WA MOORE & ASSOCIATES
CONSULTING CIVIL & STRUCTURAL ENGINEERS

PROJECT

Project: Proposed unit development at 28 Redbank Road, Stratford

Client: [redacted] Job No: 24101

AUSTRALIAN STANDARDS

AS 3500 Part 3 - 2018 - Stormwater Drainage

NCC

National Construction Code 2022 Volume 3: Section A, Vic Section F - Stormwater Drainage Systems

AEP

Design AEP = 20%

DESIGNED [redacted] *B.E. (Civil)(Hons) PE-0002402 (Vic) CC4987C (Tas)*

DATE: January 2025

APPROVED DEVELOPMENT PLAN
PLANNING AND ENVIRONMENT ACT 1987
WELLINGTON PLANNING SCHEME
Clause 43.04 Schedule 1

DP NAME: DPO1 Development Plan - 28 Redbank Road, Stratford

DATE: 28 July 2025
SIGNED: Caragh Button
OFFICER TITLE: Strategic Planner

(6 pages)

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CLIENT : [redacted] JOB NUMBER : 24101

PROJECT : UNIT DEVELOPMENT - 28 REDBANK RD. PAGE NUMBER : 1.

i) DETERMINE ALLOWABLE DISCHARGE

TOTAL SITE AREA = 4348 m^2

FROM TABLE 10 OF IDM

FOR LDR2 LOTS > 4000 m^2 C = 0.35 AEP = 20%

FOR SITE WITH FALLS 0.2% FALL

ASSUME POOR GRASS SURFACE n = 0.035.

LENGTH OF FLOW = 70 m

$$t = (107 \times 0.035 \times 70^{0.333}) / 0.2^{0.2} = 21.2 \text{ mins} \quad \text{say } 20 \text{ mins}$$

$$\therefore I_{20}^{20\%} = 49.4 \text{ mm/hr}$$

$$\therefore Q_{max} = \frac{(0.35 \times 4348) \times 49.4}{3600} = 20.88 \text{ l/s}$$

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POST DEVELOPMENT FLOW.

TOTAL ROOF AREA = 6 × 142.2 + 8 × 113.2 + 106.3 + 2 × 95.7
= 2056.5 m^2.

TOTAL EXTERNAL PAVING = 914 m^2

IMPERVIOUS AREA = 1377.5 m^2

USE t_c = 7 min

FOR AEP = 20%

$I_7^{20\%}$ = 84.3 mm/hr

AREA	A	C	CA
ROOF	2056.5	1.0	2056.5
PAVING	914	0.9	822.6
IMPERVIOUS	1377.5	0.173	238.30

ΣCA = 3117.4

$$Q_{(post)} = \frac{3117.4 \times 84.3}{3600} = 72.99 \text{ l/s}$$

FOR 300 ϕ UPVC AT 1 IN 300

Q = 80 l/s
V = 1.1 m/s.

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CHECK POTENTIAL SITE STORAGE

* REFER TO EXCEL SPREADSHEET.

LIMIT FLOW TO PRE DEVELOPMENT FLOW TO 20.88 l/s.

FROM EXCEL SPREADSHEET

TOTAL SITE STORAGE (REQ) TO ROOFS = 28012 l

STORAGE REQUIRED TO ROOF

FOR 142.2 m² ROOF - STORAGE REQ = 1936 l

113.2 m² ROOF - STORAGE REQ = 1541 l

106.3 m² ROOF - STORAGE REQ = 1447 l

95.7 m² ROOF - STORAGE REQ = 1303 l

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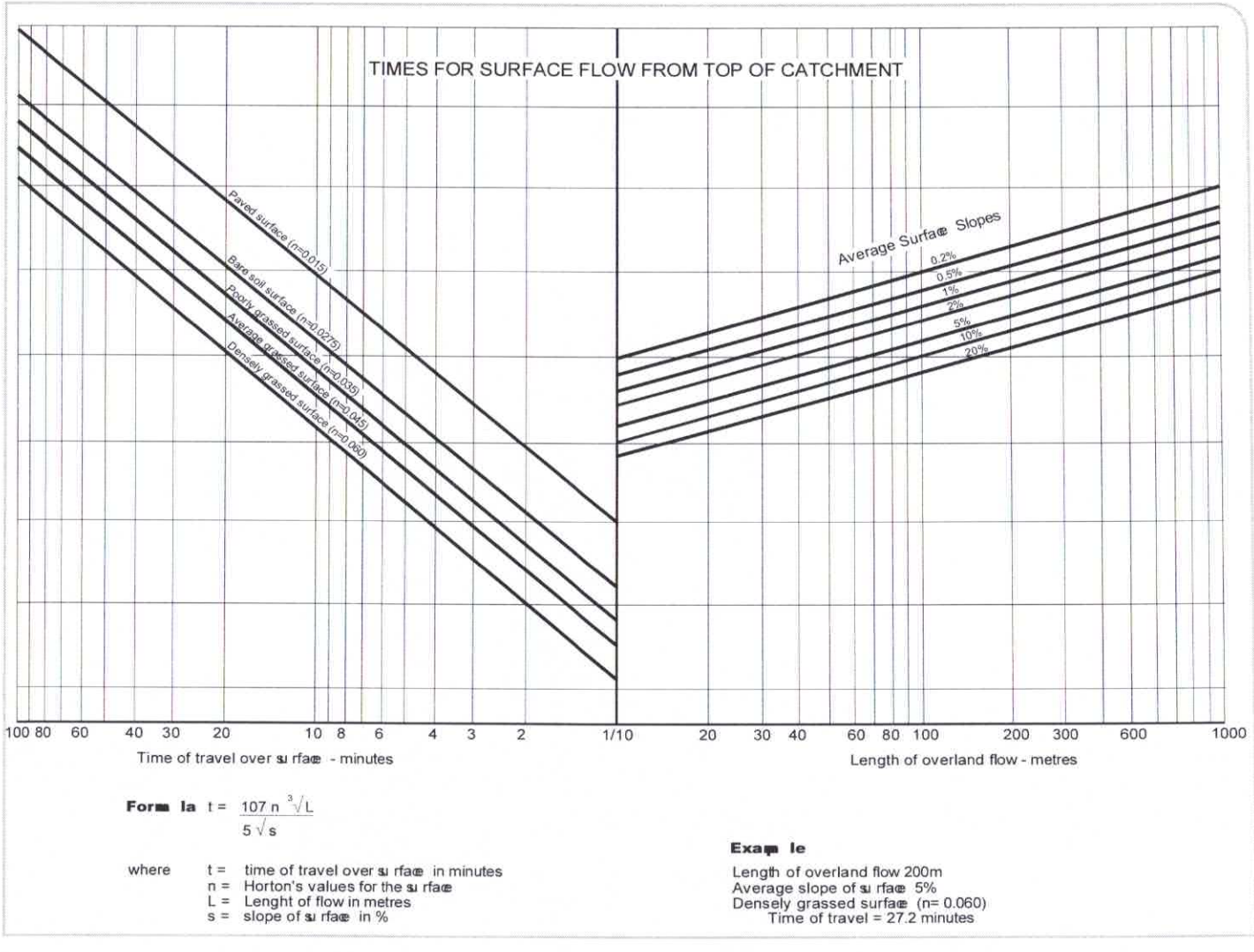
Figure 4.2: Travel time for overland flow



Interception structure flow

Travel times along interception structures (contour and diversion banks) are calculated by dividing the length of flow by the design velocity of the structure. Since it is recommended that designs should be based on average conditions

Storage Tank Site Detention Design

Job No.	24101	Site Area =	4348 sqm
Project	28 Redbank Road, Stratford	Pre runnoff coefficent =	0.35

Pre-Development flows	20.88	l/sec.

ARI	5	years
m	0.95	
10I60	30.5	mm/hr
Cp	0.164	

Duration	Design Year ARI	
5 mins	93.2	mm/hr
6 mins	87.65	mm/hr
10 mins	71	mm/hr
20 mins	49.4	mm/hr
30 mins	38.7	mm/hr
60 mins	24.7	mm/hr
120 mins	15.7	mm/hr

Contributing areas	A	C	CA	
Other			0	
Roof	2056.5	1	2056.5	
Impervious	914	0.9	822.6	
Pervious	1377.5	0.164	225.93	
		ΣCA	**3105.03**	**m^2**

Critical		
ARI	**58.04**	**mm/hr**
YIt	**16**	**mins**
Q	**50.060**	**l/sec.**
Vol. (req.)(max)	**28012.85**	**litres**

Allowable Runoff		
Q (roof)	**33.16**	**L/sec.**
Q (pervious + impervious)	**16.90**	**L/sec.**
Q (allowable roof runoff)	**3.98**	**L/sec.**

Modelling of a 1% AEP flood event and treatment for the development will be carried out at planning permit stage.