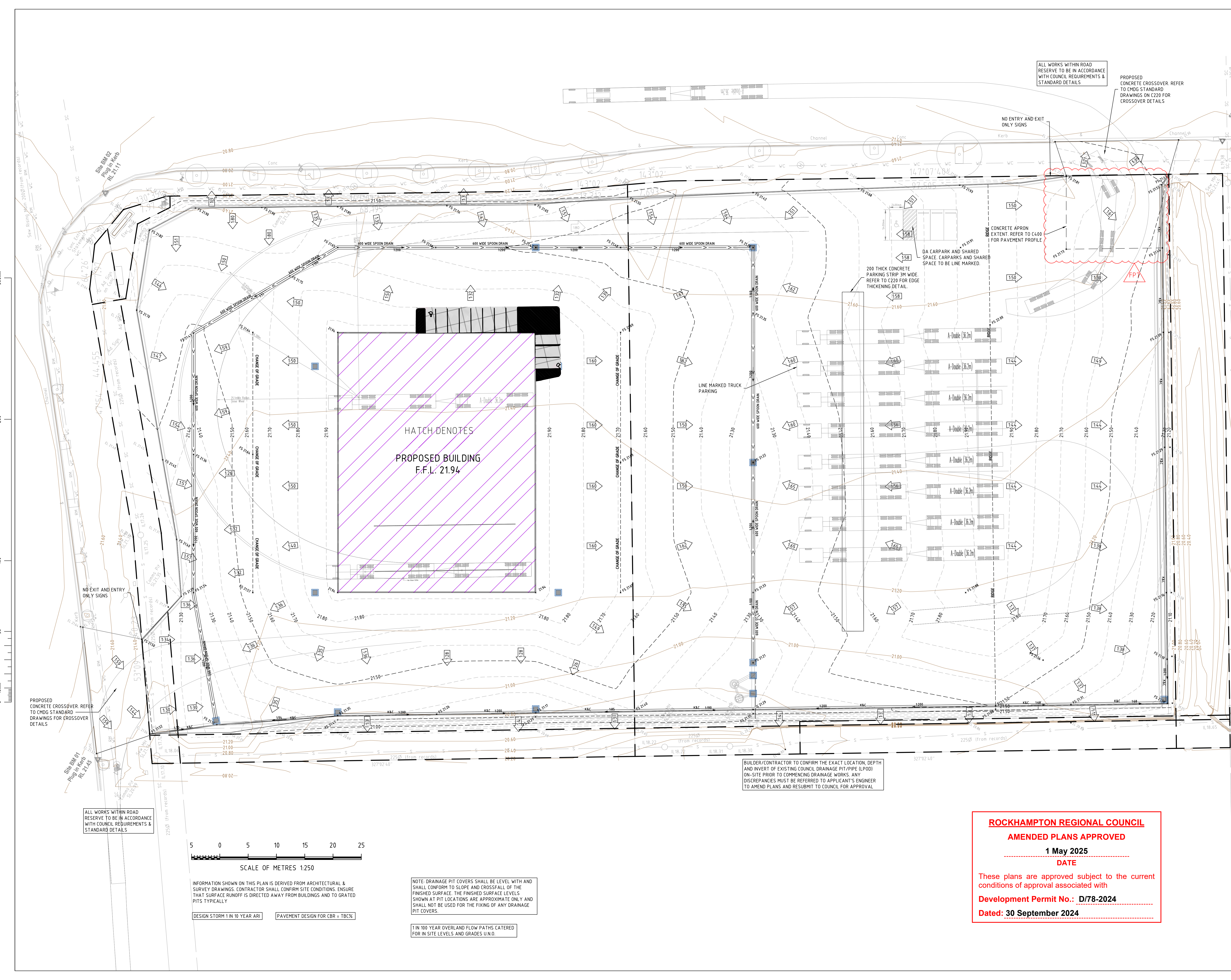




AMENDMENTS			
REV	BY	DATE	AMENDMENT DESCRIPTION
FP1	JL	25.10.2024	ISSUE FOR PERMIT
FP2	JL	15.11.2024	ISSUE FOR PERMIT
FP3	JL	22.11.2024	ISSUE FOR PERMIT
FP4	JL	02.12.2024	ISSUE FOR PERMIT
FP5	JL	22.01.2025	ISSUE FOR PERMIT
FP6	JL	10.02.2025	ISSUE FOR PERMIT
FP7	JL	10.03.2025	ISSUE FOR PERMIT

LEGEND

LEVELS

EXISTING SURFACE LEVELS

INVERT LEVEL

FINISHED FLOOR LEVEL

FINISHED SURFACE LEVEL

EDGE OF PAVEMENT

STORMWATER DRAIN PIT

STORMWATER DRAIN

AG DRAIN

DIRECTION OF FLOW

VALLEY LINE

KERB & CHANNEL

KERB

ABBREVIATIONS

MODIFIED MAXIMUM DRY DENSITY

STANDARD MAXIMUM DRY DENSITY

DOWNPIPE

OVERFLOW PIPE

UNDERGROUND

TWO TO BE DETERMINED

SWD APPROVED POINT OF DISCHARGE

M.M.D.

S.M.D.

DP

O/FLOW

U/G

TBD

LPD

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Spencer Group Engineering

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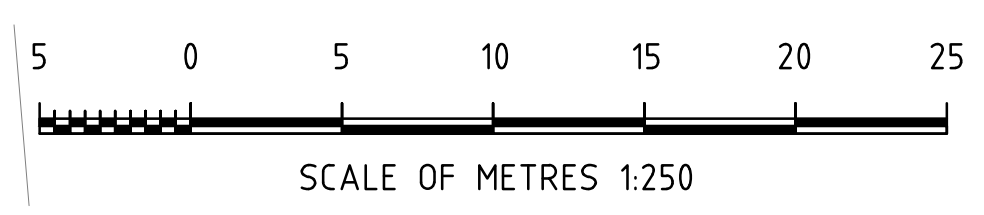
SITE PLAN

DESIGNED: JL
DRAWN: JL
CHECKED: ---
APPROVED: ---
DATE: OCT 2024
SCALE: 1:250

DRAWING No.:
6203 - C200

REV:
FP7

ROCKHAMPTON REGIONAL COUNCIL
AMENDED PLANS APPROVED
1 May 2025
DATE
These plans are approved subject to the current conditions of approval associated with
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Dated: 30 September 2024



INFORMATION SHOWN ON THIS PLAN IS DERIVED FROM ARCHITECTURAL & SURVEY DRAWINGS. CONTRACTOR SHALL CONFIRM SITE CONDITIONS. ENSURE THAT SURFACE RUNOFF IS DIRECTED AWAY FROM BUILDINGS AND TO GRATED PITS TYPICALLY

DESIGN STORM 1 IN 10 YEAR ARI
PAVEMENT DESIGN FOR CBR = TBC'S

NOTE: DRAINAGE PIT COVERS SHALL BE LEVEL WITH AND SHALL CONFORM TO SLOPE AND CROSSFALL OF THE FINISHED SURFACE. THE FINISHED SURFACE LEVELS SHOWN AT PIT LOCATIONS ARE APPROXIMATE ONLY AND SHALL NOT BE USED FOR THE FIXING OF ANY DRAINAGE PIT COVERS.

1 IN 100 YEAR OVERLAND FLOW PATHS CATERED FOR IN SITE LEVELS AND GRADES U.N.O.

BUILDER/CONTRACTOR TO CONFIRM THE EXACT LOCATION, DEPTH AND INVERT OF EXISTING COUNCIL DRAINAGE PIT/PIPE (LPD) ON-SITE PRIOR TO COMMENCING DRAINAGE WORKS. ANY DISCREPANCIES MUST BE REFERRED TO APPLICANT'S ENGINEER TO AMEND PLANS AND RESUBMIT TO COUNCIL FOR APPROVAL

AMENDMENTS			
REV	BY	DATE	AMENDMENT DESCRIPTION
FP1	JL	25.10.2024	ISSUE FOR PERMIT
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FP4	JL	02.12.2024	ISSUE FOR PERMIT
FP5	JL	23.01.2025	ISSUE FOR PERMIT
FP6	JL	18.03.2025	ISSUE FOR PERMIT

LEGEND

LEVELS

EXISTING SURFACE LEVELS
INVERT LEVEL
FINISHED FLOOR LEVEL
FINISHED SURFACE LEVEL

EDGE OF PAVEMENT
STORMWATER DRAIN PIT
STORMWATER DRAIN
AG DRAIN
DIRECTION OF FALL
VALLEY LINE
KERB & CHANNEL
KERB

ABBREVIATIONS

MODIFIED MAXIMUM DRY DENSITY
STANDARD MAXIMUM DRY DENSITY
DOWNPIPE
OVERFLOW PIPE
UNDERGROUND
TO BE DETERMINED
SWD APPROVED POINT OF DISCHARGE

CL 20.15
IL
FFL
FSL 21.70
M.M.D.D.
S.M.D.D.
O/FLOW
TBD
LPD

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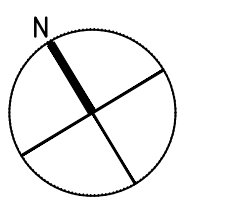


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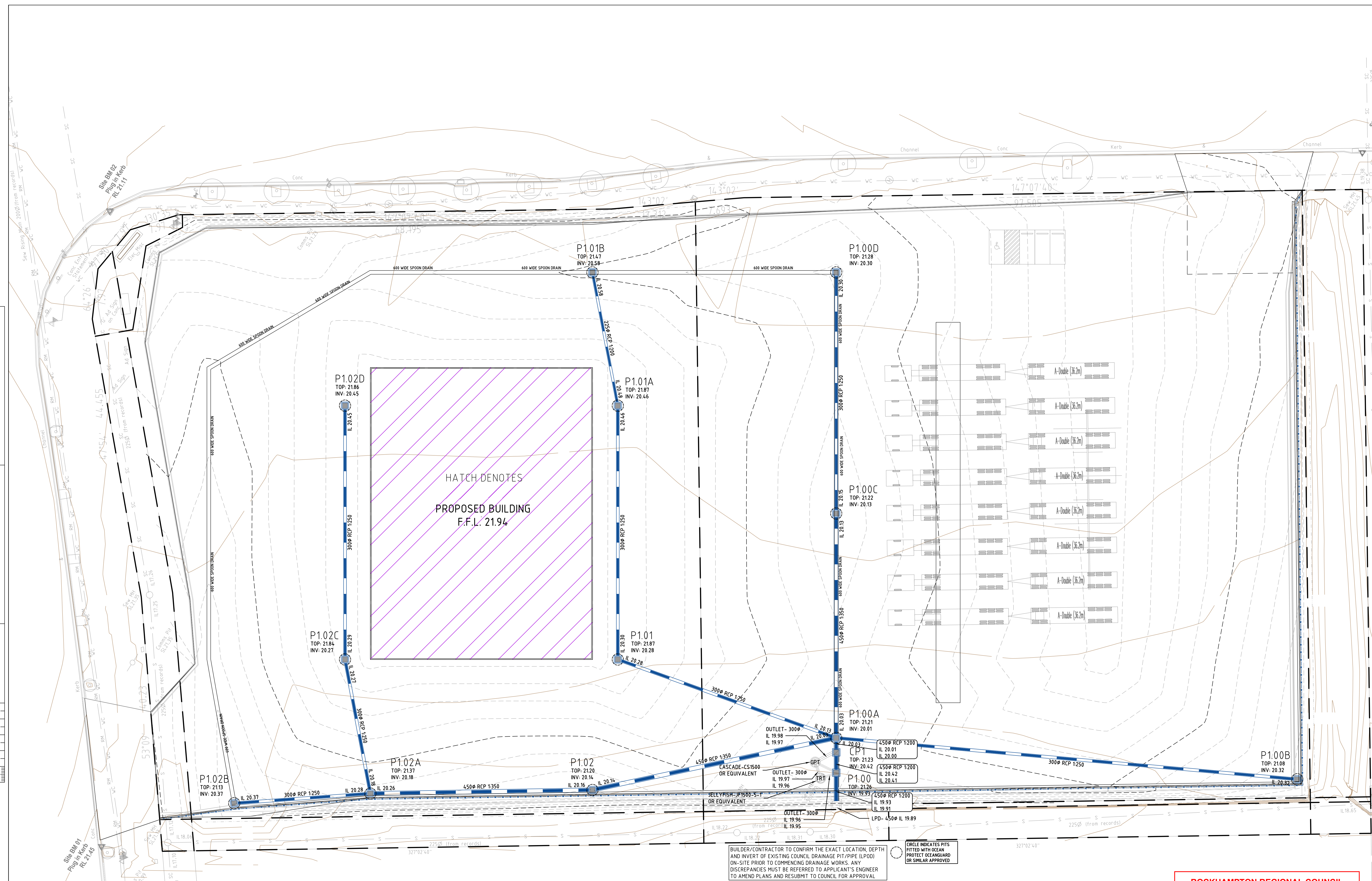
DRAWING
DRAINAGE LAYOUT



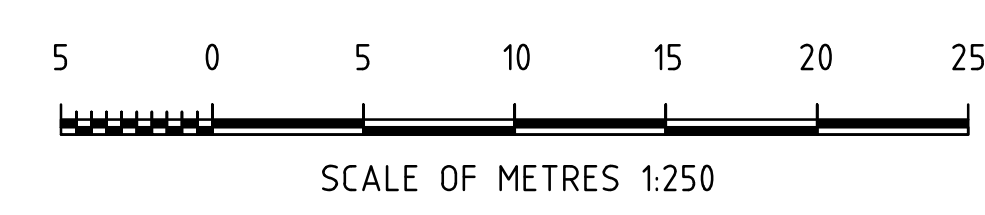
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DATE: OCT 2024
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REV:
FP6



STORMWATER DESIGN
TBC. SUBJECT TO
COUNCIL APPROVAL



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DESIGN STORM 1 IN 10 YEAR ARI PAVEMENT DESIGN FOR CBR = TBC%

NOTE: INVERT LEVELS AT LEGAL DISCHARGE POINT(S) ARE TO BE SITE CHECKED AND CONFIRMED BY BUILDER PRIOR TO START OF CONSTRUCTION.

UNLESS NOTED OTHERWISE, MINIMUM PIPE GRADIENT SHALL BE:
1100 FOR 100ø / 150ø
1200 FOR 225ø
1250 FOR 300ø
1300 FOR 375ø
1350 FOR 450ø
1400 FOR 525ø AND LARGER

NOTE: RODDING EYES & INSPECTION OPENINGS TO BE INSTALLED STRICTLY IN ACCORDANCE WITH AS3500.

NOTE: DRAINAGE PIT COVERS SHALL BE LEVEL WITH AND SHALL CONFORM TO SLOPE AND CROSSFALL OF THE FINISHED SURFACE. THE FINISHED SURFACE LEVELS SHOWN AT PIT LOCATIONS ARE APPROXIMATE ONLY AND SHALL NOT BE USED FOR THE FIXING OF ANY DRAINAGE PIT COVERS.

REFER TO ARCHITECTURAL DRAWINGS FOR FINAL LOCATION OF ALL ROOF DRAINAGE SUMPS, DOWNPIPES, AERIAL DP'S ALIGNMENTS, SIZES & DETAILS. TYPICAL.

NOTE: REFER TO ARCHITECTURAL DWGS FOR ALL DOWNPIPE, EAVES GUTTER, BOX GUTTER AND SUMP SIZES AND LOCATIONS U.N.O.

NOTE: AERIAL PIPES SHALL BE INSTALLED IN ACCORDANCE WITH AS2032 & AS3500

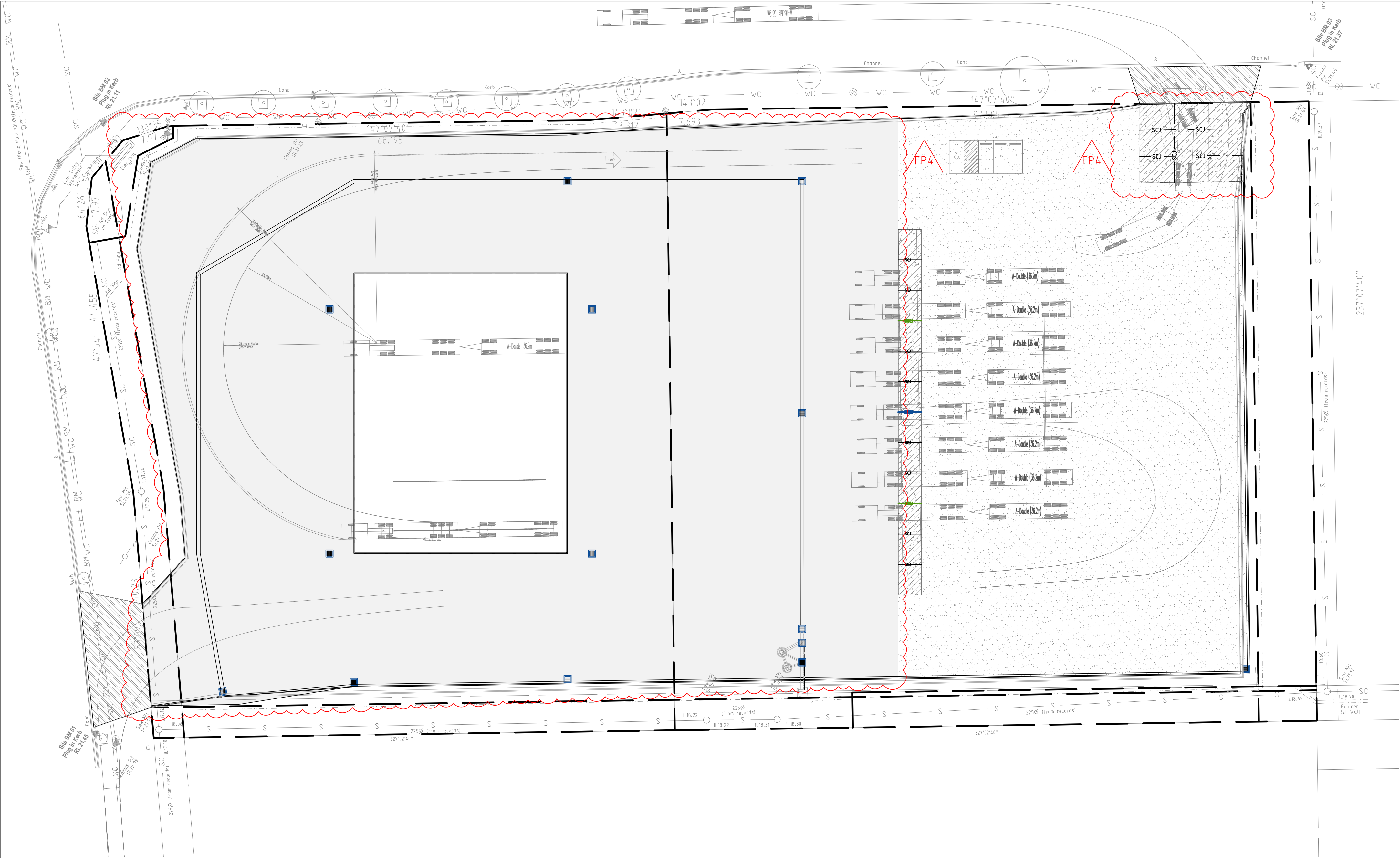
1 IN 100 YEAR OVERLAND FLOW PATHS CATERED FOR IN SITE LEVELS AND GRADES U.N.O.

CIRCLE INDICATES PITS FITTED WITH OCEAN PROTECT OCEANGUARD OR SIMILAR APPROVED

ROCKHAMPTON REGIONAL COUNCIL
AMENDED PLANS APPROVED
1 May 2025
DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/78-2024
Dated: 30 September 2024

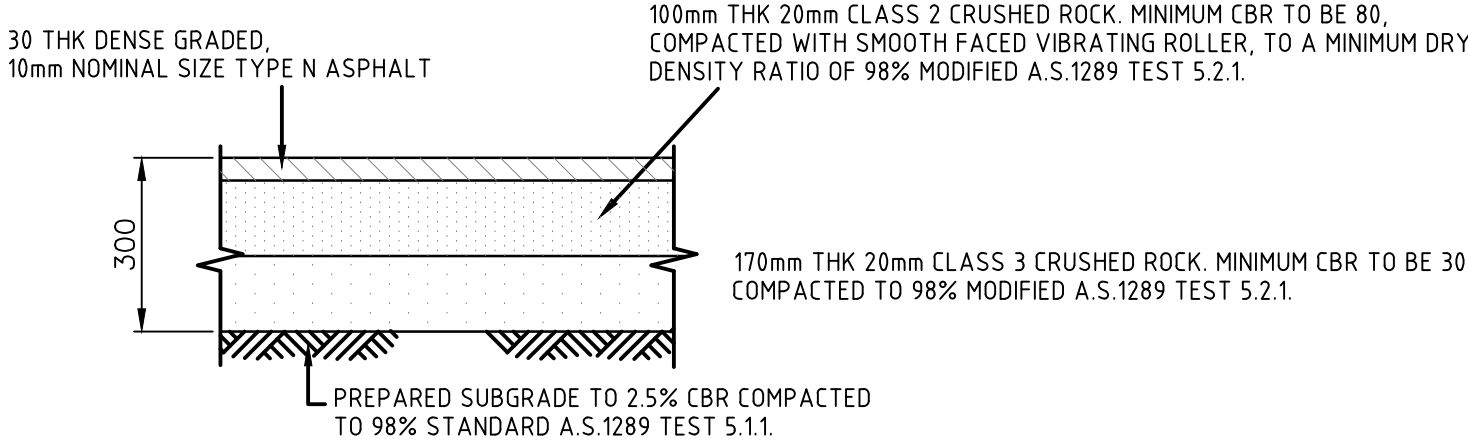


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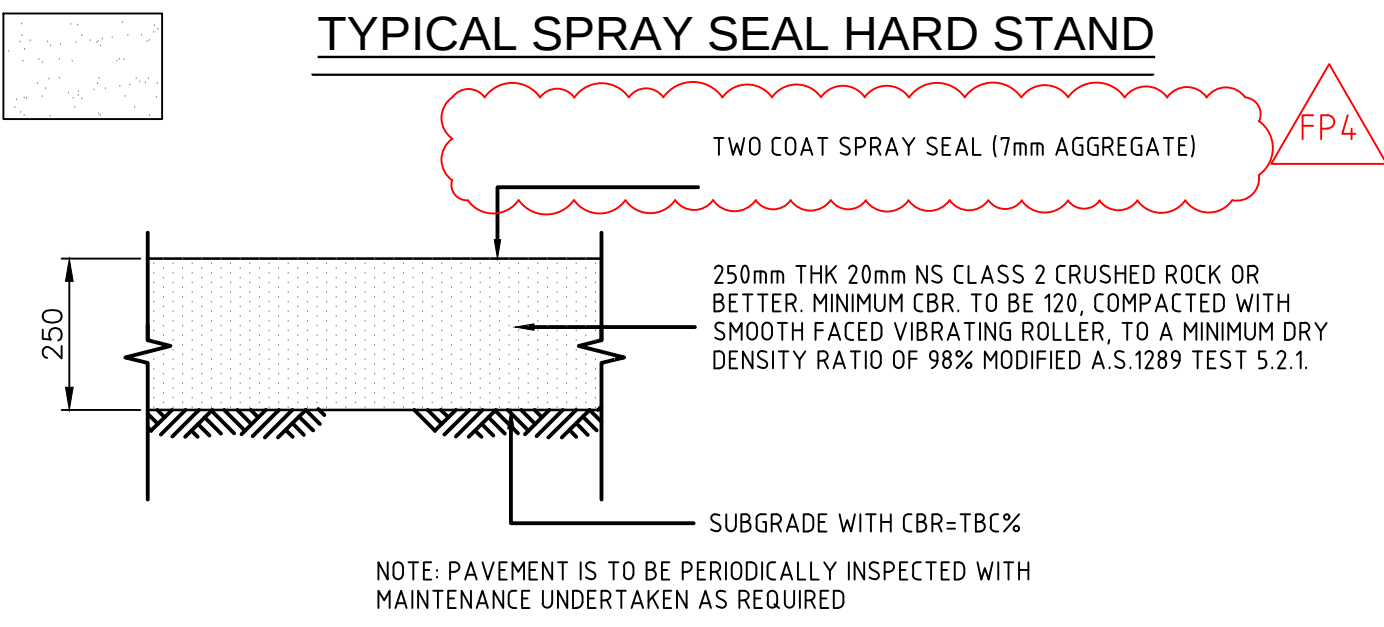
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TYPICAL ASPHALT PAVEMENT



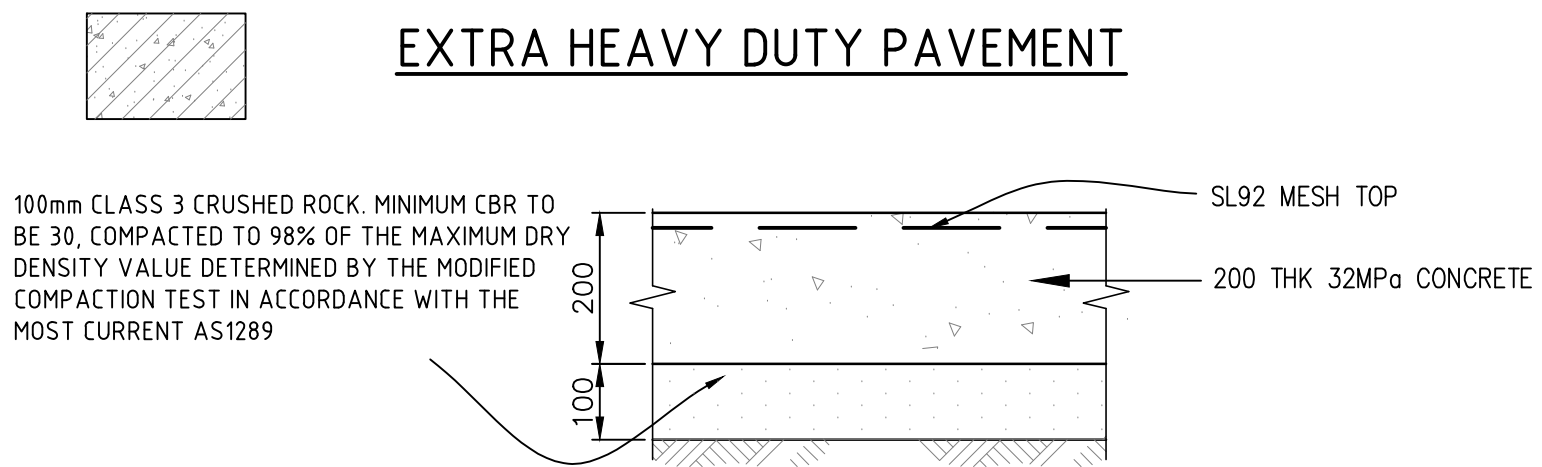
ITEM	PAVEMENT LOAD SPECIFICATION
PAVEMENT TYPE	ASPHALT
	NON-COMMERCIAL PASSENGER VEHICLES ONLY

TYPICAL SPRAY SEAL HARD STAND



ITEM	PAVEMENT LOAD SPECIFICATION
PAVEMENT TYPE	CRUSHED ROCK HARDSTAND

EXTRA HEAVY DUTY PAVEMENT



ITEM	PAVEMENT LOAD SPECIFICATION
PAVEMENT TYPE	CONVENTIONAL
UNIFORM DISTRIBUTED LOAD RATING	20 kPa

ITEM	PLANT SPECIFICATION
HEAVY VEHICLES	UNLIMITED MOVEMENTS OF 8-DOUBLE VEHICLES AND STANDARD TRUCK AXLES ALLOWED ON AUSTRALIAN ROADS
FORKLIFT PERMITTED WHEEL TYRES	PNEUMATIC-CUSHIONED
FORKLIFT MINIMUM WHEEL DIAMETER	250mm
FORKLIFT MAXIMUM FRONT AXLE LOAD	4.5 TONNES SWL FORKLIFT WITH A MAXIMUM FRONT AXLE LOAD 115T ACROSS 4 PNEUMATIC TYRES
TRUCK TRAILER FOOT LOAD	8 TONNES ON MINIMUM 300mm x 250mm FLAT FOOT PLATES

ROCKHAMPTON REGIONAL COUNCIL AMENDED PLANS APPROVED

1 May 2025

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/78-2024

Dated: 30 September 2024

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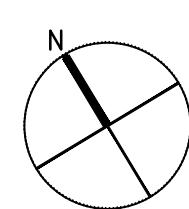
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PROJECT

TRANSPORT DEPOT
CNR SOMERSET
RD/ENTERPRISE DR
GRACEMERE, QLD

DRAWING

EXTERNAL PAVEMENT LOADING
PLAN & JOINT LAYOUT



DESIGNED: JL
DRAWN: JL
CHECKED: ----
APPROVED: ----
DATE: OCT 2024
SCALE: 1:400

DRAWING No.:
6203 - C400

REV.
FP4

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CONSTRUCTION

NOTE: OVERALL LENGTH OF INSPECTION PIT INSIDE SHED TO BE CONFIRMED DURING DETAILED DESIGN PHASE TO ENSURE VEHICLE CAN PASS OVER WITH WHEEL CLEARANCE (OVERALL LENGTH OF PIT MAY NEED TO BE REDUCED TO ENSURE WHEELS ARE CLEAR OF END OF PIT)

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/78-2024
Dated: 30 September 2024



**DAVEY
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Email: jeff@daveyes.com.au

REVISION / ISSUE REGISTER

No.	DATE	REMARKS
A	22/5/24	For Review
B	7/6/24	For Review
C	25/6/24	For Review
D	04/8/24	INFO REQUEST

DESIGN		DRAWN	
DGP		DGP	
NAME	SIGNATURE	R.P.E.Q.	
J. DAVEY		8386	

for & on behalf of Davey Engineering Solutions Pty Ltd

SCALES:

DATUM: AHD
COORDINATES: GDA2020



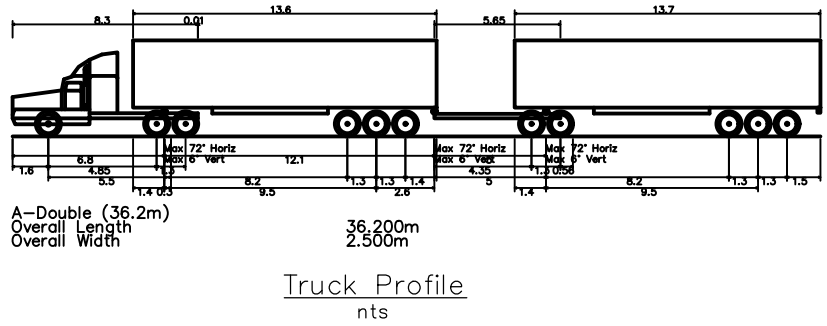
BOOTH TRANSPORT

TRANSPORT DEPOT
cnr SOMERSET RD/ENTERPRISE DR
LOTS 2 & 7, SP260358
GRACEMERE, QUEENSLAND
A-DOUBLE (36.2m)
TURNPATH PLAN - 1

FILE No. 24-15

DWG No. 24-15-SK2 D

DO NOT SCALE - IF IN DOUBT ASK



CAD REF: ACAD-Booth Base File 2024_05_15 Rev 10.dwg
LAST MODIFIED: 8/9/2024 9:01 AM

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ROCKHAMPTON REGIONAL COUNCIL

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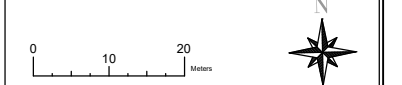
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D	04/8/24	INFO REQUEST

DESIGN

DGP		DGP	
NAME	SIGNATURE	R.P.E.Q.	
J. DAVEY		8386	

for & on behalf of Davey Engineering Solutions Pty Ltd

SCALES:



**DATUM: AHD
COORDINATES: GDA2020**

BOOTH

BOOTH TRANSPORT

**TRANSPORT DEPOT
cnr SOMERSET RD/ENTERPRISE DR
LOTS 2 & 7, SP260358
GRACEMERE, QUEENSLAND
A-DOUBLE (36.2m)
TURNPATH PLAN - 2**

FILE No. 24-15

DWG No. 24-15-SK3 D

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A	22/5/24	For Review
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D	04/8/24	INFO REQUEST

DESIGN		DRAWN	
DGP		DGP	
NAME	SIGNATURE	R.P.E.Q.	
J. DAVEY		8386	

for & on behalf of Davey Engineering Solutions Pty Ltd

SCALES:

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DATUM: AHD
COORDINATES: GDA2020



BOOTH TRANSPORT

TRANSPORT DEPOT
cnr SOMERSET RD/ENTERPRISE DR
LOTS 2 & 7, SP260358
GRACEMERE, QUEENSLAND
A-DOUBLE (36.2m)
TURNPATH PLAN - 3

FILE No. 24-15

DWG No. 24-15-SK4 D

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ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

1 May 2025

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/78-2024

Dated: 30 September 2024

SWMP

Stormwater Management Plan Proposed Development Cnr Somerset Rd & Enterprise Dr, Gracemere QLD 4702



Booth Transport

Ref No. SWMP_6203

Rev	Date	Author
04	18/03/2025	JL

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1 INTRODUCTION

1.1 Background

This report outlines the stormwater management plan for the subject site at the corner of Somerset Rd and Enterprise Dr, Gracemere. The site is located within Rockhampton Regional Council with an approximate area of 1.975 Ha.

Figure 1. shows the proposed development site's existing condition. The subject site bordered by Somerset Road to the North, Enterprise Rd to the West and vacant lands to the South and West boundaries.



Figure 1 Subject Site Locality

As the proposed development is located within Rockhampton Regional Council, this site based stormwater management plan demonstrates stormwater quality objective is achieved in accordance with State Planning Policy 2017.

Underground drainage system is designed to convey stormwater flows up to and including 10% AEP Annual Exceeding Probability (AEP) flows. An overland flow path will be maintained through the development to convey stormwater flows greater than 10% AEP flow up to and including 1% AEP flow.

1.2 Scope

The main framework of this SWMP is to provide an overall strategy for the purpose of a development application to address the following:

- Flood and overland flow management
- Stormwater network capacity: allowable discharge and onsite detention requirements.
- Integration between existing and proposed drainage systems
- Proposed stormwater treatment system
- Stormwater layout plan
- Constructability and maintenance considerations

1.3 Objective

The objective of this SWMP is to provide an overall drainage methodology, incorporating design requirements with proposed site layout to provide a feasible design compliant with the Rockhampton Regional Council development guidelines.

2 SITE OVERVIEW

2.1 Existing Condition

The subject sites are part of the Gracemere Industry Park Industrial Subdivision.

Table 1 below shows minor and major existing flows for the subject site.

Table 1 Pre-development existing minor and major flows

Catchment	1% AEP flow (m ³ /s)	10% AEP flow (m ³ /s)
1.975 Ha	1.150	0.646

2.2 Description of Development

The proposed development will provide one building, as well as associated offices & vehicle parking areas. In addition, the proposal will provide internal stormwater quality treatment infrastructure.

[illegible]

3 STORMWATER MANAGEMENT

Developed flow calculations are completed using Rational Method, reflecting industrial best practice, and in accordance with ARR16 guidance. The current Annual Exceedance Probability (AEP) terminology has been adopted for this report. The proposed development is an industrial development; therefore 10% AEP and 1% AEP are adopted to calculate minor and major flows, respectively.

Minor flows of the development are to be managed and conveyed to an underground drainage system within the proposed development site.

3

Figure 3 presents the civil design plan with general drainage system layout.

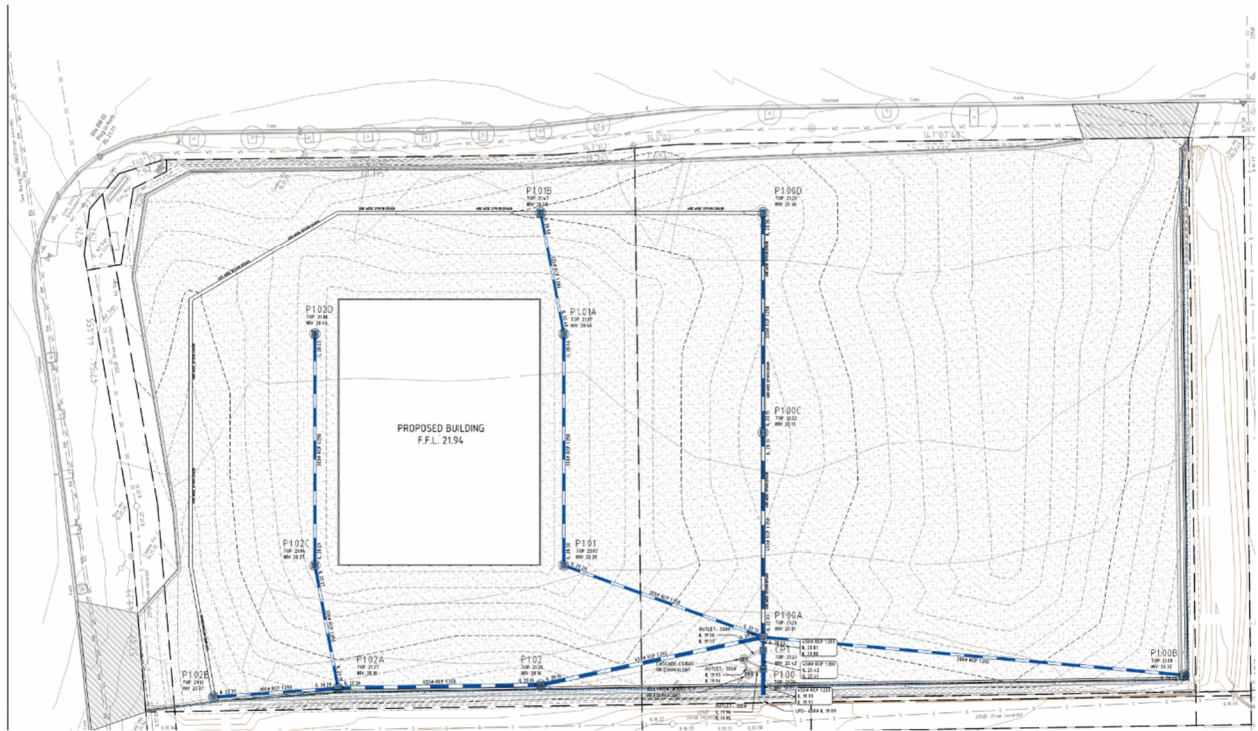


Figure 3 Civil Concept Plan

3.2 Major Event Flow

Major flows from the lot will be conveyed via an overland flow path to the west of the site as illustrated in Figure 4.

It is proposed that the site will direct major flows (greater than 10% AEP, up to and including 1% AEP flows) via an overland flow path away from the proposed development, generally South West towards kerb and channel. Kerb openings will allow major flows to flow to existing easement channel to the West and South.

Table 2 includes the developed major flow of the proposed development at 0.790 m³/s.

Table 2 Developed minor and major flows

Catchment	1% AEP flow (m ³ /s)	10% AEP flow (m ³ /s)	GAP FLOW (1% AEP – 10% AEP) (m ³ /s)
1.975 Ha	1.651	0.927	0.724

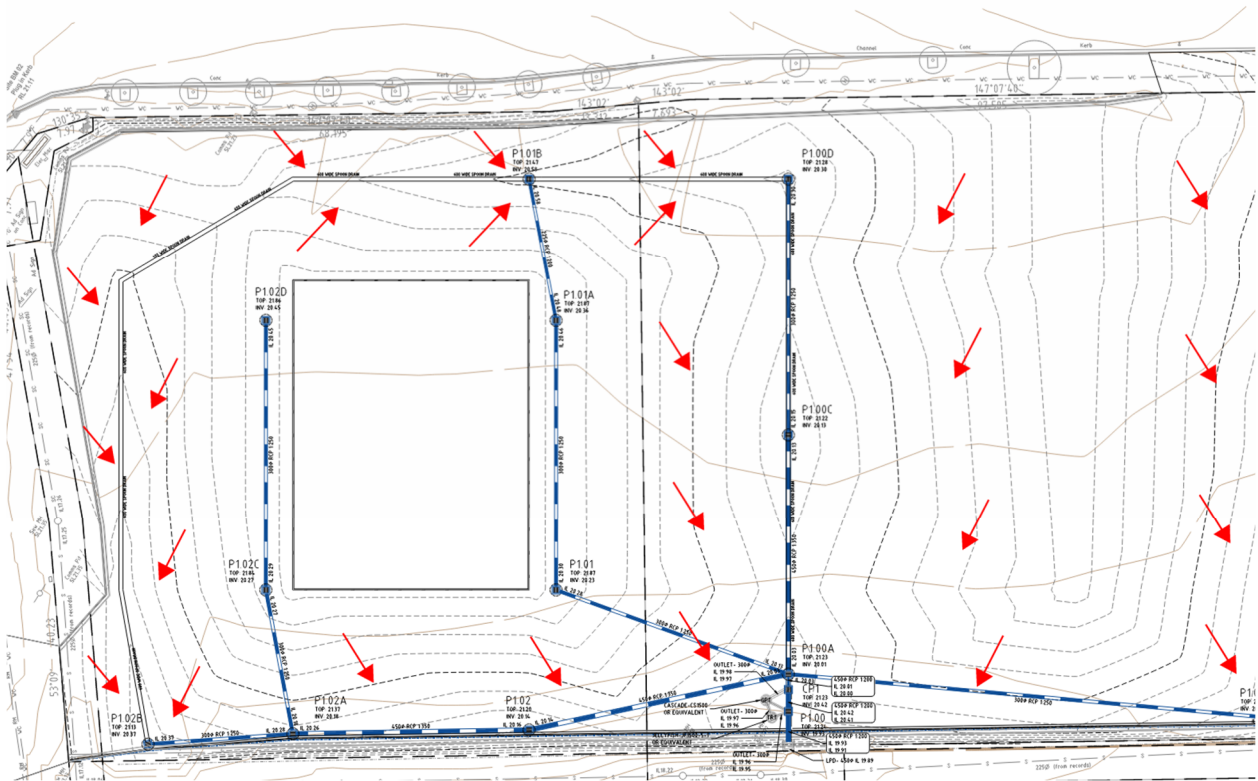


Figure 4 Overland flow path

Stormwater discharge shall be prevented from flowing onto adjacent properties and is controlled by site pavement grades and barrier kerbs.

The building FFL's are to be set minimum 300mm above the 1 in 100 Year ARI flood level.

Relevant drainage calculations are included in Appendix A. Developed flows will be refined during detail design.

4 STORMWATER QUALITY

To achieve the stormwater quality objectives, Water Sensitive Urban Design (WSUD) measures are implemented to reduce the contamination loads in the surface runoff stormwater.

4.1 Water Quality standards

All MUSIC modelling has been completed to meet current QLD State Planning Policy (July 2017) [Pg 82].

Climatic region	Design objectives				
	Reductions in mean annual load from unmitigated development (%)				
	Total suspended solids (TSS)	Total phosphorus (TP)	Total nitrogen (TN)	Gross pollutants >5mm	Waterway stability management
South East Queensland	80	60	45	90	Limit the peak 1-year ARI event discharge within the receiving waterway to the pre-development peak 1-year ARI discharge
Central Queensland (south)	85	60	45	90	
Central Queensland (north)	75	60	40 ¹⁵	90	
Cape York ¹⁴ , wet tropics and dry tropics	80	60 ¹⁶	40	90	
Western Queensland ¹⁴	85	60	45	90	

Figure 5 Stormwater Quality Objectives

4.2 Stormwater Treatment

The stormwater treatments have been assessed using MUSIC model to achieve best practice objectives and reduction targets.

It is proposed to direct site flows through treatment pit i.e. GPT Cascade Separator CS1500 (or equivalent), and Jellyfish JF1500-5-1 (or Equivalent). Figure 3 shows concept civil plan includes drainage and treatment arrangement. Final and detailed arrangement to be refined during detail design and submitted to Council as part of the usual post-permit approval process. MUSIC layouts and outputs is included in Appendix A.

Proposed treatment measures to achieve best practice reduction targets is summarized below:

- Ocean Protect Cascade Separator (CS1500) or Equivalent
- Ocean Protect Jellyfish (JF1500-5-1) or Equivalent
- 12 No. Ocean Guard baskets fitted to pits within the site

Table 3 shows the treatment train effectiveness achieving the set Stormwater Management Design Objectives (SMDO's) for pollutant reduction for the subject site.

Table 3 Treatment train effectiveness

Pollutant	Source	Residual Load	Reduction (%)	Target	Target Met?
Flow (ML/yr)	10.4	10.4	0%	-	-
TSS (kg/yr)	4110	423	89.7%	85%	Yes
TP (kg/yr)	6.5	1.6	75.5%	60%	Yes
TN (kg/yr)	24.4	13.4	45.2%	45%	Yes
Gross Pollutant(kg/yr)	266	2.29	99.1%	90%	Yes

- **NOTE:** All simulation has been run with pollutant estimation set to "Stochastic Generation".

5 LEGAL POINT OF DISCHARGE (LPD)

The site outfall pipe is located to the West boundary of the development site. Figure 6 indicate the property connection is to the 450ø pipe discharging to existing drainage easement.



Figure 6 LPD information connection point

6 CONSTRUCTABILITY AND MAINTENANCE

6.1 Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan will be used to protect drainage infrastructure from sedimentation & contamination, and to protect surrounding area from environmental degradation prior to and during construction.

An Erosion and Sediment Control Plan (ESCP) will be prepared for the site, as a principal management tool during construction works. The ESCP shall provide layout and details for the following:

- Prevention of erosion and sediment leaving site
- Control and diversion of stormwater on site
- Details of control structures – silt fencing, catch drains and sediment filters
- Stockpile locations
- Detailed control notes

The ESCP will be submitted to and approved by council as part of the normal post-permit approval process, prior to commencement of construction.

6.2 Drainage Maintenance

Regular inspection of internal stormwater assets is to be undertaken monthly and following each major storm event. Maintenance of internal stormwater assets to occur a minimum every three (3) months.

All inspection and maintenance of internal stormwater assets is to be undertaken at the cost of the landowner.

7 SUMMARY

This Stormwater Management Plan (SWMP) has investigated the site requirements, and has determined a holistic preliminary design proposal, which comprises of the following:

- Stormwater management objectives in line with State Planning Policy 2017
- Stormwater connection to the existing LPD.
- Control of overland flows directed to existing easement drainage.
- Stormwater quality objectives are met by implementing stormwater treatment devices
- Erosion and Sediment Control Plan requirements.

8 REFERENCES

State Planning Policy 2017

AS3500.3:2018 Australian/New Zealand Standard Plumbing and drainage - Part 3: Stormwater Drainage

Yours Sincerely,

Spencer Group Engineering Pty. Ltd.

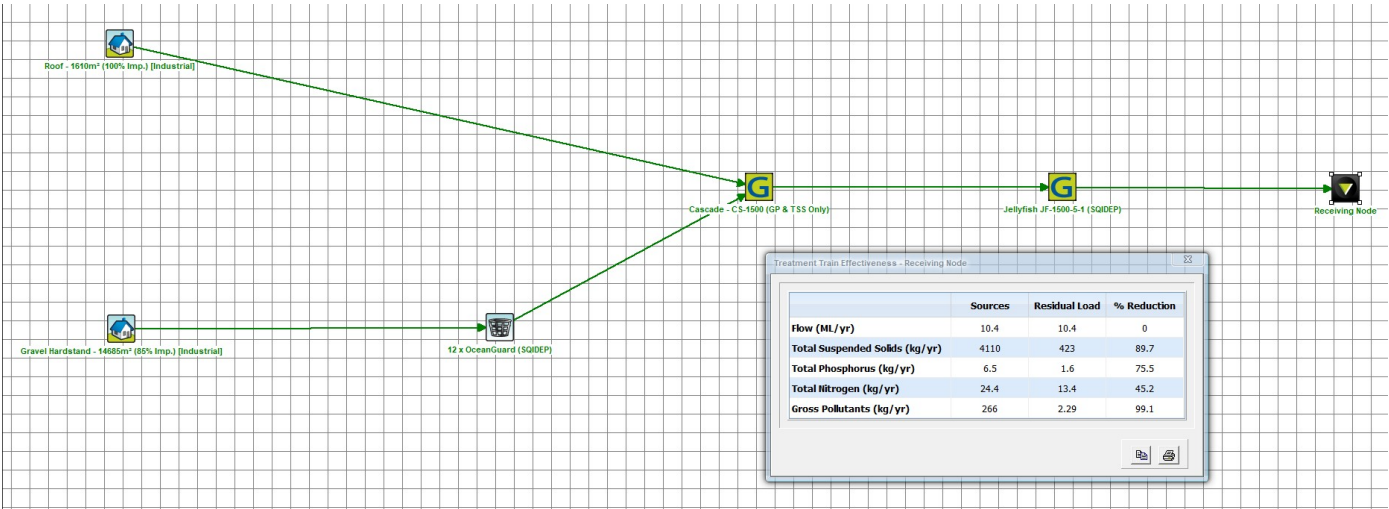


Mr. Raz Danila –

Building practitioner registration no.: RPEQ 26534

SPENCER GROUP ENGINEERING PTY. LTD. ABN 88 618 779 94

MUSIC MODEL LAYOUT AND OUTPUT



Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	10.4	10.4	0
Total Suspended Solids (kg/yr)	4110	423	89.7
Total Phosphorus (kg/yr)	6.5	1.6	75.5
Total Nitrogen (kg/yr)	24.4	13.4	45.2
Gross Pollutants (kg/yr)	266	2.29	99.1

Minor and Major Flows

COMPS. SHEET: PRE-DEVELOPMENT 10% AEP
 PROJECT NAME: 261 SOMERSET RD, GRACEMERE
 Job No.: 6203
 Designed By: J.L

Date 18/03/25



Rational Method using ARR16 terminology

$$Q_{AEP} = C_{AEP} \times {}^{AEP}I_{tc} \times A / 360$$

Where Q_{AEP} = design discharge for annual exceedance probability (AEP) (m3/s)
 C = runoff coefficient for annual exceedance probability, AEP
 ${}^{AEP}I_{tc}$ = rainfall intensity for the event and duration required (mm/h)
 A = catchment area (ha)

$$C'_{10} = 0.1 + 0.0133 ({}^{10}I_1 - 25)$$

Where C'_{10} is the pervious runoff coefficient
 ${}^{10}I_1$ is the 10 % AEP, 1 hour duration rainfall intensity (mm/h)

And,

$$C_{10} = 0.9f + C'_{10}(1-f)$$

Where C_{10} is the 10 % AEP runoff coefficient
 f is the fraction impervious (0.0 to 1.0)

And,

$$C_Y = F_Y C_{10}$$

Where C_Y is an average recurrence interval
 F_Y is a frequency factor Known catchment area, ha

Rational Method Calculation

Known Catchment Area

A = 1.975 ha

Determination of C'10 value

${}^{10\%}I_{1h} = 63.1$ mm/h
 $C'_{10} = 0.607$

Determination of C10 value

$f = 0$
 $C_{10} = 0.607$

Calculation of runoff coefficient, C, for event, AEP

AEP = 10.0%
 $F_{AEP} = 1$
 $C_{AEP} = 0.607$ USE 0.25

Determination of Rainfall intensity at site based on BOM data

$t_c = 5$ min
 ${}^{AEP}I_{tc} = 194$ mm/h

Calculation of design discharge from site (m3/s)

$Q_{AEP} = 0.646$

COMPS. SHEET: PRE-DEVELOPMENT 1% AEP
 PROJECT NAME: 261 SOMERSET RD, GRACEMERE
 Job No.: 6203
 Designed By: J.L

Date 18/03/25



Rational Method using ARR16 terminology

$$Q_{AEP} = C_{AEP} \times {}^{AEP}I_{tc} \times A / 360$$

Where Q_{AEP} = design discharge for annual exceedance probability (AEP) (m3/s)
 C = runoff coefficient for annual exceedance probability, AEP
 ${}^{AEP}I_{tc}$ = rainfall intensity for the event and duration required (mm/h)
 A = catchment area (ha)

$$C'_{10} = 0.1 + 0.0133 ({}^{10}I_1 - 25)$$

Where C'_{10} is the pervious runoff coefficient
 ${}^{10}I_1$ is the 10 % AEP, 1 hour duration rainfall intensity (mm/h)

And,

$$C_{10} = 0.9f + C'_{10}(1-f)$$

Where C_{10} is the 10 % AEP runoff coefficient
 f is the fraction impervious (0.0 to 1.0)

And,

$$C_Y = F_Y C_{10}$$

Where C_Y is an average recurrence interval
 F_Y is a frequency factor Known catchment area, ha

Rational Method Calculation

Known Catchment Area

A = 1.975 ha

Determination of C'10 value

${}^{10\%}I_{1h} = 63.1$ mm/h
 $C'_{10} = 0.607$

Determination of C10 value

$f = 0$
 $C_{10} = 0.607$

Calculation of runoff coefficient, C, for event, AEP

AEP = 1%
 $F_{AEP} = 1.2$
 $C_{AEP} = 0.728$ USE 0.25

Determination of Rainfall intensity at site based on BOM data

$t_c = 5$ min
 ${}^{AEP}I_{tc} = 288$ mm/h

Calculation of design discharge from site (m3/s)

$Q_{AEP} = 1.150$

COMPS. SHEET: **DEVELOPMENT 10% AEP**
PROJECT NAME: 261 SOMERSET RD, GRACEMERE
Job No.: 6203
Designed By: J.L

Date

18/03/25



Rational Method using ARR16 terminology

$$Q_{AEP} = C_{AEP} \times {}^{AEP}I_{tc} \times A / 360$$

Where Q_{AEP} = design discharge for annual exceedance probability (AEP) (m3/s)
 C = runoff coefficient for annual exceedance probability, AEP
 ${}^{AEP}I_{tc}$ = rainfall intensity for the event and duration required (mm/h)
 A = catchment area (ha)

$$C'_{10} = 0.1 + 0.0133 ({}^{10}I_1 - 25)$$

Where C'_{10} is the pervious runoff coefficient
 ${}^{10}I_1$ is the 10 % AEP, 1 hour duration rainfall intensity (mm/h)

And,

$$C_{10} = 0.9f + C'_{10}(1-f)$$

Where C_{10} is the 10 % AEP runoff coefficient
 f is the fraction impervious (0.0 to 1.0)

And,

$$C_Y = F_Y C_{10}$$

Where C_Y is an average recurrence interval
 F_Y is a frequency factor Known catchment area, ha

Rational Method Calculation

Known Catchment Area

$A =$ 1.975 ha

Determination of C'_{10} value

${}^{10\%}I_{1h} =$ 63.1 mm/h

$C'_{10} =$ 0.607

Determination of C_{10} value

$f =$ 0.9

$C_{10} =$ 0.871

Calculation of runoff coefficient, C , for event, AEP

$AEP =$ 10%

$F_{AEP} =$ 1

$C_{AEP} =$ 0.871

Determination of Rainfall intensity at site based on BOM data

$t_C =$ 5 min

${}^{AEP}I_{tc} =$ 194 mm/h

Calculation of design discharge from site (m3/s)

$Q_{AEP} =$ 0.927

COMPS. SHEET: **DEVELOPMENT 1% AEP**
PROJECT NAME: 261 Somerset Rd, Gracemere
Job No.: 6203
Designed By: J.L

Date

18/03/25



Rational Method using ARR16 terminology

$$Q_{AEP} = C_{AEP} \times {}^{AEP}I_{tc} \times A / 360$$

Where Q_{AEP} = design discharge for annual exceedance probability (AEP) (m3/s)
 C = runoff coefficient for annual exceedance probability, AEP
 ${}^{AEP}I_{tc}$ = rainfall intensity for the event and duration required (mm/h)
 A = catchment area (ha)

$$C'_{10} = 0.1 + 0.0133 ({}^{10}I_1 - 25)$$

Where C'_{10} is the pervious runoff coefficient
 ${}^{10}I_1$ is the 10 % AEP, 1 hour duration rainfall intensity (mm/h)

And,

$$C_{10} = 0.9f + C'_{10}(1-f)$$

Where C_{10} is the 10 % AEP runoff coefficient
 f is the fraction impervious (0.0 to 1.0)

And,

$$C_Y = F_Y C_{10}$$

Where C_Y is an average recurrence interval
 F_Y is a frequency factor Known catchment area, ha

Rational Method Calculation

Known Catchment Area

$A =$ 1.975 ha

Determination of C'_{10} value

${}^{10\%}I_{1h} =$ 63.1 mm/h

$C'_{10} =$ 0.607

Determination of C_{10} value

$f =$ 0.9

$C_{10} =$ 0.871

Calculation of runoff coefficient, C , for event, AEP

$AEP =$ 1%

$F_{AEP} =$ 1.2

$C_{AEP} =$ 1.045

Determination of Rainfall intensity at site based on BOM data

$t_C =$ 5 min

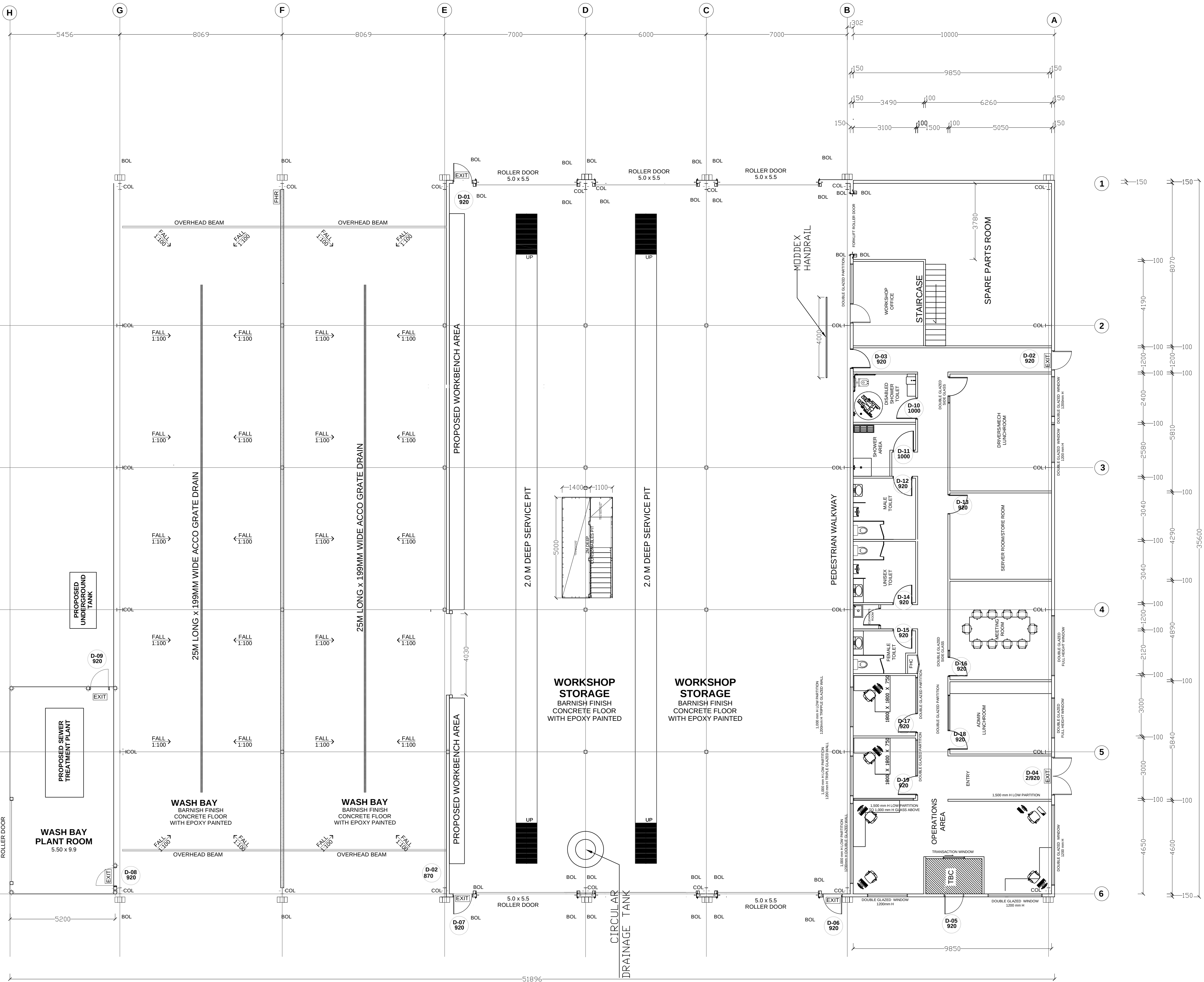
${}^{AEP}I_{tc} =$ 288 mm/h

Calculation of design discharge from site (m3/s)

$Q_{AEP} =$ 1.651

2 PROPOSED FLOOR PLAN

1:100



GENERAL NOTES

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SPECIAL ATTENTION IS TO BE PAID TO THE RELEVANT BUILDING CLASSIFICATIONS WHICH THIS PROJECT AND FINAL BUILDING USE NOW RELATES TO, WITHIN THE NCC. (FORMALLY BCA)

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ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

1 May 2025

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/78-2024

Dated: 30 September 2024

REV	DATE	DESCRIPTION
REVISIONS		

BOOTH

ISSUED FOR: PRELIMINARY PLANS

BUILDER:
APPLIED CONSTRUCTIONS PTY LTD
L1 / 250 BAY STREET PORT MELBOURNE
VICTORIA 3207

CLIENT:

PROJECT:
BOOTH TRANSPORT - GRACEMERE
CRN SOMERSET RD / ENTERPRISE DRV
GRACEMERE QLD.

DRAWING TITLE:
FLOOR PLAN

DRAWN BY: CHECKED BY: ENGINEER: CLIENT REP:

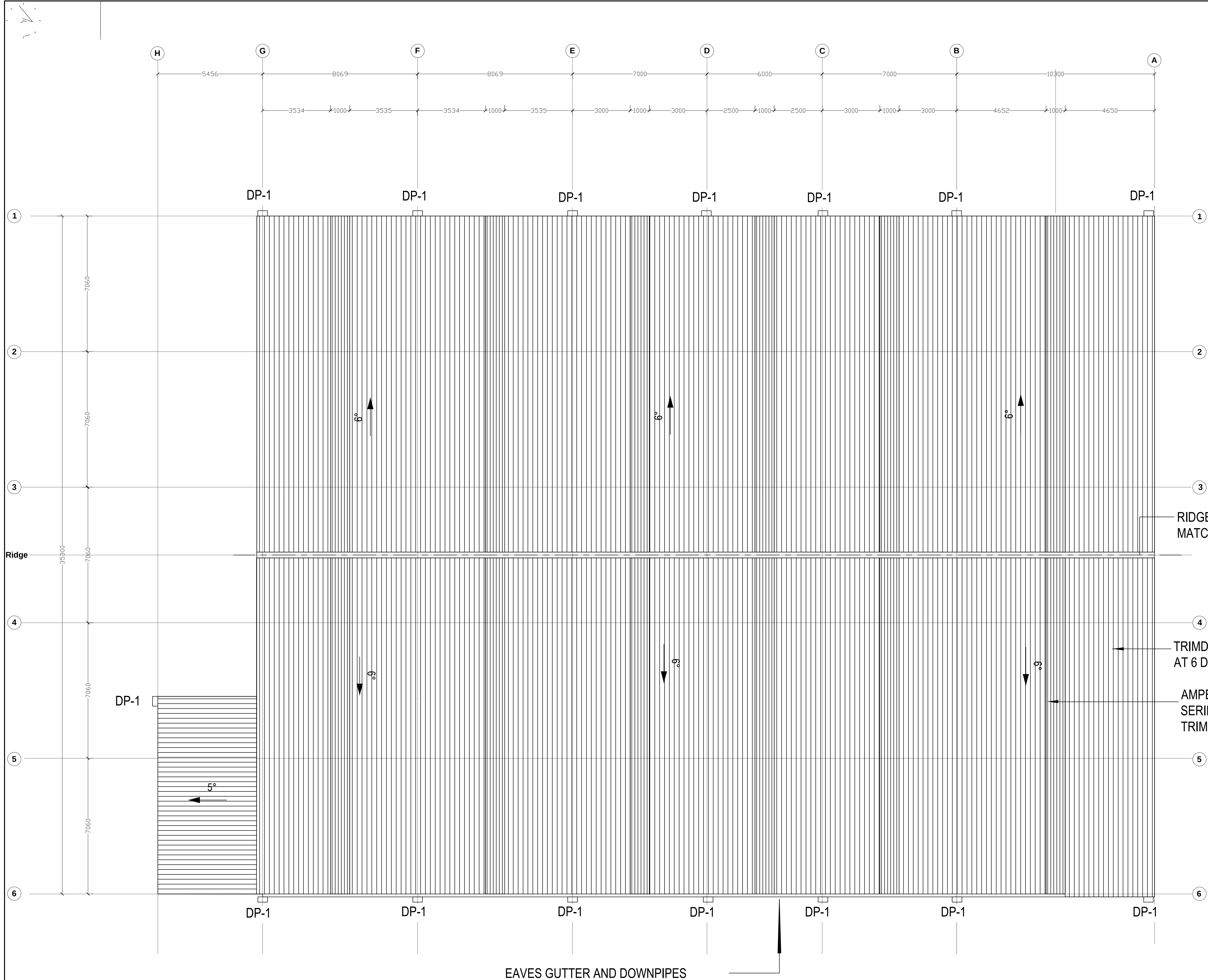
PROJECT No.

DWG NO.

SCALE:
As indicated @ A1

A-100

REV



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Dated: 30 September 2024

RIDGE CAPPING TO
MATCH ROOF SHEETING

TRIMDEK COLORBOND ROOF
AT 6 DEGREE PITCH

AMPELITE FIBREGLASS 3050
SERIES SKYLIGHTS TO MATCH
TRIMDEK PROFILE

REV	DATE	DESCRIPTION



ISSUED FOR:
PRELIMINARY PLANS

BUILDER:
APPLIED CONSTRUCTIONS PTY LTD
L1 / 250 BAY STREET PORT MELBOURNE
VICTORIA 3207

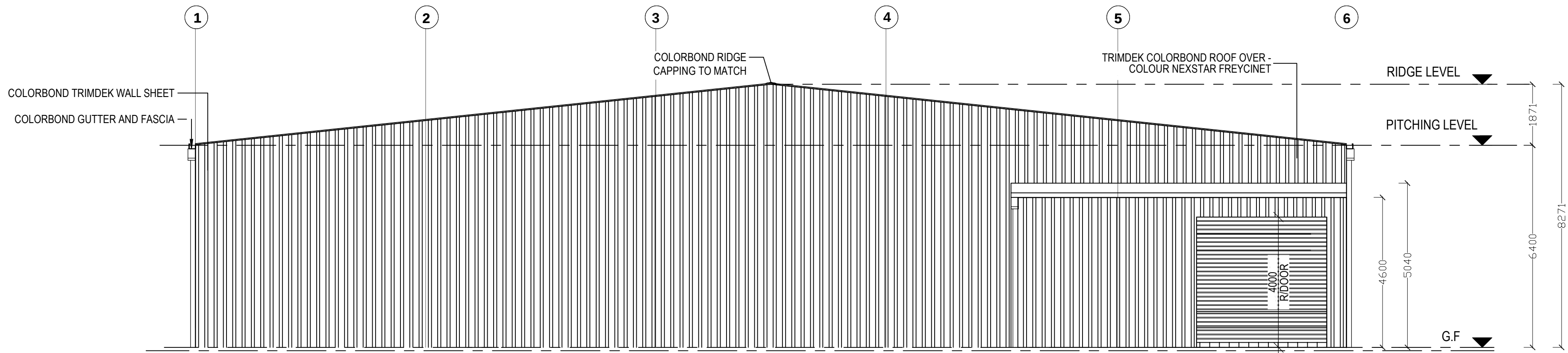
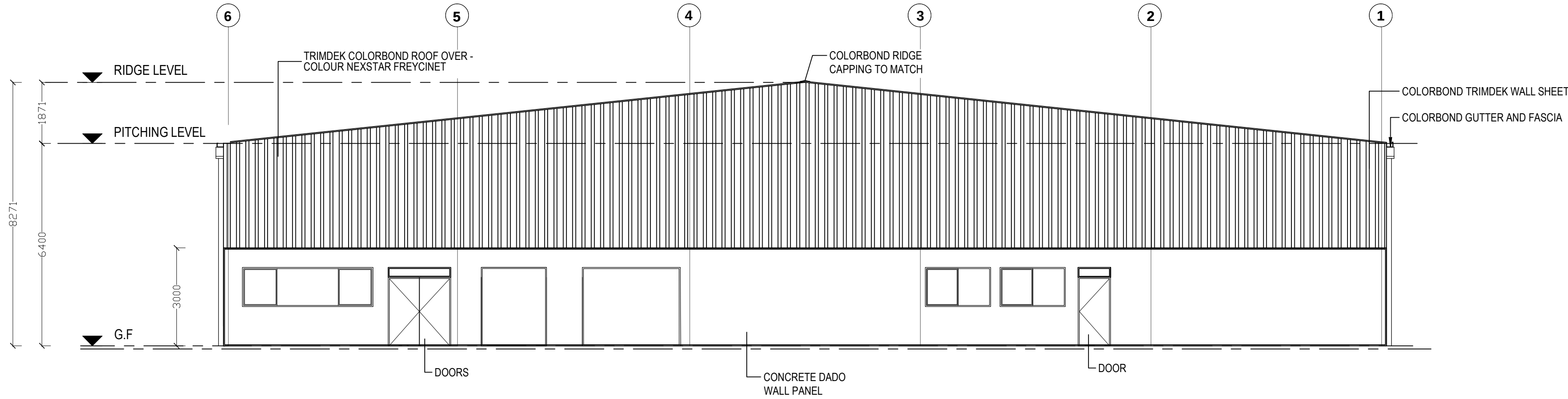
CLIENT:

PROJECT:
BOOTH TRANSPORT - GRACEMERE
CRN SOMERSET RD / ENTERPRISE DRV
GRACEMERE QLD.

DRAWING TITLE:
ROOF PLAN

DRAWN BY: CHECKED BY: ENGINEER: CLIENT REP:

PROJECT NO. DWG NO. REV
SCALE: As indicated @ A1 **A-103**



ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

1 May 2025

DATE

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Development Permit No.: D/78-2024

Dated: 30 September 2024

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REV	DATE	DESCRIPTION
REVISIONS		

BOOTH

ISSUED FOR:
PRELIMINARY PLANS

BUILDER:
APPLIED CONSTRUCTIONS PTY LTD
L1 / 250 BAY STREET PORT MELBOURNE
VICTORIA 3207

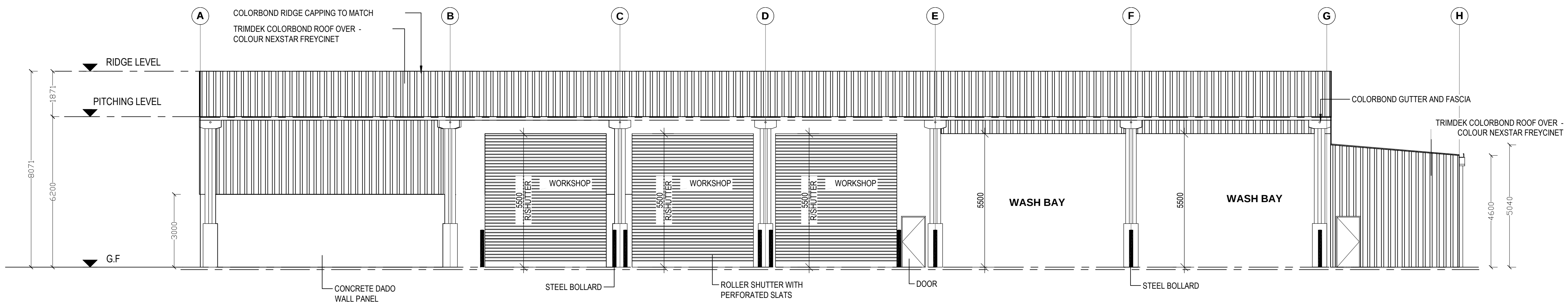
CLIENT:

PROJECT:
BOOTH TRANSPORT - GRACEMERE
CRN SOMERSET RD / ENTERPRISE DRV
GRACEMERE QLD.

DRAWING TITLE:
ELEVATIONS

DRAWN BY:	CHECKED BY:	ENGINEER:	CLIENT REP:
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PROJECT No.	DWG NO.	REV
SCALE: As indicated @ A1	A-101	



REV	DATE	DESCRIPTION	
REVISIONS			



ISSUED FOR: **PRELIMINARY PLANS**

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L1 / 250 BAY STREET PORT MELBOURNE
VICTORIA 3207

CLIENT:

PROJECT:
BOOTH TRANSPORT - GRACEMERE
CRN SOMERSET RD / ENTERPRISE DRV
GRACEMERE QLD.

DRAWING TITLE:
ELEVATIONS

DRAWN BY:	CHECKED BY:	ENGINEER:	CLIENT REP:
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PROJECT No.	DWG NO.	REV
SCALE: As indicated @ A1	A-102	

1 May 2025

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/78-2024

Dated: 30 September 2024