Protect 365® N2 Parapet

3 rail 1.0 m

Approved by UK Highways Agency and National Roads Authority (Ireland).

Designed, verified by computer modelling, and dynamically tested with modern cars (less than five years old) and with representative test lengths to meet the requirements of BS EN 1317.

Improved safety performance together with reduced bridge deck loadings than older steel systems or current accredited steel or aluminium systems.

Containment level	N2
Height	1.0 m
Post centres	
• Proven range	2.5 m to 3.75 m
• End bay maximum	3.0 m*
Minimum length of parapet	12.5 m end post centres (5 bays, 6 posts)**
Plinth height	50 to 100 mm
Grout bedding (plus any falls)	10 to 30 mm
Plinth width minimum	450 mm

*2.5 m to 3.75 m if connected to Protect 365 N2 Transition.
**May be reduced to 7.5m end post centres (3 bays, 4 posts) when connected to Protect 365 N2 transition.

For all non standard designs contact us at the details below

Key features

- Reduced structure loading
- Reduced anchorage requirements
- Increased proven range of post centres
- Increased tolerance for installation to accommodate out of position foundations

Availability

Supply and installation is by licensed companies having third party verified UK Highways Agency Sector Scheme 5A and 5B approval and a quality management scheme in accordance with ISO 9001 or 9002.

Performance

Post centres	2.5 m	3.75 m
Impact severity level	B	B
Working Width class	W3 (0.9 m)	W4 (1.1 m)
Wheel penetration	0.4 m	0.4 m
Dynamic deflection	0.5 m	0.7 m

Anchorage load requirements

Bolt tensile load 1.5 x nominal	61.5 kN
Test load 1.1 x nominal	45.1 kN
Ultimate limit state 1.8 x nominal	73.7 kN

Structure loads

Post size	100 x 100 mm
Post ultimate moment capacity	19.8 kNm
Coexisting shear force	36.8 kN
Post ultimate shear capacity	164.9 kN

Finishing

Final finish	• Hot dip galvanised to BS EN ISO 1461
Service life	• 30+ years (dependent upon conditions in accordance with specifications for Highways Works Series 400) (Nov 2007)
Options	• Infill: Mesh or solid sheet • Available in various heights from 1.0 m up to 1.8 m • Paint finish available if required

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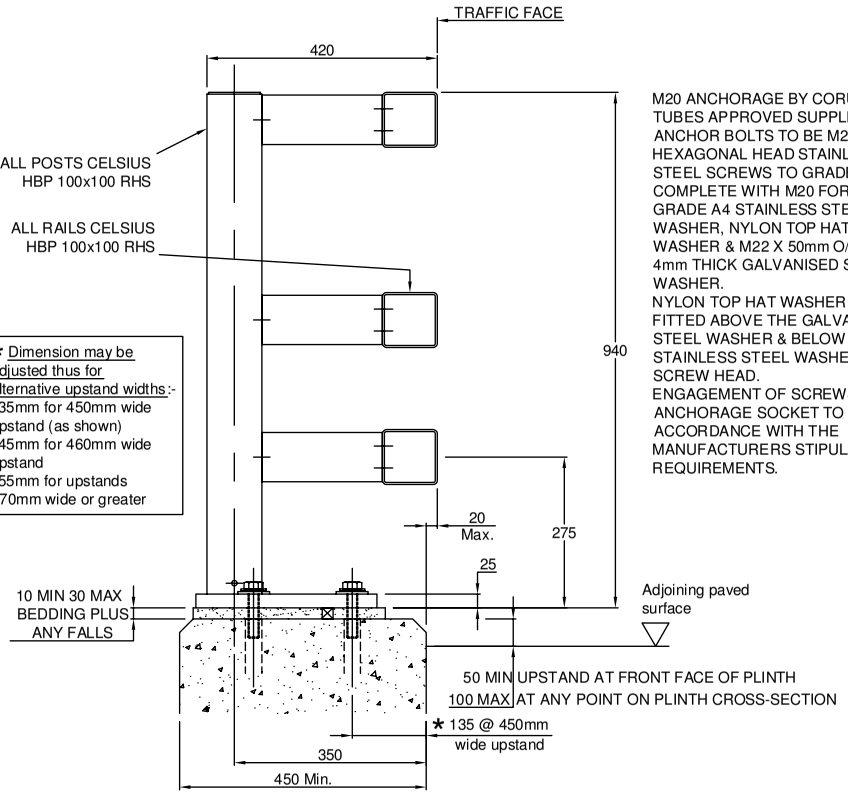
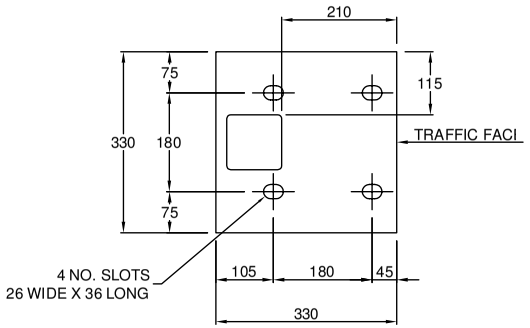
CT68-6:PDF:UK:11/2009

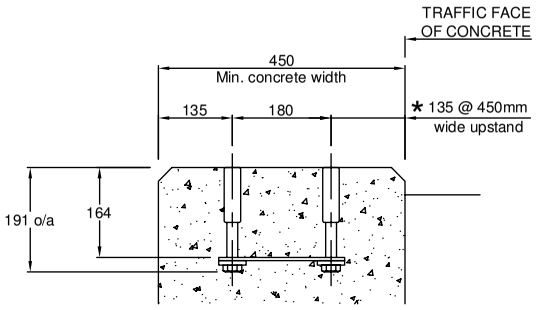


SECTION THROUGH PARAPET

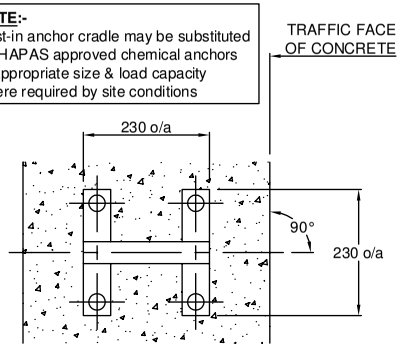
POST ULTIMATE MOMENT CAPACITY TO ALL POSTS 19.8 kNm,
COEXISTING SHEAR 36.1 kN,
POST ULTIMATE SHEAR CAPACITY 164.9kN



BASEPLATE DETAIL



SECTION THROUGH UPSTAND

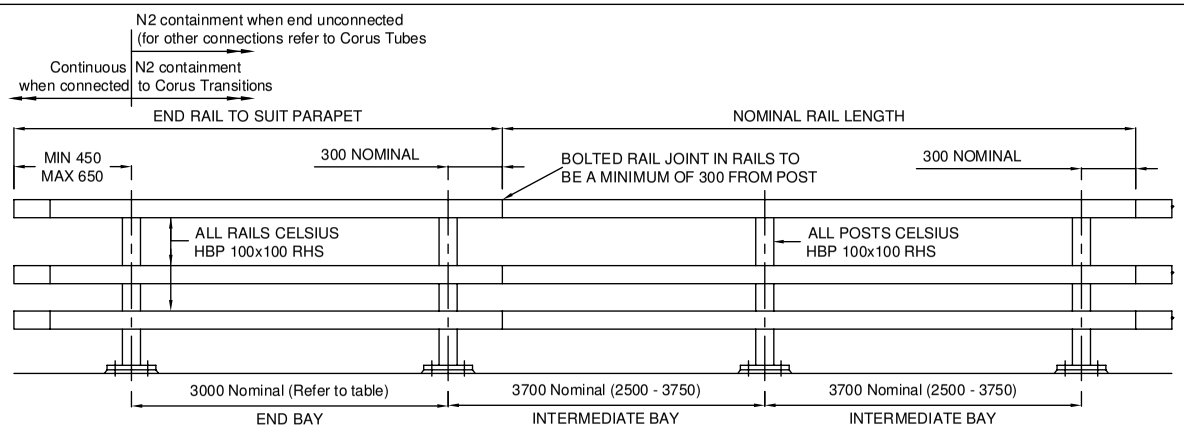


PLAN VIEW ON UPSTAND

NOTE:-
Cast-in anchor cradle may be substituted for HAPAS approved chemical anchors of appropriate size & load capacity where required by site conditions

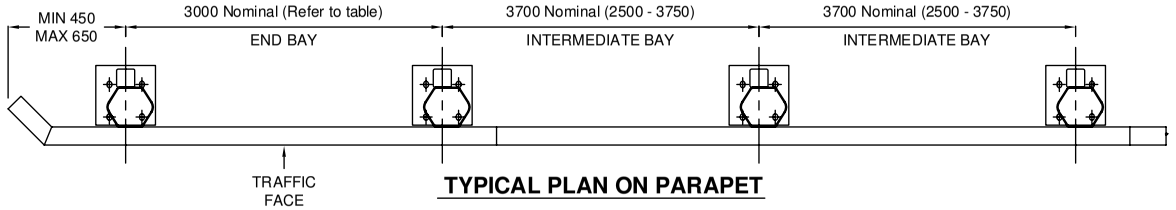
ANCHOR CRADLE DETAIL

Anchor cradle shown: M20 SSR170 as manufactured by Fixing Centre Ltd.
(Alternative HAPAS approved anchor cradle of appropriate size & load capacity may also be used.
Dimensions for alternative anchor to be checked with Fabricator)



TYPICAL ELEVATION ON TRAFFIC FACE OF PARAPET

END TRANSITIONS	DRAWING No.	END BAY
P365 N2	P365/T/108	2500 - 3750
P365 H4a	P365/T/109	2500 - 3750
Vetex N2	VT100	2500 - 3000
SPLAY / OPEN END	-	2500 - 3000
OTHERS	REFER TO CORUS TUBES	



TYPICAL PLAN ON PARAPET

GENERAL NOTES

1/. RAILS TO BE CELSIUS HBP 100 x 100 RHS AS MANUFACTURED BY CORUS TUBES.
2/. ALL OTHER HOLLOW SECTIONS TO BE CELSIUS 355 STRUCTURAL HOLLOW SECTIONS AS MANUFACTURED BY CORUS TUBES.
3/. OTHER STEEL SECTIONS TO BE TO GRADES AS NOTED.
4/. STAINLESS STEEL HEXAGONAL HEAD SCREWS TO BE GRADE A4 CLASS 80 TO BS EN ISO 3506-1 & BS EN ISO 4017.
PLAIN WASHERS TO BE TO BS EN ISO 7089.
SPRING WASHERS TO BE TO BS 4464.
STEEL WASHERS TO BE GALVANISED TO BS EN ISO 1461.
STAINLESS STEEL WASHERS TO BE GRADE A4.
5/. POSTS SHALL BE VERTICAL TO WITHIN ±15mm OVER 1000mm.
6/.RAILS SHALL BE SET TO GIVE A SMOOTH FLOWING LINE WITH A **MINIMUM HEIGHT OF 1000mm FROM ADJOINING PAVED SURFACE TO TOP OF TOP RAIL** .
7/. POST/RAIL CONNECTION BRACKETS SET TO FOLLOW SLOPE OF RAILS.
8/. PARAPET MANUFACTURE & INSTALLATION SHALL ONLY BE CARRIED OUT BY COMPANIES APPROVED & LICENSED BY CORUS TUBES.
9/. ALL CARBON STEEL MATERIALS TO BE HOT DIPPED GALVANISED AFTER MANUFACTURE TO BS EN ISO 1461.
10/. ALL PLATES TO BE GRADES NOTED TO B.S EN 10 025.

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Rev.	Revision note	Date	Sign
02	Notes regarding containment added	Sep '09	A.M
01	Notes regarding connection to Corus Tubes Protect 365 ™ N2 Transition added	Nov '06	J.L.L

GENERAL ARRANGEMENT OF Protect 365™ N2 VEHICLE PARAPET (110km/h TRAFFIC SPEED) - P365/P/001

3 Rail system - 1.000m Nominal height

Title	STANDARD DETAILS OF N2 VEHICLE PARAPET TO BS EN 1317-1, 2 & 5 (General details) P365/P/001		
Drawn	J.L.L	Date	Sept' 2006
Checked	T.R.M	Date	Sept' 2006
Approved	T.R.M	Date	Sept' 2006
Drg. No.	P365/P/101	Rev.	02