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Best Practice for Utility Infrastructure, Asset Protection and Site Safety



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The UK's underground infrastructure includes millions of kilometres of:

Electricity cables

Water mains

Gas pipelines

Fibre optic networks

Telecommunications

Drainage Systems

Hydrogen and future utility networks

Damage to buried services can lead to:

Serious injury or death

Service disruption

Environmental incidents

Programme delays

Costly repairs

Legal action

Why Protect Underground Services?



Every year, thousands of underground utility strikes occur during excavations

Common causes include:

- Inaccurate utility records
- Poor site investigation
- Inadequate protection
- Mechanical excavation
- Poor communication
- Lack of warning system



Protecting buried assets reduces these risks and supports safer construction practices

The Scale of the Challenge

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Key legislation includes

- Health and Safety at Work Act 1974
- Construction (Design and Management) Regulations 2015
- New Roads and Street Works Act 1991
- Electricity at Work Regulations 1989
- Water Industry Act 1991
- Gas Safety Regulations
- Highways Act 1980

Relevant standards & Guidance

- BS 2484 – Underground Cable Protection
- BS EN 1992 -1-1 – Design of Concrete Structures
- BS EN 206/BS 8500 – Concrete Specification
- National Highways Specifications
- National Underground Asset Register
- HSG47 – Avoiding Danger from Underground Services



Precast concrete service protection products safeguard underground infrastructure against accidental damage.

Typical products includes

- Cable protection covers
- Utility protection slabs
- Marker posts
- Marker blocks
- Cable troughs
- Pipe support sleepers
- Protective duct systems



What Are Service Protection Products?

Elite products are designed to provide durable, long-term protection for critical infrastructure

- Concrete Cable Protection Covers
- Utility Protection Slabs
- Marker Blocks
- Indicator Posts
- Cable Troughs and Lids
- Pipe Support Solutions
- Bespoke Protection Products



Elite Service Protection Solutions

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Purpose

- Extra protection
- Visible warning during excavation
- Compliance with utility specifications

Suitable for protecting

- HV cables
- LV cables
- Street lighting
- Communications
- Fibre optic networks
- Renewable energy infrastructure



Cable Protection Covers

Applications include:

- Water mains
- Gas pipelines
- Electrical services
- Telecommunications
- Multi-utility corridors

Benefits

- High compressive strength
- Long service life
- Resistance to excavation damage
- Improved asset protection and management



Utility Protection Slabs

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Trough systems provide:

- Cable management
- Mechanical protection
- Easy future access
- Long-term durability

Typical applications

- Rail infrastructure
- Solar farms
- Data centres
- Substations
- Highways
- Battery Storage Systems



Cable Trough Systems

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Surface markers provide clear identification of buried services

Applications

- Water mains
- Gas mains
- Valves
- Hydrants
- Electricity routes
- Fibre optic networks

Benefits

- Easier maintenance
- Improved safety
- Faster asset identification



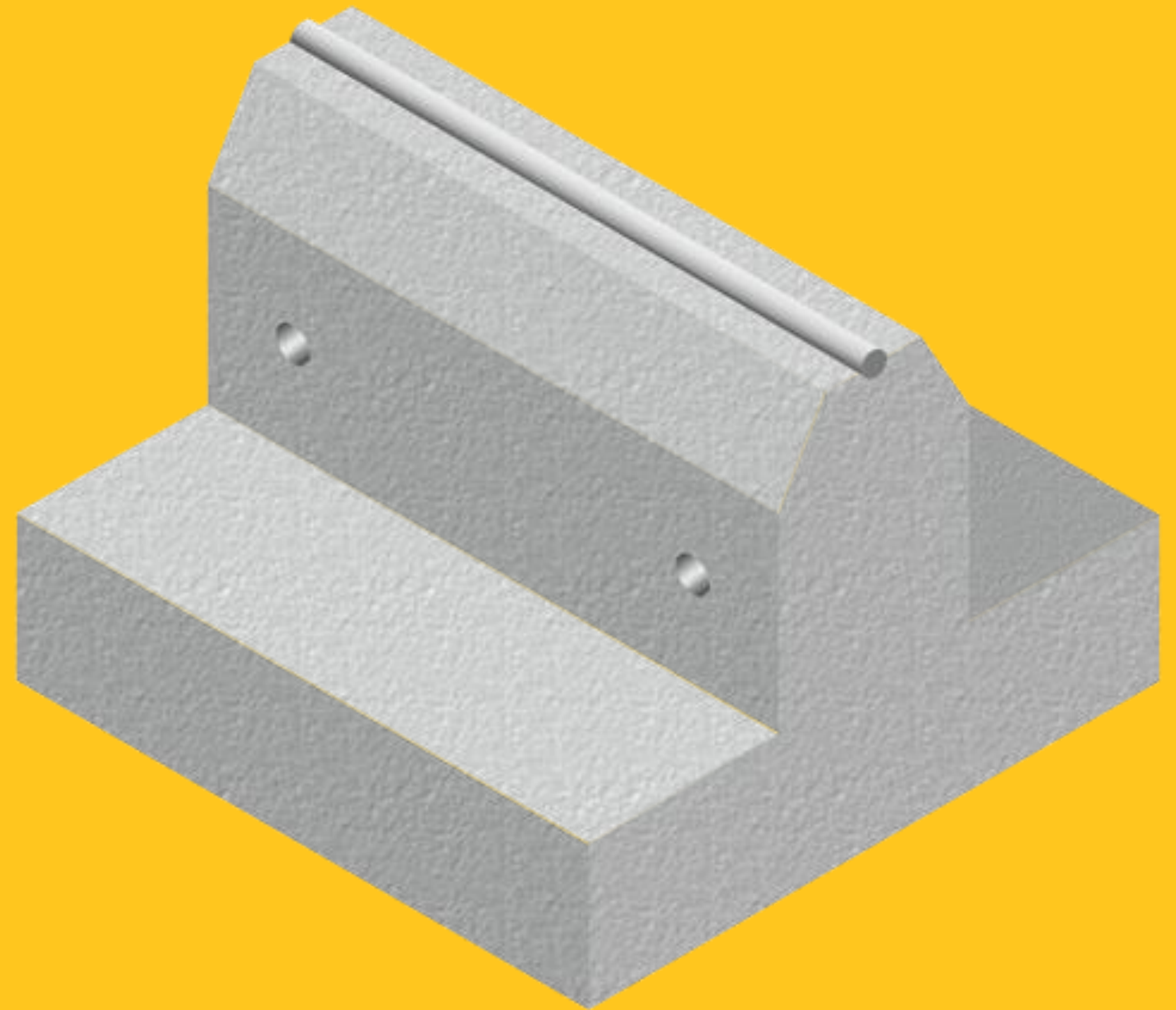
Indicator Posts & Marker Blocks

Applications

- Water Treatment Works
- Industrial pipelines
- Pumping stations
- Utilities compounds

Benefits

- Even load distribution
- Correct pipe alignment
- Reduced pipe stress
- Long-term durability



Advantages include:

- High strength
- ISO accredited factory quality
- Long service life
- Immediate installation
- Weather resistance
- Fire resistance
- Low maintenance
- Sustainable manufacturing



Why use Precast Concrete?

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Engineers should consider:

- Utility type
- Installation depth
- Future excavation risk
- Ground conditions
- Traffic loading
- Asset criticality
- Access requirements
- Utility owner specification



Concrete protection products help resist:

- Excavator bucket impact
- Vehicle loading
- Ground movement
- Construction traffic
- Accidental excavation

The correct product should be selected based on the anticipated loading and utility owner's requirements.



Mechanical Protection

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Typical installation include:

- Street lighting cables
- Traffic signal systems
- CCTV infrastructure
- Motorway communications
- Utility crossings
- Intelligent transport systems



Highway Applications

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Rail infrastructure requires robust protection for:

- Signalling costs
- Communications
- Fibre optics
- Power supplies
- Trackside equipment



Precast concrete products provide reliable long-term protection in demanding operational environments

Rail Applications

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Utility protection products are increasingly used on:

- Solar farms
- Wind farms
- Battery Energy Storage Systems (BESS)
- Grid substations
- EV charging infrastructure



Benefits include protecting critical electrical infrastructure and supporting long-term asset reliability

Renewable Energy Applications



Used for protecting:

- Rising mains
- Water mains
- Pressure pipelines
- Cables
- Pumping station services
- Treatment works infrastructure



Water Industry Applications

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Modern data centres require extensive underground utility protection for:

- HV power supplies
- Fibre optic communications
- Cooling systems
- Backup power infrastructure
- Security systems

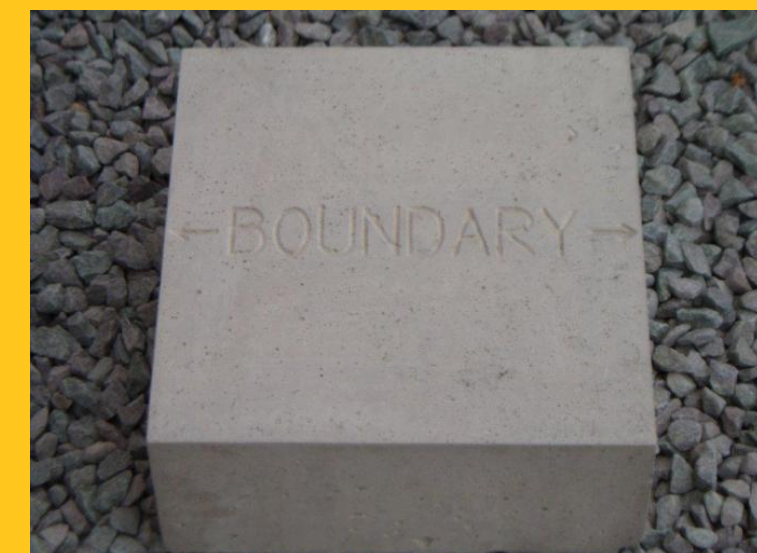


Reliable service protection minimises operational risk and supports business continuity

Data Centre Applications

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- Confirm utility locations before excavation
- Prepare a stable bedding layer
- Position protection products in accordance with project requirements
- Maintain specified cover depths
- Install warning tapes where required
- Backfill and compact in accordance with the specification
- Record installed asset locations



Best Practice

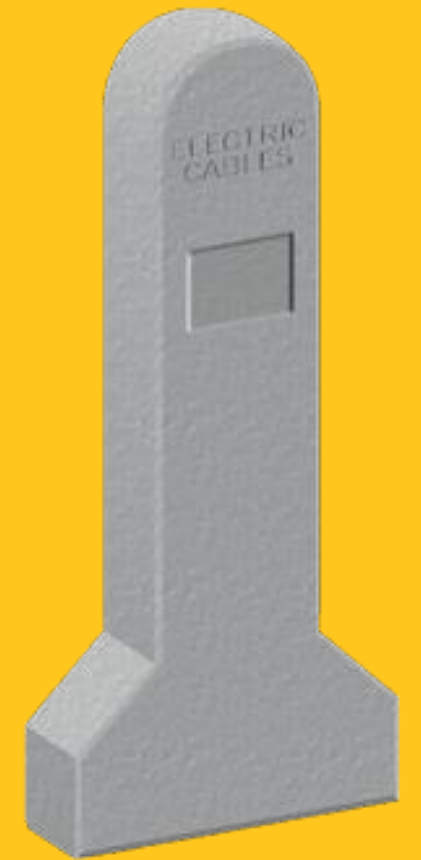
Precast concrete supports sustainable construction through:

- Long service life
- Minimal maintenance
- Reduced replacement requirements
- Locally sourced materials
- Lower whole-life costs



Effective underground service protection helps:

- Improve public safety
- Reduce utility strikes
- Protect valuable infrastructure
- Minimise project delays
- Lower maintenance costs
- Extend asset life



Precast concrete service protection products provide a durable, reliable and sustainable solution for safeguarding underground utilities across construction, infrastructure, water, energy and transport projects

Protection and Security

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- HSE HSG47 – Avoiding Danger from Underground Services
- BS 2484 – Underground Cable Protection
- BS EN 1992-1-1 – Eurocode 2: Design of Concrete Structures
- BS EN 206 – Concrete: Specification, Performance, Production and Conformity
- BS 8500 – Complementary British Standard to BS EN 206
- NJUG (National Joint Utilities Group) Guidance for the Position and Colour Coding of Utilities Apparatus
- National Highways Manual of Contract Documents for Highway Works (MCHW)
- CDM Regulations 2015

Further Reading - Technical References