

**Bonneville Power Administration  
Fish and Wildlife Program FY98 Watershed Proposal Form**

**Section 1. General administrative information**

**Title**    **Construct Sediment Settling Basins**

**Bonneville project number, if an ongoing project**    8051

**Business name of agency, institution or organization requesting funding**  
Roza-Sunnyside Board of Joint Control

**Business acronym (if appropriate)**    RSBOJC

**Proposal contact person or principal investigator:**

**Name**                                    James W. Trull  
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**Subcontractors.**

<b>Organization</b>	<b>Mailing Address</b>	<b>City, ST Zip</b>	<b>Contact Name</b>
CH2M Hill	3190 George Washington Way, Suite B	Richland, WA 99352	R.V. Haapala

**NPPC Program Measure Number(s) which this project addresses.**  
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**NMFS Biological Opinion Number(s) which this project addresses.**  
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**Other planning document references.**  
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**Subbasin.**  
Lower Yakima River

**Short description.**

Improve the quality of water discharged into the Yakima River from major drainage channels within the RSBOJC service area by constructing sediment settling basins.

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**Section 2. Key words**

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish		Construction		Watershed
*	Resident fish	X	O & M		Biodiversity/genetics
*	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	*	Ecosystems
	Climate		Monitoring/eval.		Flow/survival
	Other	*	Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement	X	Wildlife habitat enhancement/restoration
			Acquisitions		

**Other keywords.**

Water quality, soil erosion, fish survival, turbidity

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**Section 3. Relationships to other Bonneville projects**

Project #	Project title/description	Nature of relationship

**Section 4. Objectives, tasks and schedules**

**Objectives and tasks**

Obj 1,2,3	Objective	Task a,b,c	Task
1	Design Settling Basins	a	Develop construction drawings and specifications for three settling basins.
2	Acquire Property	a	Enter into a lease agreement for one basin.
		b	Purchase or lease property for one basin.
3	Construct Three Settling Basins	a	Select construction contractor
		b	Manage construction

4	Operation and Maintenance	a	Continue O & M into the future.

**Objective schedules and costs**

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	1/1998	3/1998	14.00%
2	1/1998	3/1998	5.00%
3	4/1998	12/1999	74.00%
4	1/1999	12/1999	7.00%
			TOTAL 100.00%

**Schedule constraints.**

Land acquisition and permits may affect implementation schedule.

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**Completion date.**

1999

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**Section 5. Budget**

***FY99 budget by line item***

Item	Note	FY98
Personnel	RSBOJC Staff	\$5,000
Fringe benefits		\$2,500
Supplies, materials, non-expendable property		
Operations & maintenance		
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Land Acquisition	\$32,500
PIT tags	# of tags:	
Travel		
Indirect costs	Office overhead	\$1,500
Subcontracts	Design & Construction of Basins	\$220,500
Other		
<b>TOTAL</b>		\$262,000

***Outyear costs***

Outyear costs	FY99	FY00	FY01	FY02
Total budget	\$150,000			

O&M as % of total				
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## Section 6. Abstract

The irrigated lands within the Roza-Sunnyside Board of Joint Control (RSBOJC) service area are drained by a network of major drainage waterways. Many of the soil types in the project are very fine textured and of excellent quality for growing crops. However, they tend to be highly erodeable. Due to their very small particle size, the eroded soil remains in suspension in the waterways ultimately making its way to the Yakima River. The proposed sediment settling basins would improve the quality of the Yakima River by removing much of the sediment from the drain water. The settling basins will require periodic cleaning as sediment accumulates.

Installation of the settling basins will be achieved through a four step program which will consist of: design, property acquisition, construction, and O & M.

With adequate funding, the program could be constructed during 1998. The water quality improvements would be achieved as soon as the settling basins are constructed. The success of the program would be measured as part of the RSBOJC water quality monitoring program. The presence of constituents such as turbidity and suspended solids in the water returning to the Yakima River are expected to diminish when the sediment settling basins are constructed.

## Section 7. Project description

### a. Technical and/or scientific background.

The water quality of the Yakima River has been evaluated by many agencies. Those studies conclude that the low flow rates and high levels of turbidity that exist at certain times of the year are detrimental to fish and wildlife. Several studies and on going data collection programs identify the major drainage waterways as significant sources of suspended sediments. The very fine texture of soil in the lower Yakima Valley that makes it premium farm land also contributes to the basin's water quality problem. The fact that the soil erodes very easily and then stays in suspension for long periods of time makes it necessary to provide basins with sufficient detention time. The technology of sediment settling basins is well proven and has been used successfully in the RSBOJC area to a limited extent for many years. The proposed settling basins would provide much more settling capacity than now exists.

Three specific sites have been identified as possible locations for the basins. The property for one of the sites is now owned by the Sunnyside Valley Irrigation District (a member agency of the RSBOJC). The property for the other two sites appears to be readily available.

### b. Proposal objectives.

It is the objective of the settling basin project to improve the quality of water returning to the Yakima River. The program represents significant improvement in water quality.

The success of the settling basin project can be monitored by expanding the agency's water quality program. Much background data has already been collected and will serve as a benchmark to measure the improvements.

**c. Rationale and significance to Regional Programs.**

The rationale behind the sediment settling basin project is very basic. Detention of the turbid drainage water will result in higher quality water being discharged to the Yakima River.

**d. Project history**

The proposed settling basin program represents an expansion of practices that have been in place on a smaller scale for many years. Financial constraints currently limit the ability of the RSBOJC to implement the settling basin program on a large scale.

**e. Methods.**

Implementation of the settling basin program will consist of: design, property acquisition, construction, and O & M. Since the sites of three significant settling basins have already been identified, the project could proceed very quickly.

The construction activities that will be required are the same as currently practiced by qualified local construction contractors. The work that will be needed to construct the sediment settling basins will be able to be completed during the irrigation season. This will allow the work to proceed during favorable weather conditions and thereby reduce costs.

There will be a need for continuing inspection and maintenance of settling basins. The RSBOJC is prepared to assume these responsibilities after the first year of operation. No continuing O & M budget is projected as part of the publicly funded project after the first year of operation (end of 1999).

**f. Facilities and equipment.**

The planning work needed to implement the sediment settling basin program is similar to the type of work regularly performed by the RSBOJC staff. It is not anticipated that it will be necessary to acquire any additional specialized equipment or facilities for the planning work. However, the design and construction management is beyond the RSBOJC's ability to staff for this short duration project. It is anticipated that a consultant will be used for these tasks. Likewise, a construction contractor will be used for the

actual construction work. The administrative workload will be able to be handled with the existing RSBOJC staff.

**g. References.**

CH2M HILL, 1975. Agricultural Return Flow Management in the State of Washington. Prepared for Washington State Department of Ecology.

Department of Ecology, 1990. Statewide Water Quality Assessment 350 (B) Report, State of Washington.

USGS, 1976. Sediment Transport by Irrigation Return Flows in the Lower Yakima River Basin, Washington. Open File Report 78-946.

## **Section 8. Relationships to other projects**

The sediment settling pond program is related to efforts currently underway and proposed to improve the quality of water in the lower reaches of the Yakima River. This project very specifically links to and depends upon the RSBOJC water quality monitoring program. It is also closely tied to the waterway buffer strip improvement program. The water quality improvements that will result will be complementary to the programs done by others in the Yakima Basin.

## **Section 9. Key personnel**

The work will be managed by RSBOJC staff. A consultant will be retained to complete the design and construction management tasks. The construction will be done by a contractor specializing in this type of work. Operation and maintenance work will be done by RSBOJC staff.

## **Section 10. Information/technology transfer**

The project is expected to serve as a demonstration of the benefits that can be achieved by managing the quality of water that returns to irrigation and drainage waterways by using adequately sized and maintained settling basins. This concept could be applied to many other irrigation and drainage projects.