



BLACK SECURITY PRODUCTS

AVBD 331

PRODUCT DATA · 2026



DRILL-AND-SET ANTI-RAM BOLLARD

M30 P1 · ONE AUGER. ONE PIPE. ONE POUR.

A crash-rated bollard built around the simplest foundation that will take an M30 impact — one drilled pier, **36 inches across**, with **no reinforcing cage**. Crash tested to **ASTM F2656-23 at M30** with a **P1** penetration rating.

ASTM F2656-23 · M30 P1

36" DRILLED PIER

NO REBAR

MADE IN THE USA

THE BOLLARD IS THE EASY PART.

Above grade, every crash-rated bollard on the market looks about the same: a steel pipe under a cover. What separates one from another is what it takes to get it into the ground — the hole, the steel, the forms, the inspections and the days.

AVBD 331 was designed from that end first. Below grade it is **one augered hole**, 36 inches across and 6 feet deep, one wire-rope loop and one pour. There is **no reinforcing cage** to detail, bend, tie, place or hold an inspection for.

That is the whole idea. A rebar cage is a submittal, a delivery, a placement crew and a hold point. An auger is a machine the fence crew already has on the trailer.



The as-tested article on the tow road at Applus IDIADA — an 8-inch Schedule 40 pipe standing 48 inches above grade, with nothing below it but concrete.

RATED, NOT CALCULATED

Crash tested at Applus IDIADA on 21 August 2025 to **ASTM F2656-23**, condition M30, achieving a **P1** penetration rating. An engineering analysis is not a crash test, and BSP does not offer one in place of the report.

36"

FOUNDATION
DIAMETER

0

POUNDS OF
REINFORCING STEEL

48"

BLOCKING HEIGHT
ABOVE GRADE

2.4'

MEASURED
PENETRATION

SPECIFIED & INSTALLED FOR

Federal & agency facilities
Military installations & bases
Courthouses & civic buildings
Data centers & utility sites

Campus & institutional perimeters
Stadiums, arenas & venues
Transit & rail approaches
Parking structures & garages

Storefronts & pedestrian plazas
Fuel & chemical storage
Entry control facilities
Long perimeter bollard runs

ASTM F2656-23

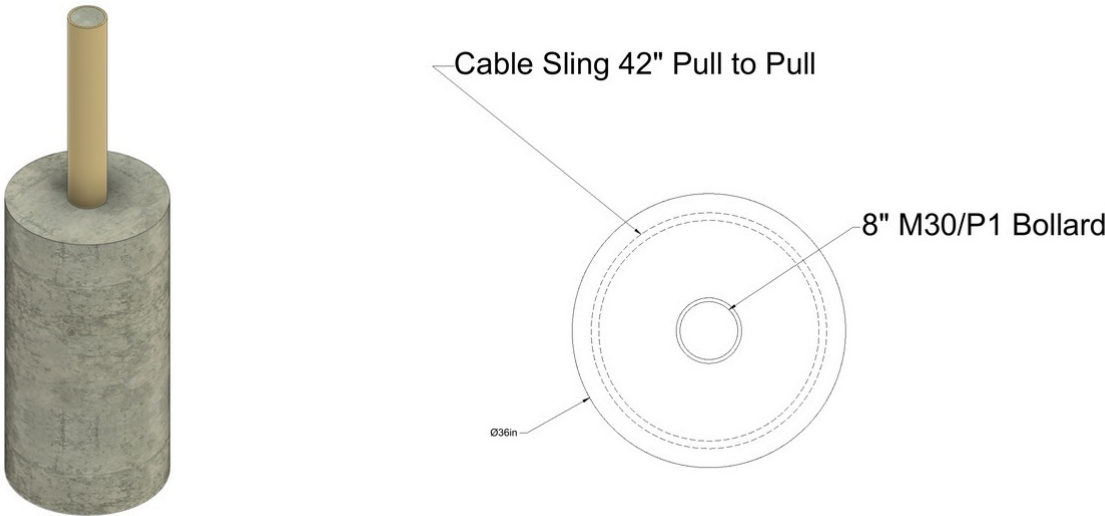
M30 · P1

36" DRILLED PIER · NO REBAR

Crash tested by Applus IDIADA, Adelanto, California, 21 August 2025, report TR-P45170-01-NC, deliverable 2025-7464. See page 4 for the full test record and the as-tested configuration to which the rating applies.

FOUR PARTS. NOTHING ELSE IN THE GROUND.

The whole assembly is four things: a Schedule 40 steel pipe, a 36-inch drilled hole, the concrete that fills it, and a single wire-rope loop cast into the head of the pier just below grade. The pipe takes the impact and the pier takes it from there. There is nothing else in the ground.



The pier as a single mass of concrete around the pipe, and the 42" wire-rope loop in plan — concentric with both, 4" below the finished surface. The pier is 36" across and 72" deep; the pipe stands 48" above grade and stops 19¼" short of the bottom of the hole.

WHAT IS IN THE SYSTEM

1 Bollard pipe

8" O.D. Schedule 40 to ASTM A500, 100¼" overall, standing 48" above grade. Nothing is welded to it and nothing bolts it down.

2 Wire-rope loop

One 1" IWRC 6 × 36 sling, 42" pull to pull, laid concentric with the pipe and centered 4" below the finished surface.

3 Drilled pier

A single augered hole, 36" diameter × 72" deep. No forms, no cage, no sub-base and no over-excavation around it.

4 Concrete

4,000 PSI placed straight into the hole and consolidated with a vibrator. The pipe is set into the wet pour and held plumb.

WHAT IS NOT IN IT

No reinforcing cage. No baseplate. No anchor bolts. No leveling nuts, no grout pad, no sleeve and no sub-base. Every one of those is a line item, a delivery and a place for the schedule to slip.

AS-TESTED ARTICLE

Overall height	120"
Above grade	48"
Pipe O.D.	8"
Pier diameter	36"
Pier depth	72"

SIMPLE DESIGN. ROBUST STOPPING POWER.

On 21 August 2025 a **14,963.6-lb** truck was driven into the centerline of a single bollard at **30.6 mph**. It stopped **2.4 feet** past the face of the pipe — well inside the 3.3-foot limit that defines a **P1** rating. The vehicle was disabled and the pathway stayed blocked.

The test was also harder than the standard asks for. M30 calls for a target of 451.0 ft-kips of kinetic energy; this impact delivered **469.2 ft-kips**.

P1 is the tightest penetration band ASTM F2656 defines. On a bollard line it is what lets the standoff be measured in feet rather than tens of feet.

THE TEST RECORD

Test authority	Applus IDIADA
Report	TR-P45170-01-NC
Test date	21 August 2025
Standard	ASTM F2656-23
Test vehicle	14,963.6 lb
Impact speed	30.6 mph
Kinetic energy	469.2 ft-kips
Dynamic penetration	2.4 ft
Static penetration	2.4 ft
Rating achieved	M30 · P1

ONE BOLLARD, NOT AN ARRAY

The impact was taken at the centerline of a **single** bollard, which is the most severe place to be hit. Ratings earned on a three-bollard array depend on the two neighbors sharing the load.

WHAT WE DO NOT CLAIM

M30, not M50

AVBD 331 is tested at the M30 condition — a 15,000 lb vehicle at 30 mph. It has not been tested at M50 and BSP does not present it as an M50 bollard.

One test, one configuration

The rating belongs to the arrangement recorded in the report: this pipe, this pier, this soil condition. Change the foundation and the rating does not travel with it.

The soil is part of it

ASTM F2656 requires a specified soil behind the barrier, compacted and graded. Site soils vary, and a site investigation is part of the design, not an afterthought.



The test vehicle after impact — engine displaced into the cab, disabled where it stopped.

Applus IDIADA, 9270 Holly Road, Adelanto, California. Report TR-P45170-01-NC dated 25 September 2025 and certification letter dated 22 August 2025, deliverable 2025-7464. Test vehicle a 2006 International 4300 standard test truck (M) with a test inertial mass of 14,963.6 lb. The barrier reference point is the attack side face of the bollard; the vehicle reference point is the leading lower vertical edge of the cargo bed. P1 is defined by ASTM F2656-23 as a dynamic penetration of less than 3.3 ft. Per the standard, AASHTO M147-65 Grade B soil was placed behind the pier to the depth and width of the foundation and 8 ft beyond it, compacted to 97.0% against a 95% requirement. The certification letter records the maximum dynamic penetration as 2.5 ft; the value printed here, 2.4 ft, is the figure recorded in the full test report at Table 6. Full report available on request.

WHAT M30 P1 ACTUALLY MEANS.

A crash rating is two separate statements printed as one. The first half says what hit the barrier. The second half says how far it got. The energy column below is what makes the first half concrete: at the same 30 mph, the standard test truck arrives with **three times** the kinetic energy of the pickup and **six times** that of the small car.

THE FIRST HALF — WHAT HITS IT

DESIG.	VEHICLE	TEST WEIGHT	ENERGY AT 30 MPH · FT-KIPS
SC	Small passenger car	2,420 ± 55 lb	72.8
FS	Full-size sedan	4,630 ± 110 lb	139.3
PU	Pickup truck, crew cab	5,000 ± 110 lb	150.4
M	Standard test truck — AVBD 331	15,000 ± 309 lb	451.3
C7	Class 7 cabover	15,873 ± 331 lb	477.6
H	Heavy goods vehicle	65,000 ± 1,300 lb	1,955.6

THE SECOND HALF — HOW FAR IT GETS

RATING	DYNAMIC PENETRATION	WHAT IT COSTS YOU IN STANDOFF
P1	Less than 3.3 ft	AVBD 331 measured 2.4 ft. Standoff in feet.
P2	3.31 ft – 23.0 ft	Up to twenty-three feet of ground behind the line.
P3	23.1 ft – 98.4 ft	Up to ninety-eight feet. A perimeter, not an entrance.

THREE THINGS THE RATING DOES NOT SAY OUT LOUD

The letter is the vehicle

M is the 15,000 lb truck. SC, FS and PU are a car, a sedan and a pickup. A PU30 rating and an M30 rating are different tests even though both say 30.

The number is the speed

Energy rises with the square of speed, so the steps are not even. The same truck carries 451 ft-kips at M30, 802 at M40 and 1,254 at M50 — a 67 percent increase in speed for nearly three times the energy.

The P number is the design input

The letter and number tell you the vehicle was stopped. The P number tells you where to stand the thing you are protecting. Only one of those goes on a site plan.

READ BOTH HALVES BEFORE YOU COMPARE

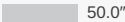
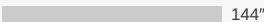
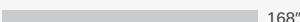
Two barriers rated at 30 mph may have been struck by 72.8 ft-kips and 451.3 ft-kips — a factor of six. Two barriers rated M30 may let the vehicle three feet in or twenty-three feet in. A specification that names only one half of the rating has not specified anything.

Vehicle designations, test weights and penetration bands are reproduced from ASTM F2656-23 as printed in Applus IDIADA report TR-P45170-01-NC, Table 1 and Table 2. Kinetic energy is calculated from those nominal test weights at 30 mph. The method is confirmed against the report itself: it returns 451.3 ft-kips for the M30 condition, against the 451.0 ft-kips the report states as the M30 target, and 469.3 ft-kips for the as-tested 14,963.6 lb vehicle at 30.63 mph, against the 469.2 ft-kips recorded. Energies shown are for each vehicle at 30 mph only; the standard defines other speeds for several of these designations.

THREE FEET ACROSS. NO ONE ELSE COMES CLOSE.

The **DoD Anti-Ram Vehicle Barrier List** records a foundation width beside most bollard entries. Below is every M30 P1 bollard in the Passive Bollard section of the March 2026 edition that states one, alongside the pier recorded in our own certified test report. **AVBD 331 is not on the DoD list** — the figures for the other entries come from the list; ours comes from report TR-P45170-01-NC.

STATED FOUNDATION WIDTH, M30 P1 PASSIVE BOLLARDS

MANUFACTURER	MODEL	CONFIGURATION	FOUNDATION WIDTH
Black Security Products	AVBD 331 Drill-and-Set Bollard	Single	 36" pier
Delta Scientific	DSC630	Single	 50"
Delta Scientific	DSC633	Single	 50.0"
Barrier1 Systems	Set and Pour Bollard	Single	 60"
Nasatka Barrier	SFB-M30 Single Bollard	Single	 144"
Ameristar	Single Bulwark Shallow Mount	Single	 144"
BP (Systems) Engineering	Removable Bollard RB151	3-bollard	 165.4"
BP (Systems) Engineering	Fixed Bollard FB151	3-bollard	 165.4"
Barrier1 Systems	Shallow Fdn Modular CV0077	3-bollard	 168"
Barrier1 Systems	Shallow Fdn Modular TR2627	Single modular	 168"
Shaw Stainless & Alloy	Shallow Bollard	3-bollard	 224"

READ IT HONESTLY

Narrow, but deep

AVBD 331 trades width for depth: 36" across and 72" down. Most of the entries above are shallow-mount systems — wide and thin by design, for sites where you cannot go deep. Both answers are legitimate; they suit different ground.

Width is not the whole cost

A narrow pier means less excavation, less spoil and less surface to reinstate. It does not by itself mean less concrete or less money, and BSP will not pretend otherwise on a page like this.

Not every entry states one

The Gibraltar M30 P1 shallow-mount entry appears in the same section with no foundation width recorded, so it cannot be compared here and is not shown.

CHECK IT YOURSELF

The list is published by the USACE Protective Design Center and updated quarterly. Pull the March 2026 edition, find the Passive Bollard section, and read the remarks column beside each M30 P1 entry. Every competitor figure above is copied from it.

Competitor figures: DoD Anti-Ram Vehicle Barrier List for Entry Control Facilities / Access Control Points, March 2026 edition, Passive Bollard section, as printed. BSP figure: Applus IDIADA report TR-P45170-01-NC. AVBD 331 is not currently listed on the DoD Anti-Ram Vehicle Barrier List, and nothing on this page should be read as a listing or as a DoD endorsement. The Shaw Stainless entry additionally records that it must be installed with a 4-foot sidewalk behind the foundation. Foundation width alone does not establish equivalence — depth, soil, spacing and configuration differ between these entries and are stated on the list beside each one.

THE SAME AUGER THAT DRILLS YOUR FENCE LINE.

A 36-inch auger on a skid steer or a small drill rig makes the hole. The pipe goes in and is held plumb, the concrete goes in behind it and the loop is set near the top of the pour. That is the installation — the same machine, the same crew and the same day rate as the fence line running up to it.



A federal perimeter run mid-installation — pipes standing in finished piers, each one a single circular pour flush with grade, before covers and paving.

WHAT THE SCOPE DOES NOT INCLUDE

No rebar

No cage to detail, fabricate, deliver, tie or hold an inspection for. It is the line item that most often sets the date a bollard run can be poured.

No formwork

The hole is the form. Nothing is built, stripped, cleaned or hauled away, and there is no form-release, bracing or carpentry trade on the critical path.

No anchors or baseplate

Nothing is drilled and epoxied into an existing slab, and there is no template, leveling nut or grout pad to set and cure before the pipe can stand.

No open excavation

A 36" hole needs no shoring, no benching and no plated-over pit overnight. The lane beside it stays open while the run goes in.

WHY IT MATTERS ON A LONG RUN

One bollard is a morning either way. A hundred bollards is where the difference compounds — every cage, every form and every inspection hold multiplies by the count, and a drilled pier has none of them to multiply.

THE SEQUENCE

- 1 Drill 36" × 72"
- 2 Set pipe, plumb and brace
- 3 Pour and consolidate
- 4 Set the loop 4" below finish
- 5 Finish grade, fit cover

ONE BOLLARD. ANY FACE YOU LIKE.

The rated element is the bollard and the pier. Everything the public sees is a cover slipped over it, which means the security decision and the appearance decision can be made independently — and the appearance one can be made late.

Painted steel, stainless, powder-coated colors, reflective bands, illuminated caps and removable decorative sleeves all mount to the same 8-inch bollard without touching the crash rating.

THE COVER IS NOT THE BARRIER

A decorative sleeve on an unrated pipe stops nothing. Ask for the crash test report, and ask which element of the assembly it was written about.



Stainless covers on the shop floor. The cover is a finish item; the rating belongs to the bollard underneath it.

SPACING IS A DESIGN DECISION

AVBD 331 was crash tested as a **single** bollard, so the rating does not depend on a neighbor picking up load. Spacing is set by the threat you are stopping and the site you are stopping it on: close enough that the design vehicle cannot pass between two bollards, and no closer than the piers themselves allow. BSP will run the layout with you as part of the site assessment.

GEOMETRY	
Bollard O.D.	8", Schedule 40
Height above grade	48"
Pipe overall length	100¾"
Pier diameter	36"
Pier depth	72"
Pipe to pier bottom	19¼"
Loop depth below grade	4"
Tested configuration	Single bollard

FINISHES & COVERS	
Bare pipe	Primed or shop-painted steel
Painted	Powder coat, color to schedule
Stainless cover	Slip-over sleeve, brushed finish
Reflective band	Applied to cover, height to suit
Decorative sleeve	Removable, non-structural
High-visibility	Safety yellow or site standard
Illuminated cap	Available on request
Effect on rating	None — covers are not structural



The same rated bollard under three treatments — a dark cover with a reflective band, a plain dark cover on a public frontage, and high-visibility safety yellow at a parking structure.

WHERE A DRILLED PIER WORKS. AND WHERE IT DOES NOT.

A drilled pier is the simplest crash-rated foundation to build and the most demanding about what is underneath it. Six feet of clear ground is not a detail to discover on the day the auger arrives. These are the questions worth answering before AVBD 331 is written into a drawing.

WHERE IT IS THE RIGHT ANSWER

Open ground and new work

Greenfield perimeters, new roads, new lots and landscape strips, where the auger can reach the line and nothing is buried under it.

Long runs

Where the same detail repeats fifty or two hundred times, and every cage, form and inspection hold that is not in the scope is removed from the schedule fifty or two hundred times.

Alongside a fence line

Where an auger is already on site drilling fence posts, the bollard run is the same machine and the same crew with a larger bit.

WHERE SOMETHING ELSE IS THE RIGHT ANSWER

Utilities in the way

Fiber, gas, storm and electrical duct banks under a sidewalk are the usual reason a pier cannot go down. A shallow-mount system is the honest answer there.

Structure below

Podium slabs, basements, tunnels and parking decks have no six feet to give. Do not detail a drilled pier over occupied space.

Rock or high water

Shallow rock makes the hole expensive and a high water table makes the pour difficult. Both are worth a boring log before the specification is written.

Soil that will not hold

The rating was earned in a specified, compacted soil. Loose fill, uncontrolled backfill and soft ground change the problem and need an engineer, not a catalog page.

WE WILL TELL YOU WHEN IT IS THE WRONG PRODUCT

BSP builds shallow-foundation barriers as well as drilled-pier ones, and has no interest in selling a pier onto a site that cannot take one. If the ground will not carry a pier, we will tell you that before you specify one.

BEFORE YOU SPECIFY

Utility locate along the full run
Boring log or soils report
Depth to rock and to water
Structures within the pier depth
Auger access along the line
Required standoff at the asset

Every one of these is answered in a free BSP site assessment. Our engineering team reviews the approach, the available standoff, the soil information and the utility record before a run length or a spacing is put on paper.

FREEDOM FOR YOU TO MOVE. NOT VEHICLES.

A bollard line is the crash-rated barrier people walk through rather than around. It holds a vehicle out while leaving the sidewalk, the plaza and the entrance exactly as the architect drew them — which is why it ends up in front of nearly everything that needs protecting.



A federal facility perimeter — several hundred feet of rated bollard line along a vehicle approach, in bare primed pipe before covers.



The same product finished and in service beside a pedestrian walk, reading as street furniture.

WHERE A BOLLARD LINE EARNS ITS PLACE

It does not close anything

Pedestrians, wheelchairs, deliveries and maintenance pass between the bollards. No gate, no operator, no queue and nothing for a guard to open.

It has no moving parts

Nothing to power, actuate, sense, heat or maintain. A fixed bollard line has no failure mode that leaves an opening unprotected.

It disappears

Under a cover it reads as street furniture rather than security. On a civic frontage that is often the difference between an approved design and a rejected one.

SPECIFIED & INSTALLED FOR

BSP perimeter systems protect facilities for the U.S. Army Corps of Engineers, NAVFAC, the U.S. Air Force and federal agencies, alongside commercial operators in data-center, energy and logistics infrastructure. Named references are available under NDA for qualified projects.

A RATED LINE, NOT A DECORATIVE ONE

Most bollards on a sidewalk stop nothing. The difference is a certified crash test report with a penetration figure in it, and a foundation built the way the tested one was.

SITE ASSESSMENT

BSP provides free site assessments. Our engineering team reviews the approach, the standoff and the ground before specifying spacing and run length.

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blacksp.com/contact

SPECIFICATIONS & STANDARDS.

SYSTEM	
Product	Drill-and-Set Anti-Ram Bollard, AVBD 331
Crash rating	ASTM F2656-23, M30 P1
Test authority	Applus IDIADA, Adelanto, CA
Test report	TR-P45170-01-NC
Test date	21 August 2025
Test vehicle	14,963.6 lb at 30.6 mph
Kinetic energy	469.2 ft-kips
Dynamic penetration	2.4 ft
Tested configuration	Single bollard, impact at centerline
Bollard	8" O.D. Schedule 40 pipe
Pipe standard	ASTM A500
Pipe overall length	100¼"
Height above grade	48"
Foundation	36" diameter × 72" deep drilled pier
Reinforcing steel	None required
Concrete	4,000 PSI
Wire rope	1" IWRC 6 × 36, 42" pull to pull
Wire rope depth	4" below finished surface
Covers	Optional, non-structural
Warranty	1 year parts · 5 years labor
Origin	Manufactured in the United States

REFERENCE STANDARDS

ASTM F2656	Vehicle crash testing of perimeter barriers
ASTM A500	Cold-formed welded structural tubing
AASHTO M147	Test-condition soil, Grade B
Buy American	Compliant

SECTION 34 71 13
VEHICLE BARRIERS — FIXED BOLLARDS

PART 2 — PRODUCTS

2.01 MANUFACTURER

The fixed anti-ram bollard shall be the Drill-and-Set Anti-Ram Bollard, AVBD 331, manufactured by Black Security Products, LLC, Houston, Texas. Quantity [] in. Spacing [] in. on center.

2.02 PERFORMANCE

- A. The bollard shall be crash tested to ASTM F2656 at the M30 condition designation and achieve a P1 penetration rating. Engineering analysis shall not be an acceptable demonstration of compliance.
- B. The crash rating shall have been earned on a single bollard impacted at its centerline. Ratings earned only as part of a multiple-bollard array shall not be accepted as equivalent.
- C. Standoff shall be established from the measured penetration recorded in the certified test.

2.03 FOUNDATION

- A. The foundation shall be a single drilled pier, 36 in. diameter by 72 in. deep, cast against undisturbed soil without formwork.
- B. Reinforcing steel shall not be required. Where the Contractor proposes reinforcement, it shall not be substituted for the tested configuration without written concurrence from the manufacturer.
- C. Concrete shall be 4,000 PSI minimum, placed in a single pour and consolidated by vibration.
- D. One 1 in. IWRC 6 × 36 wire rope sling, 42 in. pull to pull, shall be placed concentric with the bollard and centered 4 in. below the finished surface.

2.04 BOLLARD

- A. Bollard shall be 8 in. O.D. Schedule 40 pipe to ASTM A500, standing 48 in. above finished grade.
- B. Covers, sleeves and finishes are non-structural and shall not be represented as carrying the ASTM F2656 rating.

PROCUREMENT

CAGE	7MT82
DUNS	83-888-8670
NAICS	339999
CSI section	34 71 13
Product code	AVBD 331
Test report	TR-P45170-01-NC
Origin	Made in the USA

AVBD 331 is not currently listed on the DoD Anti-Ram Vehicle Barrier List. Bollard and foundation dimensions above are the as-tested configuration recorded in Applus IDIADA report TR-P45170-01-NC. Concrete compressive strength is as shown on BSP drawing "M30P1 Standard Bollard"; confirm the mix design with BSP before it is written into a project specification. Site soil, utilities, adjacent structures and required standoff are project-specific and are established by site investigation, not by this data sheet.



BLACK SECURITY PRODUCTS



DRILL IT. SET IT. WALK AWAY.

Black Security Products designs and manufactures high-security perimeter protection systems for military installations, government facilities, data centers, utilities and critical infrastructure worldwide — with an emphasis on anti-terrorism and force protection.

PERIMETER SECURITY PRODUCT FAMILY

PASSIVE VEHICLE BARRIERS

Drill-and-Set Bollard — AVBD 331
Crash-Rated Bollards — AVBD 300
Cable Barrier M30 — AVBD 131/132
Cable Barrier M50 — AVBD 151/152
Rapid Deployment MPPD — AVBD 700

ACTIVE VEHICLE BARRIERS

Shallow Wedge M50 P1 — AVBD 452
Wedge Barrier M50 P1 — AVBD 451
M50 Drop Arm — AVBD 551/552
M30 P1 Drop Arm — AVBD 531
Defender Net Barrier — AVBD 651
Bi-Folding Speed Gate — AVBD 210
Anti-Ram Crash Gates — AVBD 230/250

SECURITY FENCING

SecurePale™ Palisade — AVBD 1101
SecureMesh™ — AVBD 1001
SecureMesh™ Integrated PVB — AVBD 1002
SecureMesh™ Delay — AVBD 1003
ENC Non-Conductive — AVBD 1200
Ballistic Rated Fence — AVBD 1300

HEADQUARTERS

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PROCUREMENT

CAGE 7MT82
DUNS 83-888-8670
NAICS 339999
Made in the USA

REQUEST A FREE SITE ASSESSMENT

Talk to a BSP perimeter specialist about your project.

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