

General Notes

The works under this subsection shall comprise the design, manufacture, installation, commissioning, training and maintenance of the following described gate system/s.

The work shall include, but not be limited to the supply and installation of power operated boom gate system/s as shown on sub drawings.

Either can control the vehicle boom gate system/s or a combination of access control, voice communication systems, wireless remote transmitters or traffic management systems.

The objectives of this system/s are designed to provide reliable traffic control, warn of danger, and/or provide traffic calming opportunities.

The boom gate shall be an approved stock model electrically operated such as the Ezi barrier system. It shall be operated by 240 volt, single phase, and should be fitted with a Torque Drive Motor. The motor should be installed in a position without causing damage to the motor or gearing. In the event of power failure the barrier boom shall automatically raise and be able to be operated by hand easily without having to use a crank handle and/or open up the cabinet. The barrier cabinet shall be constructed of sheet metal and power coated painted red and white. The boom arm shall be made of aluminium round section powder coat painted white and fitted with red reflective tape. The controls i.e. logic, detector shall be of plug in modular unit type. The boom gate operation shall be quiet and smooth

- The system must be reliable, functional and shall be based on the proven technology for performance systems.
- Provision of a 240-volt 15Amp circuit to power each boom gate system/s and other associated equipment. This shall be from the nearest suitable existing switchboard.
- Allowance to supply all necessary conduit work associated with the cabling to all the relevant National Standards (i.e. electrical orange, data white).
- Allowance to conduit and cable all equipment points at each gate intersection so as to interconnect these locations.
- Allow training of all relevant site personnel on each site in the proper use of their system.
- Supply as one copy of technical and maintenance manuals per gate system installation.
- Ezi shall demonstrate on an existing site all equipment specifically as specified with emphasis on all safety systems.
- The systems provided overall are the latest in technology and upgradeable without major parts redundancy. All operations are smooth, quiet, and 100% duty cycle.

Technical Specification Boom Gate System

Ezi Boom- 01

Boom Gate System (Metalwork)

Each boom gate system shall consist of the following metal work items. Gate cabinet housing folded from sheet 430 stainless steel for strength and suitability to withstand mechanical stress. Epoxy powder coating further enables structure to weather harsh environmental conditions and gate arm manufactured from tubular aluminum.

Material Sizes

Cabinet Housing: Sheets 430 stainless steel 1025mm (high) x 360mm (wide) x 360mm (long)
Gate Arm: Tubular Aluminum 76mm O.D Round Tube
Optional: Articulated kit available for up to 4.5m pole arm lengths

The gate system shall be bolted to its relevant concrete footing using M 16mm x 125mm thru bolts (zinc plated).

Ezi Boom- 02

Drive Motor and Gearbox

Each boom shall be fitted with a single removable drive motor assembly plus torque motor gearbox drive unit. These motor gearbox units shall be IP56 rated and be of true industrial grade and quality. This drive motor gearbox unit must be rated for a minimum 100° duty cycle.

The lifting speeds shall be suitable as follows; 3 - 4.5 meter arm in 2.8 seconds and 5-6 meter arms in 4 seconds. The motor gearbox drive system is to utilise and inbuilt safety mechanism to protect the unit from excessive drive torque.

Ezi Boom- 03

Electronic Equipment

Each of these shall consist of a true PLC, power supply, loop detector, GPO, test button, and misc. items such as duct, cable etc. to suit the relevant boom gate system electronic control.

All equipment mounted within these enclosures shall be installed on din rail. All cabling within each enclosure where practical shall be trunked within duct. No equipment shall be mounted on the enclosure door. All cable penetrations shall have proper glands fitted. An electrical schematic shall be installed within a plastic sleeve on the inside of the enclosure door.

All gate logic control modules shall be installed within the protection of the boom gate housing bellow the drive motor location. All labels shall be trifoliate type.

All work within these cabinets shall conform to all the relevant National Standards.

Ezi Boom- 04

Programmable Logic Controller

Each gate motor drive system is to be PLC controlled utilising a NIAS brand compact PLC. Each PLC shall be fully programmable and have a minimum of 14.I.O. (being 8 outputs and 6 inputs).

These control units shall be capable of being reprogrammed on site after installation for possible further ancillary functions. Each PLC must be expandable if required and offer possibilities of networking. All safety systems described shall be constantly monitored by this PLC system. The background for the proposed program utilised on each gate PLC shall be field tried and proven for a minimum of five years.

Ezi Boom- 05

Inductive Loop Detector

Each boom gate system shall include within the relevant equipment enclosure a single channel inductive loop detector; this loop detector shall have one inductive loop connected to it so as to provide vehicular safety and auto closing. The cable tail from the inductive road loop shall have conduit into the equipment enclosure within the confines of the main tower to the relevant loop detector.

Ezi Boom- 06

Power Supply

A switching power supply is to be installed in each gate system control logic module. This power supply shall be din rail mounted and suitable for industrial applications. These power supplies shall be of a regulated type i.e. voltage drop off with over current.

Ezi Boom- 07

Test Button

Each equipment module shall have a din rail mounted test button installed within the enclosure. This button shall have a trefolite test button label mounted below it. This button when depressed shall pulse the gate system open. Closing will be automatic through the safety systems and or time out facility.

Ezi Boom- 08

Misc. Items

Each gate control logic module shall have a GPO fitted. This item will need to be din rail mounted.

Ezi Boom- 09

Safety Inductive Loops

Each boom gate system shall have one in ground inductive loop cut into the existing road surface. This loop will be to provide vehicular safety and auto closing. The loop shall be connected into the inductive loop detector within the equipment enclosure. The loop should be set beneath the boom arm 1000mm from the edge of the relevant boom gate and shall cover at least 60% of the road width.

Ezi Boom- 10 (If Required)

Backup Power Supply

A separate price is required to provide a suitable UPS (un-interruptible power supply) for each gate drive system. Each UPS is to be capable of providing power during the event of a power failure. Each unit should be capable of at least 10 full cycle gate operations. During this condition each cycle shall consist of a full opening and closing of the relevant gate and associated gate electronics. Each UPS system shall be wired so that at all times, it is powering the relevant gate system. The units should be based on battery storage. Each UPS unit should be housed locally to its relevant gate systems.

Ezi Boom- 11

Concrete Foundation

Each boom gate system shall have substantial concrete footing installed to suit the relevant gate. This slab footing shall be 500mm square and as a minimum 300mm thick. This footing shall have a single row of F72 mesh installed 60mm up from the bottom of the footing. All conduit entries shall be set into the correct position prior to the concrete installation. All concrete shall be minimum 25mpa. This work shall be performed by relevant tradespersons to all relevant National Standards.

Ezi Boom- 12

Equipment Pedestals (If Required)

Each Boom gate system shall have either two dual height or two single height equipment pedestals. These pedestals shall have flange mounted and constructed of 100 square RHS. Each pedestal shall have a weather shrouds made from folded sheet metal. All pedestals shall be fully welded and painted safety yellow. The equipment shroud plate shall be 300mm square, this to suit the intended proximity card reader and/or intercom station installation. One pedestal shall be for the entry location and one for the exit location. The pedestals shall be positioned on the drivers' side edge of the road and shall not be closer than 4metres from the face of the relevant automatic sliding gate system.

Ezi Boom- 13

Bollards (If Required)

Each boom gate main housing will have two protective bollards installed to avoid damage to the main housing by vehicles. These would be placed within 500mm of the main housing on both vehicle approach sides. Each protective bollard shall be heavy duty in construction. Each bollard should be 1000mm high and constructed using heavy-duty wall 200mm pipe, these shall be flange mounted and capped. Each bollard shall be fully welded and painted safety yellow.

Ezi Boom- 14

Concrete Footings (If Required)

Each equipment pedestal and/or bollard shall have a concrete block footing set 500mm deep x 500mm square. All conduits shall be set in place centrally on these footings prior to concrete installation. Each bollard will also require a 500mm square concrete block footing.

Ezi Boom- 15

Access Control/Voice Communication (If Required)

Each equipment pedestal shall be fitted with an intercom /and or access reader to suit the intended on site system. These systems must be capable of opening of the relevant gate system. Closing of the gate system shall be automatic via the gate safety systems.

Ezi Boom- 16

Debris

All and any debris as caused in the progression of works must be removed from site and not stockpile on site. At no time is debris to be left in a position, which may obstruct vehicles or persons from reasonable movement.