

DuraPanel Delta 35 PS1

Rev: 2.0

Issue Date: 06/08/2025

DATE: 04/09/2025
JOB REF: 25072061-07
REVISION: C
CHECKED & APPROVED BY BREVITY LTD.
MATT BISHOP, CMENGNZ, CPENG
#243276

Brevity

Application

Engineering specifications & installation details for compliance with **NZBC B1, F4 & F9**

Barrier specification selection guide

Clause F4 'Safety from Falling' of the New Zealand Building Code requires building areas to be constructed to reduce the likelihood of accidental falls. Specifically, barriers are required where people could fall one metre or more.

Barriers need to be designed and constructed so that they are capable of providing the strength and stiffness necessary for the proposed location and occupancy type of the property which they serve. Evidence of the suitability of the barrier system for its proposed use, needs to be provided when making a

building consent application. This producer statement provides the assurance that Boundaryline product specifications and installation details have been pre-approved by Chartered Professional Engineers and comply with all NZBC B1, F4, F9 requirements.

It is important that your selected barrier design is appropriate to the specific installation location and intended use. Use this guide to determine your specific barrier design and installation details.

Barrier loading selection

Where a barrier serves multiple occupancies, default to the highest loading requirement from all location scenarios. For more information, please refer to www.buildin.govt.nz

Occupancy type	Specific use	Horizontal design loading	Minimum overall barrier height	Installation details (drawing number)
A - Domestic	Pool fence only	0.33kN/m	1.2m	All fixing details are applicable
A - Domestic	All areas serving one dwelling but excluding balconies, decks & terraces, e.g., walkways, stairs & landings, & retaining walls not adjacent to a deck or terrace	0.35kN/m	1.0m 0.9m for stairs only	DPA653501 DPA653502 DPA653503
A - Domestic	External balcony, decks, terraces, retaining walls & walkways in a multi-dwelling application, including open public spaces	0.75kN/m	1.0m single dwelling 1.1m multi dwelling	Delta 35 is not suitable for this application, please use Titan Panel instead , contact us for more details
B & E - Offices & work areas including storage	Access walkways, stairs & landings	0.35kN/m	1.1m	DPA653501 DPA653502 DPA653503
B & E - Offices & work areas including storage	Areas including balconies, decks & terraces not susceptible to overcrowding	0.75kN/m	1.1m	Delta 35 is not suitable for this application, please use Titan Panel instead , contact us for more details
C - Areas without obstacles for moving people & where people might congregate	Areas including walkways, stairs & landings, balconies, decks & terraces not susceptible to overcrowding, including parks and reserves	0.75kN/m	1.1m	Delta 35 is not suitable for this application, please use Titan Panel instead , contact us for more details

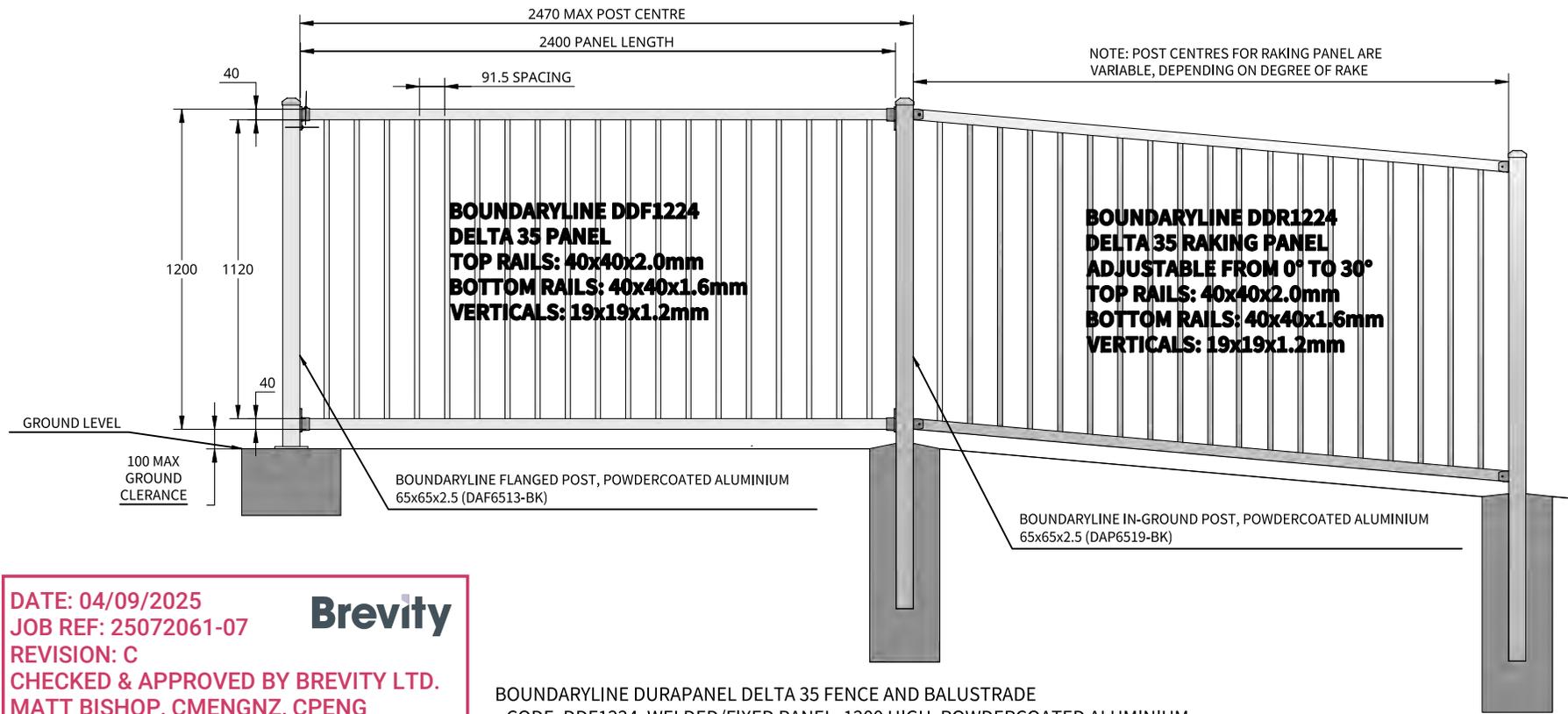
Post fixing details

The following pages detail common and standardised methods for fixing the barrier to various structures. First determine the barrier loading using the table above and reference the correct drawing(s) for that particular design. If a variant to these standard installation methods is required, please contact Boundaryline for further information about custom design and engineering services

Fixing types

There are four corrosion zones in New Zealand that relate to the severity of exposure to wind-driven salt. To determine the corrosion zone for your installation location, please check maps in Figure 4.2 in NZS3604:201 (or online search 'BRANZ Maps'). Use the table below to determine the appropriate fixing types required for your particular location.

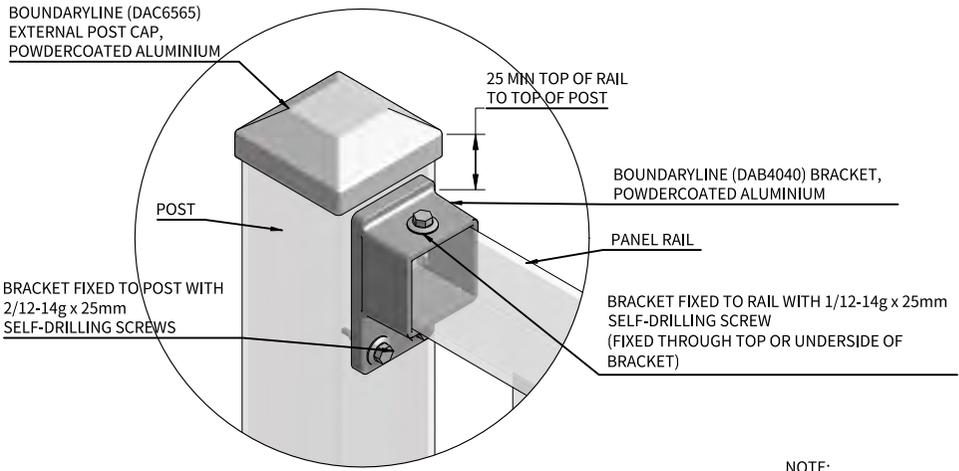
Zone	Risk level & location	Fixing type
Zone B	Low risk	Hot dip galvanised
Zone C	Medium risk	Hot dip galvanised
Zone D	High risk, all offshore locations within 500m of coastline, including harbours, locations within 100m of tidal estuaries & sheltered inlets	316 stainless steel
Zone E	Very high risk, locations described in Zone D, beachfronts & seaside locations	316 stainless steel



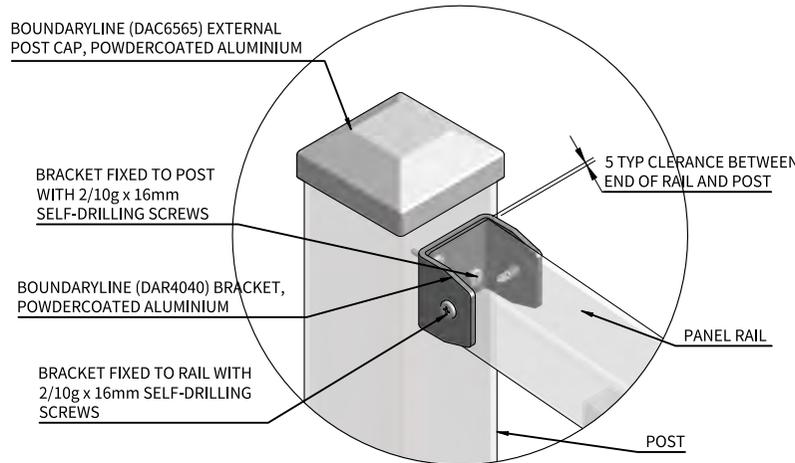
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BOUNDARYLINE DURAPANEL DELTA 35 FENCE AND BALUSTRADE
 - CODE: DDF1224, WELDED/FIXED PANEL, 1200 HIGH, POWDERCOATED ALUMINIUM
 - CODE: DDR1224, ADJUSTABLE/RAKING PANEL, 1200 HIGH, POWDERCOATED ALUMINIUM



STANDARD PANEL BRACKET FIXING DETAIL
SCALE: 1:3.5



ADJUSTABLE PANEL BRACKET FIXING DETAIL
SCALE: 1:3.5

NOTE:
 WHEN FIXING SCREWS USE LOW TORQUE SETTING ON DRILL TO ENSURE THREAD IS NOT STRIPPED. USE EXTRA CAUTION WHEN FIXING INTO ALUMINIUM. DO NOT USE AN IMPACT DRIVER AS THIS WILL VOID BOUNDARYLINE WARRANTY

General Notes
 1. All dimensions are in millimetres.
 2. Drawings are not necessarily to scale
 3. Check www.boundaryline.co.nz to ensure you have the most recent edition of this publication.

Fixing Notes
 1. All coach screws and bolts to be pre-drilled according to NZS 3603:1997
 2. When fixing self-drilling screws, ensure low torque setting to avoid thread stripping. A battery drill is recommended for self-drilling screws - DO NOT use an impact driver.

Corrosion Zones
 There are four corrosion zones in New Zealand that relate to the severity of exposure to wind-driven salt. See maps in figure 4.2 of NZS 3604:2011 (or online search 'BRANZ Maps') to determine the corrosion zone of the installation location and appropriate fixing option required.

Zone	Risk Level & Location	Fixing Type
Zone B	Low risk	Hot-dip Galvanised
Zone C	Medium risk	Hot-dip Galvanised
Zone D	High risk, all offshore islands, locations within 500m of coastline including harbours, locations within 100m of tidal estuaries and sheltered inlets.	316 Stainless Steel
Zone E	Very high risk, locations described in Zone D, beachfronts and seaside locations.	316 Stainless Steel

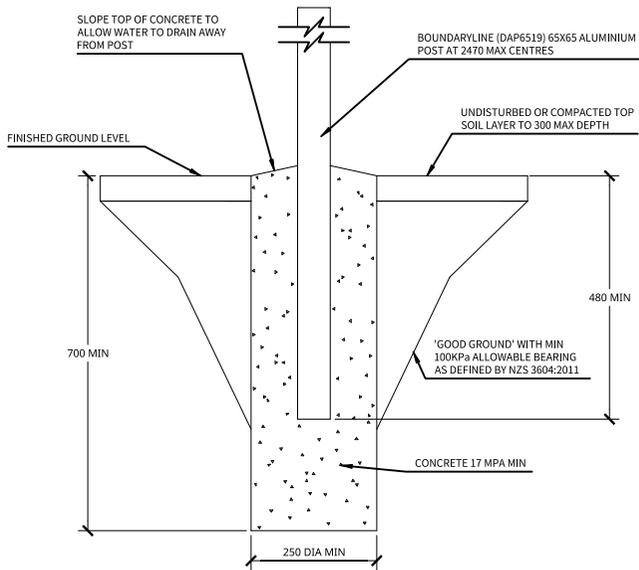
Existing Support Structure
 1. Supporting structures as not covered by these drawings unless specific requirements are detailed.
 2. Supporting structures are by others and must comply with the New Zealand Building Code.
 3. If unsure of existing structure compliance, seek professional advice.

Boundaryline
 Boundaryline Ltd.
 60 Basstian Street, Invercargill
 Phone: 0800 003 006
 Email: enquiries@boundaryline.co.nz
 Website: www.boundaryline.co.nz
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TITLE
BOUNDARYLINE
DURAPANEL DELTA 35
CODE: DDF1224
AND DDR1224
1200 HIGH

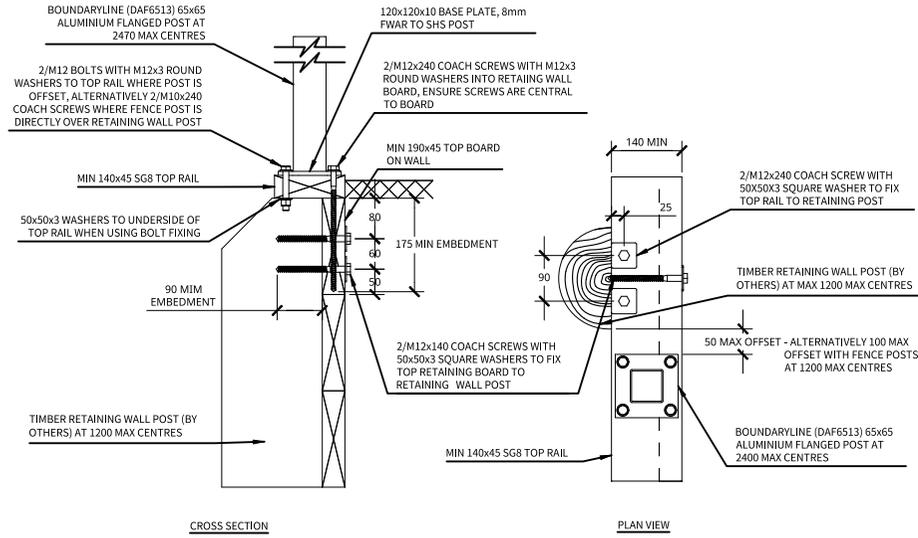
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REV.	DATE ISSUED	SHEET
A	06/08/2025	3



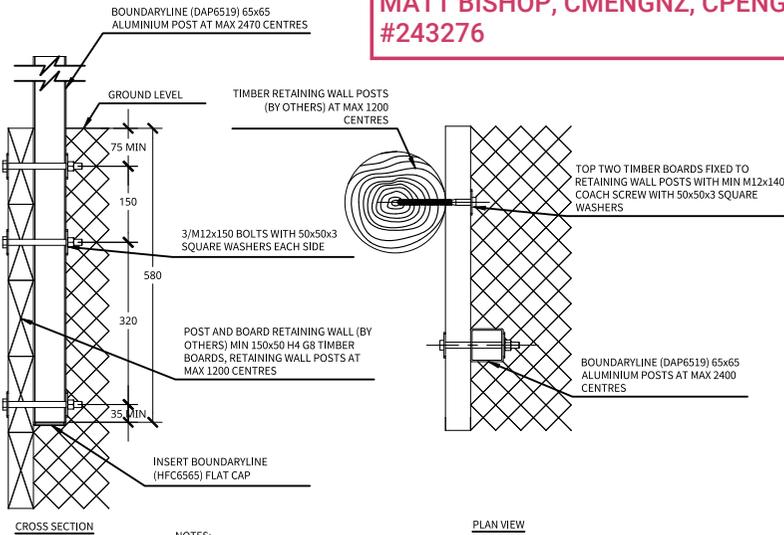
DRAWING NO: ICA653524
 APPLICATION: CONCRETE IN-GROUND
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES

DATE: 04/09/2025
JOB REF: 25072061-07
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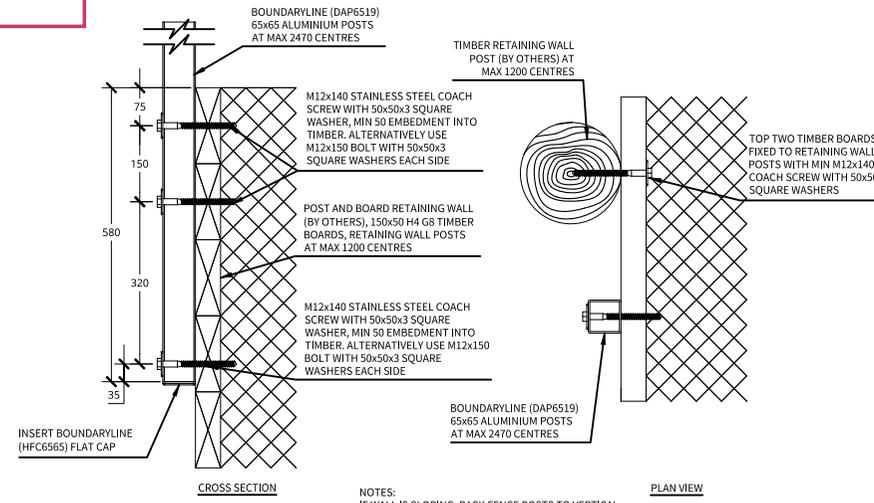


DRAWING NO: TRA653524
 APPLICATION: TOP-FIX TO TIMBER RETAINING WALL
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES



NOTES:
 IF WALL IS SLOPING, PACK FENCE POSTS TO VERTICAL AND ADJUST BOLT LENGTH TO SUIT.
 ALL INGROUND FIXINGS TO BE STAINLESS STEEL OR GALVANISED WITH DPM PROTECTION

DRAWING NO: SRA653524-A
 APPLICATION: SIDE-FIX TO TIMBER RETAINING WALL (POST ON INSIDE OF RETAINING WALL)
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES



NOTES:
 IF WALL IS SLOPING, PACK FENCE POSTS TO VERTICAL AND ADJUST COACH SCREW LENGTH TO SUIT, ALL INGROUND FIXINGS TO BE STAINLESS STEEL

DRAWING NO: SRA653524-B
 APPLICATION: SIDE-FIX TO TIMBER RETAINING WALL (POST ON OUTSIDE OF RETAINING WALL)
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES

- General Notes**
- All dimensions are in millimetres.
 - Drawings are not necessarily to scale
 - Check www.boundaryline.co.nz to ensure you have the most recent edition of this publication.

- Fixing Notes**
- All coach screws and bolts to be pre-drilled according to NZS 3603:1993
 - When fixing self-drilling screws, ensure low torque setting to avoid thread stripping. A battery drill is recommended for self-drilling screws - DO NOT use an impact driver.

Corrosion Zones
 There are four corrosion zones in New Zealand that relate to the severity of exposure to wind-driven salt. See maps in figure 4.2 of NZS 3604:2011 (or online search 'BRANZ Maps') to determine the corrosion zone of the installation location and appropriate fixing option required.

Zone	Risk Level & Location	Fixing Type
Zone B	Low risk	Hot-dip Galvanised
Zone C	Medium risk	Hot-dip Galvanised
Zone D	High risk, all offshore islands, locations within 500m of coastline including harbours, locations within 100m of tidal estuaries and sheltered inlets.	316 Stainless Steel
Zone E	Very high risk, locations described in Zone D, beachfronts and seaside locations.	316 Stainless Steel

- Existing Support Structure**
- All supporting structure by others and must comply with the New Zealand Building Code
 - If unsure of existing structure compliance, seek professional advice.

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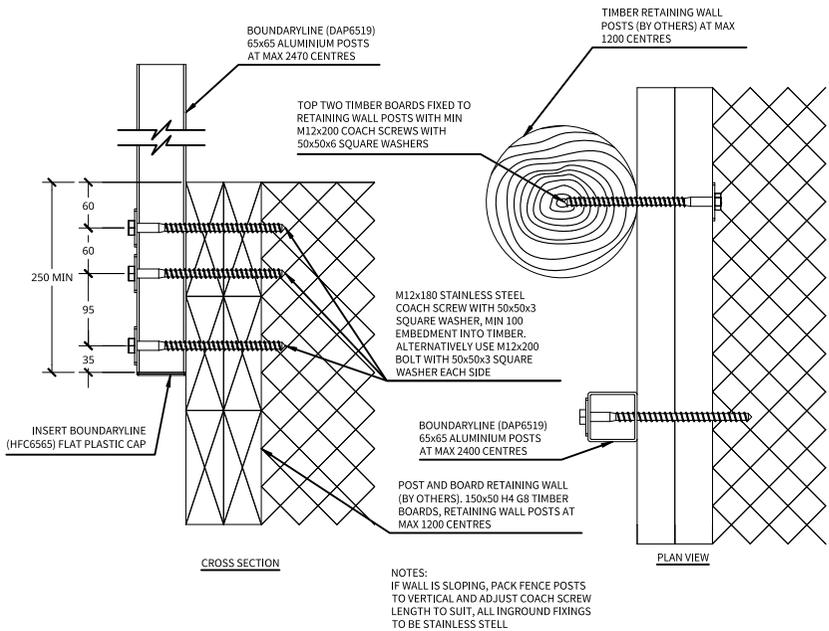
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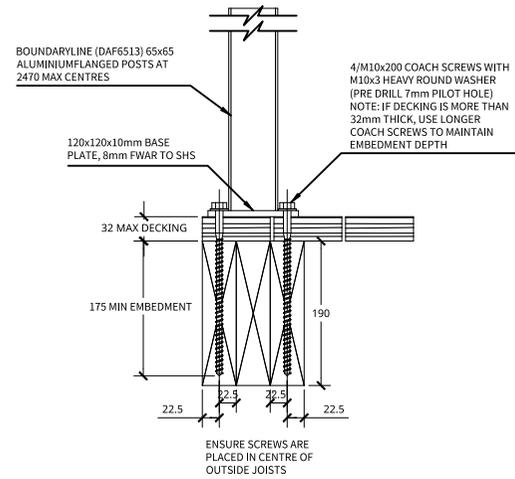
TITLE
BOUNDARYLINE DURAPANEL BARRIER FIXING DESIGNS FOR:
 - CONCRETE IN-GROUND
 - TIMBER RETAINING WALL

FOR 0.35kN/m HORIZONTAL LOADING
 (REFER TO BARRIER SPECIFICATION GUIDE FOR RELEVANT OCCUPANCY TYPES)

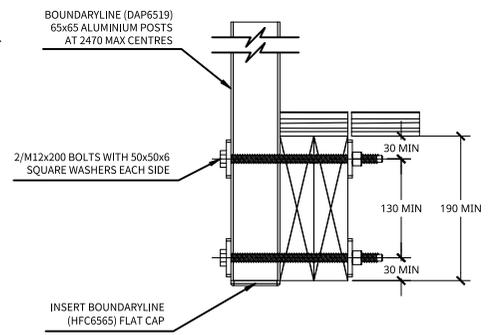
SCALE	SIZE	DRAWING NO
1:15	A4	DPA653501
REV.	DATE ISSUED	SHEET
A	06/08/2025	4



DRAWING NO: SRB653524-B
 APPLICATION: SIDE-FIX TO TIMBER RETAINING WALL - DOUBLE BOARD (POST ON OUTSIDE OF RETAINING WALL)
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES

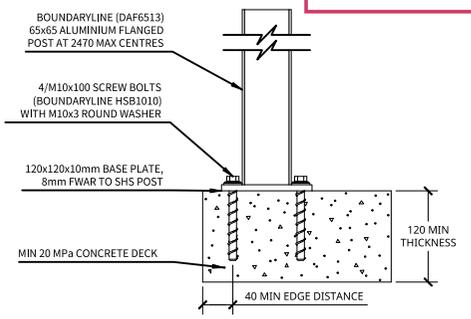


DRAWING NO: TTA653524
 APPLICATION: TOP-FIX TO TIMBER DECK
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES

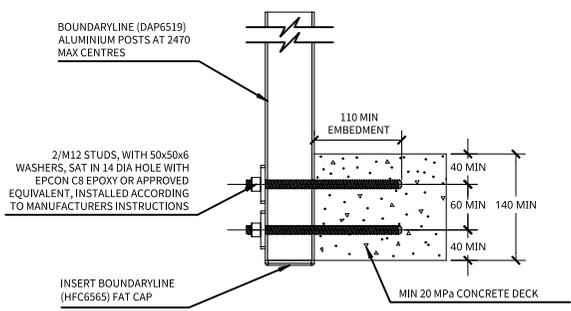


DRAWING NO: STA653524
 APPLICATION: SIDE-FIX TO TIMBER DECK
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES

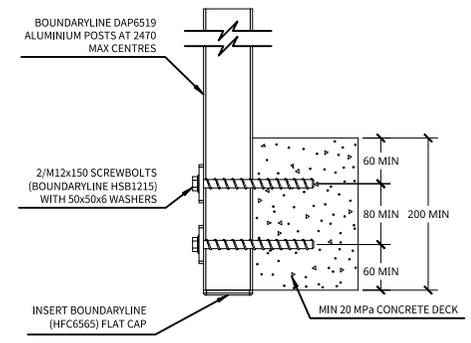
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#243276



DRAWING NO: TDA653524
 APPLICATION: TOP-FIX TO CONCRETE DECK
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES



DRAWING NO: SDA653524-A
 APPLICATION: SIDE-FIX TO CONCRETE DECK (140 min THICKNESS)
 LOADING: 0.35kN/m AT MAX 2400 POST CENTRES



DRAWING NO: SDA653524-B
 APPLICATION: SIDE-FIX TO CONCRETE DECK (200 min THICKNESS)
 LOADING: 0.35kN/m AT MAX 2470 POST CENTRES

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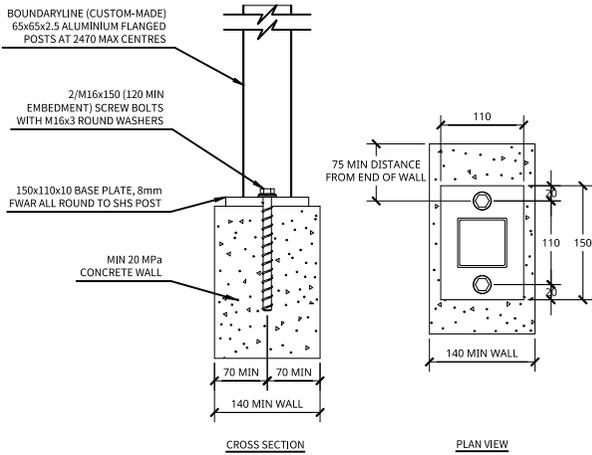


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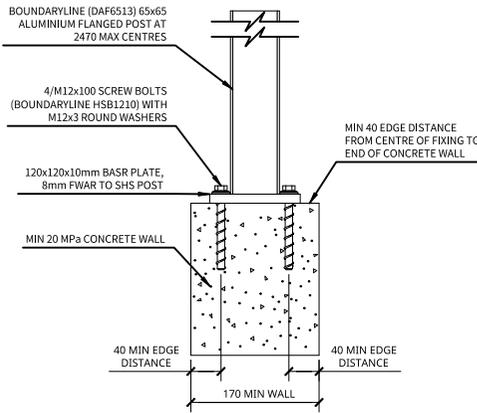
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TITLE:
BOUNDARYLINE DURAPANEL BARRIER FIXING DESIGNS FOR:
- TIMBER DECK
- CONCRETE DECK
FOR 0.35kN/m HORIZONTAL LOADING
(REFER TO BARRIER SPECIFICATION GUIDE FOR RELEVANT OCCUPANCY TYPES)

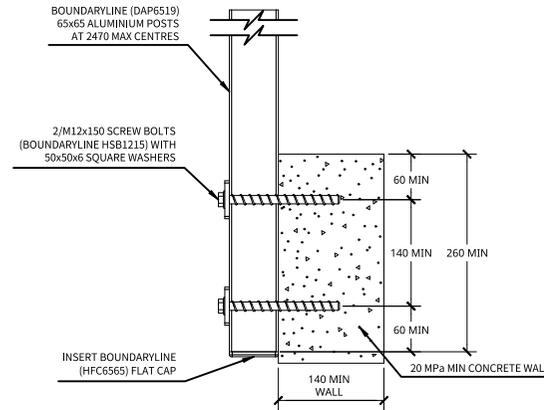
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1:10	A4	DPA653502
REV.	DATE ISSUED	SHEET
A	06/08/2025	5



DRAWING NO: TWA653524-A
APPLICATION: TOP-FIX TO CONCRETE WALL
LOADING: 0.35kN/m AT MAX 2470 POST CENTRE



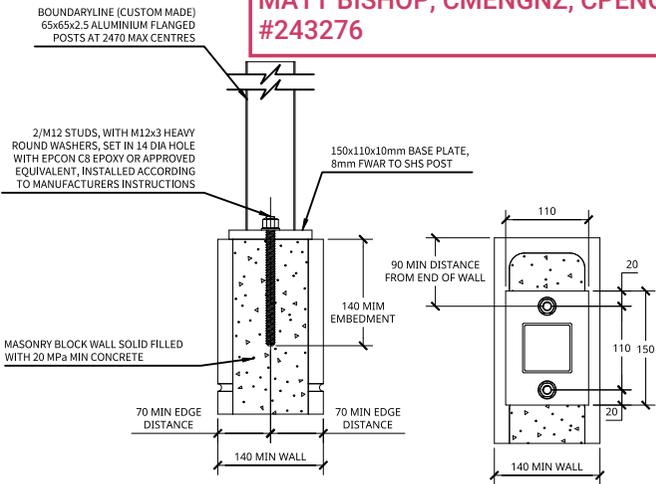
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APPLICATION: TOP-FIX TO CONCRETE WALL
LOADING: 0.35kN/m AT MAX 2470 POST CENTRE



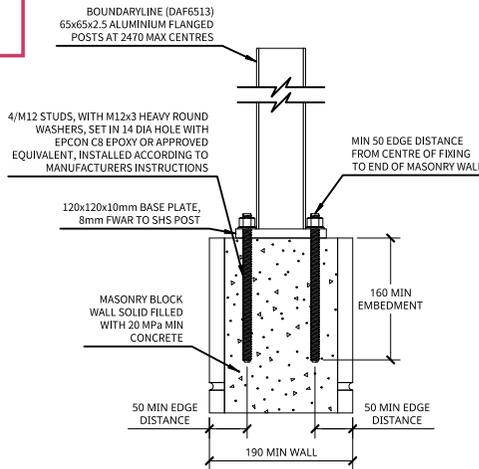
DRAWING NO: SWA653524
APPLICATION: SIDE-FIX TO CONCRETE WALL
LOADING: 0.35kN/m AT MAX 2470 POST CENTRE

DATE: 04/09/2025
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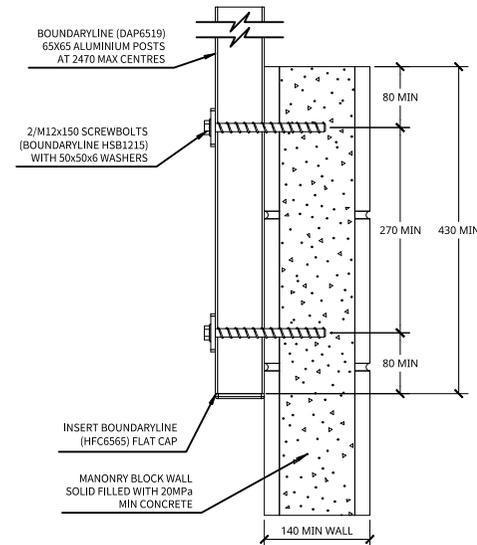
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DRAWING NO: TMA653524-A
APPLICATION: TOP-FIX TO MASONRY WALL (15 SERIES)
LOADING: 0.35kN/m AT MAX 2470 POST CENTRE



DRAWING NO: TMA653524-B
APPLICATION: TOP-FIX TO MASONRY WALL (20 SERIES)
LOADING: 0.35kN/m AT MAX 2470 POST CENTRE



DRAWING NO: SMA653524
APPLICATION: SIDE-FIX TO MASONRY WALL (15 SERIES)
LOADING: 0.35kN/m AT MAX 2470 POST CENTRE

General Notes

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Fixing Notes

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Existing Support Structure

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TITLE
BOUNDARYLINE DURAPANEL BARRIER
FIXING DESIGNS FOR:
- CONCRETE WALL
- MASONRY WALL

FOR 0.35kN/m
HORIZONTAL LOADING

(REFER TO BARRIER SPECIFICATION GUIDE FOR RELEVANT OCCUPANCY TYPES)

SCALE	SIZE	DRAWING NO
1:10	A4	DPA653503
REV.	DATE ISSUED	SHEET
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DATE: 04/09/2025
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03 211 5145

0800 003 006
enquiries@boundaryline.co.nz
boundaryline.co.nz



NZBC Clause B1 Structure - Design

Design Review of Aluminum Balustrades

Project number: 25072061-07C

Client name: Boundaryline Limited

Date: 04/09/2025

Expiry Date: 04/09/2026

Location: Various Locations

Level 9, 4 Williamson Avenue, Ponsonby
Cider Building, Auckland 1021, New Zealand

p: +64 9 216 7104

e: info@teambrevity.com



PRODUCER STATEMENT – PS1 DESIGN

BUILDING CODE CLAUSE(S): B1, F4 & F9 | **JOB NUMBER:** 25072061-07C |

ISSUED BY: Brevity Ltd |
(Engineering Design Firm)

TO: Boundaryline Limited |
(Owner/Developer)

TO BE SUPPLIED TO: - |
(Building Consent Authority)

IN RESPECT OF: Brevity Report # 25072061-07C Design of Boundaryline DuraPanel Delta |
(Description of Building Work)

AT: Various Location |
(Address, Town/City)

LEGAL DESCRIPTION: Lot no. - | DP no. - | N/A

We have been engaged by the owner/developer referred to above to provide (Extent of Engagement): Design Consultancy for Structural and Seismic Design of Boundaryline DuraPanel Delta in respect of the requirements of the Clause(s) of the Building Code specified above for Part only, as specified in the Schedule, of the proposed building work.

The design carried out by us has been prepared in accordance with:

- Compliance documents issued by the Ministry of Business, Innovation & Employment (Verification method/acceptable solution) B1/VM1 - F4/AS1 - F9/AS1 and/or;
- Alternative solution as per the attached Schedule.

The proposed building work covered by this producer statement is described on the drawings specified in the Schedule, together with the specification, and other documents set out in the Schedule.

On behalf of the Engineering Design Firm, and subject to:

- Site verification of the following design assumptions: refer to attached report.
- All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that:

- the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the Schedule, will comply with the relevant provisions of the Building Code and that;
- the persons who have undertaken the design have the necessary competency to do so.

I recommend the CM 2 level of construction monitoring.

I, (Name of Engineering Design Professional) Matt Bishop, am:

- CPEng number 243276 and hold the following qualifications BE (Hons)

The Engineering Design Firm holds a current policy of Professional Indemnity Insurance no less than \$200,000
The Engineering Design Firm is a member of ACE New Zealand.

SIGNED BY (Name of Engineering Design Professional): Matt Bishop
(Signature below):

Issue Date 04/09/2025

ON BEHALF OF (Engineering Design Firm): Brevity Ltd

Expiry Date: 04/09/2026

Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Engineering Design Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of \$200,000.

This form is to accompany Form 2 of the Building (Forms) Regulations 2004 for the application of a Building Consent.

Contents

Document Revision History	2
1. Overview	3
2. Design Methodology and Loading	4
3. Our Contact Details	4

Document Revision History

Rev	Date	Revision details	Author	Approved
A	27/08/2025	For Consent	CE	MB
B	02/09/2025	Updated Document	RK	MB
C	04/09/2025	Updated Company Name	CE	MB

1. Overview

Brevity has been engaged by Boundaryline to provide a Chartered Engineer's PS1 – Design Review for the Aluminum Balustrades for Global Design, for various locations in New Zealand. This report summarizes the engineering design criteria and records, key decisions, and outcomes as per NZ standards.

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This report has been prepared by Brevity on the specific instructions of our client. It is solely for our client's use for the purpose for which it is intended in accordance with the agreed scope of work. Any use or reliance by any person contrary to the above, to which Brevity has not given its prior written consent, is at that person's risk.

2. Design Methodology and Loading

In accordance with the New Zealand Building Code Section B1 by Specific Engineering Design to B1, F4, and F9 by specific engineering design to VM1 and AS1 the engineering system was checked to the following loading standards:

- AS/NZS 1170 Series
- NZS 3404: Part 1:1997
- AS/NZS 1664.1 :1997
- AS/NZS 1720.1:2022.

Based on the previous project for this type of structure, wind is the key factor influencing the design.

4. Our Contact Details

Engineer's contact details for this report

Contact	Contact details
This report was prepared by	Chrismagne Elikana
Email	engineering@teambrevity.com

Auckland office

Contact	Contact details
Main office phone	+64 9 216 7104
Email for all enquiries	info@teambrevity.com
Mailing address	Level 9, 4 Williamson Avenue, Ponsonby Cider Building, Auckland 1021, New Zealand