HB+B PROPERTY

STORMWATER DESIGN REPORT
ALSPEC INDUSTRIAL BUSINESS PARK
LUDDENHAM RD, ORCHARD HILLS

For Planning Proposal
March 2022
Revision 01

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1. INTRODUCTION

1.1 General

This Stormwater Design Report has been prepared to supplement the Planning Proposal for the proposed Alspec Industrial Business Park development located at Luddenham Road, Orchard Hills. Refer to the architectural site plan included within Appendix B for a demonstration of the proposed development and the site.



Figure 1.1 Locality Sketch

The following Engineering matters have been addressed in this report:

- Water Sensitive Urban Design (WSUD) – Treatment of the site stormwater is required to be designed in accordance with Penrith Council's WSUD Technical guidelines. This treatment is proposed to be provide din the form of bio-retention basins and stormfilter cartridges within underground tanks.
- Stormwater Detention – On-site detention is required to be designed in accordance with Penrith Council's Stormwater Drainage guidelines to ensure post developed flows are reduced to pre-developed values. This detention has been provided in the form of above ground basins and underground tanks.

The purpose of this report is to provide an overview of the key engineering controls that are required for the development and how these controls have been satisfied through the civil engineering design.

A full set of civil engineering drawings is provided in Appendix A of this report.

1.2 Council Policies

The civil engineering component of the aforementioned project has been designed in accordance with the following council codes and policies:

- Penrith City Council – Stormwater Drainage and Guidelines for Building Developments
- Penrith City Council – WSUD Technical Guidelines
- Penrith Development Control Plan 2014

1.3 The Site & Its Context

The existing site is approximately 125.4 hectares, however only 64.77 hectares of the site is proposed to be developed as a part of this project. The western portion of the site is marked as a future Outer Sydney Orbital Corridor, whilst a portion of the site to the south is noted as an environmental conservation area. The site also consists of an electrical easement and environmental zone to the north.

There is an existing site to the east of the development between the proposed industrial business park and Luddenham Road. This area, which currently forms the Croatian Club, has not been considered as part of the civil engineering design. Refer to the architectural plan included within Appendix A for the proposed site layout.

The proposed development incorporates various industrial lots, which includes on-grade car parking, warehouse buildings and truck manoeuvring hardstand areas. Internal roads connect all proposed lots from Luddenham Road through to Patons Lane. Refer to the catchment plans (drawings C250 and C250) within Appendix A, which clarify the subject site and the proposed developable area for this project.

1.4 Catchments

Refer to Figure 1.5 below and drawings C250 and C251 within Appendix A showing the existing and proposed catchment plans for the development. In general, the site is separated into 3 sub-catchments:

- The western catchment drains to the watercourse in the western part of the site. This is approximately 48.95 hectares. The proposed stormwater system is to connect to an existing headwall within Patons Lane which directs stormwater to the north to the watercourse.
- The south eastern catchment drains to Luddenham Road. This catchment is approximately 12.51 hectares. The proposed stormwater system is to connect to an existing headwall within Luddenham Road which directs stormwater to the east.
- The north eastern catchment drains to Luddenham Road. This catchment is approximately 3.31 hectares. The proposed stormwater system is to connect to an existing headwall within Luddenham Road which directs stormwater to the east.

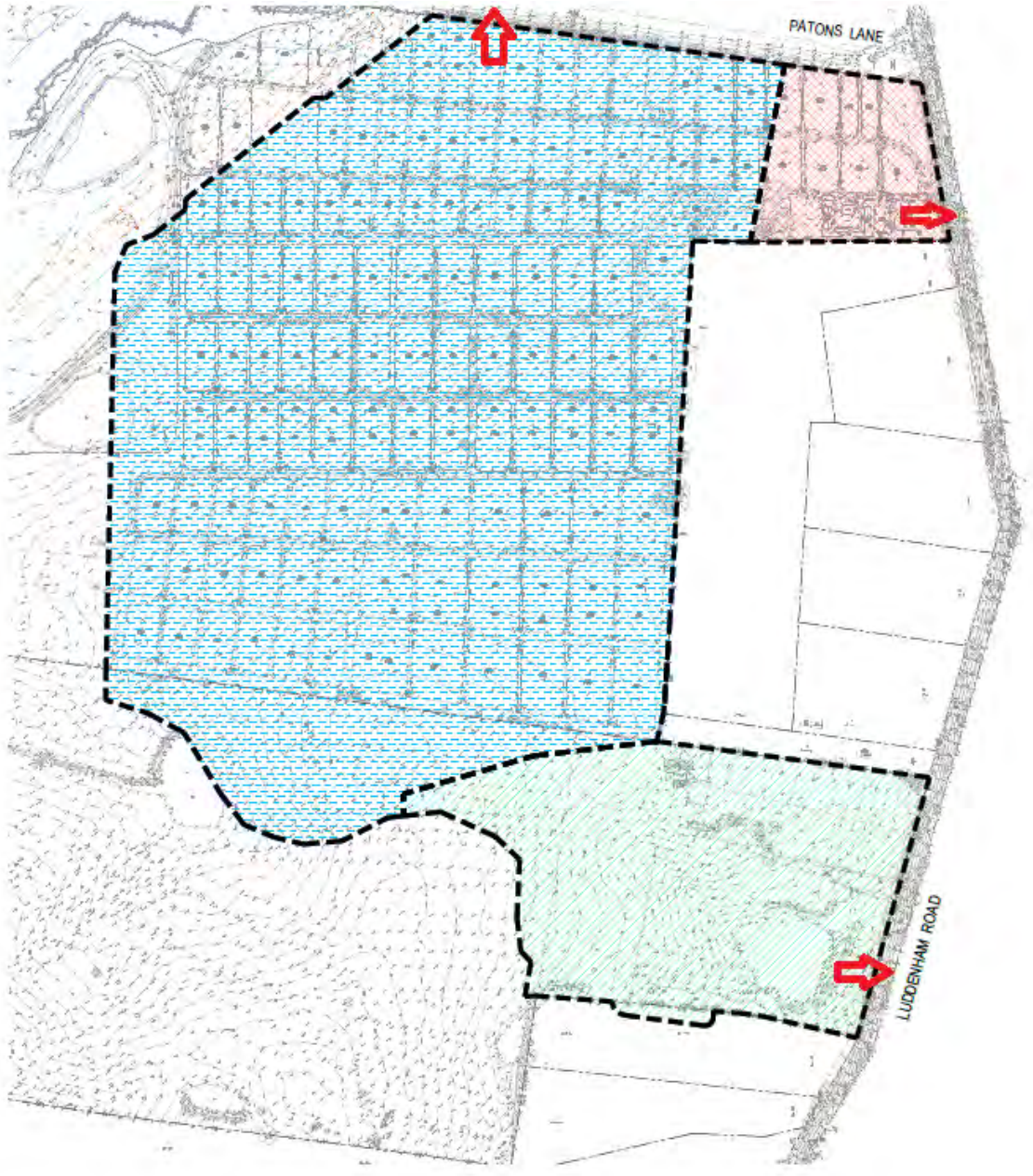


Figure 1.4 Catchment Plan

The proposed catchment plan for the development has been adjusted in such a way so that the existing catchment areas can be maintained. This simplifies the design process in ensuring that the stormwater detention and treatment controls are satisfied, so that the post developed condition can be compared to pre-developed conditions like for like.

Since the three aforementioned catchment have 3 separate discharge points, these catchments have been modelled separately within the DRIANS and MUSIC software to ensure that each catchment satisfies the water quality and detention requirements.

2. STORMWATER MANAGEMENT

2.1 Introduction

2.1.1 Background

Stormwater controls will be implemented that ensure that the proposed development does not adversely impact on stormwater flows and water quality of the stormwater system downstream of the site.

The principles and operation of the proposed stormwater system for the development including water quality measures and the components of the internal drainage system are detailed in the civil engineering drawings included in Appendix A.

2.1.2 Key Issues

The key issues and the proposed mitigation measures to be implemented as part of the proposed development are:

- Stormwater Quantity - The increased impervious surfaces (such as roads, roofs, driveways, etc) associated with the development will result in an increase in peak stormwater flows from the site during storm events. On-site Stormwater Detention (OSD) is proposed for the development to ensure that runoff from surfaces is appropriately managed in accordance with Council's requirements. The site stormwater system has been designed to safely convey the flows through the site and within the capacity of the downstream system. The design and operation of the proposed stormwater system is described in Section 2.2 below.

- Water Quality - Urban developments have the potential to increase gross pollutants, sediments, hydrocarbons and nutrient concentrations in stormwater runoff. To limit impact on the downstream water quality, water quality measures at source and end of line treatments will be provided. Section 2.3 further describes the specific implementation of these measures for the proposed development.

2.2 Stormwater Quantity

North West Catchment

The north west catchment currently discharges to the north-west corner of the site. Along the north-west part of the site is an existing watercourse. Two-dimensional flood modelling has been undertaken by Arcadis in order to determine the flood levels of this watercourse. Refer to the report and flood maps by Arcadis for all details regarding the watercourse and flooding levels. The hydraulic modelling of this catchment has been undertaken separately to the other two catchment areas, as it is key that the pre and post developed flows from catchment 1 are coordinated with the flood model by Arcadis. A RAFTS storage routing hydrological model was incorporated into the NW catchment pre-developed DRAINS model. It can be confirmed that the pre and post developed flows have been calibrated with the Arcadis flood model, and has resulted in a satisfactory outcome in regards to flooding and detention. Refer to the table below, showing that post developed flows have been reduced to predeveloped values in the major (1% AEP) and minor (5% AEP) storm events.

DRAINS Model: 19221 OSD Basin 1 Design ARR2019 Preburst - PP Submission Rev2.drn

Storm	Pre-developed Flows (m3/s)	Post – Developed Flows (m3/s)
5% AEP critical storm	3.28	3.00
1% AEP critical storm	5.31	3.93

NW Catchment Pre and Post Developed Flows – DRAINS Results

Catchment Area = 48.95 hectares
Total Detention Storage provided = 24,000m^3
Primary Orifice size = 3 x 675mm
Secondary Orifice size = 2 x 700mm
Outlet pipe size = 1200mm

North East Catchment

The pre and post developed models for the north east catchment has been modelled using DRAINS, with a standard ILSAX hydrological model. Since this catchment is directed to Luddenham Road, this model is not required to be calibrated to any TUFLOW flood model. Refer to the tables below, showing that post developed flows have been reduced to predeveloped values in the major and minor storm events.

DRAINS Model: 19221 NE and SE Catchments - PP Submission rev2.drn

Storm	Pre-developed Flows (m3/s)	Post – Developed Flows (m3/s)
5% AEP critical storm	0.555	0.539
1% AEP critical storm	0.927	0.638

NE Catchment Pre and Post Developed Flows – DRAINS Results

Catchment Area = 3.31 hectares
Total Detention Storage provided = 780m^3
Orifice size = 530mm
Outlet pipe size = 600mm

South East Catchment

The pre and post developed models for the south east catchment has been modelled using DRAINS, with a standard ILSAX hydrological model. Since this catchment is directed to Luddenham Road, this model is not required to be calibrated to any TUFLOW flood model.

The detention strategy for the south east catchment differs to the other two catchments, with detention storage to be provided in the form of on-lot underground concrete tanks. Surface runoff from each lot will be directed to an underground tank located within that lot, to ensure that post developed flows are reduced to pre-developed values prior to the flows being discharged from the lot. Refer to the typical detention tank drawings provided within drawing C204 of Appendix A for more details.

In order to determine the storage requirements for each lot within this south-east catchment, a DRAINS model has been prepared which models the detention tank for a single lot (Lot 17 has been chosen). This can then be used to determine a required detention storage per hectare.

DRAINS Model: 19221 NE and SE Catchments - PP Submission rev2.drn

Storm	Pre-developed Flows (m3/s)	Post – Developed Flows (m3/s)
5% AEP critical storm	0.191	0.183
1% AEP critical storm	0.31	0.226

Lot17 Pre and Post Developed Flows – DRAINS Results

Lot 17
Catchment Area = 0.803 hectares
Total Detention Storage provided = 161m^3
Orifice size = 180mm
Outlet pipe size = 300mm

Calculated detention storage requirement for South East Catchment = 200m^3/hectare

As per the above calculation, each lot within the south east catchment will need to provide a total detention storage of 200m^3 per hectare of catchment area.

For each of the three catchments, the proposed stormwater design meets Penrith City Council's stormwater detention requirements as shown by the tables above. Refer to the DRAINS models provided for further details.

2.3 Water Quality

Council's requirements also dictate that the stormwater be treated before discharging from the site. The requirements dictate that the post developed pollutants be reduced by the following factors when compared to the pre-developed pollutant generation:

- Total Nitrogen to be reduced by 45%
- Total Phosphorus to be reduced by 60%
- Total Suspended Solids to be reduced by 85%

North West Catchment

The water quality modelling for the north west catchment has been undertaken in MUSIC. The model has been set up using Penrith Council's MUSIC-link parameters and rainfall data. All pollution generation for source nodes has been based off the NSW Music modelling guidelines. The water quality design for this catchment incorporates the following treatment devices which have been included into the model:

- Oceanguard Pit baskets to treat surface water from car parking and external areas.
- Bio-retention basin with the following parameters
    - 300mm extended detention
    - 125mm/hr saturated hydraulic conductivity
    - TN Content of 800 mg/kg
    - Orthophosphate Content of 40 mg/kg
    - Filter depth of 500mm
    - Vegetated with effective nutrient removal plants

Refer to the table below demonstrating that the MUSIC model complies with Penrith Council's guidelines.

MUSIC Model: Orchard Hills Concept Rev9 Northern catchments.sqz

	Pre- Treatment Pollutant Loads (kg/yr)	Post Developed Pollutant Loads (kg/yr)	Target Reduction	Pollutant Reduction
Nitrogen	647	355	45%	45.1%
Phosphorus	101	35.7	60%	64.6%
Suspended Solids	50,000	4720	85%	90.6%

NW Catchment Pollutant Loads

North East Catchment

The water quality modelling for the north east catchment has been undertaken in MUSIC. The model has been set up using Penrith Council's MUSIC-link parameters and rainfall data. All pollution generation for source nodes has been based off the NSW Music modelling guidelines. The water quality design for this catchment incorporates the following treatment devices which have been included into the model:

- Oceanguard Pit baskets to treat surface water from car parking and external areas.
- Bio-retention basin with the following parameters
    - 300mm extended detention
    - 125mm/hr saturated hydraulic conductivity
    - TN Content of 800 mg/kg
    - Orthophosphate Content of 40 mg/kg
    - Filter depth of 500mm
    - Vegetated with effective nutrient removal plants

Refer to the table below demonstrating that the MUSIC model complies with Penrith Council's guidelines.

MUSIC Model: Orchard Hills Concept Rev9 Northern catchments.sqz

	Pre- Treatment Pollutant Loads (kg/yr)	Post Developed Pollutant Loads (kg/yr)	Target Reduction	Pollutant Reduction
Nitrogen	41.8	22.3	45%	46.8%
Phosphorus	7.41	2.38	60%	67.9%
Suspended Solids	3940	331	85%	91.6%

NE Catchment Pollutant Loads

South East Catchment

The water quality modelling for the north east catchment has been undertaken in MUSIC. The model has been set up using Penrith Council's MUSIC-link parameters and rainfall data. All pollution generation for source nodes has been based off the NSW Music modelling guidelines.

As per the detention strategy, the water quality strategy for the south east catchment differs from the other two catchments, with water quality treatment being provide din the form of pit baskets and stormfilter cartridges within an underground tank. Refer to the below summary of the treatment devices as modelled:

- Oceanguard Pit baskets to treat surface water from car parking and external areas.
- 690mm Psorb stormfilter cartridges with the following parameters
    - SF Chamber with storage volume and outlet size as per Ocean Protect guidelines
    - Psorb Stormfilter Node as provided by Ocean Protect

As per the detention strategy for the south east catchment, the water quality design for a typical lot (Lot 17) has been modelled in order to determine the required 690mm Psorb filter cartridges per hectare in order to satisfy Council's water quality controls.

Refer to the table below showing the MUSIC modelling results.

MUSIC Model: Orchard Hills Concept Rev10 South East Catchments.sqz

	Pre-Treatment Pollutant Loads (kg/yr)	Post Developed Pollutant Loads (kg/yr)	Target Reduction	Pollutant Reduction
Nitrogen	10.1	5.45	45%	46%
Phosphorus	1.46	0.431	60%	70.5%
Suspended Solids	693	58.8	85%	91.5%

Lot 17 Catchment Pollutant Loads

Lot 17 Total Catchment Area = 0.803 hectares
Total 690 Psorb filters required = 10
Calculated number of 690mm Psorb Cartridges per hectare = 13

As per the above calculation, each lot within the south east catchment will need to provide a total of 13 Psorb cartridges per hectare of catchment area.

The proposed development meets Penrith City Council's water quality requirements as shown by the tables above.

2.4 Water Sensitive Urban Design (WSUD)

Penrith Council require a water sensitive urban design strategy for all proposed developments, as per Penrith City Council WSUD Policy. The strategy is to incorporate the following items:

- Water Quality
- Water Quantity
- Water Conservation

The water quality and water quantity strategy has been summarised previously in this report. Above ground detention basins, bio-retention basins, and underground tanks have been proposed in order to meet Council's requirements.

In order to meet Council's water conservation requirements, the following measures will be incorporated into the development:

Water Efficiency Labelling and Standards Scheme (WELS)

Water efficient toilets, showerheads, taps and urinals are proposed to be incorporated into the development. Details are to be provided during the detailed design stage.

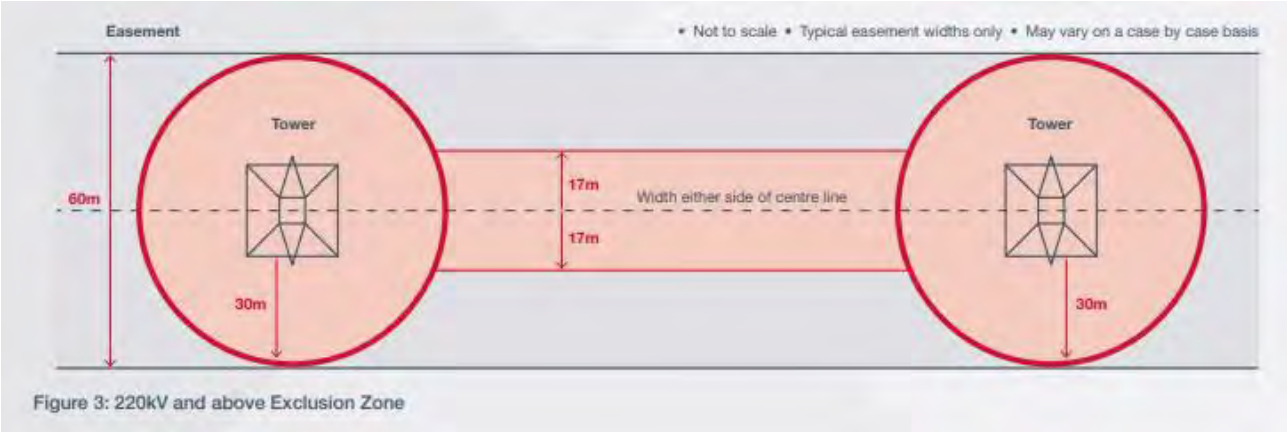
Rainwater Reuse

Rainwater tanks are proposed to be incorporated into the development in order to be used for irrigation and toilet flushing purposes. The sizing of these rainwater tanks is to be undertaken during the detailed design stage, however it is expected that 80% of the potable demand is able to be met through rainwater reuse, as per Council's WSUD Policy.

3. TRANSGRID EASEMENT

Refer to drawing C100 – General Arrangement Plan within Appendix A showing the existing easements within the site. There is an existing Transgrid easement for overhead power lines running through the western part of the site. The

Transgrid easement has a 34m wide exclusion zone from the centre of the easement, and a 60m diameter exclusion zone around the towers. These details have been shown on the civil drawings and the figure below. Although there are no proposed structures within the Transgrid easement, there are stormwater treatment/detention basins and pavements proposed within the easement. The proposed works are to be approved by Transgrid. Refer to the figure below showing the exclusion zone arrangement within the easement.



Transgrid Easement Layout

4. COMPENSATORY FLOOD STORAGE

As previously discussed, two-dimensional flood modelling has been undertaken by Arcadis in order to determine the flood levels of the watercourse running within the western part of the site. Arcadis have advised that in order to offset from the proposed filling within the floodplain, a total volume of 68,000m^3 is required to be provided as compensatory flood storage. Two areas west of the Transgrid easement is proposed to be excavated approximately 68,000m^3 in order to achieve the required compensatory flood storage. Refer to drawing C100 in Appendix A which shows the extent and the proposed levels within this excavated area.

5. CONCLUSION

As demonstrated above, the proposed stormwater design is generally in accordance with Penrith Council's detention, WSUD and water quality treatment requirements. Refer to the civil engineering plans in Appendix A for further details of the stormwater design and proposed subdivision layout. We trust this serves as an adequate summary and explanation for the stormwater design for the site.

REFERENCES

- Landcom - "Soils and Construction Volume 1 – 4th Edition", March 2004
- Institution of Engineers, Australia - "Australian Rainfall and Runoff 3rd Edition", 1987
- Sixmaps, 2018 - <https://maps.six.nsw.gov.au/>
- Penrith City Council – Stormwater Drainage and Guidelines for Building Developments
- Penrith City Council – WSUD Technical Guidelines

APPENDIX A – CIVIL ENGINEERING DRAWINGS

PROPOSED ALSPEC INDUSTRIAL BUSINESS PARK
LUDDENHAM ROAD ORCHARD HILLS NSW
CIVIL ENGINEERING WORKS

GENERAL NOTES:

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH PENRITH CITY COUNCIL SPECIFICATION. CONTRACTOR TO OBTAIN AND RETAIN A COPY ON SITE DURING THE COURSE OF THE WORKS.
2. ALL NEW WORKS ARE TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS AND MARRY IN A 'WORKMANLIKE' MANNER.
3. THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL SERVICES WITH EACH RELEVANT AUTHORITY. ANY DAMAGE TO SERVICES SHALL BE RECTIFIED BY THE CONTRACTOR OR THE RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE. SERVICES SHOWN ON THESE PLANS ARE ONLY THOSE EVIDENT AT THE TIME OF SURVEY OR AS DETERMINED FROM SERVICE DIAGRAMS. H & H CONSULTING ENGINEERS PTY. LTD CANNOT GUARANTEE THE INFORMATION SHOWN NOR ACCEPT ANY RESPONSIBILITY FOR INACCURACIES OR INCOMPLETE DATA.
4. SERVICES & ACCESSES TO THE EXISTING PROPERTIES ARE TO BE MAINTAINED IN WORKING ORDER AT ALL TIMES DURING CONSTRUCTION.
5. ADJUST EXISTING SERVICE COVERS TO SUIT NEW FINISHED LEVELS TO RELEVANT AUTHORITY REQUIREMENTS WHERE NECESSARY.
6. REINSTATE AND STABILISE ALL DISTURBED LANDSCAPED AREAS.
7. MINIMUM GRADE OF SUBSOIL SHALL BE 0.5% (1:200) FALL TO OUTLETS.
8. ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS, EROSION AND SEDIMENTATION CONTROL PLAN AND PENRITH CITY COUNCIL REQUIREMENTS WHERE APPLICABLE.
9. CONTRACTOR TO CHECK AND CONFIRM SITE DRAINAGE CONNECTIONS ACROSS THE VERGE PRIOR TO COMMENCEMENT OF SITE DRAINAGE WORKS.
10. PROPERTIES AFFECTED BY THE WORKS ARE TO BE NOTIFIED IN ADVANCE WHERE DISRUPTION TO EXISTING ACCESS IS LIKELY.

EXISTING SERVICES & FEATURES

- THE CONTRACTOR SHALL ALLOW FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF ALL EXISTING SERVICES IN AREAS AFFECTED BY WORKS WITHIN THE CONTRACT AREA OR AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT.
- THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF HIS PROGRAM FOR THE RELOCATION/ CONSTRUCTION OF TEMPORARY SERVICES.
- CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN SUPPLY TO EXISTING BUILDING REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED, THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.
- INTERRUPTION TO SUPPLY OF EXISTING SERVICES SHALL BE DONE SO AS NOT TO CAUSE ANY INCONVENIENCE TO THE PRINCIPAL. CONTRACTOR TO GAIN APPROVAL FROM THE SUPERINTENDENT FOR TIME OF INTERRUPTION.
- EXISTING SERVICES, BUILDINGS, EXTERNAL STRUCTURES AND TREES SHOWN ON THESE DRAWINGS ARE EXISTING FEATURES PRIOR TO ANY DEMOLITION WORKS.
- EXISTING SERVICES UNLESS SHOWN ON SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMPLETE A 'DIAL BEFORE YOU DIG' SEARCH AND TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.



LOCALITY SKETCH

SCALE: N.T.S.

DRAWING SCHEDULE

19221_PP_C000	COVER SHEET, DRAWING SCHEDULE, NOTES & LOCALITY SKETCH
19221_PP_C100	GENERAL ARRANGEMENT PLAN
19221_PP_C101	DETAIL PLAN - SHEET 1 OF 2
19221_PP_C102	DETAIL PLAN - SHEET 2 OF 2
19221_PP_C201	BASIN 1 PLAN
19221_PP_C202	BASIN 1 SECTIONS
19221_PP_C203	BASIN 2 PLAN AND SECTIONS
19221_PP_C204	OSD AND WATER QUALITY TANK TYPICAL DETAILS
19221_PP_C250	EXISTING STORMWATER CATCHMENT PLAN
19221_PP_C251	PROPOSED STORMWATER CATCHMENT PLAN
19221_PP_SE01	SEDIMENT AND EROSION CONTROL PLAN
19221_PP_SE02	SEDIMENT AND EROSION CONTROL TYPICAL SECTIONS AND DETAILS

SITEWORKS NOTES

- DATUM : A.H.D.
- ORIGIN OF LEVELS : REFER TO BENCH OR STATE SURVEY MARKS WHERE SHOWN ON PLAN.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO THE COMMENCEMENT OF WORK.
- ALL WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS & THE DIRECTIONS OF THE SUPERINTENDENT.
- EXISTING SERVICES UNLESS SHOWN ON THE SURVEY PLAN HAVE BEEN PLOTTED FROM SERVICES SEARCH PLANS AND AS SUCH THEIR ACCURACY CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY.
- WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS ACHIEVED.
- THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR.
- CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATION IS TO BE UNDERTAKEN OVER TELSTRA OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.
- CONTRACTOR TO OBTAIN AUTHORITY APPROVALS WHERE APPLICABLE.
- MAKE SMOOTH TRANSITION TO EXISTING SURFACES AND MAKE GOOD.
- THESE PLANS SHALL BE READ IN CONJUNCTION WITH APPROVED LANDSCAPE, ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND MECHANICAL DRAWINGS AND SPECIFICATIONS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED RELATING TO DEVELOPMENT AT THE SITE.
- TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MINIMUM OF 50mm IN BITUMINOUS PAVING.
- ALL BRANCH GAS AND WATER SERVICES UNDER DRIVEWAYS AND BRICK PAVING SHALL BE LOCATED IN Ø80 uPVC SEWER GRADE CONDUITS EXTENDING A MINIMUM OF 500mm BEYOND EDGE OF PAVING.
- GRADES TO PAVEMENTS TO BE AS IMPLIED BY RL'S ON PLAN . GRADE EVENLY BETWEEN NOMINATED RL'S. AREAS EXHIBITING PONDING GREATER THAN 5mm DEPTH WILL NOT BE ACCEPTED UNLESS IN A DESIGNATED SAG POINT.
- ALL COVERS AND GRATES ETC TO EXISTING SERVICE UTILITIES ARE TO BE ADJUSTED TO SUIT NEW FINISHED SURFACE LEVELS WHERE APPLICABLE.

SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE SURVEYOR SPECIFIED IN THE TITLE BLOCK.
THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. HENRY AND HYMAS PTY. LTD. DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.
SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT HENRY AND HYMAS PTY. LTD. THE FOLLOWING NOTES HAVE BEEN TAKEN DIRECTLY FROM ORIGINAL SURVEY DOCUMENTS.

ORIGIN OF LEVELS	SSM 22740 RL41.10
DATUM	A.H.D.

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client: HB & B PROPERTY PTY LTD
Architect: NETTLETONTRIBE

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Project: PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title: COVER SHEET, DRAWING SCHEDULE, NOTES & LOCALITY SKETCH

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	N.T.S.

Drawing number: 19221_PP_C000
Revision: 01



0 80 160 240 320 400m

80 60 40 20

SCALE 1:4000

GENERAL ARRANGEMENT PLAN

SCALE: 1:4000

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION

SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE	REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022					

Client
HB & B PROPERTY PTY LTD

Architect
NETTLETONTRIBE

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Project
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Title
GENERAL ARRANGEMENT PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	**Approved**	**Scale @A1**
N.Heazlewod	A.Francis	1:4000

Drawing number
19221_PP_C100

Revision
01



LEGEND

- PROPOSED BOUNDARY
- 47.00 — PROPOSED CONTOURS
- 46.00 — EXISTING CONTOURS
- TRANSGRID EASEMENT
- E — E — EXISTING ELECTRICAL OVERHEAD LINES
- T — T — EXISTING TELSTRA LINES
- EXTENT OF COMPENSATORY FLOOD BASIN
- PROPOSED BATTER LINE
- PROPOSED STORMWATER PIPE
- PROPOSED HEADWALL
- PROPOSED TRANSGRID TOWER AND OFFSET

FOR CONTINUATION REFER TO DWG. 19221_PP_C102

DETAIL PLAN

SCALE: 1:2000

0 40 80 120 160 200m

40 30 20 10

SCALE 1:2000

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client: HB & B PROPERTY PTY LTD

Architect: NETTLETONTRIBE

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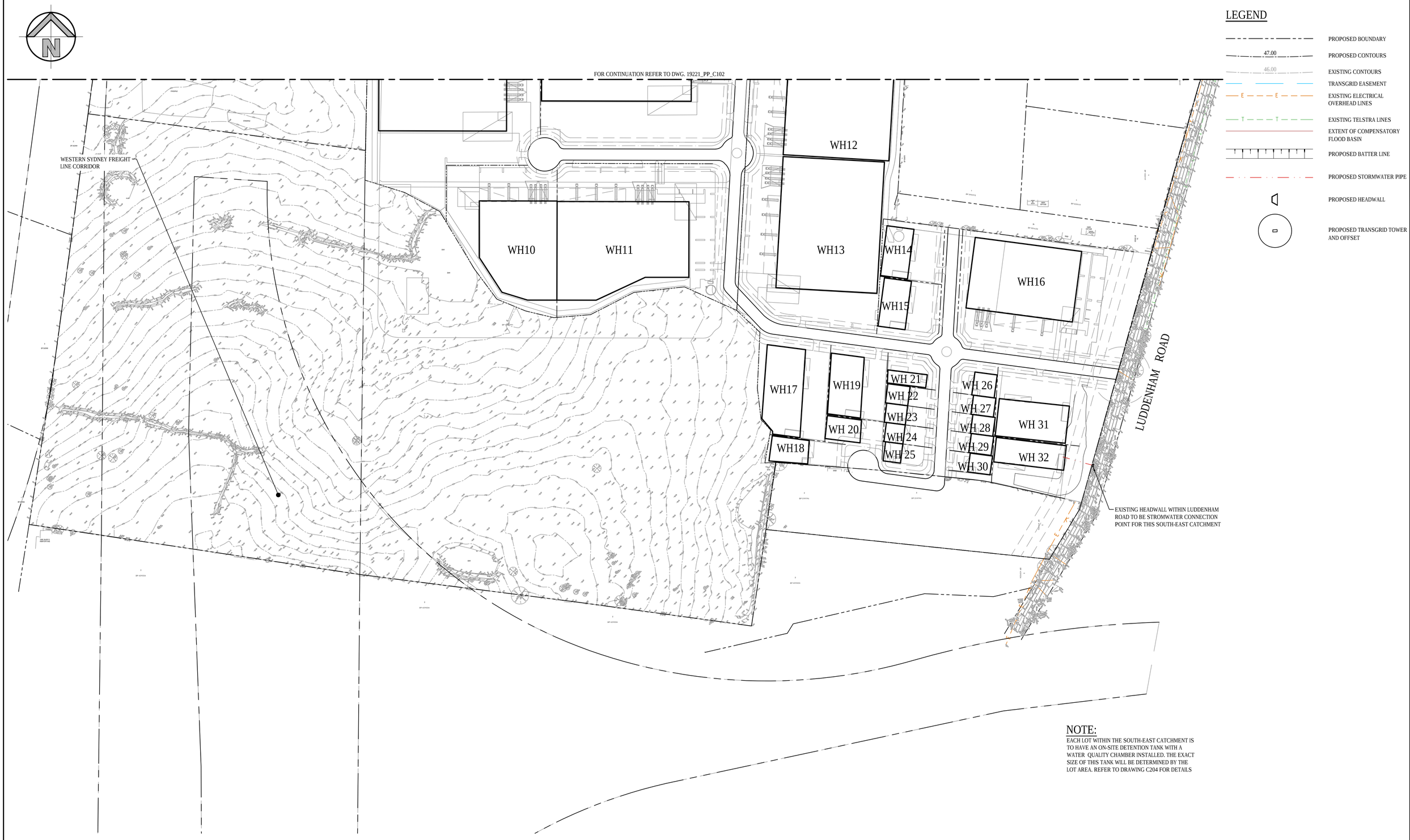
Project: PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title: DETAIL PLAN
SHEET 1 OF 2

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	**Approved**	**Scale @A1**
N.Heazlewod	A.Francis	1:2000

Drawing number: 19221_PP_C101

Revision: 01



NOTE:

EACH LOT WITHIN THE SOUTH-EAST CATCHMENT IS TO HAVE AN ON-SITE DETENTION TANK WITH A WATER QUALITY CHAMBER INSTALLED. THE EXACT SIZE OF THIS TANK WILL BE DETERMINED BY THE LOT AREA. REFER TO DRAWING C204 FOR DETAILS

DETAIL PLAN

SCALE: 1:2000

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client
HB & B PROPERTY PTY LTD

Architect
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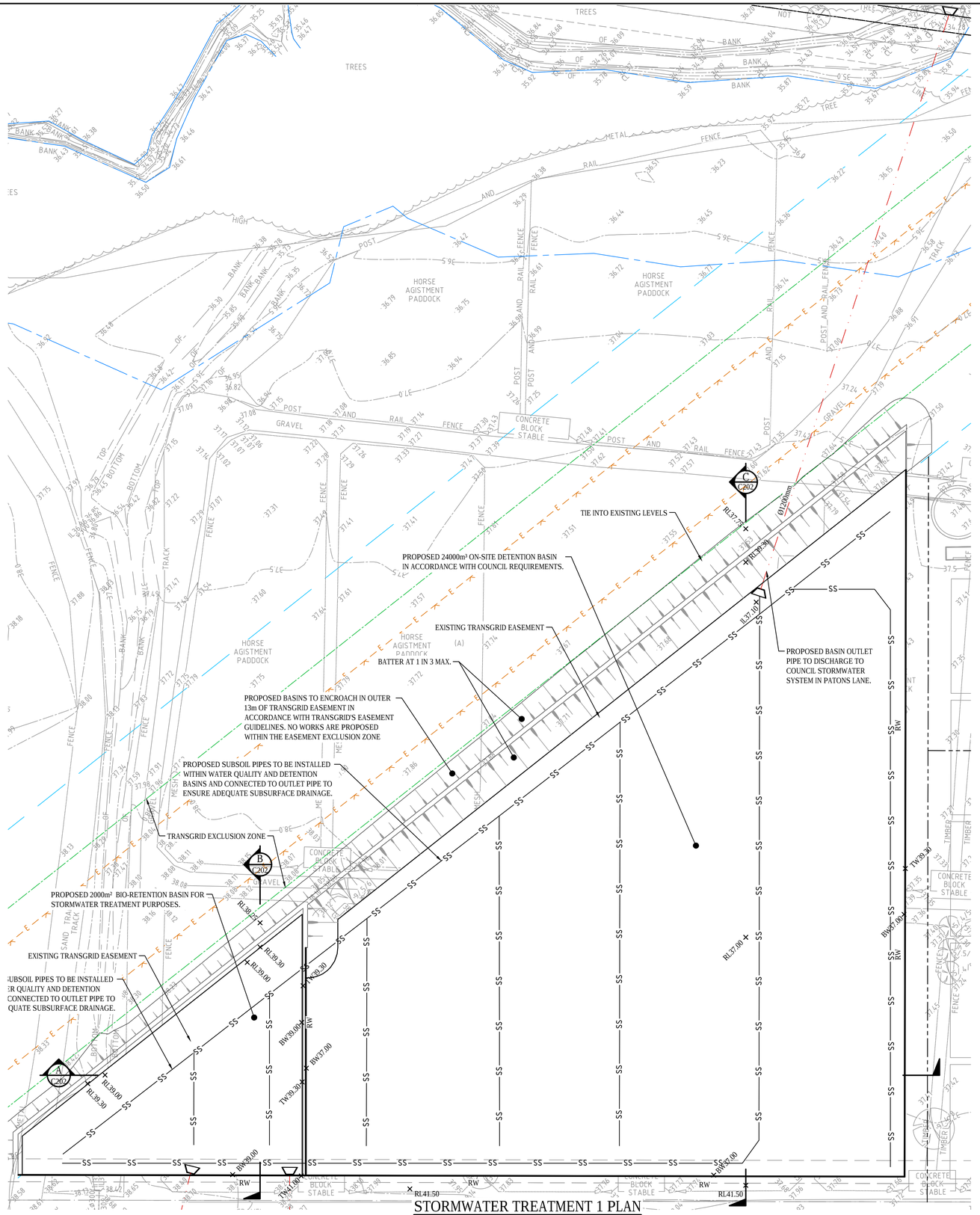
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Project
PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title
DETAIL PLAN
SHEET 2 OF 2

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	1:2000

Drawing number: 19221_PP_C102
Revision: 01



LEGEND

SS SS PROPOSED SUBSOIL LINE

0 10 20 30 40 50m

10 8 6 4 2

SCALE 1:500

STORMWATER TREATMENT 1 PLAN

SCALE: 1:500

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION

SURVEYED BY WATSDON BUCHAN

DATUM: A.H.D.

ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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Client: HB & B PROPERTY PTY LTD

Architect: NETTLETONTRIBE

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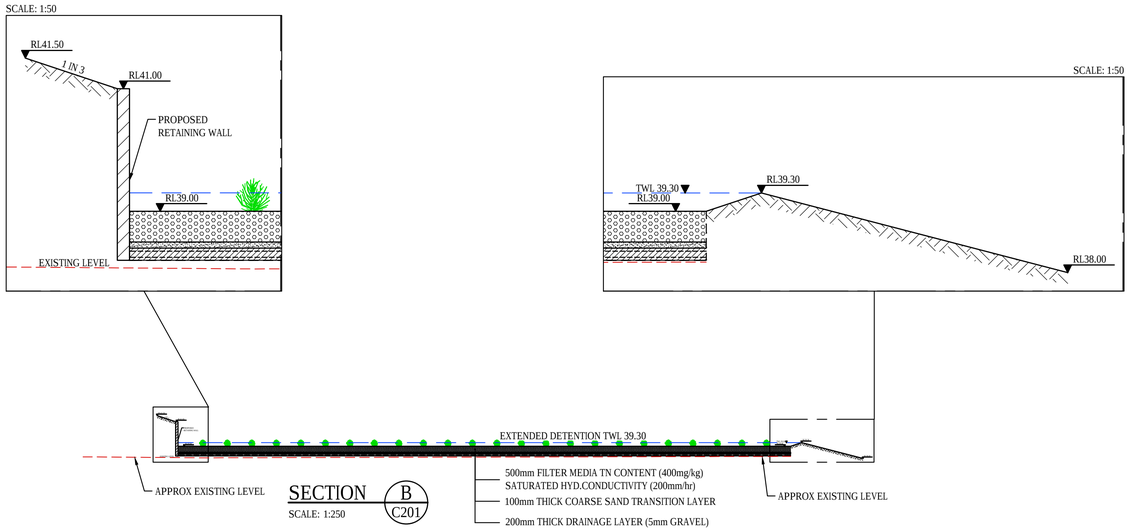
Project: PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title: BASIN 1 PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	AS NOTED

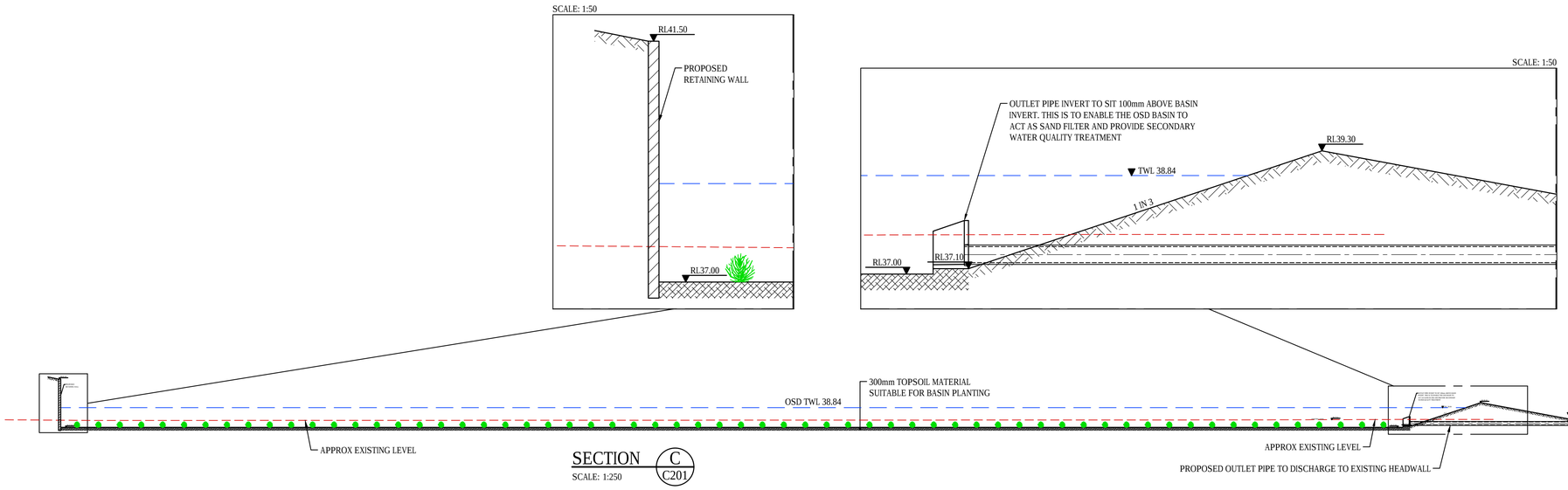
Drawing number: 19221_PP_C201

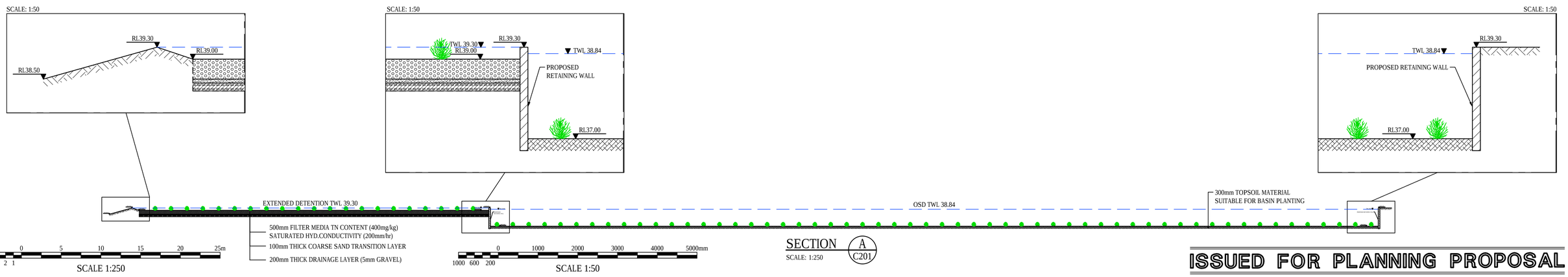
Revision: 01



ON-SITE DETENTION BASIN 1 OUTLET REQUIREMENTS:

ORIFICE 1 Ø675mm AT CL: 37.325
ORIFICE 2 Ø675mm AT CL: 37.325
ORIFICE 3 Ø675mm AT CL: 37.325
ORIFICE 4 Ø700mm AT CL: 38.80
ORIFICE 5 Ø700mm AT CL: 38.80
OVERFLOW WEIR AT 38.90
OUTLET PIPE = Ø1200mm





ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client
HB & B PROPERTY PTY LTD
Architect
NETTLETONTRIBE

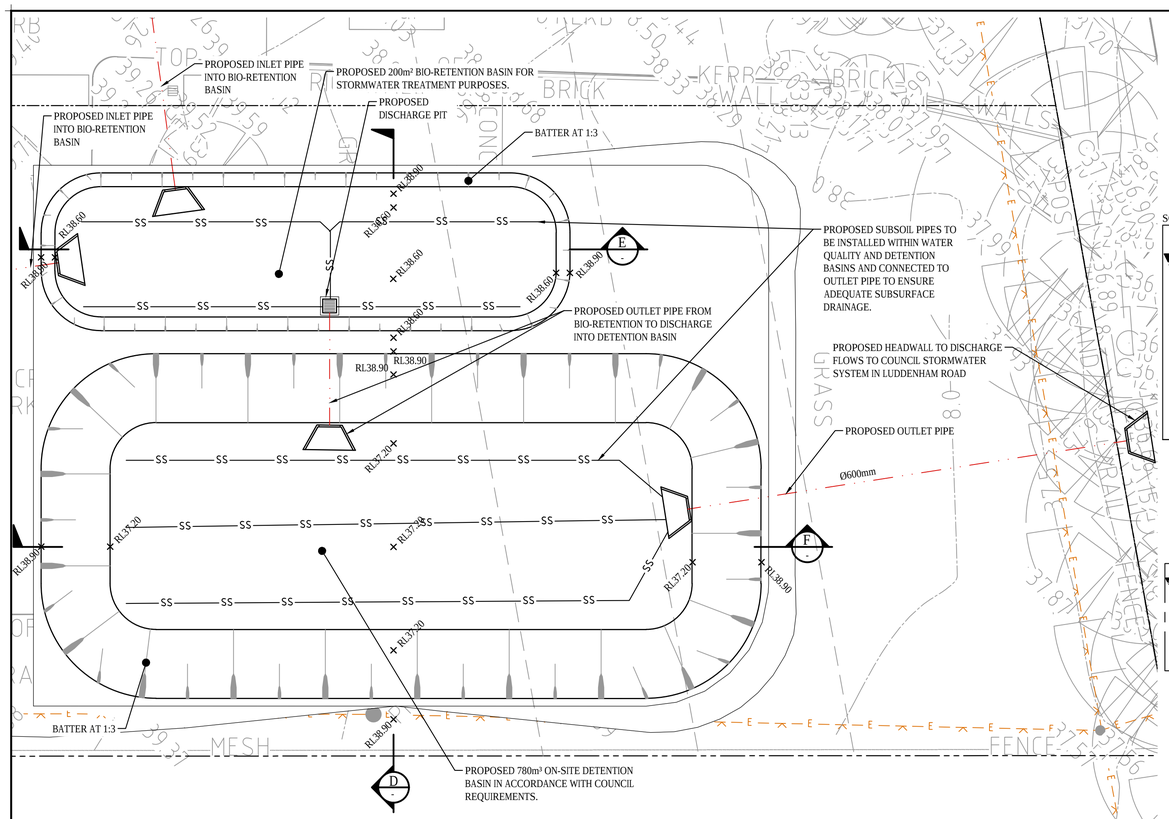
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Project
PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS
Title
BASIN 1 SECTIONS

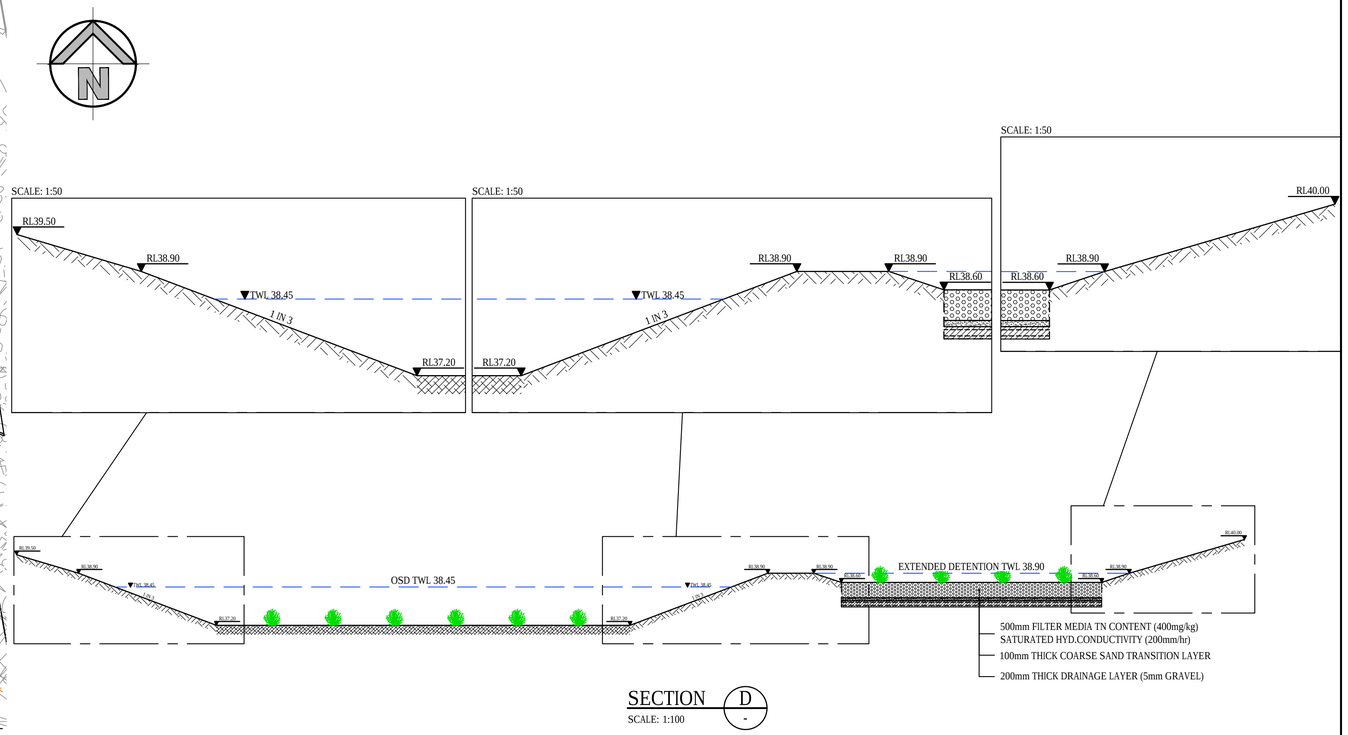
Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	AS NOTED

Drawing number
19221_PP_C202
Revision
01



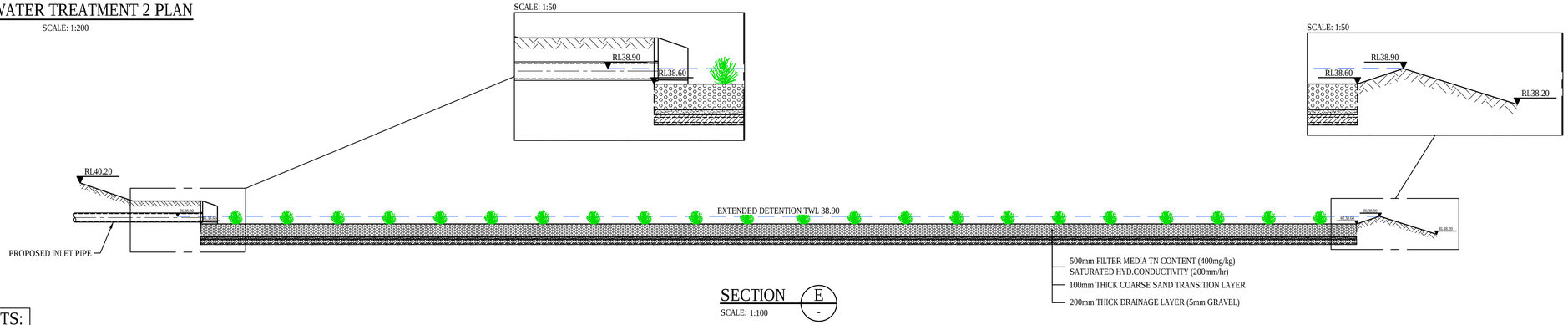
STORMWATER TREATMENT 2 PLAN

SCALE: 1:200



SECTION D

SCALE: 1:100

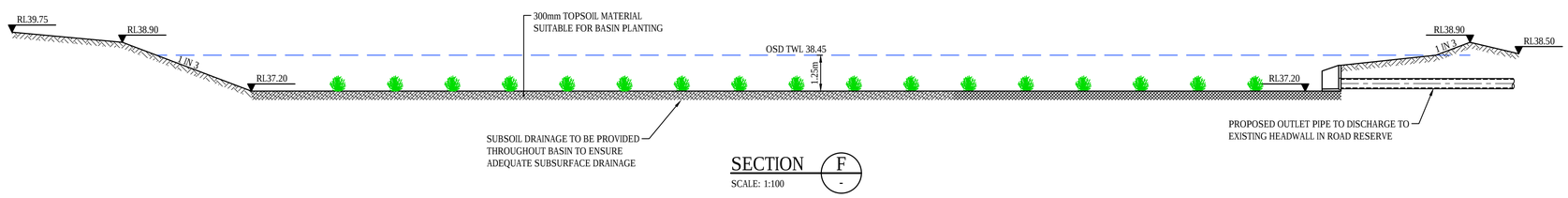


SECTION E

SCALE: 1:100

ON-SITE DETENTION BASIN 2 OUTLET REQUIREMENTS:

ORIFICE SIZE = Ø530mm
ORIFICE CENTRE LINE = 37.20 AHD
OVERFLOW WEIR AT 38.50
OUTLET PIPE = Ø600mm



SECTION F

SCALE: 1:100

0 1000 2000 3000 4000 5000mm
1000 600 200
SCALE 1:50

0 2 4 6 8 10m
2 1
SCALE 1:100

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:200

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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Architect: NETTLETONTRIBE

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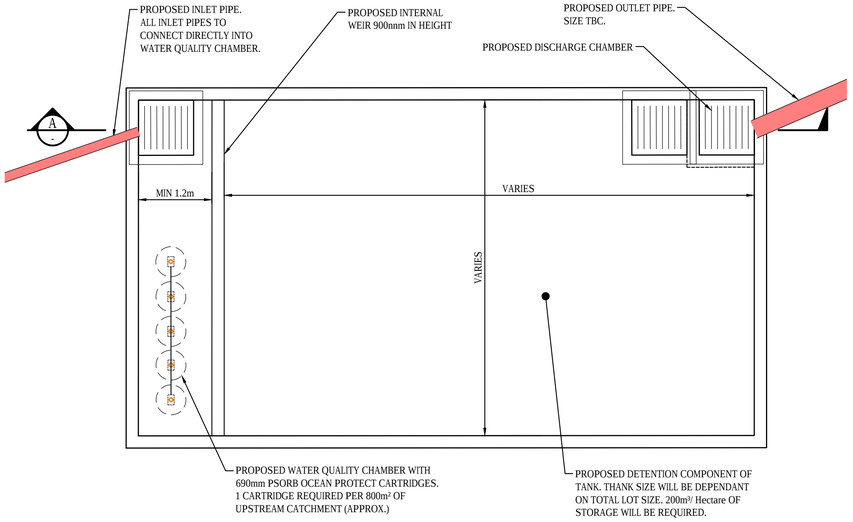
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Project: PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title: BASIN 2 PLAN AND SECTIONS

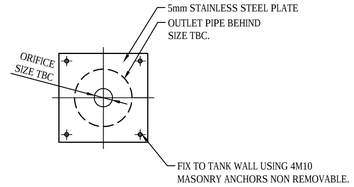
Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	AS NOTED

Drawing number: 19221_PP_C203
Revision: 01



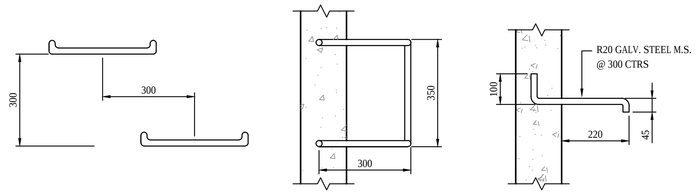
TYPICAL COMBINED ON-SITE DETENTION AND WATER QUALITY TANK

SCALE: 1:50



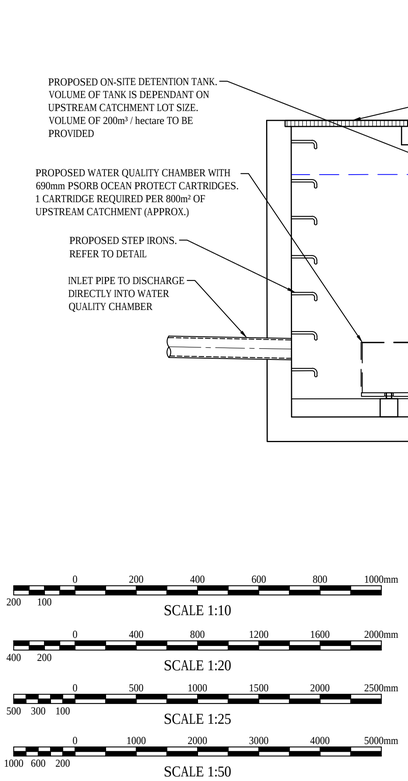
ORIFICE PLATE DETAIL

SCALE 1:20



TYPICAL STEP IRON DETAIL

SCALE 1:10



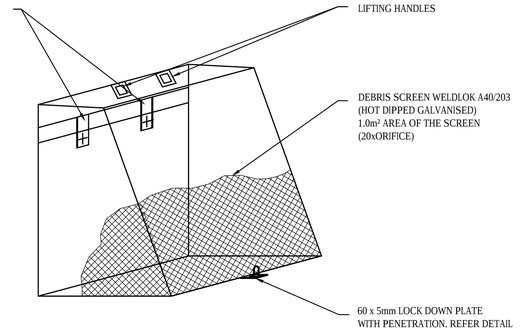
SECTION A-A

SCALE: 1:25

100 x 16 MOUNTING BAR WITH BRACKETS, SCREEN TO BE ATTACHED (GENERALLY ON A SLIDING MECHANISM) TO THE WALL, BUT SHOULD BE REMOVABLE (WITHOUT THE USE OF TOOLS) TO PERMIT CLEANSING AND EASY INSPECTION OF THE OUTLET CONTROL. ALL STEEL TO BE HOT DIPPED GALVANISED.

SCREEN TYPE WELDLOK A40/203 IS RECOMENDED FOR ORIFICES LARGER THAN 150mm AND SCREEN AREA 20 x THE ORIFICE AREA FOR THAT TYPE OF SCREEN - REFER UPRCT SECTION 4-13

MAXIMESH RH3030 IS RECOMMENDED FOR ORIFICES LESS THAN 150mm IN DIAMETER AND SCREEN AREA 50xTHE ORIFICE AREA REFER BURWOOD COUNCIL AND UPPER PARRAMATTA RIVER CATCHMENT TRUST HANDBOOK.



DEBRIS SCREEN DETAIL

NOT TO SCALE
ALL STEEL TO BE HOT DIPPED GALVANISED

0 200 400 600 800 1000mm
200 100
SCALE 1:10

0 400 800 1200 1600 2000mm
400 200
SCALE 1:20

0 500 1000 1500 2000 2500mm
500 300 100
SCALE 1:25

0 1000 2000 3000 4000 5000mm
1000 600 200
SCALE 1:50

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client
HB & B PROPERTY PTY LTD

Architect
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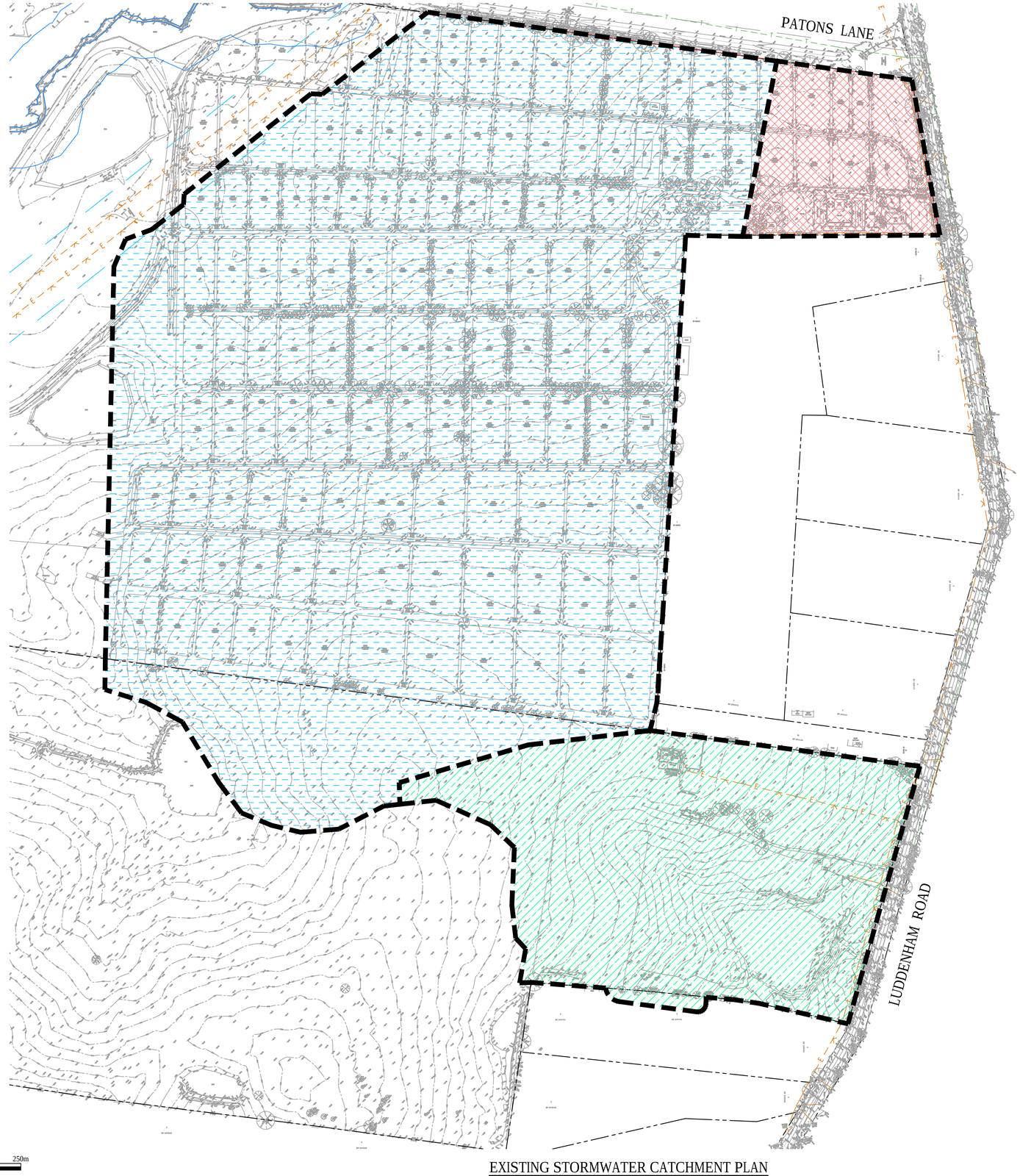
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Project
PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title
OSD AND WATER QUALITY TANK
TYPICAL DETAILS

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	AS NOTED

Drawing number: 19221_PP_C204
Revision: 01



LEGEND:

NORTH-WEST CATCHMENT
AREA = 48.95 hectares

NORTH-EAST CATCHMENT
AREA = 3.31 hectares

SOUTH-EAST CATCHMENT
AREA = 12.51 hectares

0 50 10 150 200 250m
50 30 10
SCALE 1:2500

EXISTING STORMWATER CATCHMENT PLAN
SCALE: 1:2500

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client
HB & B PROPERTY PTY LTD
Architect
NETTLETONTRIBE

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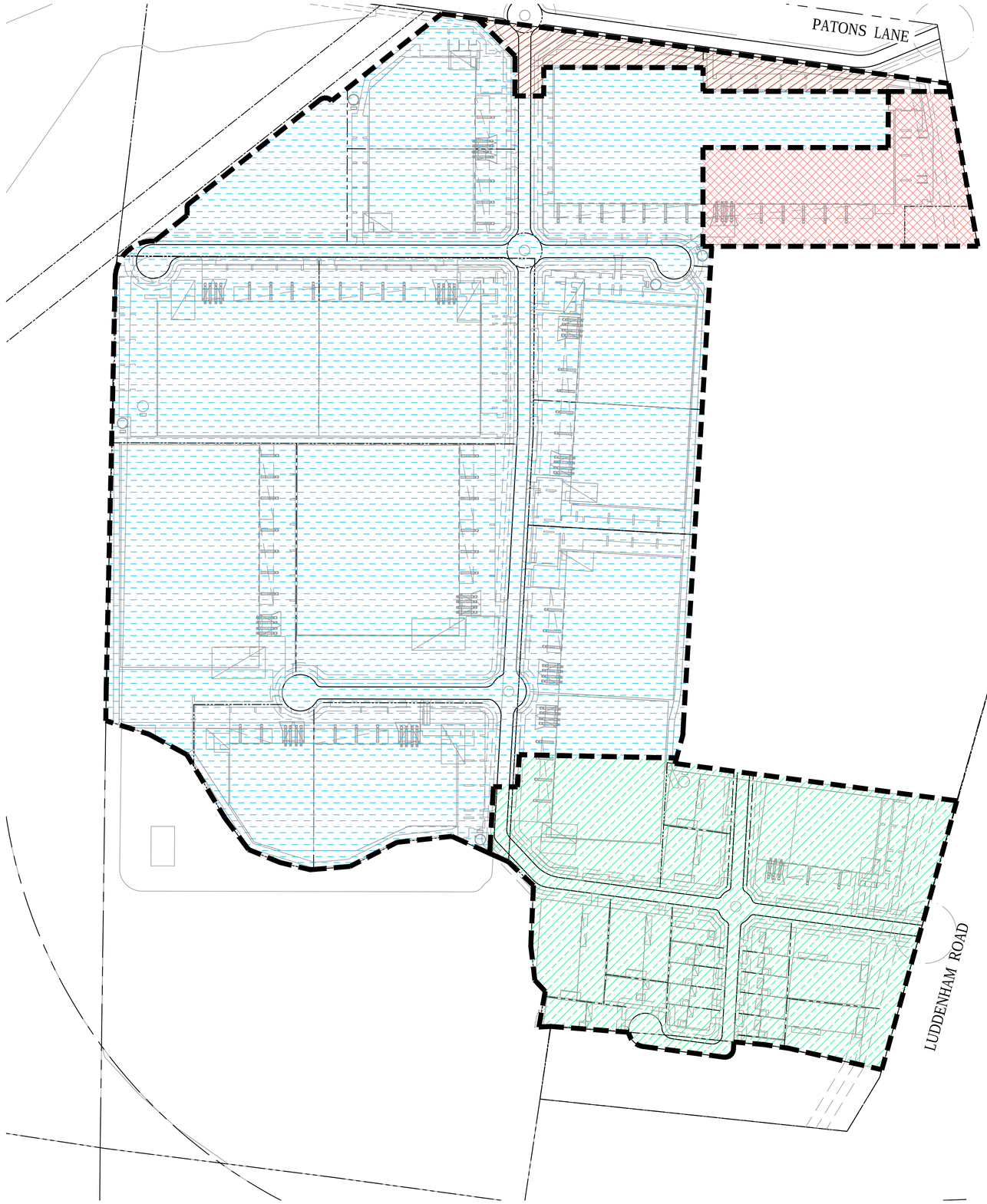
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Project
PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title
EXISTING STORMWATER CATCHMENT PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	1:2500

Drawing number: 19221_PP_C250
Revision: 01



LEGEND:

NORTH-WEST CATCHMENT
AREA = 47.43 hectares

NORTH-EAST CATCHMENT
AREA = 3.39 hectares

SOUTH-EAST CATCHMENT
AREA = 12.51 hectares

BAYPASS (NORTH-WEST CATCHMENT)
AREA = 1.50 hectares

0 50 10 150 200 250m
50 30 10
SCALE 1:2500

PROPOSED STORMWATER CATCHMENT PLAN

SCALE: 1:2500

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client
HB & B PROPERTY PTY LTD

Architect
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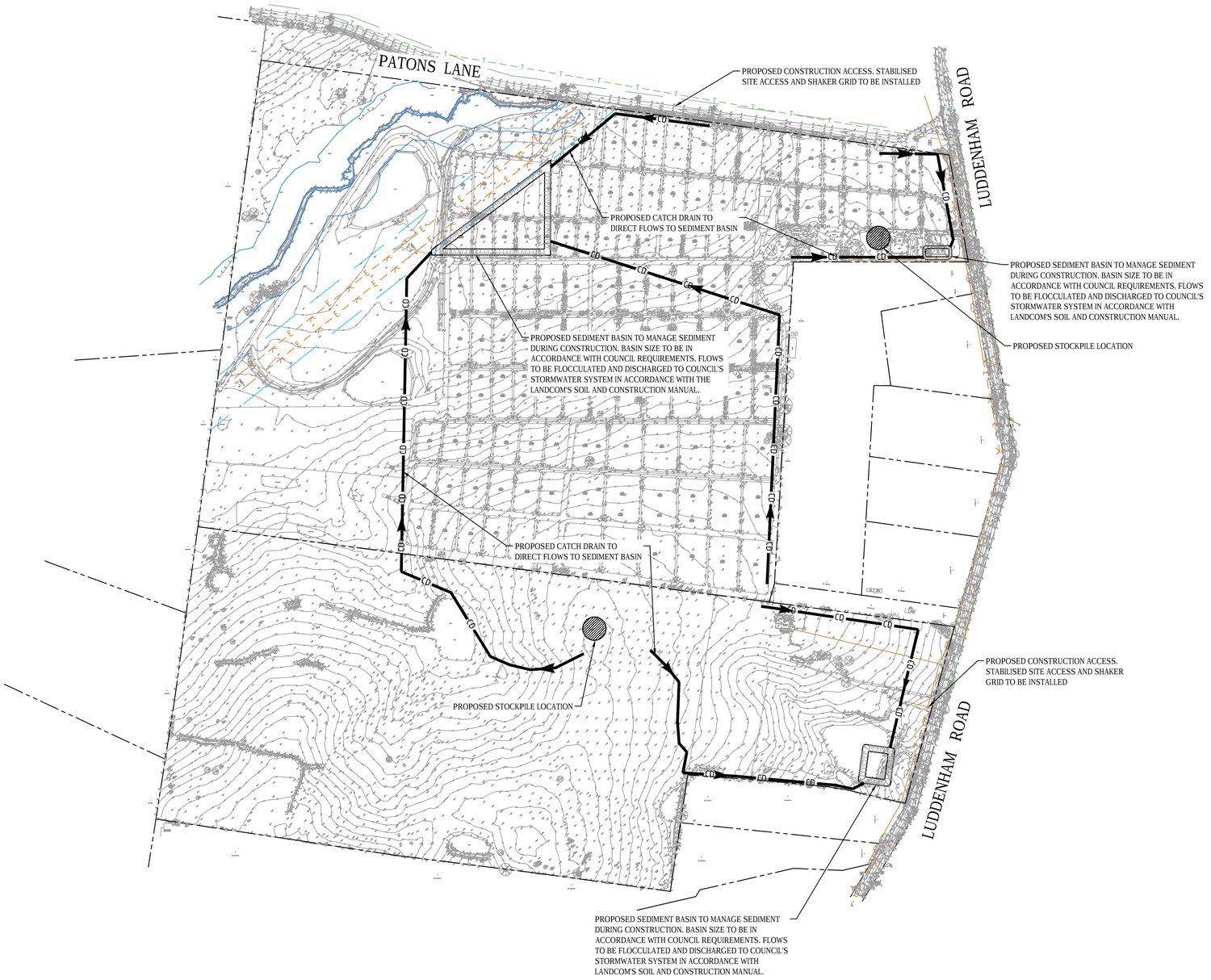
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Project
PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title
PROPOSED STORMWATER CATCHMENT PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	1:2500

Drawing number: 19221_PP_C251
Revision: 01



LEGEND

- EXISTING BOUNDARY
- CATCH DIVERSION DRAIN
- PROPOSED SEDIMENTATION FENCE
- PROPOSED VEHICLE SHAKER GRID
- PROPOSED STABILISED SITE ACCESS
- PROPOSED SEDIMENT BASIN
- PROPOSED STOCKPILE LOCATION

SEDIMENT & EROSION CONTROL NOTES

- ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH PENRITH CITY COUNCIL'S SPECIFICATIONS AND LANDCOM'S "SOIL AND CONSTRUCTION" MANUAL.
- ALL PERIMETER & SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN EARTH WORKS AND/OR CLEARING.
- THE SEDIMENT & EROSION CONTROL PLAN MAY REQUIRE FUTURE ADJUSTMENT TO REFLECT CONSTRUCTION STAGING. IT IS ALSO THE CONTRACTORS RESPONSIBILTY TO PREPARE THEIR OWN SEDIMENT AND EROSION CONTROL PLAN WHICH SUITS THE DESIGNED CONSTRUCTION STAGING.
- FILTRATION BUFFER ZONES ARE TO BE FENCED OFF AND ACCESS PROHIBITED TO ALL PLANT AND MACHINERY.
- ALL TEMPORARY EARTH BERMS, DIVERSIONS & SILT DAM EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED & MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
- ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED AFTER STORMS FOR STRUCTURAL DAMAGE OR CLOGGING. TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE LOCATION.
- ALL TOPSOIL IS TO BE STOCKPILED ON SITE FOR REUSE (AWAY FROM TREES AND DRAINAGE LINES). MEASURES SHALL BE APPLIED TO PREVENT EROSION OF THE STOCKPILES.
- ALL EARTHWORK AREAS SHALL BE ROLLED EACH EVENING TO SEAL THE EARTHWORKS.
- ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND STRAW MULCHED WITHIN 14 DAYS OF COMPLETION OF FORMATION U.N.O. BY LANDSCAPE ARCHITECTS.
- UPON COMPLETION OF ALL EARTHWORKS OR AS DIRECTED BY COUNCIL SOIL CONSERVATION TREATMENTS SHALL BE APPLIED SO AS TO RENDER AREAS THAT HAVE BEEN DISTURBED, EROSION PROOF WITHIN 14 DAYS.
- EROSION AND SILT PROTECTION MEASURES ARE TO BE MAINTAINED AT ALL TIMES.
- THESE DRAWINGS SHOW THE INITIAL STAGES OF THE SITE CONSTRUCTION AND EROSION CONTROLS. AS CONSTRUCTION CONTINUES IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL PITS ARE PROGRESSIVELY FITTED WITH MESH AND GRAVEL INLET FILTERS AS REQUIRED
- ALL EXISTING COUNCIL PITS WITHIN 50m OF THE SITE BOUNDARIES ARE TO BE FITTED WITH MESH AND GRAVEL INLET FILTERS

0 80 160 240 320 400m
80 60 40 20
SCALE 1:4000

SEDIMENT AND EROSION CONTROL PLAN

SCALE: 1:4000

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
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Client: HB & B PROPERTY PTY LTD
Architect: NETTLETONTRIBE

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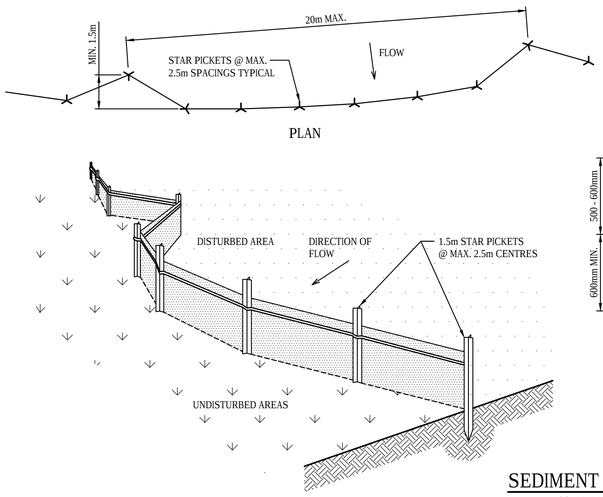
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221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

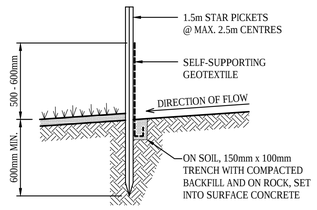
Title: SEDIMENT AND EROSION CONTROL PLAN

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	Approved	Scale @A1
N.Heazlewod	A.Francis	1:4000

Drawing number: 19221_PP_SE01
Revision: 01



PLAN



SECTION DETAIL

SEDIMENT FENCE

SCALE N.T.S.

SEDIMENT FENCE CONSTRUCTION NOTES:

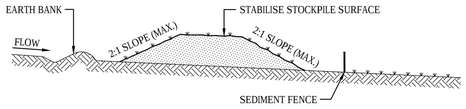
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.

2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.

3. 3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.

4. 4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.

5. 5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP. 6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

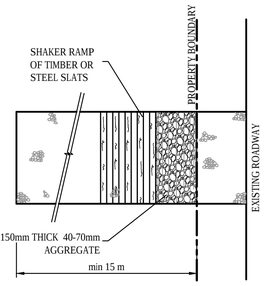


STOCKPILE CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED E.S.C.P. OR S.W.M.P. TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

STOCKPILES

SCALE N.T.S.

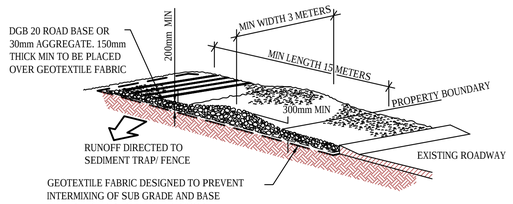


PLAN

STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

CONSTRUCTION SITE



STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

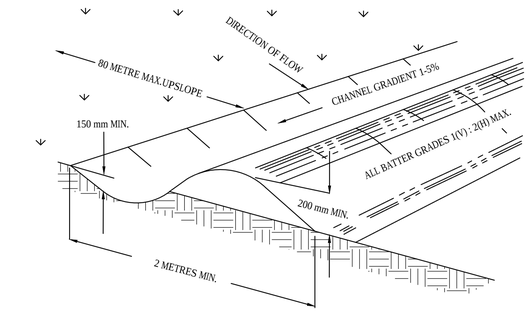
NOTES:

1. THIS DEVICE IS TO BE LOCATED AT ALL EXITS FROM CONSTRUCTION SITE.

2. THIS DEVICE IS TO BE REGULARLY CLEANED OF DEPOSITED MATERIAL SO AS TO MAINTAIN A 50mm DEEP SPACE BETWEEN PLANKS.

3. ANY UNSEALED ROAD BETWEEN THIS DEVICE AND NEAREST ROADWAY IS TO BE TOPPED WITH 100mm THICK 40-70mm SIZE AGGREGATE.

4. ALTERNATIVELY, THREE(3) PRECAST CONCRETE CATTLE GRIDS (AS MANUFACTURED BY "HUMES CONCRETE MAY BE USED. 1, 2 & 3 ABOVE ALSO APPLY.



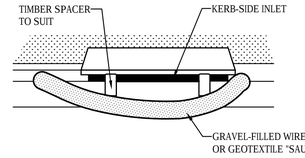
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAC.UPSLOPE LENGTH IS 80 METERS.

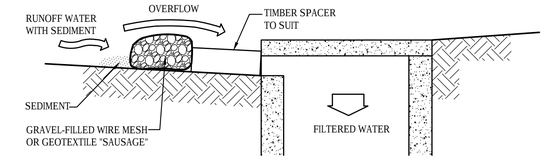
CATCH DRAIN CONSTRUCTION NOTES:

1. CONSTRUCT ALONG GRADIENT AS SPECIFIED.
2. MAXIMUM SPACING BETWEEN BANKS SHALL BE 80 METRES.
3. DRAINS TO BE OF PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. CONSTRUCTION IS OF A TEMPRORARY NATURE AND SHALL BE COMPACTED AT THE END A DAYS WORK OR IMMEDIATELY PRIOR RAIN.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL AISTE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

CATCH DRAINS

SCALE N.T.S.





MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT / LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET FILTER

SCALE N.T.S.

0 80 160 240 320 400m

80 60 40 20

SCALE 1:4000

ISSUED FOR PLANNING PROPOSAL

SURVEY INFORMATION
SURVEYED BY
WATSDON BUCHAN
DATUM: A.H.D.
ORIGIN OF LEVELS: SSM 22740 RL41.10

REVISION	AMENDMENT	DRAWN	DESIGNED	DATE
01	ISSUED FOR PLANNING PROPOSAL	SC	NH	17.02.2022

Client: HB & B PROPERTY PTY LTD

Architect: NETTLETONTRIBE

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henry&hymas

Project: PROPOSED INDUSTRIAL SUBDIVISSION
221-227 & 289-317 LUDDENHAM ROAD ORCHARD HIILS

Title: SEDIMENT AND EROSION CONTROL
TYPICAL SECTIONS AND DETAILS

Drawn	Designed	Date
S.Chen	N.Heazlewod	Feb 2022
Checked	**Approved**	**Scale @A1**
N.Heazlewod	A.Francis	N.T.S

Drawing number: 19221_PP_SE02

Revision: 01

APPENDIX B – ARCHITECUTRAL PLANS

Alspec Industrial Business Park	
11-Feb-22	SK022k
TOTAL SITE AREA (m²)	**1,466,103**
AIBP Total Site Area	1,253,713
Additional Land Site Area	185,135
Southern Land Parcel	27,255
Constraints (m²)	**SITE AREA (m2)**
Outer Sydney Orbital	360,412
Western Sydney Freight (exld. overlaps)	6,088
Electrical Easement (exld. overlaps)	23,335
Enviro. Management & Basins (incl. severed land)	73,024
Luddenham Road Widening Corridor (exld. overlaps)	23,088
Environmental Consevation Area	166,284
Road Reserves	81,712
CONSTRAINTS TOTAL	733,943
TOTAL DEVELOPABLE AREA (m²)	732,160
STAGE 1 TOTAL AREA (m²) (incl. internal constraints)	**266,400**
Stage 1 Electrical Easement (exld. overlaps)	23,335
Stage 1 Enviro. Management & Basins	45,442
Stage 1 Luddenham Road Widening Corridor (exld. overlaps)	3,654
Stage 1 Internal Road Reserves	19,841
Stage 1 Developable Area	174,128
Total Warehouse	93,781
Total Office	3,800
Total Building Area	97,581
Stage FSR	0.56:1
Carparking Achieved	1,013
STAGE 2 TOTAL AREA (m²) (incl. internal constraints)	**263,307**
Stage 2 Internal Road Reserves	19,114
Stage 2 Developable Area	244,193
Total Warehouse	143,361
Total Office	7,900
Total Building Area	151,261
Stage FSR	0.62:1
Carparking Achieved	1,514
STAGE 3 TOTAL AREA (m²) (incl. internal constraints)	**376,030**
Stage 3 Luddenham Road Widening Corridor (exld. overlaps)	19,434
Stage 3 Internal Road Reserves	42,757
Stage 3 Developable Area	313,839
Total Warehouse	151,117
Total Office	9,775
Total Building Area	160,892
Stage FSR	0.51:1
Carparking Achieved	1,640
Total Developable Area	732,160
Total Warehouse Area	388,259
Total Office Area	21,475
Total Building Area	409,734
Site FSR	0.56:1
Total Car Parking	4,168
Required Car Parking	4,097



ISSUED FOR INFORMATION

PROPERTY

alspec ALUMINIUM SYSTEMS SPECIALISTS

0 60 150 300m

Alspec Industrial Business Park

Luddenham Road, Orchard Hills - NSW

Title: Updated Masterplan

Scale: 1:3000 @ A1

Date: February 2022

Number: 11178_SK022k-1

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