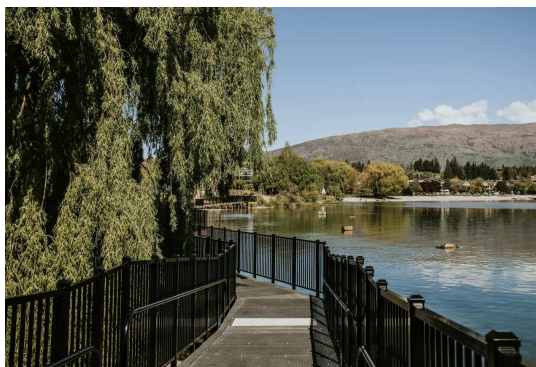
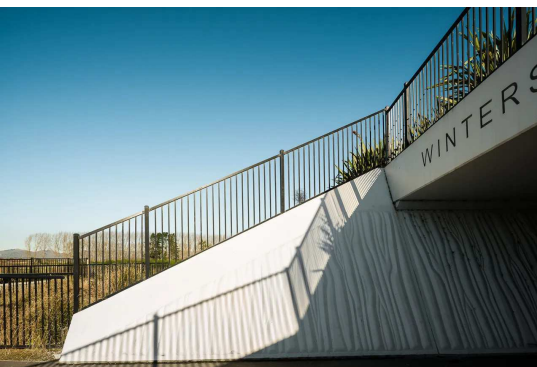
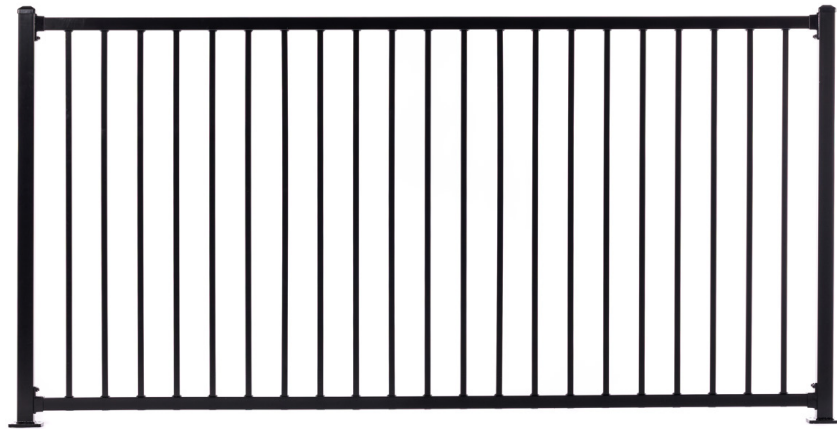


**Producer
Statement - PS1**



1200mmH **Premier Balustrade PS1**

**FOR: Balustrading
& Retaining Wall Barriers**



PRODUCER STATEMENT – PS1 – DESIGN

(Guidance on use of Producer Statements (formerly page 2) is available at www.engineeringnz.org)

ISSUED BY: Structural Engineers NZ Ltd
(Design Firm)

TO: Urban Group
(Owner/Developer)

TO BE SUPPLIED TO: Any Territorial Authority
(Building Consent Authority)

IN RESPECT OF: Structural Design of Handrails & Fixings
(Description of Building Work)

AT: Any location in New Zealand where the loading class stipulated on the drawings is applicable
(Address)

Town/City: (Address) **LOT** **DP** **SO**

We have been engaged by the owner/developer referred to above to provide:

Structural Engineering

(Extent of Engagement)

services in respect of the requirements of Clause(s) **B1** of the Building Code for:

☐ All or ☒ Part only (as specified in the attachment to this statement), 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 **B1/VM1 & B1/VM4** or
(verification method/acceptable solution)

☐ Alternative solution as per the attached schedule

The proposed building work covered by this producer statement is described on the drawings titled:

Refer to attached schedule and numbered Refer to attached schedule;
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions Refer to attached schedule
(ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☒ CM1 ☐ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, Sadeer Kattan am: ☒ CPEng 1013983 # ☐ Reg Arch #
(Name of Design Professional)

I am a member of: ☒ Engineering New Zealand ☐ NZIA and hold the following qualifications: BE (Hons) CPEng CEng

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.

The Design Firm is a member of ACENZ: ☐

SIGNED BY: Sadeer Kattan (Signature) Sadeer Kattan
(Name of Design Professional) Digitally signed by Sadeer Kattan
Date: 2024.02.07 08:45:19 +13'00'

ON BEHALF OF: Structural Engineers NZ Ltd Date: 07/02/2024
(Design Firm)

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), 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.
THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA

SCHEDULE

***From Page 1:**

On behalf of the design firm and subject to site verification of the following design assumptions:

1. The supporting structure, as designed by others, is able to withstand the applied loads. This must be effectively communicated with the building owner or manager. SENZ takes no responsibility should this not be followed.
2. The installation of the handrails is in accordance with the limits and specifications as set out on the drawing listed below.
3. The handrails are designed for residential loading class A, as set out in AS/NZS 1170.1. Occupancy classes C1, C2, C3, C5 & D are excluded.

DRAWINGS:

Drawing Number	Sheet	Revision	Date	Description
055 - 002 - 02G - 000		2	03/05/2023	DRAWING SCHEDULE
055 - 002 - 02S - 000		0	24/02/2021	GENERAL NOTES
055 - 002 - 02S - 001		0	24/02/2021	GENERAL ARRANGEMENT
055 - 002 - 02S - 100		0	24/02/2021	CONNECTION DETAILS - 1
055 - 002 - 02S - 101		2	03/05/2023	CONNECTION DETAILS - 2
055 - 002 - 02S - 102		0	24/02/2021	CONNECTION DETAILS - 3



Structural Engineers New Zealand

Consulting Civil & Structural Engineers

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www.structural-engs.co.nz • admin@structural-engs.co.nz

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Ferguson Stewart
Urban Group (NZ) Ltd

07 February 2024

By email

Re: Urban Group Handrails – Review against Clause B2 of the Building Code.

Structural Engineers New Zealand (SENZ) were requested to carry out a review of the Urban Group Standard Aluminium Handrails against clause B2 (Durability). SENZ have carried out a full structural design check of the balustrades to meet clause B1 of the Building Code against residential loading class A as defined in AS/NZS 1170.1. The structural design works are detailed in the design features report & PS1 numbered 055-002-DFR rev C, dated May 2023. The handrails and balustrades are detailed in SENZ drawings 055-002-02G-000 to 055-002-02S-102 rev 2.

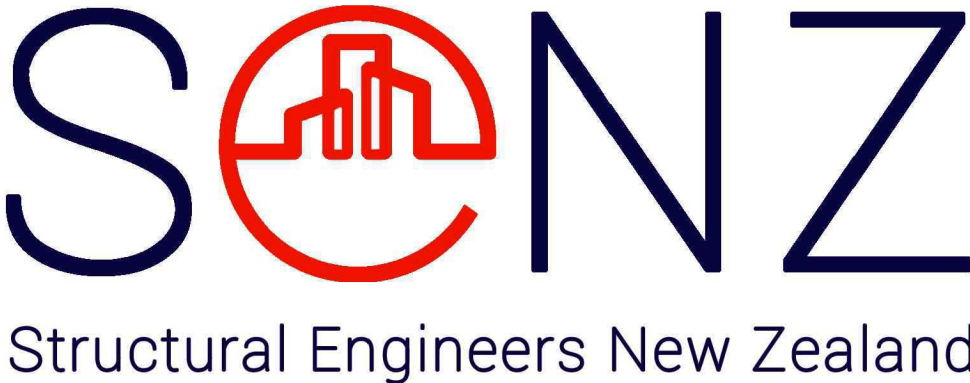
With regards to clause B2 – Durability, SENZ believe that the aluminium balustrade will inherently have the required corrosion resistance. The aluminium will be powder coated as an additional level of protection. All fixing specified are either galvanised, or Stainless Steel with separation rubbers.

Sadeer Kattan BE (Hons) CPEng CMEngNZ

Chartered Professional Engineer

Structural Engineers NZ Ltd

STRUCTURAL DRAWINGS
TYPICAL BALUSTRADE
RESIDENTIAL LOADING CLASS
JOB NUMBER - 055 - 002



DWG NO	TITLE	REV	REV DATE
055-002-02G-000	DRAWING SCHEDULE	2	03/05/2023
055-002-02S-000	GENERAL NOTES	0	24/02/2021
055-002-02S-001	GENERAL ARRANGEMENT	0	24/02/2021
055-002-02S-100	CONNECTION DETAILS - 1	0	24/02/2021
055-002-02S-101	CONNECTION DETAILS - 2	2	03/05/2023
055-002-02S-102	CONNECTION DETAILS - 3	0	24/02/2021

						Business Address: Level 1 52 Highbrook Drive, East Tamaki, Auckland	 Chartered Civil & Structural Engineers	Client: 	Project: RESIDENTIAL LOADING CLASS TYPICAL BALUSTRADES		FOR CONSTRUCTION	
2	FOR CONSTRUCTION	MW	SK	SK	03/05/23	Office Number: (+64) 09 275 6029						
1	FOR CONSTRUCTION	MW	SK	SK	18/03/22	Mobile Number: (+64) 021 967 977						
0	FOR CONSTRUCTION	MW	SK	SK	24/02/21	E-mail Address: info@structural-engs.co.nz						
REV	Issue	By	Chk	Appd	Date	Website: www.structural-engs.co.nz			Title: DRAWING SCHEDULE		Drawing No. 055 - 002 - 02G - 000	Rev. 2

GENERAL NOTES

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE STRUCTURAL ENGINEERS NZ DESIGN FEATURES REPORT, ARCHITECTURAL DRAWINGS, CIVIL ENGINEERING DRAWINGS, AND THE GEOTECHNICAL REPORT FOR THE PROPERTY. COPIES OF ALL THE LISTED DOCUMENTS ARE TO BE KEPT ON SITE AT ALL TIMES.
2. ALL WORKS ARE TO COMPLY WITH THE MOST RECENT VERSIONS OF THE NEW ZEALAND BUILDING ACT AND THE BUILDING CODE.
3. DIMENSIONS ARE TO BE READ FROM DRAWINGS, NOT SCALED FROM THEM. ALL DIMENSIONS ARE TO BE CHECKED ON-SITE PRIOR TO SETTING OUT.
4. ALL DIMENSIONS ARE IN MILLIMETRES (mm), ALL LEVELS ARE IN METRES (m), UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ESTABLISH LOCATION OF EXISTING SERVICES AT SITE. SERVICES SHOWN ON DRAWINGS ARE IN APPROXIMATE LOCATIONS ONLY. SERVICES OTHER THAN THOSE SHOWN MAY EXIST ON SITE. ONLY HAND EXCAVATION ALLOWED WITHIN ONE METRE OF SERVICES.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, INSTALLATION AND MAINTENANCE OF ALL NECESSARY TEMPORARY WORKS INCLUDING TEMPORARY STRUCTURAL SUPPORTS TO ENSURE STRENGTH AND STABILITY OF THE STRUCTURE AND ADEQUATE SUPPORT TO THE STRUCTURES WITHOUT ANY ADVERSE EFFECT TO THE STRUCTURES OR ADJACENT STRUCTURES..
7. THE CONTRACTOR SHALL ENSURE THAT ALL REGULATORY CONSENT DOCUMENTATION AS REQUIRED BY THE COUNCIL OR OTHERS HAS BEEN ISSUED BEFORE COMMENCING CONSTRUCTION WORKS.
8. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT CODES OF PRACTICE EXCEPT WHERE VARIED BY THE DESIGN FEATURES REPORT AND/OR DRAWINGS.
9. THE LOCATION, SIZE AND DETAILS OF ALL PENETRATIONS, RECESSES, SLEEVES, HOLES ETC IN STRUCTURAL MEMBERS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION UNLESS SHOWN ON THE STRUCTURAL DRAWINGS. THESE ITEMS SHALL BE CAST-IN, FORMED, OR SHOP FABRICATED AND SHALL NOT BE CUT OR COVED ON SITE, UNLESS NOTED OTHERWISE OR APPROVED BY THE ENGINEER.
10. SUBSTITUTION FOR OR AMENDMENT OF SPECIFIED DETAILS OR MATERIALS SHALL NOT BE CARRIED OUT WITHOUT APPROVAL OF THE ENGINEER.
11. WHERE PROPRIETARY PRODUCTS ARE SPECIFIED IN THE DOCUMENTS THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE PRODUCT FOR APPROVAL BY THE ENGINEER.
12. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL, SERVICES, AND ALL OTHER PROJECT DRAWINGS PRIOR TO CONSTRUCTION COMMENCING. ANY DISCREPANCIES WITH THE ARCHITECTURAL DRAWINGS RELATING TO THE CONSTRUCTION WORKS SHOWN ON THESE DRAWINGS MUST BE REFERRED TO THE ENGINEER FOR CLARIFICATION..
13. ALL WORKS SPECIFIED IN THE FOLLOWING DRAWINGS ARE CLASSIFIED AS RESTRICTED BUILDING WORK.
14. THE ENGINEER AND THE LOCAL COUNCIL ARE TO BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ARCHAEOLOGICAL REMAINS ON SITE. ALL WORKS ON SITE MUST BE STOPPED UNTIL APPROVAL HAS BEEN GIVEN BY CCC AND THE ENGINEER.

SITE CLEARANCE AND DEMOLITION

15. ALL WORK SHOULD BE IN ACCORDANCE WITH THE HEALTH AND SAFETY IN EMPLOYMENT ACT 1992.

INSTALLATION OF COMPACTED HARDFILL

16. THE EXCAVATION SHOULD BE AS INDICATED ON DRAWINGS OR TO A LEVEL WHERE THE SOIL ACHIEVES A GEOTECHNICAL ULTIMATE BEARING CAPACITY OF 300kPa.
17. COMPACTED HARDFILL WHERE REQUIRED SHALL BE IN ACCORDANCE WITH NZS 4402:1998 WITH REGARDS TO MOISTURE CONTENT.
18. COMPACTION WHERE REQUIRED SHALL BE CARRIED OUT IN CONTROLLED LAYERS OF NOT MORE THAN 150MM COMPACTED DEPTH, USING A 4–7 TONNE VIBRO-ROLLER UNTIL THE SITE IS BROUGHT TO A LEVEL SUITABLE FOR CONSTRUCTION OF A CONCRETE SLAB ON GRADE. TARGET COMPACTION CIV OF 18 IS REQUIRED. A19 GEOTEXTILE SHALL BE PLACED ON THE SUBGRADE LEVEL PRIOR TO PLACEMENT OF HARDFILL.

CONCRETE WORK

19. ALL CONCRETE WORK SHOULD BE IN ACCORDANCE WITH THE STANDARDS AND CODE OF PRACTICES SPECIFIED IN THE DESIGN FEATURES REPORT.
20. CONCRETE STRENGTHS ARE SPECIFIED 28 DAY COMPRESSIVE STRENGTHS AS DEFINED IN NZS 3109:1987. WHERE NOT SPECIFIED, THE CONCRETE STRENGTH SHALL BE 20MPa, 100 MM SLUMP MIX WITH EITHER 13 MM OR 19 MM NOMINAL AGGREGATE SIZE U.N.O.
21. SURFACE FINISHES ARE F4 AND U2
22. MINIMUM CONCRETE COVERS ARE NOT LESS THAN 60MM.

23. NO SAW CUTS OR CONSTRUCTION JOINTS ARE TO BE FORMED IN THE SLAB UNLESS NOTED OR SHOWN ON THE DRAWINGS.

24. POLYSTYRENE UNDER SLAB FOUNDATIONS SHALL BE EXPANDED POLYSTYRENE DOW STYROFOAM RTM-X OR APPROVED EQUIVALENT

REINFORCEMENT

25. STAGGER LAPS WHERE POSSIBLE. WHERE LAPS ARE NOT STAGGERED INCREASE LAP LENGTH BY 30%. WHERE GAPS BETWEEN LAP BARS EXIST, THE LAP LENGTH SHALL BE EXTENDED BY 1.5xGAP.
26. MINIMUM LAP FOR FABRIC SHALL BE ONE MESH BAR SPACING PLUS 50mm.
27. PLACING AND SPACING OF REINFORCEMENT – GENERAL

- a) SPLICING OF REINFORCEMENT, WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE SHALL ONLY BE CARRIED OUT AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE ENGINEER.
– WELDED WIRE MESH SHALL BE SPLICED AS REQUIRED, BUT NOT THROUGH SLAB JOINTS.

- b) ALL HOOKS ON STIRRUP AND TIES MUST FIT CLOSELY AROUND MAIN BARS U.N.O.
FIRST STIRRUP TO BE PLACED NOT FURTHER THAN THE LESSER OF 1/2 STIRRUP SPACING OR 50mm FROM SUPPORT FACE.

28. LAP SPLICES IN REINFORCEMENT

- a) LAP LENGTHS FOR DEFORMED BARS SHALL BE AS SHOWN IN THE FOLLOWING TABLES U.N.O.
c) NOTE RE USE OF THE FOLLOWING TABLES:

- TOP BAR FACTOR IS 1.0 FOR ALL VERTICAL BARS (COLUMNS, WALLS) AND FOR HORIZONTAL BARS WITH LESS THAN 300mm OF FRESH CONCRETE CAST BENEATH BAR (TYPICALLY BEAM BOTTOM BARS AND SLAB BARS).
- TOP BAR FACTOR IS 1.3 FOR ALL HORIZONTAL BARS WITH MORE THAN 300mm OF FRESH CONCRETE CAST BENEATH THE BAR (TYPICALLY BEAM TOP BARS AND HORIZONTAL WALL BARS).

	25 MPa CONCRETE	GRADE 300 DEFORMED	GRADE 500 DEFORMED
12mm BAR	1.0 FACTOR	400	600
12mm BAR	1.3 FACTOR	500	800
16mm BAR	1.0 FACTOR	500	800
16mm BAR	1.3 FACTOR	650	1050
20mm BAR	1.0 FACTOR	650	1000
20mm BAR	1.3 FACTOR	800	1300

29. BARS ARE TO BE TO AS/NZS 4671 – GRADE 500E DEFORMED, OTHER THAN FOR TIES, STIRRUPS AND SPIRALS, THAT COULD BE MICRO ALLOY GRADE 300E UNLESS NOTED OR SHOWN OTHERWISE ON THE DRAWINGS.

30. ALL MASONRY REINFORCEMENT LAP LENGTH = 70 BAR DIAMETERS U.N.O.

31. ALL CELLS OF MASONRY WALLS SHALL BE FILLED WITH 17.5 mPa GROUT

32. WELDING OF HIGH STRENGTH REINFORCEMENT IN NOT PERMITTED.

STRUCTURAL STEEL

33. STEEL MEMBERS SHALL BE THE FOLLOWING GRADES U.N.O.

MOVE	GRADE
CHS, SHS, RHS	350
UB's, UC's, PFC's, TFC's & ANGLES (125 x 125 OR LARGER)	300
ANGLES (100 x 100 OR SMALLER)	250

34. FABRICATION SHALL COMPLY WITH NZS 3404:2009.

- a) STRAIGHTNESS OF MEMBERS AFTER FABRICATION AND BEFORE ERECTION U.N.O. SHALL NOT DEVIATE MORE THAN:
STRUTS, COLUMNS = L/1000
OTHER MEMBERS = L/600

- b) LENGTH SHALL NOT DEVIATE FROM THE TRUE LENGTH BY:
STRUTS WITH END BEARING = x1mm
OTHER MEMBERS UP TO L=9.0m = +0mm, –3mm
OTHER MEMBERS OVER L=9.0m = +0mm, –5mm

35. BOLTING

- a) ALL HOLES SHALL BE DRILLED AND SHALL BE 2mm LARGER THAN THE BOLT DIAMETER U.N.O. HOLES IN BASEPLATES MAY BE 4mm LARGER THAN THE BOLT DIAMETER FOR CAST IN BOLTS ONLY.
b) ALL BOLTS SHALL HAVE AT LEAST ONE THREAD PROJECTING THROUGH BOTH SIDES OF NUT.
c) ALL BOLTS SHALL BE GRADE 4.6/s U.N.O.
d) TIGHTENING PROCEDURE SHALL COMPLY WITH AS 1511. BOLTING ABBREVIATIONS ARE TO AS 1511 AND AISC PROCEDURES.

36. WELDING

- a) ALL WELDS SHALL BE 6mm CONTINUOUS FILLET U.N.O.
b) ALL WELDS TO BE CLASS SP TO AS 1554 U.N.O.
c) WELDING ELECTRODES SHALL BE E48XX TO AS 1583 U.N.O.
d) ALL WELDS SHALL BE CARRIED OUT, OR SUPERVISED BY QUALIFIED WELDERS TO NZS4711 FOR THE POSITION USED.

37. STEEL WORK TO BE SUPPLIED FULLY HOT DIP GALVANIZED.

38. PLUMBNESS OF STRUTS/COLUMNS SHALL BE WITHIN L/1000 OF TRUE VERTICAL.

39. ALL GUSSET PLATES, CLEATS AND STIFFENERS SHALL BE GRADE 250 STEEL TO AS 3678 OR EQUIVALENT U.N.O.

TIMBER WORK

40. ALL TIMBER MATERIAL SHALL BE GRADE SG8 U.N.O.

41. ALL TIMBER TREATMENT AND CONNECTIONS SHALL BE TO NZS 3604 U.N.O.

42. ALL TIMBER FIXINGS SHALL BE TO NZS 3604:2011 U.N.O.

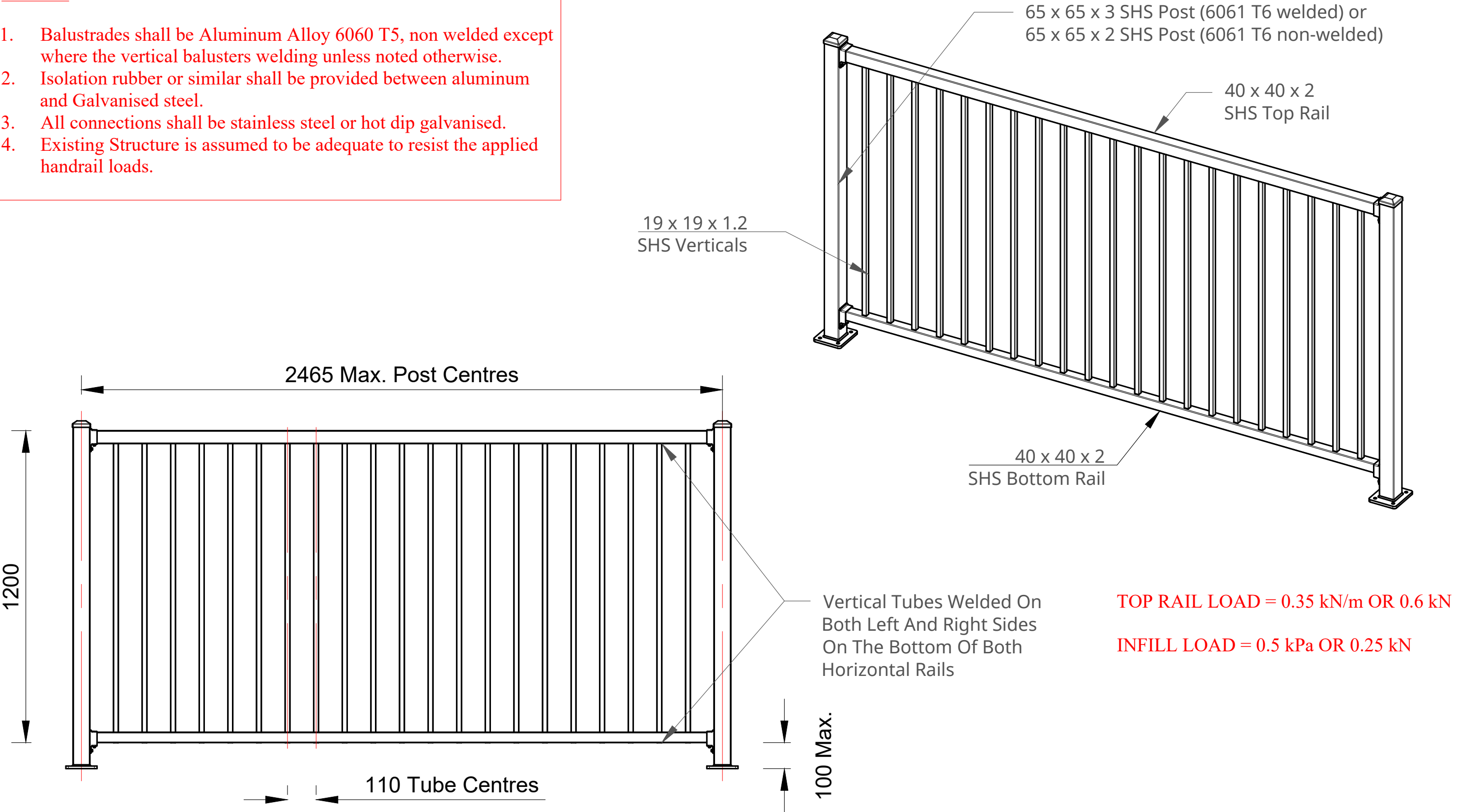
ABBREVIATIONS

BGL = BELOW GROUND LEVEL
C/C = CENTRE TO CENTRE
E.W = EACH WAY
F.F = FAR FACE
F.F.L. = FINISHED FLOOR LEVEL
F.G.L = FINISHED GROUND LEVEL
F.W. = FILLET WELD
F.W.A.R. = FILLET WELD ALL ROUND
G.W.L. = GROUND WATER LEVEL
HORIZ. = HORIZONTAL
L.A.R. = LAP AT RANDOM
N.F. = NEAR FACE
STRP = STIRRUP
T & B = TOP AND BOTTOM
T.O.C. = TOP OF CONCRETE
T.O.S. = TOP OF STEEL
VERT. = VERTICAL
CHS = CIRCULAR HOLLOW SECTION
EA = EQUAL ANGLE
PFC = PARALLEL FLANGE CHANNEL
RHS = RECTANGULAR HOLLOW SECTION
SHS = SQUARE HOLLOW SECTION
TFB = TAPER FLANGE BEAM
UA = UNEQUAL ANGLE
UB = UNIVERSAL BEAM
UC = UNIVERSAL COLUMN
C.O.S = CONFIRM ON SITE
UBC = ULTIMATE BEARING CAPACITY
U/S = UNDERSIDE

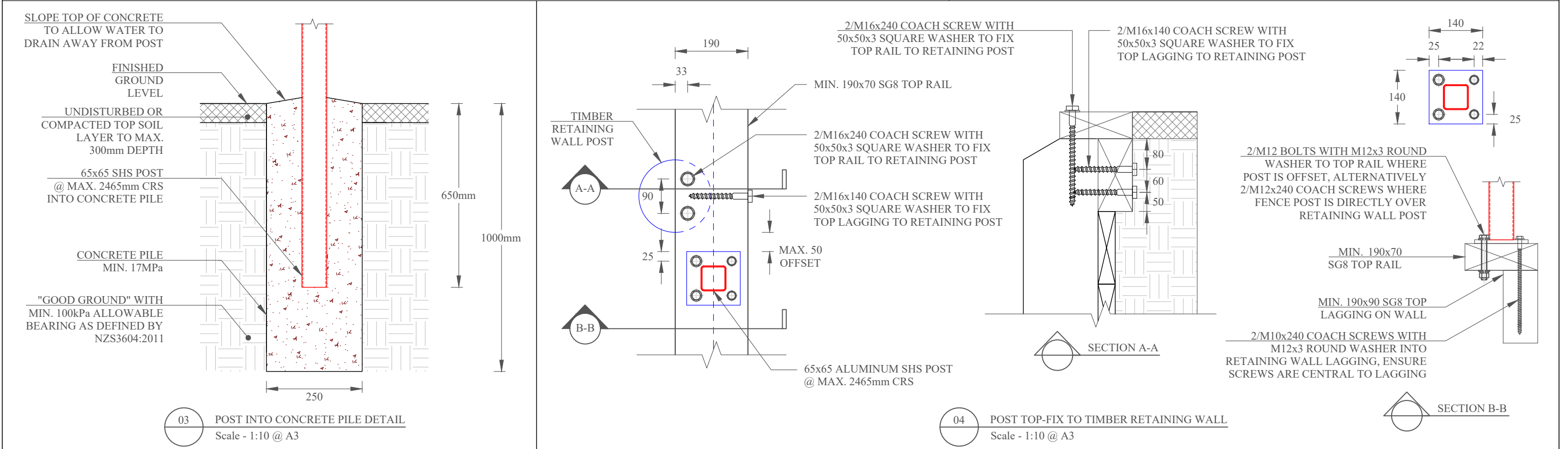
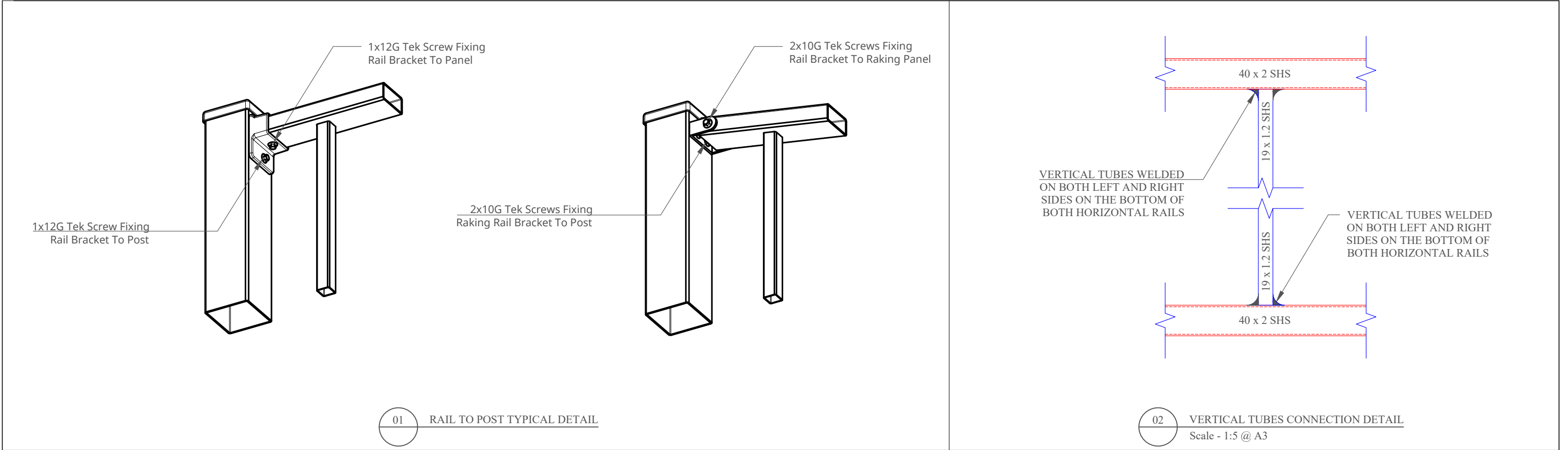
						Business Address: Level 1 52 Highbrook Drive, East Tamaki, Auckland	 Chartered Civil & Structural Engineers	Client: 	Project: RESIDENTIAL LOADING CLASS TYPICAL BALUSTRADES	FOR CONSTRUCTION		
						Office Number: (+64) 09 275 6029						
						Mobile Number: (+64) 021 967 977						
0	FOR CONSTRUCTION	MW	SK	SK	24/02/21	E-mail Address: info@structural-engs.co.nz					Title: GENERAL NOTES	Drawing No. 055 - 002 - 02S - 000
REV	Issue	By	Chk	Appd	Date	Website: www.structural-engs.co.nz						

NOTES:

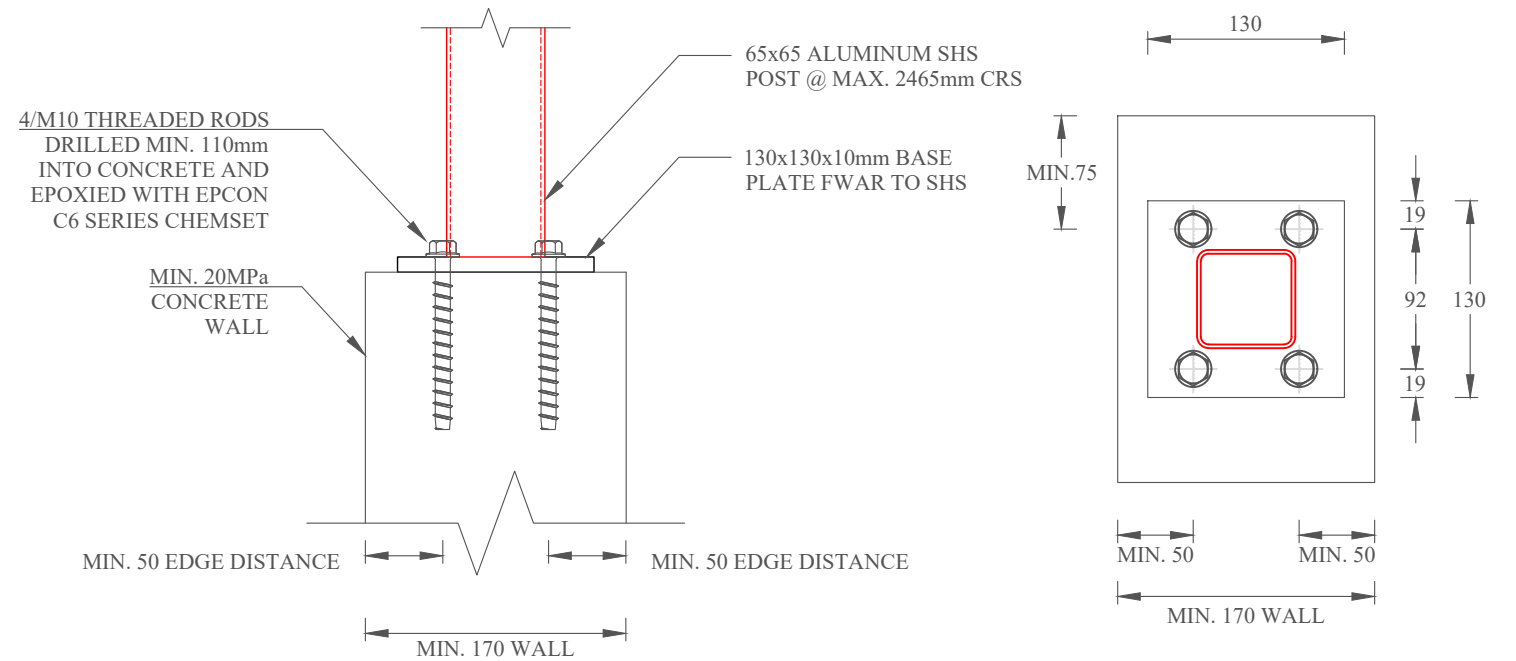
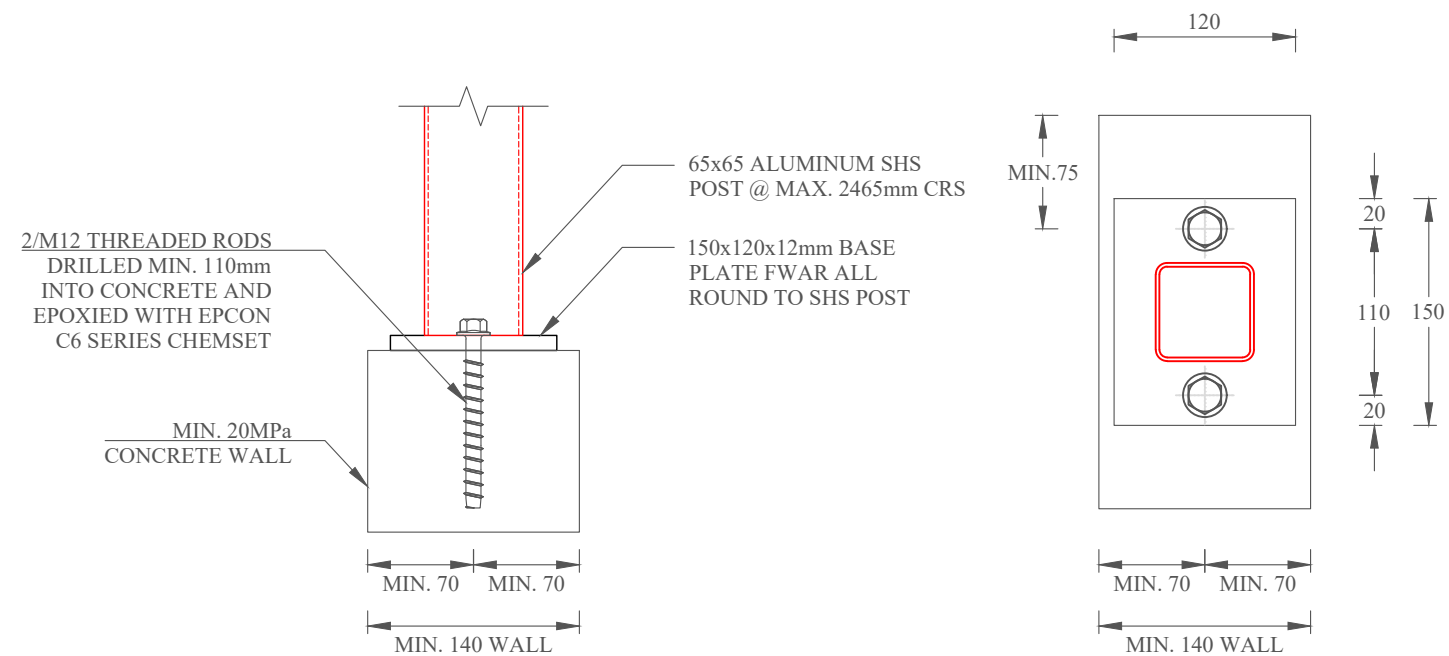
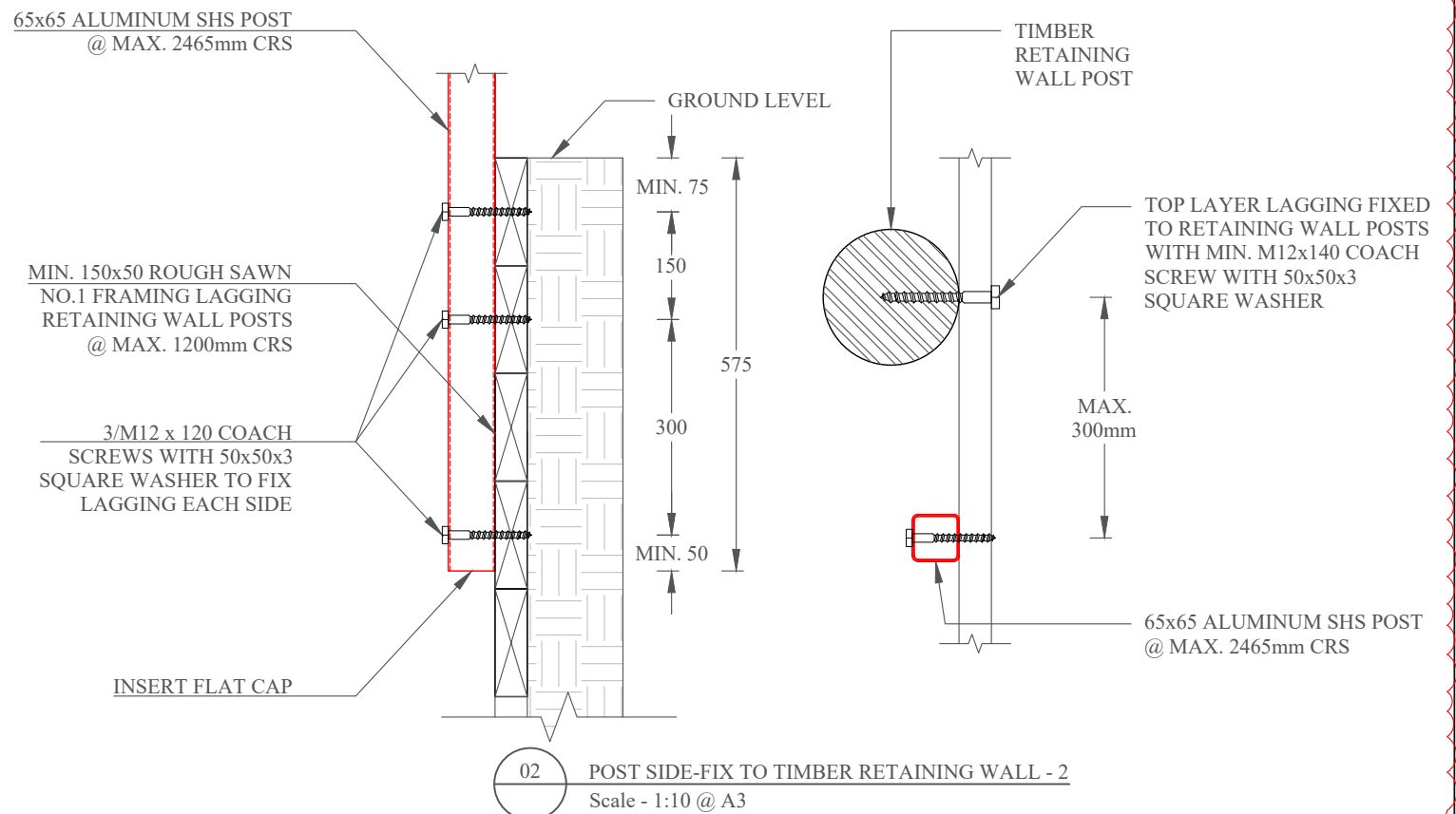
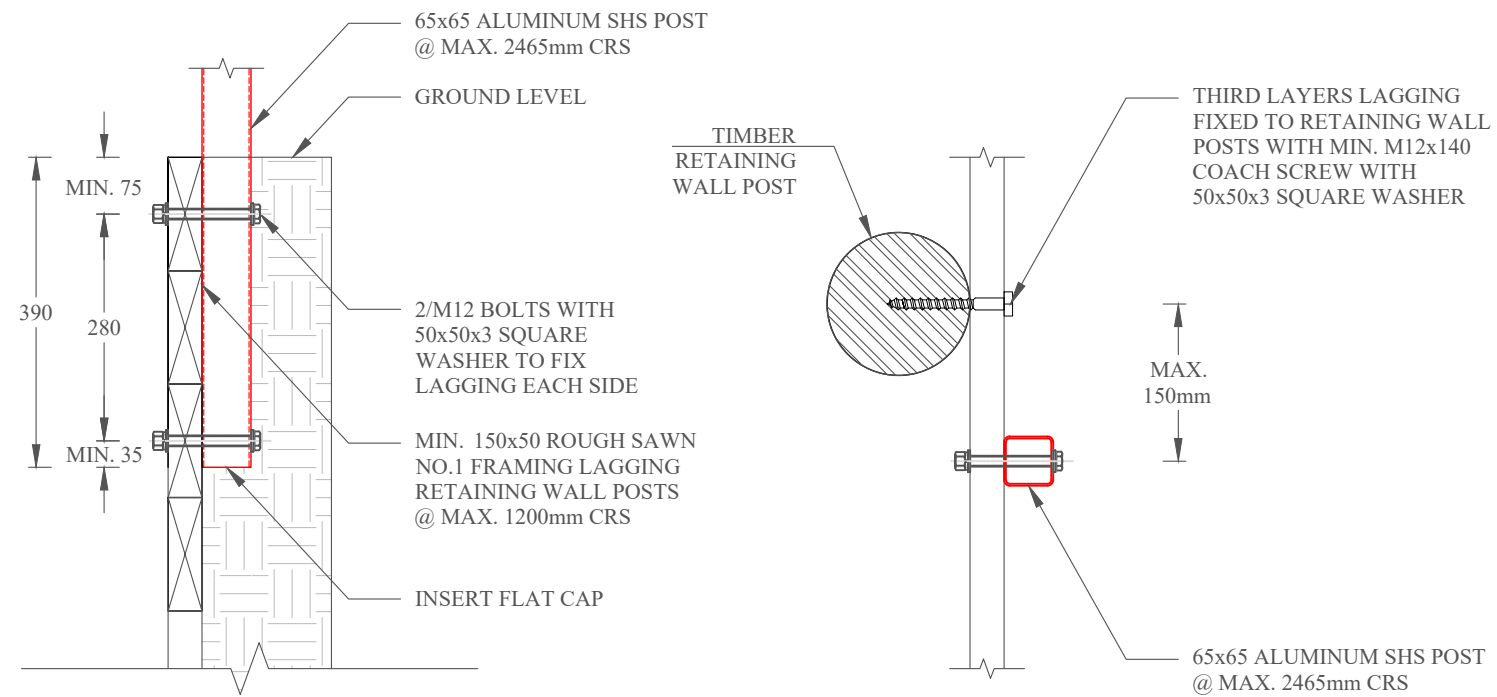
- 1. Balustrades shall be Aluminum Alloy 6060 T5, non welded except where the vertical balusters welding unless noted otherwise.
- 2. Isolation rubber or similar shall be provided between aluminum and Galvanised steel.
- 3. All connections shall be stainless steel or hot dip galvanised.
- 4. Existing Structure is assumed to be adequate to resist the applied handrail loads.



						Business Address:	Level 1 52 Highbrook Drive, East Tamaki, Auckland	 SONZ Structural Engineers New Zealand Chartered Civil & Structural Engineers	Client:  UrbanGroup™	Project: RESIDENTIAL LOADING CLASS TYPICAL BALUSTRADES		FOR CONSTRUCTION		
						Office Number:	(+64) 09 275 6029			Title:		Drawing No.	Rev. 0	
						Mobile Number:	(+64) 021 967 977			GENERAL ARRANGEMENT		055 - 002 - 02S - 001		
0	FOR CONSTRUCTION					MW	SK			SK	24/02/21			
REV	Issue					By	Chk			Appd	Date			
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						Office Number:	(+64) 09 275 6029			Title:		Drawing No.	055 - 002 - 02S - 100	Rev. 0
						Mobile Number:	(+64) 021 967 977							
0	FOR CONSTRUCTION				MW	SK	SK			24/02/21	E-mail Address:			
REV	Issue				By	Chk	Appd			Date	Website:		www.structural-engs.co.nz	



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2	FOR CONSTRUCTION	MW	SK	SK	03/05/23	Office Number:	(+64) 09 275 6029
1	FOR CONSTRUCTION	MW	SK	SK	18/03/22	Mobile Number:	(+64) 021 967 977
0	FOR CONSTRUCTION	MW	SK	SK	24/02/21	E-mail Address:	info@structural-engs.co.nz
REV	Issue	By	Chk	Appd	Date	Website:	www.structural-engs.co.nz

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Chartered Civil & Structural Engineers

Client:



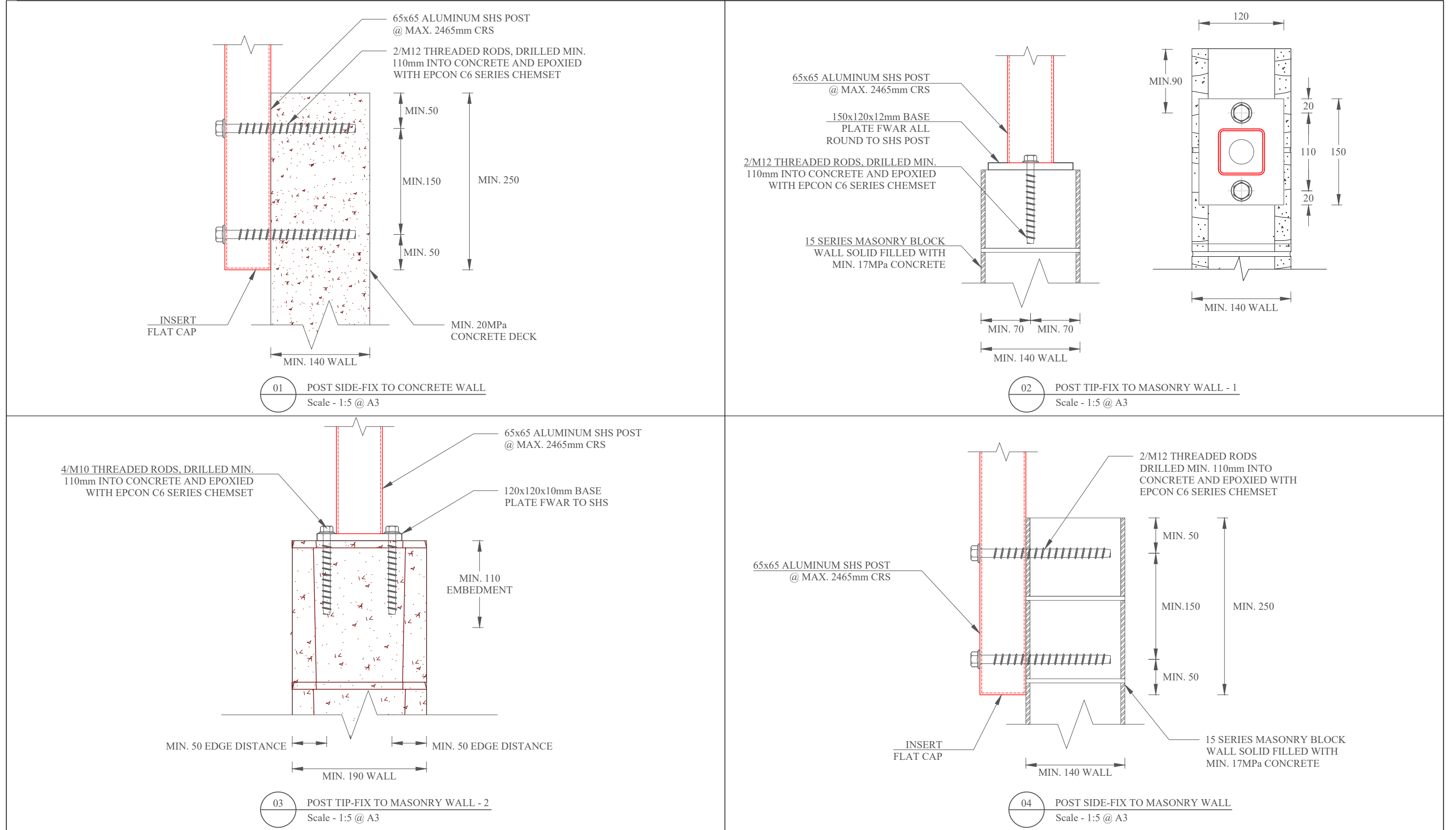
Project: RESIDENTIAL LOADING CLASS
TYPICAL BALUSTRADES

Title: CONNECTION DETAILS - 2

FOR CONSTRUCTION

Drawing No.
055 - 002 - 02S - 101

2



						Business Address: Level 1 52 Highbrook Drive, East Tamaki, Auckland	 Chartered Civil & Structural Engineers	Client: 	Project: RESIDENTIAL LOADING CLASS TYPICAL BALUSTRADES	FOR CONSTRUCTION		
						Office Number: (+64) 09 275 6029						
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