

DEVELOPMENT OF SESSOM CREEK SEDIMENT EXPORT LOADING CURVES

PRELIMINARY SCOPE OF WORK

The Edwards Aquifer Habitat Conservation Plan (EAHCP) contains measures aimed at reducing the harmful impacts of excessive sedimentation to the covered species that rely on the Comal and San Marcos Rivers (§§5.3.6 & 5.4.4). Presently, the EAHCP is engaged in an adaptive management process that seeks to reduce sediment exports from the Sessom Creek drainage to the upper reaches of the San Marcos River. It is anticipated, that sediment reducing engineered solutions (BMPs, stream restoration, etc.) will be functioning in the watershed by 2020. The goals of this study are to (1) collect data on sediment/constituent loading, (2) calculate sediment/constituent loading curves, and (3) examine the physical factors that contribute to sediment exports. It is anticipated that the study will span March 2018 – December 2019, with field data collected from May 2018 – August 2019.

Task 1. Methodology Development

Proposers should demonstrate their understanding of Sessom Creek watershed erosion issues and provide a sufficient literature review of relevant sediment measurement and data handling techniques in stream systems. Proposals should adequately describe the methods and costs associated with each of the study goals.

1.1 Collect data on sediment/constituent loading

Proposals should include detailed descriptions on field data collection methods and post-collection sample handling and analysis. At minimum, this should include information on sampling equipment, event sampling plans, anticipated sampling frequency, and methodologies for sample analyses. While the focus of the study is on sediment export from Sessom Creek, the contractor may include additional constituents (non-volatile suspended solids, nutrients, etc.) to further understand the negative impacts of the receiving waters. The proposal should include the rationale for all analyses. Additionally, it is anticipated that continuous discharge will need to be collected as part of the project. Methods for collecting discharge should be included in the project.

1.2 Calculate sediment/constituent loading curves

Proposals should include detailed descriptions on data processing/statistical techniques to develop sediment/constituent loading curves. The proposal should include a literature review of data handling methodology and display a thorough understanding of the various techniques available to estimate loads over time.

1.3 Examine the factors that contribute to sediment exports

Proposals should include an analysis plan that examines the physical factors that contribute to sediment exports from Sessom Creek. This can include examination of antecedent soil conditions, discharge considerations, and intensity and duration of storms.

Task 2. Present Methodology to the EAHCP Science Committee

Once proposed methodologies have been developed, the Contractor will present these methodologies to the EAHCP Science Committee for review. The Contractor will give a presentation and be prepared to answer questions from the Science Committee.

Recommendations provided by the Science Committee should be considered for inclusion in final research methodologies. The Contractor will provide detailed written justification to the EAA for any recommendations they do not incorporate into their final methodology.

Task 3. Conduct Applied Research

The Contractor will carry out the analyses consistent with the methodologies proposed in Task 1 as approved by the Science Committee. The Contractor will keep a project notebook containing a description of the assumptions and methodologies used in the study. The notebook shall be organized in such a way as to allow replication of the steps, calculations, and procedures used by the Contractor to reach the conclusions described in the draft final report. The project notebook will include all raw data collected during the project, along with the scripts used to develop figures and perform statistical analysis. The project notebook and accompanying data will be submitted with the Draft report.

Task 4. Reporting

The Contractor will provide monthly updates to the EAHCP Chief Science Officer at the beginning of each month. The Contractor will submit a Draft and Final report to the EAHCP Chief Science Officer. The Contractor will allow a minimum of two weeks for Draft report review by the EAA. The Final Report, along with all data and the project notebook, must be submitted in hard copy and on a flash drive. Final reporting must be completed by December 2019.

Task 5. Meetings and Presentations

The Contractor should budget for a minimum of two meetings with the Science Committee to (1) present the literature review and project methodologies, and (2) present the project final results.