Wherever possible, Roadside Services and Solutions chooses suppliers who share our vision and embrace sustainability. This is why Roadside is proud to partner with global companies like 3M which is renowned for its commitment to the environment and is the sole supplier to Roadside of sign sheeting and pavement marking solutions.

Our shared vision

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The EAPB (Energy Absorbing Pole Buffer) is a Non Re-directional Crash Attenuator, designed to arrest a 1600kg errant motor vehicle travelling at 60km/h (rated TL2) and prevent it from damaging key site infrastructure.

A patented crash cell absorbs energy, safely decelerating the vehicle and thus protecting the occupants.
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1. Introductory notes

The Energy Absorbing Pole Buffer (EAPB) has been designed and tested to prevent out-of-control vehicles damaging key site infrastructure. Its performance is critically dependant on installing the EAPB correctly.

The installation manual and instructions must be strictly followed.

Over the years the EAPB might need some maintenance, depending of the location where it is fitted and especially if it has been damaged in any way. It is critical installation crews are familiar with the manufacturer’s installation instructions.

This manual must be reviewed carefully before any work commences and if necessary additional information or interpretation can be obtained from our engineering staff.

2. System overview

The EAPB is classified as a non re-directive crash attenuator tested under AS/NZS:3845:1999, Table 5.3.3(3) for a 1600kg vehicle impact at 60km/h.

3. Function

The EAPB has been designed to safely decelerate and arrest an out-of-control vehicle. The Energy Absorbing Pole Buffer progressively deforms on impact and absorbs the kinetic energy of the errant vehicle.
4. Preparation

Before any attempt is made to begin the installation of an EAPB, it is important to read and fully understand the installation instructions. This will ensure correct installation and minimise possible errors which can compromise performance of the EAPB. Before soil excavation begins, it is critical to locate all underground services.

A plan / plans of the underground services can be obtained from Dial Before you Dig. Using the plans and an experienced locator, all underground services (gas pipes, phone cables and water pipes) must be clearly marked on the surface of the road / footpath where the work will be undertaken. Water jets and vacuum trucks are the preferred method for excavation. An auger could cause extensive damage to the underground services if not detected before works start.

While underground infrastructure plans supplied from Dial Before you Dig provide the best available public information, the risk of unidentified services not marked on the plans are a reality.

Therefore, extra care must be taken when excavating for the installation of EABs.

5. Identification

The EAPB is a discrete crash cushion category. The EAPB must have a permanent sticker fitted on a prominent area which identifies the manufacturer and standard compliance.
6. Tools required and mandatory PPE

The following tools are typically required, although in some locations this may change, depending on the circumstances.

- High water pressure jet / vacuum truck
- Auger or digging tools
- Spirit level
- String line
- Road marking paint
- 32MPa concrete
- Crowbar
- Shovel
- Broom

7. Product assembly materials

- Pre-cast concrete footing
- Pole buffer cell assembly
- Pole buffer cell caps
8. Pre-installation instructions

1. Survey the land/area that needs to be dug or where the EAPB will be installed. Make sure there are no services underneath the ground which could be damaged during the digging process. In Australia, it is best-practice to “DIAL-BEFORE-YOU-DIG” and have a clear understanding of what is underground and if any services (like water, gas lines) are in the way.

2. If services are found, contact the council and/ or all necessary individuals to see if service lines can be diverted or should the installation be moved elsewhere. Due diligence is required.

3. Notify local council/ private land owner of the installation date and time. Let them know that heavy equipment will be used during this process and a proper perimeter fence should be erected before any work starts.

4. Workers/ installers should always be wearing appropriate PPEs while on the job site. High visibility uniforms are necessary to alert the public of the work being undertaken.

5. The installer must follow the installation instructions or have received training in the proper installation procedure for this product before attempting installation.

6. Installation registration form must be checked before commencing job and completed after installation.
### 9. Installation instructions

<table>
<thead>
<tr>
<th>ITEM</th>
<th>ACTIVITY</th>
<th>ACCEPTANCE CRITERIA</th>
<th>PICTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site preparation</td>
<td>Mark the land/site for installation of the EAPB. Roughly measure a 600mm diameter and encircle the area with marking paint.</td>
<td><img src="image1.png" alt="Site preparation" /></td>
</tr>
<tr>
<td>2</td>
<td>Site preparation</td>
<td>Before soil excavation begins, locate all underground services. The underground services plans can be obtained from Dial Before You Dig. An experienced locator will identify all underground services (gas pipes, phone cables, water pipes, etc.) from the plan and clearly mark these on the surface of the road or footpath. Water jets and vacuum trucks are preferred for excavation, rather than an auger which could cause extensive damage to obscured underground services. Correct PPE must be worn at all times during the installation. Refer to SWMS.</td>
<td><img src="image2.png" alt="Site preparation" /></td>
</tr>
<tr>
<td>3</td>
<td>Dig / auger holes</td>
<td>Excavate a 1000mm deep x 600mm diameter wide hole.</td>
<td><img src="image3.png" alt="Dig / auger holes" /></td>
</tr>
<tr>
<td></td>
<td>water jet</td>
<td>NOTE: If using machinery refer to the SWMS for the safe operating procedure.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>vacuum truck</td>
<td>NOTE: Water jet and vacuum truck are the preferred method for excavation, rather than an auger which could cause extensive damage to the obscured underground services.</td>
<td><img src="image4.png" alt="water jet" /></td>
</tr>
<tr>
<td>4</td>
<td>Further preparation</td>
<td>After digging, clean out the hole as practicably possible to get it ready for the installation of the concrete footing.</td>
<td><img src="image5.png" alt="Further preparation" /></td>
</tr>
<tr>
<td>5</td>
<td>Installation of concrete footing</td>
<td>Using a specific lifting tool and harness, lift the concrete base via a crane or forklift into the ground.</td>
<td><img src="image6.png" alt="Installation of concrete footing" /></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NOTE: The base weighs at least 500kg, manual lifting is not advisable.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Position concrete footing</td>
<td>Using a level tool, make sure the surface of the concrete base is level to the ground. Fill the ground voids on the side of the concrete base with soil and press it in place.</td>
<td><img src="image7.png" alt="Position concrete footing" /></td>
</tr>
</tbody>
</table>
### 9. Installation instructions

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<tr>
<td>7</td>
<td>Installation of pole buffer cells assembly</td>
<td>There is a screw in the side of the footing poles that needs to be removed to affix the buffer to the poles. Place the poles into the concrete footing. Slide the poles buffer over the poles ensuring the two long cells that are the back are placed over the poles. Once in place, using the screw that was removed from the pole, screw the cell to the pole ensuring the screw is inserted into the hole of the pole.</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td>8</td>
<td>Installation of pole buffer cells assembly</td>
<td>Slide the footing of the pole buffer cells assembly into the 2 holes of the concrete base. The clearance height between the crash cells and the ground should be 220mm +/- 2mm. Total height needs to be 730mm.</td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td>9</td>
<td>Installation of pole buffer cells assembly</td>
<td>WARNING: The reflective chevron must point in the direction of the road. Use 2 x M10 32mm Bolts (#4) to fix the top of the outer skin (1 bolt on each side at the top of the outer skin). Tighten to 44Nm of torque. Use 2 x M10 32mm Bolts (#4) to fix the bottom of the outer skin (1 bolt on each side at the bottom of the outer skin). Tighten to 44Nm of torque. NOTE: : If you do not have access to a torque wrench, firmly tighten the bolts as tight as you are physically able.</td>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
<tr>
<td>10</td>
<td>Installation of pole buffer cells assembly</td>
<td>Once the top assembly is in place, put the caps on top of the crash cells and gently hammer it in until flushed with the top surface of the crash cells.</td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
<tr>
<td>11</td>
<td>Finish</td>
<td>Clean all debris and waste from installation left on site. Do a final inspection on the Energy Absorbing Pole Buffer as stated by the designer.</td>
<td><img src="image5.jpg" alt="Image" /></td>
</tr>
<tr>
<td>12</td>
<td>Ensure</td>
<td>Installers complete the Roadside EAB Registration Form and email it to: <a href="mailto:roadside@rss.net.au">roadside@rss.net.au</a></td>
<td><img src="checkmark.png" alt="Checkmark" /></td>
</tr>
</tbody>
</table>
10.0 Repair and maintenance

In the event of an out-of-control vehicle hitting the EAPB, it is important to visually examine the damage at the earliest opportunity. Damaged paintwork is usually a sign the EAPB has been compromised.

10.1

The next step is to examine damage to the foundation and below the surface of the cartridge.

Any significant damage to the cartridge will result in the above-the-ground bollard not being straight.

10.2

The cover needs to be removed from the pole buffer and be replaced.

10.3

The pole buffer needs to be removed from the concrete footing.

10.4

After the damaged cover, pole or concrete footing has been removed, a new cover and/ or pole buffer, and a new foundation must be installed to replace the damaged unit.

Note:

If a pole buffer is involved in an accident and does not have visible deformation (not bent) but may show paint damage on the cover and pole, it can be reused after it has been cleaned and repainted.

If any visible deformation of the pole buffer and cover are detected, then a new pole buffer and cover must be used.
11. Main components and dimensions

Pole buffer

Concrete footing
32MPa / 500kg

Reo cage
490mm OD x 850mm
12N12 & W10 Spiral
@ 100mm pitch

Crash cell 510mm
Crash cell 730mm
EAPB - Energy Absorbing Pole Buffer registration form

NOTE: Correct installation of the EAPB is imperative to ensure performance under impact conditions. All installers of the EAPB, MUST adhere to the following installation requirements and confirm in writing the installation documentation in the Roadside Services and Solutions EAPB Product Manual has been strictly followed.

The following details are required:

Name of company installing the EAPB: ________________________________

Installation site: ________________________________

Installation date: ________________________________

1. "Dial Before You Dig" contacted and plans have been sourced. 
   
2. Service location checks carried out. Proof required. 
   
3. Correct reo cage installed 450mm x 800mm x 12N spiral. 
   
4. Concrete used is 32MPa grade @ 70mm slump. 
   
5. Concrete over the top of cartridge is not more than 25mm thick. 
   
6. Surface around EAB reinstated to customer’s specifications. 

Please email signed form to: roadside@rss.net.au

Installer’s signature: ________________________________

Print name: ________________________________

Mobile number: ________________________________

Email: ________________________________

Additional comments about the installation:

______________________________

Important Note: Do not substitute any parts or fix any other object without first consulting Roadside Services and Solutions. Substituting any part or introducing a non-approved part may reduce the effectiveness of the Energy Absorbing Bollard and performance cannot be guaranteed.
Notes