

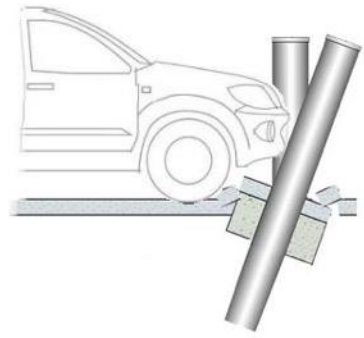
# ZERO CIVIL

IMPROVING THE  
RESILIENCE OF YOUR  
DEVELOPMENTS



ZERO WASTE  
**ZERO HARM**

# STOP PLANNING TO FAIL



Quality concrete can last 100 years yet road infrastructure is designed to fail

## **Quality concrete can last 100 years**

Steel and concrete are strong but neither are impact resistant so when vulnerable road-side items are impacted “something’s gotta give” and as, when items are impacted by a vehicle, either the steel distorts or the concrete foundations fail, and you must replace both

## **When impacted by a vehicle, something’s gotta give**

## **Let’s calculate the cost**

Including traffic management, concrete, site clean-up, labour and tipping fees it costs from \$150 - 300 per signpost to replace the damaged concrete footing (if things go according to plan)

If damaged only twice a year the cost is in excess of \$30,000.00 over the life of a development for a single signpost

Then there’s the times things don’t go according to plan and a worker is injured or you damage underground services.

**“The solution is so simple”**

**THE SUNDAY TIMES**

SMART  
SUSTAINABLE  
FOUNDATIONS



ZERO WASTE  
**ZERO HARM**

# WHAT MAKES THEM SO SMART?

“

*Our selection is not based on price alone. We also took into consideration the safety & saving aspects. The Smart Sustainable Foundations allow quick replacement of roadside items with no further effort required to the base, (providing a significant cost benefit by re-using the existing footing) and reduces risk of injury to employees by reducing time spent on traffic islands exposed to traffic.”*

## MAIN ROADS WA

### NO DAMAGE FOR THE ENTIRE LIFESPAN OF A DEVELOPMENT

Unlike metal devices (that are not impact resistant distort upon impact and will eventually rust, corrode) the Smart Sustainable Foundations are made from a new-age Smart plastic that is shock absorbing (protecting surrounding pavement and concrete footing from damage impact after impact) and self-healing, which ensures the surrounding foundations remain in pristine condition for the entire lifespan of a development

Not only are they made from a Smart Plastic, they use a Smart self-locking mechanism to secure items in the ground socket using only friction which ensures items remain safe and secure and with no breakable components the locking device continues working effectively for the entire lifespan of a development. Events, maintenance and future upgrades result in zero waste and zero ongoing consumption of vital carbon resources

The Self-locking Taper is secured to the item using self-drilling screws and the item is simply dropped into the socket using friction to lock in automatically. Items require over 250kg of upward force to remove and consequently can only be removed using tools provided.

Innovator of the Year Dept of Commerce





Greatly improve workplace safety and efficiency. Instead of taking weeks to install roadside infrastructure, ground sockets can be installed by simply positioning upright when pouring concrete footings (or retro-fitted) and you can install the infrastructure for an entire development in a single day

Ergonomically designed tools enable maintenance to be performed quickly and efficiently from a standing position (facing on-coming traffic)

DOH&amp;S Worksafe Award



JOIN THE  
MARKET  
LEADERS



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# FEATURED PRODUCTS

## SMART SUSTAINABLE FOUNDATIONS



### SMART SUSTAINABLE FOUNDATIONS

Smart Sustainable Foundations are made from a new age Smart plastic that is both impact absorbing and self-healing protecting surrounding pavements and traffic islands from damage impact after impact

Items lock in automatically, no padlocks or metal pins that can rust or break

Approved nationally for securing

- Posts
- Barriers
- Bollards
- Street furniture



### SHOCK ABSORBING IMPACT RECOVERY RINGS

Impact Recovery Rings are used to secure bollards on Smart Sustainable Foundations (in-ground or Surface Mount).

Rings are made from the latest shock absorbing polymers protecting bollards from damage when impacted.

Bollards remain rigid and secure deflecting upon impact from vehicles and self-recovering

Can be used to secure any of our large diameter bollards.

- Rings are re-usable
- Bollards becomes re-usable
- Foundations become re-usable





### **SMART AUTO-LOCKING SIGNPOSTS**

Smart Signposts secured on 150- 650 mm  
Smart Sustainable Foundations

600D CHS Steel

Smart posts are installed by simply  
dropping into position automatically  
locking in using friction which ensures  
they remain safe, secure and perfectly  
aligned

Tools required

Includes posts, sign, re-usable brackets  
and Smart Sustainable Foundations

Low cost to install and maintain



### **SAFETY TRAFFIC BOLLARDS**

Smart Traffic Bollards secured on 350 mm  
Smart Sustainable Foundations

600D CHS Steel

Smart Traffic Bollards are for roads with  
speed limits over 60km/hr.

Installed by simply dropping into  
position automatically locking in using  
friction which ensures they remain safe,  
secure and perfectly aligned

Tools required

Low cost to install and maintain

# FEATURED PRODUCTS

## SMART BOLLARDS



### SMART LOW IMPACT BOLLARDS

Secured on Smart Sustainable Foundations using the Super-flex Impact Recovery System making bollards deflect upon low impact (such as bike riders) and slowly, safely self-recover

- Reduce risk of injury to bike riders
- Prevent vehicle access
- Soft Poly low Impact Surface
- Highly durable

Can be removed and ground socket capped. No trip factors

### SMART CARPARK BOLLARDS

Secured on Smart Sustainable Foundations using the Smart Impact Recovery System these bollards remain rigid and look like a solid in-ground bollard, but when impacted at low speed by a vehicle they deflect up to 20 degrees and slowly, safely self-recover

- Reduce damage to vehicles
- Soft Poly low Impact Surface
- Highly durable

Can be removed and ground socket capped. If badly impacted bollard, foundations and rings are re-usable.



### **QUALITY AUSTRALIAN STAINLESS-STEEL BOLLARDS**

Australian made Stainless steel bollards can be secured using the Smart Impact recovery System (in-ground or surface mount)

Impact resistant allowing bollard to absorb vehicle impact and slowly self-recover without damage

If badly impacted, it is simple to replace- Both the foundations and the bollard are re-usable impact after impact.



### **SAFER, CONCRETE FILLED BOLLARDS**

Until now the only low-cost way to stop a vehicle was to concrete fill a steel bollard but - Concrete filled steel bollards are dangerous.

Concrete and steel do not mix well. Concrete causes rust and corrosion making steel vulnerable to impact and these bollards often break off at ground level when impacted.

A far safer more sustainable alternative to steel concrete filled bollards are Poly concrete filled bollards, providing the same resistance against impact as a solid steel concrete filled bollard and are more resistant to damage

# 01

## SUSTAINABLE FOUNDATIONS

### SUSTAINABLE DEVELOPMENTS BEGIN HERE



Approved nationally for securing

- Posts
- Barriers
- Bollards
- Street furniture

Sockets can be installed when pouring concrete footings /footpaths/traffic islands (or retrofitted) and last the entire lifespan of a development

**Zero waste, Zero harm**







SMART SUSTAINABLE FOUNDATIONS

- 1 X Ground socket 350 mm
- 1 X Self-locking Taper
- 1 x Cap
- Self-drilling screws



**\$30.00**  
**UNIT**

Tools Required

### Zero on-going costs

Units last as long as the footing.

QTY	Dimensions	Weight
25 Complete units	[400 x 400 x 400 mm]	12 kg
25 Ground sockets	[400 x 400 x 400 mm]	7 kg

Packaged in boxes of 25 units.

For 650 mm depth units you need 1 x box of complete units and 1 x box of ground sockets.

You can truncate ground sockets to as shallow as 150 mm and join sockets to extend depth by 300 mm. Additional Tapers can be used to install multiple items in the same location

Suitable for securing 50 NB/60 O.D Posts, grab-rails, bollards, barriers and street furniture (from 2.3 wall thickness to solid 60 mm) any size or weight item

### SECURING LARGE DIAMETER ITEMS

Refer to Impact Recovery System to secure large diameter bollards on the same foundations

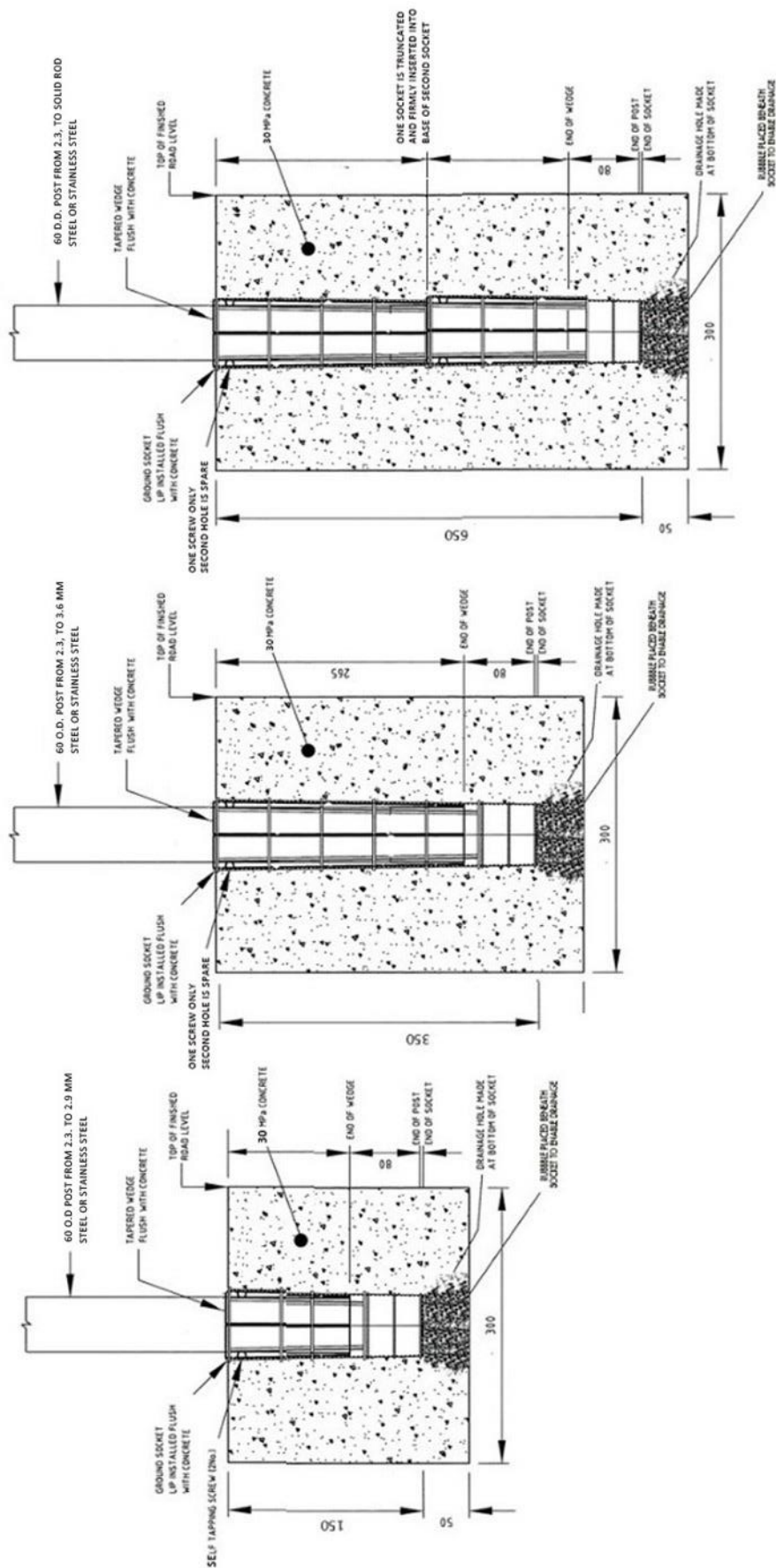


Award Winning ergonomically designed leverage tool is used to remove items from ground socket.

Sheared post removal tool included

Flattened posts are simply levered up to break the seal and tool used as usual.

break the seal and tool used as usual.  
Flattened posts are simply levered up to



## NOTES

SMART SUSTAINABLE FOUNDATIONS, IF INSTALLED CORRECTLY WILL LAST AS LONG AS THE CONCRETE FOOTING

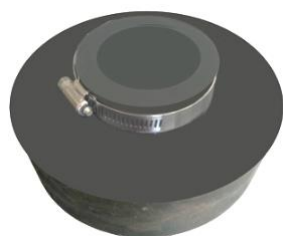
1. SOCKETS MUST BE FLUSH WITH GROUND LEVEL - NO TRIP FACTORS
2. WHEN ITEMS ARE INSTALLED TAPER MUST NOT PROTRUDE FROM SOCKET
3. DO NOT USE RAPID SET CONCRETE IT IS NOT IMPACT RESISTANT
4. MUST USE 30 MPa + CONCRETE FOR IT TO BE IMPACT RESISTANT
5. DO NOT USE CONCRETE SUBSTITUTES WITH A FLEXIBLE COMPONENT AS IT WILL DISTORT THE SOCKET WHEN ITEMS ARE IMPACTED



SMART SUSTAINABLE FOUNDATIONS

02

## IMPACT RECOVERY SYSTEM



## IMPACT RECOVERY SYSTEM

When a bollard is impacted something's got to give, so unless you use some form of shock absorbing mechanism you will need to replace both the bollard and surrounding foundations every time a bollard is impacted.

## SAFER BOLLARDS

Unlike spring loaded bollards that provide no resistance against impact (can be deflected by hand) and spring back creating litigation risks and wear out over time becoming floppy

Smart Impact Recovery Bollards remain rigid only deflecting to a maximum of 20 degrees and slowly self-recovering. The rings are highly durable and continue working for thousands of impacts

## BOLLARDS AND RINGS ALSO RE-USABLE

If bollard experiences severe impact it is still re-usable. The internal core will bend and is simple to replace. Instead of paying hundreds to remove a damaged bollard, buy a new one, replace the concrete footing and dispose of the waste every time - the only cost is the internal core and replacements take less than 5 mins,

## IN-GROUND OR SURFACE MOUNT

Bollards can be secured in-ground or Surface Mounted using the Impact Recovery System™

## RANGE OF DESIGN OPTIONS

- 150 mm Poly Bollards
- 168 mm Stainless steel Bollards
- 150 mm Steel Bollards
- Laser cut Designer Bollards

## SUPER-FLEX OPTION

For bike paths and shopping centres where bollards can absorb impact from trolleys and bike riders.

## SQUAT BOLLARDS

Squat Poly Bollards are available for shopping centres and locations where bollards may be hit by trolleys,

## SCENARIO

A bollard is hit on an average of 4 times a year (obviously some a great deal more)

Replacing a bollard (plus buying the new bollard) costs around \$800 -1000

$4 \times \$800 = \$3200$

$\$3200 \text{ per year} \times 50 \text{ years} = \$160,000$

A Smart bollard self-recovers from impact. If badly impacted 1 out of every 4 impacts that equates to 1 replacement per year

To replace a Smart Bollard costs \$40-70 for the internal core + Max \$50 labour

$1 \times \$70 = \$70$

$\$70 \text{ per year} \times 50 \text{ years} = \$3,500$

**Saving more than 156, 000.00 over the life of a development**

The more often your bollards are hit, the more you save.

more you save:

The more often your bollards are hit, the

**over the life of a development  
saving more than 156, 000.00**

$\$10 \text{ per year} \times 20 \text{ years} = \$2,000$

$1 \times \$10 = \$10$

for the internal core + max \$20 labour

to replace a smart bollard costs around

$\$10 \text{ per year} \times 50 \text{ years} = \$5,000$





03

## SIGNAGE



POSTS

- CHS (50N.B.) 60 O.D.
- Galvanised Steel
- Supplied to length
- Capped

Optional Extras:

- Powder coating
- Sustainable Foundations  
(inground & surface mount options)
- Spring Return option
- Re-usable sign brackets

Supply Options:

- Sign-posts in bundles
- Smart Signposts with taper attached
- Smart Signposts with Spring return base
- Smart Signposts with sign and taper attached

SUSTAINABLE FOUNDATIONS

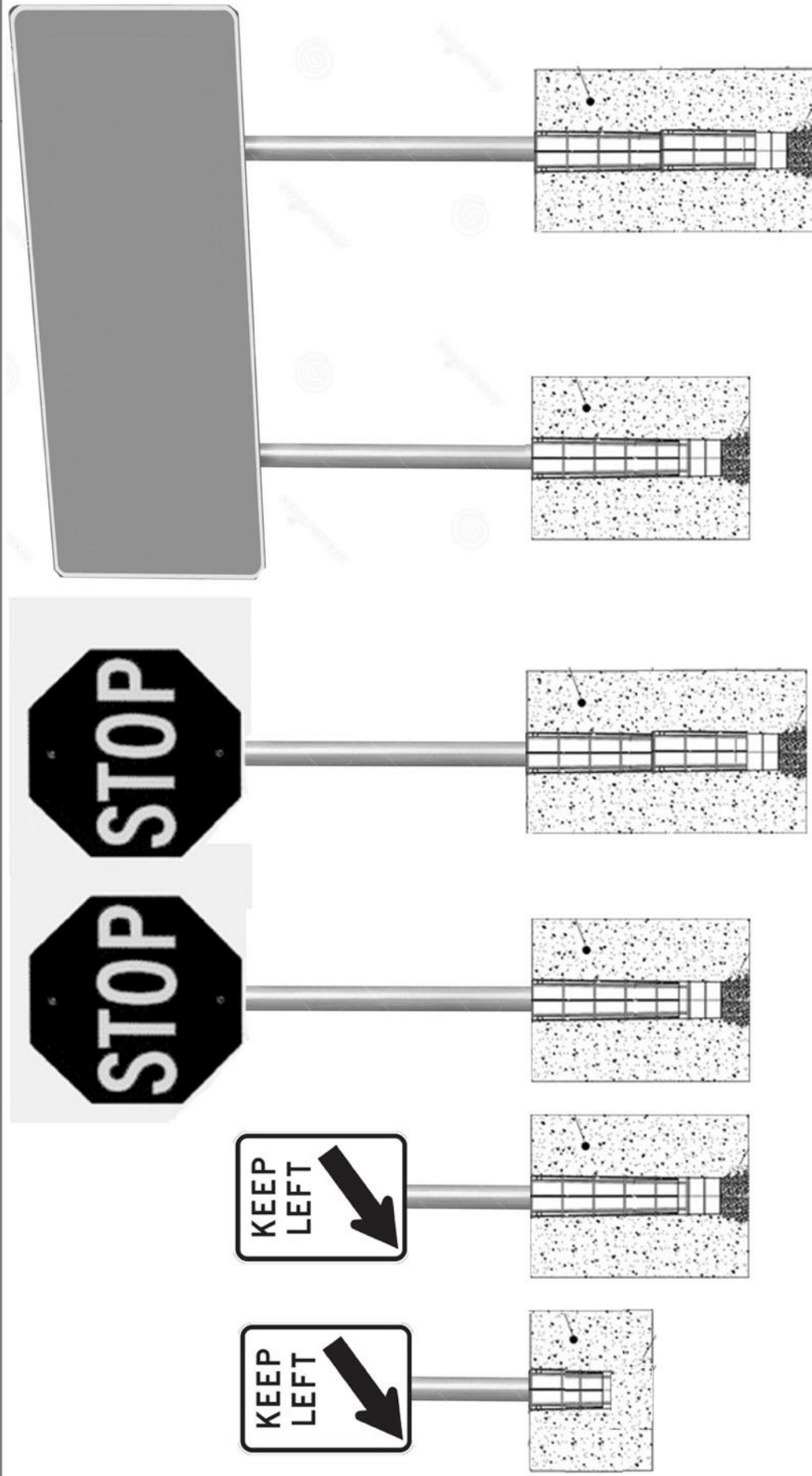
- Ensure perfect alignment
- Fast efficient installs
- Fast efficient replacements
- Re-usable impact after impact
- Replacements are fast and efficient
- Sockets can be capped if post relocated or removed

Approved nationally. MRWA has approved the use of CHS posts which can be secured on Smart Sustainable Foundations from as shallow as 150 mm depth.

Ref Spec 601 Approved devices

Diameter	Wall	Depth	6 m Lengths	Finish
60 mm	2.3	150 – 650 mm	Supplied to length specified	Can be powder Coated
60 mm	2.9	150-650 mm	Supplied to length specified	Can be powder Coated
60 mm	3.6	150-650 mm	Supplied to length specified	Can be powder Coated





## NOTES

1. SMALL SIGNS CAN BE INSTALLED FROM 150 MM DEPTH IN SOLID CONCRETE FOOTPATHS AND TRAFFIC ISLANDS
2. SMALL SIGNS CAN BE INSTALLED FROM 400 MM DEPTH FOR ALL OTHER LOCATIONS INCLUDING PAVED AREAS
3. LARGE SIGNS CAN BE INSTALLED FROM 400 MM DEPTH IN SOLID CONCRETE FOOTPATHS AND ISLANDS
4. LARGE SIGNS SHOULD BE INSTALLED 700 MM DEPTH IN ALL OTHER LOCATIONS
5. LARGE DOUBLE POSTED SIGNS CAN BE INSTALLED FROM 400 MM DEEP IN SOLID CONCRETE FOOTPATHS AND 700 MM DEPTH FOR ALL OTHER LOCATIONS



SMART TRAFFIC SIGNAGE



04

## GRABRAILS



**SIZES**

- 600 mm
- 900 mm
- 1200 mm
- 1500 mm

**UNIT INCLUDES**

- Quality powder coating
- Reflective striping, to MRWA Standards

**Optional Extras:**

- Sustainable Foundations

**SUSTAINABLE FOUNDATIONS**

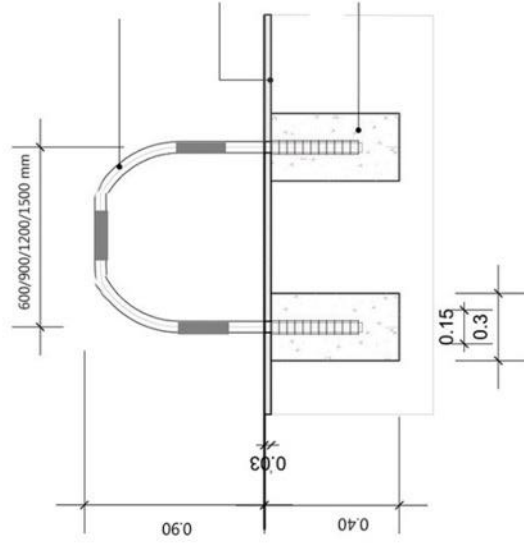
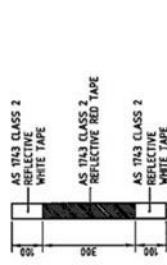
Grab-rails ca be installed on Sustainable foundations preserving the footing and making grabrails low cost to maintain

MRWA Approved

- Ensure perfect alignment
- Fast efficient installs
- Fast efficient replacements
- Re-usable impact after impact
- Replacements are fast and efficient
- Sockets can be capped if item relocated or removed

Approved Nationally

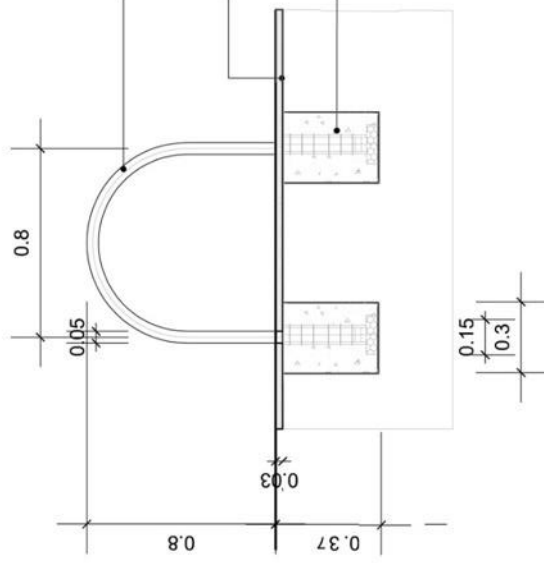
Diameter	Depth	Dimensions (mm)	Weight
600 mm	350 mm	[1250 x 60 x 600]	10 kg
900 mm	350 mm	[1250 x 60 x 900]	12 kg
1200 mm	350 mm	[1250 x 60 x 1200]	16 kg
1500 mm	350 mm	[1250 x 60 x 1500]	20 kg



**ASPHALT PAVING**  
ASPHALT PAVING TO MATCH EXIST  
LAID OVER CONCRETE FOOTING.

**SMART FOOTING**  
400MM DEEP X 300MM SQUARE  
CONCRETE FOOTING SET FLUSH  
TOP OF SURROUNDING ASPHALT

**BIKE RAIL**  
50MM DIA, GRADE 316,  
1.6MM WALL THICKNESS, SATIN  
FINISH STAINLESS STEEL PIPE.  
20MM SQUARE X 1500MM LONG MS  
GALV HOLLOW TUBE CENTRALLY  
WELDED TO BASE OF EACH LEG.



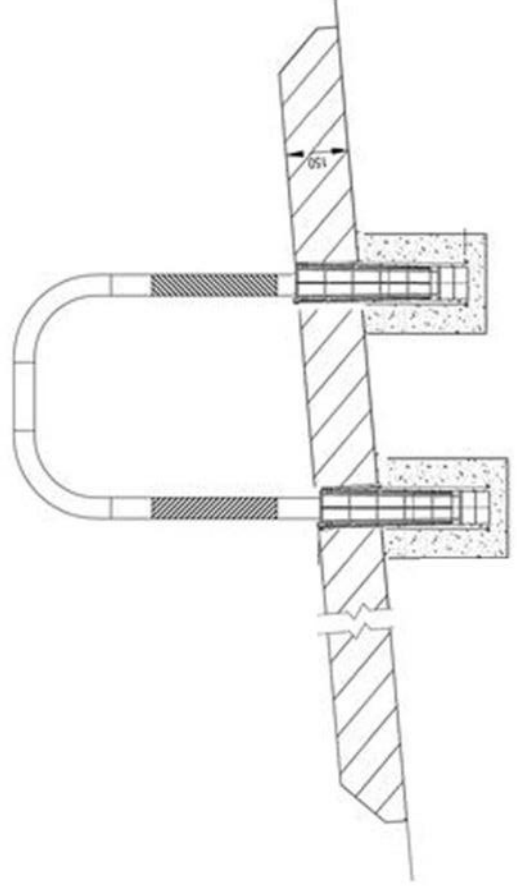
**ASPHALT PAVING**  
ASPHALT PAVING TO MATCH EXISTING  
LAID OVER CONCRETE FOOTING.

**FOOTING**  
370MM DEEP X 300MM SQUARE 32 MPA  
CONCRETE FOOTING SET 30MM BELOW  
TOP OF SURROUNDING ASPHALT PAVING.  
FOOTING LAID ON LAID ON COMPACTED  
ROADBASE.

## SECTION THROUGH GRABRAIL

SCALE: 1 TO 20

## SECTION THROUGH BIKE RAIL





05

## TRAFFIC BOLLARDS





Designed for use on Highways or locations where speed limits exceed 60km/hr

### **Smart 60 O.D Bollards**

- 60 OD Bollard
- 2.9 Walled
- 900 mm High
- 350 Inground
- Quality powder coating
- Reflective striping, to MRWA Standards.
- Self-locking Taper attached
- 350 mm Ground Socket
- Cap

Tools required (MRWA and most WA local govt authorities have tools)

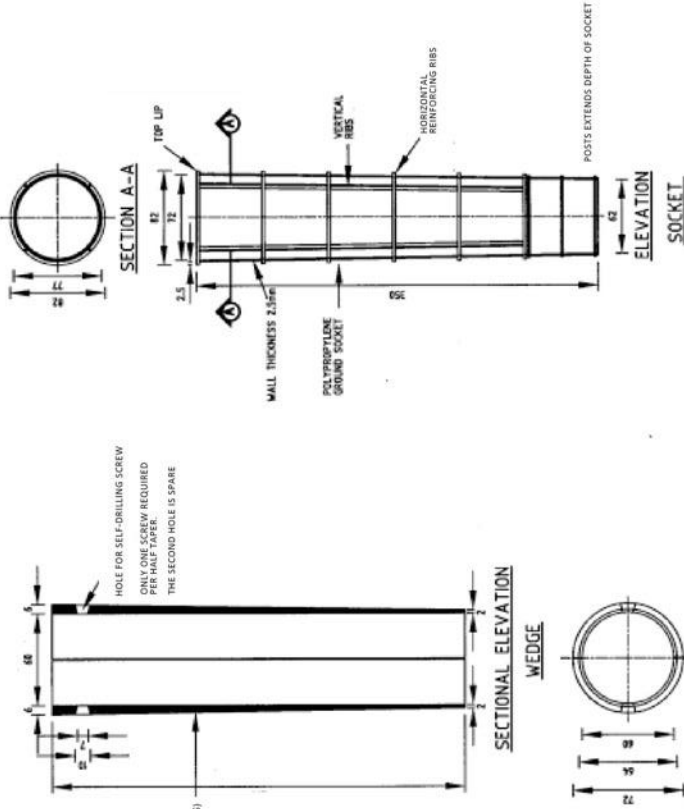
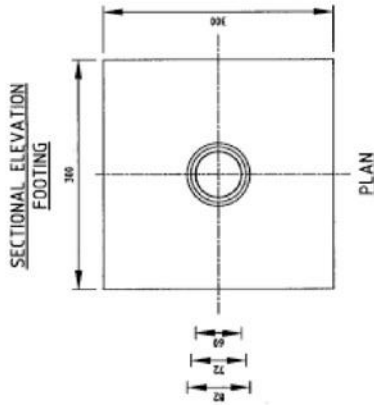
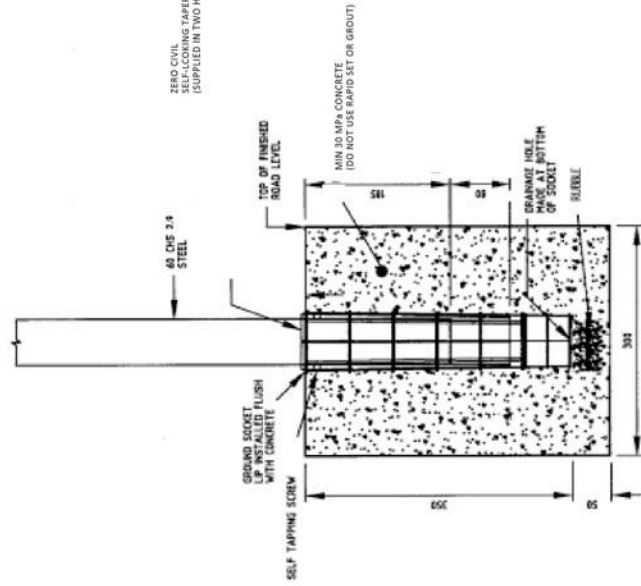
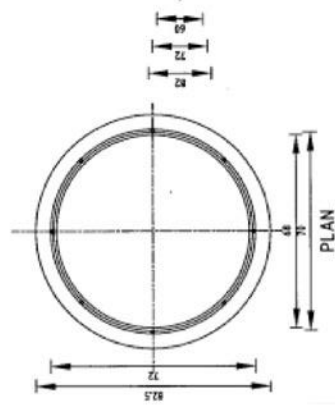
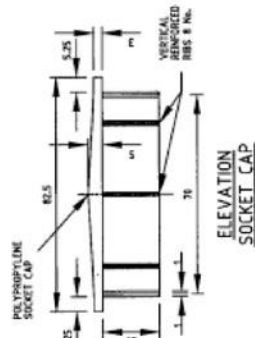
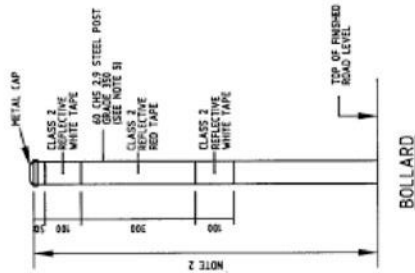
### **Self-recovering option**

Bollards can be made to self-recover from impact by installing them using the Spring Return Base (MRWA Approved).

### **Smart Sustainable Foundations**

- Ensure perfect alignment
- Fast efficient installs
- Fast efficient replacements
- Re-usable impact after impact
- Replacements are fast and efficient
- Sockets can be capped if item relocated or removed

Approved nationally.



## NOTES

### THESE FOOTINGS ARE PERMANENT SO PLEASE TAKE CARE

1. INSTALLATION TOOL AVAILABLE
2. SPACING OF BOLLARDS SHOULD BE IN ACCORDANCE WITH DRAWINGS
3. SOCKET SHOULD BE CAPPED WHEN POURING CONCRETE OR ASPHALT AND WHEN BOLLARD IS REMOVED
4. MUST USE A MIN OF 30 MPa CONCRETE TO ENSURE IT IS IMPACT RESISTANT DO NOT SUBSTITUTE FOR FLEXIBLE GROUT OR RAPID SET CONCRETE
5. BOLLARD SHOULD FINISH 900 MM ABOVE GROUND LEVEL
6. DO NOT SUBSTITUTE GROUND SOCKET FOR METAL SOCKET
7. FOR FURTHER INFORMATION CALL ZERO CIVIL +618 924 5545
8. REFER MRWA SPECIFICATION DRAWING 200831-0014
9. TAKE CARE TO COLOUR MATCH SURROUNDING FOOTINGS
10. TOOL REQUIRED TO REMOVE BOLLARDS- MRWA MAINTENANCE TEAMS HAVE TOOLS

For use adjacent to high speed roads where access is required for emergency vehicles or oversized vehicles but you want to prevent access to the general public.

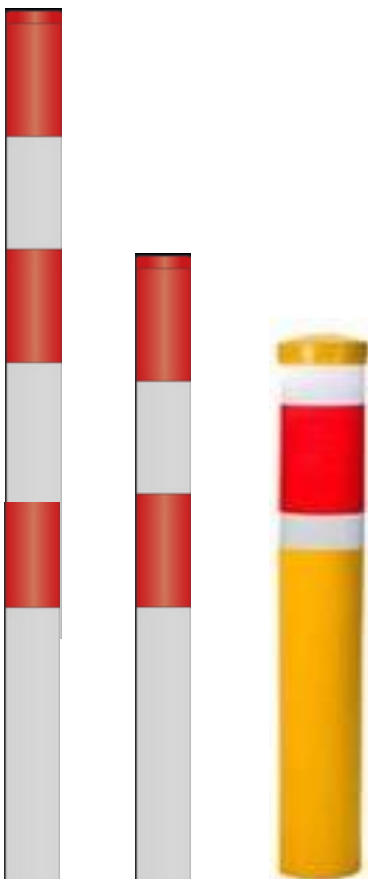
The bollards prevent members of the general public from performing an illegal U-turns but allow oversized vehicles access to avoid low bridges and the like. The support vehicles for the oversized load will remove and replace the bollards when necessary. Only Zero Civil 60mm diameter with a 2.9mm wall thickness bollards can be used as they are considered frangible for speeds of 80km/h and greater.

**ZERO**  
CIVIL

REMOVABLE TRAFFIC BOLLARDS

06

MRWA FIXED BOLLARDS



**MRWA FIXED BOLLARDS**

Fixed Bollards made to MRWA Spec

- 150 NB/165 O.D Galvanised Steel
- Powder coated Safety yellow
- MRWA Reflective Striping Red/ White
- Cap included
- 1300 L
- 800 H
- 500 Inground

Supplied with separate knock on cap so bollard can be concrete filled (as per MRWA Specifications)

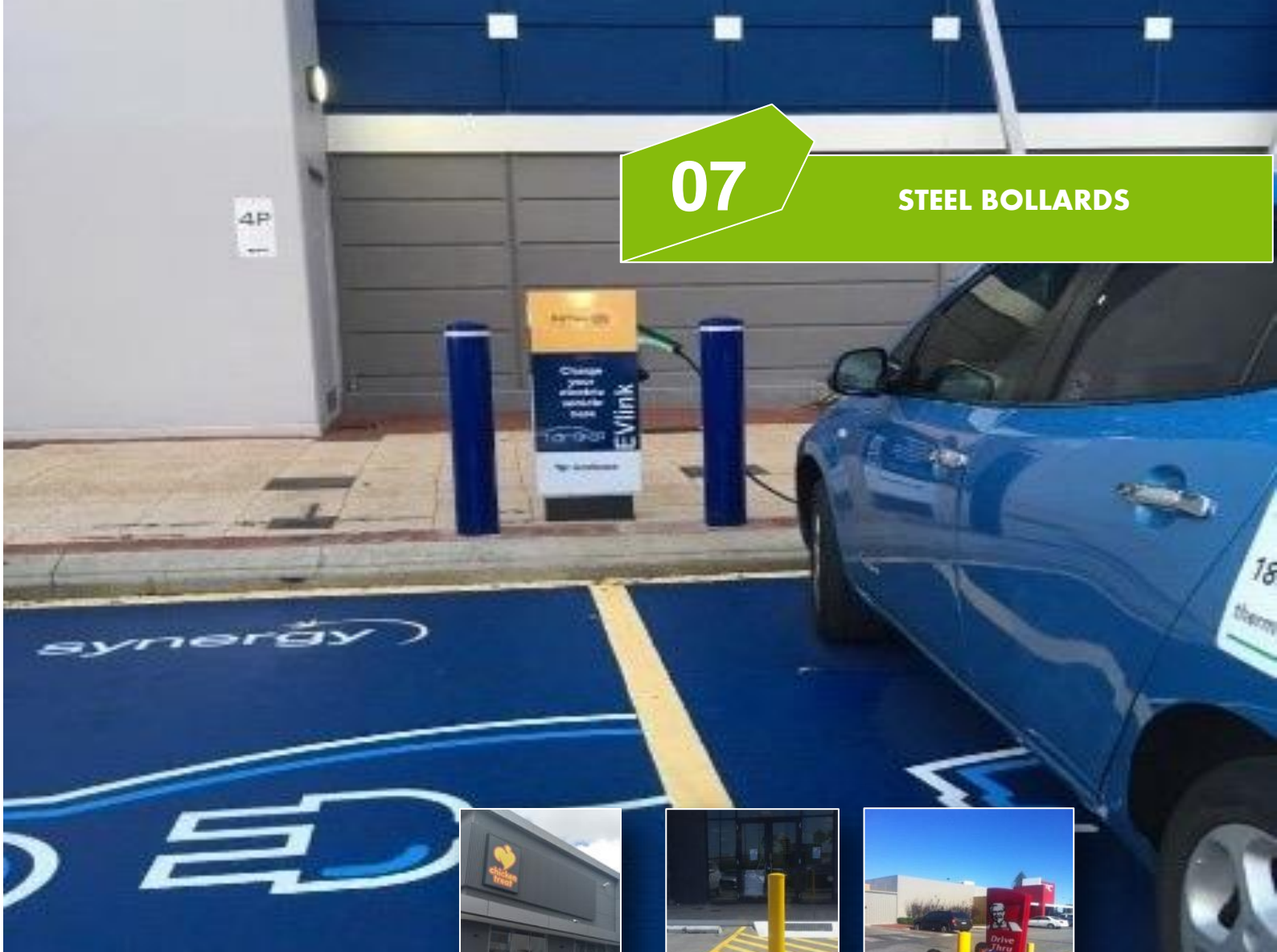
NB: We supply the full range of MRWA Bollards

DIAMETER	
	165 mm O.D 150 mm N.B



07

## STEEL BOLLARDS



**STEEL BOLLARDS**

Steel Bollards can be installed in-ground or surface mounted. To reduce maintenance, bollards can be secured on Sustainable Foundations using the Smart Impact Recovery System™

**IN-GROUND**

- In-ground 1500 L
- Powder Coated Safety yellow
- Capped
- Std units 165 mm
- Can manufacture in any dimension (min 6)

**IMPACT RECOVERY IN-GROUND**

- 150 mm Bollard 1080 L
- Powder Coated Safety yellow
- Capped
- Secured on Sustainable Foundations
- Impact Recovery System included

**SURFACE MOUNT**

- Bollard 1080 H
- Powder Coated Safety yellow
- Capped
- Secured on Base Plate

**IMPACT RECOVERY SURFACE MOUNT**

- 150 mm Bollard 1080 L
- Powder Coated Safety yellow
- Capped
- Secured on Re-usable Base Plate
- Impact Recovery System included

**OPTIONS**

- Can be powder coated any colour (min 6 Bollards)
- Reflective Striping

**SUSTAINABLE SOLUTION**

150 NB (165 O.D) Steel Bollards can be secured on Sustainable Foundations using the Smart Impact Recovery System

Bollards become

- Impact Resistant
- Removable
- Re-usable

**SIZES AVAIABLE**

- 60 mm
- 100 mm
- 150 mm
- 200 mm

08

BOLLARDS DESIGNER CAP



## DESIGNER BOLLARD

- 150 NB Galvanised steel
- 1080 H
- Designer Cast Aluminium Cap

## IN-GROUND

- In-ground 1500 L

## IMPACT RECOVERY IN-GROUND

- 150 mm Bollard 1080 L
- Secured on Sustainable Foundations
- Impact Recovery System included

## SURFACE MOUNT

- Bollard 1080 H
- Secured on Base Plate

## IMPACT RECOVERY SURFACE MOUNT

- 150 mm Bollard 1080 L
- Secured on Re-usable Base Plate
- Impact Recovery System included

## OPTIONS

- Can be powder coated any colour (min 6 Bollards)
- Reflective Striping white on cap

## Smart Sustainable Foundations

150 NB (165 O.D) Steel Bollards can be secured on Sustainable Foundations using the Smart Impact Recovery System

Bollards become

- Impact Resistant
- Removable
- Re-usable

## SIZES AVAILABLE

150 mm NB  
(165 mm O.D.)



09

## STAINLESS STEEL BOLLARDS



## STAINLESS STEEL BOLLARD

Stainless Steel Bollards can be secured in-ground or Surface Mounted. To reduce maintenance, refer to the Impact Recovery System™

- 304 Stainless
- Milled Finish (brushed)
- 900 mm H
- Flat Cap

### IN-GROUND

- In-ground 1300 L

### IMPACT RECOVERY IN-GROUND

- 169 mm Bollard 1080 L
- Secured on Sustainable Foundations
- Sure-Stop Impact Recovery System included

### SURFACE MOUNT

- Bollard 1080 H
- Secured on Round Base Plate

### OPTIONS

- Can be polished
- Reflective Striping
- Pipe (4.5 mm wall) for Bollards subject to impact
- Tube (1.6 mm wall) for decorative Bollards
- Available in 316 for coastal regions (min 6 bollards)

## SURE-STOP IMPACT RECOVERY

Sure-Stop Impact Recovery System is a Super-heavy duty Sustainable Foundation designed to ensure this bollard will stop a passenger vehicle in its tracks and preserve the foundations.

### INCLUDES

- Smart Sustainable Foundations
- 650 mm Depth
- 114 Internal solid steel reinforcing core
- 2 x Impact Absorbing Rings
- 2 x Impact Recovery Rings

Suitable for securing large diameter 168 mm Stainless Steel Pipe Bollards. Bollard, Rings and Sustainable Foundations re-usable after impact.

### UNIQUE DESIGNS

We can manufacture to spec for your project, such as these “squat” Bollards with mitred top

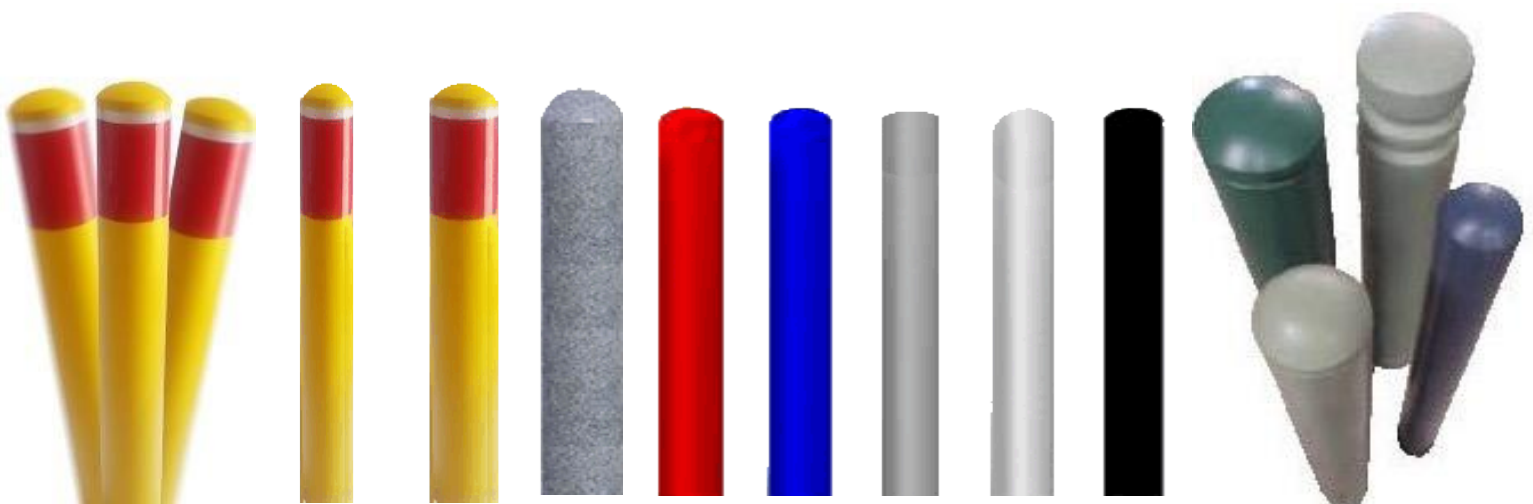
### SIZES AVAILABLE

60 mm NB  
100 mm NB  
168 mm NB  
219 mm NB



10

## DURABLE PLASTIC BOLLARDS



## POLYETHYLENE HIGHLY DURABLE BOLLARDS

- 1200 H
- Dome top
- Safety Yellow
- Soft surface
- Will not scratch
- Non-conductible

## OPTIONS

- Reflective Striping optional
- Can be made in range of colours
- Stone look grey or brown

## IN-GROUND

- 1200L
- 800 H / 400 IG

## NON-CONDUCTIBLE

Use to protect power generators, power boxes or any electrical unit that has an earth circuit running to it

## IMPACT RECOVERY OPTION

150 mm Diameter Poly Bollards can be secured on Sustainable Foundations using the Smart Impact Recovery System

- In-ground 350 mm
- In-ground 650 mm
- Surface Mount

Bollards become

- Impact Resistant
- Removable
- Re-usable

Great for carpark

- Reduce risk of damage to vehicles
- Reduce cost of maintenance

## DIAMETER

100 MM

150 mm \*

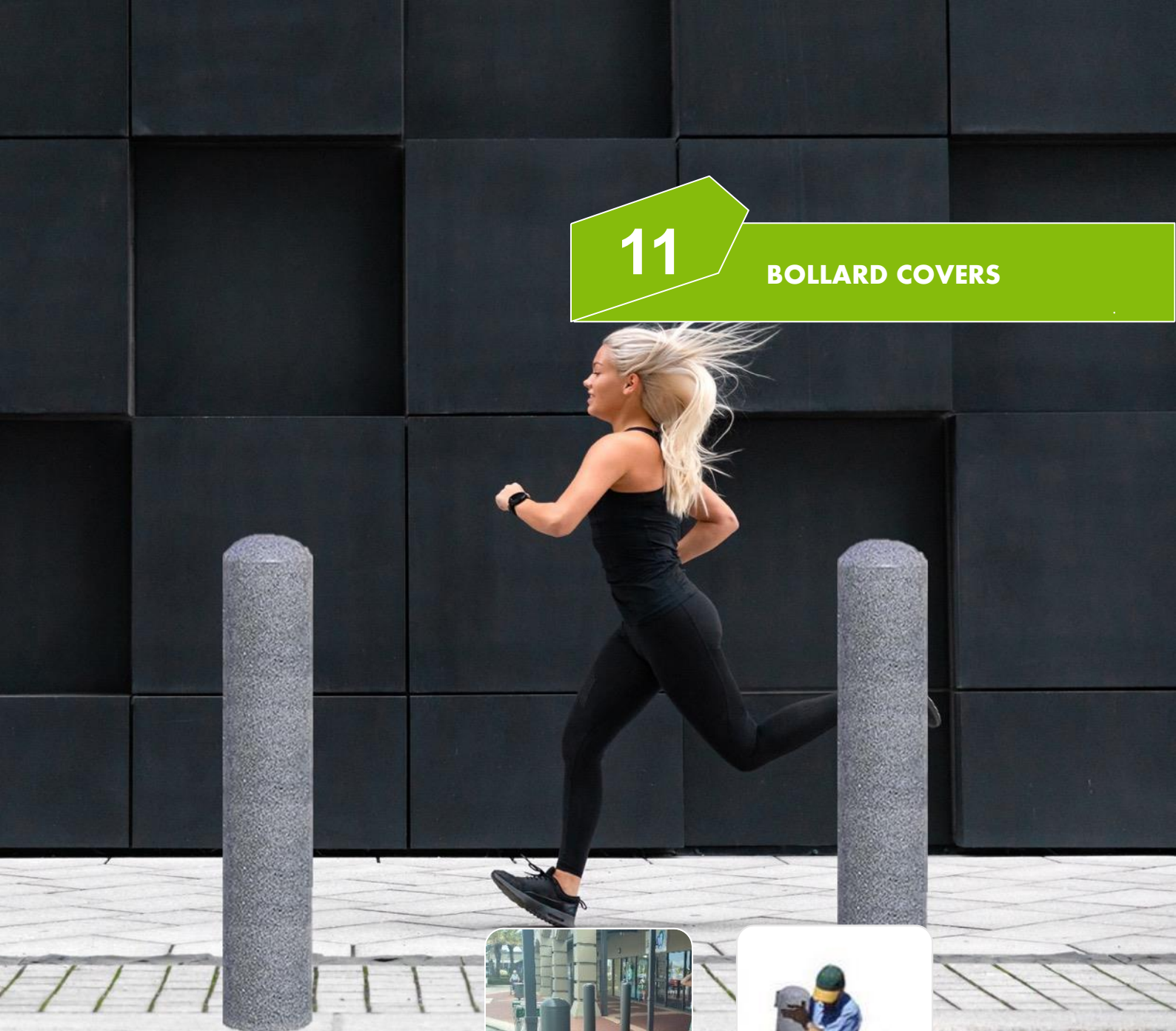
170 mm





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## BOLLARD COVERS



## POLYETHYLENE BOLLARD COVERS

- Cover existing bollards 100- 165 mm Diameter
- Highly durable.
- 1200 H
- Stone look grey or brown
- Can be polished for high shine
- Safe Dome top
- Std units Safety yellow
- Range of colour options (Min 6 )

## PINE LOG COVERS

- Small version for pine log covers
- 170 mm Diameter
- 600 H

## STAINLESS STEEL BOLLARD COVERS

- C over bollards up to 165 mm Diameter
- Tube 1.3 mm wall thickness (decorative only)
- 168 mm Diameter
- 1 m H
- Flat cap
- Made to spec (min 6)

## PLASMA CUT BOLLARD COVERS

- Steel Rust look
- Powder coated colour of choice
- Can be internally lit using solar lighting
- Made to spec (min 6)
- Free design service for large projects

## EASY TO SECURE

- Secured using padded tape supplied and only removable by drilling through the side of the cover to release air pressure

## AVAILABLE TO COVER (OD)

100 – 165mm

## SMALL NUMBERS

Contact us as often we have spares available if you only need small numbers.





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## SAFETY BIKE PATH BOLLARDS



**SAFETY BIKE PATH BOLLARDS**

- 150 mm Diameter
- 1200 High
- Safety Yellow
- Smooth finish
- Dome safety cap
- Reflective striping
- Super-flex Impact Recovery System
- 350 or 650 In-ground Sustainable Foundations

**IMPROVE SAFETY**

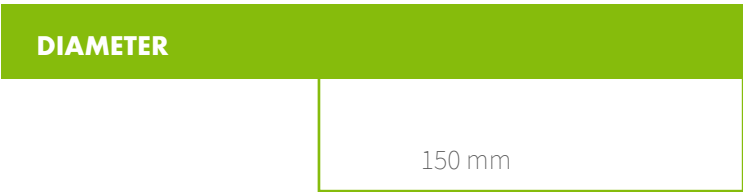
Super-Flex Impact Recovery Rings enable bollards to deflect upon impact from a bike rider and slowly self-recover, reducing reduce risk of injury to bike riders

The soft surface of the Poly bollards further reduces the risk of injury to bike riders

The bollard can be removed, and the ground socket can be capped- no trip factors.

**SELECT INTERNAL CORE**

- High Impact option to prevent vehicle access
- Safe-stop option to bring a vehicle to a stop



**Re-usable following bad impact**

if bollard is badly impacted by a vehicle attempting to gain access to a path, the bollard, foundations and Impact Recovery Rings are re-usable

If bollard is badly impacted and deflects beyond 20 degrees, the internal post may need replacing (Refer to Impact Recovery System for details)

You can alter the strength of the internal post if you need to stop bollard from deflecting beyond 20 degrees when badly impacted.

BOLLARD	DEPTH	LOW IMPACT	HIGH IMPACT	DEFLECTION
Safety Bike Path	Smart In-ground 350 mm	Medium Gauge		20 Degrees
Safety Bike Path	Smart In-ground 650 mm	Medium Gauge		20 Degrees
Safe-stop Bike Path	Smart In-ground 650 mm		Solid Core	20 Degrees



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## SAFETY CARPARK BOLLARDS



### SAFETY CAR PARK BOLLARDS

Bollards in disabled bays and car parks are highly vulnerable to damage

- 1200 High Poly Bollard
- Safety Yellow
- Reflective striping

### SMART LOW IMPACT

- Low Impact Carpark and Disabled bay bollards
- Highly visible
- Low impact surface that will not scratch vehicles.
- They are the same colour throughout so if scratched it does not show.
- Highly durable
- Will not dent or chip like powder coated bollards
- Self-recovers from Impact
- Re-usable following bad impact.

Bollards remain rigid (cannot be deflected by hand) but when impacted by a vehicle at low speed two Impact Recovery Rings (which act like shock absorbers) enable the bollard to deflect up to 20 degrees and slowly self-recover. (No dangerous springs that over-flex, spring back or wear out over time creating litigation risks)

### DIAMETER

150 MM

### Re-usable following bad impact

Bollard, foundations and Impact Recovery Rings are re-usable impact after impact.

If bollard is badly impacted and deflects beyond 20 degrees the internal post may need replacing (Refer to Impact Recovery System for details on in-ground or surface mount designs)

You can alter the strength of the internal post if you need to stop bollard from deflecting beyond 20 degrees when badly impacted.

### Re-usable following bad impact

Bollard, foundations and Impact Recovery Rings are re-usable impact after impact.

If bollard is badly impacted and deflects beyond 20 degrees the internal post may need replacing (Refer to Impact Recovery System for details on in-ground or surface mount designs)

You can alter the strength of the internal post if you need to stop bollard from deflecting beyond 20 degrees when badly impacted.

BOLLARD	DEPTH	LOW IMPACT	HIGH IMPACT	DEFLECTION
Disabled Bay	Smart Surface Mount	Medium Gauge		20 Degrees
Disabled Bay	Smart In-ground 350 mm	Medium Gauge		20 Degrees
Disabled Bay	Smart In-ground 650 mm	Medium Gauge		20 Degrees
Safe-stop Disabled Bay	Smart In-ground 650 mm		Solid Core	20 Degrees

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## LASERCUT DESIGNER BOLLARDS



## LASER-CUT BOLLARDS

These premium designer bollards both highly durable and robust and look fantastic

We manufacture Plasma cut bollards to suit your project in black steel (rust look) or powder coated designs.

### 3 DIFFERENT FINISHES

- Black Steel (Rusty look)
- Galvanised Steel Powder Coated
- Aluminium (Shiny)

### INSTALLATION

- Bollards can be secured in-ground
- Surface mounted
- Secured using the Impact Recovery System
- Used as Bollard covers

### FREE DESIGN SERVICE

Can be individually designed for your project (design options almost limitless, including animal designs/ flowers/ logos). Free design service for large projects.

### LIGHTING

To highlight the cut-out designs bollards can be internally lit using solar lighting

### 168 mm Can be made re-usable following bad impact

Bollard, foundations and Impact Recovery Rings are re-usable impact after impact.

If bollard is badly impacted and deflects beyond 20 degrees, the internal post may need replacing (Refer to Impact Recovery System for details on in-ground or surface mount designs)

You can alter the strength of the internal post if you need to stop bollard from deflecting beyond 20 degrees when badly impacted.

### 168 mm Can be made re-usable following bad impact

Bollard, foundations and Impact Recovery Rings are re-usable impact

## DIMENSIONS

168 MM -200 MM

MADE TO SPEC





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## REMOVABLE PERIMETER BOLLARDS



REMOVABLE BOLLARDS

60 - 90 mm removable bollards, secured on metal ground socket using padlock. As these can rust, corrode and be damaged when impacted, we developed a sustainable alternative that continues working year after year

Refer to price list for details. We can supply and install

Smart 60 O.D Bollards

Self-locking bollards, secured on self-healing Sustainable ground socket that protects footings from damage for the life of the development

- 60 OD Bollard
- 2.9 Walled
- 900 mm High
- Quality powder coating
- Reflective striping.
- Self-locking Taper attached
- 350 mm Ground Socket
- Cap

Tools required (MRWA and most WA local govt authorities have tools)

Self-recovering option

Bollards can be made to self-recover from impact by installing them using the Spring Return Base (MRWA Approved).

Smart Sustainable Foundations

- Ensure perfect alignment
- Fast efficient installs
- Fast efficient replacements
- Re-usable impact after impact
- Sockets can be capped if bollard is removed or relocated
- Extra sockets can be purchased to store or relocate bollard

DIAMETER	
	60 mm
	90 mm

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## REMOVABLE STAINLESS-STEEL BOLLARDS



**REMOVABLE STAINLESS-STEEL BOLLARD**

Stainless Steel Bollards are secured on Smart Sustainable Foundations. Automatic locking, remaining safe and secure year after year.

Removable using industrial tool (large numbers) or foot tool (requires pin)

- 60 OD
- 304 Stainless
- Milled Finish (brushed)
- 900 mm H
- Flat Cap
- Automatic locking

**INCLUDES SUSTAINABLE FOUNDATIONS**

- Smart Sustainable Foundations
- 350 mm Depth
- Self-locking Taper
- Cap (ground socket can be capped)

**OPTIONS**

- Reflective Striping

DIAMETER	
	60 mm

**STAINLESS SURROUND**

Can be supplied with magnetised cap

Magnetic wand tool required to remove cap

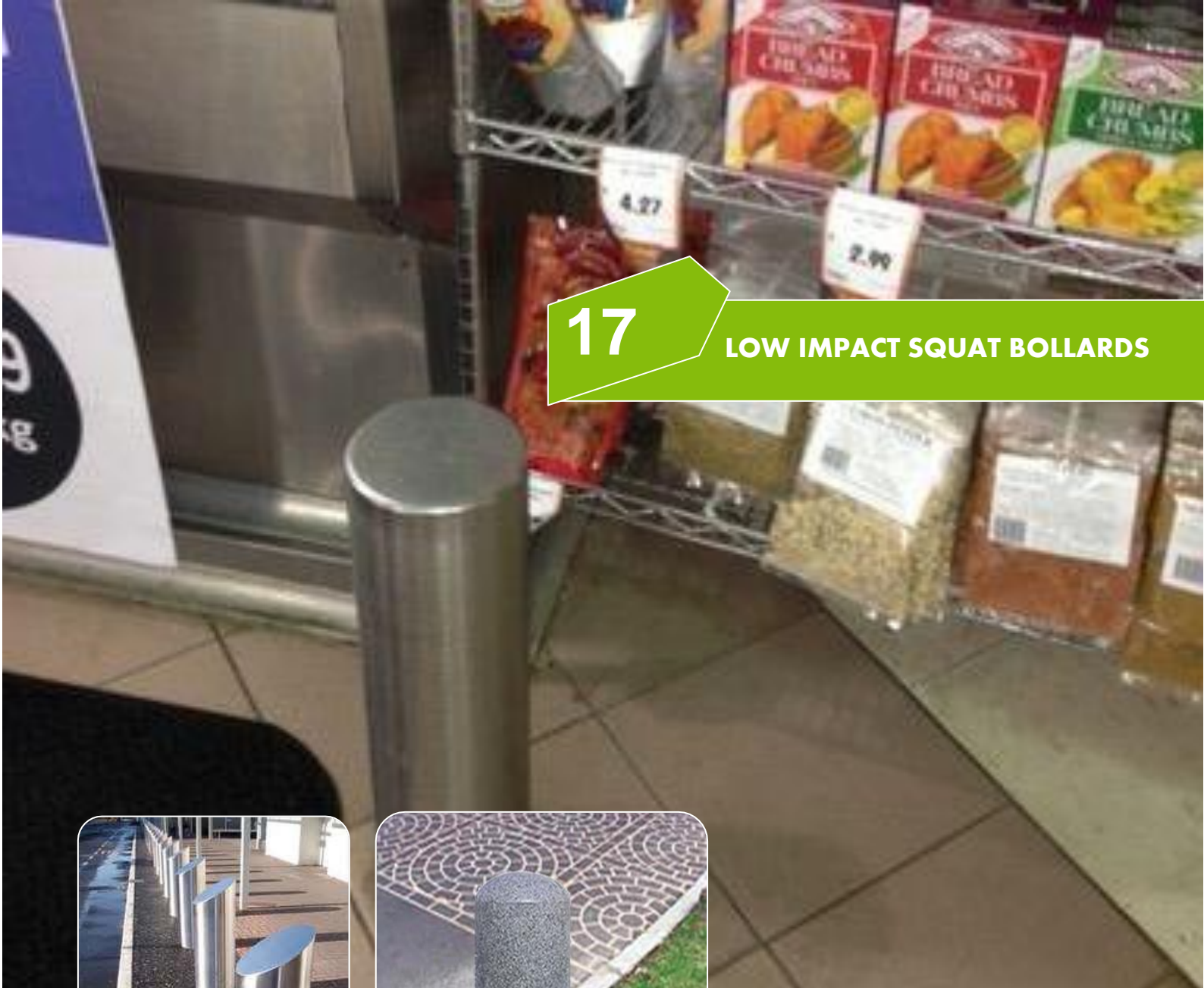
3 Flush mounted screws provided

See back page for more details



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## LOW IMPACT SQUAT BOLLARDS



## LOW IMPACT SQUAT BOLLARDS

Low Impact Squat Bollards are for shopping centres and locations where bollards may be hit by trolleys, and the like. Bollards absorb impact, deflecting to max of 20 degrees and slowly self- recover.

Bollards can be secured in-ground or Surface Mounted using the super-flex Impact Recovery System <sup>™</sup>

## POLYETHYLENE HIGHLY DURABLE BOLLARDS

- 500 H
- Dome top
- Soft surface
- Will not scratch
- Non-conductible
- Dent resistant
- Safer
- Sustainable
- No ongoing maintenance

## OPTIONS

- Reflective Striping optional
- Can be made in range of colours
- Stone look grey or brown

## STAINLESS OPTION

- 304 Stainless
- Milled Finish (brushed)
- 500 mm H
- Flat Cap
- Can be mitred, (min 6 bollards)
- Heavy duty Pipe- dent resistant
- 3.6 mm wall thickness

## SUPER-FLEX IMPACT RECOVERY

- Super-flex Impact Recovery System included
- Secured In-ground 150 mm or
- Surface Mounted using re-usable heavy duty Round Base Plate
- Re-usable shock absorbing Impact Recovery Rings
- Clamps (to secure rings to Internal core
- Heavy duty Internal core

Refer to Super-flex Impact Recovery System for more details

## DIAMETER AVAILABLE

150 mm Poly

168 mm Stainless steel



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CONCRETE FILLED POLY BOLLARDS



## SAFER, MORE DURABLE CONCRETE FILLED BOLLARDS

Until now the only low-cost way to stop a vehicle was to concrete fill a steel bollard but they are prone to damage, rust and corrosion. Despite being the most common form of barrier- Concrete filled steel bollards are dangerous.

Concrete and steel do not mix well. Concrete causes rust and corrosion making steel vulnerable to impact and these bollards often break off at ground level when impacted.

A far safer more sustainable alternative to steel concrete filled bollards are Poly concrete filled bollards that overcome the is problem, providing the same resistance against impact as a solid steel concrete filled bollard and are more resistant to damage.

- Poly casing 170 mm diameter
- 1200H Casing
- 1800L Concrete shaft
- 7mm wall thickness
- Concrete filled
- Dome top
- Will not rust or corrode
- Scratch and dent resistant
- Safe, more sustainable

## OPTIONS

- Almost any colour. Std units Safety Yellow
- Large range of colour options
- Including stone look grey or brow
- Other colours min 6 bollards



## DIAMETER

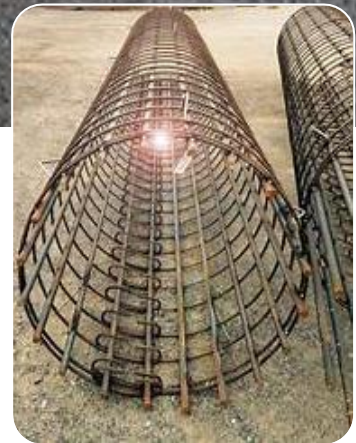
170 mm diameter





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STONE CAGE BOLLARDS



## STEEL REO CAGE BOLLARDS

Steel cage Bollards filled with stones provide a decorative and robust alternative to traditional steel bollards

- Cage 200 mm diameter
- 1000 H
- Steel cage
- Can be galvanised (grey) OR
- Rust look (non-galvanized)
- Black poly strip

### IN-GROUND

- In-ground 500 mm depth
- Cage extends 500 mm inground
- Foundations concrete filled

### OPTIONS

- Stones can be white, or natural
- Cage can be iodised- shiny silver)

#### DIAMETER

200 mm diameter

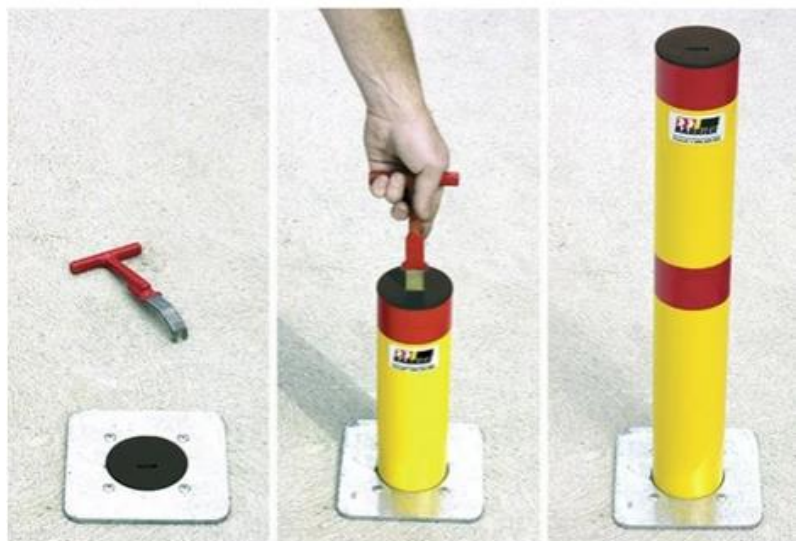
20

## REMOVABLE & RETRACTABLE BOLLARDS



### REMOVABLE & RETRACTABLE

90 mm Removable and retractable bollards secured on metal ground sockets. MRWA Approved keyed alike retractable. We also sell hydraulic retractable bollards







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## HYDRAULIC RISING BOLLARDS

### **AUTOMATIC RETRACTABLE**

Budget friendly state-of-the-art internal hydraulic power pack design with maximum reliability Ease of maintenance and installation combined with smooth and silent operation, thanks to internal hydraulics and modular case design

Suitable for intense usage at high frequency access control points, supporting 10,000+ movement /day



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## WHEELSTOPS



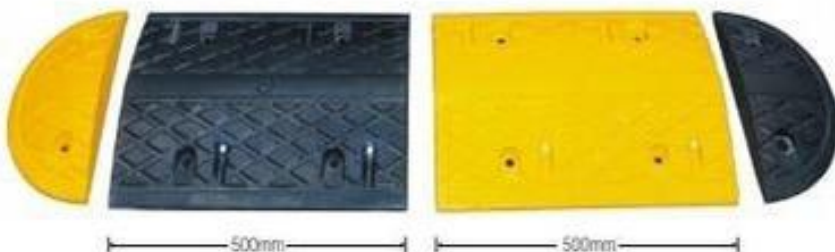
### WHEELSTOPS

Quality wheel-stops supplied and installed.

Rubber and concrete wheel-stops available

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## SPEED HUMPS



### SPEED HUMPS

Quality speed humps supplied and installed.

Relocatable speed humps available



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## CORNER PROTECTORS

### **CORNER PROTECTORS**

Quality corner protectors supplied

Can be supplied and installed





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## LINEMARKING



### LINEMARKING

Quality line-marking service

No job too large

Letters and numbers

Waiting zones

School grounds

### Greening the concrete jungle

Smart landscaping services proving resilient plants suitable for carparks



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## TRAFFIC CONTROL



### WITHCHES HATS & TEMP BOLLARDS

Range of options- refer to price list for details

Choose from cheap or quality



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## STAINLESS GROUND COVER



### STAINLESS SURROUND

Can be supplied with magnetised cap

Magnetic wand tool required to remove cap

3 Flush mounted screws provided

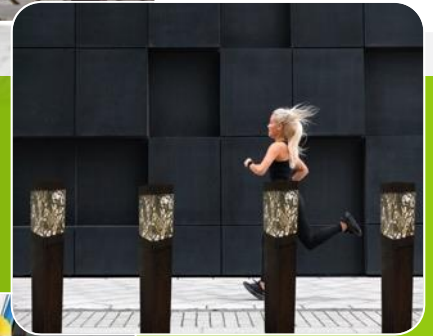
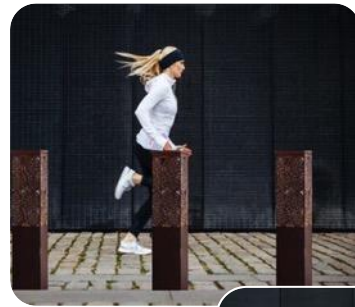


We specialise in Sustainable Foundations (in-ground and surface mount) for securing any size item from 60-168 mm diameter and have a large range of bollards and bollard covers to suit almost any application - designed to be impact resistant, removable and re-usable, saving you thousands over the lifespan of a development

Recognised by Department of Commerce and the Department of Occupational Health and Safety for our innovative product development, Smart Urban was awarded Innovator of the Year and Smart Sustainable Foundations were presented the Worksafe Award for removing the need for digging and heavy labour and reducing the time on location for maintenance staff.

We have developed a range of designs and can tailor make bollards (and bollard covers) to suit your project in steel, stainless or even durable new-age plastics in wood look, stone or marble. We also manufacture laser cut screens and bin covers to match your bollards.

Please refer to Bollard Specs for more details



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