STANDARD OPERATING PROCEDURE
LOAD RESTRAINT – WIRE, TIMBER AND STEEL COIL STEMS

1. PURPOSE

The purpose of this procedure is to ensure product and material delivered to and produced by BBRG Australia and carried on stems complies with industry safety standards for positioning and restraint of the load.

2. SCOPE

This procedure applies to BBRG Australia (primarily Warehouse/Despatch), customers, transport drivers and providers responsible for loading, restraining and transporting Ropes material and products via road transport.

3. REFERENCES

National Load Restraint Guide (2018), Published by National Transport Commission
WRW-OHS-SOP-002 CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT (PPE) STANDARD
WRW-WH-SOP-001 BBRG Australia Transport Specification
WRW-WH-SOP-113 Load Restraint - Equipment Guidelines

4. RESPONSIBILITIES

Process owner Operations Manager

5. QUALIFICATION, TRAINING & COMPETENCE REQUIREMENTS

Load restraint training.

6. DEFINITIONS

7. RECORDING / REPORTING REQUIREMENTS

These guidelines are provided by Bekaert Wire Ropes Pty Ltd (trading as BBRG Australia) for guidance only. Compliance with applicable laws and standards remains your responsibility.

They are based on guidelines provided to preceding entities under license from BlueScope Steel. Whilst BBRG, in co-operation with transport operators, has taken considerable care to develop load restraint guidelines that are effective and comply with all requirements, BBRG makes no warranty as to the applicability of these methods in all circumstances.

It remains your responsibility, at all times, to ensure that the methods you use are adequate for the particular situation and, where applicable, you should take further precautions.

These guidelines are confidential to, and the property of, BBRG and you may only use these guidelines with permission of BBRG.

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WIRE STEMS

This Guideline applies for:

- The restraint of Wire Stems with a maximum mass of 1.5 tonnes

Wire Stems
- Maximum mass of 1.5 tonnes

Essential Requirements

✓ All trucks and trailers **MUST** have raised coaming rails.

✓ The number of lashings must comply with the requirements set out in Section 1.2.

× Flush deck trailers are **NOT** acceptable.

✓ Side by Side stems **MUST** be placed on either:

- Anti-slip matting (preferred option); or
- Plywood; or
- Conveyor belting / industrial rubber mats or strips.

There is to be **NO steel-on-steel contact**.

✓ Nested stems **MUST** have the outside stems placed against the coaming rail.

If not, the load must be treated as a Side-by-Side load.

✓ Use Webbing lashings only to restrain wire stems. All Webbings must be fit for use and have a minimum 2.0 tonnes Lashing Capacity. "Under the tray" winches have been assumed for lashing of wire stems.

× **DO NOT** place the stem on top of the coaming.

× **DO NOT** use rope for product restraint, as it has insufficient strength.

× **DO NOT** use chains for product restraint, due to product protection issues.

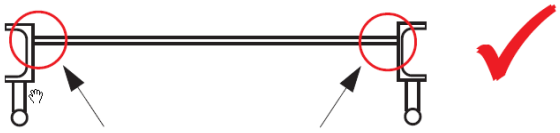


Figure 1: Trailers must have raised coaming rails

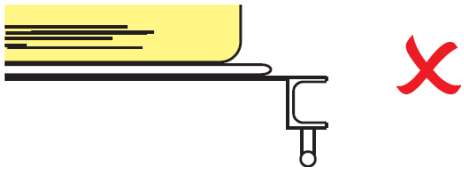


Figure 2: Flush deck trailers are NOT suitable for stems.

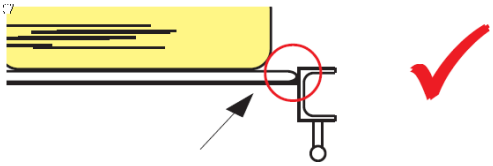


Figure 3: Nested stems placed against the coaming rail.

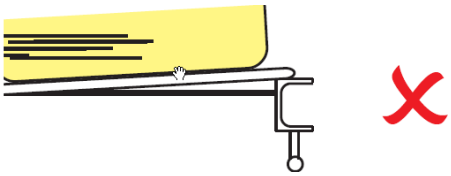


Figure 4: Do NOT place stems on top of coaming rail.

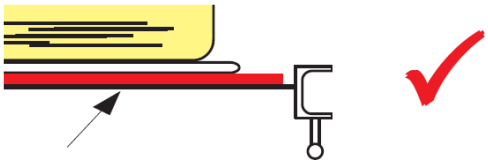


Figure 5: Side by Side stems placed on timber or rubber

Load Configurations

Double Stacking of Stems

- ✓ Part filled wire stems may be double stacked.
- × **DO NOT** double stack if the height to the wire is greater than that of a normal full stem.

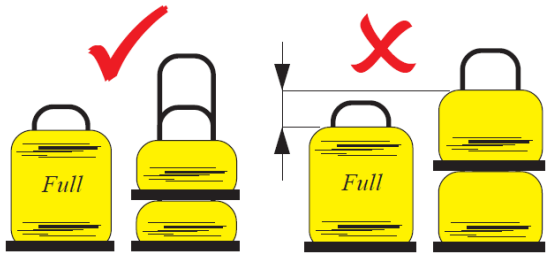


Figure 6: Double Stacking of Part Filled Stems.

Lashing Placement

- ✓ Place the Angled Lashings over the top of the product.
- ✓ Place the Angled Lashings in front of at least two legs of the stem.
- ✓ Place the Angled Lashings 800mm (minimum) back from the centre of the stem.
- ✓ Place the Over the Top Lashings over the centre of the stem.
- × DO NOT configure stems or lashings in a manner which results in insufficient restraint.

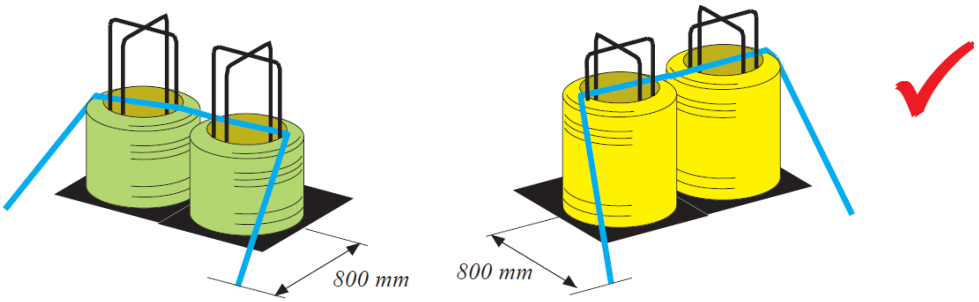


Figure 7: Place the Angled lashing over the product and fin front of at least two legs of the stem. Angle lashings back at least 800mm.

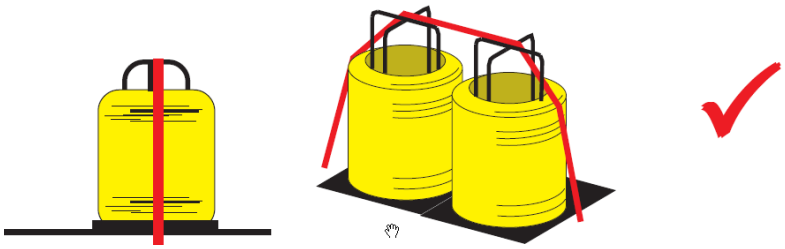
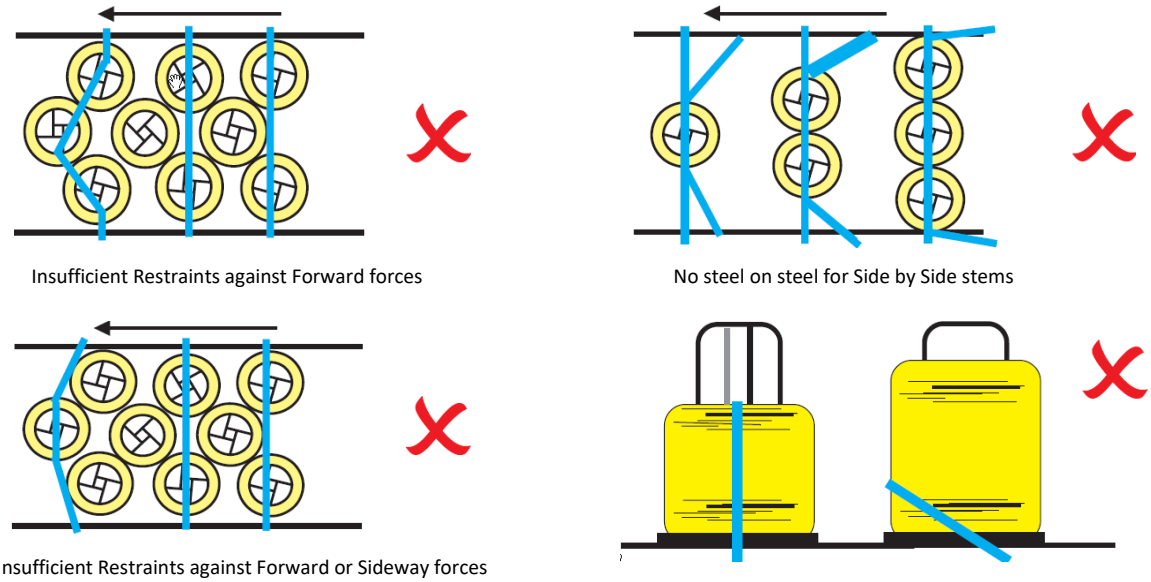


Figure 8: Place over the top lashings over the centre of the stems as shown above.



Insufficient Restraints against Forward forces

No steel on steel for Side by Side stems

Insufficient Restraints against Forward or Sideway forces

Figure 9: Do NOT configure or strain stems in the above arrangements. There is not enough restraint.

Side by Side Stems

- ✓ **Place Rubber or Plywood between the stems and the trailer deck.**
- ✓ Configure lashing as shown in figures 10, 11 & 13 only.
- ✓ Align stems with each other, both across and along the trailer deck.
- ✓ Place an Over the Top lashing over every row.
- ✓ Place the Over the Top **lashing over the centre of the stem.**
- ✓ Place a rearward Angled Lashing over the front row to restrain against forward movement.
- ✓ Secure each Angled Lashing at least 800mm from the centre of the stem.

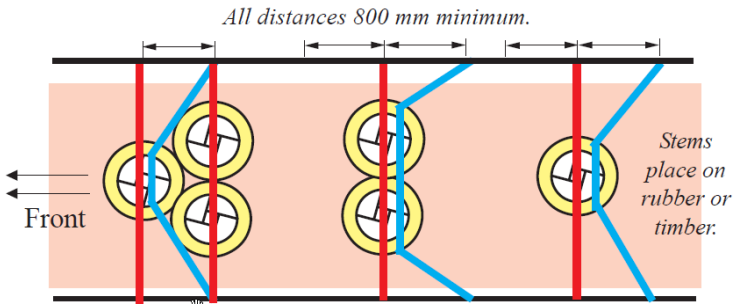


Figure 10: Restraint configurations for one, two and three stems.

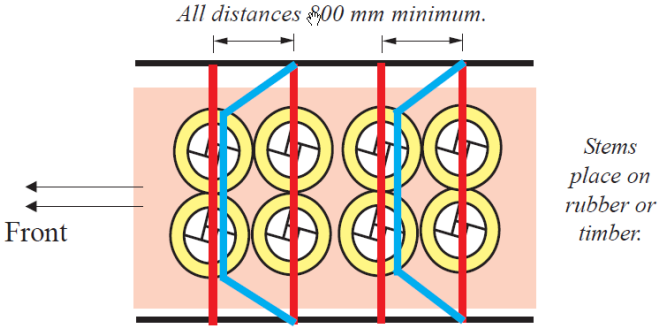


Figure 11: Restraint configurations for four stems.

Figure 12: Side view showing lashing over the centre of the stem leg.

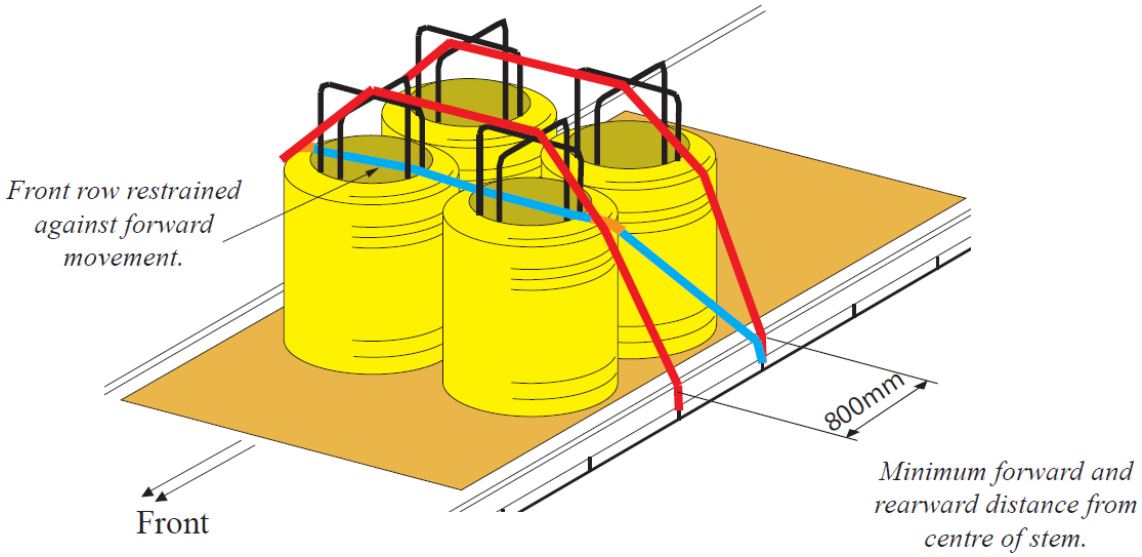


Figure 13: Side by Side Stem load restraint

Nested Stems

- ✓ **Place the outside stems against the trailer's coaming rail.**
- ✓ Tightly pocket centre stems in between the outside stems.
- ✓ Configure lashings as shown in Figures 14 & 15 only.
- ✓ Restrain every double row and the front single stem against forward movement.
- ✓ Restrain every second double row and the rear single stem against rearward movement.
- ✓ Secure each lashing at least 800mm from the centre of the stem.
- ✓ Align stems with each other both across and along the trailer deck.
- ✓ Rubber or plywood not required for Nested Loaded Stems.

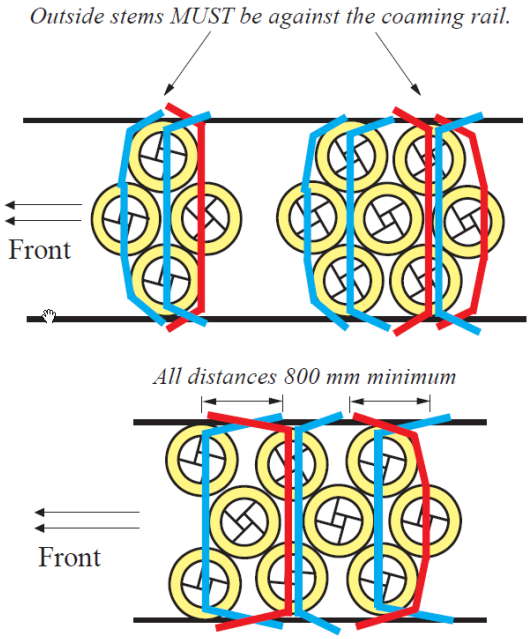


Figure 14: Top View of nested stems.
Stems MUST be placed against the coaming rail.

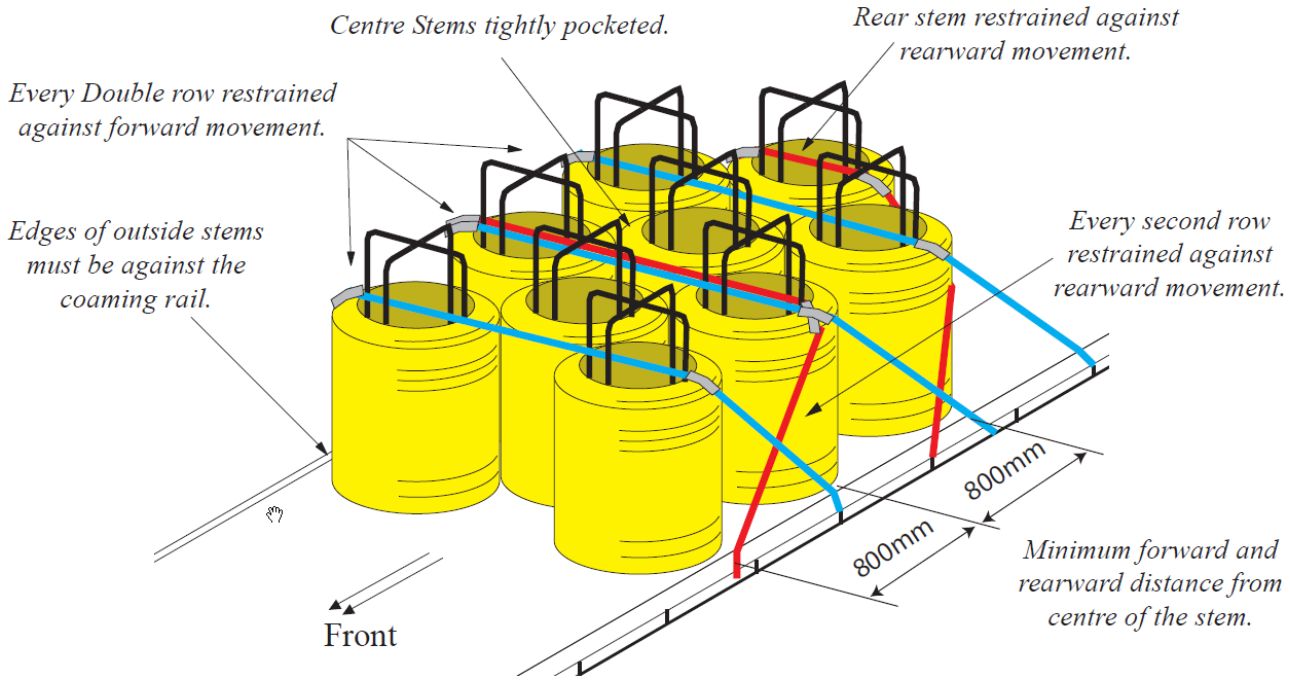


Figure 15: Nested Stems Restraint

TIMBER STEMS

This Guideline applies for:

- Timber stems carrying steel wire.
- Timber stems that weigh not more than 675kg.

Essential Requirements

✓ Place anti-slip rubber between the stems and the trailer deck. Rubber can be strips, mats or squares.

✓ Webbing must be fit for use and have a minimum 2.0 tonne lashing capacity that meets AS4380 or equivalent.

✓ Each row must be restrained by at least one webbing as shown in Figure 1.

× **DO NOT** double stack stems.

× **DO NOT** load stems with gaps between them.

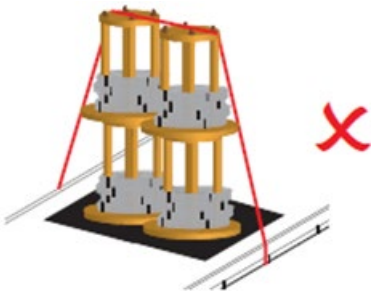


Figure 2: Do NOT double stack stems

Figure 2: Do NOT load stems with gaps between them.

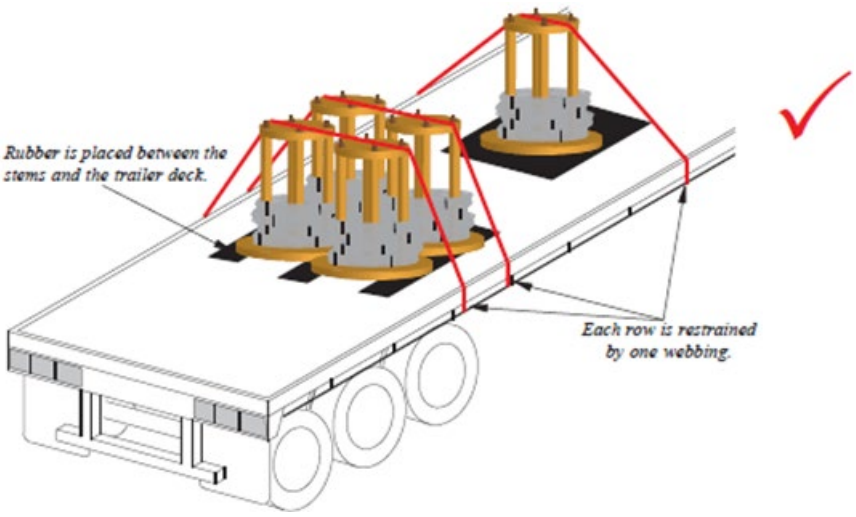
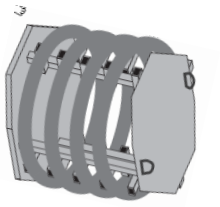


Figure 3: Timber stems restrained to truck

STEEL COIL STEMS - TIPPED ON SIDE



This Guideline applies for:

- Steel coil stems that weigh no more than 5.7 tonnes.
- Steel coil stems carrying dump ropes, tipped on their side.

Essential Requirements

✓ Ropes must be secured by the stems so they can not come loose when a 0.9g force is applied.

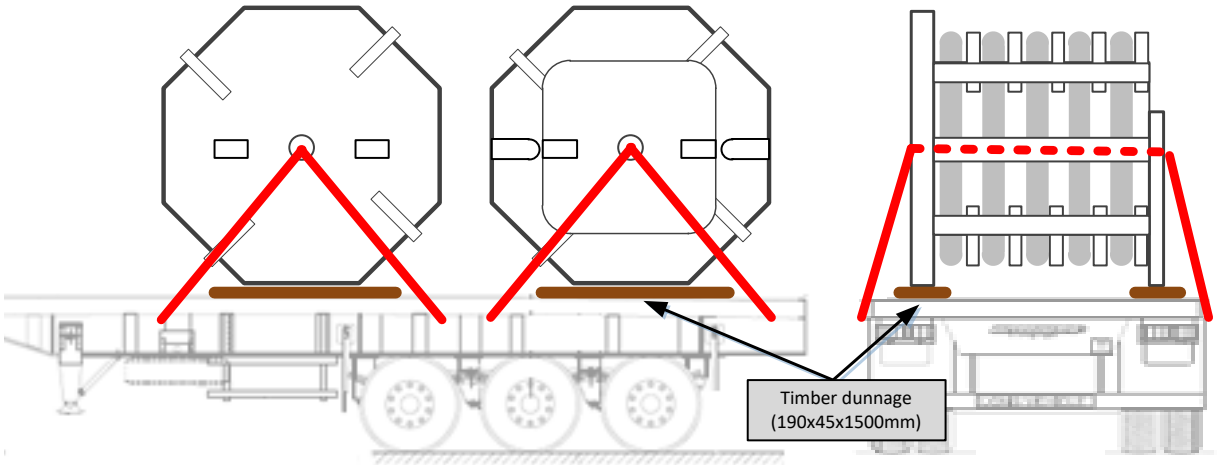
✓ All restraints must be **8mm transport** chains, with a Lashing Capacity of **3.0 tonnes** or greater, and comply with AS/NZS4344.

✓ Restrain each stem with at least two chains;
one chain must be angled back a minimum of 600mm from the centreline, and
the second chain angled forward a minimum of 600mm from the centreline.

✓ All stems must rest on two lengths of 190x45x1500mm timber dunnage.

One length is to be under the lower stem side, and the other under the retractable support arm.

✗ Do not allow stems to touch the trailer deck. There is to be **no steel-on-steel contact.**

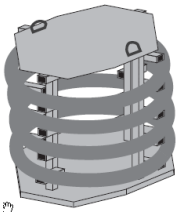


Unloading Stems

1. Load & unload truck using forklift. Gross weight is approximately 5 tonnes per stem.
2. Tip stem vertical using lifting lug at top of stem
3. Retract support arm
4. Remove all coils from stem
5. Extend support arm back to original position
6. Tip empty stem back onto horizontal position ready for loading onto truck.

STEEL COIL STEMS – UPRIGHT

This Guideline applies for:



- Steel coil stems that weigh no more than 5.7 tonnes.
- Steel coil stems carrying dump ropes in an upright position.

Essential Requirements

✓ Ropes must be secured by the stems so they cannot come loose when a 0.9g force is applied.

✓ Place rubber between the stems and the trailer deck. Rubber can be strips, mats or squares.

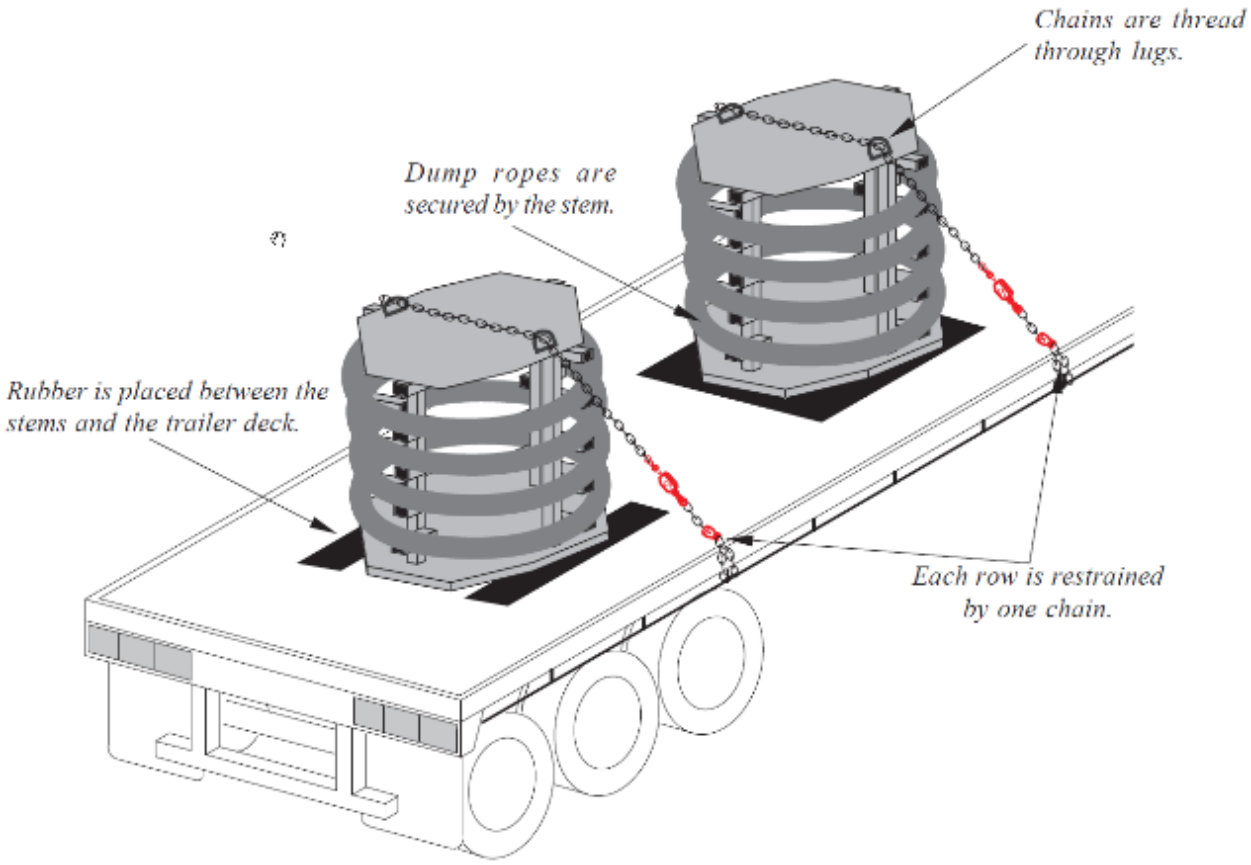
× Do not allow stems to touch the trailer deck. There is to be **no steel-on-steel contact.**

✓ All restraints must be 8mm transport chain, with an assumed Lashing Capacity of 3.0 tonnes or greater, and comply with the Australian Standards AS4344.

✓ Restrain each row by at least one chain as shown in Figure 1.

✓ Chains must be thread through lugs.

× **DO NOT** double stack stems.



VERSION HISTORY

Version	Issue Date	Key Changes	Authorised by	Review Date
4	24/9/2018	Rebranded as BBRG. Migrated from previous entity (MolyCop/OneSteel) guidelines (based on BlueScope LRG13 v4 7/4/2009, LRG110 v1 17/9/2009, LRG113 v1 15/12/2009).	BR	24/09/2020
5	16/09/2021	Version Update – change of authoriser	GC	16/09/2023
6	02/09/2024	Branding Update	PB	02/09/2027