CLAIMS

1. An excavation system comprising a support frame (34), a hydraulic circuit with a pump, and first and second excavation tools, one of said first and second excavation tools being a mechanical excavation tool (1') having a hydraulic actuator and a mounting interface with at least one mechanical fastener member (22) and at least one hydraulic coupling (20) in fluid flow communication with said hydraulic actuator, the system being characterized in that the other one of said first and second excavation tools is a tool (1) for excavation by electric pulses, comprising an electricity generator (3) with a rotary shaft for generating electricity from rotation of the rotary shaft, a hydraulic motor coupled to said rotary shaft to drive rotation of the rotary shaft, and an electronic power module (4) electrically connected to the electricity generator (3) in order to be powered by the electricity generator (3) so as to generate electric pulses of instantaneous power that is higher than an instantaneous power of the electricity generator (3), a plurality of electrodes (5a, 5p) including at least one electrode (5a) connected to said electronic power module (4), the electrodes being arranged on a front face of the tool (1), and a mounting interface (14) with at least one mechanical fastener member (22) and at least one hydraulic coupling (20) in fluid flow communication with said hydraulic motor (2), and in that each of the mounting interfaces of the first and second excavation tools is suitable for releasably and alternatively mounting the corresponding excavation tool under the support frame (34) of the excavation system, with the corresponding hydraulic coupling in fluid flow communication with said hydraulic circuit of the excavation system.

2. An excavation system according to claim 1, wherein the support frame includes a device for tilting the excavation tool about at least one axis.

3. An excavation system according to claim 1 or claim 2, further including a spoil suction pump.

4. An excavation system according to any one of claims 1 to 3, including a jib (10) from which the support frame (34) is suspended by at least one cable.

5. An excavation system according to any preceding claim wherein said mechanical excavation tool is a cutter type excavation tool comprising a cutter member coupled to the hydraulic actuator of the mechanical excavation tool in order to be actuated.

6. An excavation system according to any preceding claim wherein said plurality of electrodes (5a, 5p) comprises at least one row of a plurality of electrodes (5a, 5p) arranged at the periphery of said front face.

7. An excavation system according to any preceding claim wherein said plurality of electrodes (5a, 5p) comprises at least one electrode (5a, 5p) arranged in a central zone of said front face.

8. An excavation system according to any preceding claim wherein said plurality of electrodes (5a, 5p) comprises at least two electrodes (5a) connected to the electronic power module (4), and the electronic power module (4) is configured to transmit electric pulses separately to each of the at least two electrodes (5a) to which the electronic power module (4) is connected.

9. An excavation system according to any preceding claim further comprising an actuator device for driving

movement of at least one electrode (5a, 5p) of said plurality of electrodes (5a, 5p), in particular with movement presenting at least a vertical component and/or a horizontal component.

10. An excavation system according to claim 9, wherein said actuator device comprises at least one linear actuator.

11. An excavation system according to any preceding claim wherein the tool (1) for excavation by electric pulses further includes at least one spoil-removal inlet (8).

12. An excavation system according to any preceding claim wherein the tool (1) for excavation by electric pulses further comprises a fluid feed duct (6) leading to at least one fluid injection nozzle (7) arranged on a front face of the excavation tool (1).

13. An excavation system according to claim 12, wherein said fluid feed duct (6) leads to a plurality of fluid injection nozzles (7) distributed over the front face of the excavation tool (1).

14. An excavation system according to any preceding claim wherein said front face is elongate, e.g. rectangular, perpendicularly to an excavation direction.

15. A method of using an excavation system according to any one of claims 1 to 14 for excavating a trench, the method comprising the following steps:

· mounting the first excavation tool under the support frame;

· excavating a first layer of ground with the first excavation tool;

· replacing the first excavation tool under the support frame (34) with the second excavation tool; and

· excavating a second layer of ground with the second excavation tool.