

1 **Supplementary Information Guide**

2

3 Article title: Systematic review supports a spatial system framework for social
4 ecological systems in urban sustainability science

5

6 **Supplementary Table 1: Full Version of Table 1 in the Manuscript. xlsx**

7 This supplementary table provides the fuller version of Table 1 in the manuscript,
8 including additional examples and operational details for the second-level variables
9 within the SESS framework for urban studies.

10 **Supplementary Information: Spatial Engagement Coding Framework. docx**

11 This appendix details the methodological framework, criteria, and validation process
12 used for the systematic literature review ($n = 630$).

13 **Supplementary Data Set 1: Full Dataset of 630 Records. xlsx**

14 The appendix contains all 630 records, including the initial level and reasons by two
15 raters, final level, reasons and sources of disagreement, and basic information of each
16 article.

17 **Supplementary Data Set 2: Detailed Qualitative Analysis of 56 Level 4 Records.**
18 **xlsx**

19 The appendix contains the details extracted from 56 Level 4 articles, including
20 geographic context, SES framework variant, the conceptualization and
21 operationalization of spatial dimensions, analytical methods, and key findings using a
22 standardized protocol.