

MINUTE ITEM

This Calendar Item No. C32 was approved as Minute Item No. 32 by the California State Lands Commission by a vote of 3 to 0 at its 6-14-99 meeting.

**CALENDAR ITEM
C32**

A 25
S 12

06/14/99
PRC 7738.9 WP 7738.9
D. Jones

GENERAL LEASE - PUBLIC AGENCY PERMIT

LESSEE:

California Department of Fish and Game
Region 4
1234 East Shaw Avenue
Fresno, California 93710

AREA, LAND TYPE, AND LOCATION:

Sovereign lands in the Tuolumne River, downstream of the Old La Grange Bridge at River Mile 50.1 to 50.3 (APN 008-24-69), near the town of La Grange, Stanislaus County.

AUTHORIZED USE:

Addition of 11,000 tons (7,333 cubic yards) of clean, sized river run gravels (1/8 inch to 6 inch) into the Tuolumne River to improve spawning habitat and salmonid productivity.

LEASE TERM:

Twenty years, beginning June 14, 1999.

CONSIDERATION:

The public use and benefit; with the State reserving the right at any time to set a monetary rent if the Commission finds such action to be in the State's best interest.

OTHER PERTINENT INFORMATION:

1. Applicant has a right to use the uplands adjoining the lease premises.
2. A Mitigated Negative Declaration (SCH 99042070) and Mitigation Monitoring Program were prepared and adopted for this project by the California Department of Fish and Game. The California State Lands Commission's staff has reviewed such document.

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3. This activity involves lands identified as possessing significant environmental values pursuant to Public Resources Code sections 6370, et seq. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

APPROVALS OBTAINED:

United States Army Corps of Engineers, State Reclamation Board, California Department of Fish and Game, Regional Water Quality Control Board, and the County of Stanislaus.

EXHIBITS:

- A. Site Plan
- B. Location Map
- C. Mitigation Monitoring Program

PERMIT STREAMLINING ACT DEADLINE:

November 12, 1999

RECOMMENDED ACTION:

IT IS RECOMMENDED THAT THE COMMISSION:

CEQA FINDING:

FIND THAT A MITIGATED NEGATIVE DECLARATION (SCH 99042070) WAS PREPARED AND ADOPTED FOR THIS PROJECT BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.

ADOPT THE MITIGATION MONITORING PROGRAM, AS CONTAINED IN EXHIBIT C, ATTACHED HERETO.

SIGNIFICANT LANDS INVENTORY FINDING:

FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED BY THE COMMISSION FOR THE LAND PURSUANT TO PUBLIC RESOURCES CODE SECTIONS 6370, ET SEQ.

CALENDAR ITEM NO. C32 (CONT'D)

AUTHORIZATION:

AUTHORIZE ISSUANCE TO THE CALIFORNIA DEPARTMENT OF FISH AND GAME OF A GENERAL LEASE - PUBLIC AGENCY USE, BEGINNING JUNE 14, 1999, FOR A TERM OF TWENTY YEARS, FOR RESTORATION OF SALMON SPAWNING HABITAT FOR CHINOOK SALMON ON THE LAND SHOWN ON EXHIBIT A ATTACHED AND BY THIS REFERENCE MADE A PART HEREOF; IN CONSIDERATION OF THE PUBLIC USE AND BENEFIT, WITH THE STATE RESERVING THE RIGHT AT ANY TIME TO SET A MONETARY RENT IF THE COMMISSION FINDS SUCH ACTION TO BE IN THE STATE'S BEST INTEREST.

Figure 1. Location of transects for the La Grange Gravel Addition Project

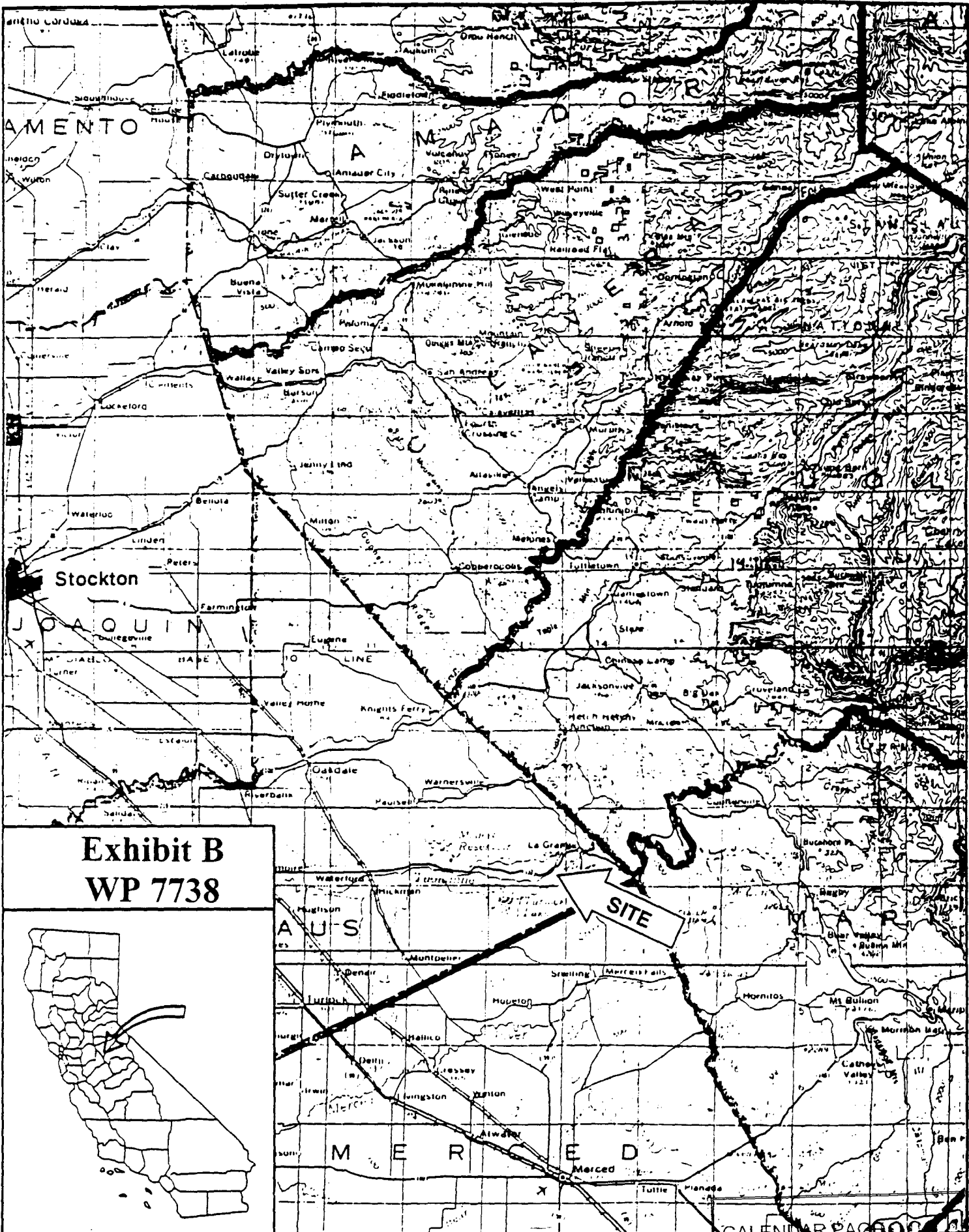


This exhibit is solely for purposes of generally defining the area to be leased, and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or other property.

Exhibit A

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**Exhibit B
WP 7738**



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La Grange Gravel Addition Monitoring Plan
completed by
Department of Fish and Game
and
Department of Water Resources

Background:

Beginning in the mid 1800's and continuing today, dams on the Tuolumne River have blocked coarse sediment (gravels and cobbles) originating from the upper watershed from supplying the lower river. These gravels and cobbles form the channel. Removing the upstream coarse sediment supply forces the river to obtain its supply from the bed itself, resulting in bed degradation, bed coarsening and loss of alluvial deposits within the low water channel. Ultimately, salmon production has been negatively impacted by reduced quantity and quality of spawning and rearing habitat, and increased riparian fossilization of remaining alluvial deposits.

This project is the first phase of a two phase gravel management plan as recommended in the Tuolumne River Corridor Habitat Restoration Plan. Phase 1 is a coarse sediment "infusion" to immediately increase coarse sediment storage (riffles and bars) within the spawning reach of the Tuolumne River, and Phase 2 is long-term coarse sediment introduction at a rate equal to fluvial transport to maintain the instream coarse sediment storage provided in Phase 1.

Objectives:

The primary goal of this project (Phase 1) is:

- to improve the quality and quantity of chinook salmon spawning habitat of the Tuolumne River in the upper portion of the designated salmon spawning area.

Additional objectives of the Phase 1 coarse sediment introduction program are:

- to increase instream storage of spawning sized gravels.
- to encourage marginal fluvial transport of these gravels for replenishing downstream alluvial deposits and channel formation, ultimately improving downstream chinook salmon spawning and rearing habitat.
- to improving chinook salmon productivity by increasing the quality and quantity of the physical habitat.
- to utilize the project as an indicator of instream gravel movement and subsequent gravel additions in this reach.

Our proposed monitoring plan uses the following methods to determine if project objectives are being met:

- Cross sections and longitudinal profile surveys to document pre-project topography and as-built topography (quantify increase in alluvial storage).
- Cross sections and longitudinal profile surveys immediately after threshold (bed mobility) high flow events to document decreases in alluvial storage and provide data for Phase 2 coarse

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sediment introduction needs.

- **Tracer gravel experiments at the project site and nearby control site to document the flow threshold that begins to mobilize introduced coarse sediment and would initiate updated cross section and long profile surveys.**
- **Bulk sampling immediately after project implementation to determine as-built gravel quality at project site and nearby control site.**
- **Bulk sampling immediately after threshold events at project site and nearby control site to track changes in gravel quality.**

We hypothesize that the project will increase salmon spawning habitat, hopefully resulting in increased salmon productivity. The project will also improve the ability of the Tuolumne River to adjust itself (increased coarse sediment supply). The former can be tested by cross sectional surveys, bulk sampling and redd surveys of the project area. The latter can be tested by comparing bed mobility thresholds (tracer gravels) and monitoring channel adjustment at the project site and control site during discrete high flow events that exceed bed mobility thresholds. This monitoring should also dovetail into Phase 2 gravel introduction efforts that will attempt to introduce coarse sediment at a rate equal to transport. For example, if monitoring documents that instream storage of coarse sediment decreases, then the additional coarse sediment introduction volume would need to be increased accordingly. Details of monitoring are described below.

Monitoring and Evaluation:

Four physical monitoring techniques will be used:

- **Cross sections surveys:** Two (2) cross sectional surveys, one at the upper end and the other at the lower end of the gravel introduction site, will be taken before spawning gravel is added to the site. These surveys will determine baseline conditions. In addition, project personnel will take 3 cross sectional surveys at appropriate control sites downstream and 1 cross sectional survey upstream. The cross sectional surveys will measure elevation of the river bed at interval of every 5 feet or at every elevation change, whichever is shorter. Bed slope and a longitudinal profile of the reach will be derived from these surveys. Figure 1 shows the location of these 6 transects. This information will provide the pertinent baseline hydrological information necessary to adequately answer the monitoring objectives. These surveys will also provide enough information to provide flow modeling of the reach. Flow modeling is expected to be necessary for several permitting agencies. Subsequent cross sectional surveys taken at these same places immediately after gravel placement and the 1st and 2nd years after project construction would document changes in morphology (overall gain or loss of gravel storage) at the introduction site. Table 1 summarizes when cross sectional surveys (and other monitoring methods) will be taken. Spatial differences in morphological adjustment would be evaluated by comparing trends in cross sections in the downstream direction (e.g., are upstream reaches degrading and downstream reaches aggrading with gravel). Cross sections would be the primary technique to evaluate changes in the site's gravel storage year to year.

- **Pebble counts:** Systematic surficial pebble counts will be taken in conjunction with some cross sectional surveys. The counts will be taken and analyzed as described in Wolman, 1954. These counts will be completed across the entire cross sectional survey whenever possible; however, water depth may physically prohibit personnel from completing this task. In cases where this

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happens, pebble counts across suitable portions of the cross section will be completed. Exact locations of these pebble counts will be established and used for subsequent monitoring.

- Bulk Samples: Three to five hundred pounds of surface and subsurface bulk sediment samples will be collected at specific locations along the surveyed cross sections by (digging) at the project site and control site. These bulk samples will be separated into various sizes by sieves and analyzed using standard protocols. The bulk sampling will be completed at locations and times indicated on Table 1. Bulk sampling in June 2000 and June 2001 will be completed only if bed mobilization thresholds have been exceeded and/or visual observation suggests that fine sediment transport and sedimentation of newly placed gravels has occurred. Bulk samples will be taken as described in the 1994 Department of Water Resources Report, "San Joaquin River tributaries spawning gravel assessment: Stanislaus, Tuolumne, Merced rivers"

- Tracer gravels: Tracer gravels (painted gravels) would be placed in gravel introduction deposits to document bed mobility thresholds and travel distance during high flow events. This technique would document when the bed surface particles begin mobilizing, which would trigger repeat cross section surveys, longitudinal profile surveys, and bulk sampling. If large movement of gravel is noted, tracer gravels may be placed at transects 4 and 5 in June 2000 and monitored.

Independent of this project, the Tuolumne River Technical Advisory Committee (TRTAC) is preparing a comprehensive monitoring plan for the Tuolumne River, containing a restoration project-specific component and river-wide component. CDFG is part of this planning and every effort will be made to make this monitoring plan compatible with that being prepared by the TRTAC.

Other monitoring projects, completed by other agencies or consultants, have and will continue to take reference cross sectional surveys on the Tuolumne River. This information may be available to supplement the monitoring of the La Grange Gravel Addition Project. Utilizing monitoring information specific to this gravel introduction project and supplemental monitoring information from other TRTAC project would provide an estimate of gravel transport as a function of discharge. This information would also be used to help quantify the volume and location of gravel for the Phase 2 gravel introduced into this reach of the Tuolumne River.

Biological Monitoring:

Biological monitoring of the annual fall-run chinook salmon escapement is currently the responsibility of DFG's Region 4 personnel. DFG is required under FERC License 2299 to annually estimate and monitor the adult chinook salmon escapement in the Tuolumne River.

Data currently gathered includes:

- A mark/recapture study to estimate population size, fish lengths, sex and temporal/spacial distribution of the spawning run.
- Scale and otolith sampling to age fish.
- Recovery of coded wire tagged salmon and evaluation of hatchery contributions.
- Estimation of the number and temporal distribution of redds per each riffle.

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These escapement surveys are anticipated to continue. The data collected would be utilized to evaluate the biological changes associated with the La Grange Gravel Addition Project.

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Table 1. La Grange Gravel Addition Monitoring Schedule

Sample Date	X-Section Location	Sampling Method			
		X-Sectional Survey	Pebble Count	Bulk Sample	Tracer Gravel
Baseline	1	yes	yes		
	2	yes	yes		
	3	yes	yes		
	4	yes	yes	yes	
	5	yes	yes	yes	
	6	yes	yes	yes	
As Built	1				
	2	yes		import material	placed
	3	yes		import material	placed
	4				
	5				
	6				
June 2000*	1	yes**			
	2	yes			replaced/checked
	3	yes			replaced/checked
	4	yes	yes	yes**	placed**
	5	yes	yes	yes**	placed**
	6	yes		yes**	
June 2001*	1	yes**	yes**		
	2	yes	yes**		checked
	3	yes	yes**		checked
	4	yes	yes	yes**	checked**
	5	yes	yes	yes**	checked**
	6	yes	yes**	yes**	

* Completed immediately after high flows mobilize imported gravels if possible but not later than June 2000-01.

** Completed if tracer gravel moved or if evaluation indicates this monitoring would prove beneficial.

Contents of Biological/Ecological Monitoring Plan / Quality Assurance Program Plan
La Grange Gravel Addition Project

The project is scheduled to be built in August 1999. It was developed to be a physical habitat improvement project with succinct monitoring parameters.

We hypothesize that the project will increase salmon spawning habitat, hopefully resulting in increased salmon productivity. The project will also improve the ability of the Tuolumne River to adjust itself (increased coarse sediment supply). The former can be tested by cross sectional surveys, bulk sampling and redd surveys of the project area. The latter can be tested by comparing bed mobility thresholds (tracer gravels) and monitoring channel adjustment at the project site and control site during discrete high flow events that exceed bed mobility thresholds. This monitoring should also dovetail into Phase 2 gravel introduction efforts that will attempt to introduce coarse sediment at a rate equal to transport. For example, if monitoring documents that instream storage of coarse sediment decreases, then the additional coarse sediment introduction volume would need to be increased accordingly. The objectives of the La Grange Gravel Addition Project are as follows.

Objectives:

The primary goal of this project is:

- to improve the quality and quantity of chinook salmon spawning habitat of the Tuolumne River in the upper portion of the designated salmon spawning area.

Hypothesis: Spawning activity at the project site will be greater after gravel introduction than before gravel introduction.

Monitoring: Number of redds, number of live fish and number of dead fish will be observed during DFG's annual fall run chinook salmon spawning survey (weekly during October to December).

Data evaluation: Relative numbers of the above will be compared to historical data with the same parameters (post- vs. pre- project conditions).

Monitoring: Cross sectional and longitudinal profile surveys at transects 2, 3, 4 and 5. Pebble counts and bulk sampling at these transects.

Data evaluation: Comparison of baseline conditions with conditions 1 and 2 years later (pre- vs. post project conditions).

Hypothesis: Instream storage of spawning gravel will be greater after project completion, than before gravel introduction.

Monitoring: Cross sectional and longitudinal profile surveys at transects 2 and 3.

Data evaluation: Comparison of baseline conditions with as-built conditions (pre- vs. post

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project conditions).

Hypothesis: Increased instream storage of spawning sized gravel will be transported downstream and improve salmon spawning habitat downstream.

Monitoring: Cross sectional and longitudinal profile surveys at transects 2, 3, 4 and 5.
Pebble counts and bulk sampling at these transects.

Data evaluation: Comparison of baseline conditions with conditions 1 and 2 years later (pre- vs. post project conditions).

Hypothesis: Fifty percent (50 %) of the introduced gravels will be moved downstream at flows of 5,500 cfs (bank full discharge).

Monitoring: Cross sectional and longitudinal profile surveys at transects 2, 3, 4 and 5.
Pebble counts and bulk sampling at these transects. Tracer gravel observations.

Data evaluation: Comparison of baseline conditions with conditions after flows of 5,500 cfs.

Reports:

Preliminary Report: August 1, 2000. Summation of the monitoring data collect to July,1 2000.

Final Report: January 1, 2001. Discussion of report will include the following.

1. Pre-project topography.
2. As built topography.
3. Changes to alluvial storage at all transects.
4. Changes to gravel quality at all transects.
5. Recommendations fore future gravel additions in this reach.

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