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Processed with the pulseEKID software program, GPR line 10 (Figure 9) shows two hyperbolic reflectance indicating a subsurface feature roughly 7.9 meters from the south wall then another feature is present roughly . Interestingly, the hyperbolic reflectance occurred directly underneath a 1.75 m² patterned tile on the surface (Figure 10).

The patterned tile itself lies between where the bema once stood and the former Torah ark. In an active synagogue, the bema is a platform in the center of the room where the rabbi would conduct the service. The Torah ark is an ornamental closet that holds the synagogue’s Torah scrolls. Both of these are religiously important and are often the main focus of the service. This leads to the theory that the patterned tile and its subsurface feature is also of great significance.

ABSTRACT
Kahal Grande Synagogue, located in Rhodes, Greece, is thought to have been established in the late 1480s under Ottoman rule.

The subsurface of the floor of the synagogue was imaged through the collection of two grids using a Sensors and Software ground penetrating radar (GPR) system. The data was collected at a frequency of 225 MHz and a step size of 5 cm. The first grid was 12 m x 10 m with a starting point (UL) at the synagogue’s floor southwest corner. A total of 40 lines running south to north was collected every 0.25 m of the grid which covered the entirety of the exposed synagogue floor. The second grid, 16 m x 11 m, was shot with a starting point (UL) in the northwest corner and ran from west to east. This grid consisted of 46 lines shot every 0.25 m.

Three-dimensional processing of the data showed several anomalies on plan views at approximately 0.25 - 1.0 m beneath the surface. Initially, several of these anomalies were dismissed due to surface irregularities during data collection, most likely created during destruction. Other anomalies in the results reaffirm the location of a potential wall running the length of grid one in the western side of the synagogue. An anomaly located between what was used to be the bema and the torah ark, cannot be explained without further investigation. The interesting aspect of the anomaly is that it is located beneath a 1.75 m² tile pattern on the surface. The pattern leads to the interpretation that the area was meant to be marked and represents an important underlying feature. These anomalies are considered to be what the surface feature is. It may be a temporary storage area for previously used Torah scrolls known as a genizah or an old mikvah, a bath for used for religious rituals. Only further investigation will tell what is beneath the synagogue’s floor.

INTRODUCTION
During the time of German occupation, Kahal Grande was severely damaged by a bombing. The explosive force of the bomb destroyed all of the walls and windows. All that remains of the once active synagogue are the remnants of two walls and a batten floor (Figure 2).

OVERVIEW OF JANUARY 2015 INVESTIGATION

GIRD 1
The first grid, which is a continuation of last year’s grid, runs North to South (Figure 6). This grid was 12 by 10 meters with a starting point in the southwest corner. This grid had a total of 40 lines running every quarter meter.

GRID 2
The second grid ran from west to east and began at the north west corner (Figure 7). The grid was 16 by 11 meters, grid two consisted of 46 lines also at every quarter meter, covering the entirety of the exposed floor.

RESULTS
Processing of the data was done by Dean Goodman. Three dimensional processing initially showed several new anomalies. As for new findings, grid 1 should some interesting results. Figure 8 shows a slice view of the data shows a feature located roughly 7.12 meters from the south wall and 1.2 meters below the surface.

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REFERENCES