

# Unexpected Voids

## Lessons Learned: Unexpected Voids

An unfortunate incident occurred involving the collapse of a ground floor slab after a demolition rig tracked above an unknown void. **Thankfully no one was injured**, however the incident serves as a stark reminder of the inherent dangers within demolition works.



## The Findings:

A full investigation is ongoing into the incident. Early findings outline that the structure had been constructed on columns with a suspended ground floor slab, creating a **tapered void** measuring at various depths ranging from appx 0.1m to 3m across opposite ends of the structure.

The structure itself, the site features and the adjacent areas around the structure also did not indicate the presence of the void or any varying ground levels beneath the ground floor slab.

Whilst **Ground investigation reports** had been produced for the site (including physical bore holes samples) these were taken around the structure. The results of which **did not indicate the presence of any void**. In addition, the underground void was **not identified on any site drawings**, reports or information.

Site inspections prior to the works also failed to identify any normal signs or indication of the presence of the underground void. e.g. service hatches, service runs, vents or openings.

Prior to the incident areas of the structure above the ground floor slab had been demolished and tracked over, without incident or indication that the slab was suspended. This **area had been checked by the plant operator** which was clearly proved to be ineffective.

## A Free Lesson:

As a business we are using this incident as a tool for improvement and a training aid to remind staff of both the dangers of underground voids and of the requirement for robust control. Whilst thankfully no one was injured during this incident, the potential is clear therefore the issues and findings can serve as a **free lesson** across all industry to ensure (or reduce) the potential for incidents of a similar nature in the future.

### Lack of Information

- Whilst a degree of information was available prior to this incident, it is common place in demolition to have **little or no historic information** on the structure or site. As demolition professionals we need to educate and advise **Clients / Principal Designers** of the level of information and surveys required for our works to be designed and delivered safely.

### Site investigation

- Whilst visual & physical investigations, surveys and inspections of the structure are a vital control, the use of further tools such as GPR should be used more common place.

### Site Controls

- The physical marking out and exclusion around underground hazards are a key final barrier in avoiding collapses and should be adopted at all times.
- Intrusive or physical checks should be undertaken by plant operators to assess the ground prior to tracking over new or changing areas of a structure.