2 CIVIL\AUTOCAD\S22042-DRG-CI-0310.DWG
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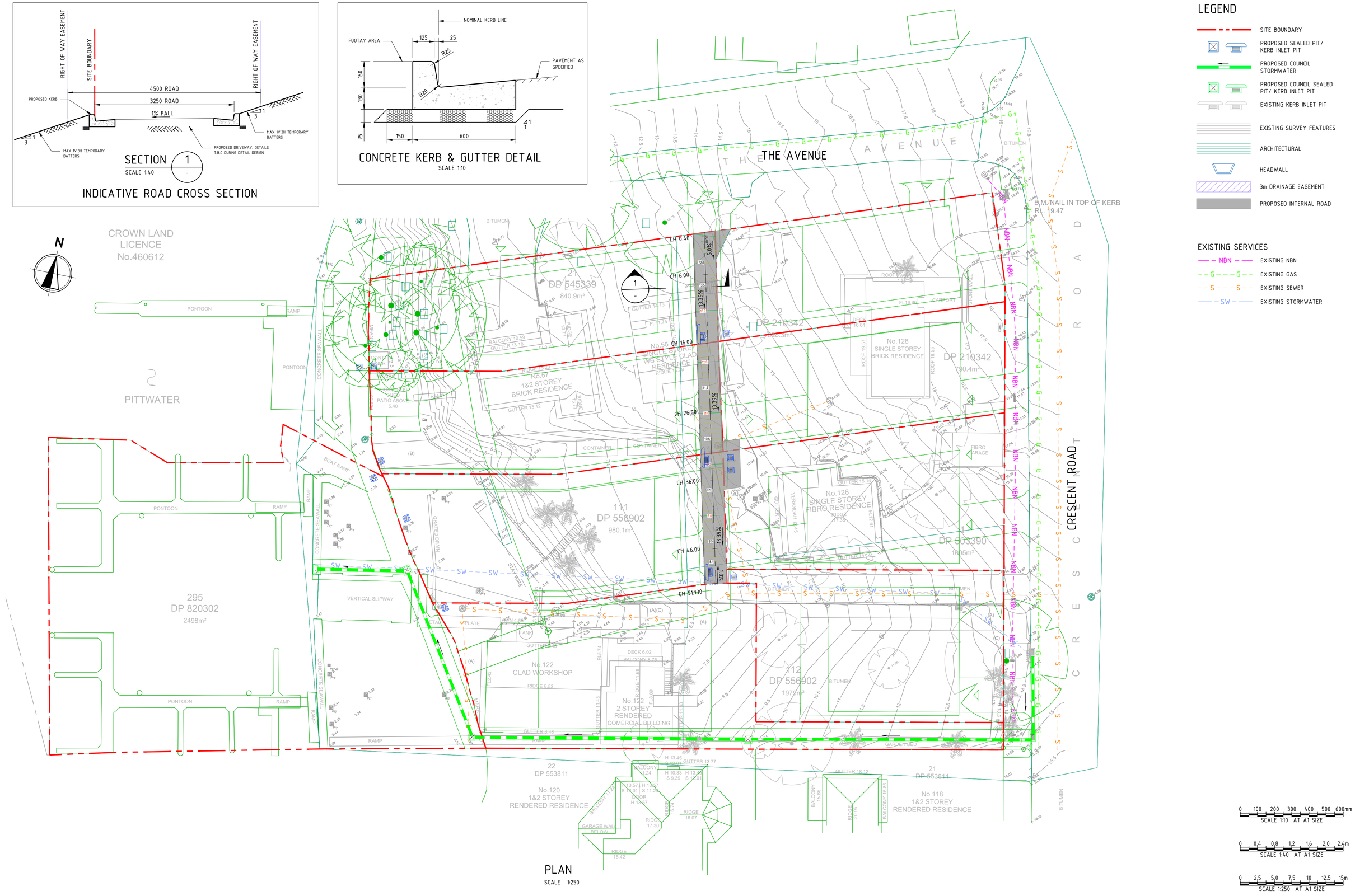

REV	DATE	DESCRIPTION	RVD
D	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
C	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	19.09.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	12.07.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

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HA	SM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE

TITLE: PROPOSED INTERNAL ROAD PLAN

PROJECT No.	DRAWING No.	REV.
S22042	CI-0320	D

\\BGESYDFS03\PROJECTS\BGE\SYD\S22042 SIRSI MARINA\100 DRAW\100.2 CIVIL\AUTOCAD\XREF\S22042-X-ROAD.DWG
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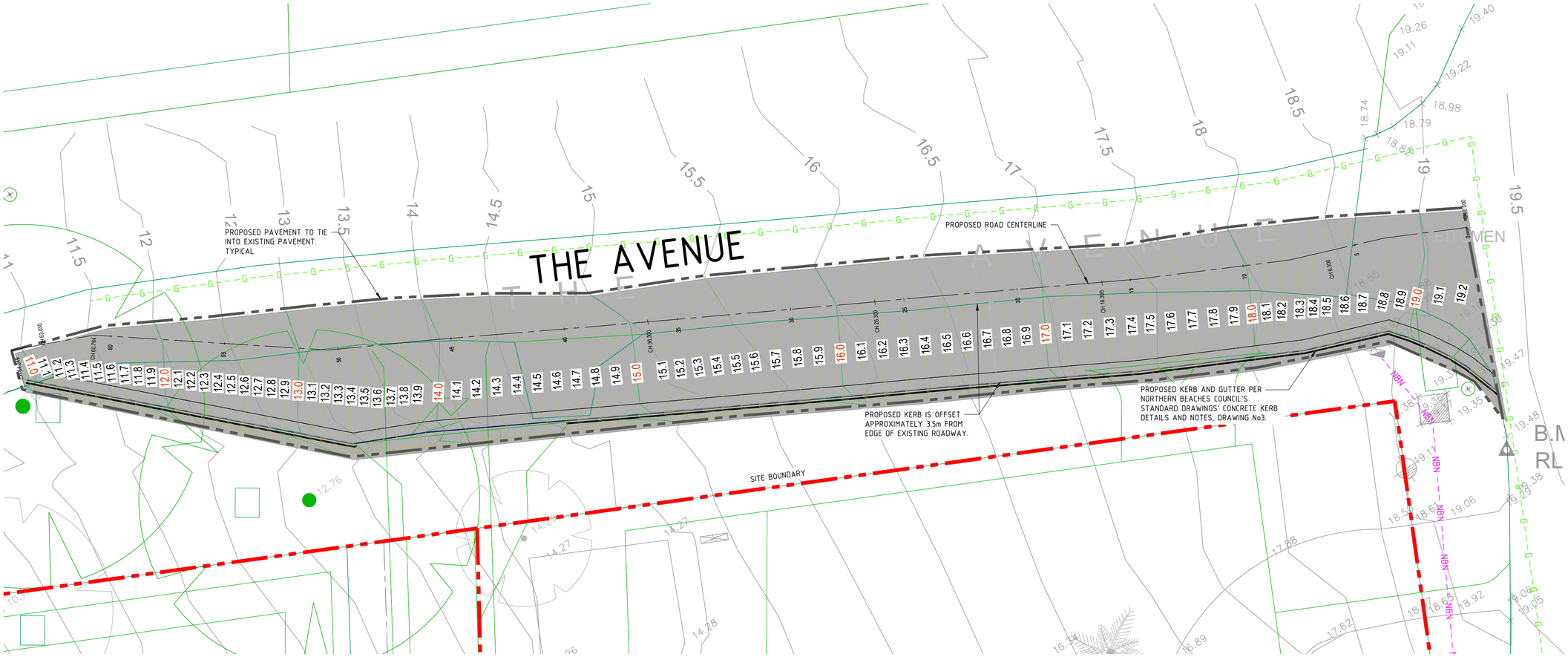

PLAN

SCALE 1:100

LEGEND

- EXTENT OF WORKS
- EXISTING SURVEY FEATURES
- ARCHITECTURAL
- L.O.K
- I.O.K
- T.O.K
- B.O.K
- ROAD C.L
- PROPOSED ROADWORKS

EXISTING SERVICES

- NBN — EXISTING NBN
- G — EXISTING GAS
- S — EXISTING SEWER
- SW — EXISTING STORMWATER

0 1 2 3 4 5 6m

SCALE 1:100 AT A1 SIZE

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B	29.09.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	20.09.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

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PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
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TITLE: GENERAL ROADWORKS PLAN

DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE	PROJECT No.	DRAWING No.	REV.
AHD	GDA2020 MGA-56	AS SHOWN AT A1 SIZE	S22042	CI-0330	C

\\BGESYDFS03\PROJECTS\BGES\SYDS\S22042 SIRSI MARINA\100 DRAW\100.2 CIVIL\AUTOCAD\S22042-DRG-CI-0330.DWG
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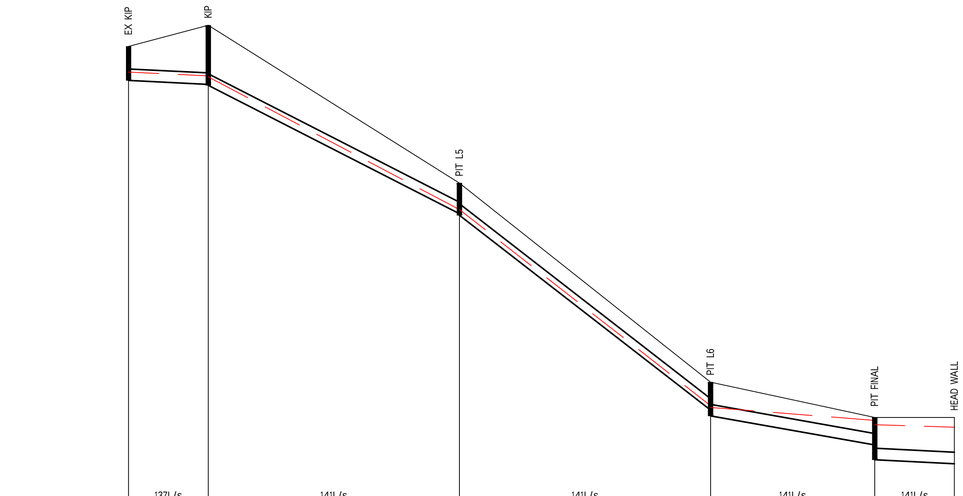

LEGEND

▌	DRAINAGE PIT
═	DRAINAGE PIPE
— — — — —	SURFACE LEVEL
—— ——	HYDRAULIC GRADE LINE

Datum El. -2	Datum El. -2					
	137L/s 375mm 1.00%	141L/s 375mm 10.22%	141L/s 375mm 15.51%	141L/s 375mm 3.54%	141L/s 375mm 1.00%	
HGL	13.621 13.499	13.465 9.134	9.134 2.732	2.675 2.254	2.114 2.030	
SURFACE LEVEL	14.46	15.15	10.00	3.50	2.35	2.35
INVERT LEVEL	13.350 13.220	13.190 9.000	8.950 2.590	2.400 1.450	0.970 0.840	
CHAINAGE	0	13.00	54.00	95.00	121.80	134.80

COUNCIL PIPE DIVERSION - STORMWATER DRAINAGE LONGSECTION - 5% AEP HGL

SCALE HORIZ. 1:500 VERT. 1:500

0 5 10 15 20 25 30m
SCALE 1:500 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
A	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

REV	DATE	DESCRIPTION	RVD

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PROJECT
NEWPORT MARINA AND
RESIDENTIAL DEVELOPMENT

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DRAWN	DESIGNED	CHECKED	APPROVED
SR	SM	SH	

DATUM	GRID	SCALE
AHD	GDA2020 MGA-56	AS SHOWN AT A1 SIZE

TITLE
COUNCIL PIPE DIVERSION
DRAINAGE LONGITUDINAL
SECTION

PROJECT No.	DRAWING No.	REV.
S22042	CI-0341	A

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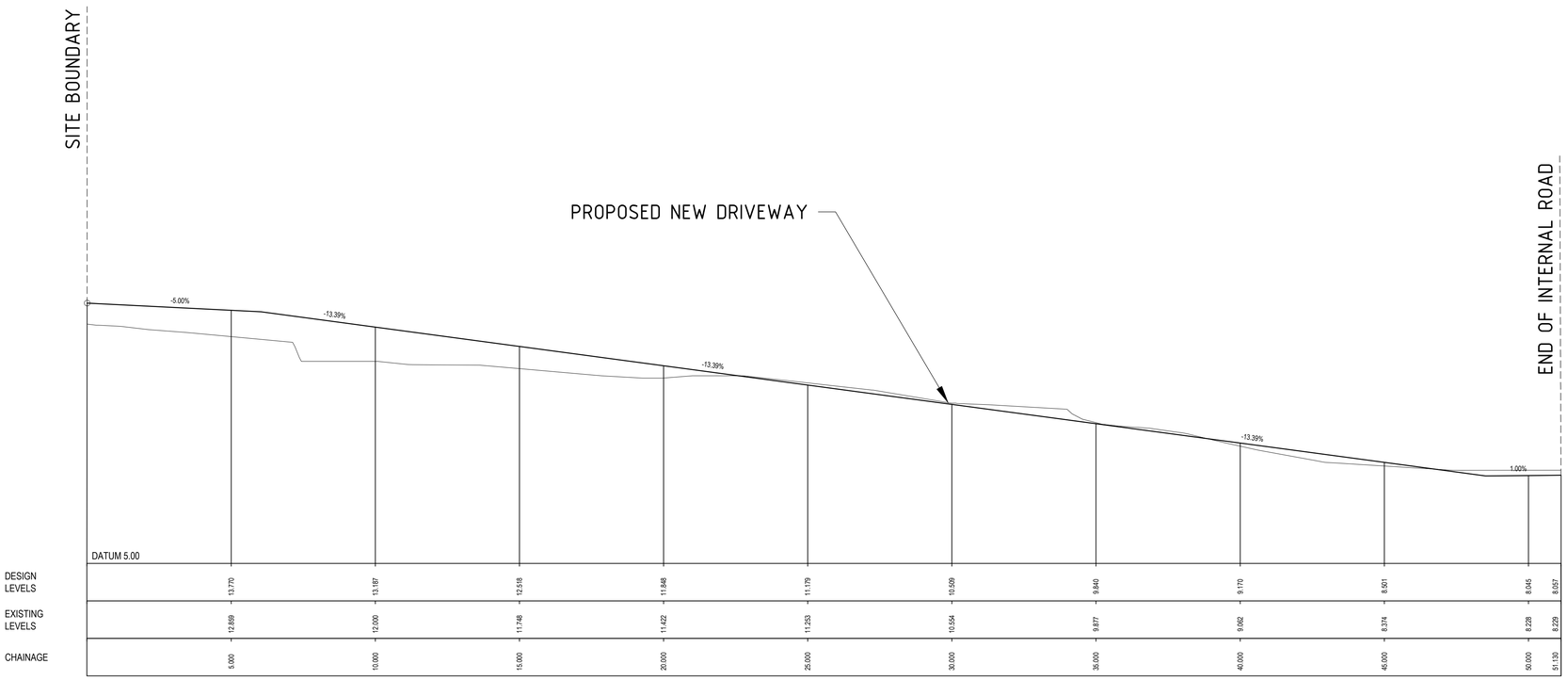

LONGITUDINAL SECTION - CL01

SCALE: Hor 1:100 Ver 1:100

0 2 4 6 8 10 12m

SCALE 1:200 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
D	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
C	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	19.09.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

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PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
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DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE

TITLE: INTERNAL DRIVEWAY LONGITUDINAL SECTIONS-CL01

PROJECT No.	DRAWING No.	REV.
S22042	CI-0350	D

\\BGESYDFS03\PROJECTS\BGESYD\S22042 SIRSI MARINA\100 DRAWN\100.2 CIVIL\AUTOCAD\S22042-DRG-CI-0350.DWG
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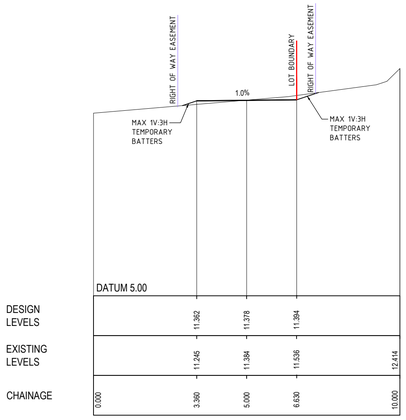

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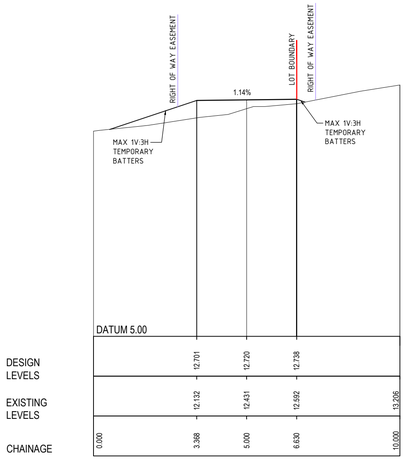

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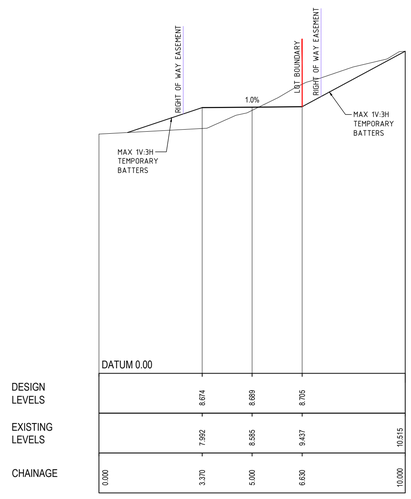

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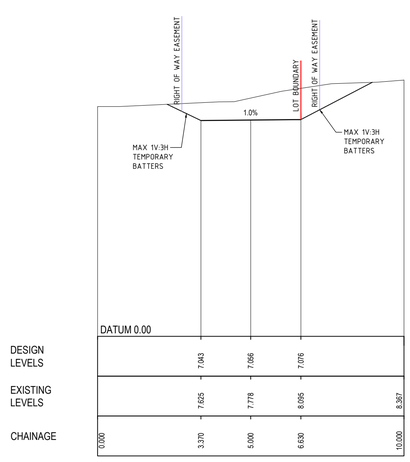

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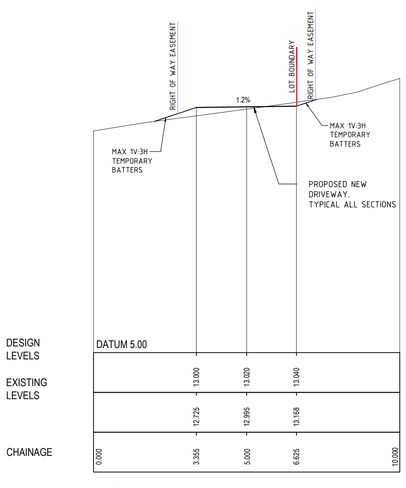

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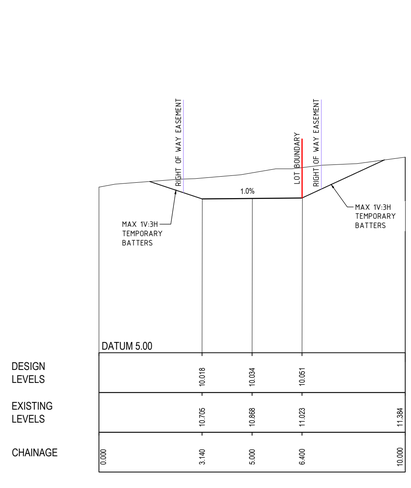

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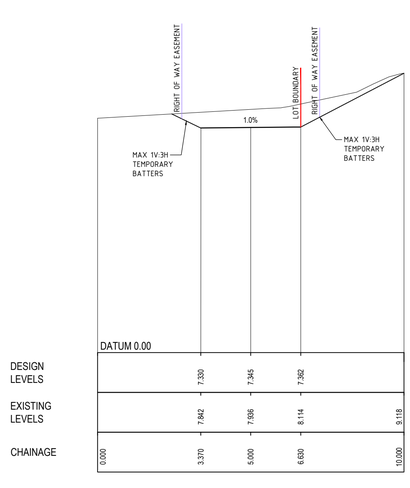

CH 46.00

0 1 2 3 4 5 6m
SCALE 1:100 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
C	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	19.09.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

REV	DATE	DESCRIPTION	RVD

REVISIONS

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PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
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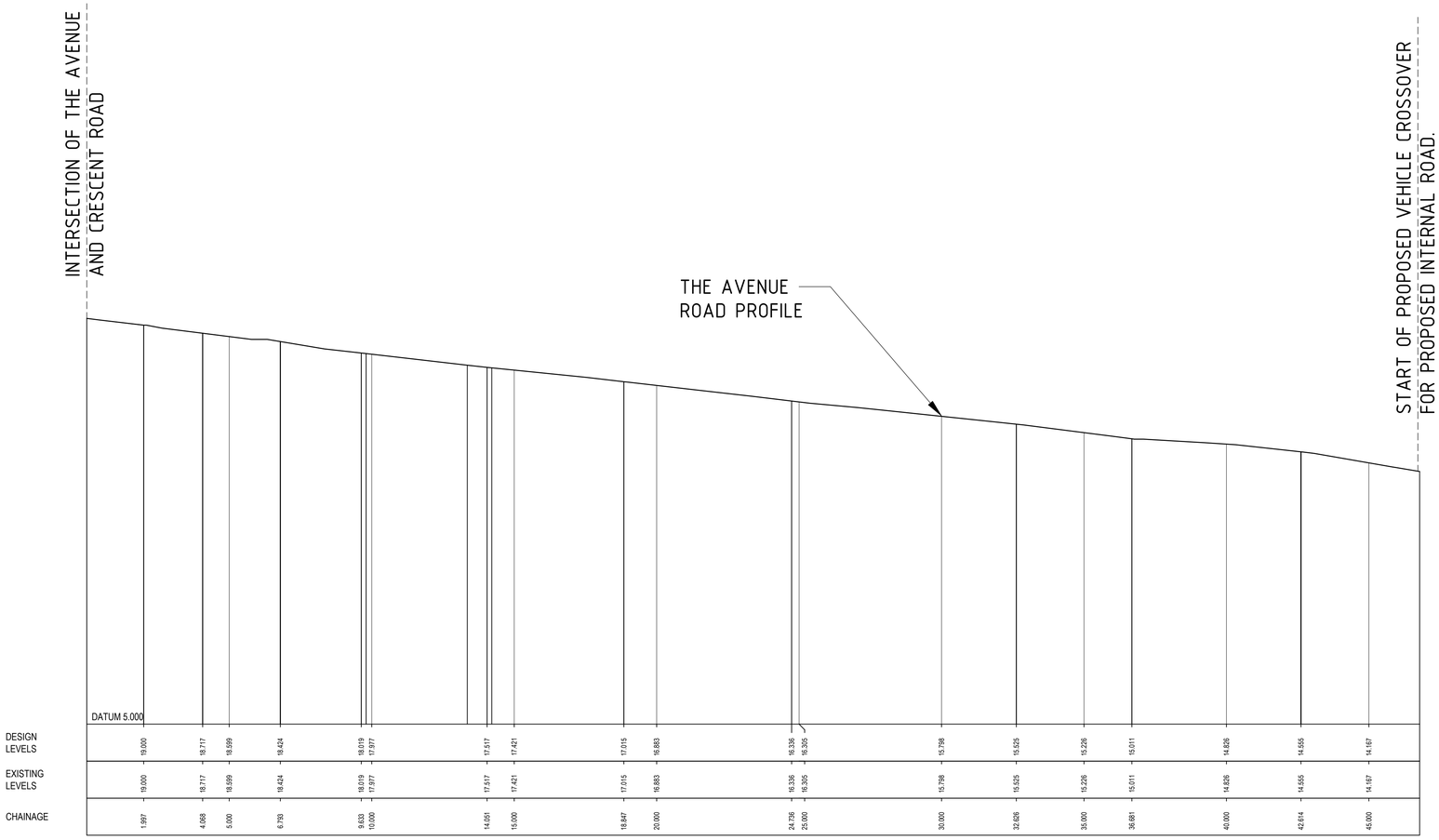
DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE

TITLE: INTERNAL DRIVEWAY CROSS SECTIONS

PROJECT No.	DRAWING No.	REV.
S22042	CI-0360	C



LONGITUDINAL SECTION - CL02

SCALE: Hor 1:100 Ver 1:100

0 1 2 3 4 5 6m
SCALE 1:100 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
C	29.09.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	29.09.23	ISSUED DEVELOPMENT APPROVAL	SH
A	20.09.23	ISSUED DEVELOPMENT APPROVAL	SH

REVISIONS

REV	DATE	DESCRIPTION	RVD

REVISIONS

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PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

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DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE		PROJECT No.	DRAWING No.	REV.
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE	S22042	CI-0370	C

TITLE: THE AVENUE LONGITUDINAL SECTIONS - CL02

\\BGESYDFS03\PROJECTS\BGESYD\S22042 SIRSI MARINA\100 DRAW\100.2 CIVIL\AUTOCAD\S22042-ORG-CI-0370 & 3711DWG
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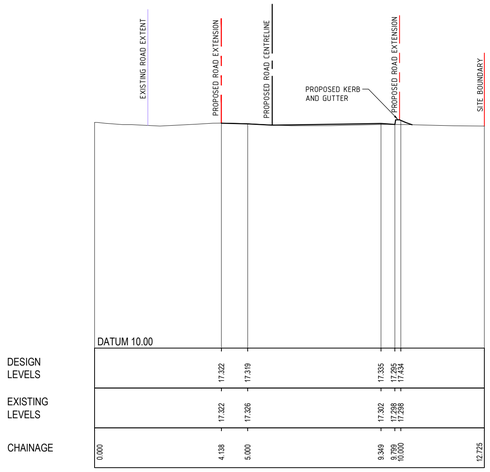

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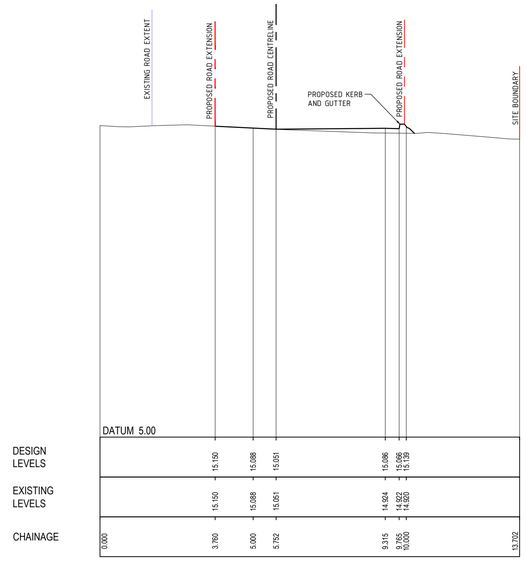

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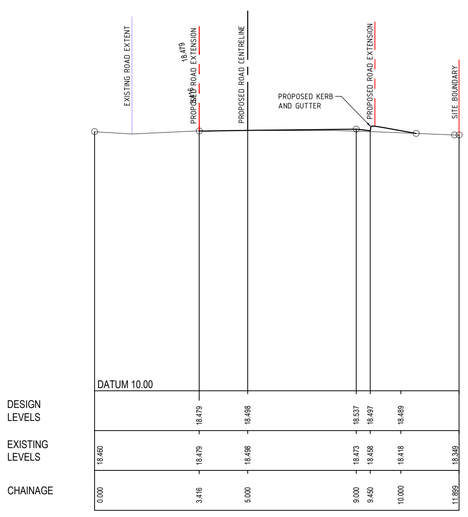

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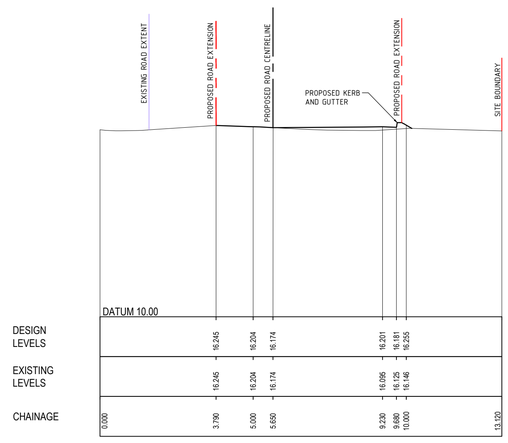

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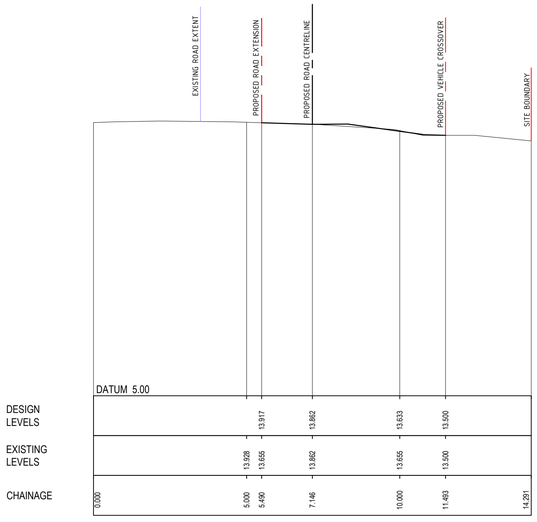

CH 47.779

0 1 2 3 4 5 6m
SCALE 1:100 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
C	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
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A	20.09.23	ISSUED DEVELOPMENT APPROVAL	SH

REVISIONS

REV	DATE	DESCRIPTION	RVD

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STATUS: ISSUED FOR APPROVAL
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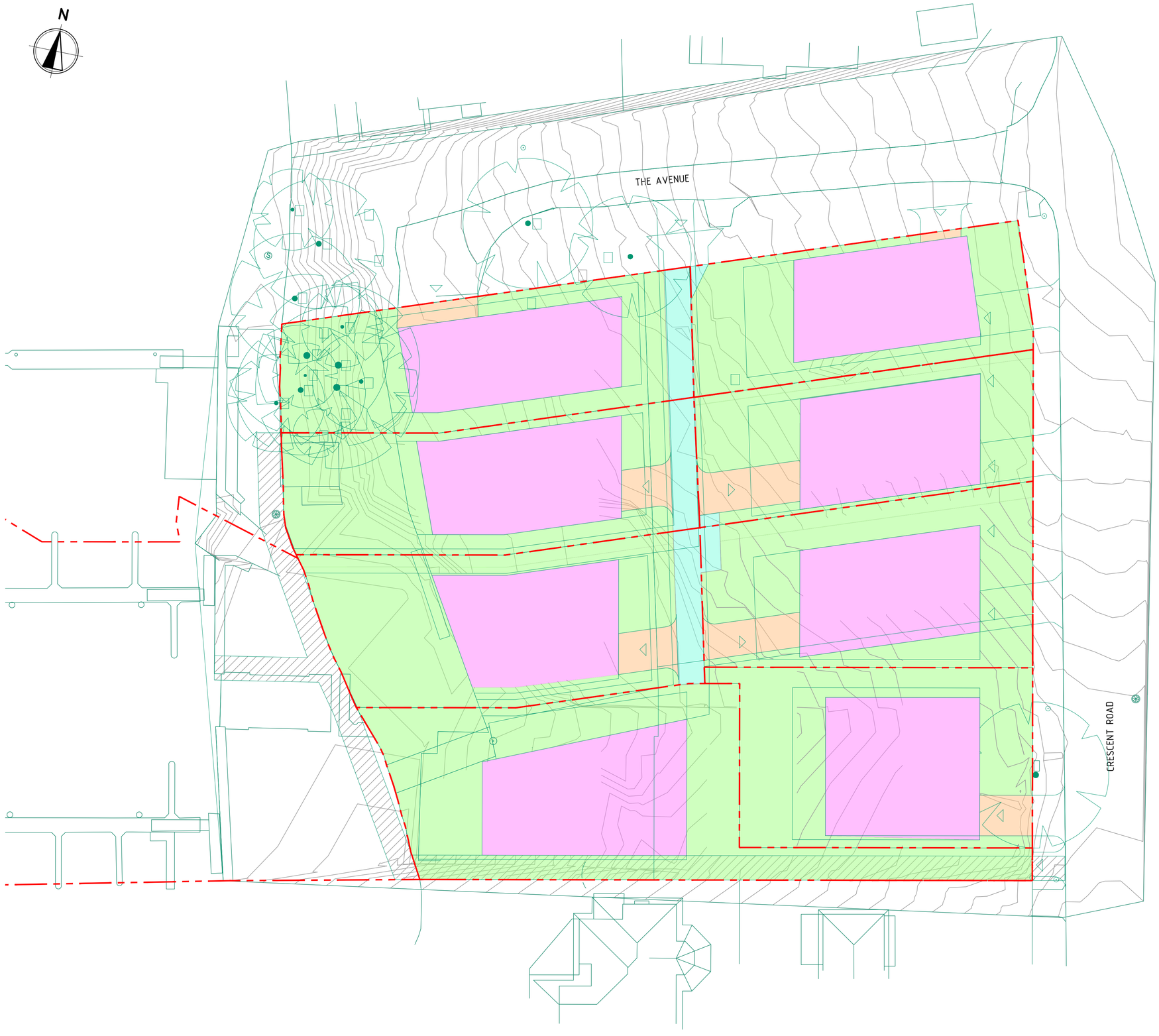
DRAWN	DESIGNED	CHECKED	APPROVED
HA	SM	SH	

DATUM	GRID	SCALE		PROJECT No.	DRAWING No.	REV.
AHD	GDA2020 MGA-56	AS SHOWN	AT A1 SIZE	S22042	CI-0371	C

TITLE: THE AVENUE CROSS SECTIONS

\\BGESYDFS03\PROJECTS\BGES\SYDS\S22042 SIRSI MARINA\100 DRAW\100.2 CIVIL\AUTOCAD\S22042-ORG-CI-0370 & 371DWG
27/10/2023 4:39:02 PM



LEGEND

- SITE BOUNDARY
- SURVEY LINE WORK
- ROOF AREA (2438.57m²)
- DRIVEWAY AREA (232.32m²)
- LANDSCAPE AREA (3665.59m²)
- ROAD AREA (188.82m²)

(TOTAL 6525.3m²)

WATER QUALITY

TREATMENT NODES:
- STORMFILTER CHAMBER WITH 10xOCEAN PROTECT 690mm PSORB (MCC) STORMFILTER CARTRIDGES OR EQUIVALENT PRODUCT.

TREATMENT STANDARDS			
POLLUTANT	POST(kg/yr)	REDUCTION (%)	COUNCIL REQUIREMENTS(%)
GROSS POLLUTANT	0.0	100	90
TOTAL SUSPENDED SOLIDS	48.9	85.2	85
TOTAL PHOSPHORUS	0.217	77.6	65
TOTAL NITROGEN	4.19	56.6	45

STORMWATER DRAINAGE REQUIREMENTS HAVE BEEN CALCULATED IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL'S WSUD & MUSIC MODELLING GUIDELINES.

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0 2.5 5.0 7.5 10 12.5 15m
SCALE 1:250 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
C	27.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	12.07.23	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

CLIENT: northern beaches council

ARCHITECT: scott carver

Sydney *Office* —
L2, 8 Windmill St
Sydney NSW 2000
P / +61 2 9770 3300 *E* / info@bgeeng.com
bgeeng.com—

PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
JL	AM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:250	AT A1 SIZE

TITLE: MUSIC CATCHMENT PLAN

PROJECT No.	DRAWING No.	REV.
S22042	CI-0380	C

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PLAN

SCALE 1:250

LEGEND

- SITE BOUNDARY
- STABILISED SITE ACCESS
- SEDIMENT FENCE
- SECURITY FENCE
- SUGGESTED TEMPORARY STOCKPILE LOCATION
- GROUND FLOOR ARCHITECTURAL
- MESH & GRAVEL INLET FILTER

EXISTING SERVICES

- NBN — EXISTING NBN
- G — EXISTING GAS
- S — EXISTING SEWER
- SW — EXISTING STORMWATER

NOTES

1. REFER DRAWING CI-0710 FOR EROSION AND SEDIMENT CONTROL DETAILS.
2. CONTRACTOR TO ENSURE SITE DRAINAGE IS NOT ADVERSELY IMPACTED DURING CONSTRUCTION.
3. CONTRACTOR TO PROVIDE 'SANDBAG SEDIMENT TRAP' TO ALL PAVED / ROAD AREAS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'.
4. CONTRACTOR TO PROVIDE 'GEOTEXTILE INLET FILTER TRAPS' TO ALL STORMWATER DRAINAGE INLETS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'.
5. INSTALL AND MAINTAIN SANDBAG FILTERS ACROSS ALL PAVEMENT INTERFACES.

0 2.5 5.0 7.5 10 12.5 15m

SCALE 1:250 AT A1 SIZE

REV	DATE	DESCRIPTION	RVD
D	27.10.23	ISSUED FOR DEVELOPMENT APPLICATION	SH
C	09.10.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
B	12.07.23	ISSUED FOR DEVELOPMENT APPROVAL	SH
A	31.05.22	ISSUED FOR DEVELOPMENT APPROVAL	SH

REVISIONS

REVISIONS

CLIENT: Essex DEVELOP

ARCHITECT: scott carver — Level One, One Chifley Square Sydney NSW 2000 Australia, www.scottcarver.com.au +61 2 9957 3988

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L2, 8 Windmill St
Sydney NSW 2000
P / +61 2 9770 3300 *E /* info@bgeeng.com
bgeeng.com—

PROJECT: NEWPORT MARINA AND RESIDENTIAL DEVELOPMENT

STATUS: ISSUED FOR APPROVAL — NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
HA	AM	SH	

DATUM	GRID	SCALE	
AHD	GDA2020 MGA-56	1:250	AT A1 SIZE

TITLE: EROSION AND SEDIMENT CONTROL PLAN

PROJECT No. S22042 | DRAWING No. CI-0700 | REV. D

\\BGESYDFS03\PROJECTS\BGES\SYD\S22042 SIRSI MARINA\100 DRAW\100.2 CIVIL\AUTOCAD\S22042-DRG-CI-0700.DWG
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Appendix C - Survey

EASEMENTS:

(A) EASEMENT FOR TRANSMISSION LINE (G279303)

(B) RIGHT OF CARRIAGEWAY (N163213)

(C) EASEMENT TO DRAIN WATER 1.83m WIDE (T326401)

NOTES:

1. ONLY SERVICES WHICH WERE VISIBLE & ACCESSIBLE AT THE TIME OF THE SURVEY ARE SHOWN. FULL DETAILS OF SEWER AND OTHER SERVICES SHOULD BE OBTAINED FROM THE RELEVANT AUTHORITIES. UNDERGROUND SERVICES INFORMATION CAN BE OBTAINED FROM DIAL BEFORE YOU DIG (PH 1100) OR www.dialbeforeyoudig.com.au.
2. CONTOURS ARE APPROXIMATE ONLY, PREFERENCE TO BE GIVEN TO SPOT HEIGHTS.
3. MAJOR TREES SHOWN ONLY.
4. DIMENSIONS AND AREA ARE SUBJECT TO SURVEY.
5. PROJECT CO-ORDINTES ARE MGA2020 (ZONE56)
6. THIS PLAN HAS BEEN PREPARED FOR THE SOLE PURPOSE OF LODGING A DEVELOPMENT APPLICATION WITH THE LOCAL COUNCIL. THIS PLAN IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS PERMISSION OF BOXALL SURVEYORS PTY LTD.

Detail Survey Certificate

I, Shawn LeClerc BEng (Geo) MIS of Boxall Surveyors, a surveyor registered under the Surveying and Spatial Information Act 2002, certify that the survey represented in this plan was made in accordance with Clause 10 of the Surveying and Spatial Information Regulation 2017 with regard to the location of the boundaries shown on this plan.

Signature: Dated: 16-Feb-22

Surveyor Identification No: 115
Surveyor registered under the Surveying and Spatial Information Act 2002

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PRINT IN COLOUR

LOT AND DP:	LOTS 2&3 IN DP 210342 LOT 1 IN DP 503390 LOT 21 IN DP545339 LOTS 111&112 IN DP 556902 LOT 295 IN DP 820302
CLIENT:	VERONA CO.
ADDRESS:	122-128 CRESCENT ROAD, NEWPORT
TITLE:	PLAN OF SITE DETAIL AND LEVELS

boxall

Liability limited by a scheme approved under Professional Standards Legislation

PO Box 519 Sutherland NSW 1499 | Suite 8/49-51 Eton Street
02 9521 5737 | www.boxallsurveyors.com.au | ACN 114 644 058

REV	DATE	REVISION DETAILS

ORIGIN LEVELS:	SSM43648		RL 19.333
AZIMUTH:	MGA20	DATUM:	AHD
SURVEY:	LC	DATE:	04.02.2022
DRAWN:	LC	DATE:	16.02.2022
APPROVED:	SL	DATE:	16.02.2022
SCALE:	1:200	SHEET	1 OF 2
DRAWING No:	11369-001	REV: ----	SIZE: A1

NOTES:

1. ONLY SERVICES WHICH WERE VISIBLE & ACCESSIBLE AT THE TIME OF THE SURVEY ARE SHOWN. FULL DETAILS OF SEWER AND OTHER SERVICES SHOULD BE OBTAINED FROM THE RELEVANT AUTHORITIES. UNDERGROUND SERVICES INFORMATION CAN BE OBTAINED FROM DIAL BEFORE YOU DIG (PH 1100) OR www.dialbeforeyoudig.com.au.
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Signature: Dated: 16-Feb-22

Surveyor Identification No: 115
Surveyor registered under the Surveying and Spatial Information Act 2002

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PRINT IN COLOUR

EASEMENTS:

(A) EASEMENT FOR TRANSMISSION LINE (G279303)
(B) RIGHT OF CARRIAGEWAY (N163213)
(C) EASEMENT TO DRAIN WATER 1.83m WIDE (T326401)

LEGEND:

DRINKING FOUNTAIN, FIRE HYDRANT, HYDRANT, STOP VALVE, WATER TAP, WATER VALVE, WATER METER, DP DOWN PIPE, CONRETE LID, PIT LID, METAL LID, GRATED DRAIN, SEWER/SEPTIC IP, SEWER MAN HOLE, SEWER VENT, ELECTRICAL CABLE MARKER, ELECTRICAL PILLAR, ELECTRICAL PIT, ELECTRICAL BOX, LIGHT POLE, POWER POLE, OPTICAL FIBRE MARKER, FIBRE OPTICS BOX, COMMS PIT, COMMS PILLAR, GAS MARKER, GAS VALVE, GAS METER, TREE, PALM TREE, WINDOW, HEAD OF WINDOW, SILL OF WINDOW, BOUNDARY LINE, BITUMEN LINE, TOP OF BANK, BOTTOM OF BANK, CONCRETE LINE, EASEMENT LINE, FENCE LINE, GARDEN, PAVERS LINE, KERB LINE, POOL, ROCK, ROOF LINE, CONCRETE, WALL

LOT AND DP:	CLIENT:	TITLE:
LOTS 2&3 IN DP 210342 LOT 1 IN DP 503390 LOT 21 IN DP545339 LOTS 111&112 IN DP 556902 LOT 295 IN DP 820302	VERONA CO. ADDRESS: 122-128 CRESCENT ROAD, NEWPORT	PLAN OF SITE DETAIL AND LEVELS WITH AERIAL IMAGERY DATED 10.02.2022

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PO Box 519 Sutherland NSW 1499 | Suite 8/49-51 Eton Street
02 9521 5737 | www.boxallsurveyors.com.au | ACN 114 644 058

REV	DATE	REVISION DETAILS

ORIGIN LEVELS: SSM43648	RL 19.333		
AZIMUTH: MGA20	DATUM: AHD		
SURVEY: LC	DATE: 04.02.2022		
DRAWN: LC	DATE: 16.02.2022		
APPROVED: SL	DATE: 16.02.2022		
SCALE: 1:200	SHEET 2 OF 2		
DRAWING No: 11369-001		REV: ----	SIZE: A1

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