Nazi Mass Execution Trenches at Fort IX, Kaunas Lithuania

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Abstract

Shortly after the Nazi occupation of Lithuania in June of 1941, they began to round up the country's Jewish population as part of the Nazi's "Final Solution". At Fort IX as many as 45,000 Jews and Communists were killed in series of execution trenches. In 1944, the Nazis knew that they were going to lose the war and needed to eliminate the evidence of the murders. The bodies were then exhumed from the trenches, burned, and the remains were spread across the landscape, leaving very little evidence. In July of 2017, Ground penetrating radar (GPR) grids using 225 MHz and 450 MHz antenna with step sizes of .1 and .05 meters, respectively, were taken in the locations where the trenches were thought to be. GPR profiles were processed using both GFP_Edit and EKKO_Project. The profiles show the existence of horizontal subsurface disturbances at the 10, 20, 30, and 40 meter marks. These correspond to eye-witness and past archaeological accounts. The results collected from this ground penetrating radar project provide important evidence in verifying the horrendous mass murders conducted by the Nazi Regime during the Holocaust.

Methodology

After reviewing a Soviet map from an archaeological investigation in the 1960's (fig 4), an area on the northern section of Fort IX's courtyard was chosen to be the site of the survey (fig. 6). Using the PulseEKKO 1000 GPR system from Sensors and Software, two grids were collected, using a 225 MHz antenna and a 450 MHz antenna. Using the 225 MHz antenna (fig. 7), 78 lines were collected. Each line was 50 meters in length originating from the x-axis of the grid and were spaced every 0.5 meters apart with a step size of .01 meters. This resulted in a grid that was 50 meters in length and 39 meters in width (fig. 5). An ERT line was then placed within the grid at the 10 meter mark (fig. 5). The second grid was collected within the first grid at the 10x15 meter mark (parallel to the ERT line) using a 450 MHz antenna (fig. 5). This location was chosen because this area had shown disturbances in the 225 MHz grid as well in the preliminary results from the first ERT line. Each line was 10 meters in length originating from the x-axis with spacing at every 0.25 meters, with a step size of 0.05 meters. 40 lines were collected in total. Once both grids were completed, each individual line was arranged into their respective grids using GFP_Edit. Once arranged, they were then imported into EKKO_Project, where the grids could be analyzed at different time slices. EKKO_Project also allowed for each individual line to be analyzed separately.



Figure 4: Soviet Archaeological Map created during Archaeological excursions in the 1960's

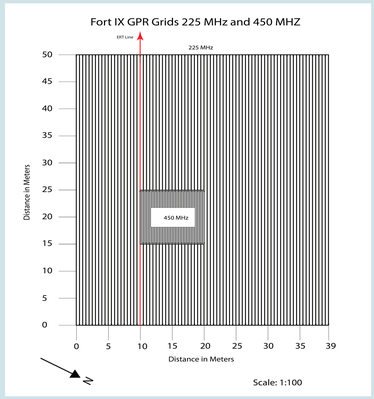

Figure 5: Both GPR grids and ERT line (red) collected within the northern section of Fort IX's courtyard. The 450 MHz grid was located within the larger 225 MHz at the 10x15 meter mark.



Figure 6: An mosiaced drone image showing the locacation of the 225 MHz GPR grid (blue) as well as two ERT lines (red) were collected at the site.



Figure 7: GPR set-up using 225 MHz antenna on the courtyard of Fort IX.

Introduction

Following the Nazi occupation of Lithuania in 1941 (fig.1), the Nazis had began to implement their "Final Solution", which called for the mass execution of the Jewish populations in the region. Because this site was heavily fortified and close to the Kaunas Ghetto, the fort was selected as a location for the Nazis to conduct their mass killing operations [1] (fig 2). At Fort IX as many as 45,000 murders took place between 1941 and 1944. These murders consisted of thousands of Soviet prisoners of war, 25,000 local Jews from Kaunas and another 15,000 Jews from other areas within Nazi occupied Europe [1]. There was a total of 15 mass burial trenches with each containing nearly 3,000 bodies. Once the Nazi's advance eastward was halted in 1943, they began to cover up these terrible atrocities [1]. Exhuming of the bodies from the trenches took place shortly after, they were stacked into large piles and burned (fig 3). Once burned, the ashes and other remains were spread across the area in hopes to eliminate the evidence of the mass executions [1].



Figure 1: Map displaying the location of Kaunas, Lithuania where the Fort IX is located.



Figure 2: The fort as it stands today.



Figure 3.1: Location in which the bodies were burned on the southern end of the courtyard. (https://www.smithsonianmag.com/history/holocaust-great-escape-180962120/)



Figure 3.2 : An artists sculpture of the of the buring of the bodies after the bodies were exhumed from the execution trenches.

Results

The processed GPR grids show disturbances in the form of four rectangular anomalies at 0.6 to 1.5 meters in depth (fig. 8). This is supported by the ERT results, taken south of the GPR grid showing areas of high electrical conductivity in the same locations (fig. 9). These anomalies are the result of the trenches having a different soil density than the surrounding non-disturbed areas. This is because after the bodies were exhumed from the trenches, the trenches were then filled with ash and surrounding soil, resulting in a less compact soil structure. The less compact soil structure holds more water than the surrounding soil and therefore is more conductive. When looking at the individual lines, the anomalies can be seen again in the form of dipping in the stratigraphy of the profile (fig. 10). There is diagonal dipping in the stratigraphy of the profiles in the same locations where the horizontal features were visible in Slice View. These anomalies were located where a Soviet archaeological map had indicated.

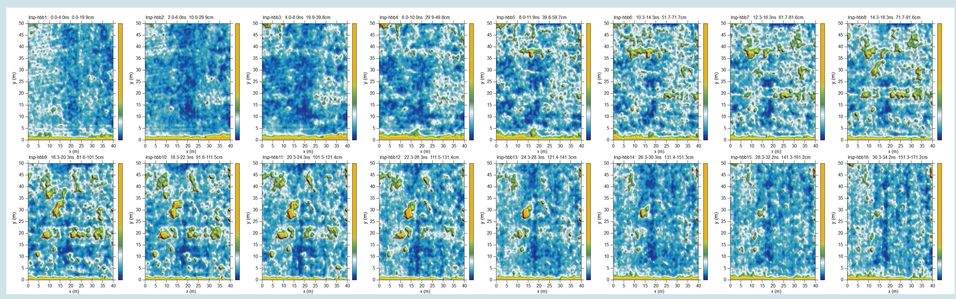

Figure 8.2: A series of time slices collected using the 225 MHz antenna showing the location of subsurface anomalies at 0-1.5 meters in depth.

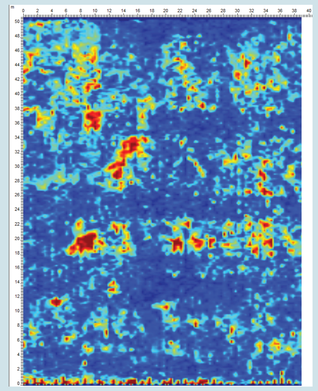

Figure 8.1: Slice View image displaying the location subsurface anomalies (red) at 225 MHz at 1.0-1.11 meters in depth.

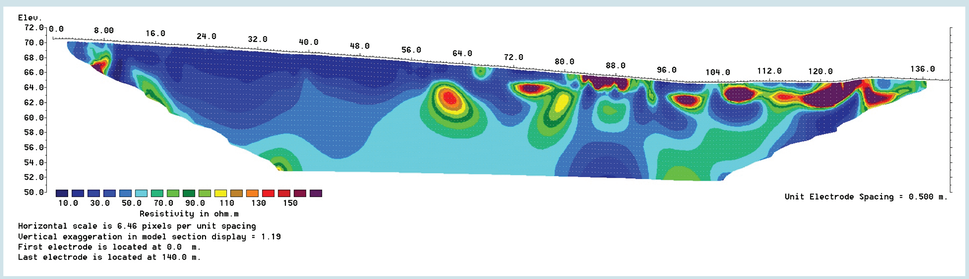

Figure 9: ERT Line taken south of the GPR profiles within the courtyard. Circular anomalies of areas of differing resistivity are areas believed to be the execution trenches.

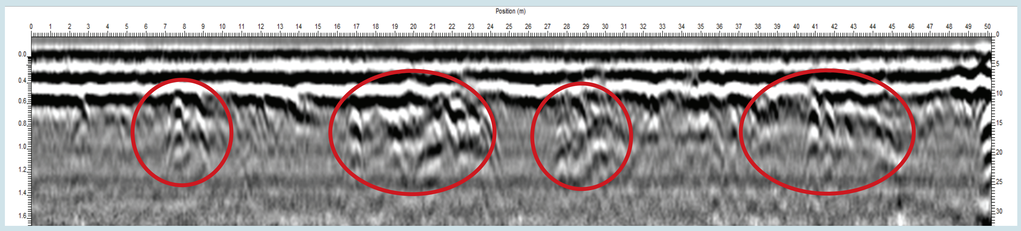

Figure 10: 225 MHz GPR profile showing dipping in the stratigraphy at the 7, 17, 28, 41 meter marks at depths ranging between .06 and 1.3 meters.

Conclusions

Using GPR, ERT, and a past Soviet archaeological map, supporting evidence for the existence and location of Nazi mass execution trenches was discovered at Fort IX in Kaunas, Lithuania. Using 225 MHz and 450 MHz GPR antennas, horizontal disturbances in the subsurface were discovered. Through the use of ERT, it was determined that these horizontal anomalies are areas of less compact soil structure than the surrounding area. These anomalies correspond to locations where the trenches where expected to be located. The compilation of these pieces of evidence strongly suggest the existence of Nazi mass execution trenches at Fort IX. This site stands as a reminder to the terrible events that took place.

Acknowledgements

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References

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