FY2006 Project Completion Report

May, 2006 – December 31, 2006

Mahogany Creek Culvert Replacement Project

Contract #: 27255
BPA Project #: 1992-026-01

BY

Nez Perce Tribe Department of Fisheries Resource Management - Watershed Division

Mr. Richard L. Christian, Project Area Manager
612 SW 2nd Street
Enterprise, OR 97828
(541) 426-3198 Ext. 3

Submitted to

Grande Ronde Model Watershed Program
And
Bonneville Power Administration

January 8, 2007

Table of Contents

List of Figures

List of Tables

ABSTRACT

This is project completion report that covers activities under the Grande Ronde Model Watershed/Bonneville Power Administration contract No. 27255, entitled ***Mahogany Creek Culvert Replacement Project*.** Prior to the completion of this project, the culvert had an outlet drop of about 2 feet, which is considered to be a barrier to all life history stages of all species. The main objective of this project was to replace this structure with a culvert that allows passage for all life history stages of all aquatic species. An open-bottom arch culvert was used in the replacement. The channel was reconstructed through the newly installed culvert utilizing natural channel simulation techniques. This project re-opened 3.5 miles of habitat upstream of the structure.

INTRODUCTION

The culvert, located on Mahogany Creek, which is located within the Imnaha Subbasin (See Figures 1 & 2), was a total migration barrier to adult and juvenile anadromous salmonids. This culvert is located approximately 150 feet from the mainstem of the Imnaha River. The old culvert blocked at least 3.5 miles of steelhead spawning and rearing habitat and up to 3.5 miles of Chinook and, potentially, Bull Trout rearing habitat. The culvert that was replaced was a 6 feet, circular structure, with an outlet drop of approximately 2 feet. This was approximately half of the actual bankfull stream width. In addition, fill was eroding at the ends of the culvert causing sediment to wash into the stream. The inadequate width and relatively steep culvert gradient was exacerbated during the extreme flood event that occurred in January, 1997. This situation resulted from down cutting that occurred at the outlet of the structure during that high flow event.

One of the major issues that had been repeatedly discussed was the "flashy" nature of this particular stream. The one hundred year flow calculations that the Wallowa Mountains Zone Hydrologist (Dana Orrick, Forest Service, Unpublished Data, November 17, 2004) calculated for this stream was 174 cfs. With a 20% allowance of error, the 100 flow would be 209 cfs. This would indicate that a culvert width of 12 feet, with a rise of 5 feet, would be adequate for this site with one foot of freeboard (Brett Moore, Anderson, Perry and Assoc, Pers. Comm., 2005). However, this width would not fully allow for natural channel simulation. This fact coupled with the nature of the system led to the decision to pursue replacing the old structure with a fifteen feet wide by fifty feet long open-bottom arch culvert. In addition, the length of the new structure will accommodate a road width of twenty feet, which is required in order for Wallowa County to assume the maintenance of this road. The county currently has a signed agreement in place to assume maintenance responsibilities of this road at such a time that the road meets county road specifications (a twenty foot wide road surface width).

For several years, numerous agencies, other than the Nez Perce Tribe, have had the desire to replace this known fish passage barrier (Ken Bronec, Forest Service, Pers. Comm., 2004; Brad Smith, ODFW, Pers. Comm., 2005; Gretchen Sausen, USFWS, Pers. Comm. 2005). Furthermore, it has been stated that this culvert is the highest priority culvert replacement in Wallowa County (Ken Bronec, Forest Service, Pers. Comm., 2005). The

intent of this project was to replace one culvert currently acting as a fish migration barrier with a structure that allows up- and down-stream passage to all aquatic species. The culvert was replaced with an Open-bottom arch culvert of sufficient capacity to handle a 100-year flood event, installed to simulate natural channel conditions.

The main objectives of this project were:

- Allow passage to all aquatic species ;
- Increase habitat complexity in this area by re-opening more complex habitat areas;
- Increase access to refugia areas during high and low flow events;
- Decrease erosion from the road; and,
- Provide educational opportunities to local high school students.

Figure 1. Project Vicinity Map.

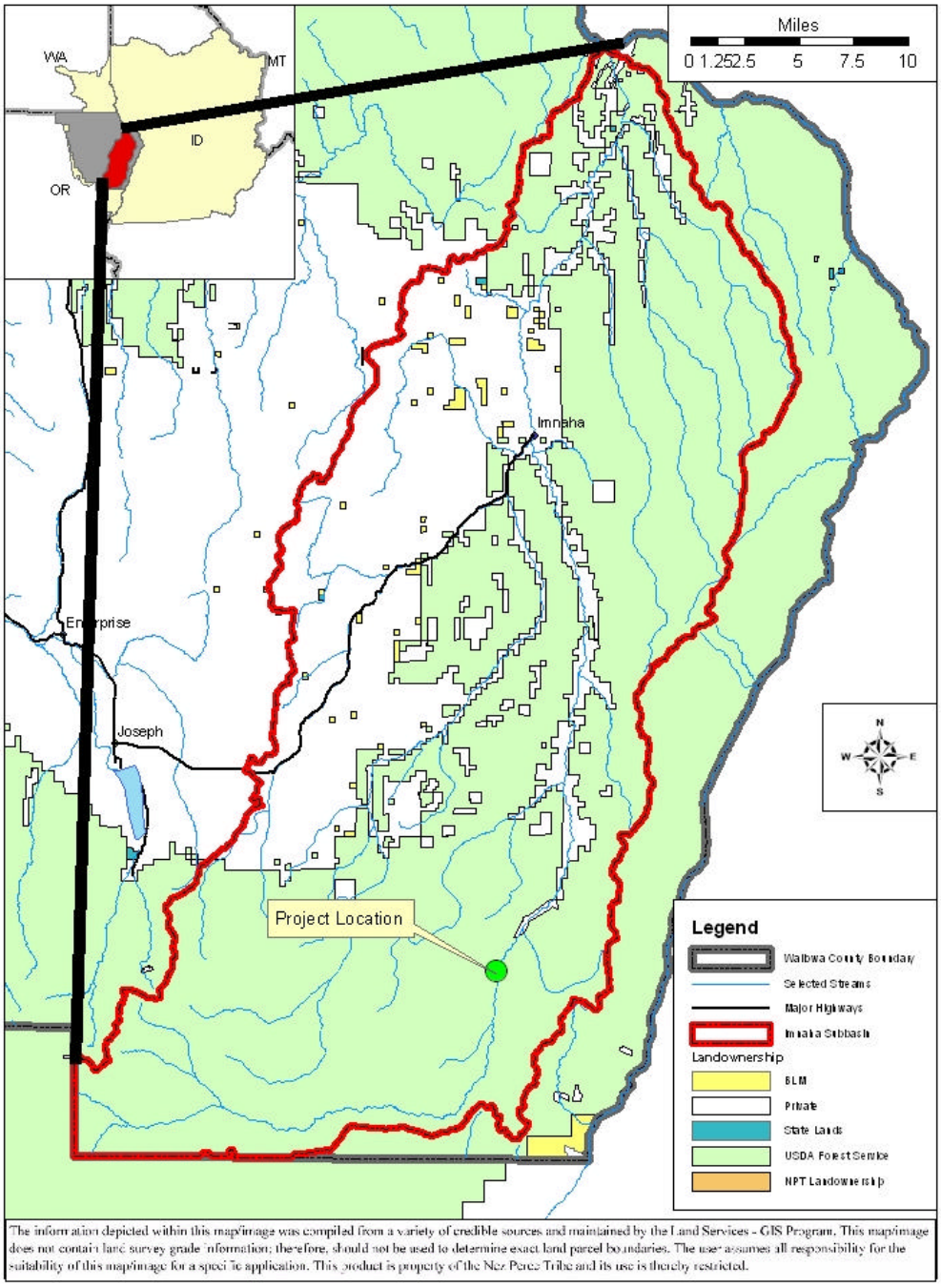
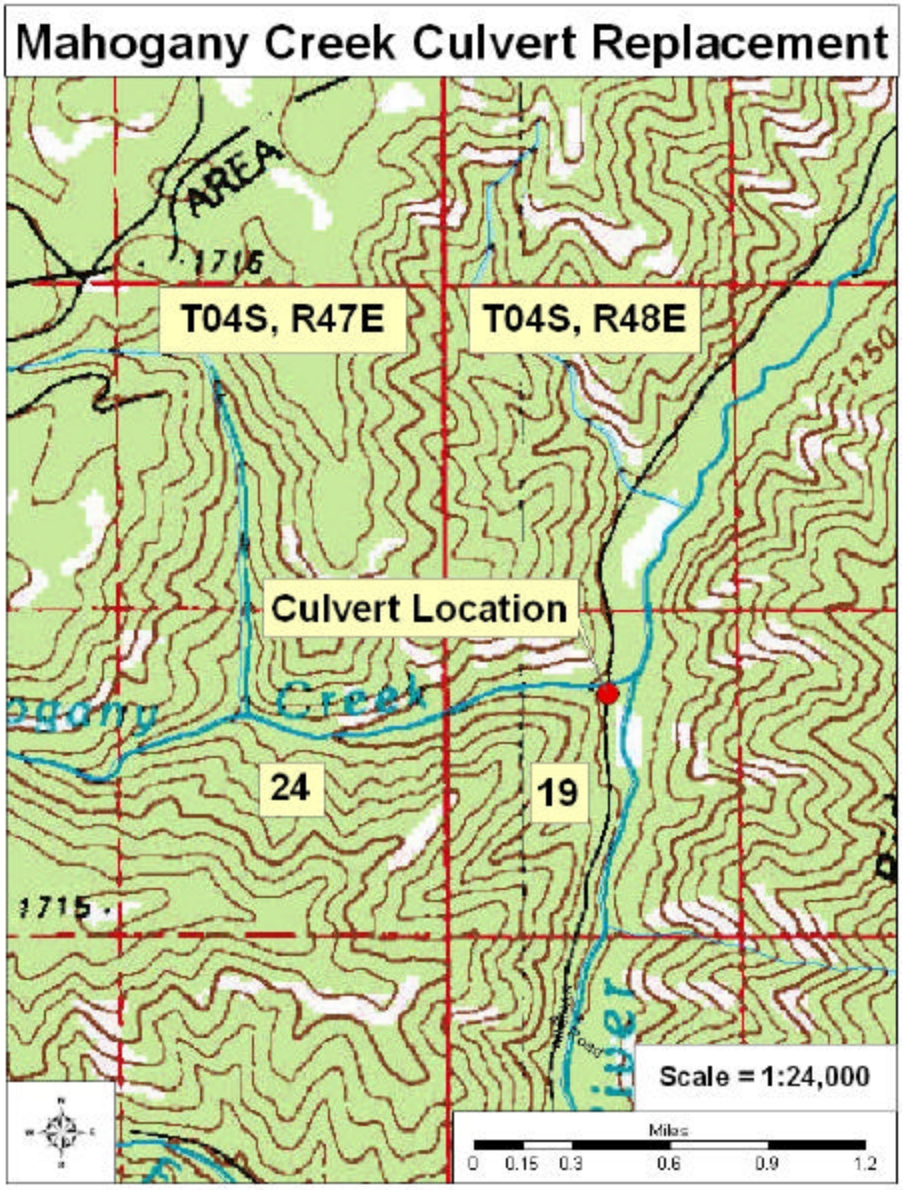


Figure 2. Topographic map showing the project location.



METHODS

Prior to removal of the existing culvert, there will be a bypass road created to accommodate high clearance vehicles and a fish salvage operation will be conducted. This was deemed necessary because the construction period (during the state instream work window) occurs during the fire season is this area. Further, the road is one of only two routes out of the area for the people that live down the Imnaha River from the confluence of Mahogany Creek. The fish salvage portion of the project will be coordinated with the Oregon Department of Fish and Wildlife, NOAA Fisheries, the US Fish and Wildlife Service and Forest Service personnel.

The specific tasks that will be necessary to complete for this project are outlined below. As previously stated, this circular culvert will be replaced with an open-bottom arch structure that simulates natural channel conditions. The new structure was designed to handle a 100-year flood event, with additional width to allow for a semblance of a floodplain within the culvert. There will be two step pools created within the length of the newly installed culvert to match the sequence found within the adjacent stream channel (see Longitudinal Survey, attached). These step pool structures will be across the bankfull width, but approximately 5 feet long longitudinally. This lengthening of the steps will allow for passage of all aquatic species by providing interstitial resting spaces between the substrate.

Additionally, the channel will be totally excavated down to a level 0.5 feet below the bottom of the concrete footings. This excavation will allow for the placement of the large rock (2-3 feet in diameter) to prevent scour. These large boulders will be line the channel and be strategically placed along the edge of the footings (footer rocks). Natural channel simulation material will be placed around the large boulders, washed and compacted into place. This material will fill in an area to the top of the footings. At that time, the 2 foot rock will be placed on top of the footer rocks and overlap the footings. This will provide additional scour protection. Additionally, the steps will be finished at this point by placing the 2 foot diameter rocks in the appropriate positions. The critical component of placing the rocks for the steps will be to insure that they are not in a perfect line perpendicular to the flow. Placing these rocks and adding rocks of varying sizes to these structures will ensure passage for all organisms.

After the culvert is bolted into place, some of the 2 foot boulders will have to be moved manually to a position against the inside walls of the culvert. When all of the large boulders are in place, an additional and final layer of natural channel simulation rock will be placed over all of the boulders, including the steps. At this time, the natural channel simulation material will have to be moved by hand onto the newly created banks within the culvert. The intent is to create a channel with banks that simulates the natural channel of this stream. This layer will also need to be washed and compacted into place to insure a good seal on the stream bed. The goal of placing this natural channel material on the banks and against the inside wall of the

culvert is to match the natural channel's cross sectional profile and create a bankfull floodplain within the structure.

After construction is completed, volunteers that are already committed to the project will help reclaim the construction site. Some of these volunteers will also be utilized as part of the monitoring effort.

Specific Actions

Task 1: Obtain Permits- USDA-Forest Service will obtain all permits prior to implementation;

Task 2: Prepare and let contract- USDA-Forest Service will be responsible for this, prior to implementation;

Task 3: Install Temporary Vehicle Bypass- this will be done via a contract and will occur from 15 July to 15 August, 2006;

Task 4: Coordinate a fish salvage operation prior to dewatering the stream;

Task 5: Remove and Replace culvert- this will be done via a contract and will occur from 15 July to 15 August, 2006;

Task 6: Re-establish Vegetation/Site Reclamation- 0.5 acres will need to be reclaimed, using approximately 100 plants and 7 pounds of native grass seed;

Task 7: Monitor effectiveness and noxious weeds- data will be collected for project effectiveness and invasive species one time per year for 3 years. The monitoring elements are outlined in more detail in the Monitoring Plan (attachment).

Task 8: Immediately following the completion of the project, a Completion Report will be written and submitted.

RESULTS AND PROJECT DESCRIPTION

Tasks 1-5 are complete at this time. The "As Built" survey was completed on this project on August 30, 2006, to begin the effectiveness monitoring portion of the project. The original longitudinal profile is shown in Figure 2, below, while the results of the "As Built" survey are shown in Figure 3. The newly installed culvert is depicted by the rectangle in this figure. The results of the Wolman Pebble Counts are also displayed in Figures 4-5 below. The timeline shown in Figure 6, below, outlines the major activities of this project. The items shown in blue have already occurred, while the items in green are pending as of the date of this report. Once the contractor was able to start the project, it went very smoothly and ahead of schedule.

Figure 3. Original longitudinal profile for Mahogany Creek.

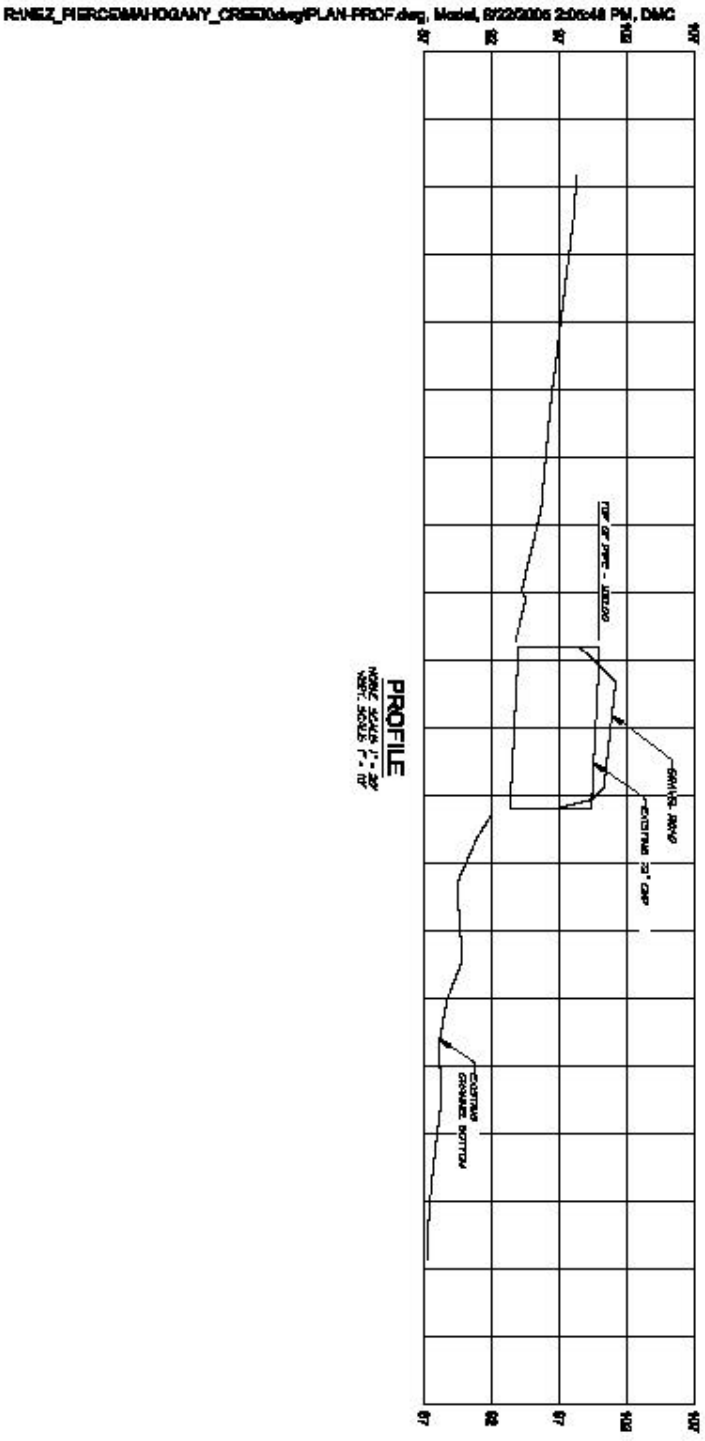


Figure 4. As Built longitudinal survey results from Mahogany Creek.

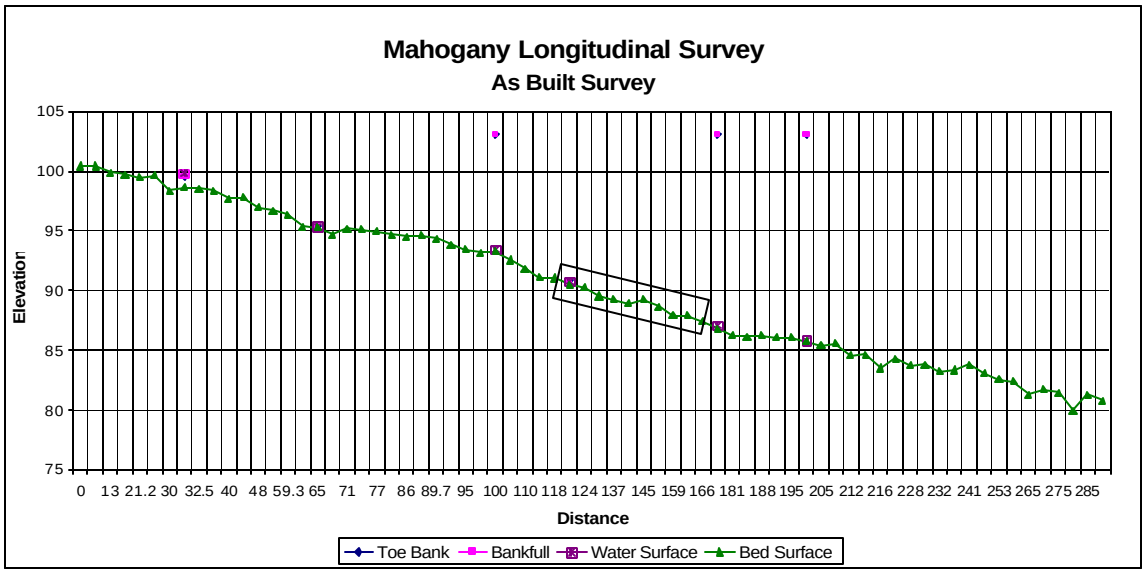


Figure 5. Pebble Count data collected prior to construction.

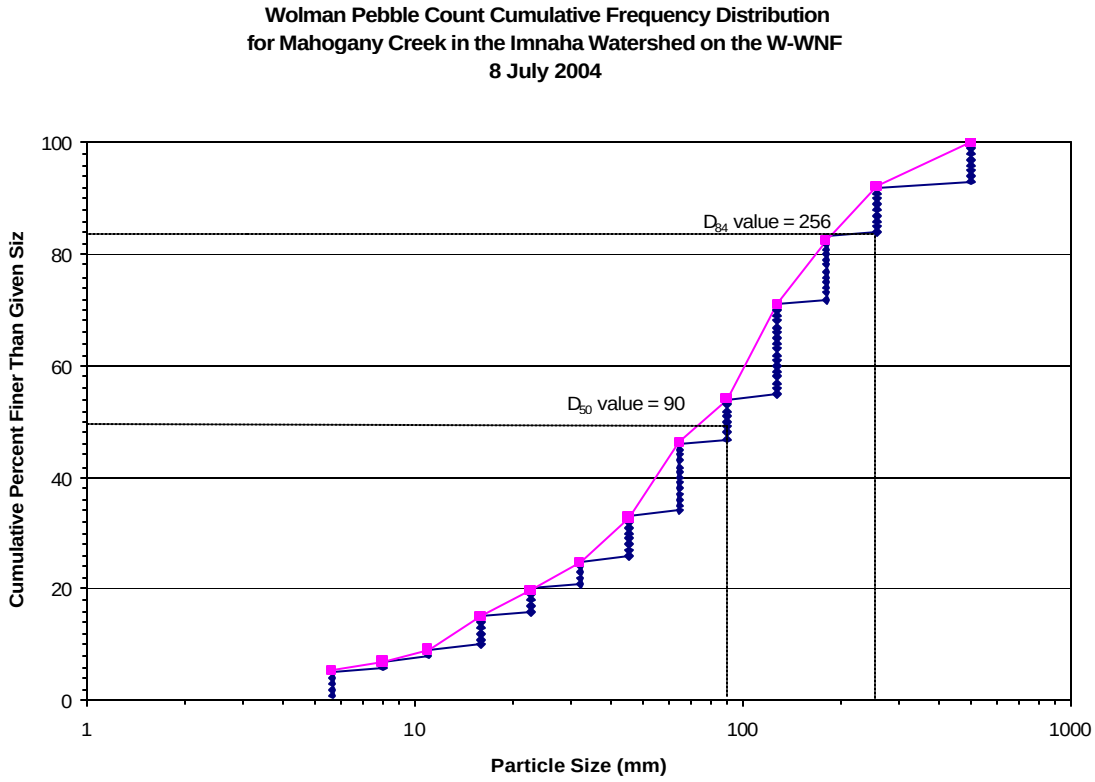
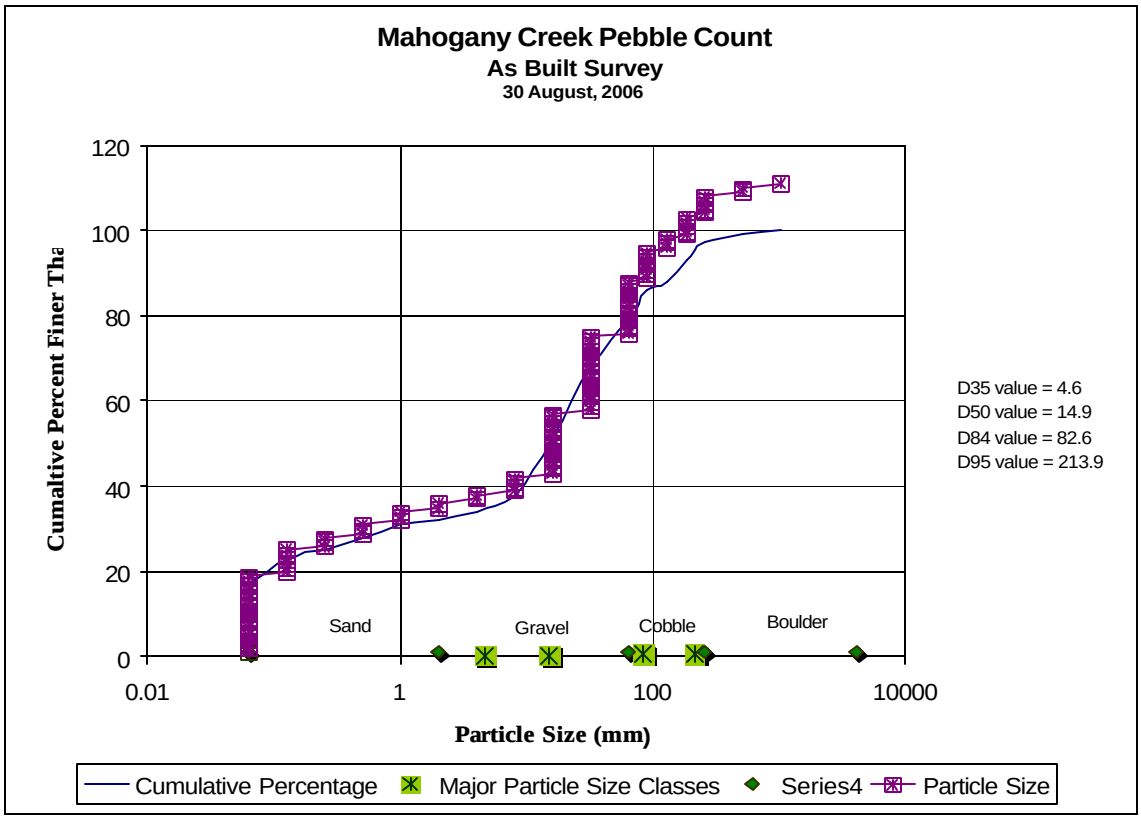
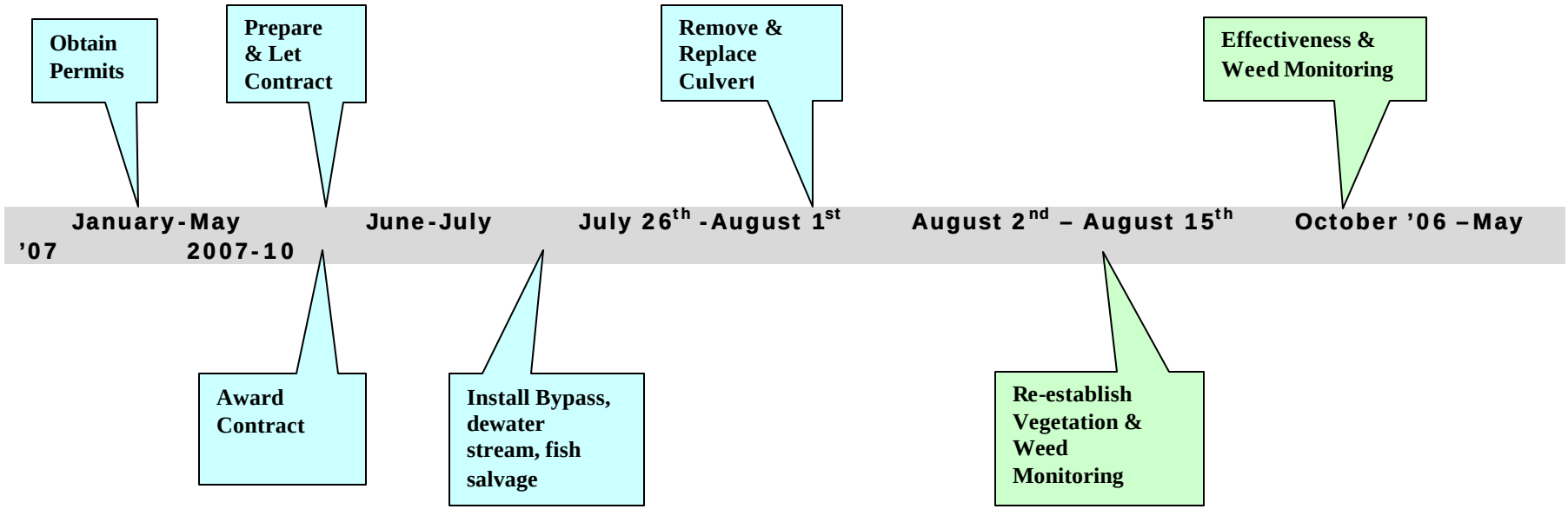


Figure 6. Pebble count data collected inside the newly installed culvert.



The USDA- Forest Service obtained the necessary permits from the US Army Corps of Engineers and Oregon Division of State Lands. The contract was written and administered by the Nez Perce Tribe in coordination with the Forest Service. The Nez Perce Tribe and Forest Service shared the responsibility of quality assurance and control. This was accomplished mainly through representatives from both agencies being on site during almost every day of the entire construction phase of this project. In addition, various measurements were taken throughout the project and any potential concerns were addressed to the contractor at that time with immediate remediation.

Figure 7. Project timeline for major activities.



Specifically, the bypass road was created and removed, the fish salvage operation took place on August 29, 2006, the stream was dewatered, the old culvert was removed, the new channel was constructed and the new culvert was installed (see the serious of photographs contained in Appendix B). The fish salvage operation was coordinated with all of the agencies listed in the Methods section of this document. There were sixty-two *Onchorhynchus mykiss* and twenty-four tailed frog tadpoles (*Ascaphus truei*) salvaged from the construction area. Of those, two of the tailed frog tadpoles and two of the *O. mykiss* were from above the old culvert. The rest were found downstream in an area approximately 100 feet long.

The channel was dewatered using a pumping system. There were two pumps on site. One pump was used to send fresh water to the undisturbed section of stream below the project site, which is shown in the first photograph. This was done to maintain enough flow in the stream below the project work area to sustain the aquatic life that was present in that section, which was not electroshocked to remove these species. The other pump was used to pump the sediment laden water onto the forest floor, shown in the second photograph to the right of this text. This "dirty" water was allowed to filter through the forest floor. Careful attention was needed to insure that this water did not return to the stream.

The channel was excavated to 0.5 feet below the bottom of the footings. Then at least 0.5 feet of fine gravel was placed and compacted as a surface for the culvert footings. This was done to provide a solid foundation for the culvert footings. The footings were then carefully positioned on the compacted fine gravel, which is shown in the photograph here. After they were all in place, they were re-aligned to ensure that the trough for the culvert was in exactly the right position.

Then, the large boulders were placed within the channel and up to the inside edge of the footings, as per the designs. This photograph shows the latter part of this process.

The two step pools were created about 15 feet upstream of the outlet and 18 feet downstream of the inlet of the new pipe. The step shown in this picture is the upstream grade control feature. These steps were created in the manner described in the Methods section above. This was done in two stages. The first stage was to lay the footer rocks for each step, which was covered with the natural channel simulation material. The second stage will be described in the following paragraph. In addition, these steps were completely covered with natural channel simulation materials.

Natural channel simulation material was then placed around the large boulders, washed and compacted into place, which is depicted in the following two pictures. This material filled the entire width between the culvert footings to a level of the top of the footings. The washing and compacting of this material was essential in sealing the channel bottom.

At that time, the 2 foot rock was placed on top of the footer rocks and overlapped the footings. This provided additional scour protection and created the stabilization of the banks within the structure. This is shown in the photograph on the right. Additionally, the steps were finished at this point by placing the 2 foot diameter rocks in the appropriate positions, which is shown in the picture on the left. The steps were approximately 6 feet long along the longitudinal stream axis. The critical component of placing the rocks for the steps was to insure that they are not in a perfect line perpendicular to the flow, as well as maintaining the desired drop height at each step.

The top layer of natural channel simulation material was then mounded up in the section of stream between the culvert footings, which is shown in the adjacent picture to the right. The culvert was then bolted together and grouted in place (see also photograph below and serious of photographs contained in Appendix B). The following day, the process of backfilling against the outside of the culvert was started. This was an iterative process of placing fill and compacting the material into place to create the new road over the structure. At the same time this process was occurring, the mounded natural channel simulation material was placed against the inside wall of the culvert on either side. This step was done by hand to create the banks within the culvert and a bankfull floodplain within the structure. This was the phase of the project where the new stream channel cross section took shape. This layer was also washed and compacted into place to insure a good seal of the stream bed.

At this time, the new channel was washed until the water was contained no more fine sediment, shown in the photograph to the left. This picture shows the water right after some of it was allowed to flow back into the newly created channel, and thus, it still

contains a lot of fine sediment. After the water was running clear through the newly constructed channel, the bypass pumps were shut off completely, allowing all of the water in the stream to flow through the construction site. At this time, the erosion control dam that was constructed downstream of the work area was removed.

Immediately following the completion of the construction of this project, seventy-five willow plantings that were salvaged from on site were planted along the newly constructed section of the channel, which is shown in the picture on the right. These are the only shrub or tree plantings that will occur this fall. The hydro-mulching and grass seeding of all disturbed areas will occur after October 15, 2006. These portions are also the responsibility of the contractor. A native grass seed mixture that is suitable to this site will be obtained from the Forest Service.

The project effectiveness monitoring was already started in the form of an "As Built" survey. This survey consisted of taking a longitudinal profile, cross sections, Wolman Pebble counts and numerous photographs. The survey was extended for 290 feet through the construction site and including a significant portion of undisturbed stream above and below the construction area. This will be used to monitor changes over time. The intent is to capture at least one relatively major high flow event (at least a five year event) within the monitoring period of this structure. This will ultimately yield the most useful information about the stability of the structure over time.

One of the objectives of this project was to couple this restoration effort with an educational component. This process has already begun. In addition to involving local school students with the site reclamation, a college class from Whitman College in Walla Walla, Washington toured the site on August 30, 2006. This class was part of the "Semester in the West" environmental studies course. More information regarding

this semester-long course and including their visit of this project work site can be found at www.semesterinthewest.org.

Next spring, volunteers that are already committed to the project will help reclaim the construction site by planting trees, shrubs and forbs. Some of these volunteers will also be utilized as part of the monitoring effort into the future.

The following is a summary of the accomplishments of this project to date:

- Re-opened 3.5 miles of habitat;
- Reconstructed 114 feet of channel;
- Planted 75 willow cuttings; and,
- Site tour with 21 students from Whitman College.

PROJECT PARTICIPANTS

There were numerous participants that were involved with this project throughout its development. The amount of coordination involved with the completion of this project was enormous. Some of the partners that provided valued input into the formulation of this project included the following: the Wallowa County Natural Resource Advisory Committee; Coby Menton (Grande Ronde Model Watershed Program); Anderson, Perry and Associates; the Oregon Department of Fish and Wildlife; the Wallowa County Road Department; the Wallowa County Weed Board; and many, many personnel from the Forest Service. Some of the Forest Service personnel that were instrumental in project development and implementation include Randy Nielson (Supervisor's Office Engineer), Dana Orrick (North Zone Hydrologist), Ken Bronec and Alan Miller (North Zone Fisheries Biologists), Mike McNamara (Forest Hydrologist), and Kim Johansen (Engineer).

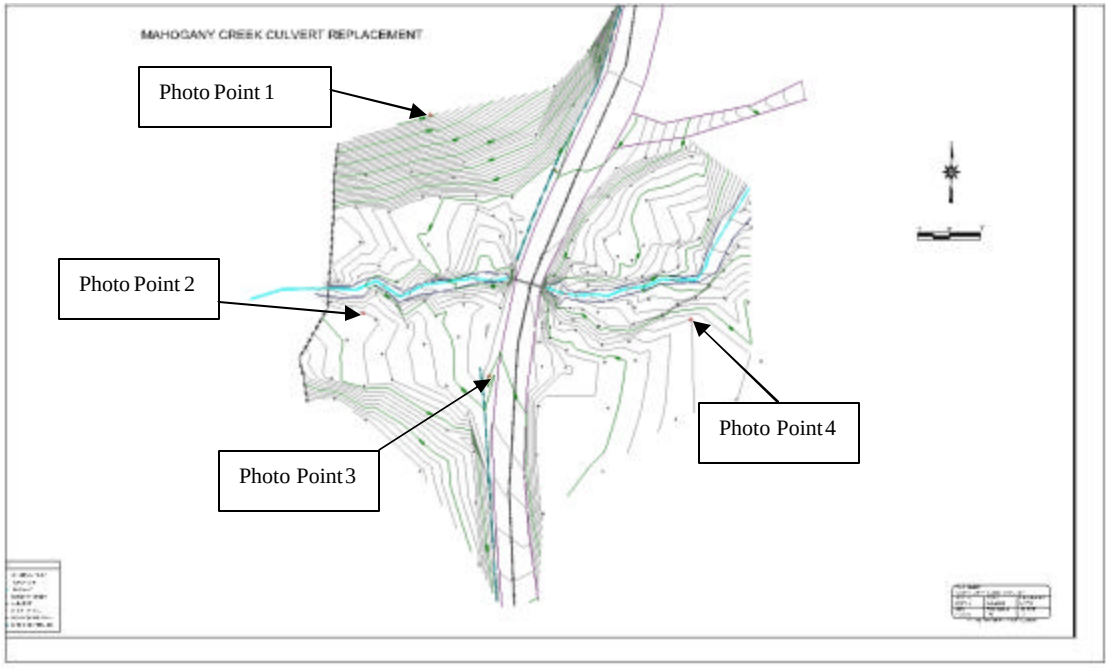
Randy Nielson, Dana Orrick, Kim Johansen, Alan Miller and Rick Christian were responsible for most of the project implementation. Randy and Rick were ultimately responsible for writing, letting and administering the contract to perform the work. This included on-site project oversight and inspection almost every day that the contractor was doing the work. The contractor (Cherokee General Corporation) was responsible for all of the phases of project implementation, as specified in the contract.

This project had four separate funding sources. The Grande Ronde Model Watershed Program, the Oregon Watershed Enhancement Board, the Pacific Coastal Salmon Recovery Fund (PCSRF) and the Pacific Salmon Commission- Southern Fund were the primary funding partners on this project. The PCSRF supplied funding to obtain the designs that were included with the grant applications to the other funding sources. This was done using a separate contract to Anderson, Perry and Associates. The itemized budget, including the amount of each partner's contributions, is contained in the *Expenditures* portion of this report.

PROJECT AREA DESCRIPTION

The project map that was included with the original proposal does meet the specifications identified in the completion report guidelines. However, there is one included below that shows the location of the permanent photographic points that are part of the implementation and effectiveness monitoring plan for this project (also refer to Figure 2, above). These locations correspond to four of the five control points associated with the surveys that were conducted prior to implementation. In addition to the photographic points shown in the following figure, additional photographs were taken and will continue to be taken at the inlet and outlet of the culvert.

Figure 8. Map showing the photo points that are incorporated in the project's monitoring plan.



DISCUSSION

In general this project went very well, especially the actual construction work. This was mostly due to having an extremely competent contracting project manager and gifted equipment operators on site at all times. Simply by showing the contractor what the desired outcome was by walking upstream of the project site, the idea was easily conveyed. Additionally, the contracting project manager had some very helpful and insightful suggestions throughout the project.

The benefits of completing this project have already been discussed and are fairly obvious. Replacing this structure has created proper drainage during at least a one hundred year flood event. The benefits of this project are re-opening of 3.5 miles of critical habitat in the Imnaha sub-basin, as well as road stabilization. The removal of this barrier resulted in increased access to more complex habitat types within the subbasin, decreased sedimentation and increased refugia areas during seasonal periods of

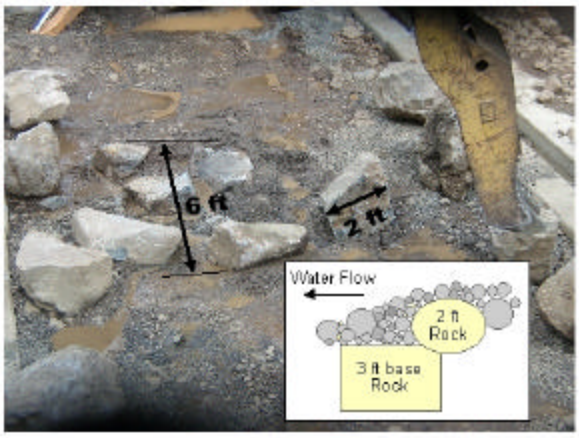
unfavorable flow conditions (extreme high flows or warm mainstem Imnaha River temperatures). An added benefit is the incorporation of the educational component via utilizing local high school students, as much as possible.

One of the issues that need further clarification relates to the contracting aspect of this project. The intent of this proposal from the beginning was to have the Forest Service administer the contract. Due to the length of time that would have been required for the Forest Service to perform the contract administration and the amount of time it took to get final contracts in place from the funding sources, they were not able to accomplish this task. It was therefore necessary for the Nez Perce Tribe to write, let and administer the contract. This was done in cooperation with the Forest Service and to their specifications. We were able to get the contract written, let and have a contractor selected within a two week period. Of course, the selection of the contractor was done jointly with the Forest Service, as well.

The fish salvage operation went very smoothly. However, two *O. mykiss* and two *A. truei* were found upstream of the old structure. The tailed frog tadpoles can fairly easily be explained as being upstream, as the adult tailed frogs are able to migrate over land. It can also be reasoned that the *O. mykiss* that were found upstream of the barrier were perhaps resident trout. As previously stated, this culvert has not always been a barrier. The problem was greatly exacerbated by the flood that occurred in January of 1997. So, it is reasonable to assume that there was a population of resident trout that were upstream of this structure. The replacement of this barrier will allow for migratory species to re-colonize this stream.

When the stream was dewatered, there were also some minor difficulties encountered. It became apparent that when using a pumping system, like that employed here, it is essential to establish the clean water bypass around the construction site prior to dewatering the work area. Unless the entire stream to the confluence is de-fished, the contractor has to maintain flows in the downstream stream reaches. As part of this project, a sump hole was excavated to capture the water and begin pumping prior to establishing this clean water bypass. This situation was rectified quickly, but did cause some initial concern.

The two grade control structures that were constructed within the new pipe also require some additional discussion. They were installed at different lengths along the longitudinal profile of the culvert to more closely approximate natural conditions and minimize an "artificial" look. The contract administrator desired to have them installed at "about" this distance to make the outcome a little more stream-like. It was also decided that these step



pools should contain rock of varying sizes along their longitudinal axis with the main part of them being the larger boulders, as per the designs. The actual step is depicted in the picture. In addition, this photo contains a depiction of the cross sectional view of each step. The smaller grey rocks shown in the diagram represent the natural channel simulation material that has been mentioned numerous times previously. Over time, a portion of the step might be exposed by scour; however, the addition of the natural channel simulation material will prevent all of the steps from being exposed. Of course, there were also many fines contained within this material that are not shown in this diagram.

The importance of layering, washing and compacting the stream simulation material can not be over stated. This iterative process of placing a layer of this material and making sure that it was saturated and compacted was essential in insuring that the water ultimately was on the surface, rather than sub-surface. This material was sealed in placed very meticulously and worked very well. By starting the watering and compacting at the downstream end of the new channel, the water was forced to the surface as the process proceeded upstream. This was due in part to utilizing gravity to help bring the water to the surface. If this process would have been done working downstream, there was a possibility that the water would have been forced down, rather than up to the surface.

In order to insure that this layer of natural channel material was compacted thoroughly enough, it was decided to use less of the large boulders within the bed of the newly constructed channel. This allowed natural channel material to penetrate the interstitial spaces between the large boulders and created a better "seal".

The results obtained from the pre-construction surveys that were conducted, help to demonstrate the channel conditions prior to construction and outside of the influence of the old culvert. When this is compared to the results obtained from the "As Built" survey information contained in the results section of this document, one can begin to compare the natural channel conditions to the conditions contained within the newly installed culvert (Figures 2-5, *Results* Section above). It is important to bear in mind that the As Built survey is an initial survey. After the end of the monitoring period, statistical analysis will be performed on all of the data collected to compare channel conditions at that time.

A cursory look at the longitudinal profiles obtained pre- and post-construction indicates that the new channel construction matched the existing channel profile. This would indicate that this aspect of the objective to simulate natural channel conditions was met.

One of the seeming differences between the two pebble counts is that it appears as though the substrate particle size located within the new structure contains less of the larger material than that located in the undisturbed stream. It is expected that with higher flow events, some of the fine sediment that is now located within the culvert will be redistributed downstream. There is an ample larger substrate gradation located within the natural channel simulation material that was used within the new structure. This aspect was discussed with the contractor multiple times with site visits to appropriate rock

sources. In addition, this component was monitored during the inspection phase of contract implementation. Some of this will be exposed during the next spring high water event. As previously mentioned, this will be closely monitored over time to insure that the particle size inside the culvert does simulate the channel particle size outside the culvert.

The planting and the monitoring will be an on-going effort for some time to come. The planting will be complete by next spring, when weather conditions permit. The monitoring will occur over a period of time, as previously discussed. The rationale for monitoring over this time frame will be to capture a higher flow event. This will require monitoring about three times over the next five years. The monitoring schedule will include the measurements that were collected this year, as part of the "As Built" protocol. Additional measurements will be taken next year at about the same time of year as was conducted immediately post-construction. This will be repeated two more times in the following four years. This will allow for a comparison of condition pre-construction to conditions for a long enough period of time that the structure will presumably be stable. In addition, monitoring of plant survival will occur over the same time period. This will be accomplished by counting all living shrub/tree species that are planted. Monitoring for the presence of noxious weeds will also occur during this time period.

As previously stated, the planting and monitoring components will incorporate an educational component utilizing high school students whenever possible. For the sake of consistency, the monitoring will be conducted by the same personnel every year. However, high school students will be involved with this as purely a learning experience for them. Other information will be collected solely by students. This information will include things like survival rates of planted materials.

CONCLUSION/RECOMMENDATIONS

In conclusion, this project went very well after construction actually started. There were some obstacles that were overcome along the way. However, the contractor did an incredible job getting the work done within a very short time frame. This project was also a very positive first step in developing a restoration partnership between the Nez Perce Tribe Watershed Division and the USDA- Forest Service. This was the very first actual restoration project that these two entities have completed together in Wallowa County. Thus, not only was the project a huge success in terms of restoration of habitat, but also in terms of building a strong working relationship that will last for years into the future. The Mahogany Culvert Replacement Project was the naissance project for many watershed restoration activities that will occur as a direct result of the partnership that has been developed.

The recommendations have already been previously discussed. One additional recommendation is to carefully select the contractor that will be performing the work. This could save the entire project in the long run. Another recommendation is to pay particular attention to the dewatering plan, as previously discussed at length. A final recommendation is to spend whatever time is necessary to do sufficient coordination on

the project up front. This was done as part of this project and resulted in a better end product.

REFERENCES

Brad Smith, ODFW, Fisheries Biologist, Personal Communication 2005.

Brett Moore, Anderson, Perry and Assoc, Personal Communication 2005.

Dana Orrick, Forest Service, Hydrologist, Unpublished Data, November 17, 2004.

Ken Bronec, Forest Service, Fisheries Biologist, Personal Communication 2005.

Ken Bronec, Forest Service, Fisheries Biologist, Personal Communication 2004.

Gretchen Sausen, USFWS, Fisheries Biologist, Personal Communication 2005.

SUMMARY OF EXPENDITURES

The actual invoice obtained from the contractor for the construction phase of this project is shown in Appendix A below. The table below itemizes the actual project expenditures by funding source to date. As the contracted services included all components of project implementation, these are not independently itemized. The contract is a lump sum payment for services, materials and supplies, which included all rock, gravel, culvert, footings, excavation and etcetera to complete the project. As previously stated, the PCSRF funding was utilized to obtain the engineering designs that were submitted with the original proposal. The planting that will occur next spring will be in kind labor supplied by the high school students and is listed under the Nez Perce Tribe contribution column.

Table 1. Project budget expenditures to date.

Mahogany Culvert Replacement Project Budget							
Description	**Funding Source**						
	OWEB	**GRMWP**	**Forest Service**	**PSC-Southern Fund**	**PCSRF**	**Nez Perce Tribe**	**Total**
Contracted Services	**$33,683**	**$35,956**	**$0**	**$55,361**	**$6,000**	**$0**	**$131,000**
Non-Contracted Services							
Planning & Coordination			$4,800				**$4,800**
Contract Preparation			$2,000				**$2,000**
Permit Applications			$1,500				**$1,500**
Site Survey						$1,000	**$1,000**
NEPA compliance documentation			$5,000				**$5,000**
Re-establish vegetation/Site Reclamation	$1,410		$1,150			$1,000	**$3,560**
Monitoring & Maintenance	$2,160	$2,160	$2,160				**$6,480**
Subtotal	**$3,570**	**$2,160**	**$16,610**	**$0**	**$0**	**$2,000**	**$24,340**
Direct Project Total	**$37,253**	**$38,116**	**$16,610**	**$55,361**	**$6,000**	**$2,000**	**$155,340**
Administration	**$1,451**	**$2,361**	**$2,080**		**$2,361**		**$8,253**
Indirect Costs	**$430**	**$700**	**$354**		**$700**		**$2,184**
Project Total	**$39,135**	**$41,176**	**$19,044**	**$55,361**	**$9,061**	**$2,000**	**$165,777**
Percent of total budget	**24%**	**25%**	**11%**	**33%**	**5%**	**1%**	**100%**

Appendix A. Contractor's invoice for project construction.

CHEROKEE CONSTRUCTION SERVICES LLC

Environmental Contractor

Date: 8/15/06

To: Nez Perce Tribe
DFRM-Watershed Division
Attn: Rick Christian
612 SW 2nd Street
Enterprise, OR 92828

COPY

Reference: Contract No. Mahogany Creek Culvert Replacement
Cherokee Construction Project No. 06030c
Upper Imnaha Rd. Wallowa-Whitman National Forest, OR

Subject: Progress Payment Request No. 01

Please accept the following statement of account for our application for payment on the above referenced project.

1	Original Contract Amount	$127,500.00
2	Value of Changes Approved to Date	0.00
3	Adjusted Contract Amount (items 1 + 2)	127,500.00
4	Value of Original Contract Work Completed [total to date]	125,000.00
5	Value of Changes Work Completed [total to date]	0.00
6	Materials stored on site	0.00
7	Totals (items 4 + 5 + 6)	125,000.00
8	Retainage @ 5% [project total to date]	0.00
9	Total, Less Retainage [project total to date]	125,000.00
10	Amount Previously Billed	**$0.00**
11	**TOTAL AMOUNT THIS REQUEST**	**$125,000.00**

Please notify us immediately of any changes that are to be made to this request, so we can review them and make any necessary adjustments to our records.

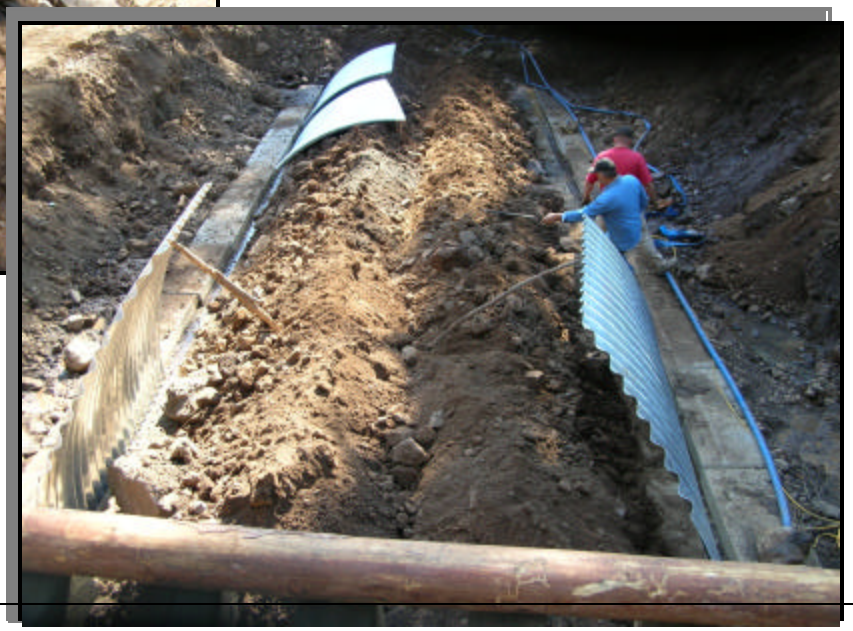
Respectfully,

Cherokee Construction Services, LLC

P.O. Box 123 North Bonneville, Washington 98639 • Phone: 971-563-3937 • Fax: 509-427-4125
OR CCB# 158163 • www.cherokeeconstruction.biz • WA # CHEROCS951J8

Appendix B. Project Overview photograph series.


CAT
CAT




CAT


CAT