A new interdisciplinary project was initiated to excavate a portion of the Palaeolithic site of La Ferrassie left intact by earlier excavations. One of the aims of this project was to provide chronological information on the succession of Middle and Upper Palaeolithic layers, as well as on the skeletons unearthed by Capitan and Peyrony in the early 1900’s. We report here preliminary results on the lithics, faunal remains, site formation processes, and on the stratigraphic context of the La Ferrassie 1 and 2 skeletons that were found adjacent to our excavations. Finally, results from luminescence dating of the sediments and a preliminary set of radiocarbon ages are presented. Quartz OSL, both at the multi-grain and single-grain levels of analysis, and post-IR IRSL of feldspar at various stimulation temperatures are compared. The quartz/feldspar comparison revealed a bleaching problem for the quartz OSL (and the feldspar pIRIR signals) from Layer 2; as a consequence, the age of this Layer was determined using a minimum age model. A Mousterian industry with bifaces, at the base of the sequence, has been dated between 91 ± 9 and 44 ± 3 ka. The Ferrassie Mousterian layers are attributed to MIS 3, between 54 ± 3 and 40 ± 2 ka, and thus appear very late in the final Middle Palaeolithic of the region; furthermore, these ages constrain the chronology of the La Ferrassie 1 and 2 skeletons, which have been attributed to one of these Ferrassie Mousterian layers. The Châtelperronian layer is dated to 42 ± 3 ka and the Aurignacian to 37 ± 2 ka. Implications of the ages for the La Ferrassie 1 and 2 skeletons, and for the variability of late Mousterian, are discussed.