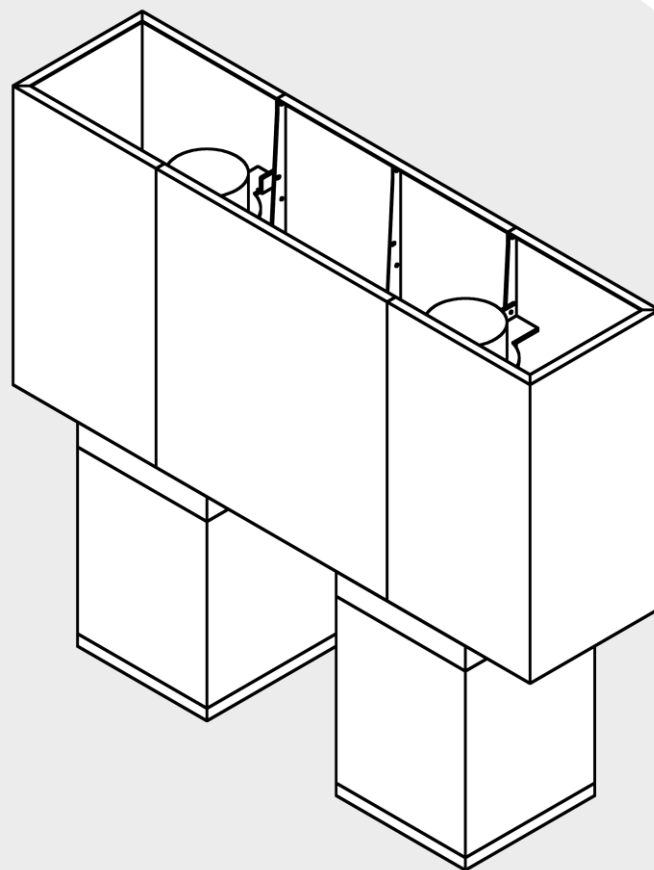


► HVM BOLLARDS

Planter-Integrated Security

Technical data sheet



Reference:
DS-HVM-100

HOSTILE VEHICLE MITIGATION FOR HIGRADE & PLANTERLINE

Kinley HVM Bollards provide hostile vehicle mitigation (HVM) that integrates discreetly within HiGrade planter edging and Planterline planter systems, protecting public realm and pedestrian areas without the visual impact of standalone security infrastructure.

Independently crash-tested to PAS 68 and installed in accordance with PAS 69 guidance, the range covers two impact ratings to suit different threat and site requirements.

IMPACT PERFORMANCE

HVM Bollard 50: **7.5t @ 50mph**

Shallow and standard foundation

HVM Bollard 30: **7.5t @ 30mph**

Shallow and standard foundation

COMPLIANCE

Tested to PAS 68

Installed to PAS 69 · BS 4848 Pt.2 · BS 5493

KEY BENEFITS

- ✓ Discreet integration within HiGrade and Planterline
- ✓ Continuous perimeter protection at 1200mm max spacing
- ✓ Bollard sits below the planter rim, concealed by planting
- ✓ Single and double planter collar configurations
- ✓ PAS 68 tested — 7.5t vehicle impact performance
- ✓ Two impact ratings to suit site-specific threat levels
- ✓ Shallow foundation option for restricted excavation depths
- ✓ PAS 68 test certification available for each project
- ✓ Suitable for public realm, crowded places and pedestrian areas
- ✓ Sleeve finish matched or contrasted with the planter finish
- ✓ Suits CorTen and powder-coated RAL planters
- ✓ GA drawings and foundation data included



INTRODUCTION

Kinley HVM Bollards bring hostile vehicle mitigation (HVM) into the landscape rather than bolting it on top of it. Designed for integration within HiGrade planter edging and Planterline planter systems, the bollards sit within the planting line, providing continuous vehicle impact protection while remaining visually consistent with the surrounding public realm design.

The range is suited to public realm, crowded places, pedestrian areas and any location where vehicle access must be prevented without the appearance of overt security infrastructure.

For Use With

- HiGrade: modular steel planter edging at a height of 1200mm, with straight, corner and curved units, in CorTen, or custom powder-coated RAL finishes.
- Planterline: the planter system, including curved and prism wall formats, for defining pathways and green spaces with complete design freedom over angles and layout. Available in bespoke heights in CorTen or powder-coated to any RAL colour.

► Find out more or request a sample

sales@kinleysystems.com

or visit kinleysystems.com

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Ref: DS-HVM-100 Last update: October 2026

BOLLARD RANGE

Two impact ratings are available, both independently crash-tested to PAS 68 and suitable for integration with either planter system.

Model	SKU	Impact Rating	PAS 68 Classification	Height Above Ground	HiGrade	Planterline
HVM Bollard 50 Jupiter Standard Foundation	HVM-JUP-STD-273x1200	7.5t @ 50mph	V/7500[N3]/80/90:10.5/11.1	1000mm	✓	✓
HVM Bollard 50 Jupiter Shallow Foundation	HVM-JUP-SHL-273x1200		V/7200[N2A]/80/90:8.7			
HVM Bollard 30 Venus Standard Foundation	HVM-VEN-STD-219x1200	7.5t @ 30mph	V/7500[N2]/48/90:0.0/0.0	1000mm	✓	✓
HVM Bollard 30 Venus Shallow Foundation	HVM-VEN-SHL-219x1200		V/7500[N2]/48/90:3.3/0.0			

Impact tested in a set of three bollards. Maximum distance between bollards: 1200mm, in accordance with PAS 69 installation guidance.



TECHNICAL SPECIFICATIONS

Property	HVM Bollard 50	HVM Bollard 30
Impact rating	7.5t @ 50mph (80kph)	7.5t @ 30mph (48kph)
PAS 68 classification	V/7500[N3]/80/90:10.5/11.1	V/7500[N2]/48/90:0.0/0.0
Standards	PAS 68, installed to PAS 69, BS 4848 Pt.2, BS 5493	PAS 68:2010, BS 4848 Pt.2, BS 5493
Height above ground (HAG)	1000mm	1000mm
Embedment	500mm	500mm
Diameter	273mmø	219mmø
Foundation depth	750mm R.C. foundation + 50mm blinding	600mm R.C. foundation + 50mm blinding
Foundation	Foundations prepared as detailed on foundation plan. Concrete mix: C30, 20mm aggregate	Foundations prepared as detailed on foundation plan. Concrete mix: C30, 20mm aggregate

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Property	HVM Bollard 50	HVM Bollard 30
Maximum spacing between bollards	1200mm	1200mm
Planter collar diameter	Ø353mm	Ø299mm
Planter collar (H × W)	1200 × 600mm	1200 × 600mm
Planter collar length	1200mm (single) · 2400mm (double)	1200mm (single) · 2400mm (double)
Foundation pad (per bollard)	600 × 600mm on plan	600 × 600mm on plan
Bedding below bollard	250mm	100mm
Top of foundation	Finishes to suit site conditions, max. 100mm below collar	Finishes to suit site conditions, max. 100mm below collar
Overall installed depth (top of collar to underside of blinding)	2100mm	1950mm

INTEGRATION WITH HIGRADE & PLANTERLINE

HVM Bollards are positioned within the HiGrade or Planterline run at the point of design, so the bollard reads as part of the planter line rather than a standalone security element.

- Bollards are set out at the same time as the planter run, with the edging or wall detailed braced around each bollard position
- Planting conceals the bollard where appropriate, and allows full impact function performance
- Bollard spacing (max 1200mm) is coordinated with the planter module set-out at design stage
- Sleeve finish can be matched or contrasted with the HiGrade or Planterline finish for a coordinated or deliberately visible security line



CONFIGURATIONS & DIMENSIONS

Both bollard types are available as a single bollard with planter collar or as a double bollard planter. Each bollard is cast into its own reinforced concrete foundation pad, with the steel planter collar sitting over the bollard and bearing on the finished top of foundation. In the double configuration, the two bollards are set at 1200mm centres within a single 2400mm collar.

Configuration	Bollard Ø	Collar Ø	Planter Collar (L × W × H)	R.C. Foundation	Overall Depth
Jupiter Bollard with Planter Collar	273mm	353mm	1200 × 600 × 1200mm	1 no. 600 × 600 × 750mm	2100mm
Jupiter Double Bollard Planter	273mm	353mm	2400 × 600 × 1200mm	2 no. 600 × 600 × 750mm	2100mm

Configuration	Bollard Ø	Collar Ø	Planter Collar (L × W × H)	R.C. Foundation	Overall Depth
Venus Bollard with Planter Collar	219mm	299mm	1200 × 600 × 1200mm	1 no. 600 × 600 × 600mm	1950mm
Venus Double Bollard Planter	219mm	299mm	2400 × 600 × 1200mm	2 no. 600 × 600 × 600mm	1950mm

Overall depth is measured from the top of the planter collar to the underside of the 50mm blinding. All foundations include 50mm blinding beneath the R.C. pad.

- Planter collar is formed from three panels on the long elevation, with internal brace plates tying the collar to each bollard
- Top of bollard sits within the collar, below the planter rim, so it is concealed by planting
- Top of foundation finishes to suit site conditions, up to a maximum of 100mm below the underside of the collar
- Jupiter bollards bed into 250mm of concrete below the bollard base; Venus bollards into 100mm

REFERENCE DRAWINGS

The following general arrangement drawings are available from the Kinley technical team. For any dimensions not shown, refer to the CAD file at latest issue. Drawings are not to be scaled. The drawings are reproduced under Technical Drawings at the end of this datasheet.

Drawing Title	Configuration	Sheet Size	Scale
Jupiter Bollard with Collar v2	Single, HVM Bollard 50	A3	1:20
Jupiter Double Bollard Planter v2	Double, HVM Bollard 50	A2	1:20
Venus Bollard with Collar	Single, HVM Bollard 30	A3	1:20
Venus Double Bollard Planter v2	Double, HVM Bollard 30	A2	1:20

COMPLIANCE & TESTING

Kinley HVM Bollards are independently impact tested to the British PAS 68 Specification by a UKAS-accredited test laboratory and are installed in accordance with PAS 69 guidance on bollard spacing and foundation detailing.

- PAS 68 — Impact test specification for vehicle security barriers
- PAS 69 — Guidance on the selection and installation of vehicle security barriers
- BS 4848 Part 2 — Hot-rolled structural steel sections
- BS 5493 — Protective coating of iron and steel structures against corrosion

Note: PAS 68 has been succeeded by BS ISO 22343-1/-2, its intended replacement. PAS 68 test certification remains valid and is widely specified and accepted for HVM procurement at the time of writing; Kinley will confirm the applicable standard for each project on request.

Full PAS 68 test certification, including the independent test report reference for the specific bollard configuration supplied, is available on request from the Kinley technical team. This should be retained for project compliance records and referenced in any PAS 69 installation sign-off.

FOUNDATION WIDTH

Foundation width depends on the quantity of bollards specified. Each configuration is impact tested in sets of 3 no. bollards, so the minimum foundation is sized for the minimum number of bollards at 1200mm upright centres, as set out below. Runs with more bollards require a correspondingly longer foundation.

The Venus Bollard requires a minimum double foundation (2 no. bollards at 1200mm upright centres). The Jupiter, Shallow Jupiter and Shallow Venus Bollards require a minimum of 3 no. bollards at 1200mm upright centres.

Model	Min. No. of Bollards	Upright Centres	Min. Foundation Width
Jupiter Bollard	3 No.	1200mm	3046mm wide

Model	Min. No. of Bollards	Upright Centres	Min. Foundation Width
Shallow Jupiter Bollard	3 No.	1200mm	5000mm wide × 2500mm long
Venus Bollard	2 No. (min. double foundation)	1200mm	2419mm wide
Shallow Venus Bollard	3 No.	1200mm	4238mm wide

Indicative concrete and blinding volumes per linear metre of planter run, for budgeting and foundation design purposes.

Product	Bollard Diameter (mm)	Foundation Width (mm) Min.	Foundation Depth excl. Blinding (mm)	Blinding Depth (mm)	Concrete Volume per Linear Metre of Run (m³/m)	Blinding Volume per Linear Metre of Run (m³/m)
Jupiter Static Bollard – Standard Foundation	273mm	3,046mm	600mm	50mm	1.828	0.152
Jupiter Static Bollard – Shallow Foundation	273mm	5,000mm	200mm	50mm	1.000	0.250
Venus Static Bollard – Standard Foundation	219mm	2,419mm	450mm	50mm	1.089	0.121
Venus Static Bollard – Shallow Foundation	219mm	4,238mm	300mm	50mm	1.271	0.212

INSTALLATION GUIDE

This guidance applies to Jupiter and Venus bollards installed within HiGrade or Planterline. Read it alongside the project-specific foundation plan and the general arrangement drawings at the end of this datasheet.

Foundation Types

Model	Foundation Type	Bollard Embedment	Strip Foundation Depth (excl. blinding)	Blinding	End / Corner Blocks
Jupiter – Standard	Type C (standard)	500mm	600mm	50mm	750 × 750 × 400mm deep
Jupiter – Shallow	Type B (shallow)	200mm	200mm	50mm	Per foundation plan
Venus – Standard	Type C (standard)	500mm	450mm	50mm	600 × 600 × 450mm deep
Venus – Shallow	Type B (shallow)	300mm	300mm	50mm	Per foundation plan

End/corner anti-ripple blocks are required in addition to the running strip foundation, at the start and finish of each bollard run and at every corner. They are not included in the per-linear-metre volumes above; allow one block per run end and corner.

Bollard Spacing

- Maximum clear gap between bollards (face to face): 1200mm, in accordance with PAS 69
- Equivalent maximum centres: 1473mm for Jupiter (Ø273mm) and 1419mm for Venus (Ø219mm)
- Coordinate spacing with the planter module set-out at design stage

Installation Sequence

- 1 Confirm the impact rating, foundation type and bollard set-out against the site threat assessment and the project-specific foundation plan before ordering.
- 2 Confirm ground conditions and locate buried services before excavation. The shallow (Type B) foundation is available where excavation depth is limited.
- 3 Set out bollard positions together with the HiGrade or Planterline module positions, before foundation works begin.

- 4 Excavate to the dimensions on the foundation plan, including an end/corner block at the start and finish of each run and at every corner.
- 5 Lay 50mm blinding and fix reinforcement as detailed on the project foundation and reinforcement drawings.
- 6 Set each bollard to its embedment depth, plumb and true to line and level, and hold it in position throughout the pour.
- 7 Pour concrete: C30, 20mm aggregate unless otherwise specified. In planter collar configurations, allow 250mm bedding beneath the base of Jupiter bollards and 100mm beneath Venus bollards.
- 8 Finish the top of foundation to suit site conditions, up to a maximum of 100mm below the underside of the planter collar.
- 9 Once the concrete has cured, fit the planter collar over the bollard. Where a bollard sits within a planter run, detail the edging or wall units either side to butt neatly against the bollard brace.
- 10 Retain the PAS 68 test certification for the configuration supplied and reference it in the PAS 69 installation sign-off.

Installation should only be carried out by trained, approved contractors. This guide provides general guidance and does not replace project-specific design, structural or security risk assessment.

SPECIFICATION NOTES

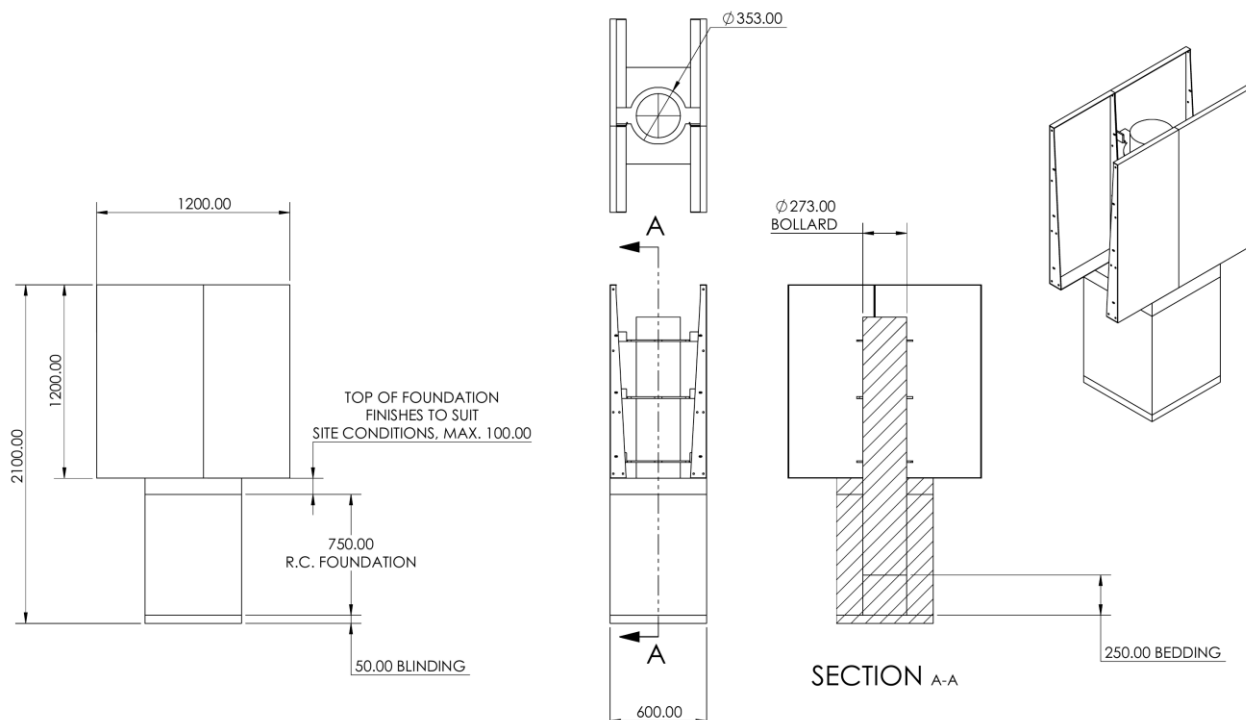
HVM Bollards are supplied as project-specific items. Final impact rating, finish, sleeve option and foundation design should be confirmed against the individual scheme's threat assessment and structural conditions before order and specification.

Integration with HiGrade or Planterline does not remove the requirement for a project-specific hostile vehicle mitigation strategy, prepared in consultation with a qualified security consultant.

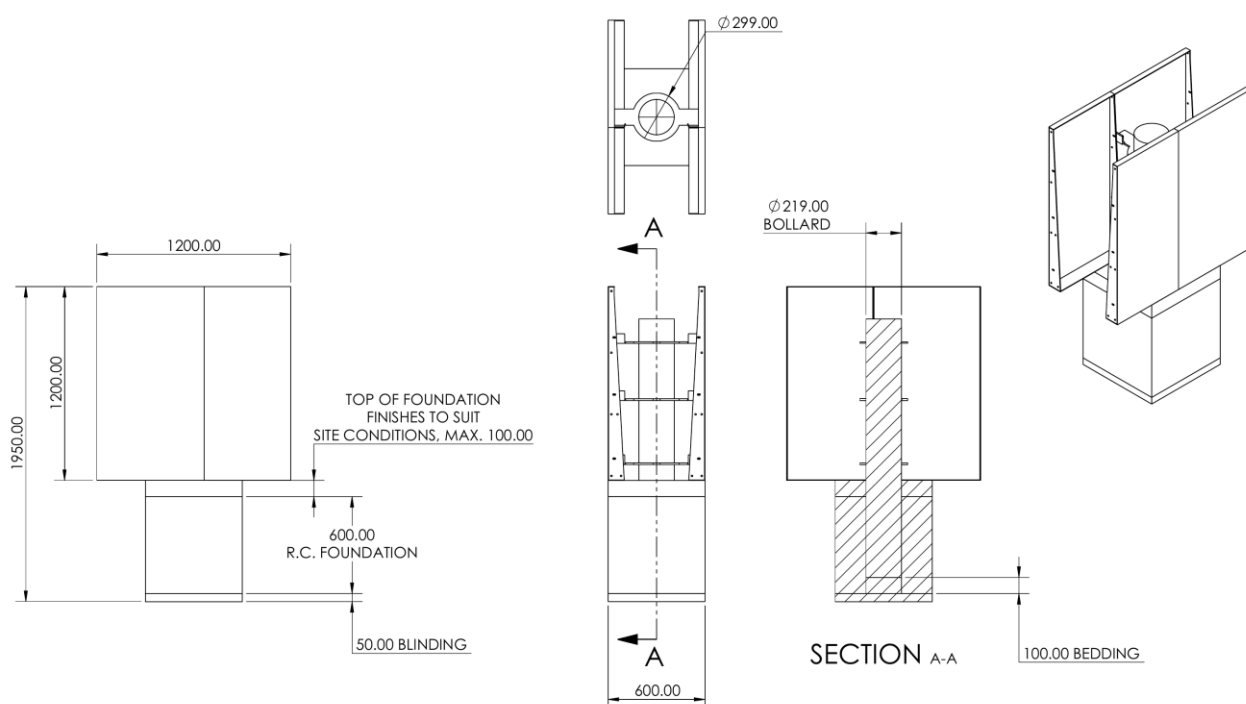
These instructions are drawn up on the basis of current knowledge and may be adapted at any time without prior notice — please check kinleysystems.com for the latest version. For technical queries, contact sales@kinleysystems.com

TECHNICAL DRAWINGS

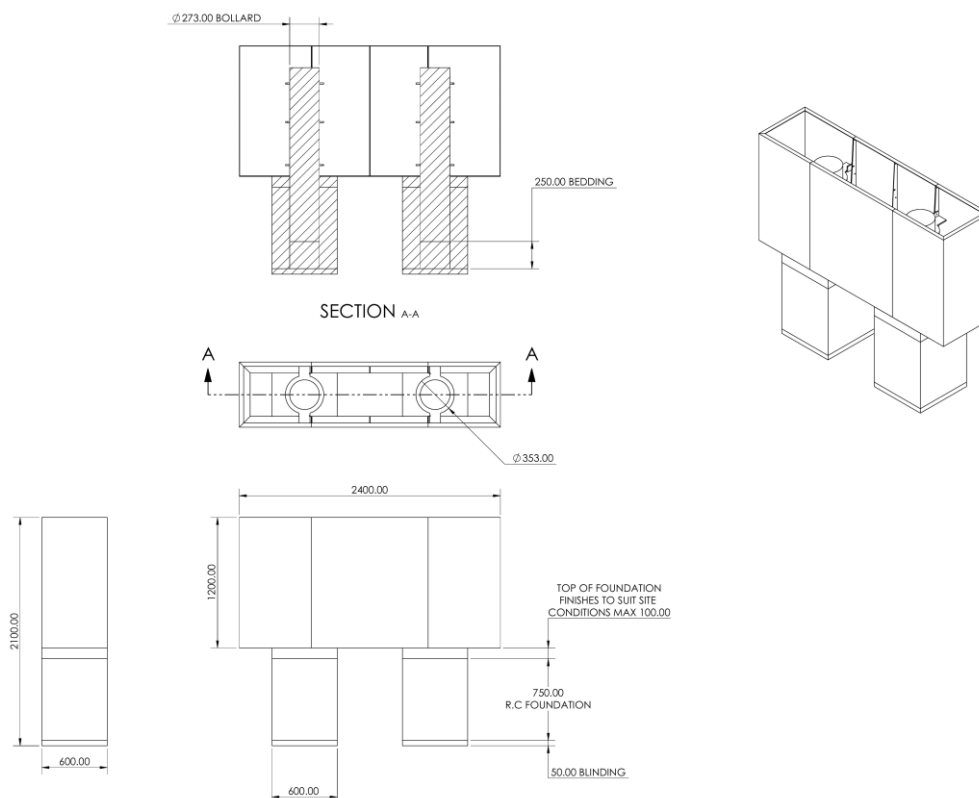
General arrangement drawings for each configuration, reproduced for reference. All dimensions in millimetres. Do not scale; for any dimensions not shown, refer to the CAD file at latest issue.



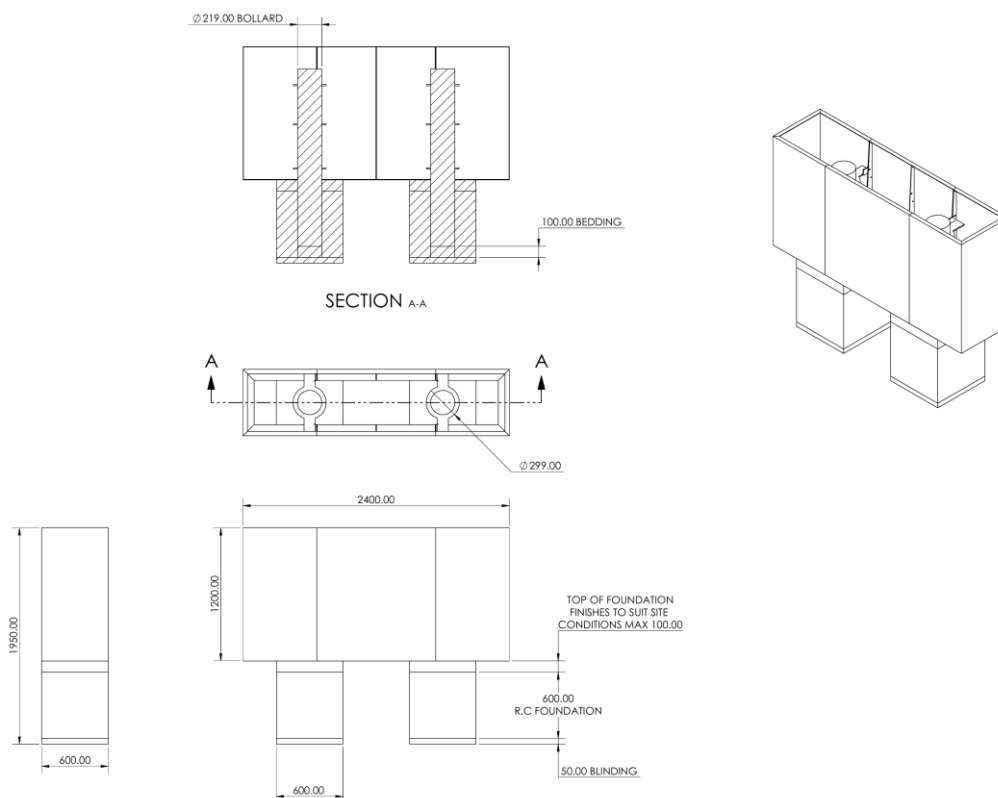
Jupiter Bollard with Planter Collar Single configuration · HVM Bollard 50 · 7.5t @ 50mph



Venus Bollard with Planter Collar Single configuration · HVM Bollard 30 · 7.5t @ 30mph



Jupiter Double Bollard Planter Double configuration · HVM Bollard 50 · 7.5t @ 50mph



Venus Double Bollard Planter Double configuration · HVM Bollard 30 · 7.5t @ 30mph