



### Technical Memorandum ECO-9

*To: Woody Frossard, TRWD*

*From: Bob Brashear, CDM*

*Date: 30-March-2005*

*Subject: Analysis of Sumps 7 & 8 (Riverbend)*

*Status: Draft*

The Riverbend off-line valley storage mitigation site is located adjacent to the West Fork approximately 4 miles upstream of the existing confluence of the Clear and West Forks, between Station 2768+53 and 2834+00 in the HEC-RAS model. It will be constructed by cutting "openings" in the existing levee and allowing flow to occupy the low-lying area behind the levee. The inverts of the openings are set below the 2-year flood but well above the normal water level of the channel. A back levee will be constructed to prevent flooding of any private property. Calculations indicate that this site will provide 1,594 acre feet of storage in the 100-year flood and 3,246 acre feet in the SPF. The configuration of Riverbend is described in more detail in Technical Memorandum ECO-1.

One of the objectives of the proposed project is maintenance of flood protection provided by floodway sumps with the project in place. The proposed back levee is positioned such that it will encroach partially into existing interior drainage sump numbers 7 and 8. Preliminary investigations indicate that this encroachment may be feasible. However, because a design capacity for these sumps does not exist, additional investigation is underway to affirm that the appropriate level of flood protection from these sumps can be maintained with the proposed configuration of the Riverbend site.

If, based upon the final hydraulic and earthwork analyses, the level of encroachment of the back levee into sumps 7 and 8 needs to be lessened to maintain or improve flood protection, several adjustments to the plan are available to accomplish this while maintaining the same level of valley storage mitigation required under the CDC process. These adjustments include:

- Augmentation the conveyance capacity of the sumps by improving the outlet works and/or a pumping system.
- Redirection of flows previously going to sump number 9 into a new sump behind the back levee. It would then be necessary to perform additional excavation within the Riverbend site to reclaim the associated reduction in valley storage mitigation

- Adjusting the position of the back levee to reduce the encroachment. It would then be necessary to perform additional excavation within the Riverbend site to reclaim the associated reduction in valley storage mitigation.
- Eliminating the back levee completely and perform additional excavation within the Riverbend site to reclaim the associated reduction in valley storage mitigation.

The final configuration of the Riverbend site will maintain flood protection and provide the necessary valley storage mitigation required under the CDC process. The final configuration will also be based on an optimization of costs to construct and maintain the site and the benefits to aquatic habitat, terrestrial habitat, and recreational opportunities.

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