

1. Objective and Scope

To describe how to correctly install Saferoads OMNI-STOP Ultra Security Bollard.

2. Important Note:

Saferoads OMNI-STOP Ultra Security Bollard has been crash tested and can stop a 3500lbs/1600kg vehicle travelling at 30mph/50kph. It is important that the surrounding soil has sufficient strength to support the footing during a design impact.

The minimum specification for the surrounding soil is that it should be a cohesive soil with a minimum Undrained Shear strength of 100kPa. A simple Dynamic Cone Penetrometer (DCP) test can be conducted, a minimum average of 2 blows per 2in/50mm is required.

Installation outside of these conditions may be possible, but a geotechnical engineer should be engaged to recommend appropriate design.

3. Personal protective equipment (PPE)

The following is mandatory PPE.



Boots



Eye Protection



Ear Protection



Hi Viz



Gloves



Protective Clothing

4. Equipment Required

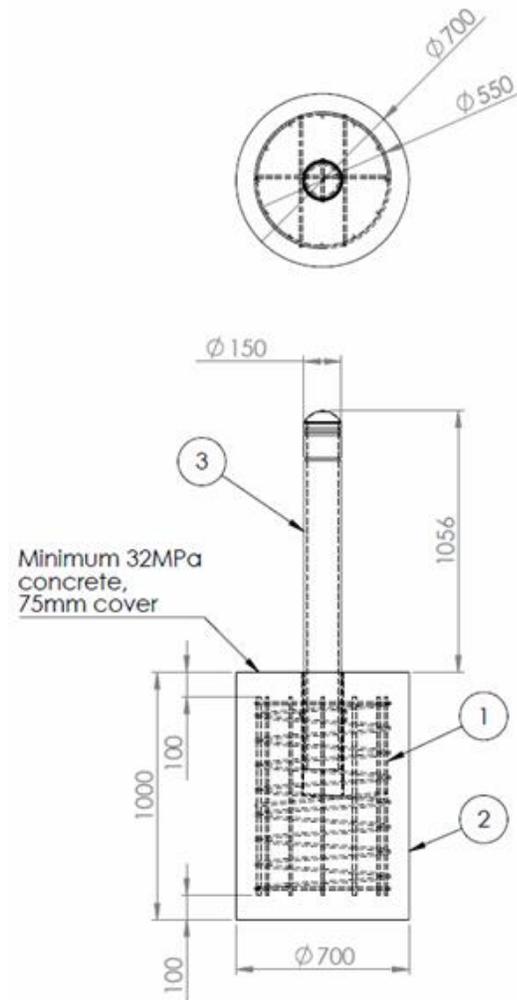
- a) Auger and or digging tools;
- b) String line;
- c) Spirit level;
- d) Reo spacers;
- e) 5000PSI/32MPa concrete;
- f) Pencil vibrator; and
- g) 6in / 150mm x 57in / 1450mm light galvanised pipe.

5. Qualifications and Competencies

- a) Safe use of hand tools;
- b) Manual handling; and
- c) Road traffic management.

6. Overview

- Item 1 Reinforcement cage assembly including Bollard Tube receiver
- Item 2 5000PSI / 32MPa concrete footing, 28in / 700mm dia. X 40in/1000mm deep
- Item 3 55in/1400mm long “Omni” pipe plus domed cap, 6in/150mm nominal O.D.



7. Documentation and Setup

- a) Ensure that the selected installer provides a copy of Public Liability Insurance, WorkCover, SWMS and plant service records. (No documentation - no job).
- b) Before commencing ensure that you have had all services located and clearly identified using “Dial Before You Dig” or “Before You Dig Call 811”. Ensure you complete the Inspection and Test Plan (ITP).



- c) Ensure you are at the correct location and set up traffic control to Australian Standards, or as advised and required by the client.

8. Marking

Mark out hole centres as per site design. If installing multiple bollards use a string-line to check they are in a straight line.



9. Dig

Auger or manually dig a minimum 28in / 700mm diameter x 40in / 1000mm deep hole.



10. Reinforcement spacers

Place 4 reinforcement spacers under the cage to allow the reinforcement cage to sit clear of the sub-soil.



11. Positioning Reinforcement Cage

Insert the Omni-Stop Ultra Security Bollard reinforcement cage, ensuring that the cage is at equal distance from the edges of the hole.

Also ensure the top of the sleeve is level with the finished concrete surface.



Use a spirit level to ensure that the reinforcement cage assembly is correctly positioned



Note: using a 6in / 150mm x 57in / 1450mm lightweight galvanised pipe placed into the cage to check that the bollards will be vertical may assist.

## 12. Pouring Concrete

Pour concrete into the space surrounding the reo cage to approx. 12in / 300mm and then re-check levels. (Concrete must be 5000PSI / 32MPa).



Fill the remainder of the hole with concrete. Ensuring that the application of concrete does not move the reo cage out of position.



The concrete should be vibrated with a pencil vibrator to settle the concrete and remove air pockets.

Be careful when pouring concrete that the Omni-Stop Ultra Security Bollard cage is not moved from its intended location, or level.



The performance of the Omni-Stop Ultra Security Bollard may be affected by incorrect installation.

Finish off by screeding the concrete surface and if applicable replace pavers around installed bollard.



Note: If paving is to be placed over the top of the footing, the excavation must be deep enough to ensure that the concrete footing is minimum 40in/1000mm deep and 28in/700mm diameter.

Sweep up any excess dirt or debris from the site





13. ITP

Ensure you have completed the Inspection and Test Plan (ITP) for the Omni-Stop Ultra Security Bollard for each installation you have completed.

14. Finish

Installation complete

15. House Keeping and Final Checks

a) Safety Checks:

- Housekeeping practices adhered to and worksite is left clean and safe; and
- Items have been fitted correctly and safely.

b) Quality Checks:

- Workmanship is to specification;
- Materials quality is acceptable;
- Unused materials are removed; and
- Quality checks performed.

c) Environment Checks:

- Surrounds are restored to prior condition; and
- No spillage and/or damage to any soil, habitat, atmosphere or drainage

SOP REVISION UPDATES

Rev 2 dated 26/10/2020

a) New SOP