Lock+Load – Methodology of Works

Carry out reduce level dig as per site specific designs, in preparation for levelling pad and backfill installation.

A 300mm levelling Pad will be placed and compacted using a suitable compaction device in line with the design specification.

Base Level

Lock and load panels will be lifted by the Teleporter and placed as close to the work as possible to minimise the likelihood of musculoskeletal disorders. Two number operatives will then manually lift the lock & load panels into position.

Set one panel at each end of the wall section to be constructed. Check panel with survey markers for correct position from survey hub. Place level on back of panel and plumb by adding or subtracting grading material under counterfort until panel is vertical. Place level on top of panel and level horizontally in the same manner. Check top elevation of both panels on each end of wall segment being constructed with laser level to ensure run will be level.

Secure a pin (non-conductive pins) at each set and levelled panel (15m – 25m apart) and run a string line the entire distance of wall segment to be constructed.

Additional non-conductive pins may be added to eliminate sag in the string line.

Double check alignment with laser or survey instrument. Now set the intervening panels along the string line.

At this point, the top rear of panels will vary slightly off the string line.

Adjust panel alignment and height by adding or subtracting gravel from underneath each counterfort until all panels align with string. If adding material under counterfort, make sure to tamp material tight.

Slight variations of panels exceeding string line height, can be adjusted by tapping the top of the panel with a sledge hammer using a piece of timber to prevent chipping of the concrete.

Low panels can be adjusted up by tipping them forward and adding gravel under base of panel to raise its elevation.

Operatives must ensure the alignment of the bottom row as it helps assure straight level and aligned wall.

Place drainpipe and drainage stone (aggregate) as detailed within the design drawings. Drainage stone is lifted into position using machines and spread into correct position by operatives using rakes.

On short non-engineered walls, the drainpipe will be located at the rear of the counterfort and on the levelling pad (lowest elevation).

On walls specifying geo-grid it must be placed in line with the design detail.

Commence backfill operation by placing backfill material over the tail of the counterfort first.

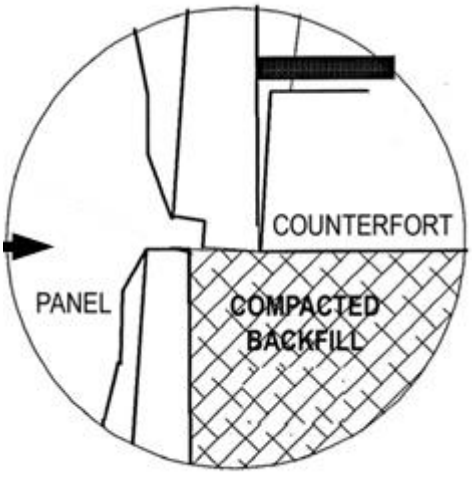
Keep a minimum of 0.6m of backfill material (stone) behind wall face to form the foundation of the next row.

Beyond this use the specified backfill material.

Panel rows should be back filled and compacted in two lifts of 200mm with the second lift rising to approximately 50mm above panels top edge so that the material will compact to top of panel. Make minor adjustments as necessary. Backfill material is lifted into position by machine and spread into correct locations by operatives using rakes. Operatives then proceed to compact backfill using specified compaction machinery.

Once selected fill material is placed over the counterforts the specified backfill can be placed, leveled and compacted in 200mm lifts. Take care not to displace the wall alignment or damage soil reinforcement.

Subsequent Rows



ASSEMBLY DETAIL

Using a flat point shovel scrape along the first 125mm of wall face using the top of the previous coarse as a guide until level.

The back needs to be level with the top of previous panel and compacted. The 25mm gap at the base of the next panel is to allow for mass consolidation in taller walls.

Placing of Geogrid

Rolls of Geogrid will be delivered to site as requested and brought to the work area by GWS Durham. The rolls of Geogrid will be offloaded by either Gillcon's skid steer or excavator with forks attachment. Rolls of Geogrid will be off loaded one at a time.

In order to roll out the Geogrid rolls, Gillcon skid steer / excavator driver with forks attachment will lift one roll of Geogrid and a Gillcon operative will place a steel tube up the centre of the Geogrid roll. Before Gillcon operatives approach the Geogrid roll with the steel tube, the machine driver needs to isolate the machine to prevent accidental movement of the machine when operatives are within the slew zone of the machine. The steel tube with Geogrid Roll on it will then be placed onto tripods (one tripod end of steel tube). The steel tube will then be secured into position on the tripods with a latch.

Gillcon operatives will then roll out the required amount of Geogrid and cut to size using consaw. Lengths of Geogrid will be placed as below by two number operatives. This process will be repeated until the roll of Geogrid has been used.

In order to replace the Geogrid rolls, the skid steer / excavator driver with forks attachment will lift the empty roll with steel tube through it and lift it off the tripod. When off the tripod, Gillcon operative will remove the steel tube from empty plastic roll of Geogrid. At no time does a Gillcon operative manually lift the empty roll from the tripod.

When installing the geo-grid as per design, backfill only approximately ½ the way up panel back making sure that the fill is evenly distributed and about level over the whole grid area.

Compact this lift of fill being careful over the counterforts. Roller compactors may not be used to compact on the first lift over the barely covered counterforts as damage may be caused.

Once compacted and levelled place geogrids with grid directional strength, perpendicular to the wall face.

Geogrid must be placed in line with the design to ensure that the geo-grid is the proper strength and length for its position in the retaining wall structure. Place the geogrid so that a minimum of 75mm remains vertical and in contact with the panel back.

This Process is repeated in layers for the entirety of construction.