



TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague, SOE

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Notified Body 1020

CERTIFICATE OF CONSTANCY OF PERFORMANCE

No. 1020 – CPR – 090-034161

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product:

ROAD RESTRAINT SYSTEM

variant: steel safety barrier one-sided

Passco L1 H1-A-W4 (ES 2.00)

Level of restraint	H1
Impact intensity	A
Normalised working width	W4
Normalised vehicle intrusion	VI7
Snow removal	NPD

An integral part of this certificate is annex where are specified modifications of road restraint system Passco L1 H1-A-W4 (ES 2.00)

placed on the market under the name or trade mark of

PASS+CO INTERNATIONAL GmbH

Identification No.: DE811750759

Address: Grube Neue Haardt 8, 57076 Siegen, Germany

and produced in the manufacturing plant

Code format PL1

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 1317-5:2007+A2:2012/AC:2012


under system 1 for the performance set out in this certificate are applied and that the factory production control conducted by the manufacturer is assessed to ensure the

constancy of performance of the construction product.

This certificate was first issued on 06.08.2015 and will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.

The stamp of the Notified Body 1020
Prague, 4 August 2021




Martin Pešek
Deputy Manager of the Notified Body

PASS+CO®

ТОВ «ПАСС+КО ЮА»

Installation manual passco H1-A-W4

PASS+CO UA LLC
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General information

1. The Road Restraint System (RRS) is designed for installation on road traffic areas.

It is intended to protect occupants of errant vehicles on the roadway, to protect third parties

and objects and can be installed in medians and side lanes as well as on verges.

Technical characteristics

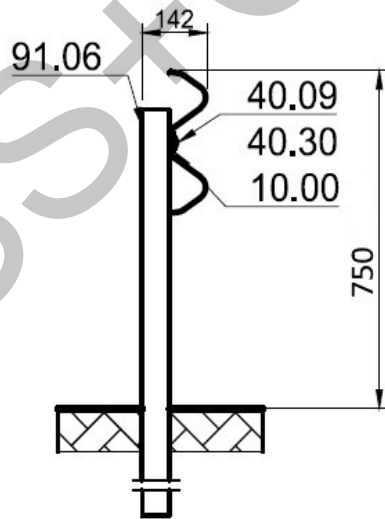
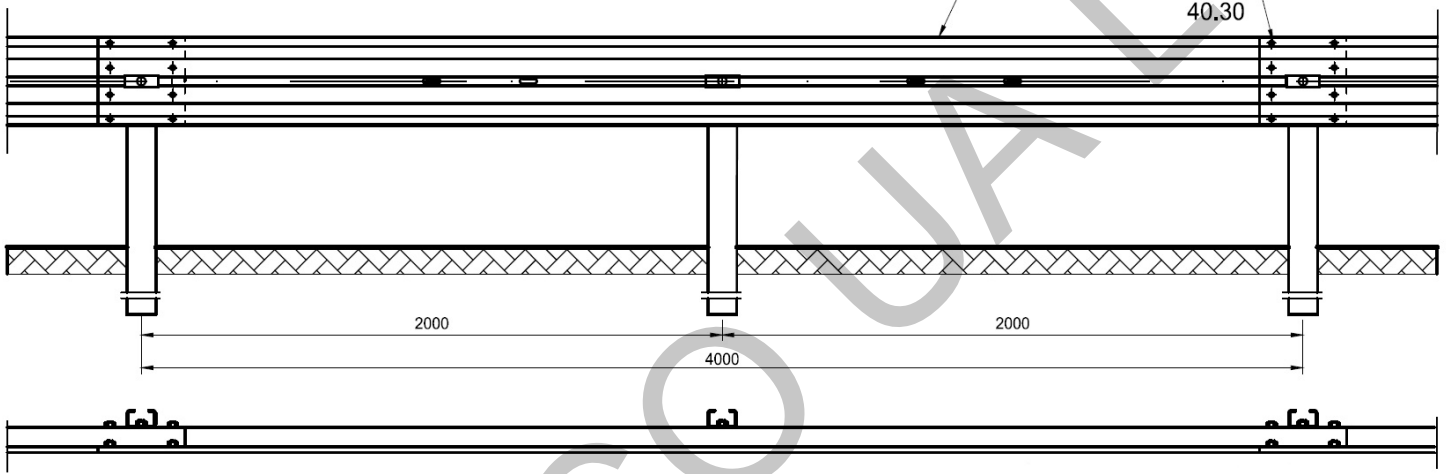
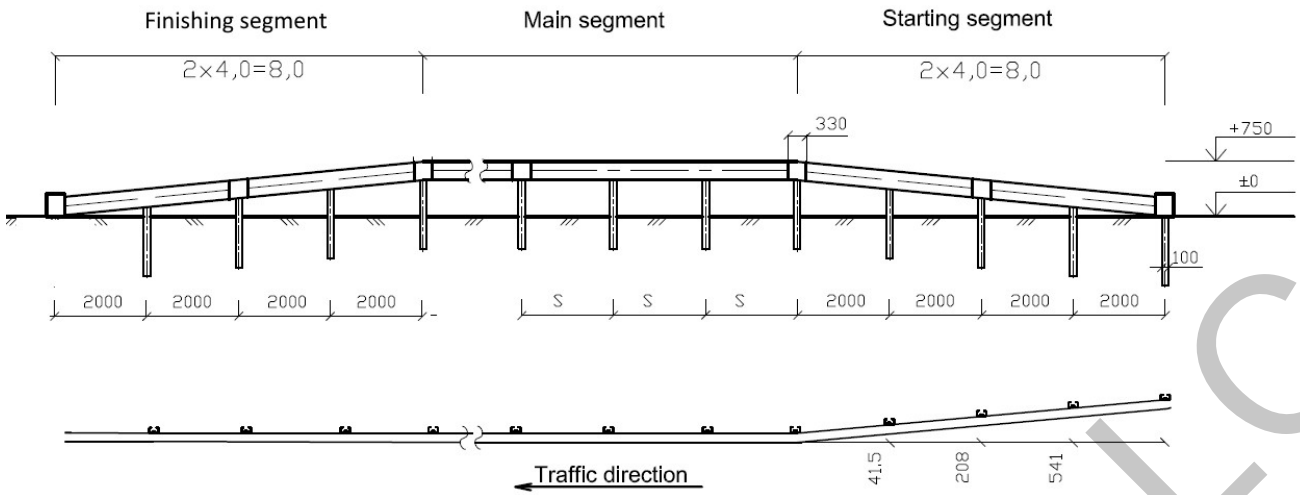
2. The system has been fully tested according to EN 1317.

The test results have been reached by the conditions mentioned in the test report.

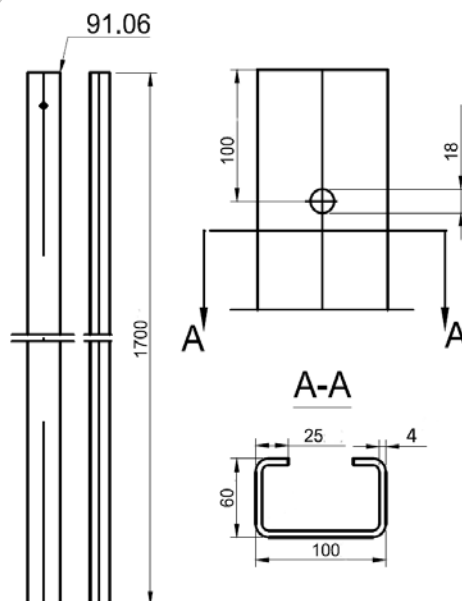
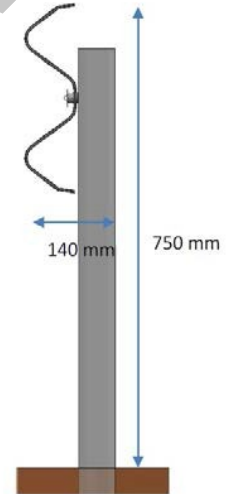
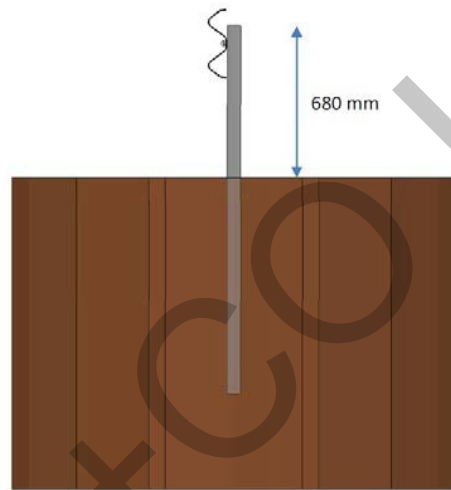
Containment level	H1
Containment level Kj	128
Index ASI	A
Working width W	W4
Post distance (m)	2
System height (mm)	750
Crash test (car)	TB 11
Crash test(truck)	TB 42

3. General view of the system





No	Description
91,01	Passco Beam 4300 mm, thickness 2,5mm
91,06	passco Post C-100
10,00	Deck plate 40x5x115
40,00	Bolt with nut M16x27
40,30	Washer 18
40,09	Bolt with nut M16x45



TTAI Test report

12.TR.020/RSC

TB42 Crash test in accordance with EN 1317-2
on a road safety barrier system type
'Passco H1-A-W4 (ES 2,00)', designed and
manufactured by PASS+CO Barrier Systems GmbH.

*TB42 Anfahrversuch in Übereinstimmung mit EN 1317-2 an ein
Stahlrückhaltesystem, Typ 'Passco H1-A-W4 (ES 2,00)'
entwickelt und hergestellt von der Firma PASS+CO Barrier
Systems GmbH.*

TTAI test no.: F11350805

Test date: 27-10-2011

Prüfdatum

Number of pages: 60

Seiten

In case of doubt, the legally valid language is English

Im Zweifelsfall ist die rechtlich gültige Sprache die englische Sprache

The quality system of TTAI
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TÜV Rheinland TNO Automotive International B.V..

Notification nr.: NB2202

Accreditation nr.: L498

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parties are subject to either the Standard Conditions for Research Instructions given to
TÜV Rheinland TNO Automotive International B.V. or the relevant agreement concluded
between the contracting parties. Submitting the report for inspection to parties who have a
direct interest is permitted.

1 Test laboratory*Prüfstelle***1.1 Name and address of test laboratory**TÜV Rheinland TNO Automotive
International B.V.*Name und Anschrift der Prüfstelle*Steenovenweg 1b
NL-5708HN Helmond
The Netherlands**1.2 Test site location***Prüfport*TL GmbH
Industriepark Emil Mayrisch
D-52457 Aldenhoven
Germany**1.3 Name and address of body which
accredited the test laboratory***Akkreditierungsstelle*Raad Voor Accreditatie
Postbus 2768
NL-3500GT Utrecht**1.4 Notification/accreditation number with
date of approval, valid at the time of
testing***Notifizierungs-/Akkreditierungsnummer und
Datum*

NB2202, 21-10-2009

1.5 Additional information*Weitere Informationen*

-

2 Client*Auftraggeber***2.1 Name**

PASS+CO BARRIER SYSTEMS GMBH

*Name***2.2 Address**

Dortmunder Straße 8

Anschrift

D-57234 Wilnsdorf

Germany

2.3 Telephone number

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www.passco.de

*Internet***2.6 Contact partner**

Mr. G. Hiekmann

*Ansprechpartner***2.7 Additional information**

-

Weitere Informationen

3 Test item*Prüfgegenstand***3.1 Name of test item**

Passco H1-A-W4 (ES 2,00)

*Bezeichnung des Prüfgegenstands***3.2 Date of installation**

26 October 2011

*Aufbaudatum***3.3 Date of test**

27 October 2011

*Prüfdatum***3.4 TTAI test number**

F11350805

*TTAI Festnummer***3.5 Additional information***Weitere Informationen*

-

000 "IACCC+KOFOA"
"Administrația de Stat a Drumurilor"

4 Test procedure

Versuchsdurchführung

4.1 Test Type

TB 42

Versuchsart

4.1.1 Impact test criteria

Versuchskriterien

- test speed / *Aufprallgeschwindigkeit*

70 km/h

- impact angle / *Aufprallwinkel*

15 °

- vehicle mass / *Fahrzeuggewicht*

10000 kg

- type of vehicle / *Fahrzeugart*

Rigid HGV / Lkw

4.1.2 Additional information

Weitere Informationen

-

4.2 Test area

Prüfgebiet

4.2.1 Description of type and condition of test area

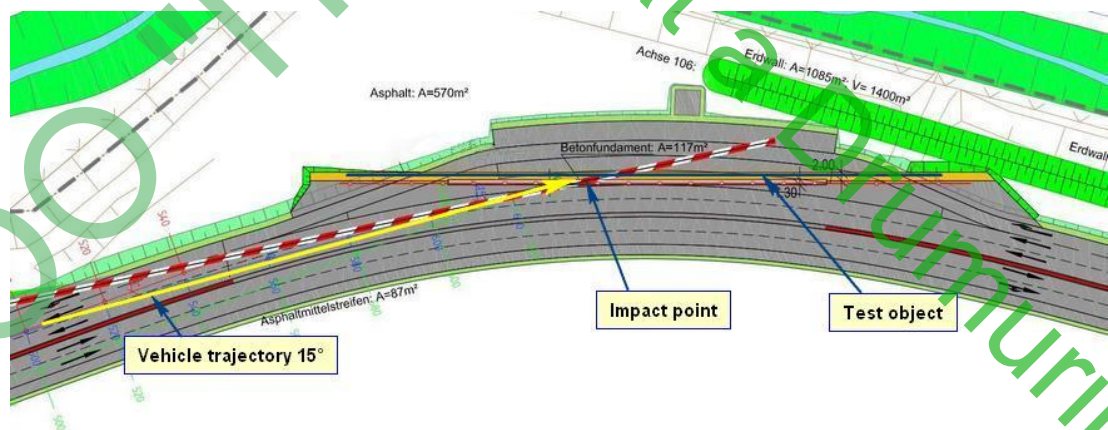
The test site consists of an approach road of approximately 600 m and a test area on the outer side of a curve in the road of 160 x 20 m. In this area the road restraint system was installed.

Beschreibung des Prüfgebiets

Das Versuchsgelände verfügt über eine Anlaufstrecke von etwa 600 m und eine Versuchsfläche von 160 x 20 m entlang einer Kurve. In diesem Bereich wurde das Rückhaltesystem installiert.

4.2.2 Sketch of vehicle approach to indicated impact point

Anfahrskizze



4.2.3 Type of underground

Bodenart

Soil

Sand

4.2.4 Class/condition of underground

Bodenzustand

75% gravel, 20% sand and 5% silt

Bodenklasse 3

4.2.5 Additional Information

Weitere Informationen

-

4.3 Installation and detailed description of test item

Installation und detaillierte Beschreibung der zu prüfenden Einrichtung

4.3.1 Conformity between test item drawings and item tested (Yes/No) Yes

Übereinstimmung des Systems mit Zeichnungen (Ja/Nein)

Ja

4.3.2 Conformity between installation manual and item installed (Yes/No) Yes

Übereinstimmung des Aufbaus mit der Aufbauanleitung (Ja/Nein)

Ja

4.3.3 Description of the VRS tested

The tested road safety barrier system had a total length of 48 m, excluding lowering devices at both ends. At each 2.00 m a steel post is secured in the soil. The side beams (Passco B, with a length of 4.3 m) are mounted on each post with a bolt, plate and nut. The side beams are overlapping 0.3 m and connected with 6 bolts. The lowering devices, each with a length of 12 m, are built up with the same elements as the barrier system, but with a post clearance of 1.33 m. Their height increases from ground level to the system height. The impact point was planned at 14.95 m from the beginning of the tested system (post 10).

More details can be found in Annex A.

Detaillierte Beschreibung der zu prüfenden Einrichtung

Das getestete Straßenrückhaltesystem hat eine Gesamtlänge von 48 m, ohne die Endkonstruktionen an beiden Seiten. Alle 2.00 m wird ein Stahlträger in das Erdreich eingelassen. Die Schutzplankenholme (Passco B, Länge 4.3 m) werden auf der straßenzugewandten Seite der Pfosten mit einer Schraube, Scheibe und Mutter montiert. Die Holme sind überlappend (0.3 m) miteinander verbunden und mit 6 Schrauben befestigt. Die Anfangs- und Endabsenkungen, beide mit einer Länge von 12 m und einem Pfostenabstand von 1.33 m, sind von Grundniveau auf Systemhöhe ansteigend und werden mit den gleichen Teilen wie das Rückhaltesystem aufgebaut. Der vorgesehene Aufprallpunkt liegt in einem Abstand von 14.95 m zum Anfang des getesteten Systems (Posten 10).

Weitere Details können dem Anhang A entnommen werden.

4.3.3.1 Ground fixing details The steel posts (length 1.65 m) on which the side beams are mounted are driven into the soil over a depth of 0.95 m.

Art der Bodenbefestigung

Die stählernen Pfosten, Länge 1.65 m, an welchen die Schutzplankenholme montiert sind, werden über eine Tiefe von 0.95 m in den Untergrund gerammt.

4.3.3.2 Total length of the test item [m] 48 m

Länge des Prüfgegenstands [m]

4.3.3.3 Height of the test item in the impact area 0.75 m

Höhe des Prüfgegenstand im Anprallbereich

4.3.3.4 Post spacing and/or unit length 2.00 m

Abstand der Pfosten und / oder Elementlänge

4.3.3.5 Any additional information to describe the VRS sufficiently (e.g. element length, fastening torques, pre-tensioning) Annex A

Weitere Informationen zur Systembeschreibung (z.B. Elementlänge, Anzugsmomente, Vorspannung)

4.4 Description of test vehicle

Beschreibung des Prüffahrzeugs

4.4.1 Vehicle make and model

MAN 9.163

Fahrzeughersteller und Modell

4.4.2 Model year and/or initial registration

1999

Baujahr und/oder Erstzulassung

4.4.3 Vehicle identification number (VIN)

WMAL335902G125514

Fahrzeug – Identifizierungsnummer

4.4.4 Vehicle mass according to EN 1317-1:2010, Table 1

10000 kg

Fahrzeugmasse nach EN 1317-1: 2010, Tabelle 1

4.4.5 Location of the centre of gravity of the vehicle in the test condition according to EN 1317-1: 2010, Table 1

CGX: 2470 mm

CGY: 12 mm

Lage des Fahrzeugschwerpunkts

4.4.6 Position of vehicle instrumentation and measured displacement from vehicle centre of gravity

Lage der Beschleunigungssensoren zum Fahrzeugschwerpunkt

4.4.7 Ballast, layout and mass

Ballast, Anordnung und Masse

Steering robot: 10 kg in front of the driver seat

Steuerungseinrichtung: 10 kg vor dem Fahrersitz

Control unit steering robot: 20 kg between the seats

Kontrolleinheit für die Steuerungseinrichtung: 20 kg zwischen den Sitzen

Ballast: 3500 kg mid of cargo deck

Ballast: 3500 kg in der Mitte der Ladefläche

4.4.8 ATD (if fitted)

ATD

4.4.8.1 ATD type

ATD Typ

-

4.4.8.2 ATD mass

ATD Masse

-

4.4.8.3 ATD position in vehicle

ATD Position im Fahrzeug

-

4.4.9 Total test mass [kg]

9795 kg

Gesamt Prüfmasse [kg]

4.4.10 Dimensions and characteristics of vehicle

Maße und Eigenschaften des Fahrzeugs

4.4.10.1	Total vehicle length	7200 mm
	<i>Fahrzeuggesamtlänge</i>	
4.4.10.2	Total vehicle width (excluding side mirrors)	2520 mm
	<i>Fahrzeuggesamtbreite (ohne Seitenspiegel)</i>	
4.4.10.3	Wheel track	1740 mm
	<i>Spurweite</i>	
4.4.10.4	Number of axles	2
	<i>Anzahl der Achsen</i>	
4.4.10.5	Wheel radius	17.5 inch
	<i>Radradius</i>	
4.4.10.6	Wheel base	4030 mm
	<i>Radstand</i>	
4.4.10.7	Height of platform, for HGVs only	1420 mm
	<i>Fahrzeughöhe, nur für Nutzfahrzeuge</i>	
4.4.11	Vehicle roadworthiness assessment	OK
	<i>Fahrzeug-Verkehrstauglichkeit</i>	
4.4.12	Additional information	-
	<i>Weitere Informationen</i>	

5 Results

Ergebnisse

5.1 Test Conditions

Versuchsrandbedingungen

5.1.1	Actual impact speed [km/h]	71.0 km/h
	<i>Anprallgeschwindigkeit [km/h]</i>	
5.1.2	% difference from nominal speed	1.4 %
	<i>Differenz zur Sollanprallgeschwindigkeit</i>	
5.1.3	Actual impact angle [°]	14.6 °
	<i>Anprallwinkel [°]</i>	
5.1.4	Difference from nominal angle [°]	-0.4 °
	<i>Differenz zum Sollwinkel [°]</i>	

5.1.5 General description of test sequence

The test vehicle impacted the restraint system at 14.6 m from the start of the system. The restraint system forced the front of the vehicle to the right, inducing a rotation with the rear to the restraint system.. Both front wheels were forced to an almost 90° position steering to the left. This caused the vehicle to stay in contact with the restraint system with its front. The initial rotation caused the rear of the vehicle to impact the barrier. The rear of the vehicle tilted to the left and was raised from the road. The barrier stopped the rotation of the vehicle. The Vehicle landed and bounced up again. The back of the vehicle now moved and tilted over to the right. After landing and bouncing up again the back moved to the barrier again. Shortly after that the vehicle stopped. The left front wheel had dug itself into the soil during a large part of the impact. The vehicle stopped with the front against the barrier at about 33.5 m after the impact point and stayed within the "exit box".

Allgemeine Beschreibung des Prüfablaufs

Das Versuchsfahrzeug prallte auf das Rückhaltesystem in einem Abstand von 14.6 m zum Systemanfang. Der Aufprall der Front des Fahrzeugs verursachte eine Rotation des Hecks in Richtung Rückhaltesystem. Die Vorderräder wurden um fast 90° nach links gedreht. Dieses verursachte den fortlaufenden Kontakt der Front des Fahrzeugs mit dem Rückhaltesystem. Die Rotation des Fahrzeugs verursachte einen Aufprall des Hecks an das Rückhaltesystem. Das Heck des Fahrzeugs wurde dadurch nach links über das Rückhaltesystem gedreht und von der Fahrbahn gehoben. Das Rückhaltesystem stoppte die Rotation des Fahrzeugs. Das Heck prallte vom System ab und feder zurück und kam kurz darauf zum Stillstand. Das linke Vorderrad wurde nach dem Aufprall über eine weite Strecke des Fahrzeugkontakts zwischen Rückhaltesystem und Boden gedrückt. Das Versuchsfahrzeug verließ die "exit box" innerhalb der vorgeschriebenen Breite und kam 33.5 m nach dem ersten Aufprall zum Stillstand.

5.1.6	Weather conditions during test sequence <i>Wetterbedingungen bei der Prüfung</i>	18.4 °C; 5 m/s wind
5.1.7	Additional information <i>Weitere Informationen</i>	Vehicle stays in contact with safety barrier <i>Das Versuchsfahrzeug verbleibt bis zum Stillstand in Kontakt mit dem Rückhaltesystem</i>
5.2	Test item <i>Prüfgegenstand</i>	
	General: <i>Allgemein:</i>	
5.2.1	Dynamic deflection (D_m) [m] <i>Dynamische Durchbiegung [m]</i>	1.2 m
5.2.2	Normalised dynamic deflection (D_N) [m] <i>Normalisierte dynamische Durchbiegung [m]</i>	1.3 m
5.2.3	Working width (W_m) [m] <i>Wirkungsbereich [m]</i>	1.3 m
5.2.4	Normalised Working width (W_N) [m] <i>Normalisierter Wirkungsbereich [m]</i>	1.3 m
5.2.5	Class of normalised working width <i>Klasse des Wirkungsbereichs</i>	W4
5.2.6	Vehicle intrusion (VI_m) [m], for HGVs and buses only <i>Fahrzeugintrusion [m], nur für HGV und Busse</i>	2.4 m : VI7
5.2.7	Maximum permanent deflection [m]	0.4 m

Maximale bleibende Verformung [m]

5.2.8 Length of contact [m] 32.8 m

Länge der Berührung [m]

5.2.9 Actual impact point location 14.62 m

Anprallpunkt

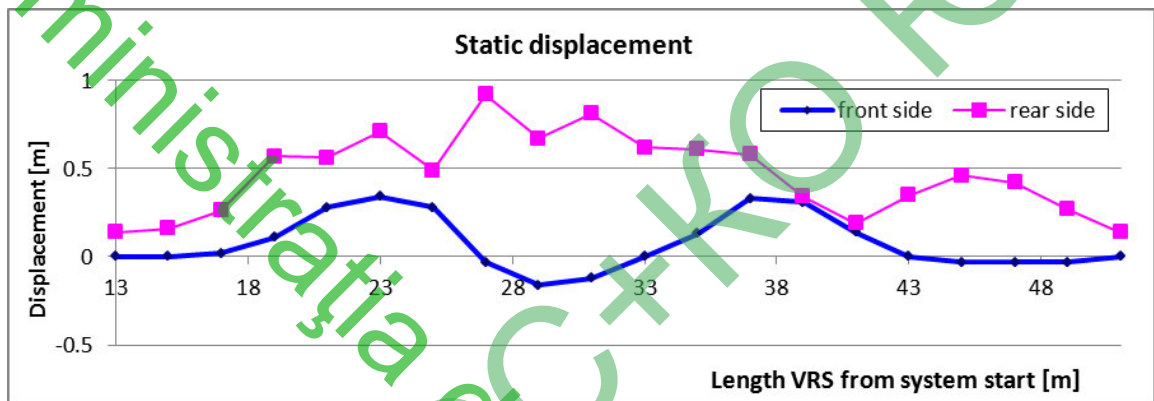
5.2.10 The permanent displacement of the end anchorage caused by the impact 0 m

Bleibende Verschiebung der Endverankerung

5.2.11 The permanent displacement in the joints of the main rail or in connection elements Measured every 2 m

Bleibende Verschiebung der Gelenke oder Verbindungselemente

Measured every 2 m



5.2.12 Description of damage to test item including foundations, ground anchorages and fixings

Over a length of 35.8 m the side beams of the barrier were deformed and displaced to mostly the non-traffic side. Posts 18 up to 32 were all separated from the side beams, and displaced to the non-traffic side. The side beams were damaged at several places, but were still connected. The side beams were deformed to the non-traffic side at the first 11 m from impact. Along the following 6.5 m the system was deformed to the traffic side, and the last 18.3 m again to the non-traffic side. The soil around the posts in the impact area was partly pushed aside by the left front wheel of the vehicle.

Beschreibung der Beschädigungen des Prüfgegenstands, inkl. Fundamente, Bodenverankerungen und -befestigungen

Die Stahlschutzplankenholme wurden beim Aufprall über eine Länge von 35.8 m deformiert und zum größten Teil zur fahrbahnabgewandten Seite verlagert. Die Pfosten 18 bis 32 wurden von den Holmen abgetrennt.

Die Holme wurden an verschiedenen Stellen beschädigt, blieben aber verbunden. Über die ersten 11m nach dem Aufprall wurden die Pfosten und Holme zur fahrbahnabgewandten Seite verlagert, über die folgenden 15 m zur Fahrbahnseite hin und die letzten 18.3 m wiederum zur fahrbahnabgewandten Seite. Der Boden um die Pfosten des Aufprallpunkts wurde durch das linke Vorderrad zu Seite gedrückt.

Impact test acceptance criteria:

Erfüllungskriterien

5.2.13	Safety barrier contained the test vehicle (Yes/No)	Yes
	– if no, description is required	-
	<i>Gepriüfte Barriere hielt Versuchsfahrzeug zurück (Ja/Nein)</i>	Ja
	– wenn nein, Erläuterung erforderlich	-
5.2.14	Complete breakage of any principal longitudinal elements of the test item (Yes/No)	No
	– if yes, description is required	-
	<i>Vollständiger Bruch wesentlicher longitudinaler Elemente des Prüfgegenstandes (Ja/Nein)</i>	Nein
	– wenn ja, Erläuterung erforderlich	-
5.2.15	Detachments of test item parts over 2 kg totally detached	None
	<i>Einzelheiten zu abgelösten Teilen des Prüfgegenstandes > 2 kg</i>	Keine
5.2.15.1	Identification	-
	<i>Beschreibung</i>	-
5.2.15.2	Mass [kg]	-
	<i>Masse [kg]</i>	-
5.2.15.3	Final location measured perpendicular to the original traffic face of the barrier	-
	<i>Endposition rechtwinklig zur Barriere</i>	-

5.2.15.4	Final location measured along the line of the original traffic face of the barrier starting from the detachment point	-
	<i>Endposition in Längsrichtung der Barriere beginnend am Ablösepunkt</i>	-
5.2.16	Elements of the safety barrier penetrated the passenger compartment of the vehicle (Yes/No)	No
	– if yes, description of penetration is required	-
	<i>Teile der Barriere drangen in den Fahrgastraum ein (Ja/Nein)</i>	<i>Nein</i>
	– wenn ja, weitere Erläuterung erforderlich	-
5.2.17	Deformations of and/or intrusions into the passenger compartment (Yes/No)	No
	– if yes, description of deformations and/or intrusions are required	
	<i>Deformationen des und/oder Eindringungen in den Fahrgastraum (Ja/Nein)</i>	<i>Nein</i>
	– falls ja, weitere Erläuterung erforderlich	
5.3	Test vehicle	
	<i>Prüffahrzeug</i>	
	General	
	<i>Allgemein</i>	
5.3.1	General description of vehicle trajectory	<p>The test vehicle impacted the restraint system with a speed of 71.0 km/h, with an angle of 14.6°. The system, forcing the vehicle to its right side, then was contacted by the rear of the vehicle. The left front wheel was turned to the left, and during the impact the steering rod and the left attachment of the wheel axle broke off. This caused the front of the vehicle to stay in contact with the barrier until standstill. The back of the vehicle impacted the barrier and tilted to the left and lifted from the ground. After landing it bounced up turning its back to the road side. After landing it jumped up again and the back of the vehicle now started moving back to the barrier. Shortly after landing the vehicle came to a standstill at an angle of about 10° against the barrier system.</p>

Allgemeine Beschreibung der Fahrzeug-Bewegungsbahn

Das Versuchsfahrzeug prallte mit einer Aufprallgeschwindigkeit von 71.0 km/h und einem Aufprallwinkel von 14.6 ° auf das Rückhaltesystem. Das Rückhaltesystem lenkte das Fahrzeug nach rechts und daraufhin berührte das Heck das System. Während des Aufpralls brach die linke Spurstange und das Traggelenk ab und das linke Vorderrad wurde nach links gedreht. Dieses verursachte einen fortlaufenden Kontakt der Front des Fahrzeugs mit dem Rückhaltesystem bis zum Fahrzeugstillstand. Das Heck des Fahrzeug prallte an das System, drehte sich nach links und verlor den Kontakt mit der Fahrbahn. Nachdem das Fahrzeug geendet war, sprang es nach oben vom System weg um sich nach einem weiteren Fahrbahnkontakt wieder in Richtung Rückhaltesystem zu bewegen. Das Fahrzeug kam mit der Front im Kontakt zum System und dem Heck in einem Winkel von ca.10° zum Stillstand.

5.3.2 Vehicle cockpit deformation index VCDI (required for cars)

Index der Verformung des Cockpits VCDI (für Pkw)

5.3.3 Description of the damage and deformation to the test vehicle

Beschreibung der Schäden und Verformungen des Prüffahrzeug

Head lamp, bumper, step and composite body structure broken and separated from vehicle at lhs corner;

Bumper attachments broken;

Left front tire deflated; wheel rim damaged;

Front left leaf spring displaced, attachment of axle broken at lhs side;

Steering gear forced backwards, steering rod lhs wheel broken from wheel hub;

Air tank behind lhs wheel forced backwards;

LHS side guard beam broken loose at front;

Metal cover at left rear corner deformed.

Scheinwerfer, Stoßfänger, Tritstufe und GFK-Karosserie links gebrochen und vom Fahrzeug abgetrennt;

Stoßfängerbefestigung gebrochen;

Reifen vorne links drucklos, Felge links beschädigt;

Blattfeder vorne links nach hinten verschoben, Achsbefestigungen vorne links gebrochen;

Lenkgetriebe nach hinten verschoben, Spurstange vorne links gebrochen (radseitig);

Lufttank hinter linkem Vorderrad nach hinten verschoben;

Unterfahrschutz vorne links gebrochen und lose;

Metallabdeckung links hinten beschädigt.

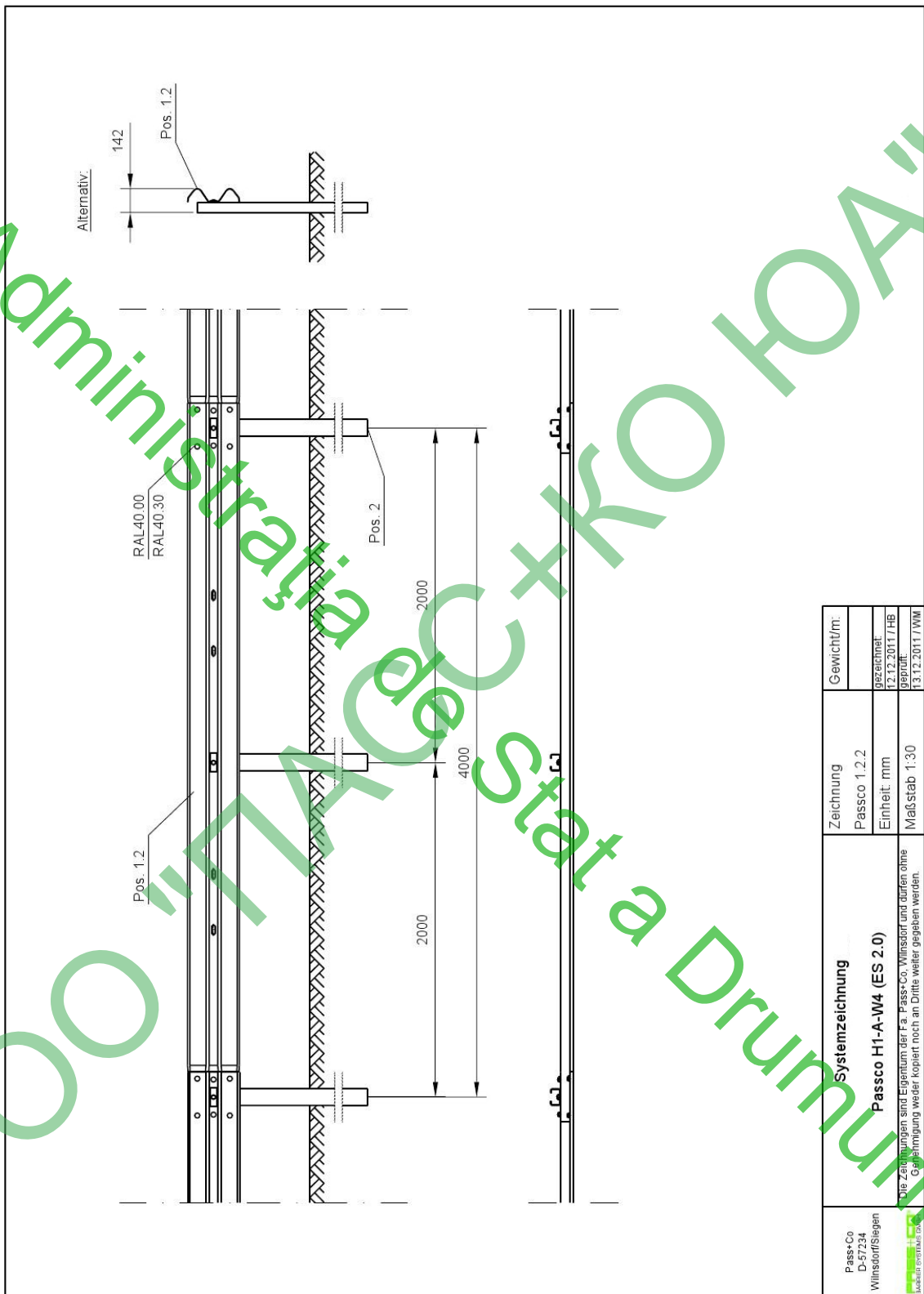
5.3.4	Description of any contact of the dummy head with part of the barrier <i>Beschreibung Dummy-Kopfkontakt mit Barriere</i>	-
	Impact test acceptance criteria: <i>Erfüllungskriterien:</i>	
5.3.5	Actual impact speed and angle within tolerance limits (Yes/No) <i>Anprallgeschwindigkeit und Anprallwinkel innerhalb der Toleranzgrenzen (Ja/Nein)</i>	Yes Ja
5.3.6	Actual impact speed and angle combination within the tolerance envelope in Figure 3 (Yes/No) <i>Winkel-Geschwindigkeitskombination im zulässigen Toleranzfeld (Ja/Nein)</i>	Yes Ja
5.3.7	During and after the impact, no more than one wheel of the vehicle passes over the rearmost part of the deformed system (Yes/No) <i>Während und nach Anprall überfährt nicht mehr als ein Fahrzeugrad den hinteren Teil des deformierten Systems (Ja/Nein)</i>	Yes Ja
5.3.8	Vehicle rolls over during the test (Yes/No) <i>Fahrzeug überschlägt sich während des Tests (Ja/Nein)</i>	No Nein
5.3.9	For tests with HGVs, more than 5% of the mass of the ballast becomes detached or spilt during the test up to the time when the vehicle comes to rest (Yes/No) – if yes, record % <i>Mehr als 5% der Ballastmasse kommen während des Tests bis zum Fahrzeugstillstand frei (nur für Tests mit Lkw).</i>	No Nein
5.3.10	Vehicle within "exit box" (Yes/No) <i>Fahrzeug innerhalb der „exit box“ (Ja/Nein)</i>	Yes Ja
5.3.11	Large parts from vehicle separated (Yes/No) - if yes then description of parts <i>Grosse Teile von Fahrzeug separiert (Ja/Nein)</i> - wenn Ja, Beschreibung der Teile	No Nein
5.4	Assessment of the impact severity	-

All severity indices shall be rounded to the nearest whole number, unless stated otherwise. The filtering frequency applied to the raw data shall also be stated.

Bewertung der Aufprallschwere

Alle Belastungs-Indizes sollen ganzzahlig gerundet werden. Die Filterfrequenz der Rohdaten muss ebenfalls angegeben werden.

I.S. "Administrația de Stat a Drumurilor"
"IACC+KO FOA"



Pass-Co D-57234 Wilsdorf/Siegen <small>Marken-entwurf</small>	Systemzeichnung Passco H1-A-W4 (ES 2.0) <small>Die Zeichnungen sind Eigentum der Fa. Pass-Co, Wilsdorf und dürfen ohne Genehmigung weiter kopiert noch an Dritte weiter gegeben werden.</small>	Zeichnung	Gewicht/m:
		Passco 1.2.2	
		Einheit: mm	gezeichnet: 12.12.2011 / HB
		Maßstab 1:30	geprüft: 13.12.2011 / WM

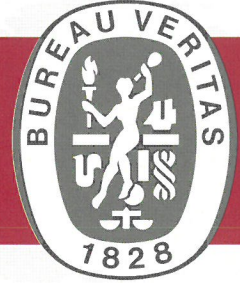
8.B.5 Sequences and additional photographs
Weitere Bildsequenzen





IS "Administrația CJ+KO Stata Drumurilor"

BUREAU VERITAS
Certification



CERTIFICATE OF CONSTANCY OF PERFORMANCE

Certificate nb: **1035-CPR-ES1055474-80-B**

In compliance of the Regulation No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products, it has been stated that the product:

VEHICLE RESTRAINT SYSTEM - SAFETY BARRIER "BMS4PR-H1"

The characteristics are detailed in the attached annex

Manufactured by:

ÇEPAŞ Galvaniz Demir Çelik Madencilik İnşaat Nakliye Tic. ve San. A.Ş.

Produced in:

İstanbul Yolu 25.Km, Saray Mahallesi 175. Sokak No:2,2/A, Kahramankazan, Ankara, Turkey

They are submitted by the manufacturer to factory production control established at the standard EN 1317-5:2007+A2:2012 Road restraint systems. Part 5: Product requirements and evaluation of conformity for vehicle restraint systems, and the initial type testing by accredited laboratory of samples taken at the factory.

The notified body BUREAU VERITAS CERTIFICATION has performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control established in the harmonized standard concerned.

This certificate attests that all provisions concerning the attestation of factory production control described in the Annex ZA of the harmonised standard were applied and it authorizes the manufacturer or its agent to fix the CE marking.

This certificate remains valid as long as the conditions laid down with the harmonised standard concerned or the manufacturing conditions in the factory or the FPC itself are not modified significantly.

Date of initial issuing: Madrid, 28/05/2019



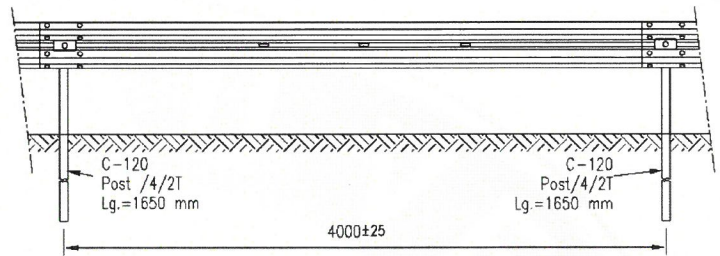
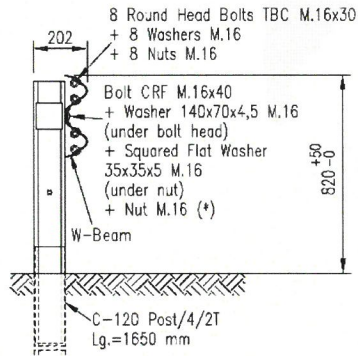
Mónica Botas
Certification Manager

Bureau Veritas Iberia, S.L., Edificio Caoba. C/ Valportillo Primera 22-24 Polígono Industrial La Granja, 28108 – Alcobendas (MADRID). Notified body 1035



TECHNICAL DATA SHEET ANNEXED TO
CERTIFICATE OF CONSTANCY OF PERFORMANCE
Nº: 1035-CPR-ES1055474-80-B
Date of approval: 28/05/2019

Barrier
BMS4PR-H1



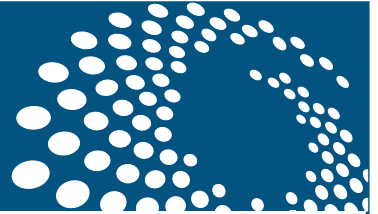
CROSS SECTION

ELEVATION

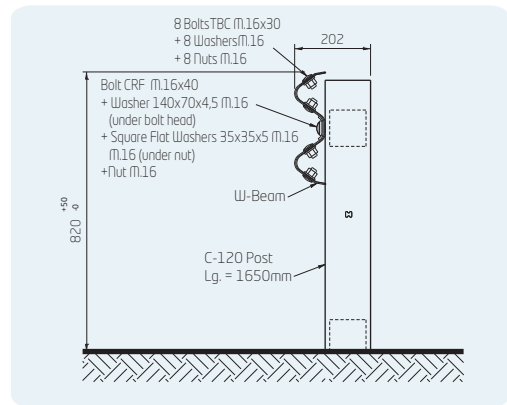
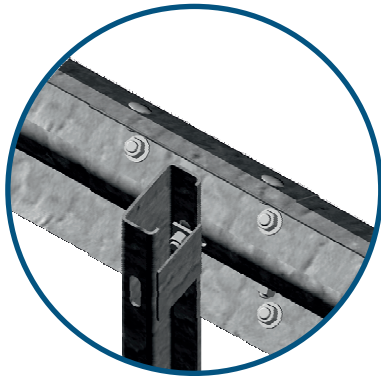
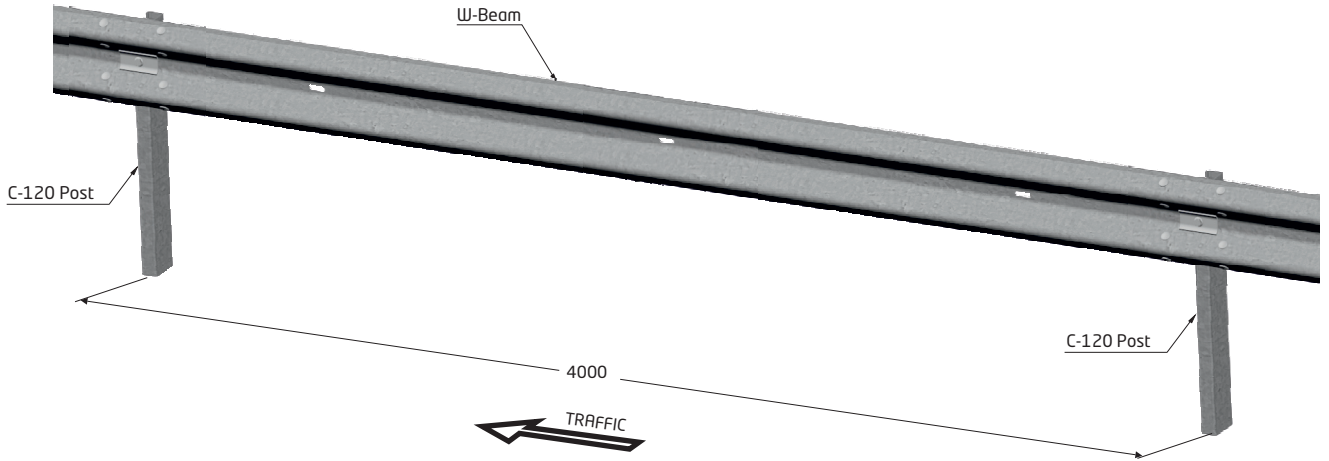
Dimensions in mm

STANDARDS	PERFORMANCE PARAMETERS	ACCORDING TO UNE-EN 1317-2
UNE EN 1317-1 UNE EN 1317-2 UNE EN 1317-5	a) Performance Level b) Impact Severity Level c) Normalized Working Width d) Normalized Dynamic Deflection e) Normalized Vehicle Intrusion f) Resistance to snow removal	H1 A W _N = 1,3 m (W4) D _N = 1,2 m V _{IN} = 2.4 m (Class VI7) Class 3
DETACHED PIECES:	No	
SOIL DESCRIPTION:	Controlled soil ZA-20 Compactness average 99% according to nuclear test Post static test according to UNE 135124: OK	
HAZARDOUS SUBSTANCES:	NPD	
OBSERVATIONS:	None	
INITIAL TYPE-TEST LABORATORY:	FUNDACIÓN CIDAUT, Valladolid (Spain)	
VEHICLE IMPACT TEST CODES:	E16-2896 E16-2836	TB11 TB42
MATERIALS:	Steel UNE-EN 10025	DURABILITY: Hot Dip Galvanizing. UNE-EN ISO 1461, UNE-EN ISO 14713

Single Steel Guardrail of High Containment BMS4PR-H1



1. DESCRIPTION :



containment level

10 t

70

H1

working width

W4

severity class

A

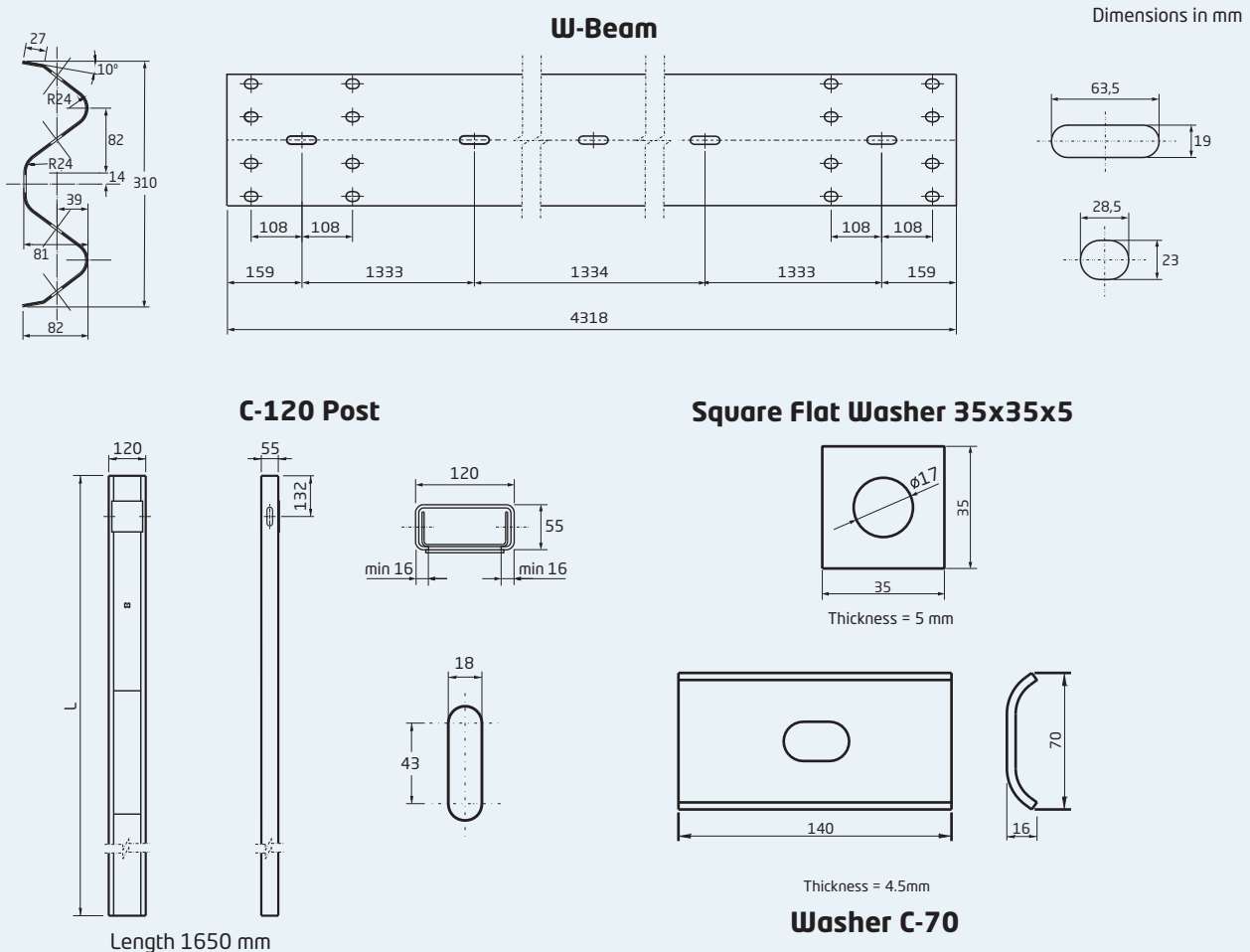
The "BMS4PR-H1" guardrail is a longitudinal safety barrier totally made of galvanized steel and specifically designed to be installed on shoulders and median reserves of any type or road. The "BMS4PR-H1" barrier is composed by a continuous horizontal W-Beam oriented to traffic and regularly supported by C-120 vertical posts at each 4 m. All components and accessories are made of base steel according to European

Standard EN10.025. Hot rolled products of non-alloy structural. Hot dip galvanized in accordance with the European Standard EN ISO 1461. "BMS4PR-H1" guardrail characterizes for the joint between rail and post is fastened by means of a breakaway bolt, it is, able to break in a controlled way at certain level of applied strength.



Single Steel Guardrail of High Containment BMS4PR-H1

2. COMPONENTS:



3. PERFORMANCE UNDER VEHICLE IMPACT:

The "BMS4PR-H1" guardrail has successfully passed the full-scale crash-tests TB42 and TB11 according to the European standard EN 1317, meeting all acceptance criteria for **H1** containment level, **A** severity class and **W4** working width.

TB 11 Crash-Test

Car 900 Kg.,
100 Km/h and 20°



TB 42 Crash-Test

Ridig Truck 10.000 Kg.,
70 Km/h and 15°



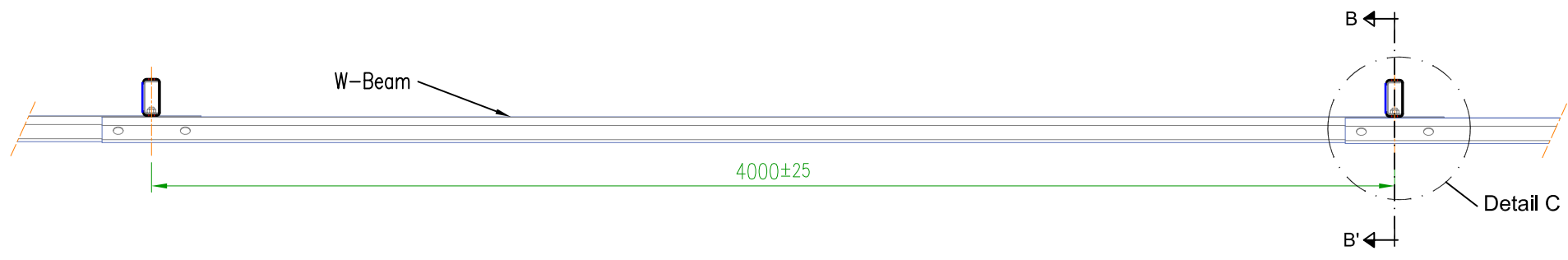
Single Steel Guardrail "BMS4PR-H1"

Annex 1: Installation Drawings

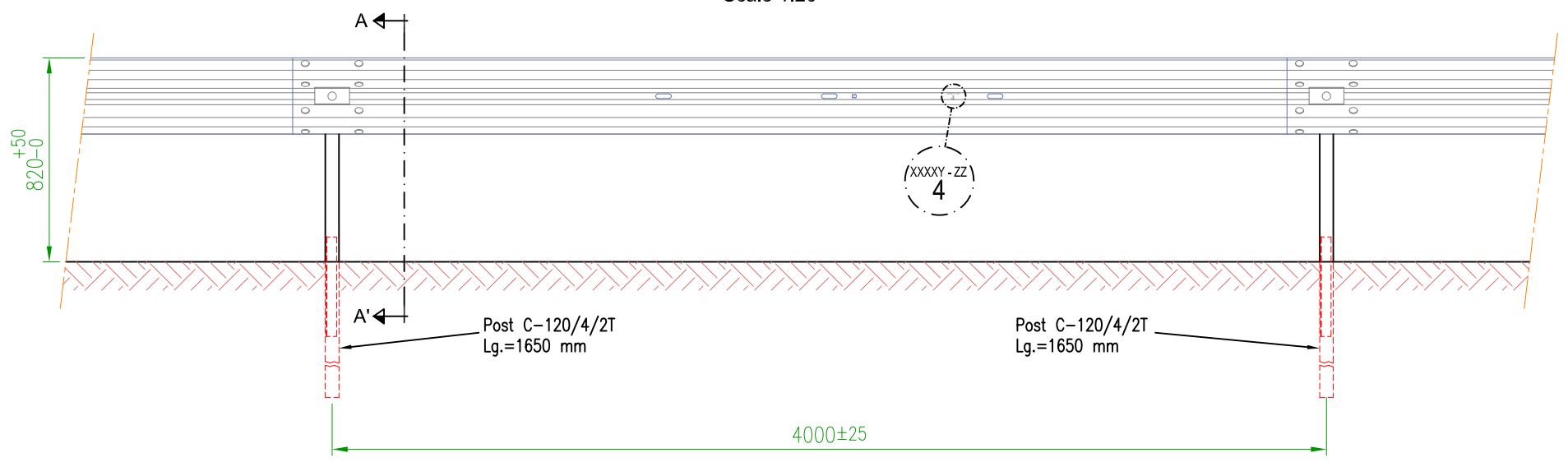
August 2019



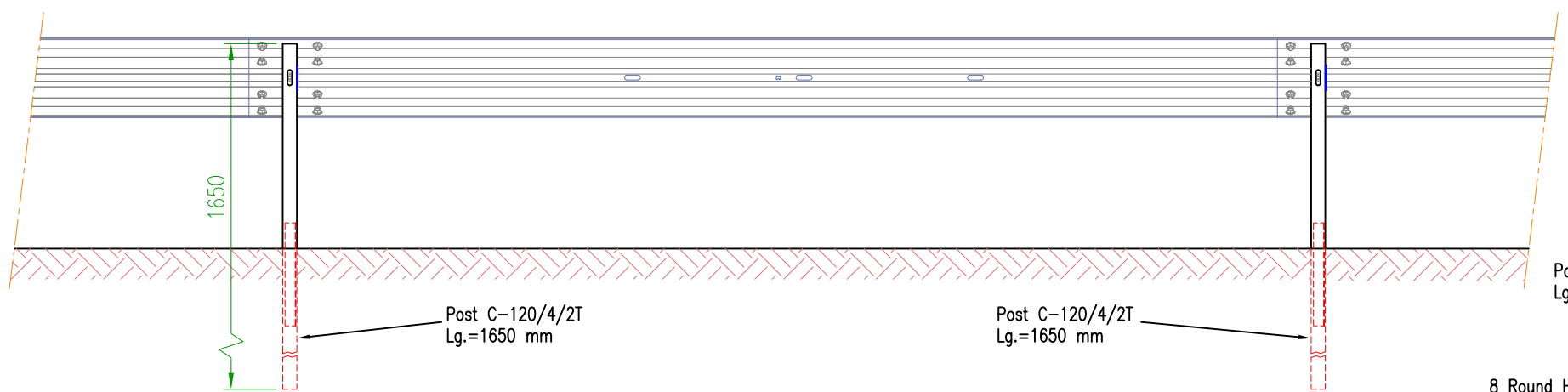
Paseo de Belén, 11 - Edificio UVainnova - Campus Miguel Delibes
47011 - Valladolid, ESPAÑA (SPAIN) Tel: +(34) 983 990468
e-mail: info@roadsteel.com - <http://www.roadsteel.com>



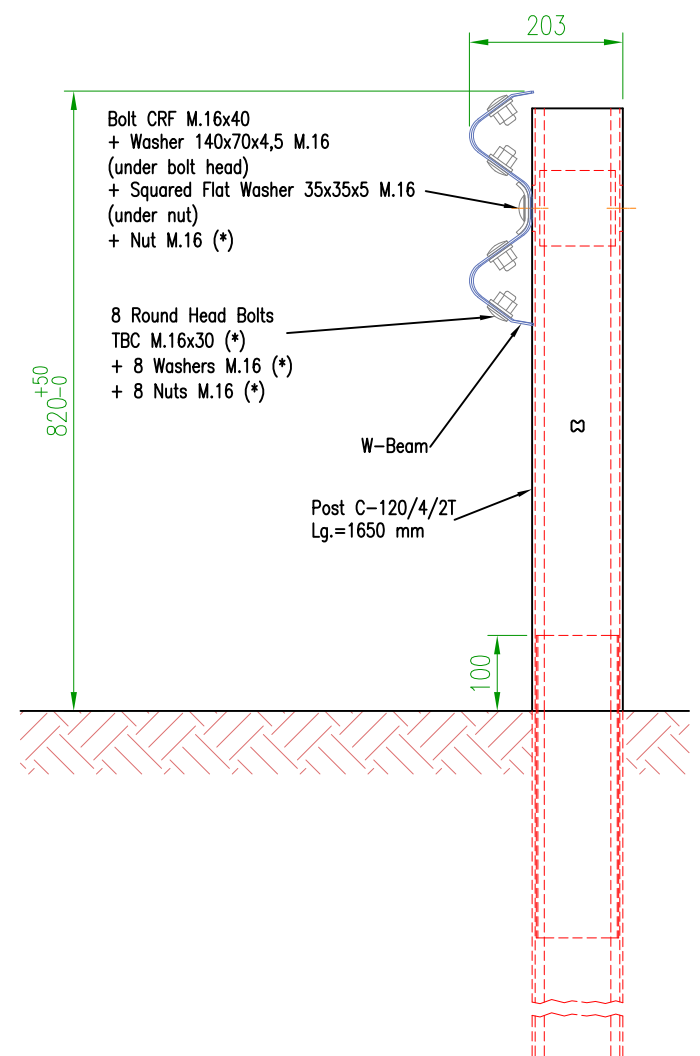
PLAN
Scale 1:20



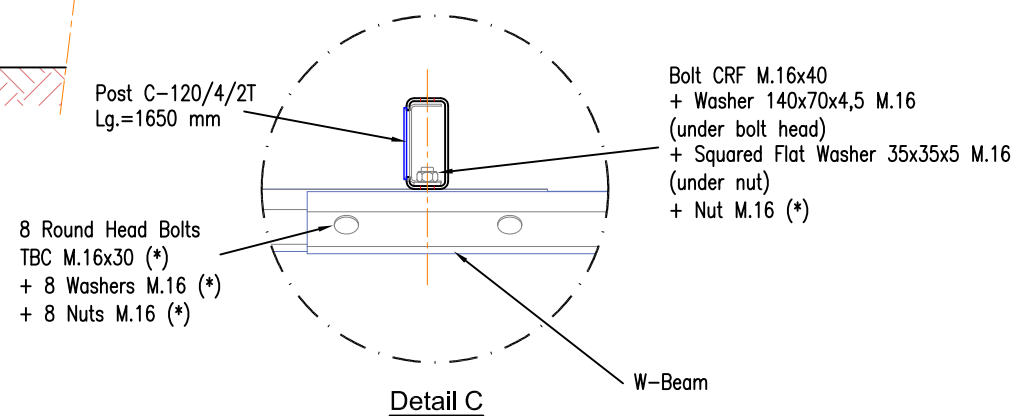
FRONT ELEVATION
Scale 1:25



REAR ELEVATION
Scale 1:25



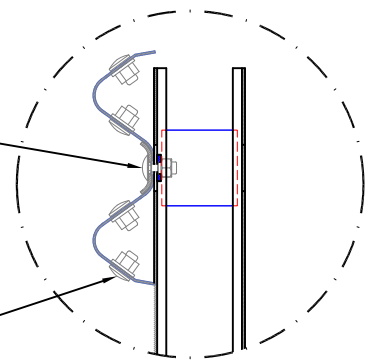
SECTION A-A'
Scale 1:10



Detail C

- Bolt CRF M.16x40
- + Washer 140x70x4,5 M.16 (under bolt head)
- + Squared Flat Washer 35x35x5 M.16 (under nut)
- + Nut M.16 (*)

- 8 Round Head Bolts TBC M.16x30 (*)
- + 8 Washers M.16 (*)
- + 8 Nuts M.16 (*)




SECTION B-B'
Scale 1:10

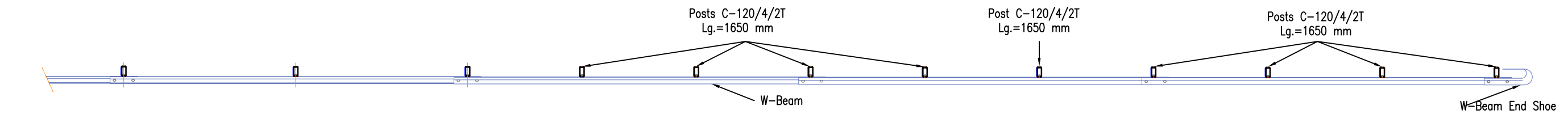
NOTE:
W-Beams of this system are identified with the reference code number "4", just under traceability code, located in the central sine of their profile, by the middle of W-Beam.

Note (informative):
Round Head Bolt TBC M.16x30 } Material complying the Spanish Standard UNE 135122
Washer M.16 (*)

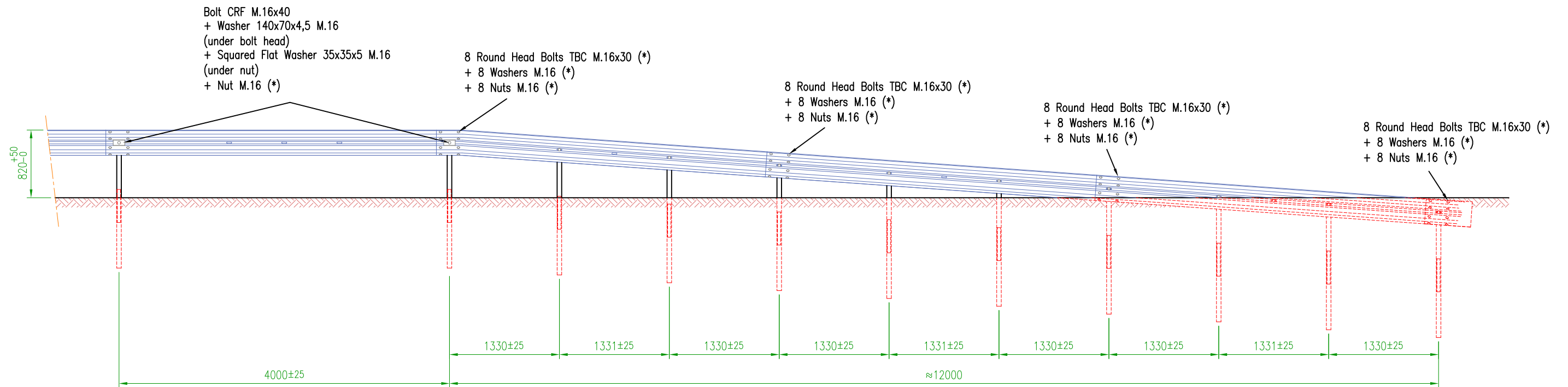
Note (informative):
Nut M.16 (*) } Material complying the Spanish Standard UNE 135122 (UNE-EN ISO 4034)

Dimensions in mm

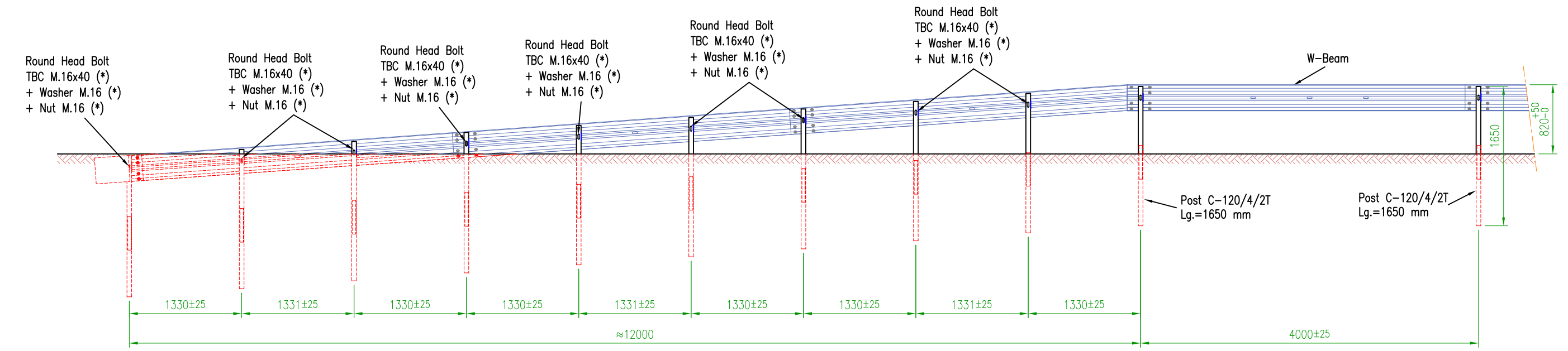
	DATE	NAME	SIGNATURES	 Tel: (+34) 985 128200 (+34) 983 990468 info@roadsteel.com http://www.roadsteel.com
Draw	01-12-17	Jonathan Cordero P.		
Review	01-12-17	Gerardo Agudín M.		
Accept	01-12-17	Antonio Amengual P.		
SCALE	BMS4PR-H1 SINGLE STEEL GUARDRAIL			Drawing N°: BMS4PR-H1-MAN-011217-0-001a
1:10	GENERAL DRAWING			Replace to: BMS4PR-H1-MAN-011217-0-001
1:20				Replaced for:
1:25				



PLAN



FRONT ELEVATION



REAR ELEVATION

Dimensions in mm

Note (informative):
Round Head Bolt TBC M.16x30
Round Head Bolt TBC M.16x40
Washer M.16 (*)

Material complying the Spanish Standard UNE 135122

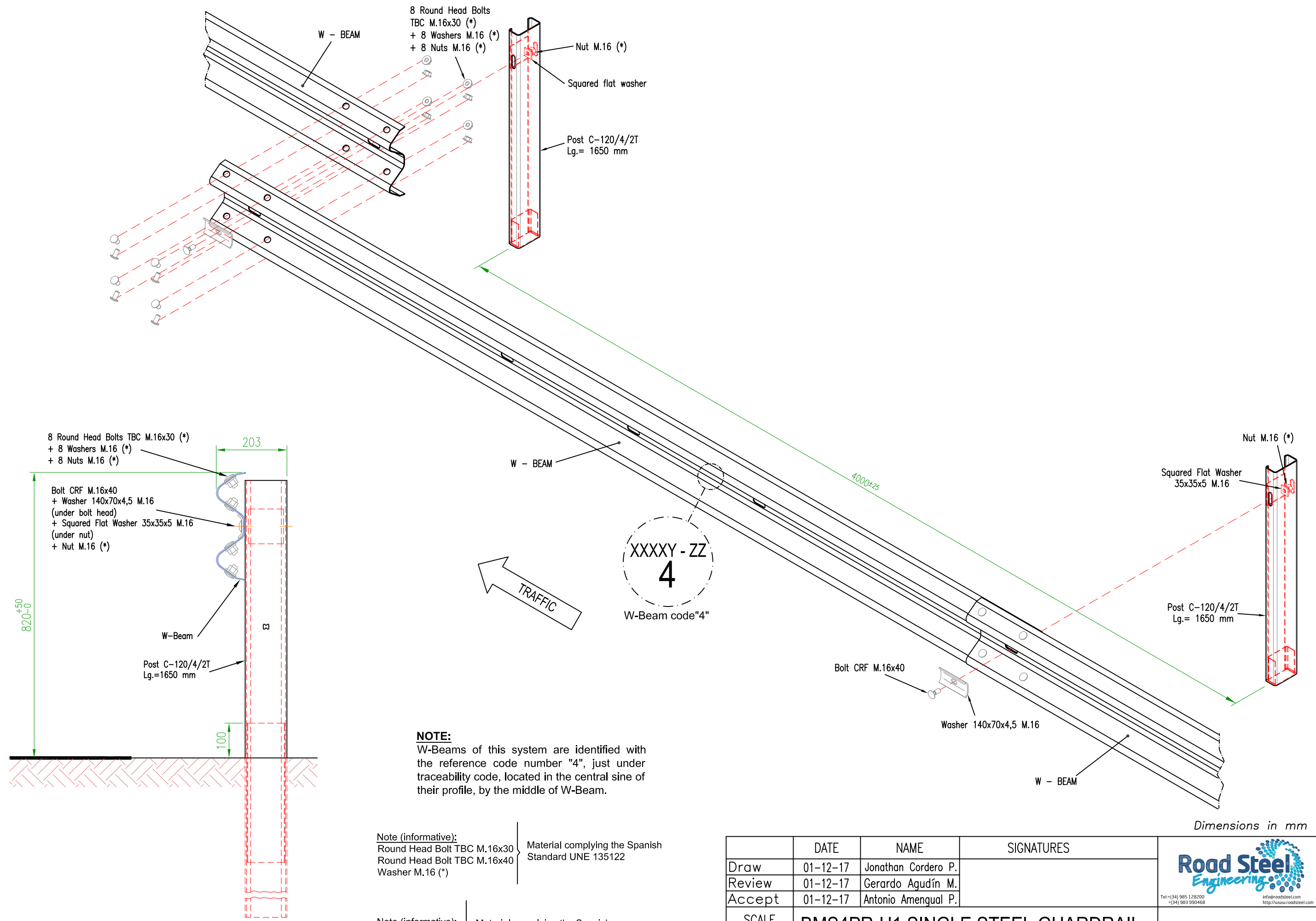
Note (informative):
Nut M.16 (*)

Material complying the Spanish Standard UNE 135122 (UNE-EN ISO 4034)

	DATE	NAME	SIGNATURES
Draw	01-12-17	Jonathan Cordero P.	
Review	01-12-17	Gerardo Agudín M.	
Accept	01-12-17	Antonio Amengual P.	
SCALE	BMS4PR-H1 SINGLE STEEL GUARDRAIL		
1:50	DRAWING OF END RAMPING DOWN SECTION		

Tel: +34 985 126200
+34 983 990468
info@roadsteel.com
http://www.roadsteel.com

Drawing N°: BMS4PR-H1-MAN-011217-0-002a
Replace to: BMS4PR-H1-MAN-011217-0-002
Replaced for:



CROSS SECTION AT POST

NOTE:
W-Beams of this system are identified with the reference code number "4", just under traceability code, located in the central sine of their profile, by the middle of W-Beam.

Note (informative):
Round Head Bolt TBC M.16x30 } Material complying the Spanish Standard UNE 135122
Round Head Bolt TBC M.16x40 }
Washer M.16 (*) }

Note (informative):
Nut M.16 (*) } Material complying the Spanish Standard UNE 135122 (UNE-EN ISO 4034)

Dimensions in mm

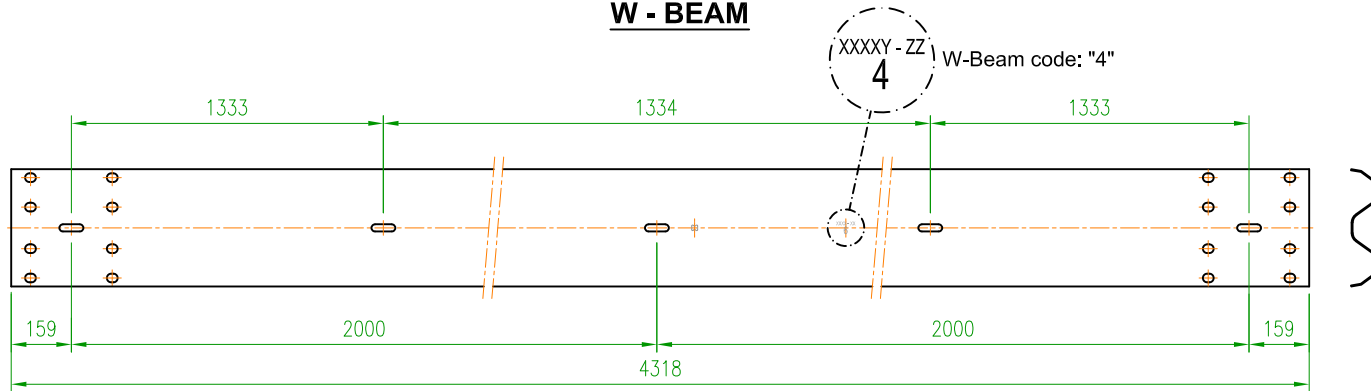
	DATE	NAME	SIGNATURES
Draw	01-12-17	Jonathan Cordero P.	
Review	01-12-17	Gerardo Agudín M.	
Accept	01-12-17	Antonio Amengual P.	

SCALE	BMS4PR-H1 SINGLE STEEL GUARDRAIL
-	INSTALLATION

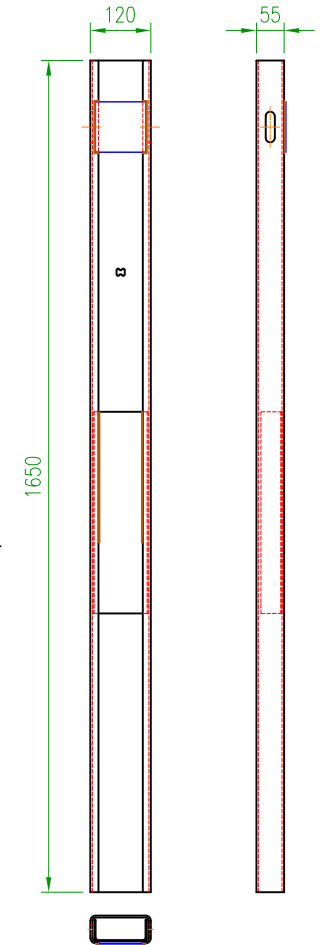
Tel: +34 985 128200
+34 983 990468
info@roadsteel.com
http://www.roadsteel.com

Drawing N°: BMS4PR-H1-MAN-011217-0-003a
Replace to: BMS4PR-H1-MAN-011217-0-003
Replaced for:

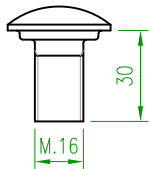
W - BEAM



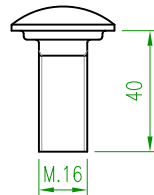
C-120 POST (Lg 1650 mm)



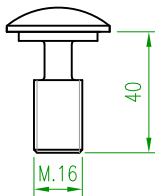
BOLT TBC M.16x30



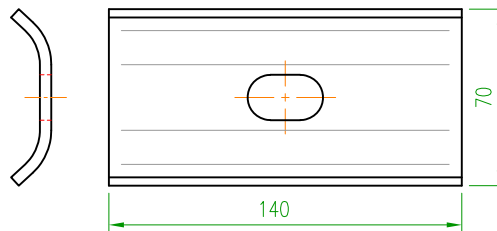
BOLT TBC M.16x40



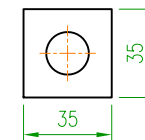
BOLT CRF M.16x40



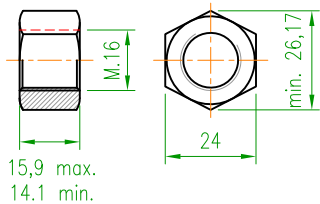
RECTANGULAR WASHER 140x70



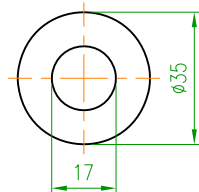
SQUARED FLAT WASHER 35x35




NUT M.16



WASHER M.16



Dimensions in mm

	DATE	NAME	SIGNATURES	 Tel: + (34) 985 128200 + (34) 983 990468 info@roadsteel.com http://www.roadsteel.com
Draw	01-12-17	Jonathan Cordero P.		
Review	01-12-17	Gerardo Agudín M.		
Accept	01-12-17	Antonio Amengual P.		
SCALE	BMS4PR-H1 SINGLE STEEL GUARDRAIL			Drawing N°: BMS4PR-H1-MAN-011217-0-004a
-	COMPONENTS			Replace to: BMS4PR-H1-MAN-011217-0-004
				Replaced for:

Informe de Ensayo

Test Report

Barrera metálica simple BMS4PR-H1 Ensayo TB42 según UNE-EN 1317-1,2:2011

*BMS4PR-H1 Single steel guardrail
TB42 test complying with UNE-EN 1317-1,2:2011*

Cliente
Customer

HIASA (Hierros y Aplanaciones S.A.)
Polígono Industrial de Cancienes P.O. Box 252
33470 Corvera (Asturias) España
Tel: (+34) 985 12 82 00
Fax: (+34) 985 50 53 61

Fecha de Ensayo
Test Date

13 de Diciembre de 2016
December 13, 2016

Código de Ensayo
Test Code

E16-2836

Código de Informe
Report Code

E16-2836 / 01




Edición:
Edition:

Firmado por:

OSCAR BLANCO SALGADO
LABORATORIO FUNDACION CIDAUT
oscbra@cidaut.es

Revisión y Aprobación:
Review and Approval:

Firmado por:

JOSE ALBERTO DE PRADO RODRIGUEZ
LABORATORIO FUNDACION CIDAUT
albpra@cidaut.es

Fecha: 27 / 03 / 2017
Date: dd/mm/yyyy Responsable de Ensayo
Test Manager

Fecha: 27 / 03 / 2017
Date: dd/mm/yyyy Responsable Técnico de Laboratorio
Laboratory Technical Manager

Código interno: 0109162836
Internal code:

Página 1 de 74
Page 1 of 74

La versión oficial de este informe está escrita en castellano y se emite en formato electrónico con firma digital certificada.

The official version of this report is written in Spanish and is issued in electronic format with certified digital signature.

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F-665

Código de ensayo: **E16-2836**
Test Code:

Fecha: **13 / 12 / 2016**
Date: (dd / mm / yyyy)

Tipo de ensayo: **TB42 / UNE-EN 1317-1,2:2011**
Test type:

7 RESUMEN Y APROBACIÓN DEL INFORME

SUMMARY AND APPROVAL OF REPORT

DATOS GENERALES	
Método de ensayo	TB42 (UNE-EN 1317-1,2:2011)
Número de ensayo	E16-2836
Sistema ensayado	BMS4PR-H1
Fecha de ensayo	13 de Diciembre de 2016

GENERAL INFORMATION	
Test method	TB42 (UNE-EN 1317-1,2:2011)
Test number	E16-2836
Tested system	BMS4PR-H1
Test date	December 13, 2016

CONDICIONES DE ENSAYO	
Masa total de ensayo	9949 kg
Velocidad de impacto	70,7 km/h
Ángulo de impacto	15,3 °

TEST CONDITIONS	
Total test mass	9949 kg
Impact speed	70,7 km/h
Impact angle	15,3 °

RESULTADOS DEL ENSAYO	
Deflexión dinámica (D_m)	1,2 m
Deflexión dinámica normalizada (D_N)	1,2 m
Anchura de trabajo (W_m)	1,3 m
Anchura de trabajo normalizada (W_N)	1,3 m
Clase de anchura de trabajo normalizada	W4
Intrusión de vehículo normalizada (V_{I_N})	2,4 m
Clase de intrusión de vehículo normalizada	VI7

TEST RESULTS	
Dynamic deflection (D_m)	1,2 m
Normalized dynamic deflection (D_N)	1,2 m
Working width (W_m)	1,3 m
Normalized working width (W_N)	1,3 m
Class of normalized working width	W4
Normalized vehicle intrusion (V_{I_N})	2,4 m
Class of normalized vehicle intrusion	VI7

CRITERIOS DE ACEPTACIÓN	
La barrera contiene al vehículo de ensayo	Sí
Rotura completa de algún elemento longitudinal principal	No
Cimentaciones y uniones se comportan conforme diseño	Sí
Penetraciones en el compartimento de pasajeros	No
Deformaciones o intrusiones en el compartimento de pasajeros	No
Más de una rueda atraviesa la parte posterior del sistema	No
El vehículo vuelca en la zona de ensayo	No
El vehículo atraviesa el recinto de salida	No

ACCEPTANCE CRITERIA	
The safety barrier contains the test vehicle	Yes
Breakage of any principal longitudinal element	No
Foundation and fixing elements perform according design	Yes
Passenger compartment penetrations	No
Deformations of, or intrusions into the passengers compartment	No
More than one wheel passes the rearmost part of system	No
Vehicle rolls over within test area	No
Vehicle track crosses the exit box	No

Ningún elemento del sistema mayor de 2,0 kg resulta totalmente desprendido

No test item part with a mass greater than 2,0 kg, results totally detached

APROBACIÓN DEL INFORME

APPROVAL OF REPORT

Edición:

Edition:



Firmado por:
OSCAR BLANCO SALGADO
LABORATORIO FUNDACION CIDAUT
osclb@cidaut.es

Revisión y Aprobación:

Review and Approval:



Firmado por:
JOSE ALBERTO DE PRADO RODRIGUEZ
LABORATORIO FUNDACION CIDAUT
albpra@cidaut.es

Fecha: 27 / 03 / 2017
Date: (dd / mm / yyyy)

Responsable de Ensayo
Test Manager

Fecha: 27 / 03 / 2017
Date: (dd / mm / yyyy)

Responsable Técnico de Laboratorio
Laboratory Technical Manager

Código de Informe: E16-2836 / 01
Report Code:

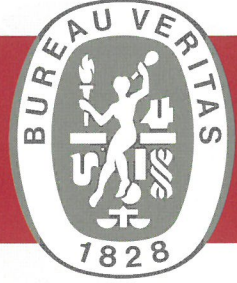
Página 26 de 74
Page 26 of 74

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BUREAU VERITAS
Certification



CERTIFICATE OF CONSTANCY OF PERFORMANCE

Certificate nb: **1035-CPR-ES1055474-31-B**

In compliance of the Regulation No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products, it has been stated that the product:

VEHICLE RESTRAINT SYSTEM. SAFETY BARRIER: SINGLE STEEL GUARDRAIL "BMS2L-H1"

The characteristics are detailed in the attached annex

Manufactured by:

ÇEPAŞ Galvaniz Demir Çelik Madencilik İnşaat Nakliye Tic. ve San. A.Ş.

Produced in:

İstanbul Yolu 25.Km, Saray Mahallesi 175. Sokak No:2,2/A, Kahramankazan, Ankara, Turkey

They are submitted by the manufacturer to factory production control established at the standard EN 1317-5:2007+A2:2012 Road restraint systems. Part 5: Product requirements and evaluation of conformity for vehicle restraint systems, and the initial type testing by accredited laboratory of samples taken at the factory.

The notified body BUREAU VERITAS CERTIFICATION has performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control established in the harmonized standard concerned.

This certificate attests that all provisions concerning the attestation of factory production control described in the Annex ZA of the harmonised standard were applied and it authorizes the manufacturer or its agent to fix the CE marking.

This certificate remains valid as long as the conditions laid down with the harmonised standard concerned or the manufacturing conditions in the factory or the FPC itself are not modified significantly.

Date of initial issuing: Madrid, 28/05/2019



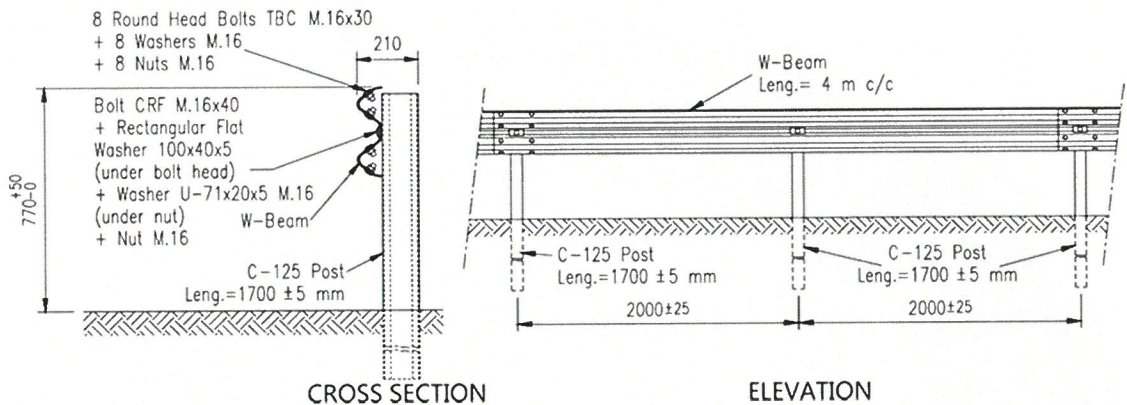
Mónica Botas
Certification Manager

Bureau Veritas Iberia, S.L., Edificio Caoba. C/ Valportillo Primera 22-24 Polígono Industrial La Granja, 28108 – Alcobendas (MADRID). Notified body 1035



TECHNICAL DATA SHEET ANNEXED TO CERTIFICATE
OF CONSTANCY OF PERFORMANCE
Nº: 1035-CPR-ES1055474-31-B
Date of approval: 28/05/2019

Barrier
BMS2L-H1

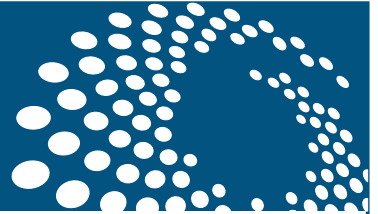


STANDARDS	PERFORMANCE PARAMETERS	ACCORDING TO UNE-EN 1317-2
UNE EN 1317-1 UNE EN 1317-2 UNE EN 1317-5	a) Performance Level b) Impact Severity Level c) Normalized Working Width d) Normalized Dynamic Deflection e) Normalized Vehicle Intrusion f) Resistance to snow removal	H1 A W _N =1,2 m (W4) D _N =1,1 m VI7 NPD
DETACHED PIECES:	Totally detached elements having a solid mass > 2,0 Kg: NO Totally detached elements having a solid mass > 0,5 Kg: NO	
SOIL DESCRIPTION:	Controlled soil ZA-20 Compactness average 99% Post static test according to UNE 135124: OK	
HAZARDOUS SUBSTANCES:	NPD	
OBSERVATIONS:	This product is a modified product of the Barrier BMS2-H1, whose certificate of constancy of performance is Nº: 1035-CPR-ES1055474-25-B, According to the provisions of paragraph 6.2.1.5 and A.5.2 of Appendix A of the European Standard EN 1317-5, is modified with category C	
INITIAL TYPE-TEST LABORATORY:	FUNDACIÓN CIDAUT, Valladolid (Spain)	
VEHICLE IMPACT TEST CODES:	E12-1971 E11-1918	TB42 TB11
MATERIALS:	Steel UNE-EN 10025	DURABILITY: Hot dip galvanizing. UNE-EN ISO 1461, UNE-EN ISO 14713

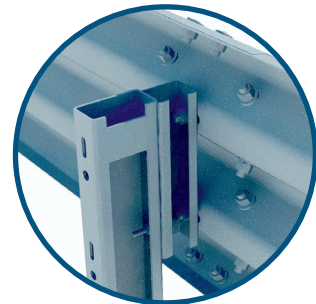
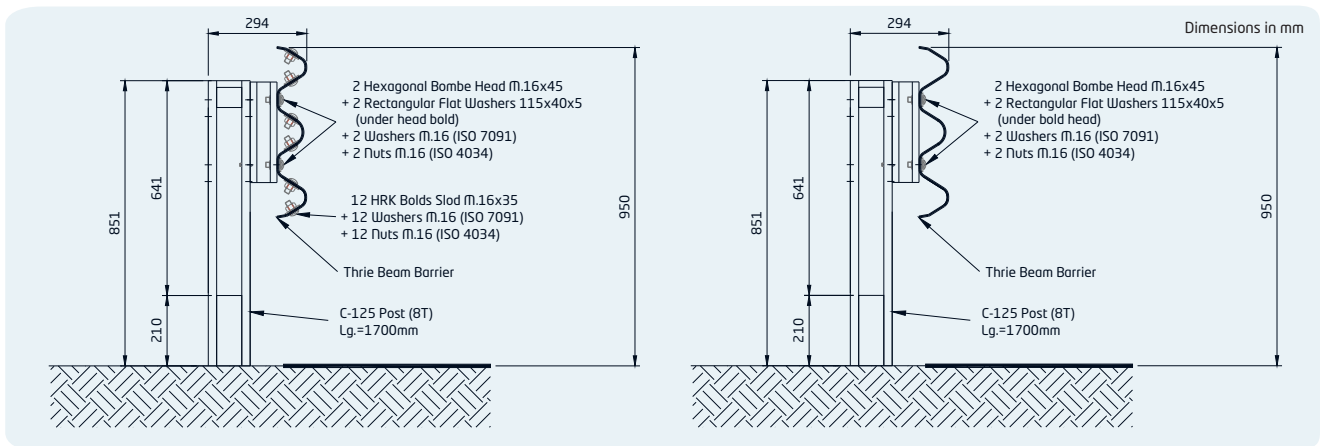
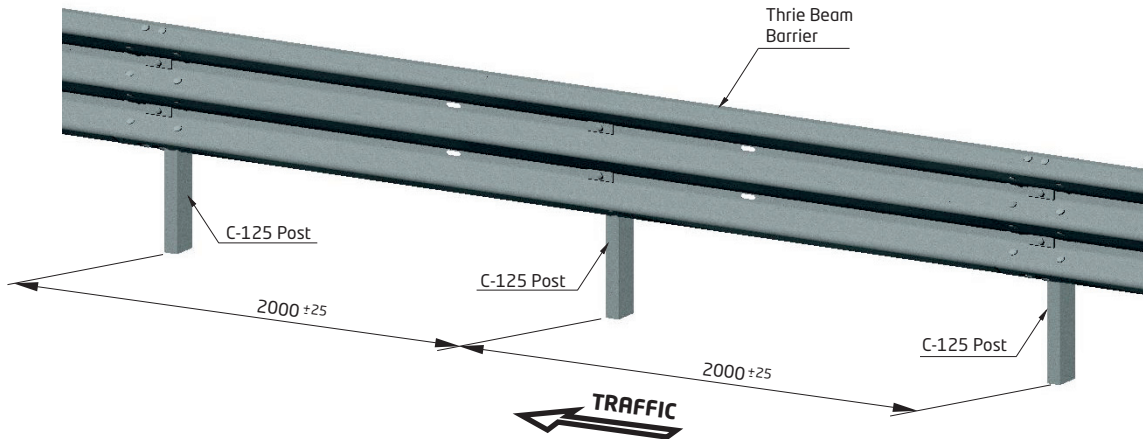



Mónica Botas
Certification Manager

Single Steel Guardrail of High Containment CPS05 H2 2.00



1. DESCRIPTION AND ASSEMBLY:

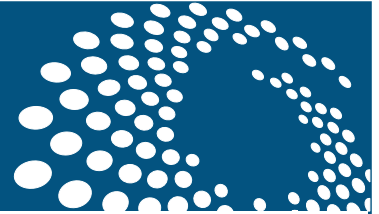


The "CPS05 H2 2.00" single steel guardrail is a safety barrier specifically designed to be installed on shoulders and median reserves of any type of road. It is composed by a thrie beam is fixed to the post through an intermediate element able to work both as spacer and energy absorber during vehicle impact. The

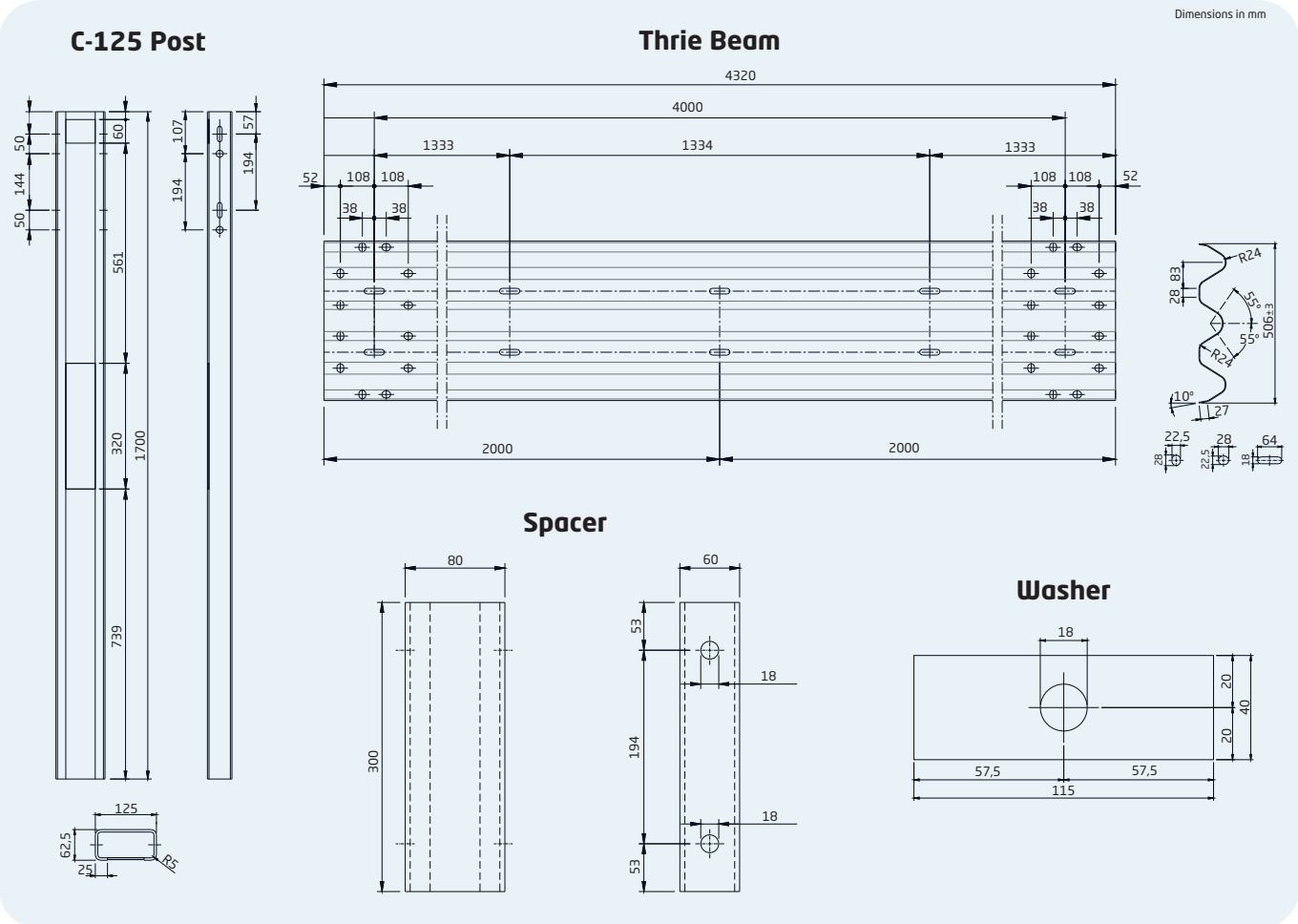
posts are "C-125" shaped and placed at every 2 m. The whole barrier is made from hot rolled steel sheet of grade S235JR and S355JR according to European standard EN 10.025, hot dip galvanized in accordance with the European standard EN ISO 1461.



Single Steel Guardrail of High Containment CPS05 H2 2.00



2. COMPONENTS:



3. PERFORMANCE UNDER VEHICLE IMPACT:

The "CPS05 H2 2.00" Single Steel Guardrail successfully passed the full scale crash-tests TB51 and TB11 according to the European standard EN 1317-2, meeting all acceptance criteria for **H2** containment level, with impact severity class **A** and working width **W4**.

TB 11 Crash-Test
Car 900 Kg.,
at 100 Km/h and 20°



TB 51 Crash-Test
Coach 13.000 Kg.,
at 70 Km/h and 20°



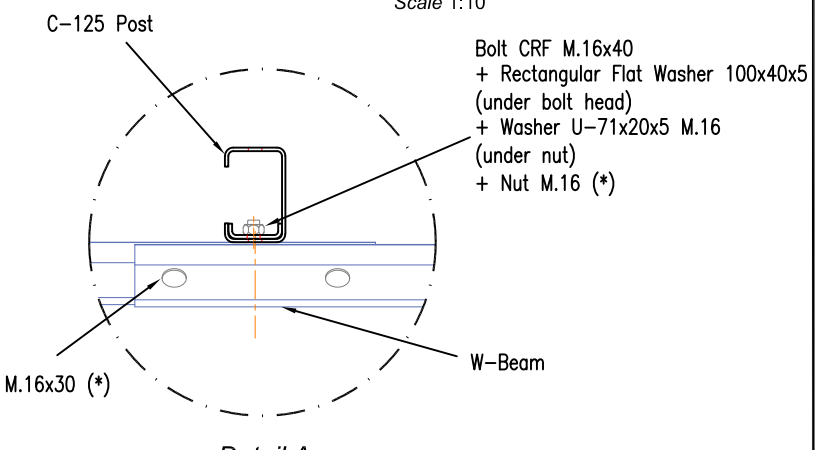
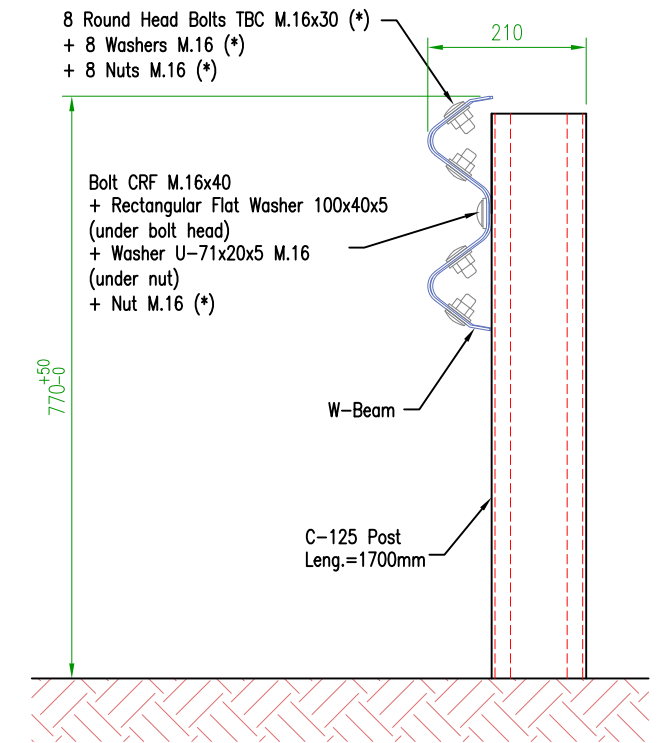
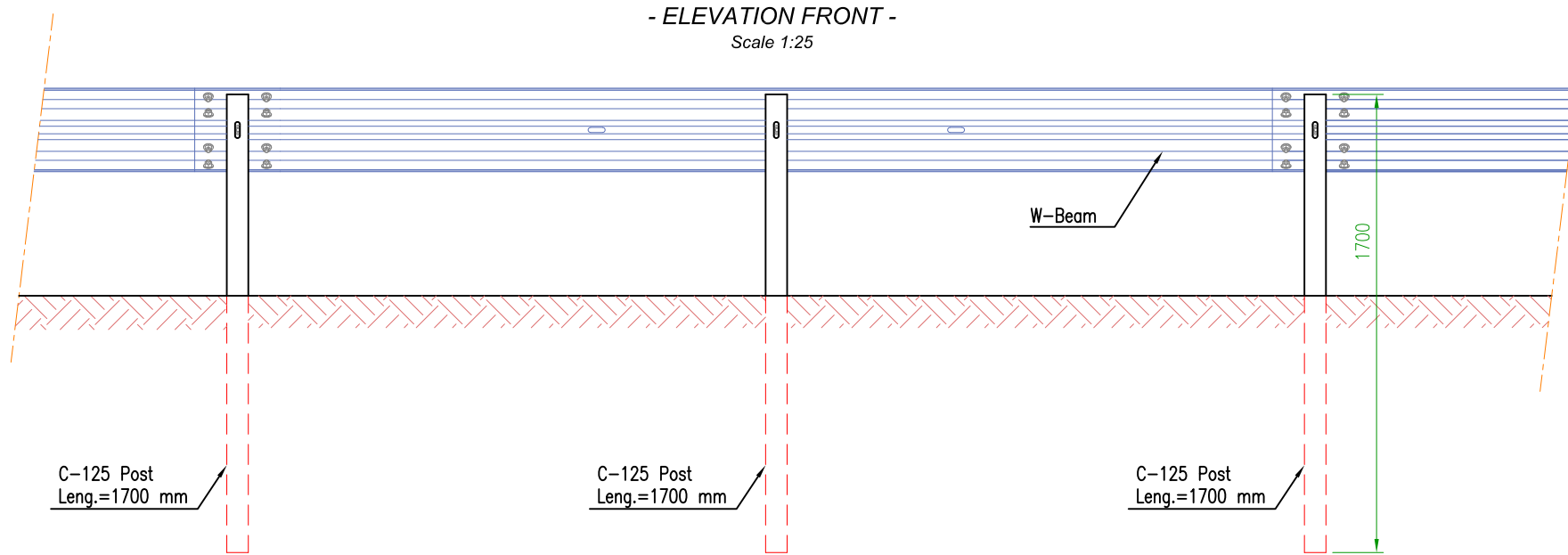
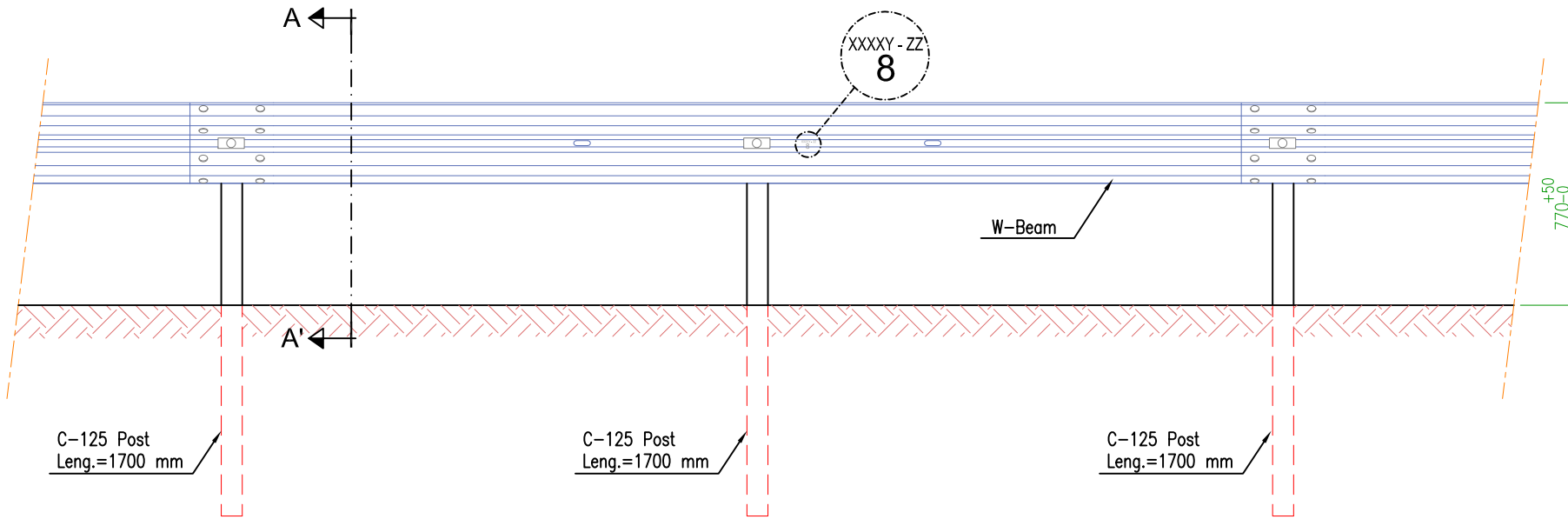
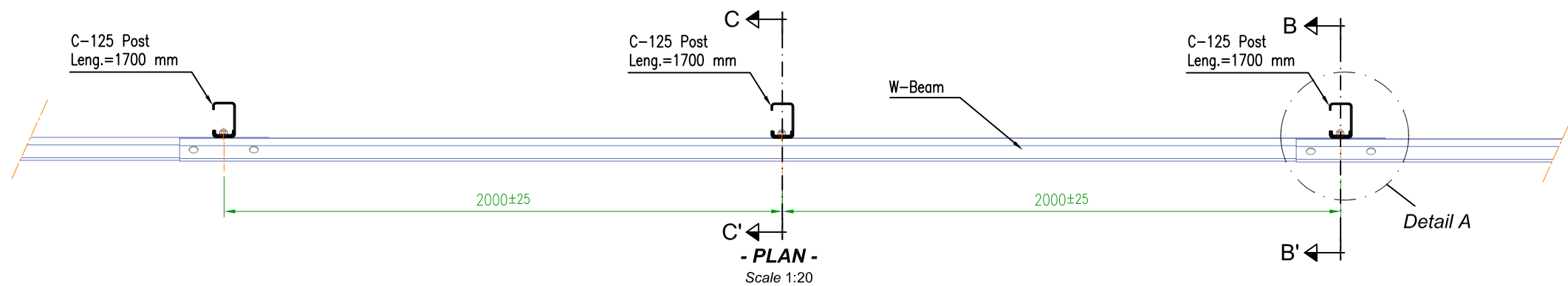
Single Steel Guardrail "BMS2L-H1"

Annex 1: Installation Drawings

July 2019



Paseo de Belén, 11 - Edificio UVainnova - Campus Miguel Delibes
47011 - Valladolid, ESPAÑA (SPAIN) Tel: +(34) 983 990468
e-mail: info@roadsteel.com - <http://www.roadsteel.com>

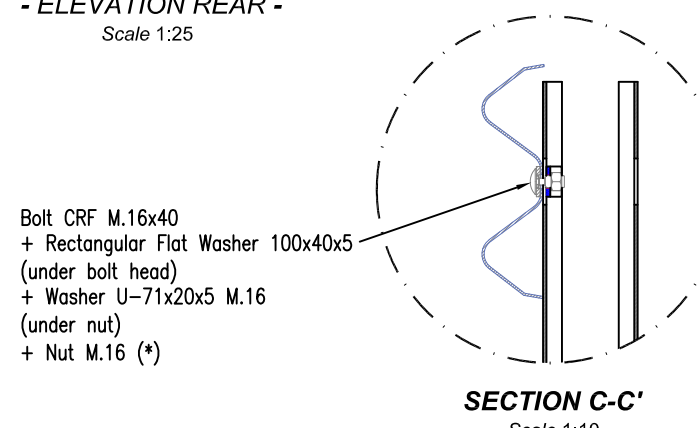
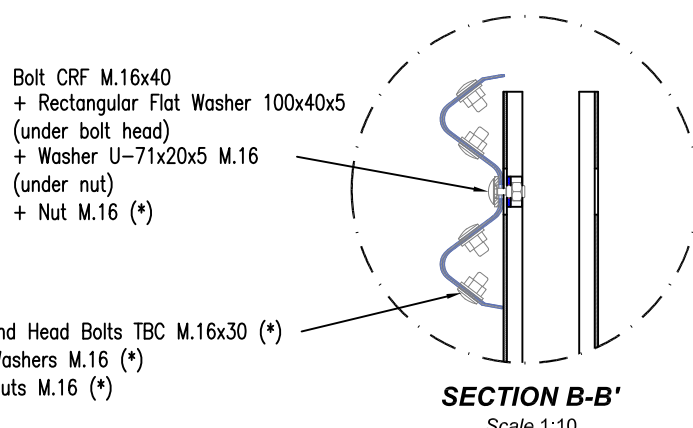


Note (informative):
Round Head Bolt TBC M.16x30
Round Head Bolt TBC M.16x40
Washer M.16 (*)

Note (informative):
Nut M.16 (*)

Material complying the Spanish Standard UNE 135122

Material complying the Spanish Standard UNE 135122 (UNE-EN ISO 4034)



NOTE:
W-Beams of this system are identified with the reference code number "8", just under traceability code, located in the sine of their profile, by the middle of W-Beam.

	DATE	NAME	SIGNATURES
Draw	30-07-2019	Patricia Iglesias M.	
Review	30-07-2019	Gerardo Agudín M.	
Accept	30-07-2019	Antonio Amengual P.	
SCALE	BMS2L-H1 SINGLE STEEL GUARDRAIL		
1:10	GENERAL DRAWING		
1:20			
1:25			

Dimensions in mm

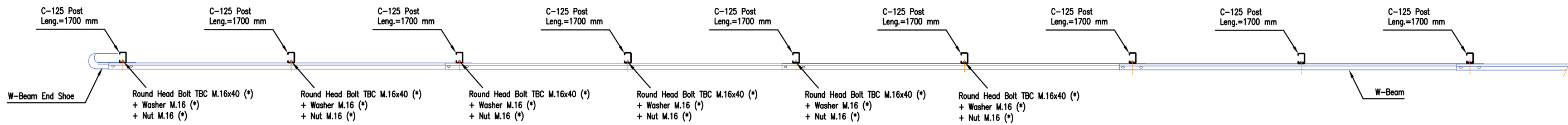
Tel: +34 985 126200
+34 983 990468

info@roadsteel.com
http://www.roadsteel.com

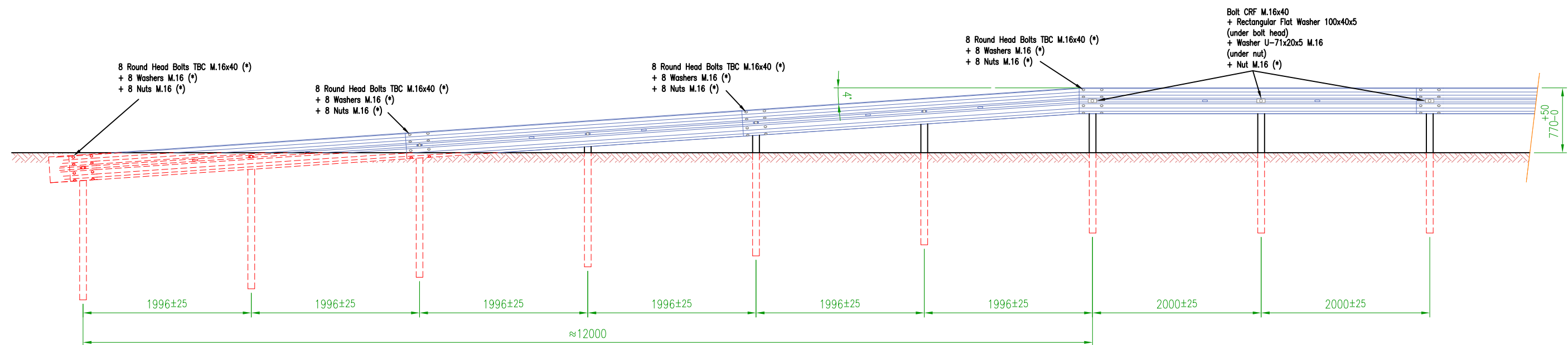
Drawing N°: BMS2L-H1-300719-MAN-001

Replace to:

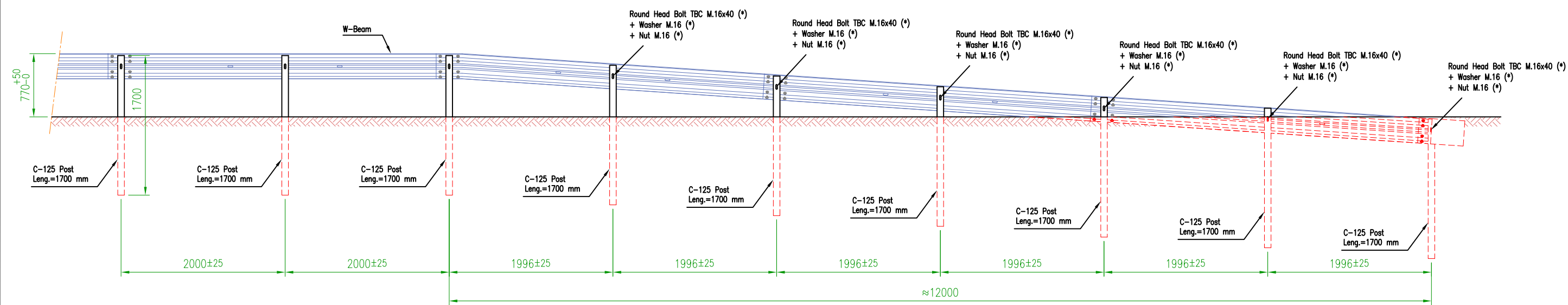
Replaced for:



- PLAN -



- ELEVATION FRONT -



- ELEVATION REAR -

Dimensions in mm

Note (informative):
 Round Head Bolt TBC M.16x30
 Round Head Bolt TBC M.16x40
 Washer M.16 (*)

Material complying the Spanish Standard UNE 135122

Note (informative):
 Nut M.16 (*)

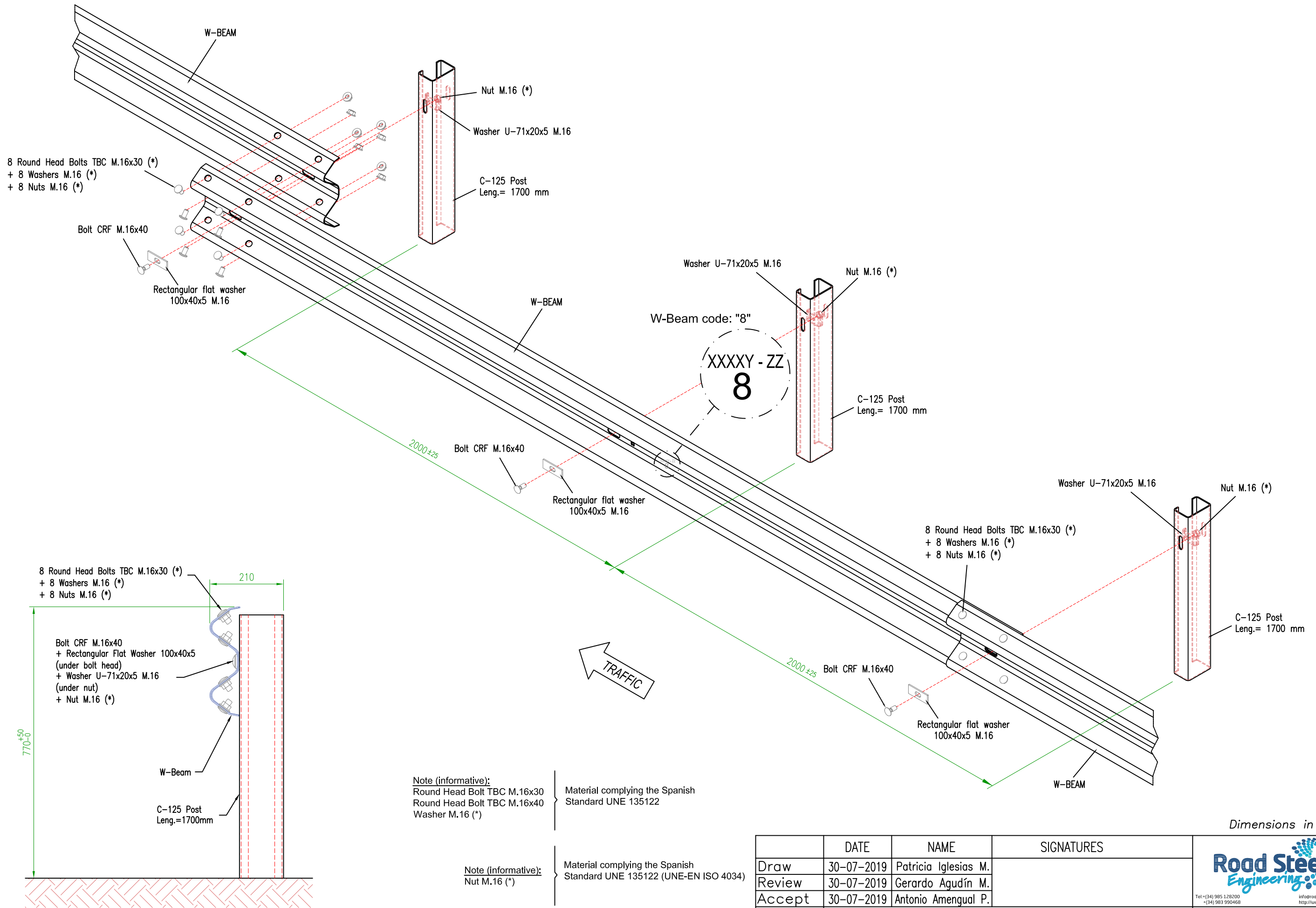
Material complying the Spanish Standard UNE 135122 (UNE-EN ISO 4034)

	DATE	NAME	SIGNATURES
Draw	30-07-2019	Patricia Iglesias M.	
Review	30-07-2019	Gerardo Agudín M.	
Accept	30-07-2019	Antonio Amengual P.	
SCALE	BMS2L-H1 SINGLE STEEL GUARDRAIL		
1:50	DRAWING OF END RAMPING DOWN SECTION		

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 (+34) 983 990468
 info@roadsteel.com
 http://www.roadsteel.com

Drawing N°: BMS2L-H1-300719-MAN-002

Replace to:
 Replaced for:




- CROSS SECTION AT POST -

NOTE:
W-Beams of this system are identified with the reference code number "8", just under traceability code, located in the sine of their profile, by the middle of W-Beam.

Dimensions in mm

	DATE	NAME	SIGNATURES
Draw	30-07-2019	Patricia Iglesias M.	
Review	30-07-2019	Gerardo Agudín M.	
Accept	30-07-2019	Antonio Amengual P.	
SCALE	BMS2L-H1 SINGLE STEEL GUARDRAIL		
-	- INSTALLATION -		

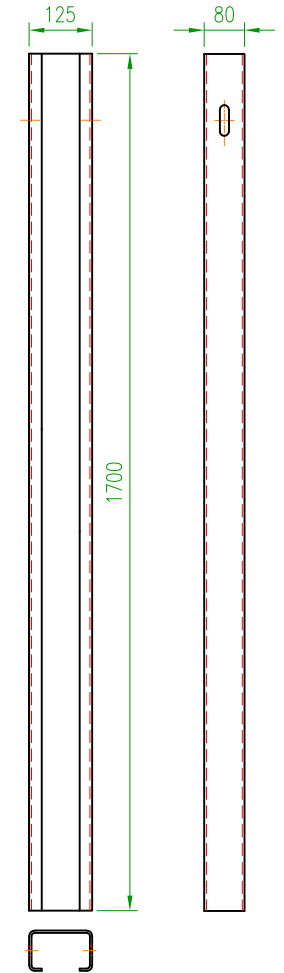
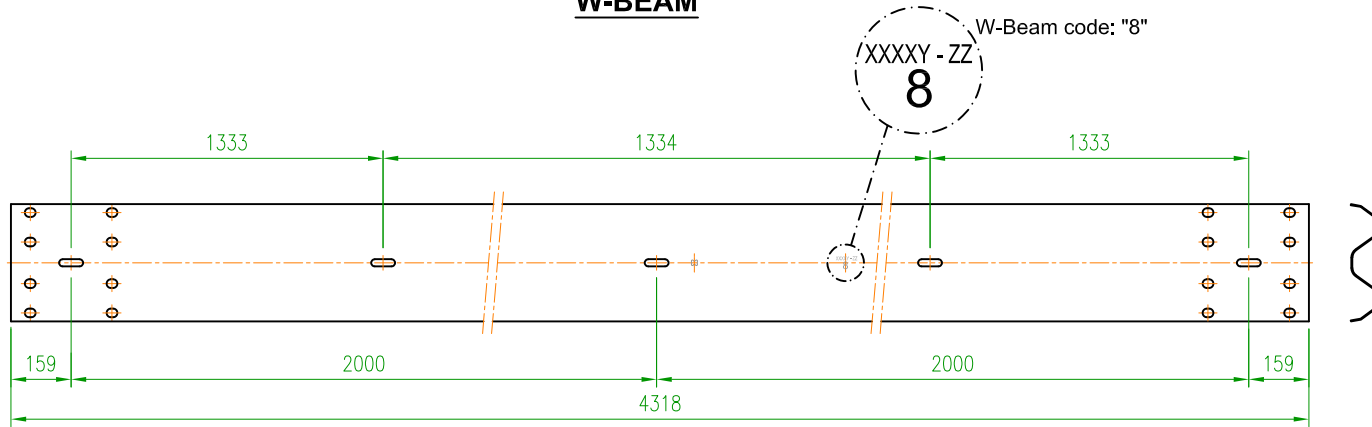


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+34 983 990468
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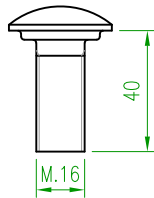
Drawing N°: BMS2L-H1-300719-MAN-003
Replace to:
Replaced for:

W-BEAM

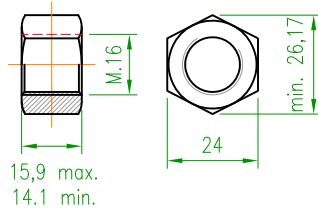
C-125 POST (Lg 1700 mm)



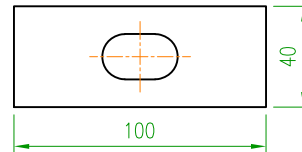
BOLT TBC M.16x40



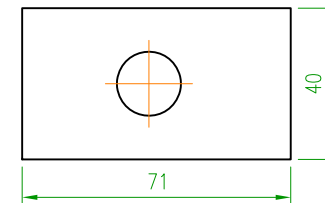
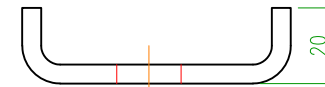
NUT M.16



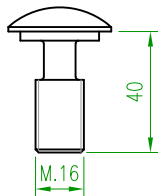
RECTANGULAR WASHER 100x40



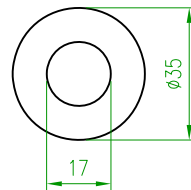
WASHER 71x20



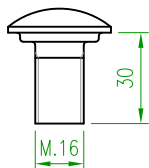
BOLT CRF-10.5 M.16x40




WASHER M.16



BOLT TBC M.16x30



Dimensions in mm

	DATE	NAME	SIGNATURES	 Tel: + (34) 985 128200 + (34) 983 990468 info@roadsteel.com http://www.roadsteel.com
Draw	30-07-2019	Patricia Iglesias M.		
Review	30-07-2019	Gerardo Agudín M.		
Accept	30-07-2019	Antonio Amengual P.		
SCALE	BMS2L-H1 SINGLE STEEL GUARDRAIL			Drawing N°: BMS2L-H1-300719-MAN-004
-	COMPONENTS			Replace to:
				Replaced for:

EC-CERTIFICATE OF CONSTANCY OF PERFORMANCE

584_Rev.2/2131/CPR/2017

of the product:

ROAD SAFETY BARRIER FOR GROUND

LEVEL H1

MODEL: TR-H1W3

placed on the market by:

KISAN İNŞAAT MÜHENDİSLİK SAN. VE TİC. A.Ş.

**Karayollari mah. Kadir Akdogan Cad. 547/1 Sok. No:2- 34255 Küçükköy – Gaziosmanpaşa
ISTANBUL - TURKEY**

PERFORMANCE UNDER IMPACT:

a) Containment Level	H1
b) Severity Impact	A
c) Normalised Working Width	W3 (1.0 m)
d) Normalised Dynamic Deflection	0.9 m
e) Normalised Vehicle Intrusion	VI4 (1.3 m)

DRAWING:	TR H1-W3	of 2017/01/30
INSTALLATION MANUAL:	TR H1-W3 Installation Manual	of 2017/01
TEST REPORT:	AISICO N° 1469_Rev.1 (TB11)	of 2019/02/15
	AISICO N° 1472_Rev.1 (TB42)	of 2019/02/15
DURABILITY:	GALVANIZED STEEL IN ACCORDANCE WITH EN ISO 1461	
RESISTANCE TO SNOW REMOVAL:	NPD	
DANGEROUS SUBSTANCE:	NPD	
CONDITIONS FOR USE:	CONFORMITY WITH I.T.T. CONFIGURATION	

enabled production plants:

Kisan İnşaat Mühendislik San. ve Tic. A.Ş.- Sakarya 2.Organize Sanayi Bölgesi 2 Nolu Yol No.18 – 54300 Hendek Sakarya – TURKEY

ANTAKYA GALVANİZ METAL SAN.TİC.LTD.ŞTİ - Antakya Organize Sanayi Bölgesi 6 Nolu Yol No:7 31350 Belen, Hatay - TURKEY

determined by initial type-testing (I.T.T.); The Producer shall implement the Factory Production Control (FPC) which guarantees compliance with type examined and with the requirements of the Harmonized Standard conforming to System Procedure 1 – Annex V of Regulation 305/2011 (EU). This certificate attests to the application and compliance with the requirements of Annex ZA of the standard:

EN 1317-5:2007+A2:2012/AC:2012

permits the Manufacturer to place on the product the CE marking followed by the identifying of the Notified Body “2131”.

The validity of this Certificate is subject to the regularity of the Surveillance on its FPC.

Any damage caused by product defects remains the responsibility of the Producer (85/347/ECC).

Issue date: 2019/02/18

Chairman

(Eng. Stefano Calamani)

This certificate consists of this page and Annex 1

ANNEX 1_Rev.1

TO THE CERTIFICATE OF PERFORMANCE

584_Rev.2/2131/CPR/2017

of the product:

ROAD SAFETY BARRIER FOR GROUND

LEVEL H1

MODEL: TR-H1W3

placed on the market by:

KISAN INŞAAT MÜHENDİSLİK SAN. VE TIC. A.Ş.

**Karayollari mah. Kadir Akdogan Cad. 547/1 Sok. No:2- 34255 Küçükköy – Gaziosmanpaşa
ISTANBUL - TURKEY**

MODIFICATION: M1
Approved on 2018/07/19

Model: TR-H1W3

Description of modification:

Replacement Beam B (B Rail) thickness 2.5 mm with Beam A (double wave) thickness 2.5 mm

Drawing:

P08 of 2017/07/27

TR-H1-W3 of 2017/01/30

Installation Manual: TR-H1-W3 Installation manual of 2017/07

Integrative reports: AISICO: ST_Report062 of 2018/07/16

MODIFICATION: M2
Approved on 2020/01/13

Model: TR-H1W3

Description of modification:

addition of manufacturing mark (hole 14x18) on the upper of the post and on the post reinforcement

Drawing:

TR H1-W3 ds of 2019/11/18

P 01_mod1 of 2019/11/18

P 03_mod1 of 2019/11/18

P 05_mod1 of 2019/11/18

Installation Manual: TR H1-W3 Installation manual of 2019/11

Integrative reports:


KISAN: TR H1W3_Mod 01 Technical Report for the Modification of the C120 Post of 2019/11/18;

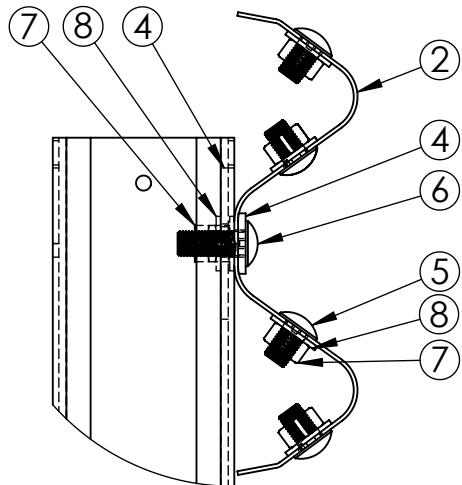
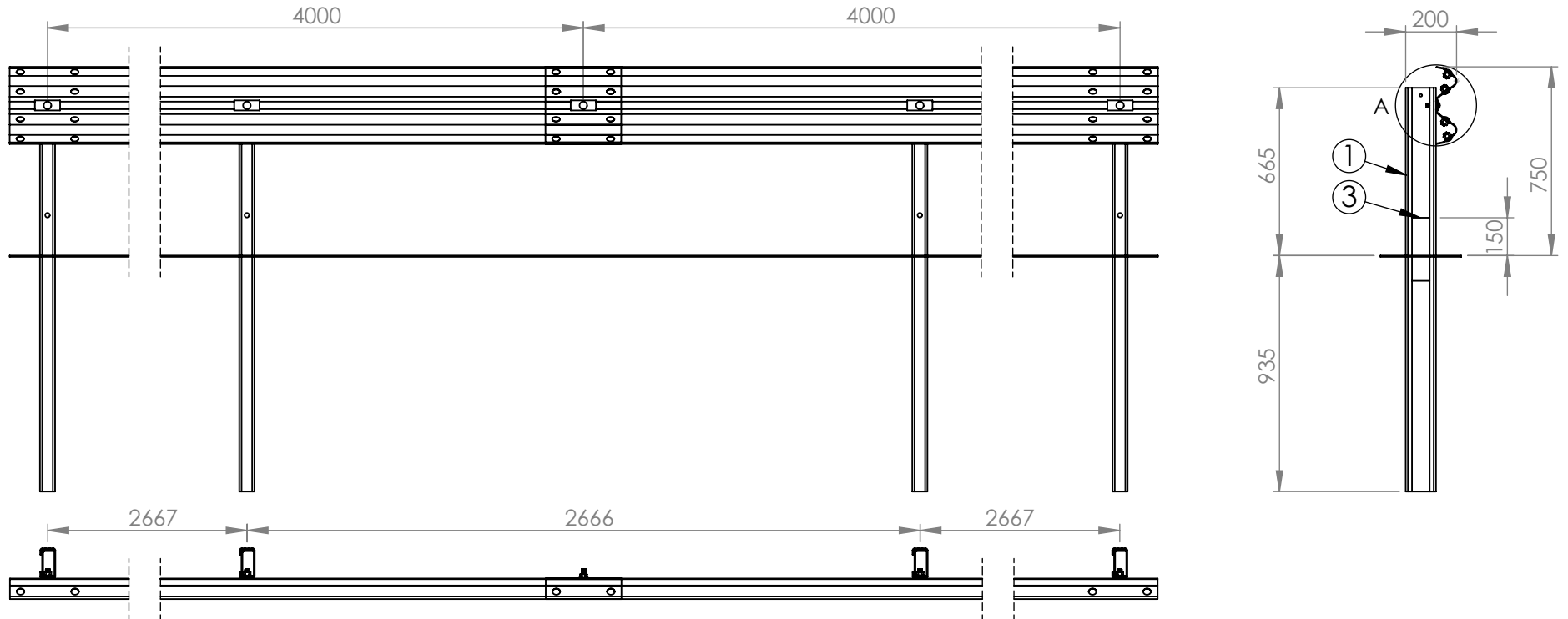
KISAN: TR H1W3_Mod 03 Technical Report for the Modification of the C120 Post for Terminal of 2019/11/18;

KISAN: TR H1W3_Mod 02 Technical Report for the Post Reinforcement of 2019/11/18

Issue date: 2020/01/17

Chairman
(Eng. Stefano Calamani)





DETAIL A
SCALE 1 : 5

#	Drawing No.	Revision No.	Product Description	Grade
1	KP 01		Post, C120x60x25, 1.600 mm, 4,00 mm	S355 JR
2	KP 08		Beam, profile 2W, 4.300 mm, 2,50 mm	S355 JR
3	KP 03		Post Reinforcement, U105x45, 250 mm, 4,00 mm	S355 JR
4	KP 04		Connection Plate, M16, 100 mm, 5,00 mm	S235 JR
5	KF 01		M16x27 Round Head Bolt	8.8
6	KF 02		M16x45 Round Head Bolt	8.8
7	KF 21		M16 Nut	Class 8
8	KF 41		M16 Washer (Ø36 mm)	200 HV

DREW & APPROVED	NAME	DATE	SCALE	1:25	PAGE	A4
	Kisan İnşaat A.Ş.	30.01.2017				

KISAN

Yol Göstericiniz / Lead the Way

TR H1-W3
Single Sided Ground System
General Drawing