

## ***Interactive comment on “Stream restoration and sanitary infrastructure alter sources and fluxes of water, carbon, and nutrients in urban watersheds” by M. J. Pennino et al.***

### **Anonymous Referee #1**

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A general comment is that is difficult to refer to the different sections, as there are not page numbers and the line numbers re-start at every page. Another general and worrying issue is on the use of terminology and concepts, as I have the feeling the authors use them not in the best possible manner. Finally, I also think that everything in the paper is too case-specific, as the authors were not looking for a broad picture that can be interesting for readers from elsewhere.

Title: I suggest to change ‘sanitary infrastructure’ to ‘sewer network’ or “sewage system” in the title. Sanitary infrastructure means many different things, and is the title is difficult to understand as it is. Title: I’m also not so happy with the use of ‘alter’, as it

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has a negative meaning. To restore a river will influence, or shape, but not really alter. Keep in mind that the two forces you mention are probably pushing the system in opposite directions: restoration and chemical pollution from the sewage system. Abstract: Some general issues in the abstract are that it lacks structure, and that is too long. Authors should try to follow the universal rule of the 5 parts in the abstract: Global why, specific why, how, what, and what it means! Abstract, P1, L22: What does it mean unrestored here? I suggest using a different term. Unrestored means not restored, but a pristine river is also an unrestored river. If these 3 rivers are degraded, or altered, or canalized, or ... use that term. Abstract, P1, L23: What do you mean with draining a stormwater management? Stormwater management is not a place, is an action. Abstract, P2, L1: How can it be that the peak discharge decreases because of a stream restoration? Stream restoration means to improve the conditions within the stream channel. Modifications in the stream channel can influence the hydraulics of the system (depth-velocity relationships), but not the peak discharge, which depends on the basin conditions. Abstract, P2, L 2-5. These comparisons cannot be done if the basins are different. You should compare it with equal basins, or with the same basin before the restoration. If you would like to assess the restoration effects, you should follow a BACI or a similar design. Furthermore, and in line with the previous comment, an in-stream restoration cannot affect the specific discharge ( $L/m^2/d$ ). Abstract, P2, L5. Streams are not more or less developed. The basin might be more or less developed, but in any case, you must specify in which sense the basin is developed. Abstract, P2, L6. Again, stormwater management is an action, not a place. Abstract, P2, L9-12. The units you provide ( $kg/ha/y$ ) refer to the basin, not to the stream. Abstract, P2, L15. This time, I believe that it’s the way round. I bet that here you mean a synoptic survey along the stream, or the mainstem, but not the watershed (or basin). Abstract, P2, L21. To minimize watershed nutrient export? Is this the goal of management, or to reduce the chemical concentrations of some pollutants in the river, that is, to improve the water quality? Abstract, P2, L23. Why should the repair of the sewer network involve channel modifications? This might be only in some cases, but is case-specific and not a

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general issue. In general, most of the text is written with a narrow focus, and might not be of interest for a broader audience. Abstract, P3, L 1-5. The authors jump here to somewhere, aiming to something that has not been discussed before. The last section of the abstract might have general implications, but always based on the submitted work.

These are just comments on the abstract and title, which is just a small part of the manuscript, but the most important one. Authors should carefully review the entire manuscript having all the above mentioned issues in mind, and ask for assistance from other colleagues for an internal review before resubmitting their work.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 13149, 2015.