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Memo

To: WRIA 35 Planning Unit	
From: John Koreny	Project: WRIA 35 Water Storage Project
CC:	
Date: April 5, 2006	Job No: 22604+

RE: Water Storage Project- Options to Continue Project

Introduction

A screening-level survey was completed during early 2005 for the WRIA 35 water storage project. The screening-level study summarized the water demand in the basin and evaluated and ranked alternatives for a water storage project. The screening-level technical memorandum is attached and the recommendations are presented in **Appendix A**.

Based on the results of the screening-level survey, the Planning Unit decided to further investigate the feasibility of constructing shallow wetland storage ponds on the Asotin Creek floodplain. At this time, we understand that the Planning Unit is considering whether to further pursue the Asotin Creek floodplain wetland storage project because the wetland ponds would primarily benefit habitat and would provide limited water storage benefit for instream flow.

This memorandum presents options for continuing on with the water storage project. These options are presented for consideration by the WRIA 35 Planning Unit.

Options for Continuing Water Storage Project

1. Continue with Asotin Creek Water Storage Ponds

Site investigations and preliminary conceptual designs have been completed at the two Asotin Creek sites. Shallow wetland ponds could be constructed on the two sites to store water through the spring and early summer. These wetland ponds could be constructed in a manner to minimize summer-time evaporative losses by excavating the ponds shallow enough so they don't expose ground water.

- ***Advantages:*** Site investigations and preliminary conceptual design has already been completed. The project would use water storage to improve riparian habitat.
- ***Challenges:*** These wetland ponds would provide limited water storage benefit to increase summer instream flow.
- ***Budget:*** Since most of the site investigation is completed at the two sites selected on Asotin Creek- it is possible to complete this project through final design with existing budget.

2. Identify a Reservoir Storage Site and Complete Preliminary Design Studies

It may be possible to construct one or more reservoirs in the Asotin Creek, Pataha Creek or Tucannon River sub-basins. These reservoirs could be constructed as shallow earth-fill impoundments. There are likely many potential locations where one or more reservoirs could be constructed as off-channel impoundments.

- ***Advantages:*** The advantage of a reservoir option is that a large amount of water could be stored high in the watershed. A reservoir could be constructed to increase instream flow.
- ***Challenges:*** Potential temperature water quality impairment, very expensive construction cost, maintenance requirements, permitting, construction on Federal land requires a Federal lead agency, requires a sponsoring agency from the WRIA 35 Planning Unit to obtain necessary State and Federal permits for construction and operation.
- ***Budget:*** Sufficient budget is available to complete part of the site investigation and design for a small reservoir. However, there is not sufficient budget remaining to complete all of the site investigation and engineering design tasks that would be required for this alternative.

3. Investigate Ground Water Storage in the Deep Basalt Aquifer

Ground water located in the deep basalt aquifer(s) is used as a water supply for municipalities, agriculture and industries in the lower portions of the watershed. A feasibility study could be completed to examine the potential for storage of ground water in the deep basalt aquifer. Part of the study could be used to examine options for expansion of ground water supply in the aquifer. The study would likely be focused on the lower portions of the watersheds where ground water is most heavily used by large municipalities and purveyors with the resources to pay pumping costs.

- ***Advantages:*** The advantage of this option is that additional information is needed on the feasibility to expand ground water storage and to manage expanded ground water use in the region.
- ***Challenges:*** This option would mainly involve focusing on the feasibility of ground water storage and expansion of ground water supply. Although the project would involve ground water in the entire watershed- it would focus on the lower portions of the watershed where ground water is used most-heavily.
- ***Budget:*** Sufficient budget is available to complete this alternative.

APPENDIX A
SUMMARY OF RECOMMENDATIONS FROM
WETLAND STORAGE ALTERNATIVE EVALUATION TECH MEMO

The following section summarizes the feasibility of the seven alternatives below.

- New Reservoirs — Unlikely
- In-Channel Storage — Unlikely
- Modify Existing WDFW Ponds — Difficult
- Riparian Zone or Farm Field Flooding — Difficult
- New or Modified Wetlands — Possible
- Modify Existing Sediment Basins — Difficult
- Aquifer Storage (all groundwater alternatives) — Possible

"UNLIKELY" TO IMPLEMENT

The following alternatives would be unlikely to implement for the following reasons:

New Reservoirs appear unfeasible due to their high cost as well as high construction requirements and difficult permitting process. A new reservoir would require a local sponsor with funding for design studies, permitting, construction and maintenance and operation. Increasing water temperature could be an issue.

New In Channel Storage appears unfeasible due to possible aquatic habitat impacts, complicated permitting, high construction requirements and the inability to store a significant volume of water.

"DIFFICULT" TO IMPLEMENT

The following alternatives would be difficult to implement for the following reasons:

Modifying WDFW Ponds requires significant construction efforts but slighter easier permitting than new reservoirs; possible temperature and water quality problems. However the volume of water that could potentially be stored is minimal.

Modifying Existing Sediment Basins require regular maintenance and large land area; could increase filtration of sediments but has the possibility for water quality problems. Also, significant land areas and infrastructure would be required to store a significant quantity of water.

Riparian Zone or Farm Field Flooding remains a feasible option with water storage located close to the stream, but has high land and construction requirements with the possibility for flooding concerns makes this option difficult to implement. Detailed

studies would be necessary to evaluate drainage and flooding impacts.

"POSSIBLE" TO IMPLEMENT

The following alternatives would be possible to implement for the following reasons:

Wetlands may have minimal storage capacity but require little maintenance and have potential for enhancing the riparian habitat. However, the potential to store large volumes of water in a wetland is limited, unless significant investments can be made in embankments and earthwork to pond water. Additionally, storage of large volumes of water with little riparian tree shading may increase mainstem river water temperatures. It may be possible to construct a combined wetland-ground water recharge system to overcome some of these difficulties.

Aquifer Storage may also be considered an appropriate choice due to the possibilities it offers for supplementing streamflow or water supply but there are many unknowns at this time. Additional