

SAFE CLEAN WATER PROGRAM SCIENTIFIC STUDY PROPOSAL QUESTIONNAIRE

1. Proposal identification information and summary of the project goals.

Title: **Evaluation of infiltration testing methods for design of stormwater drywell systems**

Proposing Organization: **California State Polytechnic University, Pomona**

Your summary of the Project Goals and Objectives:

All three reviewers are in agreement that the study's overall objective is to develop best-practice methods for measuring the infiltration capacity and infiltration rates of stormwater drywells in L.A. County. Specifically, the study will compare different methods across a range of different soil/geologic scenarios to determine which methods provide the most reliable, accurate estimates of infiltration capacity and rates. Managers will be able to use these insights to ensure they're not building and maintaining more drywells than necessary.

2. Are the objectives clearly stated? What portion of the objectives need more clarification?

All three reviewers agree that the study objectives are clearly stated, but two of the reviewers offered some constructive criticism about specific aspects of the study objectives. One reviewer said one objective (Objective 1) and two tasks (Tasks 1 and 2) could use more elaboration, and suggested that the proposal might be missing an additional objective (identification of the best equation for analyzing borewell test results). The other reviewer said the proposal lacked sufficient detail, including regarding how the study will compare numerical simulations to field measurements.

3. How do the project goals directly support a nexus to increasing stormwater or urban runoff capture and/or reducing stormwater or urban runoff pollution?

The reviewers disagree on how effectively the project supports the SCWP's goals of optimizing urban runoff capture. Two reviewers indicated that there appears to be at least an indirect relationship between the project's goals and the SCWP's goals, with one reviewer noting that more runoff could be captured if the study finds that drywells are being underutilized, and the other reviewer noting that the project's value will be directly proportional to how commonly used drywells are in the study area. The third reviewer was more skeptical of the strength of the relationship between the project's goals and the SCWP's goals, noting that although the proposal's premise is that the region's drywell systems may be over- or under-designed and/or not cost-effective, the proposal does not present any evidence to back up these assertions.

4. What is (are) the overarching technical approach element(s) of the proposed project as you understand them (not necessarily the same as the elements described in the proposal)?

The reviewers agree that the study's technical approach consists of a review of the area's soils/hydrogeology and of methods for measuring infiltration rates, followed by field testing to evaluate different infiltration techniques. Results will be shared through outreach to stakeholders.

5. Has the proposal provided sufficient information to describe the technical approach for each element? If not, what information is missing?

The reviewers all agree that the proposal contains insufficient information to understand how all of the technical elements would be implemented. All three reviewers provided extensive lists of key missing information, including how the literature review will be conducted, documentation of previous studies that support the rationale behind the study's central premise, the strategy that the proposing organization is using to determine which sites and at how many sites to conduct the field work, and the approaches that will be used to compare and evaluate the different infiltration methods.

6. Is the technical approach sound? If not, what do you recommend should be done to improve the technical approach of the proposed project?

The reviewers are in agreement that major portions of the technical approach are not sound. One reviewer focused on the proposal's lack of specific hypotheses and lack of clarity about how these hypotheses will inform the study design – calling these issues the study's "main weakness." The second reviewer called the proposal "poorly prepared and difficult to follow," and suggested that the proposal would have been stronger if it had started by explaining what is known about hydrogeology and infiltration challenges in the region, followed by the pros and cons of various infiltration evaluation methods. The third reviewer focused on the limited number of sites that will be part of the field work, stressing that the proposing organization's ability to draw technically sound conclusions from the field testing could be hampered by "tremendous variability" in soil/geologic properties.

7. How achievable are the study's stated technical objectives, especially within the proposed timeframe and budget?

The reviewers agree that the proposing organization is not likely to achieve all of the study's objectives in the stated timeframe; two of the reviewers also agree that the project's budget seems excessively large relative to the proposed deliverables. One reviewer said the proposing organization should have included more supporting evidence that the study's timeframe is reasonable, given the complexity and challenges associated with executing the proposed field work. A second reviewer was more pessimistic, noting that the study as a whole is "unlikely" to provide "conclusive data and knowledge" to managers. Regarding budget, one reviewer said the budgets for publication and travel felt excessive, and questioned what role students would play in the project, given the sizeable budget for student stipends.

8. What are the greatest technical risks that you foresee the proposing agency facing when implementing the project?

The reviewers all agree that the biggest technical risk is that the project will produce inconclusive results as a consequence of collecting too little field data. One reviewer stressed that the proposing organization's ability to draw meaningful conclusions could be hampered by "tremendous variability" in soil infiltration rates. A second reviewer suggested that the

study might need to perform multiple infiltration techniques on every well to collect sufficient data points.

9. Are there clear linkages between the project’s technical objectives and the types of decisions that stormwater managers will make based on the project’s outcomes? Will the technical achievements provide stormwater managers useful linkages that extend beyond this study?

The reviewers agree that the project’s linkages to management could be limited at best. Two reviewers said the project “could” help inform some technical decisions in the area and “could” minimize costs of well construction, respectively. But all three reviewers expressed doubts. One reviewer concluded that the project “will not immediately change or inform any decisions.” A second reviewer questioned how much stormwater managers in the area need more information about infiltration best practices. And the third reviewer speculated that managers may already have access to this information.

10. Please provide any additional technical perspectives you would like to share.

One reviewer had no additional perspectives to share. The other two reviewers reiterated their concerns about the management need for this proposal and the technical feasibility of drawing meaningful conclusions from the project based on the study design. One of these two reviewers also commented that the proposal was “difficult to understand” and required flipping between sections in an attempt to figure out “how the pieces do or don’t fit together.”

11. Please answer each of the following questions by selecting one of the following five answer choices: Excellent, Very good, Adequate, Inadequate or Not applicable because of insufficient information. Feel free to add an explanation to accompany your answer choice:

- a. How well do the proposal objectives address the County’s goals of increasing stormwater or urban runoff capture and/or reducing stormwater or urban runoff pollution?

The reviewers disagree in their rating of how well the study’s objectives address the SCWP’s goals. Two of the reviewers gave “adequate” rating, with of these reviewers commenting that the findings “could be useful for work on other projects,” even as they will not “directly inform decision-making.” The third reviewer rated the proposal as “inadequate” and did not elaborate further.

- b. How well do you think the technical approaches will achieve the study objectives and stated outcomes?

The reviewers disagree in their rating of how well the study will achieve its objectives. Two reviewers provided an “adequate” rating, although one of these reviewers also commented that the proposal as written “is not convincing” that the study will achieve its objectives. The third reviewer provided an “inadequate” rating and did not elaborate further.

- c. Technical experience and qualifications of the study team?

The reviewers disagree in their assessment of the qualifications of the study team. Two reviewers rated the study team as “excellent,” with one of these reviewers commenting that the study team includes “the lead author (Kindred) of the paper whose modeling techniques will be followed.” The third reviewer said there was “insufficient information” to rate the study team and did not elaborate further.