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## OPERATION & MAINTENANCE - GABION

### 1. INTRODUCTION

The Gabion retaining wall system comprises steel welded mesh cages coated with specific anti corrosion treatment, laced together and filled with granular material to the specified grading to form a gravity structure built such that the weight of the wall resists the pressures exerted on it from the ground behind. The depth of the structure will increase with the height of the wall.

Materials used:-

Gabion Cages:	Steel Welded Mesh Cages with Alu-Zinc/PVC Coating
Fill to the structure:	Type 6G gabion infill stone
Foundation:	Compacted Type 1 granular sub-base

### 2. PHI GROUP DESIGN DRAWINGS

Issued to suit project

### 3. CONSTRUCTION METHODS

The Gabion retaining wall has been general installed as the details on this page. For more specific project details please refer to the project Specific Works Package Plan.

### 4. MAINTENANCE PROCEDURES

Any long term maintenance is basically periodic visual inspections to detect damage or abnormalities. Any damage detected should be reported and advice on repair should be sought from Phi Group. These would typically be annually, but will vary depending on the location of the wall and what it is supporting.

Abnormalities may include: localised bulging of the face; broken components; damage by impact or vandalism; vegetation on the face; excessive water through the face.

No requirement for any cleaning is anticipated.

If any fencing has been installed at the top of the wall to prevent falls, this will need to be inspected to ensure it remains adequate. Typically any fencing will not last as long as the structure and will need to be replaced during the lifespan of the retaining wall.

If a rear of wall drain has been installed at the construction stage, the relevant catch pit, manhole or soak away within the development should be checked annually to ensure this can still flow.

## 5. POINTS TO BE AWARE OF

### 5.1 Local minor impact damage

Individual split, broken or damaged cage components will not affect the structural capacity of the wall and can be repaired locally if required. If several components are broken in the same area such that it will affect other parts of the wall or loss of the infill stone, advice should be sought from Phi Group or a structural Engineer.

### 5.2 Major collision damage

As with any structure, affected areas may require re-building with localised support of the fill behind. Advice should be sought from Phi Group or a structural Engineer.

### 5.3 Settlement

The “method compaction” guidance within Specification for Highways Works; Series 500 is based upon achieving 90% compaction. It follows that some post-construction consolidation should be expected. The Gabion system is also a flexible structure that can accommodate differential settlement caused by seasonal moisture changes, so some minor movements will occur over its lifespan.

### 5.4 Excavation near the wall

Excavation behind the retaining wall may affect the structure but it will be based on how close and to what depth the excavation is carried out. Also the plant used to carry out the excavation can damage and exert large loadings on the wall. If any excavations are required behind the wall advice should be sought from Phi Group first. Excavation in front of the wall may undermine the structure. Any excavation deeper than 500mm may have the potential to undermine the retaining wall foundations leading to settlement and possible collapse. Any excavation in front of the wall should be checked by a structural Engineer or further advice sought from Phi Group

### 5.5 Vegetation

The Gabion system is a caged structure filled with inert crushed stone, so it is not expected to be susceptible to vegetation establishment from within the wall. Vegetation growing on or up the face of the wall will not affect the structure. However, any vegetation growing out of the wall/cages should be removed.

### 5.6 Water

The Gabion retaining wall has crushed stone within and behind the wall, thus the wall should have very little evidence of water within it. If water is coming through the face this would mean excessive water is coming from behind the structure and should be investigated to find the water source and remove it. For more specific project details please refer to the project specific drawings.

## 6. DEMOLITION AND DISMANTLING

No demolition should be undertaken without reference to Phi Group or a Structural Engineer.

## 7. RESIDUAL RISKS

As any other type of retaining wall, falling from height is a residual risk of a Gabion retaining wall. When Phi Group installs a retaining wall it will normally have a fence already built in to the top of the wall. Occasionally post formers will be left in the top of the wall for the Main Contractor to install a fence after our works are complete. This will ensure that falling from height from the top of the wall has been addressed, but the fencing will need to be maintained for the lifespan of the wall. Gabion walls can be climbed by people and thus falling from height off the wall may also be an issue. The Contractor will need to take any necessary steps to bring this to the end-users attention.

## 8. PRODUCT LITERATURE

Visit the Phi Group website at [www.phigroup.co.uk](http://www.phigroup.co.uk) for Brochure and further details.