When is the complement of the diagonal of a LOTS functionally countable?

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A space X is functionally countable if every continuous function from X to the reals has its image countable. Recently, Tkachuk asked whether there exist uncountable linearly ordered spaces X such that $X^2 \setminus \{\langle x, x\rangle : x \in X\}$ is functionally countable. In this talk we show that such a space, if it exists, must be a Souslin line. We also show that functional countability of a Souslin line is not sufficient to provide the example required by Tkachuk's question.

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